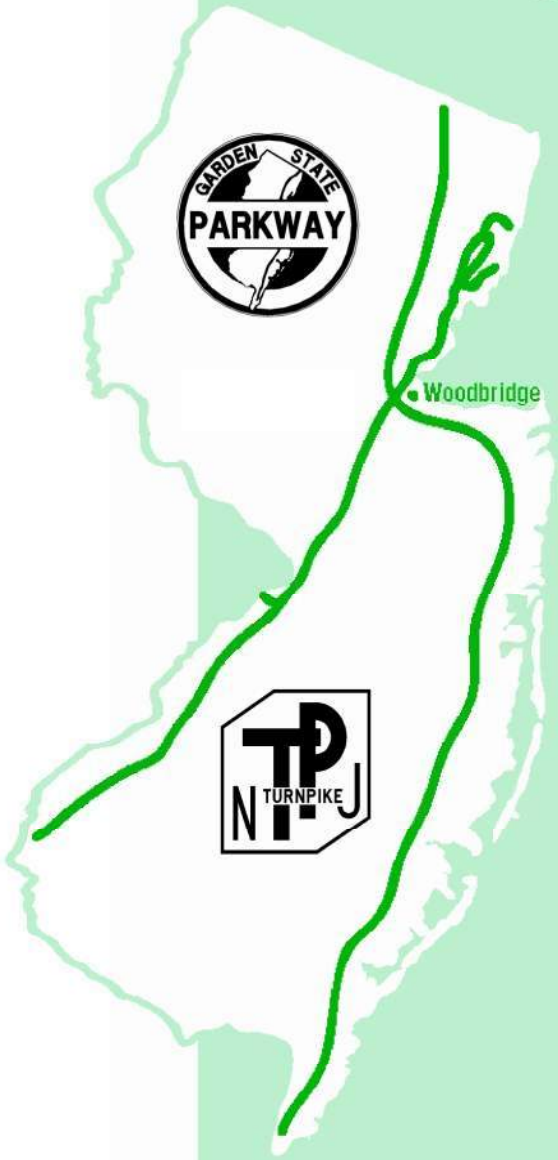
NEW JERSEY TURNPIKE AUTHORITY

GARDEN STATE PARKWAY

NEW JERSEY TURNPIKE



BRIDGE INSPECTION PROGRAM

MANUAL FOR SIGN STRUCTURE INSPECTION

VERSION 1.2
NOVEMBER 2022

Table of Contents

LIST OF FIGURES

To be added at a later date.

LIST OF PHOTOS

To be added at a later date.

SUMMARY OF VERSION 1.2 REVISIONS (NOVEMBER 2022)

The Manual for Sign Structure Inspection, Version 1.1, November 2021 has been updated to Version 1.2, November 2022. The major changes are as follows:

- Updated Section 5 Inspection Planning and Preparation to include Schedule Management, AssetWise Inspection (AWI) Access Request Forms, and Project Specific QA/QC Plan.
- Updated Section 6 Types of Inspection to include Damage and Interim Inspections.
- Updated Section 7 MPT Requirements to include the email notification for Team Leader (BILOC).
- Updated Section 8.n General Provisions to include AssetWise guideline for signed Anchor Bolt Ultrasonic Testing Report.
- Removed Section 12 Inspection Report Templates due to redundancy with the Sample Report.
- Updated Section 12 (Formerly Section 13) Sample Report to include the most recent report.
- Updated Section 13 (Formerly Section 14) Sign Structure Inventory to include the latest Turnpike and Parkway sign structure inventories (as of 08/02/2022).

Please review the entire Manual for Sign Structure Inspection for additional revisions not listed above but included as part of the Version 1.2 revisions.

SUMMARY OF VERSION 1.1 REVISIONS (NOVEMBER 2021)

The Manual for Sign Structure Inspection, Version 1.0, December 2020 has been updated to Version 1.1, November 2021. The major changes are as follows:

- Updated Section 3 (Definitions) to include definition of Sign Structure, expanded definition of Support Staff, and eliminated Bridge, Culvert and Non-redundant configuration.
- Updated Section 4 (Types of Sign Structures) to include Mast Arm Sign and Mono-Tube and updated write up on each type of sign structure.
- Updated Section 8. o. (General Provisions) to include the anchor bolt Ultrasonic Testing requirement discussion.
- Updated Section 8. p. (Minimum Required Photographs) to include 3 and 4 chord signs and Vierendeel.
- Updated Section 9. d. (Inspection Elements) to include additional common/typical deficiencies.
- Updated Section 12 (Inspection Report Template) to include minor revisions to existing forms (See Section 12 for details) and new forms (Sign Anchor Bolt Ultrasonic Testing Report Forms, Chord Splice Sheet, and Clearance).
- Updated Section 14 to include the latest Turnpike and Parkway sign structure inventories (as of 06/01/2021).
- Added Section 15 which includes the FHWA Ultrasonic Anchor Inspection Procedure.

Please review the entire Manual for Sign Structure Inspection for additional revisions not listed above but included as part of the Version 1.1 revisions.

1. PURPOSE

The purpose of the New Jersey Turnpike Authority's (Authority) Bridge Inspection Program is to inventory and document the physical characteristics, conditions and emergency/priority findings of all Authority owned structures including bridges, culverts, sign structures, noise barriers/ retaining walls, high mast light poles (HMLP), and antenna towers. The data and information collected in the field during sign structure inspections is utilized for the purpose of managing, maintaining, repairing, replacing, and monitoring the Authority's sign structure inventory. There is currently no federal mandate for the inventory and inspection of sign structures.

The Authority's current sign structure inventory includes various types such as overhead span (sign bridges), cantilever, and butterfly. Recent widenings along both roadways have increased the sign structure inventory, particularly at interchanges, in addition to construction of new Vierendeel VMS sign structures along both roadways. Due to their typically non-redundant configuration and close proximity to the roadway, sign structures have the potential to directly impact the safety and welfare of the travelling public and it is imperative they remain in a state of good repair. Therefore, the Authority's sign structure inspections focus primarily on structural evaluation and functionality.

This Sign Structure Inspection Manual provides guidance to performing structural condition inspections of sign structures owned by the Authority. This manual details procedure to properly document the inventory and inspection data utilizing standard inspection and report forms in the Authority's AssetWise Inspection (AWI) database, supplemented by field notes, sketches and photographs, as required. This manual does not address safety and work zone traffic control requirements which are specified in the Authority's Manual for Traffic Control in Work Zones (https://www.njta.com/doing-business/professional-services/publications/manuals/traffic-control). Authority safety and work zone traffic control standards must be applied for all fieldwork which in turn must be performed by qualified and experienced engineering personnel and staff.

This manual does not specifically include the inspection of steel, aluminum, or timber ground mounted signs within the Authority's Right of Way. However, these signs may be inspected in accordance with the requirements outlined in this manual.

2. ROLES AND RESPONSIBILITIES

Refer to Section 4 of the Authority's Bridge Inspection Program Quality Management Plan (latest version) for specific roles and responsibilities of the Authority, the Bridge Inspection Program Technical Manager, and the Inspection Consultant, as they pertain to the inspection of sign structures. Refer to Section 3 of this manual (Definitions) for the specific definitions, roles, and responsibilities of the Team Leader (TL), Assistant Team Leader (ATL) and Support Staff (SS) performing inspection of the Authority's sign structures.

3. DEFINITIONS

Refer to Section 3 of the Authority's Bridge Inspection Program Quality Management Plan (QMP) (latest version) for bridge inspection program definitions (https://www.njta.com/media/5606/2020-08-28-bi-program-quality-management-plan_v12-final.pdf).

The following definitions are specific to sign structure inspections (and definitions for TL and ATL in the QMP have been expanded upon):

Team Leader (TL) – An individual of the Inspection Consultant trained and certified and in charge of an inspection team who is ultimately responsible for planning, preparing, and performing field inspections, and can accurately evaluate and document findings of a given sign structure (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel). During the inspections, the Team Leader must be accompanied by at least one other team member which may include an ATL or SS.

Assistant Team Leader (ATL) – An individual of the Inspection Consultant assisting the Team Leader with planning, preparation and performing field inspection of a given sign structure. (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel).

Support Staff (SS) – An individual of the Inspection Consultant supporting the Team Leader with the field inspection of a given structure. The support staff assists the TL performing inspections and can assist in the following inspection related tasks: taking and logging photographs, vertical under clearance measurements and movement of various inspection equipment (TMA or bucket truck) but is not considered qualified to perform any inspections. Support staff may act as a spotter to observe the individuals performing the climbing of overhead sign structures on the Turnpike.

Sign Structure – A structure that supports sign panels above the roadway and is supported on tower/posts or structural frames. Sign structure types include span (sign bridge), cantilever, butterfly, and bridge mounted.

4. TYPES OF SIGN STRUCTURES

a. SINGLE PLANE VIERENDEEL SIGN BRIDGE

Single Plane Vierendeel Sign Bridges (SPV) are located along the Parkway. These sign structures typically:

- Carry standard sign panels without any maintenance walkways or lighting and/or VMS (Variable Message Sign)
- Consist of a weathering steel single plane Vierendeel style truss (two main horizontal chords (one lower chord and one upper chord) with welded vertical struts with or without intermediate flange sets or spliced vertical members)
- Are supported by one weathering steel tower/post at each end with the truss sitting within the tower/post. The truss is mechanically fastened to the tower/posts, and the tower/post are mounted on reinforced concrete pedestals or drilled shaft foundations

Front

Rear

b. DOUBLE PLANE VIERENDEEL SIGN BRIDGE

Double Plane Vierendeel Sign Bridges (DPV) are located along the Parkway. These sign structures typically:

- Carry standard sign panels and/or VMS sign panels without any maintenance walkways or lighting
- Consist of a weathering steel dual plane Vierendeel style truss (four main horizontal chords (two lower chords and two upper chords) with welded vertical and horizontal struts with or without intermediate flange sets or spliced vertical members)
- Are supported by two weathering steel tower/posts at each end with the truss sitting within the tower/posts. Horizontal struts span between the tower/posts at each end. The truss is mechanically fastened to the tower/posts, and the tower/posts are mounted on reinforced concrete pedestals or drilled shaft foundations

Front

Rear

c. VIERENDEEL VMS/VSLS SIGN BRIDGE

Vierendeel VMS/VSLS Sign Bridges are located on both the Parkway and Turnpike. These sign structures typically:

- Carry VMS/VSLS (Variable Speed Limit Sign) sign panels and/or standard sign panels
- Include an enclosed maintenance walkway within the truss
- Consist of a weathering steel dual plane Vierendeel style truss (four main horizontal chords (two lower chords and two upper chords) with welded vertical and horizontal struts with or without intermediate flange sets or spliced vertical members)
- Are supported by two weathering steel end frames consisting of two tower/posts at each end with diagonal and horizontal struts spanning between the tower/posts in an A type frame. The truss sits on top and is mechanically fastened to the end frame. The tower/posts are mounted on reinforced concrete pedestals or drilled shaft foundations

Front

Rear

d. VIERENDEEL CANTILEVER

Vierendeel Cantilever Sign Structures are located on the Parkway. These cantilever sign structures typically:

- Carry a standard sign panel and/or VMS sign panel
- Consist of a weathering steel single plane Vierendeel style truss (two main horizontal chords (one lower chord and one upper chord) with welded vertical struts with or without spliced vertical members)
- Are supported by one weathering steel tower/post with the truss mechanically fastened by the flange sets to the tower/post or fastened directly through the tower/post within a sleeve. The tower/post is mounted on reinforced concrete pedestals or drilled shaft foundation

Front

Rear

e. VIERENDEEL BUTTERFLY

Vierendeel Butterfly Sign Structures are located on the Parkway. These butterfly sign structures typically:

- Carry a standard sign panel and/or VMS sign panel
- Consist of a weathering steel single plane Vierendeel style truss on each side of the tower/post (two or more main horizontal chords with welded vertical struts with or without spliced vertical members)
- Are supported by one weathering steel tower/post with each truss mechanically fastened by flange sets to the tower/post or fastened directly through the tower/post within a sleeve. The tower/post is mounted on a reinforced concrete pedestal or drilled shaft foundation

Front

Rear

f. THREE CHORD SIGN BRIDGE

Only one remaining Three Chord Sign Bridge (MP 117.89TW) is located along a Turnpike ramp. This three-chord truss sign bridge structure:

- Carries standard sign panels
- Consists of an aluminum dual plane truss (three main horizontal chords with welded diagonals and verticals without intermediate flange sets)
- Is supported by one aluminum tower/post at each end with the truss sitting within the tower/posts. The truss is mechanically fastened to the tower/posts, and the tower/posts are mounted on reinforced concrete pedestals or drilled shaft foundations

Front

Rear

g. FOUR CHORD SIGN BRIDGE

Four Chord Sign Bridges are located along the Turnpike and Parkway roadways. These sign structures typically:

- Carry standard sign panels, VMS, and/or changeable message signs
- May or may not include a maintenance walkway and lighting
- Consist of a weathering steel, aluminum, or galvanized steel dual plane truss (four main horizontal chords (two lower chords and two upper chords) with welded diagonals and verticals with or without intermediate flange sets
- Are supported by two weathering steel, aluminum, or galvanized steel end frames consisting of two tower/posts at each end with intermediate bracing. The truss rests on top of two horizontal struts at each end frame and is secured in place by mechanical fasteners. The tower/posts are mounted on reinforced concrete pedestals or drilled shafted or other foundations

Front

Rear

h. CANTILEVER

Cantilever Sign Structures are located on the Turnpike. These cantilever sign structures typically:

- Carry standard sign panels with or without lighting
- Consist of a weathering steel or galvanized steel single plane truss (two main horizontal chords (one lower chord and one upper chord) with welded verticals and diagonals)
- Are supported by one weathering steel or galvanized tower/post with the truss mechanically fastened by the flange sets to the tower/post. The tower/post is mounted on a reinforced pedestal or drilled shaft foundation

Front

Rear

i. BUTTERFLY

Butterfly Sign Structures are located along the Turnpike. These butterfly sign structures typically:

- Carry standard sign panels with or without lighting
- Consist of a weathering steel or galvanized steel single plane truss (two main horizontal chords (one lower and one upper chord) with welded verticals and diagonals)
- Are supported by one weathering steel or galvanized tower/post with the truss mechanically fastened by flange sets to the tower/post. The tower/post is mounted on a reinforced concrete pedestal or drilled shaft foundation

Front

Rear

j. BRIDGE FASCIA MOUNTED

Bridge Fascia Mounted Sign Structures are located along both the Parkway and Turnpike. These sign structures typically:

- Carry standard sign panels and may include lighting
- Are supported by galvanized steel or aluminum hangers and horizontal wind-beams
- Are mechanically fastened directly to the bridge fascia parapet, bridge deck and/or adjacent fascia girders

Note: These sign structures are typically inspected during the biennial bridge inspections and are not included in the sign structure inspections. Deficiencies are coded in a section of the bridge inspection forms and documented in the Element Level Inspection.

Front

k. CANOPY MOUNTED

Canopy Mounted Sign Structure is located at one location atop the Parkway Raritan Toll Plaza (MP 125.6S). This sign structure:

- Carries a VMS sign
- Is supported by galvanized steel hangers and horizontal wind-beams
- Is mechanically fastened directly to the toll plaza canopy structure

Front

Rear

I. ART DECO

Art Deco Sign Structures are located at three locations along the Hudson County Extension of the Turnpike. The term Art Deco refers to a pre-1950 architectural style characterized by bold outlines, geometric designs, and zigzag forms. These sign structures are some of the oldest sign structures owned by the Authority and have been preserved and even relocated in some cases for their heritage. These sign structures:

- Carry standard overhead sign panels and may include a maintenance walkway between the supporting members
- Are supported by painted steel riveted or welded primary members fastened to painted steel or concrete end frames

Front (MP N8.12WR)

Rear (MP N8.12WR)

Front (MP N8.25)

Rear (MP N8.25)

m. MAST ARM

There are two Mast Arm (Monotube Type) Sign Structures (TPK MP 91.32E and GSP MP 136.1 135NBX) both of which are utilized as Lane Control Systems. These sign structures typically:

- Carry standard and LED sign panels
- Consist of a single galvanized steel cantilever arm
- Are supported by a single galvanized steel mast with the arm mechanically fastened by the flange set to the tower/post. The mast is mounted on a reinforced concrete pedestal or drilled shaft foundation

Front

Rear

5. INSPECTION PLANNING AND PREPARATION

a. QUALIFICATIONS

Key project personnel shall possess relevant training and experience demonstrating:

i. Successful completion of National Bridge Inspection Standards (NBIS) inspections of sign structures, effective inspection scheduling, and report preparation and submission.

ii. TL performing sign structure inspections must meet the following requirements for experience in addition to the requirements outlined in the document within "Qualifications of Key Bridge Inspection Personnel" on the Authority's website at http://www.njta.com/doing-business/njta-bridge-inspect-program under the heading "Bridge Inspection Program" and as summarized on the NJTA Bridge Inspection Qualification Summary Form QAF3 - Quality Assurance Audit.

TL who are registered professional engineers shall have a minimum of one year of sign structure inspection experience. A minimum of two years of prior inspection experience is required without a PE. The TL must be physically and mentally capable of climbing through the truss while over live traffic to allow for the performance of a hands-on inspection of the Turnpike three and four chord truss signs and the Parkway and Turnpike Vierendeel VMS signs.

iii. ATL performing sign structure inspections must meet the following requirements for experience in addition to the requirements outlined in the document within "Qualifications of Key Bridge Personnel" on the Authority's website at http://www.njta.com/doing-business/njta-bridge-inspect-program under the heading "Bridge Inspection Program" and as summarized on the NJTA Bridge Inspection Qualification Summary Form QAF3 - Quality Assurance Audit.

ATL shall have one year of prior sign inspection experience.

iv. The TL, ATL and SS of the awarded Inspection Consultant shall attend a field demonstration provided by the Authority which shows inspection access and methods including the proper use of an articulating bucket truck. See **Section 8** for additional details.

v. There are no qualification requirements for SS.

b. TEAM COMPOSITION

All inspection teams must consist of a minimum two-person crew and include a TL, and an ATL and/or SS. An inspection team may consist of any of the following three combinations: TL with ATL, TL with ATL and SS, and TL with SS.

A team comprised of a three-person crew (TL, ATL and SS or other) is required when the TL and ATL are performing climbing inspections over traffic. The SS remains on the

ground to observe the climbing operation and have quick access to the TMA in the event of a fall.

c. INSPECTION DOCUMENTATION REQUIREMENTS

A successful sign structure inspection requires that the inspection team have on-hand all available design and inspection documents such as construction contract plans (if available), and previous inspection reports related to the structure being inspected. These documents will aid the inspection team in determining as-built conditions and any changes in previously reported conditions or deficiencies. Refer to the standard sign structure inspection forms and the sample report included in Section 9. These documents show the fields and supplemental sketches needed to collect data and information to be included in the inspection reports.

d. STANDARD SIGN STRUCTURE INSPECTION EQUIPMENT

The inspection team may be required to have any or all of the following equipment on hand when performing sign structure inspections, depending on the details and location of the sign structure being inspected:

- Refer to the work zone traffic control requirements which are specified in the Authority's Manual for Traffic Control in Work Zones (https://www.njta.com/doing-business/professional-services/publications/manuals/traffic-control) and includes discussion of the proper use of Truck Mounted Attenuators, signs, traffic cones and flags, flashing amber lights on vehicles on the roadway, and identification for vehicles located within the Authority's Right of Way.
- Bucket truck
    - Articulating bucket truck for the cantilever and butterfly signs.
- Personal Protective Equipment including hard hats, reflective high visibility vests, eye protection, gloves, safety harnesses and lanyards.
- Basic access equipment such as a step ladders, extension ladders and ropes.
- Tools for cleaning including whisk brooms, wire brushes, scrapers, and shovels.
- Tools for inspection including chipping hammers, pocketknives, screwdrivers, or awls, magnifying glass, dye-penetrant test kit, borescope, high power binoculars, flashlights, mirrors, and magnets.
- Tools for measuring including plumb bobs, protractors, levels, folding rulers, calipers, measuring tapes, thickness gauges, D-meters, clearance measuring rods or laser measuring devices.
- Tethers for all equipment used, especially when located over live traffic (while climbing).

- Digital camera.
- Wrenches or screwdrivers for removing and reattaching access covers.
- Marking utensils such as keel or lumber crayons.
- First Aid kit.

e. SCHEDULE MANAGEMENT

The inspection consultant shall submit a general schedule showing the dates for the milestone tasks in the project to the Authority at the beginning of the project. A comprehensive schedule (master inspection and report submission schedule) showing anticipated dates for inspection, data input, preliminary and final report submission, comments received, QA/QC dates along with additional comments shall be created by the inspection consultant and will be used to track the progress of the project. In addition, an updated version of the comprehensive schedule shall be submitted to the Authority and BIPTM monthly before the 7th day of each month.

f. ASSETWISE INSPECTION (AWI) ACCESS REQUEST FORMS

The inspection consultant shall complete the AssetWise Inspection access request forms provided by BIPTM via email and submit to BIPTM (AWI administrator) for project staff to obtain access to AssetWise.

g. PROJECT SPECIFIC QA/QC PLAN

A project specific QA/QC plan, as defined in the Authority's Bridge Inspection Program Quality Management Plan, shall be submitted to the Authority for review and approval.

6. TYPES OF INSPECTION

a. INVENTORY

This initial inspection shall be performed during the next regularly scheduled sign structure group inspection assignment following construction completion. Since the Authority's maximum sign structure inspection frequency is six years, an Inventory inspection of a new sign structure could be performed up to six years after construction completion.

These inspections are intended to facilitate entering the structure into the Authority inventory and will serve as the baseline for the as-built condition of the structure. This inspection type involves locating the structure, recording all general information from review of the plans or field collection including but not limited to structure type, mounting type, coatings, length, number of truss sections/chord splices and a first cycle inspection of all structure components, attachments, and safety features.

b. ROUTINE

The frequency for sign structure inspections is not mandated by FHWA since these are considered ancillary structures. The Authority has elected to routinely inspect the in-service sign structures at the following frequencies based on structure type/materials:

- Two years for:
    - MP 146.4N (aluminum four chord sign bridge) and MP 148.9N (aluminum butterfly sign structure)
    - bridge fascia mounted signs (inspected during NBIS bridge inspection)
- Six years (All other signs)

These inspections consist of verifying all basic structure data recorded during the initial Inventory inspection or prior routine inspection and performing an inspection of all visible and accessible structural components. The components are inspected for changes in previously reported conditions and development of new conditions. For this inspection the previous cycle inspection report shall be on-hand for referencing purposes.

c. SPECIAL

A special inspection is a unique inspection effort targeted at special situations or conditions and may be performed to study a unique or unusual structural feature in greater detail than would have normally occurred during a routine inspection. Special inspections encompass a 100% hands-on inspection of specific components, details, or deficiencies which need special monitoring and/or evaluation. In planning a special inspection, the TL shall understand the goal of the inspection to help determine the equipment and traffic control needed to obtain the necessary condition information for the elements requiring

inspection. Examples of special inspections, and their definitions, include, but are not limited to the following:

- *Post Storm Inspection*: Inspection of a structure subsequent to extreme weather conditions such as a hurricane or high wind events in order to determine the onset or advancement of any documented damage
- *Structural Detail Inspections*: Inspection of structural details, components and/or materials that have been previously or recently identified to exhibit advanced corrosion, cracking, or other signs of distress, which may result in potential failure and warrant additional inspections

d. DAMAGE

This is an unscheduled inspection of a sign structure that has been damaged by an event such as a motor vehicle accident (MVA), including but not limited to vehicular impact to a foundation, tower/post, or end frame or overheight vehicle impact to the truss members, sign panels, walkways, or lighting assemblies.

e. INTERIM

This is an inspection scheduled at the discretion of the individual in responsible charge of sign structure inspection activities. An Interim Inspection is used to monitor a particular known or suspected deficiency (e.g., foundation settlement or scour, member condition, etc.) and can be performed by a qualified person familiar with the sign structure. The determination of an appropriate Interim Inspection frequency should consider the severity of the known deficiency.

7. MPT REQUIREMENTS

a. LANE / SHOULDER CLOSURE

All closures along the Turnpike and Parkway must be approved by the Authority's Operations Department. Sign structure inspections performed along the Turnpike and Parkway shall be performed behind guide rail or other existing roadside barriers, where feasible. When work must be conducted in a closed lane or shoulder, the Inspection Consultant shall provide traffic control in accordance with the current edition of the Authority's Manual for Traffic Control in Work Zones. The Inspection Consultant shall also provide traffic control on local and state roads in accordance with the governing agency's requirements.

b. TRAFFIC PERMIT

A Traffic Permit is required for any work within the Authority Right of Way. The Traffic Permit Application form and instructions can be found online at the Authority's website: https://www.njta.com/about/traffic-permits. Applicants for the Traffic Permit will be required to attend a meeting and view a training video conducted by the State Police in conjunction with the Authority to learn lane/shoulder closure and work zone procedures. Note, the Authority requires that a daily shoulder closing be installed by Maintenance or an approved vendor for any inspections which require more than 1-hour duration along the mainline and for any ramps. Maintenance will accommodate a closing up to 5 miles long depending on location and other work being performed on the roadway.

For additional information refer to the Authority's Manual for Traffic Control in Work Zones at https://www.njta.com/media/1501/njta_traffic_control_manual_in_work-zones_122016.pdf

c. DAILY LOCATION NOTIFICATION

Team Leaders are required to email a Bridge Inspection Location (BILOC) notification to the BIPTM and the Authority daily and before commencing field work. The BILOC shall consist of the following information:

OPS: XXXX
Sign Structure
Roadway: Parkway or Turnpike
MP (use exact structure number in anticipated order):
Team Leader last name:
Phone Number:
MPT (indicate location where closing is and reason):

8. SIGN STRUCTURE INSPECTION PROCEDURE

The procedure for inspection of sign structures varies by sign type and location. Inspection of all sign structures listed in **Sections 8.a. through 8.m.** may require the use of a daytime short duration shoulder closing (one hour of work allowed within a two-hour window in accordance with Drawing TP-7). Inspection of sign structures listed in **Sections 8.a., 8.b., and 8.c.** require the use of a bucket truck for an 8-point binocular inspection. Additionally, sign structures listed in **Sections 8.a., 8.b., 8.d., 8.e., 8.f., 8.g., 8.h., 8.i., and 8.m**. require the use of an articulating bucket truck. Climbing over live traffic is required for hands-on inspection of three and four chord sign bridges on the Turnpike only. Climbing over live traffic is not permitted when inspecting Vierendeel sign bridges on the Parkway. Coordination with the Authority's Operations Department for any maintenance installed or short duration shoulder closings is required and may also be needed for State Police assisted slow downs in order to perform hands-on inspections of any areas of concern found during the visual inspection of the sign structures in **Sections 8.a through 8.c. and 8.l.** in both roadways.

a. SINGLE PLANE VIERENDEEL SIGN BRIDGE

These sign structures require inspection of both end frames and an eight-point binocular inspection at the high and low vantage points from all four corners (front and rear) viewing the upper/lower chord, members of the entire truss, chord flanges when present and all sign panel / structure attachments. The inspection of the end frame nearest to the median may need to be conducted utilizing the shoulder of the adjacent roadway if the sign spans a roadway with a left shoulder narrower than 10' in width.

Front

Rear

b. DOUBLE PLANE VIERENDEEL SIGN BRIDGE

Refer to the inspection procedure listed in Section 8.a. for the inspection procedure to be used for these sign structures.

Front

Rear

c. VIERENDEEL VMS SIGN

For these types of sign structures, accessing the structure by parking behind the guide rail is preferred. Inspection of these sign structures may require the use of a short duration shoulder closing to access the fully enclosed maintenance walkway and inspect the end frames. In addition, utilize an eight-point inspection at the high and low vantage points from all four corners (front and rear) viewing the upper and lower chords, members of the entire truss, and all sign structure attachments. The inspection of the far end frame may need to be conducted utilizing the shoulder of the adjacent roadway if the structure spans a roadway with a shoulder narrower than 10' at the median, else a lane closure is required. The inspection shall include the use of the fully contained maintenance inspection walkway, utilizing the 8' step ladder (stored flat on the walkway) at all cross-beam locations and to assist in the inspection of the upper chords. When chord flange sets are present, a small handheld telescopic stick mirror shall be utilized from and through the maintenance walkway to inspect any hard to reach or closely spaced areas.

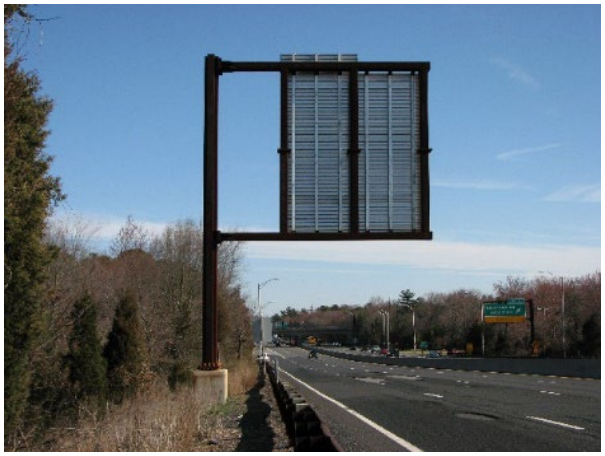
Front

Rear

d. VIERENDEEL CANTILEVER

Inspection of these sign structures requires the use of an articulating bucket truck preferably parked off roadway and behind guide rail. If access to the area behind the guide rail is not viable then it will require the use of a short duration shoulder closing (daytime preferred). Inspection of these structures requires the use of an articulating bucket truck in order to access the portion of the truss over the travel lanes allowing the bucket/arm to stay within the profile of the sign while reaching over the travel lane. At no point in time shall the bottom of the bucket or arm protrude beyond the bottom of the sign panel when over live traffic.

Front



Rear

e. VIERENDEEL BUTTERFLY

Refer to the inspection procedure listed in Section 8.d. for the inspection procedure to be used for these sign structures.

Front

Rear

f. THREE CHORD SIGN BRIDGE

Inspection of this sign structure shall be performed during daytime hours utilizing a Maintenance installed ramp lane closing to access the truss members via climbing and facilitate inspection of the nearest end frame. A short duration right shoulder closure shall be utilized in the adjacent roadway to access the far end frame. A TMA shall be utilized to protect the bucket truck and inspection team at all times.

Front

Rear

For the purpose of inspecting the truss, the fully tethered TL will climb through the entire truss over live traffic, from the near end frame to the far end frame, providing hands-on inspection of the truss, including all truss member welds on all sides of the truss and the attached signs. The climbing inspection performed by the TL may be supplemented with concurrent climbing inspection by the ATL for longer spans, but cannot be supplemented with climbing inspection by the SS. All inspection equipment shall be fully tethered. The welds include connections between cross members (vertical, horizontal, and diagonal) to the chord, and connections from the chord(s) to flanges. A small handheld telescopic stick mirror shall be utilized to view any welds which are on outside faces of members and not easily visible while climbing. All attachments including end frame to chord, flange to flange, chord to hanger, hanger to stringer, stringer to sign panel, and sign panel to sign panel shall also receive a hands-on inspection.

Inspection of the sign walkway shall also be performed during this shoulder closing, when there is one present. This shall involve the fully tethered TL walking the full length of the walkway while raising/pinning sections of the Speed Rail railings.

Access to the far end frame and foundation may be achieved after climbing through the length of the truss and down the far end frame, but not when the far end frame is located along or atop a median where the TL or ATL is in close proximity to the travelling vehicles.

A short duration shoulder closing may be used to inspect the foundation and far end frame when climbing down is not possible but can only be utilized if the shoulder width is 10' or greater, else a lane closure is required.

An overnight or off-peak Maintenance installed lane closing may be required for sign structures where insufficient width is present (typically at toll plazas). These closings will need to be approved by the Authority's Operations Department.

A TMA must be present on the roadway for all overhead sign structure inspections for the full duration of the inspection while the TL is climbing across the roadway regardless of how the truss is accessed. If an ATL is providing support to the TL by also climbing the truss, then a third team member (SS or other) shall be included in the team to operate the TMA. Refer to the Section 5.b. for additional details about team composition.

g. FOUR CHORD SIGN BRIDGE

Refer to the inspection procedure listed in Section 8.f. for the inspection procedure to be used for these sign structures.

Front

Rear

h. CANTILEVER

Refer to the inspection procedure listed in Section 8.d. for the inspection procedure to be used for these sign structures.

Front

Rear

i. BUTTERFLY

Refer to the inspection procedure listed in Section 8.d. for the inspection procedure to be used for these sign structures.

Front

Rear

j. BRIDGE FASCIA MOUNTED

Inspection of these sign structures shall be performed during the biennial NBIS inspection of the subject bridge. The inspection of these signs may require various closures or State Police Assisted Slow Downs for hands-on inspection of all components of the sign. All members and attachments of the sign shall receive a hands-on inspection.

Front

k. CANOPY MOUNTED

Inspection of this sign structure requires the use of a ladder / bucket truck from outside of the toll plaza lanes to access the canopy of the toll plaza. The TL, and ATL or SS shall walk along the center of the canopy to gain access to the sign(s) and tether off to the sign structure framing while performing the inspection. The TL must gain permission from the Toll Plaza Sergeant for access. The preservation of the roof membrane/materials is mandatory.

Front

l. ART DECO

There are three art deco sign structures (MP N2.35, MP N8.12WR and MP N8.25). The inspection of MP N8.12WR and MP N8.25 require the use of the interior of the box girder and inspection walkway between members, respectively. Refer to the inspection procedure listed in Section 8.a. for the inspection procedure to be used for MP N2.35, MP N8.12WR and MP N8.25.

Front

Rear

m. MAST ARM

These sign structures require a hands-on inspection of the mast, cantilever arm, flange set (attachment to mast arm) and pedestal except for the portion of the roadway, and an eight-point binocular inspection at the high and low vantage points from all four corners (front and rear) viewing the cantilever arm and attached signs.

Front

Rear

n. GENERAL PROVISIONS

- Hands-on inspection of elevated components of all Sign Structures shall include the following:

  Inspection of bolted connections / welds including:

  - All cross member (vertical, horizontal, and diagonal) to truss chord connections
  - All chord to flange connections
  - All truss to end frame and truss/flange splice connections
  - All sign structure attachments which shall include end frame to chord and flange to flange connection details, etc.

  Inspection of the sign panels including:

  - hanger to chord connections
  - hanger to stringer connections
  - stringer to sign panel connections
  - sign panel to sign panel connections
  - Mechanical connection of truss to tower
  - Plumbness of posts and chords
  - Legibility and facing

- Anchor bolts, nuts, and washers shall be visually inspected for corrosion, loose or missing lock nuts, leveling nuts and washers, bent bolts, and nuts not fully engaged/threaded. The top of the anchor bolts shall be tapped with a standard inspection hammer to reveal dull or hollow sounds, which could indicate a loose anchor bolt or a possible fatigue crack in the bolt shaft
- Ultrasonic testing of anchor bolts is required to determine the overall length of each anchor bolt and if cracks, breaks or other discontinuities exist within the bolts. Refer to Section 14 for FHWA Ultrasonic Anchor Inspection Procedure. The consultant shall submit a “Procedure for Ultrasonic Testing of Anchor Bolts” to the Authority for approval in advance of the testing in the field
- The ultrasonic testing shall be performed by a qualified NDT technician (ASNT Level II or higher)
- Any anchor bolt section losses shall be noted on the foundation sketch and deficiencies shall be recorded within AssetWise Inspection (AWI) in the anchor bolts subsection of the Foundations grouping on the inspection form entitled “Foundations and Protection Features”. Refer to the Sample Routine, Interim and Damage Inspection Reports in Section 12

- The information and results obtained during the ultrasonic testing are to be recorded and submitted to the Authority using the "Anchor Bolt Ultrasonic Testing Report" form available in the AssetWise Inspection (AWI) inspection module. Refer to the Sample Routine Inspection Report found in Section 12
- The final sign structure inspection reports shall include a signed Sign-Anchor Bolt Ultrasonic Testing Report Section. Guidelines on including this section in AssetWise are as follows:
    - Un-check "Print" for all of the Sign-Anchor Bolt Ultrasonic Testing Report Sections in AssetWise to exclude from the PDF
    - Print each report and have the UT inspector sign each of the Sign-Anchor Bolt Ultrasonic Testing Report pages (up to 4 reports)
    - Scan and combine individual signed reports into one PDF and add the PDF attachment to the Report Sections
    - Title the PDF attachment section "Sign-Anchor Bolt Ultrasonic Testing Report"
- For hands-on climbing inspection of three and four chord trusses along the Turnpike, fully tethered shall mean use of an approved dual lanyard harness which is continuously tied off to the top chord of the truss using one or both of the attached lanyards. When inspecting the truss over live traffic, all clothing, safety equipment, inspection equipment, and other materials shall be securely tethered to the team member to prevent anything falling onto the active roadway below
- For access via shoulder closing: shoulder width must be at least 10' in order to provide adequate clearance for any TMA or bucket truck used during the inspection
- Vertical underclearance shall be measured at all available locations from within closed shoulders and/or lanes
- Inspection of overhead, butterfly or cantilever signs performed by parking the articulating bucket truck off roadway / behind the guide rail is preferred to minimize exposure of inspection equipment and MPT vehicles to the travelling public. As mentioned earlier, any kind of climbing over live traffic will require the use of a daily shoulder or lane closing, and a TMA in the roadway at all times with an operator in the vehicle. For sign structures that are inspected via an eight point binocular inspection, the use of a TMA is not warranted if access can be gained from behind guide rail or off-roadway
- Climbing over live traffic is allowed over the Turnpike roadway ONLY
- No lanyard more than 6' long is allowed
- Lengths of daily shoulder/lane closings can be between 3 to 5 miles (3-mile closing are the preferred limit) in order to inspect as many structures as possible in a single closing and minimize the number of closings

o. MINIMUM REQUIRED PHOTOGRAPHS

Cantilever / Butterfly:

- General view of the Front of the sign structure (looking in direction of traffic)
- General view of the Rear of the sign structure
- Close-up view of the sign panel(s) (front face of panel)
- General view of the tower/post (showing foundation, base plate, protective features, structure elements, connections, inspection access, housekeeping and any electrical equipment including and/or other attachments)
- Close-up of tower/post base plate anchorage to pedestal or foundation
- General view of the truss chord flange and/or slip joint connection to the mast arm.
- General view of UT testing
- Equipment used for access/traffic control
- Defect Photos (in order of field notes)
- Work done

Overhead Sign:

- Overall general view of the Front of the sign structure (looking in direction of traffic)
- Overall general view of the Rear side of the sign structure
- General view of the nearest end frame or tower/post (showing foundation, base plate, protective features, structure elements, connections, inspection access, housekeeping and any electrical equipment including and/or other attachments)
- Close-up of end frame or tower/post base plate (anchorage to pedestal/foundation)
- General view of truss (from above)
- Equipment used for access/traffic control
- Defect Photos (in order of field notes)
- Work done

Three and Four Chord Sign Bridge:

- Overall general view of the Front of the sign structure (looking in direction of traffic)
- Overall general view of the Rear of the sign structure
- Close-up view of the sign panel(s) (front face of panel)

- Close-up view of the truss connection to end frame
- General view of the truss and furthest end frame
- General view of the end frame foundation (showing foundation, base plate, protective features, structure elements, connections, inspection access, housekeeping and any electrical equipment including and/or other attachments)
- Equipment used for access/traffic control
- Defect Photos (in order of field notes)
- Work done

Vierendeel (Span Type):

- Overall general view of the Front of the sign structure (looking in direction of traffic)
- Overall general view of the Rear of the sign structure
- Close-up view of the sign panel(s) (front face of panel)
- General view of the top chord(s)
- General view of the lower chord(s) and end frame
- General view of the end frame foundation (showing foundation, base plate, protective features, structure elements, connections, inspection access, housekeeping and any electrical equipment including and/or other attachments)
- General view of the inspection walkway
- Equipment used for access/traffic control
- Defect Photos (in order of field notes)
- Work done

9. INSPECTION ELEMENTS AND OVERALL SIGN STRUCTURE CONDITION ASSESSMENT

a. INSPECTION ELEMENTS

Based on the type of sign structure, the element defects, quantity, and location of defects should be recorded in the inspection report along with a photo reference for all repairable defects (Category A or B) or defects requiring monitoring (Category E). The elements of a typical sign structure are divided into seven sections in the Authority's sign structure inspection report. Common/typical deficiencies documented in these sections are briefly noted below. Each of the following elements is discussed in **Section 9.b.** and assigned to a repair category as noted in **Section 9.c.**

Foundations:

Includes the concrete cast in place or drilled shaft foundation, anchor bolts, base plates/stiffeners/welds, embankments, and other related elements.

- Reinforced concrete foundation deficiencies include cracking, abrasion/wear, spalls (with or without exposure of reinforcing), delamination, patched areas, defects associated with alkali-silica reactivity (ASR), protective coating defects, efflorescence, rust staining, fire damage, rotation (vertical or horizontal) settlement and undermining
- Anchor bolt deficiencies include corrosion/section loss, cracked, sheared, or damaged bolts, hollow sounding or dull anchor bolts, and loose and/or missing anchor bolts, nuts, locking nuts, leveling nuts and washers
- Base plate deficiencies include missing or damaged wire mesh, corrosion, section loss, cracking, damage, and weld defects
- Embankment deficiencies include settlement, scour and erosion
- Other deficiencies include foundation related defects not included above

Protective Features:

Includes guide rail/attenuator, barrier, and other related safety elements.

- Guide rail/attenuator deficiencies include corrosion to rail and posts, impact damage to rails, posts or end treatments, and loose and/or missing fasteners
- Barrier deficiencies include cracking, abrasion/wear, delamination, patched areas, defects associated with alkali-silica reactivity (ASR), efflorescence, rust staining, rotation (vertical or horizontal) and settlement
- Other deficiencies include protective features related defects not included above

Structure Elements:

Includes end frames/towers, end frame/tower to truss connections and bearings, truss and chords, chord splices, welds, coating, end caps, handhole covers and other related elements.

- End frame/tower deficiencies include corrosion, section loss, cracking, impact damage, bulging and lack of plumbness
- End frame/tower to truss connection deficiencies include corrosion, section loss, cracking, impact damage, loose and/or missing fasteners, loss of support, shifting of truss, disconnected ground wire, bent or jammed cotter pins, and bird nesting
- Bearing deficiencies include crushing, cracking, splitting, rotation, displacement or bulging of the elastomeric pads
- Truss and chord deficiencies include corrosion, section loss, cracking, impact damage, and bulging
- Weld deficiencies (which can be visually inspected) include fabrication (as-built) flaws such as incomplete weld penetration, porosity, undercutting, overlapping and flame cuts or missing welds, as well as deficiencies which can occur due to time in service or materials used such as weld cracking
- Coating deficiencies include loss of galvanizing, loss of patina and coating deterioration
- End caps and hole cover deficiencies include loose, missing, or damaged truss chord end caps, end frame caps, post caps, and handhole covers
- Other deficiencies include structural elements related defects not included above

Sign Panels and Connections

Includes sign panel and fastener/connections including panel to panel fasteners, panel to stringer fastener, stringer to hanger fasteners, fasteners to chords and trusses, and other related elements.

- Sign panel deficiencies include legibility, reflectivity, impact damage, wear, and text/placard defects
- Sign panel fastener deficiencies include corrosion, section loss, cracking, damage, and loose and/or missing fasteners
- LED/VMS/VSLS sign panel deficiency such as panels not working properly
- Other deficiencies include sign panels and connections related defects not included above

Inspection Walkway/Access:

Includes walkway grating and fasteners, walkway screening (Vierendeel VMS), handrail, access ladders and other related elements.

- Walkway grating deficiencies include corrosion, section loss, cracking, damage, loose and missing fasteners, and damaged or missing sections of grating
- Walkway screening (Vierendeel VMS) deficiencies include corrosion, section loss, and cracking to support members, damage, loose and missing fasteners at connections, and damaged / missing sections of the screening
- Walkway deficiencies including missing walkway grating clips and missing screen attachments
- Handrail and access ladder deficiencies include corrosion, section loss, cracking, damage, loose and missing fasteners, and sections
- Security feature deficiencies include unsecured, missing, or unauthorized locks
- Other deficiencies include inspection walkway/access elements related defects not included above

Electrical Equipment:

Includes luminaires, cabinets, conduits/junction boxes, ITSS equipment and other related elements (such as radio attachments, antenna vertical masts, camera mounting brackets, ITSS attachments, etc.).

- Luminaire deficiencies include corrosion, damage, loose and missing fasteners, non-functioning or missing light fixtures and cracked lenses
- Cabinet deficiencies included corrosion, damage, loose and missing fasteners, exposed electrical wiring, unsecured and unlocked covers
- Conduit and junction box deficiencies include damage, loose and missing fasteners, exposed electrical wiring, loose/broken or missing sections of conduit, unsecured and unlocked covers and open access panels
- ITSS deficiencies include corrosion, damage, loose and missing fasteners, exposed electrical wiring, disconnected units, unsecured and unlocked units
- Other deficiencies include electrical equipment related defects not included above

Housekeeping:

Includes overgrown vegetation, vandalism, and other related elements.

- Overgrown vegetation deficiencies include vegetation growth along the foundation, towers and tower/posts and obstruction of sign panel visibility
- Vandalism deficiencies include graffiti

- Other deficiencies include debris accumulation

b. CONDITION ASSESSMENT OF ELEMENTS AND QUANTITY ESTIMATES

The deficiencies listed in **Section 9.a.** are provided in this manual for general understanding during inspection. The definitions are referenced from the Bridge Materials of Bridge Inspector's Reference Manual. For the detailed description of each definition, it is recommended to refer to Chapter 6 (Bridge Materials) of the Bridge Inspector's Reference Manual. Also refer to the Guidelines for Installation, Inspection, Maintenance, and Repair of Structural Supports for Highway Signs, Luminaires and Traffic Signals Manual (2005) for additional details.

TABLE 1: DEFICIENCIES AND DEFINITIONS

Deficiency	Definition
Abrasion/Wear	Abrasion damage is the result of external forces acting on the surface of concrete member and is similar to wear. Wear is the gradual removal of surface mortar due to friction and occurs to concrete surfaces. Advanced wear exhibits polished aggregate,
Alkali-Silica Reactivity (ASR)	It is an expansive reaction forming a gel, which will result in the swelling and expansion of concrete. The process involves a reaction between potassium and sodium alkalis and silica. Alkali found in soils, deicers and chemical treatments could also contribute to ASR.
Bulging	A rounded protrusion or bend in a section.
Damage	A vehicular impact or other structural damage that occurs due to environmental or human actions.
Corrosion	Corrosion is the primary cause of section loss in steel members and is commonly caused by the wet-dry cycles of exposed steel. When deicing chemicals are present, the effect of corrosion is accelerated
Cracking	A crack is a linear fracture in structural material. Structural cracks are caused by dead load and live load stresses.
Debris Accumulation	Accumulation of material including construction debris, trash, or sediment.
Delamination	Delamination occurs when layers of concrete separate at or near the level of the outermost layer of reinforcing steel.
Efflorescence	The process of cracking permits moisture absorption and increased flow within the concrete that is evidenced by dirty-white surface deposits called efflorescence.
Erosion	Wearing away of soil by flowing water.
Exposed Electrical Wiring	Any uncovered or unprotected luminaire, conduit and/or conduit wiring.

TABLE 1: DEFICIENCIES AND DEFINITIONS

Deficiency	Definition
Fasteners	All connections should be closely inspected for tightness, cracks at fasteners connecting members and/or for missing connection.
Fire Damage	Extreme heat will damage concrete. High temperatures will cause a weakening in the cement paste and lead to cracking
Graffiti	Any form of paint vandalism that is added after construction has been completed.
Horizontal Rotation	The movement of any element where it is angled from a certain point length wise.
Missing Section	Denotes absent portions of the sign structure inspection walkway, handrail, and access ladder.
Non-functioning unit	Denotes non-operating VMS signs and/or sign structure mounted luminaires.
Paint-peeling	When the paint is starting to wear away, exposing the material underneath.
Patched area	Patched area refers to previously repaired portions of the sign structure.
Rust Staining	An elimination of the protective coating of reinforcing steel by formation of iron oxide layer due to the intrusion of chlorides.
Scaling	Scaling is the gradual and continuing loss of surface mortar and aggregate over an area due to the chemical breakdown of the cement bond.
Scour	The removal of sediment such as sand and rocks from around bridge abutments and piers caused by swift of moving water.
Section Loss	Reduction of structural material reducing the load carrying capacity of structural member.
Spalling/ Delamination	A spall is a depression in the concrete caused by corroding reinforcement, friction from thermal movement and overstress. Spalls result from the separation and removal of a portion of the surface concrete, revealing a fracture roughly parallel to the surface.
Undermining	Scour can cause undermining which is the removal or scouring away of supporting foundation material from beneath the substructure unit when streams or rivers flow adjacent to them.
Vegetation Growth	Vegetation growth around the structure and on the surface of a structure that obstructs the visual inspection shall be removed.
Vertical movement or Settlement	Vertical movement can occur in the form of uniform or differential settlement. Differential settlement can produce severe distress which varies in magnitude based upon the length of structure. Common causes of vertical movement are soil bearing failure,

	consolidation of soil and undermining causing the structure to drop deeper into the ground.
Weld defects	Cracking and fabrication flaws such as incomplete weld penetration; porosity; undercutting; overlapping and flame cuts. For additional details refer to the Chapter 6.4. of the Bridge Materials section of Bridge Inspector's Reference Manual (2015).
Graffiti	Any form of paint vandalism that is added after construction has been completed.

C. REPAIR CATEGORIES

The elements of the sign structure are assigned a repair category based on their as-inspected condition as follows:

TABLE 2. REPAIR CATEGORIES OF STRUCTURE

Category	Description
N/A	Component does not exist.
N/R	No contract repair required.
A	Category A Deficiencies that require prioritized attention with prompt notification given to the Authority.
	Category A1 Emergency included defects: – Sign panel attachment failure (resulting in loss of redundancy). – Main structural member failure. – Severe impact damage. – Instability due to cracks in the welds connecting structural members of a sign structure truss and end frame base plate welds. – Severe section loss to base plate anchor bolts in significant quantities. – Damage to guide rail protecting the sign structures.

	Category A2 Priority included defects: – Significant quantities of missing and/or loose connections bolt nut(s) in a critical area. – Gaps in the truss to tower connection for cantilever sign structures or chord splice connections for overhead signs that result in more than 25 percent of the connection (s) not being in contact. – Significant spalls impacting the concrete pedestals and anchor bolts supporting sign structures (more than 25 percent of the bearing surface). – Cracks present in structural members. – Differential movement of foundations, pedestals, sound barriers or retaining walls. – Slope washout affecting guide rail posts or pavement.
	Category A3 Non-structural included defects: – Slope washout not affecting guide rail posts or pavement. – Damage/failure in the structure's security features. – Significant damage to sign panel attachments.

Category	Description
B	Contract work Deficiencies noted that are recommended for repair by an annual Bridge Repair Contract or Specialized Repair Contract as part of the Authority's Capital Budget Program.
	Repairs that may be considered for inclusion in an annual repair contract: – Repair of sign truss chord splice connection cracks. – Sign structure/pedestal repair/reconstructions when there is significant undermining. – Installation of missing end caps and hand hole covers. – Tightening of loose connection bolts or installation of missing connection bolts, especially at cantilever chord splices.

Based on the degree of deterioration noted to the structural elements of the sign structures, a repair Category is assigned for each element exhibiting details requiring a recommendation.

Repair categories which apply to sign structures are as follows:

For additional details refer to the Authority's Deficiency Category Document (ADCD) at

https://www.njta.com/media/5394/authority-deficiency-category-definitions-v20-6-2020.pdf

d. OVERALL SIGN STRUCTURE CONDITION

The overall condition evaluation implemented for sign structures was derived from the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (FHWA). Based on the inspection findings, the following four condition states are to be used when evaluating the overall condition of the sign structure.

TABLE 3. OVERALL CONDITION RATING OF STRUCTURE

Rating		Description
1	Good	Sign structure performs intended function with high degree of reliability and/or effectiveness. Includes deficiencies at non-structural elements such as inspection walkways, electrical equipment, sign panels, fasteners and housekeeping items or minor deficiencies of structural elements including foundations, base plates, end frames, end tower(s), and truss components that do not affect the strength and/or serviceability of the sign structure. **Contract repairs may be necessary.** Examples of Deficiencies: – Minor delamination, spalling and cracking at reinforced concrete foundations. – Minor corrosion and section loss at the base plate and anchor bolts.

Rating		Description
		– Missing sign panel, connection, and inspection access fasteners (less than 10 percent).
2	Fair	Sign structure performs intended function with small reduction in reliability and/or effectiveness. Includes minor to moderate deficiencies of structural elements including foundations, base plates, end frames, end tower(s,) truss components, sign panels, fasteners, and inspection walkways. that do not significantly affect the strength and/or serviceability of the sign structure. **Contract repairs may be necessary.** Examples of Deficiencies: – Minor to moderate delamination, spalling and cracking at reinforced concrete foundations. – Minor to moderate corrosion and section loss at the base plate and anchor bolts. – Missing sign panel, connection, and inspection access fasteners (less than 50 percent).
3	Poor	Sign structure performs intended function with signification reduction in reliability and/or effectiveness. Moderate to severe deficiencies of structural elements including foundations, base plates, end frames, end tower(s), truss components, sign panels, fasteners, and inspection walkways which may warrant analysis to determine the impact of the strength and/or serviceability of the sign structure. **Repair or replacement may be required.** **Close monitoring (Category E) is recommended at deteriorated structural elements until repairs are completed.** Examples of Deficiencies – Substantial amount of anchor bolts missing or severely corroded (less than 50 percent). – Moderate to severe delamination, spalling and cracking at concrete foundations. – Moderate to severe corrosion and section loss at the base plate and anchor bolts. – Missing sign panel, connection, and/or inspection access fasteners (greater than 50 percent).

Rating		Description
4	Critical	Sign structure does not perform intended function at an acceptable level of reliability and/or effectiveness. Deficiencies which may result in failure/collapse of the sign structure. **Requires Immediate repair or removal and the issuance of a Category A Report.** Examples of Deficiencies: – Substantial amount of anchor bolts missing or severely corroded (greater than 50 percent). – Full perimeter cracks in base plate welds. – Significant impact damage to structural supports. – Missing sign panel, connection, and inspection access fasteners (greater than 75 percent).

10. QUALITY CONTROL AND QUALITY ASSURANCE REVIEWS

Refer to Appendix A of the Authority's Bridge Inspection Program Quality Management Plan (QMP) for quality control and quality assurance reviews and Sign Structure Inspection Checklists.

https://www.njta.com/media/5606/2020-08-28-bi-program-quality-management-plan_v12-final.pdf.

11. REPORTING OF EMERGENCY AND PRIORITY DEFICIENCIES

Refer to the Authority Deficiency Category Definitions document to identify the severity of deficiencies noted in sign structure inspection reports which help in future planning of Maintenance and Contract Improvements.

https://www.njta.com/media/5394/authority-deficiency-category-definitions-v20-6-2020.pdf

12. SAMPLE ROUTINE, INTERIM AND DAMAGE INSPECTION REPORTS

a. ROUTINE INSPECTION REPORT

Sign Structure Final Inspection Report

Sign Structure No.

17.90N

Vierendeel Cantilever

over

Parkway N

01/12/2022

Prepared By:

SJH Engineering, P.C.

TABLE OF CONTENTS

CONTRACT HISTORY

TYPE	CONTRACT NO.	DESCRIPTION OF WORK	YEAR
Original Construction	P200.004	Original Construction	2008
Other	P600.102F	VMS panel installed	2012

GENERAL INFORMATION

Structure No.:	17.90N
Structure Location:	Parkway N
Maintenance District:	Parkway Maintenance District 1
Latitude:	39.17637 Degrees
Longitude:	-74.72578 Degrees

Erected By:

Contract:	P200.004
Year:	2008
Note:	Sign Structure No 1, Sheet 100G

Removed By

Contract:	
Year:	
Note:	

Structure Type:	Vierendeel Cantilever
Mounting Configuration:	Ground
Structure Coating:	Weathering Steel
Structure Length:	36.5 Feet
Truss Sections:	1
Post Tensioned:	No
Chord Sets/Splices:	1

Chord Splice Locations

Span over Roadway:	Parkway N	Lane:	Behind guide rail
Span over Roadway:		Lane:	
Span over Roadway:		Lane:	
Span over Roadway:		Lane:	
Span over Roadway:		Lane:	

Chord Splice Stiffening

Category:	D Weathering Steel
Stiffened:	☑
Unstiffened:	☐

No. of Sign Panels

Notes:	
Standard:	
VMS:	1
Changeable Message:	
VSLS:	

Vertical Underclearance

Minimum Vertical Underclearance:	18.25	Feet
Location of Minimum Vertical Underclearance:	Right shoulder stripe.	
Vertical Underclearance Notes:	Underside of lower chord. Minimum clearance may be in the right lane.	

INSPECTION INFORMATION

Inspection Group:	1
Inspection Date:	01/12/2022
Previous Inspection Date:	12/29/2015
Inspection Frequency:	72 Months
OPS No.:	P3865
Firm:	SJH Engineering, P.C.
Team Leader:	Suril Shah
Assistant Team Leader:	Vishal Shah, P.E.
Support Staff:	
Weather:	Sunny
Temperature:	39 Degrees F

Equipment

Description:	40' articulating bucket truck and TMA
Photo:	1, 2

MPT

Description:	Short Duration Rolling Right Shoulder Closure
Photo:	2

ND Testing

Description:	UT testing of all foundation anchor bolts, D-meter readings at tower base.
Photo:	

CONCLUSIONS

Overall Condition: Overall Rating: 1

The structure is in good condition with no defects noted that would warrant contract repairs.

Condition Upgrade/Downgrade:

The overall condition of the structure has not changed since the previous inspection.

Scheduled, Ongoing, or Completed Work:

This structure has no scheduled, ongoing work or work done since the previous inspection.

Category A:

N/A

Category E:

There are no deficiencies which require monitoring at this time.

Rating	*Description*
1	*Good: Performs intended function with high degree of reliability and/or effectiveness.*
2	*Fair: Performs intended function with small reduction in reliability and/or effectiveness.*
3	*Poor: Performs intended function with significant reductions in reliability and/or effectiveness. Repair or replacement may be required.*
4	*Critical: Does not perform intended function at an acceptable level of reliability and/or effectiveness. Repair or replacement is required.*

Repair	*Description*
N/A:	*Component does not exist*
NR:	*No contract repair required*
A:	*Category A*
B:	*Contract work*

This legend relates to the field note pages in the next section.

☑ **FOUNDATIONS AND PROTECTIVE FEATURES**

☑ **FOUNDATIONS**

N/A	NR	A	B		B QTY	PHOTO
☐	☑	☐	☐	Foundations		

No deficiencies noted.

☐	☑	☐	☐	Anchor Bolts		

No deficiencies noted.

☐	☑	☐	☐	Base Plates/Stiffeners/Welds		

No deficiencies noted.

☐	☑	☐	☐	Embankment		

No deficiencies noted.

☑	☐	☐	☐	Other		

Notes:

☑ **PROTECTIVE FEATURES**

N/A	NR	A	B			
☐	☑	☐	☐	Guide Rail/Attenuator		

No deficiencies noted.

☑	☐	☐	☐	Barrier		

☑	☐	☐	☐	Other		

Notes: W-beam guide rail with synthetic spacers.

NEW JERSEY TURNPIKE AUTHORITY

Str.: 17.90N Date: 01/12/2022

ANCHOR BOLT ULTRASONIC TESTING REPORT 1

Structure Type: Vierendeel Cantilever

Number of Bolts per Baseplate: 16

Bolt Diameter (in.): 2"

Base Plate Shape: Square

Base Plate Location: East End Frame

Instrument: Olympus Epoch 600

db Reference Level: 42

db Scanning Level: 54

Transducer Diameter (in.): 1

Transducer Frequency: 2.2 fMHz

Notes: *(1) ND = Not Detected*
(2) NRI = No Relevant Indication
(3) CNT = Could Not Test (include reason in "Comments")
(4) __% FSH (Full Screen Height); __dB (report only if reject criteria is met)
(5) Any indication above 10% FSH at scanning level
Refer to foundation sketch for anchor bolt numbering

Comments:

UT Firm: PTL Testing Lab, Inc.

Date of UT: 01/27/2022

UT Inspector: Blair McCloskey

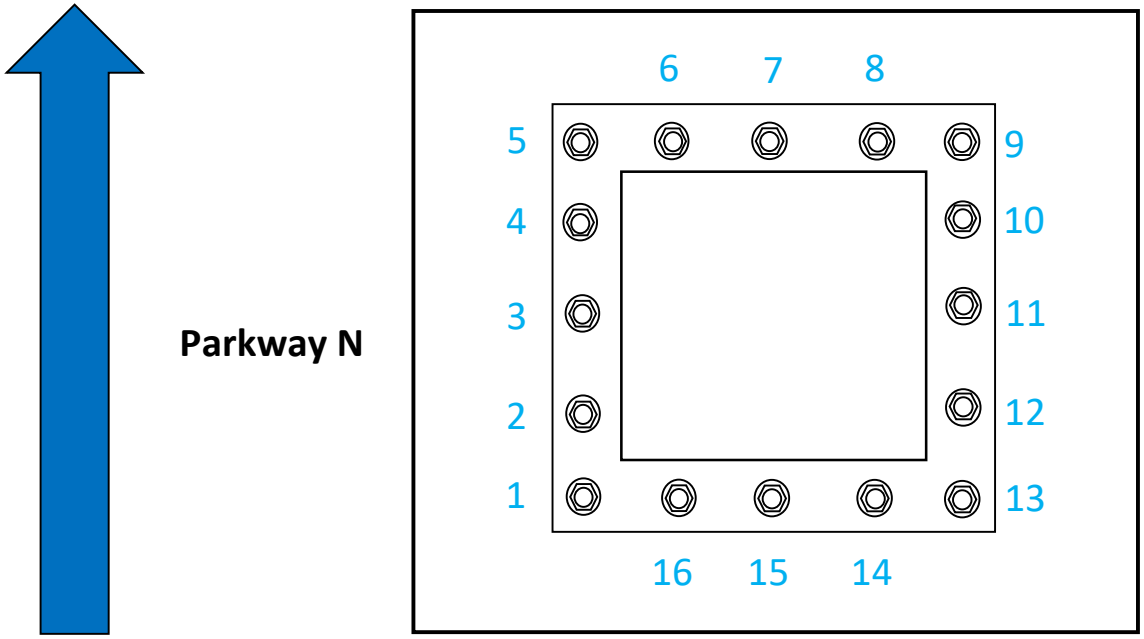
UT Inspector Signature: To be signed and uploaded for Final Report

Anchor Bolt	Approx. Anchor Bolt Length (in.) (1)	Anchor Bolt Projection (in.)	Depth of Indication (in.) (2-3)	Indication Rating (%) (4)	Accept	Reject (5)
1	71	6	NRI		Yes	
2	71	6	NRI		Yes	
3	71	6	NRI		Yes	
4	71	6	NRI		Yes	
5	71	6	NRI		Yes	
6	71	6	NRI		Yes	
7	71	6	NRI		Yes	
8	71	6	NRI		Yes	
9	71	6	NRI		Yes	
10	71	6	NRI		Yes	
11	71	6	NRI		Yes	
12	71	6	NRI		Yes	
13	71	6	NRI		Yes	
14	71	6	NRI		Yes	
15	71	6	NRI		Yes	
16	71	6	NRI		Yes	

NEW JERSEY TURNPIKE AUTHORITY

Foundation Diagram

Sign Structure:	**17.90N**	**Baseplate Material:**	**Weathering Steel**	**Date of Inspection:**	**1/12/2022**
Baseplate Dimensions:	**52" x 52"**	**Anchor Bolt Diameter:**	**2"**		
Baseplate Thickness:	**2.375"**				



☑ **STRUCTURE ELEMENTS**

Plumb: 90 Degrees Notes: Tower

Level: 0 Degrees Notes: Chords

N/A	NR	A	B		B QTY	PHOTO
☐	☑	☐	☐	End Frames/Tower		

No deficiencies noted.

Thickness at Base

East	End Frame		End Frame		End Frame		End Frame	
North:	0.656	in.	North:	in.	North:	in.	North:	in.
South:	0.652	in.	South:	in.	South:	in.	South:	in.
East:	0.626	in.	East:	in.	East:	in.	East:	in.
West:	0.627	in.	West:	in.	West:	in.	West:	in.

Retrofit bracket installed ☐

New connection (post 2009) ☐

☑	☐	☐	☐	End Frames/Tower to Truss Connections and Bearings		
☐	☑	☐	☐	Truss and Chords		

No deficiencies noted.

☐	☑	☐	☐	Chord Splices		

No deficiencies noted.

☐	☑	☐	☐	Welds		

No deficiencies noted.

☐	☑	☐	☐	Coating		

No deficiencies noted.

☐	☑	☐	☐	Caps and Handhole Covers		

No deficiencies noted.

☑	☐	☐	☐	Other		

Notes:

Left Blank Intentionally For Notes

☑ **SIGN PANELS, CONNECTIONS, AND INSPECTION ACCESS**

☑ **SIGN PANELS AND CONNECTIONS**

N/A	NR	A	B		B QTY	PHOTO
☐	☑	☐	☐	Sign Panel/Legibility No deficiencies noted.		
☐	☑	☐	☐	Panel Fasteners No deficiencies noted.		
☐	☑	☐	☐	Fasteners to Stringers No deficiencies noted.		
☐	☑	☐	☐	Fasteners to Hangers No deficiencies noted.		
☐	☑	☐	☐	Fasteners to Truss Chords No deficiencies noted.		
☑	☐	☐	☐	Other		

Notes:

☐ **INSPECTION WALKWAY/ACCESS**

Walkway retrofit installed ☐

N/A	NR	A	B		B QTY	PHOTO
☐	☐	☐	☐	Walkway Grating and Fasteners		
☐	☐	☐	☐	Walkway Screening (A Frame)		
☐	☐	☐	☐	Handrail		
☐	☐	☐	☐	Access Ladders		

☐ ☐ ☐ ☐ Security Features

☐ ☐ ☐ ☐ Other

Notes:

☑ **ELECTRICAL EQUIPMENT AND HOUSEKEEPING**

☑ **ELECTRICAL EQUIPMENT**

N/A	NR	A	B		B QTY	PHOTO
☑	☐	☐	☐	Luminaires		
☐	☑	☐	☐	Cabinets No deficiencies noted.		
☐	☑	☐	☐	Conduits/Junction Boxes No deficiencies noted.		
☐	☑	☐	☐	ITSS Equipment No deficiencies noted.		
☑	☐	☐	☐	Other		

Notes:

☑ **HOUSEKEEPING**

N/A	NR	A	B		B QTY	PHOTO
☐	☑	☐	☐	Overgrown Vegetation None observed.		
☐	☑	☐	☐	Vandalism None observed.		
☑	☐	☐	☐	Other		

Notes:

01/12/2022

Photograph No. 1
General view of south elevation. looking north.
Note 40' articulating bucket truck used for inspection.

01/12/2022

Photograph No. 2
General view of north elevation, looking south.
Note 40' articulating bucket truck and TMA used in short duration rolling right shoulder closure.

01/12/2022

Photograph No. 3
Close up view of VMS panel over right lane, looking north.

01/12/2022

Photograph No. 4
General view of truss, looking up and south.

01/12/2022

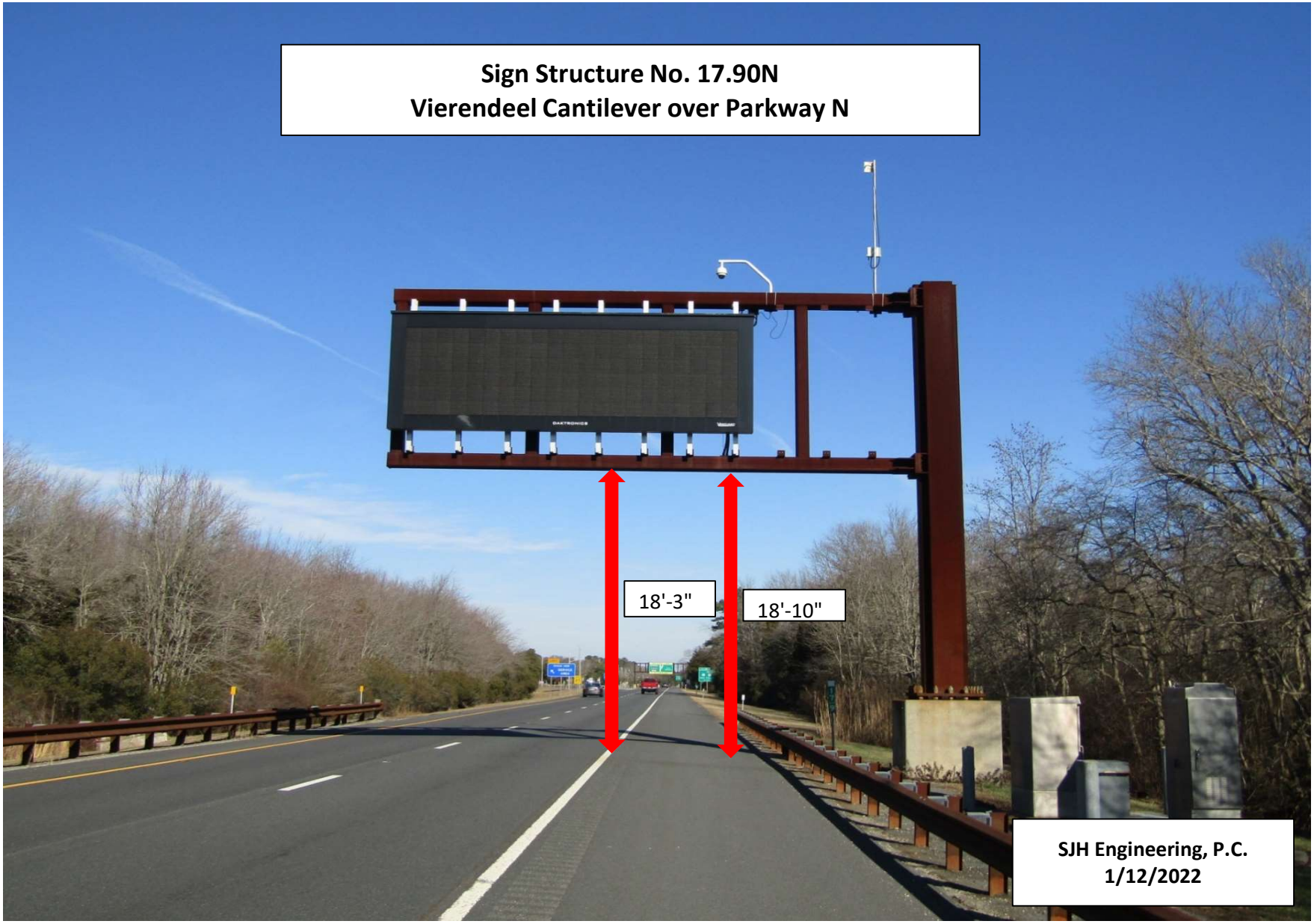
Photograph No. 5
General view of tower, looking northeast.

01/12/2022

Photograph No. 6
General view of the foundation and base plate, looking northeast.

01/12/2022

Photograph No. 7
General view of electrical equipment, looking north.


Sign Structure No. 17.90N
Vierendeel Cantilever over Parkway N
18'-3"
18'-10"
SJH Engineering, P.C.
1/12/2022

Str.: 17.90N Date: 01/12/2022

REPORT CHECKLIST QCF 1.5 - SIGN STRUCTURES CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC: Jeff Munzing, P.E.

Date: 02/02/2022

Number of most recent notification: 2022-2.0

General

Contract History	Y	Add list of construction contracts which have worked on the sign.
Work Done	Y	Check for work done on the sign between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	Y	Cantilever/Butterfly: General view of front of sign structure (looking in direction of traffic), General view of rear of the sign structure, Close-up view of the sign panel(s) (front face of panel), General view of the column (showing foundation and any electrical equipment including and/or other attachments), Close-up of column base plate anchorage to pedestal or foundation, Equipment used for access/traffic control 3/4 Chord Sign Bridges: General view front elevation, General view rear elevation, General view close-up of sign panel(s), General view truss to nearest end frame (close-up), General view of truss and furthest end frame (can split in two), General view of end frame foundation (including baseplates and electrical equipment) Vierendeels: General view front elevation, General view rear elevation, General view close-up of sign panel(s), General view top chords, General view of lower chords and furthest end frame (can split in two), General view of nearest end frame foundation (including baseplates and electrical equipment), General view inspection walkway

		Category A Photos: A1, A2, A3, GR Defect Photos (In order of field notes): Foundations and Protectve Features, Structure Elements, Sign Panels, Connections, Inspection Access, Electrical Equipment and Housekeeping Work done photos are incorporated with defect photos by element. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.
Defect Photos	Y	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Category A Reports	N/A	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Sign Foundation Sketches	Y	Add Sign Foundation Sketches as a PDF attachment to the Report Sections.
Chord Splice Sheets	N	Add Chord Splice Sheets as a PDF attachment to the Report Sections.
Clearance	Y	Add annotated photo with vertical underclearances shown (taken where access is available) as a PDF attachment to the Report Section.

File Uploads

Clearance Photo	Y	Upload PDF of Annotated Clearance Photo to "Clearance".
Sign Foundation Sketches	Y	Upload PDF of Foundation Sketches to "Sign Foundation Sketch".
Chord Splice Sheets	N	Upload PDF of Chord Splice Sheets to "Flange sheets".
Ultrasonic Testing Report	N	Upload Ultrasonic Testing Report used in field to collect data to "Ultrasonic Testing (Signs)".
Working Files	Y	Upload all working files to their own File Type. This includes: chord splice sheets, foundation sketches, annotated clearance photo, etc.
Final Report	N	Upload the Final Report PDF to "NBIS Report".

b. INTERIM INSPECTION REPORT

Draft Interim Inspection Report

For

Spliced Vertical Truss Members

Structure No.

MP 126.7N

Vierendeel double plane truss sign bridge

over

Parkway N

Monitoring No.

4

06/27/2022

Prepared By:

PKB in association with HNTB Corporation

TABLE OF CONTENTS

NEW JERSEY TURNPIKE AUTHORITY

INTERIM INSPECTION HISTORY

MONITORING NO.	DATE	ELEMENT
1	07/21/2020	Spliced Vertical Truss Member
2	02/17/2021	Spliced Vertical Truss Member
3	9/22/2021	Spliced Vertical Truss Member
4	6/27/2022	Spliced Vertical Truss Member

INTERIM GENERAL INFORMATION

NAME:	Vierendeel double plane truss sign bridge over Parkway N
STRUCTURE NO.:	MP 126.7N
OPS NO.:	A3785
FIRM:	PKB in association with HNTB Corporation
TEAM LEADER:	John Paul; Thomas Kyle; John Lupo
ASSISTANT TEAM LEADER:	Sean Marko; Jordan Kerkes
SUPPORT STAFF:	
PREVIOUS INSPECTION DATE:	07/21/2020
WEATHER:	Sunny
AIR TEMPERATURE:	40 DEGREES F
SPECIAL EQUIPMENT:	30' BT
MPT:	State Police Assisted Slowdown and Short Duration Closure in RSH Parkway N

INTERIM INSPECTION FINDINGS

MONITORING NO.: 4

DATE OF INTERIM INSPECTION: 06/27/2022

FREQUENCY OF INSPECTION: 6 MONTHS

MEMBERS REQUIRING INTERIM INSPECTION: Spliced Vertical Truss Members

REASON FOR INTERIM INSPECTION:

The sliced vertical members exhibit varying degrees of bulging / bowing and cracking of the lower section (below the bolted splice / flange) presumed to be caused by water intrusion and accumulation in the tubular steel (TS) sections.

FINDINGS:

PKB performed Monitoring #1 of the Sign Structure No. 126.7N on 7/21/2020 at 11am utilizing four (4) PKB personnel, five (5) State Troopers, and two (2) Operations personnel in a one (1) ten (10) minute slowdown of the Parkway N Roadway just south of the Driscoll Memorial Bridge (Structure No. 127.2N). PKB performed a visual inspection of Verticals 1 to 15 (verticals are numbered west to east) along both the north and south planes of the Vierendeel truss from the ground. PKB performed this visual inspection by having each inspector take a portion of the truss and during the slowdown, look at four (4) sides of each vertical tubular member for that particular section from the ground below. This was reinforced by the use of binoculars and a bucket truck from the right shoulder of the Parkway N Roadway. No additional cracks to the vertical members were observed and no visible changes were noted to the two existing vertical cracks at Vertical 14 of the south truss plane and Vertical 11 of the north truss plane. We did note a drilled open hole along the base of north face of Verticals 7 and 8 of the south truss plane and a drilled hole with a Hollo bolt at the base of north face of Verticals 5 and 10 of the south truss plane. No other significant deficiencies were noted to this structure at this time.

PKB performed the second monitoring inspection of Sign Structure No. 126.7N on 2/17/2021 at 11am utilizing four PKB personnel, five State Troopers, and a member of the Operations Department in a ten (10) minute slowdown of the Parkway N Roadway just south of the Driscoll Memorial Bridge (Structure No. 127.2N). PKB performed a visual inspection of Verticals 1 to 15 (verticals are numbered west to east) along both the north and south planes of the Vierendeel truss from the ground. PKB performed this visual inspection by assigning a section of the truss to each inspector where during the slowdown they looked from the ground at all four sides of each vertical member in that particular section. Binoculars were also used to view the vertical members from the right shoulder of the Parkway N Roadway as a supplement to the ground inspection. No additional visible cracks were observed and no changes were noted to the two locations (Vertical 14 of the south truss and Vertical 11 of the north truss) with pre-exiting cracks. PKB did note additional water staining on the steel at the lower edge of crack in Vertical 14 (See DSCN 8610 (2/18/2021) vs. See DSCN 7308 (7/21/2020). No other significant deficiencies were noted at this structure.

PKB performed Monitoring #3 of the Sign Structure No. 126.7N on 9/22/2021 at 11am utilizing five (5) PKB personnel, one (1) HNTB Drone Pilot, six (6) State Troopers, in a one (1) five (5) minute slowdown of the Parkway N Roadway just south of the Driscoll Memorial Bridge (Structure No. 127.2N). PKB performed a visual inspection of Verticals 1 to 15 (verticals are numbered west to east) along both the north and south planes of the Vierendeel truss from the ground. PKB performed this visual inspection by having each inspector take a portion of the truss and during the slowdown, look at four (4) sides of each vertical tubular member for that particular section from the ground below. This was reinforced by the use of binoculars from the right shoulder of the Parkway N Roadway. No additional cracks to the vertical members were observed and no visible changes were noted to the two existing vertical cracks at Vertical 14 of the south truss plane and Vertical 11 of the north truss plane (See DSCF 5755). No other significant deficiencies were noted to this structure at this time.

PKB performed Monitoring #4 of GSP Sign 126.7N utilizing a short duration northbound right shoulder closure on 6/27/2022 at 10am. The spliced vertical members of both signs were inspected visually from the ground using binoculars. No significant changes were noted since the previous 9/22/21 monitoring inspection #3.

CONCLUSIONS AND RECOMMENDATIONS:

Continued monitoring at a 6 month frequency is recommended until the repairs are completed by an upcoming contract (Contract No. P100.562).

03/05/2021

Photograph No. 1
Vertical 14 of the south truss exhibits a pre-exiting cracks, looking northwest.

03/05/2021

Photograph No. 2
Vertical 11 of the north truss exhibits a pre-exiting cracks, looking south.

03/05/2021

Photograph No. 3

Second monitoring inspection of Sign Structure No. 126.7N utilizing 10 minute slowdown of the Parkway N Roadway, looking southwest.

03/05/2021

Photograph No. 4

Second monitoring inspection of Sign Structure No. 126.7N utilizing 10 minute slowdown of the Parkway N Roadway, looking south.

03/05/2021

Photograph No. 5

Second monitoring inspection of Sign Structure No. 126.7N utilizing 10 minute slowdown of the Parkway N Roadway, looking south.

03/05/2021

Photograph No. 6

Second monitoring inspection of Sign Structure No. 126.7N utilizing 10 minute slowdown of the Parkway N Roadway, looking south.

09/22/2021

Photograph No. 7
Monitoring Inspection #3: Vertical 14 of the south truss exhibits a pre-exiting cracks, looking northwest.

09/22/2021

Photograph No. 8
Monitoring Inspection #3 in progress

Category A2 Report

Maintenance District: Parkway Maintenance District 6

Milepost: MP 126.7N

Structure Name: Overhead Sign MP 126.7N

Status: Submitted to Engineering

Type: Category A2

Created By: Hall, Suzanne **Created Date:** 06/13/2019

Updated By: Hall, Suzanne **Updated Date:** 03/10/2020

Observed By: HNTB Corporation **Date Observed:** 06/12/2019

Type of Damage: Cracks were observed in two vertical members near the east end of the sign.

Description: Joe Sheedy: Please see attached photos of Sign Structure 126.63N. Cracks were observed last night whilst moving a sign panel for an upcoming stage shift. Sign structure has 3 sections across the roadway. The right most piece has two vertical members cracked, vertical 2 and 5 from the right (East) looking Northbound (#2 being the first interior).

HNTB Assessment (PKB 6/13/19): From semi-permanent right shoulder closure (for Contract No. P300.229) an inspection of the the cracked vertical (14 from the west) on the south truss.was performed. Findings are as follows:

- crack measures approximately 80” L x 1/2” W in the lower portion of the vertical (below the bolted splice) at the southeast corner of the south vertical
- crack was wide enough to confirm that the interior of the vertical base is filled with water up to a height of about 6 inches
- north and south faces of the lower portion of the vertical are bowed outward up to 1.5" on each face

PKB (6/14/19): utilizing the 5 left lane closing (for Contract No. P300.229) an inspection of the west end of the structure.

PKB (6/16/19): utilizing a 5 right lane closing an inspection of the the east end of the structure including the 11th vertical from the wast reported cracked in initial email. The inspection revealed a crack 72" L x 3/8" W in the lower portion of the vertical (below the bolted splice) in the northwest corner of the north vertical. In addition, the north and south faces of the lower portion of the vertical are bowed outward up to 1.5" (max. at east face).

No additional cracked members were noted during the inspections. Five other vertical members were noted to have bowed up to 1/4".

An as-inspected analysis of Sign Structure 126.7N was performed by HNTB using the original design calculations provided by TY Lin (original designer of this sign) which took into account the two (2) cracked vertical members. The analysis removed these two (2) cracked vertical members from the model and found the stress levels in the remaining members rose only slightly without any overstress issues, leaving approximately
30% of the reserve capacity in the other verticals. Therefore, it was determined that the current condition of the sign structure does not pose an immediate safety concern.

Design and implement a repair for the two existing cracked vertical members, which could include strengthening, vertical member removal and replacement, drilling crack-arresting holes, and/or drilling of drain holes at the base of the vertical members. While the existing truss members are not currently overstressed, the cracked vertical members should be repaired to prevent crack propagation (potentially extending into the lower chord) or future TS member deformation (bulging). Repairs are recommended to be completed prior to the onset of freezing temperatures.

In order to have a better understanding on the source of the water, we recommend the following:
Perform an analysis to determine if drilling a drain hole is permissible at the base of the lower section at various vertical locations (including those that currently exhibit bowed side walls).
If this is determined to be permissible, drill drain holes at the bottom of the vertical members where bowing was measured to be equal or greater than 1/4". Drain all excess water from the vertical member, temporarily plug (seal) the drain holes, and recheck after a period of time. Based on the findings of the recheck, the source of the water can be better ascertained (bolted flange splices, welds and micro-cracks, or prior to erection).

☑ Beyond Resources of Maintenance Department

☐ Assigned to Maintenance Department IR Contractor

Maintenance Remarks:

☐ Responsibility of Outside Agency

Engineering Remarks: General contractor is Servidone/B. Anthony, JV they will be doing the permanent repairs date of work TBD, awaiting materials. sqh\3.10.20 work not performed under Int 125 contract, materials were not available, To be included in upcoming contract TBD (P100.520 20201 DR?).

In the interim 6 month monitoring will commence in June 2020 until repairs are completed.

Refer to attachment for findings from 1st monitoring performed on 7/21/20. No defects or changes noted since it was last inspected.

Update May 2021: Scheduled to be included in Contract P100.562 for 2022 construction. sqh \5.24.21

Date Completed:

NEW JERSEY TURNPIKE AUTHORITY

Str.: MP 126.7N Date: 06/27/2022 Monitoring No.: 4

REPORT CHECKLIST QCF 1.9 - INTERIM INSPECTION REPORT CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC: SQH

Date: 03/17/2021

General

Work Done	N	Check for work done on the structure between inspections. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.
Attachment(s)	N	Additional report sections, as applicable, including but not limited to field notes, sketches, tables, plans, or other necessary documents to supplement the write up.
Structural Inventory & Appraisal Forms	N/A	To be edited / updated when Interim Inspection Date (Item 93C) is coded to reflect the most recent inspection date or a change in frequency of inspection (92C) is required.
Category A Report	N	To be included when the deficiency being monitored warrants prioritized repair. To be created once and updated during subsequent inspections to reflect changes in condition or memorialize work done.
Photographs	Y	All photos taken should be uploaded to the Pics / Files page under Photographs. Select representative photos should be included in the report, the cover photo should reflect the typical element / deficiency.
Working Files		Upload all working files to their own File Type.
Final Report		Upload the Final Report PDF to "NBIS Report".

c. DAMAGE INSPECTION REPORT

Damage Inspection Report

04/11/2022

Structure No.

48.98N

Structure Type

Vierendeel VMS/Hybrid Sign Bridge

Structure Location

SN Roadway

Prepared By:

PKB in association with HNTB Corporation

TABLE OF CONTENTS

NEW JERSEY TURNPIKE AUTHORITY

CONTRACT HISTORY

TYPE	CONTRACT NO.	DESCRIPTION OF WORK	YEAR
Original Construction	T869.120.102	Original Construction	2010

ANCILLARY STRUCTURE INVENTORY INFORMATION

STRUCTURE NO.:	48.98N
STRUCTURE TYPE:	Vierendeel VMS/Hybrid Sign Bridge
STRUCTURE LOCATION:	SN Roadway
MAINTENANCE DISTRICT:	Turnpike Maintenance District 3
YEAR BUILT:	2010
VERTICAL UNDERCLEARANCE:	18.17 Feet

DAMAGE INSPECTION INFORMATION

DATE OF INCIDENT:	04/11/2022
TIME OF INCIDENT:	4:30 pm
DAMAGE TYPE:	Other
IMPACT VEHICLE:	None
LOCATION/ROADWAY:	SN Roadway MP 47
LANE:	Overhead VMS Sign
ON-CALL MAINTENANCE ENGINEER:	N/A
MAINTENANCE ENGINEER INSPECTION DATE:	

INITIAL NOTICE TO CONSULTANT

VIA:	Email
FROM: (NJTA)	Bill Wilson
TO:	Scott Cavanaugh
DATE:	03/11/2022

PRELIMINARY INSPECTION FINDINGS

VIA:	Email
FROM: (CONSULTANT)	Suzanne Hall (HNTB)
TO:	Bill Wilson (NJTA), Jean Laird (NJTA), King Lee (NJTA), Oleem O'Garro (NJTA), Prayag Sayani (NJTA), Frank Yao (NJTA), Mark Bernard (NJTA), Sheri Malloy (NJTA), Peter Singhofen (NJTA), Suzanne Hall (HNTB), Alexander Milza (HNTB), John Paul (PKB), Ana Tatoris (HNTB)
DATE:	03/20/2022

DAMAGE INSPECTION FINDINGS

INSPECTION CONSULTANT:	PKB in association with HNTB Corporation		
TEAM LEADER:	Sean Marko (PKB)		
ASSISTANT TEAM LEADER:	Tom Redles		
SUPPORT STAFF:	JK , CV (PKB)		
INSPECTION DATE(S):	03/17/2022 03/18/2022		
WEATHER:	Partly Cloudy/Rain and Clear		
AIR TEMPERATURE:	48 DEGREES F		
SPECIAL EQUIPMENT:	TMA	PHOTO NO(S):	1
MPT:	Short Duration SN & NS Right Shoulder, NS Left Shoulder Closure	PHOTO NO(S):	1

NJTA PERSONNEL PRESENT DURING INSPECTION:
None

SEQUENCE OF EVENTS:
The Authority requested an inspection of the anchor bolts of a VMS walk-through sign in the vicinity of MP 47 in the SN Roadway after they received a notification from a member of the Operations Department of a VMS sign with broken or missing bolts/nuts. Based on review of assets in AssetWise, the sign matching the photo included in the original email, sent by Operations, was determined to be MP 48.98N. Since MP 47 was called out as the location of the sign the inspection was performed at five VMS signs north and south of MP 47 for completeness. Anchor bolts at both end frames of Sign Structure Nos. 46.86N, 46.90S, 47.43N, 48.41N, 48.98N were inspected.

INSPECTION FINDINGS:
The following five sign structures were inspected by PKB as part of this call out:

Sign Structure Nos. 46.86N and 46.90S are Vierendeel Overhead VMS / Hybrid Signs over the SN and NS Roadways, respectively, erected by A600.102A in 2009.
Sign Structure Nos. 47.43N, 48.41N, and 48.98N are Vierendeel Overhead VMS / Hybrid Signs over the SN Roadway erected by T869.120.102 in 2010.

Anchor bolt numbering follows the designations on the Sign Foundation Sketches found in each inspection report.

Sign Structure No. 46.86N exhibits one unseated leveling nut and washer (Anchor Bolt #5) at the south column of the east end frame and did not exhibit any anchor bolt deficiencies noted at the west end frame (See Photos 2 and 3).

Sign Structure No. 46.90S did not exhibit any anchor bolt deficiencies at either end frame (See Photo 4).

Sign Structure No. 47.43N has no lock nuts at the anchor bolts of both east end frame columns due to inadequate anchor bolt thread lengths (anchor bolt nuts are also not fully engaged). There are no anchor bolt deficiencies noted at the west end frame (See Photos 5, 6 and 7).

Sign Structure No. 48.41N exhibits two anchor bolts (Anchor Bolts #6 and #7) at the south column and one anchor bolt (Anchor Bolt #15) at the north column of the west end frame that sound dead indicating the possibility of debonding or internal fractures. There is also an unseated leveling nut and washer (Anchor Bolt #6) at the south column and three unseated leveling nuts and washers (Anchor Bolts #14, #15, and #16) at the north column of the west end frame. There are no anchor bolt deficiencies noted at the east end frame (See Photos 8 and 9).

Sign Structure No. 48.98N did not exhibit any anchor bolt deficiencies at either end frame (See Photo 10)

RECOMMENDATIONS:
It is recommended that all unseated anchor bolt nuts be tightened per specifications and UT testing be performed on the “dead” sounding anchor bolts during the next regularly scheduled inspection.

MEMBERS REQUIRING INTERIM INSPECTION: None

FREQUENCY OF INTERIM INSPECTION: N/A

FINAL DAMAGE INSPECTION REPORT SENT TO:
Bill Wilson, Jean Laird, Mark Bernard, Oleem O’Garro, Sheri Malloy, Peter Singhofen, King Lee, Prayag Sayani, Frank Yao, Scott Cavanaugh, David Mykulak, Suzanne Hall, Brian Atkinson, Greg Lefrois, Alexander Lawrason, Stella Bustos, Lucy Pavlik, NJO_69953_NJTA-GCE_2021-2025@hntb.com, GCETechManager@HNTB.com

04/13/2022

Photograph No. 1

Inspection in progress utilizing a TMA in a short duration right shoulder closing in the NS Roadway, looking southeast.

04/13/2022

Photograph No. 2

Sign Structure No. 46.86N exhibits an unseated leveling nut and washer (Anchor Bolt #5) at the south column of the east end frame, looking west.

04/13/2022

Photograph No. 3

Sign Structure No. 47.43N does not have lock nuts at any of the anchor bolts at both columns of the east end frame, looking east at the south column.

04/13/2022

Photograph No. 4

Sign Structure No. 47.43N anchor bolts have inadequate thread length resulting in the anchor bolt nuts not being fully engaged at the east end frame. Looking west at the north column.

04/13/2022

Photograph No. 5

Sign Structure No. 48.98N did not exhibit any anchor bolt deficiencies at either end frame, looking west at the north column of the west end frame.

04/13/2022

Photograph No. 6

Sign Structure No. 46.90S did not exhibit any anchor bolt deficiencies at either end frame, looking south at the north column of the east end frame.

Photograph No. 7

Sign Structure No. 48.41N exhibits two anchor bolts (Anchor Bolts #6 and #7) that sound dead and one anchor bolt with an unseated leveling nut and washer (Anchor Bolt #6) at the south column of the west end frame, looking west.

13. SIGN STRUCTURE INVENTORY

a. GARDEN STATE PARKWAY INVENTORY

No.	Asset Name	Asset Code	Type ID	Location
		Parkway Signs Group 1		
1	MP 0.2S	MP 0.2S	Vierendeel Cantilever	Parkway S
2	MP 5.80S	MP 5.80S	Vierendeel Cantilever	Parkway S
3	MP 6.03N	MP 6.03N	Vierendeel Cantilever	Parkway N
4	MP 10.60N	MP 10.60N	Vierendeel Cantilever	Parkway N
5	MP 10.80N	MP 10.80N	Vierendeel Cantilever	Parkway N
6	MP 11.38S	MP 11.38S	Vierendeel Cantilever	Parkway S
7	MP 11.67S	MP 11.67S	Vierendeel Cantilever	Parkway S
8	MP 11.96N	MP 11.96N	Vierendeel Cantilever	Parkway N
9	MP 13.02S	MP 13.02S	Vierendeel Cantilever	Parkway S
10	MP 17.4N	MP 17.4N	Single Plane Vierendeel Sign Bridge	Parkway N
11	MP 17.90N	MP 17.90N	Vierendeel Cantilever	Parkway N
12	MP 18.2N	MP 18.2N	Single Plane Vierendeel Sign Bridge	Parkway N
13	MP 18.7N	MP 18.7N	Single Plane Vierendeel Sign Bridge	Parkway N
14	MP 19.15N	MP 19.15N	Single Plane Vierendeel Sign Bridge	Parkway N
15	MP 19.74S	MP 19.74S	Vierendeel Cantilever	Parkway S
16	MP 23.96N	MP 23.96N	Vierendeel Cantilever	Parkway N
17	MP 27.15N	MP 27.15N	Vierendeel Cantilever	Parkway N
18	MP 28.58S	MP 28.58S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
19	MP 28.7S	MP 28.7S	Vierendeel Cantilever	Parkway Great Egg Toll Plaza: EZ Pass Lane 1
20	MP 31.05S	MP 31.05S	Vierendeel Cantilever	Parkway New Gretna Toll Plaza: EZ Pass Lane 1
21	MP 31.50S	MP 31.50S	Vierendeel Cantilever	Parkway S
22	MP 33.30N	MP 33.30N	Vierendeel Cantilever	Parkway N
23	MP 34.60N	MP 34.60N	Vierendeel Cantilever	Parkway N
24	MP 35.10N	MP 35.10N	Single Plane Vierendeel Sign Bridge	Parkway N
25	MP 35.55N	MP 35.55N	Vierendeel Cantilever	Parkway N
26	MP 35.81N	MP 35.81N	Single Plane Vierendeel Sign Bridge	Parkway N
27	MP 36.05S	MP 36.05S	Vierendeel Cantilever	Parkway S
28	MP 36.50N	MP 36.50N	Vierendeel Cantilever	Parkway N
29	MP 36.50S	MP 36.50S	Vierendeel Cantilever	Parkway S
30	MP 36.95S	MP 36.95S	Single Plane Vierendeel Sign Bridge	Parkway S
31	MP 37.00N	MP 37.00N	Single Plane Vierendeel Sign Bridge	Parkway N
32	MP 37.06 38SBE	MP 37.06 38SBE	Single Plane Vierendeel Sign Bridge	Parkway Ramp 38SBE
33	MP 37.20N	MP 37.20N	Single Plane Vierendeel Sign Bridge	Parkway N
34	MP 37.25S	MP 37.25S	Single Plane Vierendeel Sign Bridge	Parkway S
35	MP 37.50S	MP 37.50S	Single Plane Vierendeel Sign Bridge	Parkway S
36	MP 38.00N	MP 38.00N	Vierendeel Cantilever	Parkway N
37	MP 38.00S	MP 38.00S	Single Plane Vierendeel Sign Bridge	Parkway S
38	MP 38.45S	MP 38.45S	Single Plane Vierendeel Sign Bridge	Parkway S
39	MP 39.35N	MP 39.35N	Single Plane Vierendeel Sign Bridge	Parkway N
40	MP 39.45S	MP 39.45S	Vierendeel Cantilever	Parkway S
41	MP 39.86S	MP 39.86S	Vierendeel Cantilever	Parkway S
42	MP 39.99S	MP 39.99S	Vierendeel Cantilever	Parkway S
43	MP 40.45N	MP 40.45N	Single Plane Vierendeel Sign Bridge	Parkway N
44	MP 40.50S	MP 40.50S	Vierendeel Cantilever	Parkway S
45	MP 40.85N	MP 40.85N	Single Plane Vierendeel Sign Bridge	Parkway N
46	MP 40.96S	MP 40.96S	Vierendeel Cantilever	Parkway S
47	MP 41.08N	MP 41.08N	Vierendeel Cantilever	Parkway N
48	MP 41.38N	MP 41.38N	Vierendeel Cantilever	Parkway N
49	MP 41.66S	MP 41.66S	Vierendeel Cantilever	Parkway S
50	MP 42.07S	MP 42.07S	Double Plane Vierendeel Sign Bridge	Parkway S
51	MP 42.09N	MP 42.09N	Vierendeel Cantilever	Parkway N
52	MP 42.35S	MP 42.35S	Vierendeel Cantilever	Parkway S
53	MP 42.52N	MP 42.52N	Vierendeel Cantilever	Parkway N
54	MP 42.57S	MP 42.57S	Single Plane Vierendeel Sign Bridge	Parkway S
55	MP 43.01S	MP 43.01S	Vierendeel Cantilever	Parkway S
56	MP 43.05N	MP 43.05N	Vierendeel Cantilever	Parkway N

No.	Asset Name	Asset Code	Type ID	Location
57	MP 43.40N	MP 43.40N	Vierendeel Cantilever	Parkway N
58	MP 43.72S	MP 43.72S	Single Plane Vierendeel Sign Bridge	Parkway S
59	MP 43.97N	MP 43.97N	Vierendeel Cantilever	Parkway N
60	MP 44.30S	MP 44.30S	Vierendeel Cantilever	Parkway S
61	MP 44.86S	MP 44.86S	Vierendeel Cantilever	Parkway S
62	MP 45.35S	MP 45.35S	Vierendeel Cantilever	Parkway S
63	MP 46.20S	MP 46.20S	Vierendeel Cantilever	Parkway S
64	MP 46.45N	MP 46.45N	Vierendeel Cantilever	Parkway N
65	MP 46.65S	MP 46.65S	Vierendeel Cantilever	Parkway S
66	MP 48.27N	MP 48.27N	Vierendeel Cantilever	Parkway N
67	MP 48.35S	MP 48.35S	Single Plane Vierendeel Sign Bridge	Parkway S
68	MP 48.74S	MP 48.74S	Vierendeel Cantilever	Parkway S
69	MP 49.61N	MP 49.61N	Vierendeel Cantilever	Parkway N
70	MP 49.64S	MP 49.64S	Vierendeel Cantilever	Parkway S
71	MP 50.24	MP 50.24	Double Plane Vierendeel Sign Bridge	Parkway N/S
72	MP 50.63N	MP 50.63N	Single Plane Vierendeel Sign Bridge	Parkway N
73	MP 53.12S	MP 53.12S	Vierendeel Cantilever	Parkway S
74	MP 53.5N	MP 53.5N	Vierendeel Cantilever	Parkway New Gretna Toll Plaza: EZ Pass Lane 1
75	MP 53.60S	MP 53.60S	Vierendeel Cantilever	Parkway S
76	MP 54.10S	MP 54.10S	Vierendeel Cantilever	Parkway S
77	MP 54.22N	MP 54.22N	Vierendeel Cantilever	Parkway N
78	MP 54.38S	MP 54.38S	Vierendeel Cantilever	Parkway S
79	MP 55.10S	MP 55.10S	Vierendeel Cantilever	Parkway S
80	MP 56.50N	MP 56.50N	Vierendeel Cantilever	Parkway N
81	MP 57.50N	MP 57.50N	Vierendeel Cantilever	Parkway N
82	MP 57.95N	MP 57.95N	Vierendeel Cantilever	Parkway N
83	MP 58.45N	MP 58.45N	Vierendeel Cantilever	Parkway N
84	MP 58.95S	MP 58.95S	Vierendeel Cantilever	Parkway S
85	MP 59.45S	MP 59.45S	Vierendeel Cantilever	Parkway S
86	MP 59.93S	MP 59.93S	Vierendeel Cantilever	Parkway S
87	MP 60.50S	MP 60.50S	Vierendeel Cantilever	Parkway S
88	MP 60.80N	MP 60.80N	Vierendeel Cantilever	Parkway N
89	MP 60.95S	MP 60.95S	Vierendeel Cantilever	Parkway S
90	MP 61.8N	MP 61.8N	Vierendeel Cantilever	Parkway N
91	MP 62.8N	MP 62.8N	Vierendeel Cantilever	Parkway N
92	MP 63.3N	MP 63.3N	Vierendeel Cantilever	Parkway N
93	MP 63.8N	MP 63.8N	Single Plane Vierendeel Sign Bridge	Parkway N
94	MP 64.0 63SBX	MP 64.0 63SBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 63SBX
95	MP 64.1 63SBX	MP 64.1 63SBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 63SBX
96	MP 64.2N	MP 64.2N	Vierendeel Cantilever	Parkway N
97	MP 64.2SR	MP 64.2SR	Vierendeel Cantilever	Parkway S
98	MP 64.7S	MP 64.7S	Vierendeel Cantilever	Parkway S
99	MP 64.80N	MP 64.80N	Vierendeel Cantilever	Parkway N
100	MP 65.2S	MP 65.2S	Vierendeel Cantilever	Parkway S
101	MP 65.5N	MP 65.5N	Vierendeel Cantilever	Parkway N
102	MP 66.2S	MP 66.2S	Vierendeel Cantilever	Parkway S
103	MP 66.5N	MP 66.5N	Vierendeel Cantilever	Parkway N
104	MP 66.95S	MP 66.95S	Vierendeel Cantilever	Parkway S
105	MP 67.0N	MP 67.0N	Vierendeel Cantilever	Parkway N
106	MP 67.5N	MP 67.5N	Vierendeel Cantilever	Parkway N
107	MP 67.6S	MP 67.6S	Vierendeel Cantilever	Parkway S
108	MP 67.9S	MP 67.9S	Single Plane Vierendeel Sign Bridge	Parkway S
109	MP 68.1N	MP 68.1N	Vierendeel Cantilever	Parkway N
110	MP 68.60N	MP 68.60N	Vierendeel Cantilever	Parkway N
111	MP 68.7S	MP 68.7S	Vierendeel Cantilever	Parkway S
112	MP 69.1N	MP 69.1N	Vierendeel Cantilever	Parkway N
113	MP 69.1S	MP 69.1S	Single Plane Vierendeel Sign Bridge	Parkway S
114	MP 69.4S	MP 69.4S	Single Plane Vierendeel Sign Bridge	Parkway S

No.	Asset Name	Asset Code	Type ID	Location
115	MP 69.6N	MP 69.6N	Vierendeel Cantilever	Parkway N
116	MP 69.7S	MP 69.7S	Vierendeel Cantilever	Parkway S
117	MP 69.9S	MP 69.9S	Single Plane Vierendeel Sign Bridge	Parkway S
118	MP 70.1N	MP 70.1N	Vierendeel Cantilever	Parkway N
119	MP 70.5S	MP 70.5S	Vierendeel Cantilever	Parkway S
120	MP 70.85N	MP 70.85N	Vierendeel Cantilever	Parkway N
121	MP 70.8S	MP 70.8S	Single Plane Vierendeel Sign Bridge	Parkway S
122	MP 71.3S	MP 71.3S	Vierendeel Cantilever	Parkway S
123	MP 72.3S	MP 72.3S	Vierendeel Cantilever	Parkway S
124	MP 73.0N	MP 73.0N	Vierendeel Cantilever	Parkway N
125	MP 74.0N	MP 74.0N	Vierendeel Cantilever	Parkway N
126	MP 74.57S	MP 74.57S	Vierendeel Cantilever	Parkway S
127	MP 74.5N	MP 74.5N	Vierendeel Cantilever	Parkway N
128	MP 75.0N	MP 75.0N	Vierendeel Cantilever	Parkway N
129	MP 75.2N	MP 75.2N	Vierendeel Cantilever	Parkway N
130	MP 75.4S	MP 75.4S	Vierendeel Cantilever	Parkway S
131	MP 75.6N	MP 75.6N	Vierendeel Cantilever	Parkway N
132	MP 75.6S	MP 75.6S	Vierendeel Cantilever	Parkway S
133	MP 75.9N	MP 75.9N	Vierendeel Cantilever	Parkway N
134	MP 76.2N	MP 76.2N	Vierendeel Cantilever	Parkway N
135	MP 76.2S	MP 76.2S	Single Plane Vierendeel Sign Bridge	Parkway S
136	MP 76.5S	MP 76.5S	Vierendeel Cantilever	Parkway S
137	MP 76.7N	MP 76.7N	Vierendeel Cantilever	Parkway N
138	MP 77.2N	MP 77.2N	Vierendeel Cantilever	Parkway N
139	MP 77.2S	MP 77.2S	Single Plane Vierendeel Sign Bridge	Parkway S
140	MP 77.54S	MP 77.54S	Vierendeel Cantilever	Parkway S
141	MP 78.1S	MP 78.1S	Vierendeel Cantilever	Parkway S
142	MP 78.40N	MP 78.40N	Vierendeel Cantilever	Parkway N
143	MP 78.5S	MP 78.5S	Vierendeel Cantilever	Parkway S
144	MP 79.0S	MP 79.0S	Vierendeel Cantilever	Parkway S
145	MP 79.5S	MP 79.5S	Vierendeel Cantilever	Parkway S
146	MP 80.20N	MP 80.20N	Single Plane Vierendeel Sign Bridge	Parkway N
147	MP 80.5S	MP 80.5S	Vierendeel Cantilever	Parkway S
148	MP 80.7N	MP 80.7N	Vierendeel Cantilever	Parkway N
149	MP 80.7S	MP 80.7S	Single Plane Vierendeel Sign Bridge	Parkway S
150	MP 80.8S	MP 80.8S	Single Plane Vierendeel Sign Bridge	Parkway S

Parkway Signs Group 2				
1	MP 81.0 80SBX	MP 81.0 80SBX	Vierendeel Cantilever	Parkway S and Ramp 80SBX
2	MP 81.1N	MP 81.1N	Single Plane Vierendeel Sign Bridge	Parkway N
3	MP 81.4N	MP 81.4N	Single Plane Vierendeel Sign Bridge	Parkway N
4	MP 81.6 80SBX	MP 81.6 80SBX	Vierendeel Cantilever	Parkway S and Ramp 80SBX
5	MP 81.7N	MP 81.7N	Vierendeel Cantilever	Parkway N and Ramp 81NBX
6	MP 81.95N	MP 81.95N	Vierendeel Cantilever	Parkway N and Ramp 82NBX
7	MP 81.9S	MP 81.9S	Single Plane Vierendeel Sign Bridge	Parkway S and Ramp 81SBX
8	MP 82.0S	MP 82.0S	Vierendeel Cantilever	Parkway S
9	MP 82.1N	MP 82.1N	Single Plane Vierendeel Sign Bridge	Parkway N and Ramp 82NBX
10	MP 82.3S	MP 82.3S	Single Plane Vierendeel Sign Bridge	Parkway S and Ramp 82SBX
11	MP 82.4N	MP 82.4N	Single Plane Vierendeel Sign Bridge	Parkway N and Ramp 82ANBX
12	MP 82.5S	MP 82.5S	Single Plane Vierendeel Sign Bridge	Parkway S and Ramp 82ASBX

No.	Asset Name	Asset Code	Type ID	Location
13	MP 82.7	MP 82.7	Double Plane Vierendeel Sign Bridge	Parkway N/S
14	MP 82.9N	MP 82.9N	Vierendeel Cantilever	Parkway N
15	MP 83.0S	MP 83.0S	Vierendeel Cantilever	Parkway S
16	MP 83.13N	MP 83.13N	Vierendeel Cantilever	Parkway N
17	MP 83.3S	MP 83.3S	Single Plane Vierendeel Sign Bridge	Parkway S
18	MP 83.4N	MP 83.4N	Vierendeel Cantilever	Parkway N
19	MP 83.6NR	MP 83.6NR	Single Plane Vierendeel Sign Bridge	Parkway N
20	MP 83.82N	MP 83.82N	Vierendeel Cantilever	Parkway N and Ramp 83NBX
21	MP 84.1 83NBX	MP 84.1 83NBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 83NBX
22	MP 84.3N	MP 84.3N	Single Plane Vierendeel Sign Bridge	Parkway N
23	MP 84.5S	MP 84.5S	Vierendeel Cantilever	Parkway S
24	MP 84.6N	MP 84.6N	Single Plane Vierendeel Sign Bridge	Parkway N
25	MP 84.9SR	MP 84.9SR	Single Plane Vierendeel Sign Bridge	Parkway S
26	MP 85.4SR	MP 85.4SR	Single Plane Vierendeel Sign Bridge	Parkway S
27	MP 85.8SR	MP 85.8SR	Single Plane Vierendeel Sign Bridge	Parkway S
28	MP 86.8SR	MP 86.8SR	Vierendeel Cantilever	Parkway S
29	MP 87.0SR	MP 87.0SR	Single Plane Vierendeel Sign Bridge	Parkway S
30	MP 87.1N	MP 87.1N	Vierendeel Cantilever	Parkway N
31	MP 87.30N	MP 87.30N	Vierendeel Cantilever	Parkway N
32	MP 88.2N	MP 88.2N	Vierendeel Cantilever	Parkway N
33	MP 88.7N	MP 88.7N	Vierendeel Cantilever	Parkway N and Ramp 89NBX
34	MP 89.02N	MP 89.02N	Double Plane Vierendeel Sign Bridge	Parkway N and Ramp 89NBX
35	MP 89.19N	MP 89.19N	Double Plane Vierendeel Sign Bridge	Parkway N and Ramp 89NBX
36	MP 89.3 89ASBX	MP 89.3 89ASBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road S and Ramp 89ASBX
37	MP 89.4N	MP 89.4N	Vierendeel Cantilever	Parkway N
38	MP 89.4 89ANBX	MP 89.4 89ANBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road N and Ramp 89ANBX
39	MP 89.5 89ASBX	MP 89.5 89ASBX	Vierendeel Cantilever	Parkway Int. 89 Service Road S
40	MP 89.6 89ANBX	MP 89.6 89ANBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road N and Ramp 89ANBX
41	MP 89.6 89BSBX	MP 89.6 89BSBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road S and Ramp 89BSBX
42	MP 89.7 89BNBX	MP 89.7 89BNBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road N and Ramp 89BNBX
43	MP 89.9 89BNBX	MP 89.9 89BNBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road N and Ramp 89BNBX
44	MP 89.85 89BSBX	MP 89.85 89BSBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road S and Ramp 89BSBX
45	MP 89.89N	MP 89.89N	Vierendeel Cantilever	Parkway N
46	MP 90.0 89SBX	MP 90.0 89SBX	Double Plane Vierendeel Sign Bridge	Parkway Int. 89 Service Road S and Ramp 89SBX
47	MP 90.3S	MP 90.3S	Single Plane Vierendeel Sign Bridge	Parkway S and Ramp 89SBX
48	MP 90.5N	MP 90.5N	Double Plane Vierendeel Sign Bridge	Parkway N and Ramp 90NBX
49	MP 90.82S	MP 90.82S	Vierendeel Cantilever	Parkway S and Ramp 89SBX
50	MP 90.92N	MP 90.92N	Vierendeel Cantilever	Parkway N and Ramp 90NBX

No.	Asset Name	Asset Code	Type ID	Location
51	MP 91.15N	MP 91.15N	Vierendeel Cantilever	Parkway N
52	MP 91.31S	MP 91.31S	Vierendeel Cantilever	Parkway S
53	MP 91.5N	MP 91.5N	Vierendeel Cantilever	Parkway N
54	MP 92.0N	MP 92.0N	Vierendeel Cantilever	Parkway N
55	MP 92.0S	MP 92.0S	Vierendeel Cantilever	Parkway S
56	MP 92.3S	MP 92.3S	Single Plane Vierendeel Sign Bridge	Parkway S and Ramp 91SBE
57	MP 92.5N	MP 92.5N	Vierendeel Cantilever	Parkway N and Ramp 91NBX
58	MP 92.7S	MP 92.7S	Vierendeel Cantilever	Parkway Int. 91 Service Road S and Ramp 91ASBX
59	MP 92.9 91SBX	MP 92.9 91SBX	Single Plane Vierendeel Sign Bridge	Parkway S Service Road at Int. 91
60	MP 93.2R 91SBX	MP 93.2R 91SBX	Vierendeel Cantilever	Parkway S and Ramp 91SBX
61	MP 93.53N	MP 93.53N	Double Plane Vierendeel Sign Bridge	Parkway N
62	MP 93.75S	MP 93.75S	Vierendeel Cantilever	Parkway S and Ramp 91SBX
63	MP 94.2S	MP 94.2S	Vierendeel Cantilever	Parkway S and Inspection Area Ramp SBE
64	MP 94.74N	MP 94.74N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
65	MP 95.22S	MP 95.22S	Double Plane Vierendeel Sign Bridge	Parkway S
66	MP 95.8N	MP 95.8N	Single Plane Vierendeel Sign Bridge	Parkway N
67	MP 96.09S	MP 96.09S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
68	MP 96.7N	MP 96.7N	Single Plane Vierendeel Sign Bridge	Parkway N
69	MP 97.13N	MP 97.13N	Vierendeel Cantilever	Parkway N
70	MP 97.61N	MP 97.61N	Vierendeel Cantilever	Parkway N and Ramp 98NBX
71	MP 97.95N	MP 97.95N	Vierendeel Cantilever	Parkway N
72	MP 98.08 98SBX	MP 98.08 98SBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 98 Service Road S and Ramp 98SBX
73	MP 98.1 98NBX	MP 98.1 98NBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 98 Service Road N and Ramp 98NBX
74	MP 98.2 98NBX	MP 98.2 98NBX	Vierendeel Cantilever	Parkway Int. 98 Service Road N
75	MP 98.2R 98SBX	MP 98.2R 98SBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 98 Service Road S and Ramp 98SBX
76	MP 98.3 98NBX	MP 98.3 98NBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 98 Service Road N and Ramp 98NBX
77	MP 98.4 98SBX	MP 98.4 98SBX	Single Plane Vierendeel Sign Bridge	Parkway Int. 98 Service Road S
78	MP 98.55S	MP 98.55S	Double Plane Vierendeel Sign Bridge	Parkway S
79	MP 98.85S	MP 98.85S	Vierendeel Cantilever	Parkway S and Ramp 98SBX
80	MP 98.96N	MP 98.96N	Vierendeel Cantilever	Parkway N
81	MP 99.0S	MP 99.0S	Double Plane Vierendeel Sign Bridge	Parkway S and Ramp 98SBX
82	MP 99.29N	MP 99.29N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
83	MP 99.31S	MP 99.31S	Vierendeel Cantilever	Parkway S
84	MP 99.52N	MP 99.52N	Single Plane Vierendeel Sign Bridge	Parkway N
85	MP 99.8N	MP 99.8N	Vierendeel Cantilever	Parkway N
86	MP 99.8S	MP 99.8S	Double Plane Vierendeel Sign Bridge	Parkway S
87	MP 100.0N SA100 NBE	MP 100.0N SA100 NBE	Vierendeel Cantilever	Parkway Judy Blume Service Area Ramp NBE
88	MP 100.2N	MP 100.2N	Double Plane Vierendeel Sign Bridge	Parkway N
89	MP 100.5 SA100 SBX	MP 100.5 SA100 SBX	Vierendeel Cantilever	Parkway Judy Blume Service Area Ramp SBX
90	MP 100.5N	MP 100.5N	Double Plane Vierendeel Sign Bridge	Parkway N

No.	Asset Name	Asset Code	Type ID	Location
91	MP 100.8N	MP 100.8N	Double Plane Vierendeel Sign Bridge	Parkway N and Ramp 100ANBX
92	MP 101.1S	MP 101.1S	Double Plane Vierendeel Sign Bridge	Parkway S
93	MP 101.25 100ASBX	MP 101.25 100ASBX	Vierendeel Cantilever	Parkway S and Ramp 100ASBX
94	MP 101.4S	MP 101.4S	Double Plane Vierendeel Sign Bridge	Parkway S
95	MP 101.56N	MP 101.56N	Vierendeel Cantilever	Parkway N and Ramp 100CNBX
96	MP 101.5NR	MP 101.5NR	Vierendeel Cantilever	Parkway N and Ramp 100BNBX
97	MP 101.9S	MP 101.9S	Double Plane Vierendeel Sign Bridge	Parkway S
98	MP 102.02S	MP 102.02S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
99	MP 102.1N	MP 102.1N	Double Plane Vierendeel Sign Bridge	Parkway N
100	MP 102.2S	MP 102.2S	Double Plane Vierendeel Sign Bridge	Parkway S
101	MP 102.31N	MP 102.31N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
102	MP 102.7N	MP 102.7N	Single Plane Vierendeel Sign Bridge	Parkway N
103	MP 102.7S	MP 102.7S	Single Plane Vierendeel Sign Bridge	Parkway S
104	MP 102.9NR	MP 102.9NR	Single Plane Vierendeel Sign Bridge	Parkway N
105	MP 103.1 102SBX	MP 103.1 102SBX	Vierendeel Cantilever	Parkway S and Ramp 102SBX
106	MP 103.2N	MP 103.2N	Double Plane Vierendeel Sign Bridge	Parkway N
107	MP 103.59S	MP 103.59S	Double Plane Vierendeel Sign Bridge	Parkway S and Ramp 102SBX
108	MP 103.6N	MP 103.6N	Single Plane Vierendeel Sign Bridge	Parkway N
109	MP 103.7N	MP 103.7N	Double Plane Vierendeel Sign Bridge	Parkway N
110	MP 104.27SBI	MP 104.27SBI	Vierendeel Cantilever	Parkway SBI
111	MP 104.27SBO	MP 104.27SBO	Vierendeel Cantilever	Parkway SBO
112	MP 104.3N	MP 104.3N	Vierendeel Butterfly	Parkway NBI/NBO
113	MP 104.47NBO	MP 104.47NBO	Vierendeel Cantilever	Parkway NBO
114	MP 104.55S	MP 104.55S	Vierendeel Butterfly	Parkway SBO/SBI
115	MP 104.99NBO	MP 104.99NBO	Vierendeel Cantilever	Parkway NBO
116	MP 105.05S	MP 105.05S	Double Plane Vierendeel Sign Bridge	Parkway SBO/SBI
117	MP 105.47NBO	MP 105.47NBO	Vierendeel Cantilever	Parkway NBO
118	MP 105.5NBO	MP 105.5NBO	Vierendeel Cantilever	Parkway NBO and Ramp 105NBX
119	MP 106.0NBO	MP 106.0NBO	Double Plane Vierendeel Sign Bridge	Parkway NBO and Ramp 105NBX
120	MP 106.2R 105NBX	MP 106.2R 105NBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 105NBX
121	MP 106.4R 105NBE	MP 106.4R 105NBE	Vierendeel Butterfly	Parkway Ramps 105NBIE/105NBOE
122	MP 106.4R 105NBE/SBE	MP 106.4R 105NBE/SBE	Single Plane Vierendeel Sign Bridge	Parkway Ramps 105NBE/105SBE
123	MP 106.6R 105SBIX	MP 106.6R 105SBIX	Vierendeel Cantilever	Parkway SBI and Ramp 105SBIX
124	MP 106.7 105SBXL	MP 106.7 105SBXL	Vierendeel Cantilever	Parkway Int. 105 Service Road SBO and Ramp 105SBXL
125	MP 106.9SBO	MP 106.9SBO	Double Plane Vierendeel Sign Bridge	Parkway SBO and Ramp 105SBX
126	MP 107.1SBI	MP 107.1SBI	Vierendeel Cantilever	Parkway SBI
127	MP 107.4SBO	MP 107.4SBO	Vierendeel Cantilever	Parkway SBO
128	MP 107.51NBI	MP 107.51NBI	Vierendeel Cantilever	Parkway NBI
129	MP 107.51NBO	MP 107.51NBO	Vierendeel Cantilever	Parkway NBO
130	MP 107.77SBI	MP 107.77SBI	Vierendeel Cantilever	Parkway SBI
131	MP 107.88SBO	MP 107.88SBO	Vierendeel Cantilever	Parkway SBO
132	MP 107.93NBO	MP 107.93NBO	Vierendeel Cantilever	Parkway NBO
133	MP 108.33SBI	MP 108.33SBI	Vierendeel Cantilever	Parkway SBI
134	MP 108.33SBO	MP 108.33SBO	Vierendeel Cantilever	Parkway SBO
135	MP 108.89SBO	MP 108.89SBO	Vierendeel Cantilever	Parkway SBO

No.	Asset Name	Asset Code	Type ID	Location
136	MP 108.90SBI	MP 108.90SBI	Vierendeel Cantilever	Parkway SBI
137	MP 108.95NBO	MP 108.95NBO	Vierendeel Cantilever	Parkway NBO
138	MP 110.04 109NBX	MP 110.04 109NBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 109NBX
139	MP 110.43 109SBX	MP 110.43 109SBX	Vierendeel Cantilever	Parkway SBO and Ramp 109SBX
140	MP 110.97NBO	MP 110.97NBO	Vierendeel Cantilever	Parkway NBO
141	MP 110.99SBO	MP 110.99SBO	Vierendeel Cantilever	Parkway SBO

Parkway Signs Group 3				
1	MP 111.36SBO	MP 111.36SBO	Vierendeel Cantilever	Parkway SBO
2	MP 111.55NBO	MP 111.55NBO	Vierendeel Cantilever	Parkway NBO
3	MP 112.03NBI	MP 112.03NBI	Vierendeel Cantilever	Parkway NBI
4	MP 112.11SBI	MP 112.11SBI	Vierendeel Cantilever	Parkway SBI
5	MP 112.11SBO	MP 112.11SBO	Vierendeel Cantilever	Parkway SBO
6	MP 112.20NBI	MP 112.20NBI	Vierendeel Cantilever	Parkway NBI
7	MP 112.41SBO	MP 112.41SBO	Vierendeel Cantilever	Parkway SBO
8	MP 112.49NBO	MP 112.49NBO	Vierendeel Cantilever	Parkway NBO
9	MP 112.98NBO	MP 112.98NBO	Vierendeel Cantilever	Parkway NBO
10	MP 113.16NBI	MP 113.16NBI	Vierendeel Cantilever	Parkway NBI
11	MP 113.47N	MP 113.47N	Double Plane Vierendeel Sign Bridge	Parkway NBI/NBO
12	MP 114.16NBI	MP 114.16NBI	Vierendeel Cantilever	Parkway NBI
13	MP 114.16SBO	MP 114.16SBO	Vierendeel Cantilever	Parkway SBO
14	MP 114.51NBO	MP 114.51NBO	Single Plane Vierendeel Sign Bridge	Parkway NBO
15	MP 114.59SBO	MP 114.59SBO	Vierendeel Cantilever	Parkway SBO
16	MP 114.97NBO	MP 114.97NBO	Vierendeel Cantilever	Parkway NBO
17	MP 115.02SBO	MP 115.02SBO	Vierendeel Cantilever	Parkway SBO
18	MP 115.20NBO	MP 115.20NBO	Vierendeel Cantilever	Parkway NBO
19	MP 115.5SBO	MP 115.5SBO	Single Plane Vierendeel Sign Bridge	Parkway SBO
20	MP 115.60NBO	MP 115.60NBO	Vierendeel Cantilever	Parkway NBO
21	MP 115.7 116NBX	MP 115.7 116NBX	Vierendeel Cantilever	Parkway Ramp 116NBX
22	MP 115.74NBO	MP 115.74NBO	Single Plane Vierendeel Sign Bridge	Parkway NBO
23	MP 115.9 PNCSBX	MP 115.9 PNCSBX	Vierendeel Cantilever	Parkway Ramp PNCSBX
24	MP 116.0NBO	MP 116.0NBO	Single Plane Vierendeel Sign Bridge	Parkway NBO
25	MP 116.32SBO	MP 116.32SBO	Single Plane Vierendeel Sign Bridge	Parkway SBO
26	MP 116.36NBO	MP 116.36NBO	Single Plane Vierendeel Sign Bridge	Parkway NBO
27	MP 116.6NBO	MP 116.6NBO	Vierendeel Cantilever	Parkway NBO
28	MP 116.80SBO	MP 116.80SBO	Vierendeel Cantilever	Parkway SBO
29	MP 116.86NBO	MP 116.86NBO	Vierendeel Cantilever	Parkway NBO
30	MP 116.96NBO	MP 116.96NBO	Vierendeel Cantilever	Parkway NBO
31	MP 117.16SBO	MP 117.16SBO	Single Plane Vierendeel Sign Bridge	Parkway SBO
32	MP 117.31NBO	MP 117.31NBO	Vierendeel Cantilever	Parkway NBO
33	MP 117.63SBO	MP 117.63SBO	Vierendeel Cantilever	Parkway SBO
34	MP 117.7SBIR	MP 117.7SBIR	Vierendeel Cantilever	Parkway SBI
35	MP 117.88NBO	MP 117.88NBO	Vierendeel Cantilever	Parkway NBO
36	MP 117.95NBI	MP 117.95NBI	Vierendeel Cantilever	Parkway NBI
37	MP 118.10SBIR	MP 118.10SBIR	Vierendeel Cantilever	Parkway SBI
38	MP 118.12SBOR	MP 118.12SBOR	Single Plane Vierendeel Sign Bridge	Parkway SBO
39	MP 118.30SBI	MP 118.30SBI	Vierendeel Cantilever	Parkway SBI
40	MP 118.38NBO	MP 118.38NBO	Vierendeel Cantilever	Parkway NBO
41	MP 118.52SBI	MP 118.52SBI	Vierendeel Cantilever	Parkway SBI
42	MP 118.7R 117NBE	MP 118.7R 117NBE	Vierendeel Butterfly	Parkway Ramp 117NBE
43	MP 118.79SBO	MP 118.79SBO	Single Plane Vierendeel Sign Bridge	Parkway SBO
44	MP 118.80SBI	MP 118.80SBI	Single Plane Vierendeel Sign Bridge	Parkway SBI
45	MP 119.01SBO	MP 119.01SBO	Vierendeel Cantilever	Parkway SBO
46	MP 119.02NBO	MP 119.02NBO	Vierendeel Cantilever	Parkway NBO
47	MP 119.2SBI	MP 119.2SBI	Single Plane Vierendeel Sign Bridge	Parkway SBI
48	MP 119.2SBO	MP 119.2SBO	Vierendeel Single Plane and Cantilever	Parkway SBO
49	MP 119.58S	MP 119.58S	Vierendeel Butterfly	Parkway SBO/SBI

No.	Asset Name	Asset Code	Type ID	Location
50	MP 120.0SBO	MP 120.0SBO	Vierendeel Single Plane and Cantilever	Parkway SBO
51	MP 120.20NBO	MP 120.20NBO	Vierendeel Cantilever	Parkway NBO
52	MP 120.65S	MP 120.65S	Double Plane Vierendeel Sign Bridge	Parkway SBO/SBI
53	MP 120.89NBO	MP 120.89NBO	Vierendeel Cantilever	Parkway NBO
54	MP 121.11NBO	MP 121.11NBO	Vierendeel Cantilever	Parkway NBO
55	MP 121.12SBO	MP 121.12SBO	Vierendeel Cantilever	Parkway SBO
56	MP 121.64SBO	MP 121.64SBO	Vierendeel Cantilever	Parkway SBO
57	MP 121.73NBI	MP 121.73NBI	Vierendeel Cantilever	Parkway NBI
58	MP 121.73NBO	MP 121.73NBO	Vierendeel Cantilever	Parkway NBO
59	MP 122.16SBO	MP 122.16SBO	Vierendeel Cantilever	Parkway SBO
60	MP 122.5NR	MP 122.5NR	Vierendeel Butterfly	Parkway NBI/NBO
61	MP 122.89SBI	MP 122.89SBI	Vierendeel Cantilever	Parkway SBI
62	MP 122.90SBO	MP 122.90SBO	Vierendeel Cantilever	Parkway SBO
63	MP 123.17SBO	MP 123.17SBO	Vierendeel Cantilever	Parkway SBO
64	MP 123.30N	MP 123.30N	Butterfly	Parkway NBI/NBO
65	MP 123.55NBO	MP 123.55NBO	Vierendeel Cantilever	Parkway NBO
66	MP 123.6NBI	MP 123.6NBI	Cantilever	Parkway NBI
67	MP 123.6NBO	MP 123.6NBO	Cantilever	Parkway NBO
68	MP 123.9SAS	MP 123.9SAS	Butterfly	Parkway Bon Jovi Service Area
69	MP 124.07N	MP 124.07N	Vierendeel Butterfly	Parkway NBI/NBO
70	MP 124.4SBI	MP 124.4SBI	Cantilever	Parkway SBI
71	MP 124.8RSBO	MP 124.8RSBO	Single Plane Vierendeel Sign Bridge	Parkway SBO
72	MP 124.93N	MP 124.93N	Double Plane Vierendeel Sign Bridge	Parkway NBI/NBO
73	MP 124.95SBO	MP 124.95SBO	Vierendeel Cantilever	Parkway SBO
74	MP 125.26NBI	MP 125.26NBI	Vierendeel Cantilever	Parkway NBI
75	MP 125.3S	MP 125.3S	Single Plane Vierendeel Sign Bridge	Parkway S
76	MP 125.31NBO	MP 125.31NBO	Vierendeel Cantilever	Parkway NBO
77	MP 125.6S	MP 125.6S	Canopy Mounted	Parkway Raritan Toll Plaza SB
78	MP 125.7N	MP 125.7N	Double Plane Vierendeel Sign Bridge	Parkway N
79	MP 125.95N	MP 125.95N	Double Plane Vierendeel Sign Bridge	Parkway N
80	MP 125.9S	MP 125.9S	Double Plane Vierendeel Sign Bridge	Parkway S
81	MP 126.09 125NBX	MP 126.09 125NBX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 125NBX
82	MP 126.22SR	MP 126.22SR	Double Plane Vierendeel Sign Bridge	Parkway S
83	MP 126.2NR	MP 126.2NR	Double Plane Vierendeel Sign Bridge	Parkway N
84	MP 126.46S	MP 126.46S	Double Plane Vierendeel Sign Bridge	Parkway S
85	MP 126.57S	MP 126.57S	Vierendeel Cantilever	Parkway S
86	MP 126.7N	MP 126.7N	Double Plane Vierendeel Sign Bridge	Parkway N
87	MP 126.83N	MP 126.83N	Double Plane Vierendeel Sign Bridge	Parkway N
88	MP 126.8SR	MP 126.8SR	Double Plane Vierendeel Sign Bridge	Parkway S
89	MP 127.71S	MP 127.71S	Vierendeel Cantilever	Parkway S
90	MP 127.8NBO	MP 127.8NBO	Double Plane Vierendeel Sign Bridge	Parkway NBO and Ramp 127NBX
91	MP 128.0 127NBOX	MP 128.0 127NBOX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 127 NBOX
92	MP 128.0R 127NBOX	MP 128.0R 127NBOX	Single Plane Vierendeel Sign Bridge	Parkway Ramp 127NBOX
93	MP 128.0AR	MP 128.0AR 127NBOX Y	Vierendeel Cantilever	Parkway Ramp 127 NBOX Y
94	MP 128.0ARII	MP 128.0ARII 127NBOX Y	Vierendeel Cantilever	Parkway Ramp 127 NBOX Y
95	MP 128.0BR	MP 128.0BR 127NBOX GT	Vierendeel Cantilever	Parkway Ramp 127 NBOX GT
96	MP 128.0BRII	MP 128.0BRII 127NBOX GT	Vierendeel Cantilever	Parkway Ramp 127 NBOX GT
97	MP 128.0C	MP 128.0C 127NBOX GT	Single Plane Vierendeel Sign Bridge	Parkway Ramp 127 NBOX GT
98	MP 128.0CR	MP 128.0CR 127NBOX GT	Single Plane Vierendeel Sign Bridge	Parkway Ramp 127 NBOX GT

No.	Asset Name	Asset Code	Type ID	Location
99	MP 128.3S	MP 128.3S	Double Plane Vierendeel Sign Bridge	Parkway S
100	MP 128.4N	MP 128.4N	Double Plane Vierendeel Sign Bridge	Parkway N
101	MP 128.74S	MP 128.74S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
102	MP 129.1 129TK	MP 129.1 129TK	Single Plane Vierendeel Sign Bridge	Parkway Ramp 129TK (GSP SB MP 129.1)
103	MP 129.11N	MP 129.11N	Vierendeel Butterfly	Parkway N and Ramp 127 NBE
104	MP 129.32N	MP 129.32N	Vierendeel Cantilever	Turnpike Ramp PST (GSP NB MP 129.32)
105	MP 129.8SR	MP 129.8SR	Double Plane Vierendeel Sign Bridge	Parkway S
106	MP 130.13S	MP 130.13S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
107	MP 130.19N	MP 130.19N	Double Plane Vierendeel Sign Bridge	Parkway N
108	MP 130.40SR	MP 130.40SR	Single Plane Vierendeel Sign Bridge	Parkway S
109	MP 130.6S	MP 130.6S	Cantilever	Parkway S
110	MP 130.80SR	MP 130.80SR	Double Plane Vierendeel Sign Bridge	Parkway S
111	MP 130.95N	MP 130.95N	Double Plane Vierendeel Sign Bridge	Parkway N
112	MP 131.09S	MP 131.09S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
113	MP 131.37S	MP 131.37S	Double Plane Vierendeel Sign Bridge	Parkway S
114	MP 131.3NR	MP 131.3NR	Double Plane Vierendeel Sign Bridge	Parkway N
115	MP 131.86N	MP 131.86N	Vierendeel Cantilever	Parkway N
116	MP 131.89S	MP 131.89S	Single Plane Vierendeel Sign Bridge	Parkway S
117	MP 132.10NR	MP 132.10NR	Vierendeel Cantilever	Parkway N
118	MP 132.1SR	MP 132.1SR	Vierendeel Cantilever	Parkway S
119	MP 132.35S	MP 132.35S	Single Plane Vierendeel Sign Bridge	Parkway S
120	MP 132.81S	MP 132.81S	Double Plane Vierendeel Sign Bridge	Parkway S
121	MP 133.34S	MP 133.34S	Double Plane Vierendeel Sign Bridge	Parkway S
122	MP 133.60S	MP 133.60S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
123	MP 133.64N	MP 133.64N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
124	MP 133.81S	MP 133.81S	Single Plane Vierendeel Sign Bridge	Parkway S
125	MP 134.18N	MP 134.18N	Single Plane Vierendeel Sign Bridge	Parkway N
126	MP 135.10	MP 135.10	Double Plane Vierendeel Sign Bridge	Parkway N/S
127	MP 135.80N	MP 135.80N	Vierendeel Cantilever	Parkway N
128	MP 136.1NR	MP 136.1NR	Vierendeel Cantilever	Parkway N
129	MP 136.1 135NBX	MP 136.1 135NBX	Monotube Type Sign Support	Parkway Ramp 135NBX
130	MP 136.1R 135SBX	MP 136.1R 135SBX	Vierendeel Cantilever	Parkway Ramp 135SBX
131	MP 136.3SR	MP 136.3SR	Vierendeel Cantilever	Parkway S
132	MP 136.62N	MP 136.62N	Vierendeel Cantilever	Parkway N
133	MP 136.74S	MP 136.74S	Double Plane Vierendeel Sign Bridge	Parkway S
134	MP 136.80N	MP 136.80N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
135	MP 136.92S	MP 136.92S	Single Plane Vierendeel Sign Bridge	Parkway S
136	MP 137.15N	MP 137.15N	Single Plane Vierendeel Sign Bridge	Parkway N
137	MP 137.4NR	MP 137.4NR	Vierendeel Cantilever	Parkway N
138	MP 137.6SR	MP 137.6SR	Vierendeel Cantilever	Parkway S
139	MP 137.88N	MP 137.88N	Vierendeel Cantilever	Parkway N
140	MP 138.02S	MP 138.02S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
141	MP 138.5R	MP 138.5R	Double Plane Vierendeel Sign Bridge	Parkway N/S

Parkway Signs Group 4				
1	MP 138.8NR	MP 138.8NR	Cantilever	Parkway N
2	MP 138.9SR	MP 138.9SR	Vierendeel Cantilever	Parkway S
3	MP 139.19	MP 139.19	Double Plane Vierendeel Sign Bridge	Parkway N/S
4	MP 139.51N	MP 139.51N	Vierendeel Overhead VMS/Hybrid Sign	Parkway N
5	MP 139.69	MP 139.69	Double Plane Vierendeel Sign Bridge	Parkway N/S
6	MP 140.17N	MP 140.17N	Double Plane Vierendeel Sign Bridge	Parkway N
7	MP 140.25S	MP 140.25S	Vierendeel Cantilever	Parkway S
8	MP 140.64S	MP 140.64S	Single Plane Vierendeel Sign Bridge	Parkway S
9	MP 140.90NR	MP 140.90NR	Double Plane Vierendeel Sign Bridge	Parkway N
10	MP 141.2NR	MP 141.2NR	Double Plane Vierendeel Sign Bridge	Parkway N
11	MP 141.3R	MP 141.3R	Double Plane Vierendeel Sign Bridge	Parkway N/S

No.	Asset Name	Asset Code	Type ID	Location
12	MP 141.4	MP 141.4	Double Plane Vierendeel Sign Bridge	Parkway N/S
13	MP 141.80 140ASBX	MP 141.80 140ASBX	Cantilever	Parkway Ramp 140ASBX
14	MP 142.0S	MP 142.0S	Double Plane Vierendeel Sign Bridge	Parkway S
15	MP 142.1N	MP 142.1N	Single Plane Vierendeel Sign Bridge	Parkway N
16	MP 142.3R	MP 142.3R	Double Plane Vierendeel Sign Bridge	Parkway N/S
17	MP 142.5R	MP 142.5R	Double Plane Vierendeel Sign Bridge	Parkway N/S
18	MP 142.8N	MP 142.8N	Vierendeel Butterfly	Parkway N and Ramp 142ANBX
19	MP 142.9NR	MP 142.9NR	Vierendeel Cantilever	Parkway N
20	MP 143.1A	MP 143.1A 142ASBE/142NBE	Vierendeel Cantilever	Parkway Ramp 142ASBE/142NBE
21	MP 143.1E	MP 143.1E 142NBE/142SBE B	Single Plane Vierendeel Sign Bridge	Parkway Ramp 142NBE/142SBE B
22	MP 143.1F	MP 143.1F 142ASBE/142NBE	Single Plane Vierendeel Sign Bridge	Parkway Ramp 142ASBE/142NBE
23	MP 143.1SR	MP 143.1SR	Vierendeel Cantilever	Parkway S
24	MP 143.42S	MP 143.42S	Double Plane Vierendeel Sign Bridge	Parkway S
25	MP 143.52	MP 143.52	Double Plane Vierendeel Sign Bridge	Parkway N/S
26	MP 143.7R	MP 143.7R	Double Plane Vierendeel Sign Bridge	Parkway N/S
27	MP 143.94N	MP 143.94N	Vierendeel Cantilever	Parkway N
28	MP 144.2	MP 144.2	Double Plane Vierendeel Sign Bridge	Parkway N/S
29	MP 144.42S	MP 144.42S	Vierendeel Cantilever	Parkway S
30	MP 144.97	MP 144.97	Double Plane Vierendeel Sign Bridge	Parkway N/S
31	MP 145.27S	MP 145.27S	Vierendeel Cantilever	Parkway S
32	MP 145.64N	MP 145.64N	Vierendeel Cantilever	Parkway N
33	MP 145.82	MP 145.82	Double Plane Vierendeel Sign Bridge	Parkway N/S
34	MP 146.07	MP 146.07	Vierendeel Overhead VMS/Hybrid Sign	Parkway N/S
35	MP 146.11S	MP 146.11S	Vierendeel Cantilever	Parkway S
36	MP 146.4N	MP 146.4N	Four Chord Sign Bridge	Parkway N
37	MP 146.63S	MP 146.63S	Vierendeel Cantilever	Parkway S
38	MP 146.7N	MP 146.7N	Vierendeel Cantilever	Parkway N
39	MP 146.7S	MP 146.7S	Vierendeel Cantilever	Parkway S
40	MP 146.95N	MP 146.95N	Vierendeel Cantilever	Parkway N
41	MP 146.9AR	MP 146.9AR 145NBX	Vierendeel Cantilever	Parkway Ramp 145NBX
42	MP 146.9B	MP 146.9B 145 Plaza	Four Chord Sign Bridge	Parkway Exit 145 Plaza
43	MP 146.9CR	MP 146.9CR 145NBE	Vierendeel Cantilever	Parkway Ramp 145NBE
44	MP 146.9DR	MP 146.9DR 145 Plaza Ent	Double Plane Vierendeel Sign Bridge	Parkway Entrance 145 Toll Plaza
45	MP 146.9ER	MP 146.9ER 145NBE	Single Plane Vierendeel Sign Bridge	Parkway Entrance 145 Ramps
46	MP 146.9FR	MP 146.9FR 145SBX/NBX	Vierendeel Cantilever	Parkway Ramps 145SBX/NBX
47	MP 147.0SAR	MP 147.0SAR 145SBXF	Vierendeel Cantilever	Parkway Ramp 145SBXF
48	MP 147.2SR	MP 147.2SR	Vierendeel Cantilever	Parkway S
49	MP 147.74	MP 147.74	Double Plane Vierendeel Sign Bridge	Parkway N/S
50	MP 147.92N	MP 147.92N	Vierendeel Cantilever	Parkway N
51	MP 148.2S	MP 148.2S	Vierendeel Cantilever	Parkway S
52	MP 148.48N	MP 148.48N	Vierendeel Cantilever	Parkway N
53	MP 148.5S	MP 148.5S	Vierendeel Cantilever	Parkway S
54	MP 148.89N	MP 148.89N	Vierendeel Cantilever	Parkway N
55	MP 148.9N	MP 148.9N	Butterfly	Parkway N
56	MP 149.21	MP 149.21	Double Plane Vierendeel Sign Bridge	Parkway N/S
57	MP 149.67S	MP 149.67S	Vierendeel Cantilever	Parkway S
58	MP 149.89	MP 149.89	Double Plane Vierendeel Sign Bridge	Parkway N/S
59	MP 149.91N	MP 149.91N	Vierendeel Cantilever	Parkway N
60	MP 150.21S	MP 150.21S	Vierendeel Cantilever	Parkway S
61	MP 150.44	MP 150.44	Double Plane Vierendeel Sign Bridge	Parkway N/S
62	MP 150.85	MP 150.85	Double Plane Vierendeel Sign Bridge	Parkway N/S
63	MP 151.04N	MP 151.04N	Vierendeel Cantilever	Parkway N

No.	Asset Name	Asset Code	Type ID	Location
64	MP 151.25N	MP 151.25N	Vierendeel Cantilever	Parkway N
65	MP 151.76S	MP 151.76S	Single Plane Vierendeel Sign Bridge	Parkway S
66	MP 151.96N	MP 151.96N	Single Plane Vierendeel Sign Bridge	Parkway N
67	MP 152.19N	MP 152.19N	Single Plane Vierendeel Sign Bridge	Parkway N
68	MP 152.57S	MP 152.57S	Vierendeel Cantilever	Parkway S
69	MP 152.85N	MP 152.85N	Double Plane Vierendeel Sign Bridge	Parkway N
70	MP 153.01S	MP 153.01S	Vierendeel Cantilever	Parkway S
71	MP 153.27N	MP 153.27N	Vierendeel Cantilever	Parkway N
72	MP 153.37N	MP 153.37N	Single Plane Vierendeel Sign Bridge	Parkway N
73	MP 153.52S	MP 153.52S	Vierendeel Cantilever	Parkway S
74	MP 153.8N	MP 153.8N	Single Plane Vierendeel Sign Bridge	Parkway N
75	MP 154.1N	MP 154.1N	Single Plane Vierendeel Sign Bridge	Parkway N
76	MP 154.20S	MP 154.20S	Vierendeel Cantilever	Parkway S
77	MP 154.24N	MP 154.24N	Vierendeel Cantilever	Parkway N
78	MP 154.54N	MP 154.54N	Single Plane Vierendeel Sign Bridge	Parkway N
79	MP 154.6S	MP 154.6S	Single Plane Vierendeel Sign Bridge	Parkway S
80	MP 154.93S	MP 154.93S	Vierendeel Cantilever	Parkway S
81	MP 155.1N	MP 155.1N	Single Plane Vierendeel Sign Bridge	Parkway N
82	MP 155.30S	MP 155.30S	Single Plane Vierendeel Sign Bridge	Parkway S
83	MP 155.35N	MP 155.35N	Vierendeel Cantilever	Parkway N
84	MP 155.7N	MP 155.7N	Single Plane Vierendeel Sign Bridge	Parkway N
85	MP 156.10NR	MP 156.10NR	Double Plane Vierendeel Sign Bridge	Parkway N
86	MP 156.3S	MP 156.3S	Single Plane Vierendeel Sign Bridge	Parkway S
87	MP 156.42N	MP 156.42N	Vierendeel Cantilever	Parkway N
88	MP 156.77S	MP 156.77S	Vierendeel Cantilever	Parkway S
89	MP 157.08	MP 157.08	Double Plane Vierendeel Sign Bridge	Parkway N/S
90	MP 157.50S	MP 157.50S	Double Plane Vierendeel Sign Bridge	Parkway S
91	MP 157.93N	MP 157.93N	Vierendeel Cantilever	Parkway N
92	MP 158.06SR	MP 158.06SR	Single Plane Vierendeel Sign Bridge	Parkway S
93	MP 158.71N	MP 158.71N	Vierendeel Cantilever	Parkway N
94	MP 158.92S	MP 158.92S	Vierendeel Cantilever	Parkway S
95	MP 159.05N	MP 159.05N	Vierendeel Cantilever	Parkway N
96	MP 159.35N	MP 159.35N	Vierendeel Cantilever	Parkway N
97	MP 159.43	MP 159.43	Double Plane Vierendeel Sign Bridge	Parkway N/S
98	MP 159.82N	MP 159.82N	Vierendeel Cantilever	Parkway N
99	MP 159.9 159SBX	MP 159.9 159SBX	Vierendeel Cantilever	Parkway Ramp 159SBX
100	MP 160.0 159SBX	MP 160.0 159SBX	Vierendeel Cantilever	Parkway Ramp 159SBX
101	MP 160.00N	MP 160.00N	Vierendeel Cantilever	Parkway N
102	MP 160.06	MP 160.06	Double Plane Vierendeel Sign Bridge	Parkway N/S
103	MP 160.15N	MP 160.15N	Vierendeel Cantilever	Parkway N
104	MP 160.21S	MP 160.21S	Vierendeel Cantilever	Parkway S
105	MP 160.2AR	MP 160.2AR 159	Single Plane Vierendeel Sign Bridge	Parkway Int. 159 Plaza Onbound
106	MP 160.76	MP 160.76	Double Plane Vierendeel Sign Bridge	Parkway N/S
107	MP 161.00S	MP 161.00S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S
108	MP 161.19S	MP 161.19S	Vierendeel Cantilever	Parkway S
109	MP 161.2N	MP 161.2N	Single Plane Vierendeel Sign Bridge	Parkway N
110	MP 161.64N	MP 161.64N	Vierendeel Cantilever	Parkway N
111	MP 161.90N	MP 161.90N	Vierendeel Cantilever	Parkway N
112	MP 162.1N	MP 162.1N	Vierendeel Cantilever	Parkway N
113	MP 162.40S	MP 162.40S	Vierendeel Cantilever	Parkway S
114	MP 162.4N	MP 162.4N	Vierendeel Cantilever	Parkway N
115	MP 162.97N	MP 162.97N	Single Plane Vierendeel Sign Bridge	Parkway N
116	MP 163.1 163SBE	MP 163.1 163SBE	Vierendeel Cantilever	Route 17 Ramp 163SBE
117	MP 163.29S	MP 163.29S	Vierendeel Cantilever	Parkway S
118	MP 163.81N	MP 163.81N	Vierendeel Cantilever	Parkway N
119	MP 163.95S	MP 163.95S	Single Plane Vierendeel Sign Bridge	Parkway S
120	MP 164.2N	MP 164.2N	Single Plane Vierendeel Sign Bridge	Parkway N
121	MP 164.40S	MP 164.40S	Vierendeel Cantilever	Parkway S

No.	Asset Name	Asset Code	Type ID	Location
122	MP 164.54N	MP 164.54N	Vierendeel Cantilever	Parkway N
123	MP 164.7S	MP 164.7S	Vierendeel Cantilever	Parkway S
124	MP 165.20N	MP 165.20N	Vierendeel Cantilever	Parkway N
125	MP 165.3SR	MP 165.3SR	Single Plane Vierendeel Sign Bridge	Parkway S
126	MP 165.67S	MP 165.67S	Vierendeel Cantilever	Parkway S
127	MP 165.88S	MP 165.88S	Vierendeel Cantilever	Parkway S
128	MP 166.3NR	MP 166.3NR	Vierendeel Cantilever	Parkway N
129	MP 166.3S	MP 166.3S	Single Plane Vierendeel Sign Bridge	Parkway S
130	MP 166.8N	MP 166.8N	Vierendeel Cantilever	Parkway N
131	MP 166.8S	MP 166.8S	Single Plane Vierendeel Sign Bridge	Parkway S
132	MP 167.2N	MP 167.2N	Vierendeel Cantilever	Parkway N
133	MP 167.4S	MP 167.4S	Single Plane Vierendeel Sign Bridge	Parkway S
134	MP 167.98S	MP 167.98S	Vierendeel Cantilever	Parkway S
135	MP 168.01N	MP 168.01N	Vierendeel Cantilever	Parkway N
136	MP 168.3S	MP 168.3S	Single Plane Vierendeel Sign Bridge	Parkway S
137	MP 168.93N	MP 168.93N	Vierendeel Cantilever	Parkway N
138	MP 169.31N	MP 169.31N	Single Plane Vierendeel Sign Bridge	Parkway N
139	MP 169.93N	MP 169.93N	Single Plane Vierendeel Sign Bridge	Parkway N
140	MP 170.76N	MP 170.76N	Vierendeel Cantilever	Parkway N
141	MP 171.1S	MP 171.1S	Vierendeel Cantilever	Parkway S
142	MP 171.90S	MP 171.90S	Vierendeel Overhead VMS/Hybrid Sign	Parkway S

Total 574

b. NEW JERSEY TURNPIKE INVENTORY

No.	Asset Name	Asset Code	Type ID	Location
		Turnpike Signs Group 1		
1	MP 0.27N	0.27 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
2	MP 0.8N	0.8 SN	Four Chord Sign Bridge	Turnpike SN Roadway
3	MP 1.05S	1.05 NS	Cantilever	Turnpike NS Roadway
4	MP 1.25S	1.25 NS	Four Chord Sign Bridge	Turnpike NS Roadway
5	MP 1.50N	1.50 SN	Four Chord Sign Bridge	Turnpike SN Roadway
6	MP 2.10N	2.10 SN	Four Chord Sign Bridge	Turnpike SN Roadway
7	MP 2.30N	2.30 SN	Cantilever	Turnpike SN Roadway
8	MP 2.70S	2.70 NS	Cantilever	Turnpike NS Roadway
9	MP 2.85S	2.85 NS	Four Chord Sign Bridge	Turnpike NS Roadway
10	MP 3.02N	3.02 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
11	MP 3.25S	3.25 NS	Four Chord Sign Bridge	Turnpike NS Roadway
12	MP 4.11S	4.11 NS	Four Chord Sign Bridge	Turnpike NS Roadway
13	MP 4.70S	4.70 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
14	MP 8.65N	8.65 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
15	MP 8.70S	8.70 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
16	MP 11.33N	11.33 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
17	MP 11.60S	11.60 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
18	MP 12.57N	12.57 SN	Four Chord Sign Bridge	Turnpike SN Roadway
19	MP 12.86B	12.86B ISENT/ISXT	Four Chord Sign Bridge	Turnpike Interchange 2 ISENT/ISXT
20	MP 12.95NT	12.95 NT	Cantilever	Turnpike Interchange 2 Ramp NT
21	MP 13.18S	13.18 NS	Four Chord Sign Bridge	Turnpike NS Roadway
22	MP 13.82N	13.82 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
23	MP 15.97S	15.97 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
24	MP 16.69N	16.69 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
25	MP 19.40S	19.40 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
26	MP 20.15N	20.15 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
27	MP 23.14S	23.14 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
28	MP 23.88N	23.88 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
29	MP 25.75N	25.75 SN	Four Chord Sign Bridge	Turnpike SN Roadway
30	MP 25.95ST	25.95 ST	Cantilever	Turnpike Interchange 3 Ramp ST
31	MP 26.25NT	26.25 NT	Cantilever	Turnpike Interchange 3 Ramp NT
32	MP 26.48S	26.48 NS	Four Chord Sign Bridge	Turnpike NS Roadway
33	MP 26.50N	26.50 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
34	MP 28.60S	28.60 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
35	MP 28.97N	28.97 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
36	MP 32.26N	32.26 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
37	MP 32.32S	32.32 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
38	MP 33.97S	33.97 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
39	MP 34.31N	34.31 SN	Four Chord Sign Bridge	Turnpike SN Roadway
40	MP 34.49C	34.49C TS/TN	Cantilever	Turnpike Interchange 4 Ramps TS/TN
41	MP 34.60NT	34.60 NT	Cantilever	Turnpike Interchange 4 Ramp NT
42	MP 34.75S	34.75 NS	Four Chord Sign Bridge	Turnpike NS Roadway
	MP 34.87S	34.87 NS	Overhead Sign	Turnpike NS Roadway
43	MP 35.39N	35.39 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
44	MP 37.05S	37.05 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
45	MP 37.93N	37.93 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
46	MP 39.50N	39.50 SN	Cantilever	Turnpike SN Roadway
47	MP 40.40S	40.40 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
48	MP 40.58N	40.58 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
49	MP 42.52N	42.52 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
50	MP 43.56S	43.56 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
51	MP 43.72N	43.72 SN	Signbridge	Turnpike SN Roadway

No.	Asset Name	Asset Code	Type ID	Location
52	MP 43.95RST	43.95R ST	Cantilever	Turnpike Interchange 5 Ramp ST
53	MP 44.05B	44.05B ISENT/ISXT	Four Chord Sign Bridge	Turnpike Interchange 5 ISENT/ISXT
54	MP 44.25NT	44.25 NT	Cantilever	Turnpike Interchange 5 Ramp NT
55	MP 44.45S	44.45 NS	Signbridge	Turnpike NS Roadway
	MP 44.50S	44.50 NS	Overhead Sign	Turnpike NS Roadway
56	MP 44.72N	44.72 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
57	MP 46.86N	46.86 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
58	MP 46.90S	46.90 NS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS Roadway
59	MP 47.43N	47.43 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
60	MP 48.41N	48.41 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
61	MP 48.64N	48.64 SN	Cantilever	Turnpike SN Roadway
62	MP 48.95S	48.95 NS	Cantilever	Turnpike NS Roadway
63	MP 48.98N	48.98 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
64	MP 49.18S	49.18 NS	Four Chord Sign Bridge	Turnpike NS Roadway
65	MP 49.40N	49.40 SN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN Roadway
66	MP 49.41S	49.41 NS	Four Chord Sign Bridge	Turnpike NS Roadway
67	MP 49.70SI	49.70 NSI	Cantilever	Turnpike NSI Roadway
68	MP 49.81NO	49.81 SNO	Cantilever	Turnpike SNO Roadway
69	MP 49.82NI	49.82 SNI	Cantilever	Turnpike SNI Roadway
70	MP 49.96NO	49.96 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
71	MP 49.97NI	49.97 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
72	MP 50.09SI	50.09 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
73	MP 50.10SO	50.10 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
74	MP 50.19N	50.19 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadway
75	MP 50.38NO	50.38 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
76	MP 50.39NI	50.39 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
77	MP 50.39SI	50.39 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
78	MP 50.40SO	50.40 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
79	MP 50.59NI	50.59 SNI	Cantilever	Turnpike SNI Roadway
80	MP 50.59NO	50.59 SNO	Cantilever	Turnpike SNO Roadway
81	MP 51.49SO	51.49 NSO/NOT	Four Chord Sign Bridge	Turnpike NSO Roadway and Interchange 6 Ramp NOT
82	MP 51.53SI	51.53 NSI/NIT	Four Chord Sign Bridge	Turnpike NSI Roadway and Interchange 6 Ramp NIT
83	MP 51.66SO	51.66 NSO	Cantilever	Turnpike NSO Roadway
84	MP 51.70SI	51.70 NSI	Cantilever	Turnpike NSI Roadway
85	MP 51.91SO	51.91 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
86	MP 51.94SI	51.94 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
87	MP 51.96N	51.96 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
88	MP 52.27SI	52.27 NSI	Cantilever	Turnpike NSI Roadway
89	MP 52.31SO	52.31 NSO	Cantilever	Turnpike NSO Roadway
90	MP 52.37NO	52.37 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
91	MP 52.38NI	52.38 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
92	MP 52.48SI	52.48 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
93	MP 52.49SO	52.49 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
94	MP 52.58NI	52.58 SNI	Cantilever	Turnpike SNI Roadway
95	MP 52.58NO	52.58 SNO	Cantilever	Turnpike SNO Roadway
96	MP 52.73N	52.73 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
97	MP 52.84S	52.84 NSI/NSO	Butterfly	Turnpike NSI/NSO Median

No.	Asset Name	Asset Code	Type ID	Location
98	MP 52.88N	52.88 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
99	MP 53.17NO	53.17 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
100	MP 53.18NI	53.18 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
101	MP 53.28C	53.28C TW/TE	Butterfly	Turnpike Interchange 7 Ramps TW/TE
102	MP 53.31B	53.31B ET/WT	Cantilever	Turnpike Interchange 7 Ramps ET/WT
103	MP 53.32S	53.32 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
104	MP 53.38NO	53.38 SNO	Cantilever	Turnpike SNO Roadway
105	MP 53.45B	53.45B TW/ET	Four Chord Sign Bridge	Turnpike Interchange 7 Ramps TW/ET
106	MP 53.51B	53.51B SNI	Cantilever	Turnpike SNI Roadway
107	MP 53.77A	53.77A SIT/TNI/TNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7 Ramps SIT/TNI/TNO
108	MP 53.77B	53.77B TN/ST	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7 Ramps TN/ST
109	MP 53.77C	53.77C NT/ST/TN/TS	Four Chord Sign Bridge	Turnpike Interchange 7 Ramps NT/ST/TN/TS
110	MP 53.77D	53.77D TSI/TSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7 Ramps TSI/TSO
111	MP 53.91B	53.91B NSI	Cantilever	Turnpike NSI Roadway
112	MP 53.96SO	53.96 NSO/NOT	Cantilever	Turnpike NSO Roadway and Interchange 7 Ramp NOT
113	MP 54.11SI	54.11 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
114	MP 54.18SO	54.18 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
115	MP 54.36S	54.36 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
116	MP 54.87SI	54.87 NSI	Cantilever	Turnpike NSI Roadway
117	MP 54.90SO	54.90 NSO	Cantilever	Turnpike NSO Roadway
118	MP 55.05NO	55.05 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
119	MP 55.06NI	55.06 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
120	MP 55.12SI	55.12 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
121	MP 55.13SO	55.13 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
122	MP 55.74N	55.74 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
123	MP 55.89S	55.89 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
124	MP 56.75NI	56.75 SNI	Cantilever	Turnpike SNI Roadway
125	MP 56.75NO	56.75 SNO	Cantilever	Turnpike SNO Roadway
126	MP 57.04NI	57.04 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
127	MP 57.04NO	57.04 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
128	MP 57.44NI	57.44 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
129	MP 57.59NO	57.59 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
130	MP 57.68NI	57.68 SNI	Cantilever	Turnpike SNI Roadway
131	MP 57.79NO	57.79 SNO	Cantilever	Turnpike SNO Roadway
132	MP 58.08AS	58.08AS SASI/SASO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA6S Ramps SASI/SASO
133	MP 58.41N	58.41 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
134	MP 58.94AN	58.94AN SANI/SANO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA6N Ramps SANI/SANO
135	MP 58.94NI	58.94 SNI	Cantilever	Turnpike SNI Roadway
136	MP 58.98NO	58.98 SNO	Cantilever	Turnpike SNO Roadway
137	MP 59.28SI	59.28 NSI	Cantilever	Turnpike NSI Roadway
138	MP 59.28SO	59.28 NSO	Cantilever	Turnpike NSO Roadway
139	MP 59.46SO	59.46 NSO	Cantilever	Turnpike NSO Roadway

No.	Asset Name	Asset Code	Type ID	Location
140	MP 59.47SI	59.47 NSI	Cantilever	Turnpike NSI Roadway
141	MP 59.70SI	59.70 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
142	MP 59.70SO	59.70 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
143	MP 59.82NI	59.82 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
144	MP 59.84NO	59.84 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
145	MP 59.86SI	59.86 NSI	Cantilever	Turnpike NSI Roadway
146	MP 59.86SO	59.86 NSO	Cantilever	Turnpike NSO Roadway
147	MP 60.01NI	60.01 SNI/SIT	Cantilever	Turnpike SNI Roadway and Interchange 7A Ramp SIT
148	MP 60.01NO	60.01 SNO	Cantilever	Turnpike SNO Roadway
149	MP 60.51L	60.51L TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7A Ramp TS
150	MP 60.51M	60.51M TS/TN	Four Chord Sign Bridge	Turnpike Interchange 7A Ramps TS/TN
151	MP 60.51N	60.51N ST	Cantilever	Turnpike Interchange 7A Ramp ST
152	MP 60.51O	60.51O NT	Cantilever	Turnpike Interchange 7A Ramp NT
153	MP 60.51P	60.51P TN	Cantilever	Turnpike Interchange 7A Ramp TN
154	MP 60.51Q	60.51Q TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7A Ramp TN
155	MP 60.51S	60.51S TE/TW/ET/WT	Four Chord Sign Bridge	Turnpike Interchange 7A Ramps TE/TW/ET/WT
156	MP 60.51U	60.51U TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 7A Ramp TN
157	MP 61.08SI	61.08 NSI	Cantilever	Turnpike NSI Roadway
158	MP 61.08SO	61.08 NSO	Cantilever	Turnpike NSO Roadway
159	MP 61.29SI	61.29 NSI	Cantilever	Turnpike NSI Roadway
160	MP 61.35SO	61.35 NSO	Cantilever	Turnpike NSO Roadway
161	MP 61.51SI	61.51 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
162	MP 61.52SO	61.52 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
163	MP 62.50SI	62.50 NSI	Cantilever	Turnpike NSI Roadway
164	MP 62.50SO	62.50 NSO	Cantilever	Turnpike NSO Roadway
165	MP 62.72NO	62.72 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
166	MP 62.73NI	62.73 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
167	MP 62.89SI	62.89 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
168	MP 62.89SO	62.89 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
169	MP 63.04S	63.04 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
170	MP 63.49S	63.49 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
171	MP 64.28S	64.28 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
172	MP 64.75NO	64.75 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
173	MP 64.76NI	64.76 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
174	MP 65.00N	65.00 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
175	MP 65.48N	65.48 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
176	MP 66.20NI	66.20 SNI	Cantilever	Turnpike SNI Roadway
177	MP 66.20NO	66.20 SNO	Cantilever	Turnpike SNO Roadway
178	MP 66.69N	66.69 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
179	MP 66.92SI	66.92 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
180	MP 66.93SO	66.93 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
181	MP 67.00NI	67.00 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
182	MP P0.88E	P0.88 PWE	Cantilever	Turnpike PWE Roadway

No.	Asset Name	Asset Code	Type ID	Location
183	MP P1.18E	P1.18 PWE	Four Chord Sign Bridge	Turnpike PWE Roadway
184	MP P1.48W	P1.48 PEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike PEW Roadway
185	MP P1.49E	P1.49 PWE	Cantilever	Turnpike PWE Roadway
186	MP P1.64E	P1.64 PWE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike PWE Roadway
187	MP P1.92E	P1.92 PWE	Four Chord Sign Bridge	Turnpike PWE Roadway
188	MP P2.16E	P2.16E PWE	Cantilever	Turnpike PWE Roadway
189	MP P2.41E	P2.41 PWE	Four Chord Sign Bridge	Turnpike PWE Roadway
190	MP P2.58E	P2.58 PWE	Cantilever	Turnpike PWE Roadway
191	MP P2.61A	P2.61A LTW/TWL	Four Chord Sign Bridge	Turnpike Interchange 6 Ramps LTW/TWL
192	MP P2.61B	P2.61B LTW/TWL	Four Chord Sign Bridge	Turnpike Interchange 6 Ramps LTW/TWL
193	MP P2.77W	P2.77 PEW	Four Chord Sign Bridge	Turnpike PEW Roadway
194	MP P2.87E	P2.87 PWE	Four Chord Sign Bridge	Turnpike PWE Roadway
195	MP P2.92W	P2.92 PEW	Four Chord Sign Bridge	Turnpike PEW Roadway
196	MP P3.38E	P3.38 PWE	Cantilever	Turnpike PWE Roadway
197	MP P3.42W	P3.42 PEW	Four Chord Sign Bridge	Turnpike PEW Roadway
198	MP P3.65E	P3.65 PWE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike PWE Roadway
199	MP P3.78W	P3.78 PEW	Four Chord Sign Bridge	Turnpike PEW Roadway
200	MP P3.98W	P3.98 PEW	Cantilever	Turnpike PEW Roadway
201	MP P4.19W	P4.19 PEW	Four Chord Sign Bridge	Turnpike PEW Roadway
202	MP P4.40E	P4.40 PWE	Cantilever	Turnpike PWE Roadway
203	MP P4.65W	P4.65 PEW	Cantilever	Turnpike PEW Roadway
204	MP P4.85W	P4.85 PEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike PEW Roadway
205	MP P5.17E	P5.17 PWE	Four Chord Sign Bridge	Turnpike PWE Roadway
206	MP P5.33E	P5.33 PWE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike PWE Roadway
207	MP P5.67E	P5.67E TNI/TNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 6 Ramps TNI/TNO
208	MP PA 42.61NB	PA 42.61NB	Vierendeel Overhead VMS/Hybrid Sign	Pennsylvania Turpike Eastbound
		Turnpike Signs Group 2		
1	MP 67.06NO	67.06 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
2	MP 67.19NI	67.19 SNI	Cantilever	Turnpike SNI Roadway
3	MP 67.36NO	67.36 SNO	Cantilever	Turnpike SNO Roadway
4	MP 67.47I	67.47I TS/NT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8 Ramps TS/NT
5	MP 67.47J	67.47J NT/TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8 Ramps NT/TS
6	MP 67.47K	67.47K TNO/TNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8 Ramps TNO/TNI
7	MP 67.47L	67.47L ISENT/ISXT	Four Chord Sign Bridge	Turnpike Interchange 8 ISENT/ISXT
8	MP 67.47M	67.47M TW/TMR	Four Chord Sign Bridge	Turnpike Interchange 8 Ramps TW/TMR
9	MP 67.47N	67.47N WT/ET	Four Chord Sign Bridge	Turnpike Interchange 8 Ramp WT/ET
10	MP 67.47O	67.47O TE/TWI	Cantilever	Turnpike Interchange 8 Ramp TE/TWI
11	MP 67.47P	67.47P TE/TWI	Four Chord Sign Bridge	Turnpike Interchange 8 Ramp TE/TWI
12	MP 67.80SO	67.80 NSO	Cantilever	Turnpike NSO Roadway
13	MP 67.83SI	67.83 NSI	Cantilever	Turnpike NSI Roadway
14	MP 67.98SO	67.98 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
15	MP 68.02SI	68.02 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
16	MP 68.29NO	68.29 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
17	MP 68.30NI	68.30 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
18	MP 68.79SI	68.79 NSI	Cantilever	Turnpike NSI Roadway
19	MP 68.79SO	68.79 NSO	Cantilever	Turnpike NSO Roadway

No.	Asset Name	Asset Code	Type ID	Location
20	MP 69.11S	69.11 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
21	MP 69.29SI	69.29 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
22	MP 69.30SO	69.30 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
23	MP 69.49S	69.49 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
24	MP 70.00S	70.00 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
25	MP 70.25N	70.25 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
26	MP 71.45N	71.45 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
27	MP 71.48SAS	71.48 SAS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA8S Ramp SAS
28	MP 71.82NSA	71.82 NSA	Four Chord Sign Bridge	Turnpike SA8S Ramp NSA
29	MP 72.08NI	72.08 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
30	MP 72.08NO	72.08 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
31	MP 72.14NSA	72.14 NOSA/NISA	Four Chord Sign Bridge	Turnpike SA8S Ramps NOSA/NISA
32	MP 72.38N	72.38 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
33	MP 72.46SO	72.46 NSO/NOSA	Cantilever	Turnpike NSO Roadway and SA8S Ramp NOSA
34	MP 72.50SI	72.50 NSI/NISA	Cantilever	Turnpike NSI Roadway and SA8S Ramp NISA
35	MP 72.57NI	72.57 SNI	Cantilever	Turnpike SNI Roadway
36	MP 72.64SO	72.64 NSO	Cantilever	Turnpike NSO Roadway
37	MP 72.66NO	72.66 SNO	Cantilever	Turnpike SNO Roadway
38	MP 72.69SI	72.69 NSI	Cantilever	Turnpike NSI Roadway
39	MP 73.20SI	73.20 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
40	MP 73.21SO	73.21 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
41	MP 73.34NI	73.34 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
42	MP 73.39NO	73.39 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
43	MP 73.44SI	73.44 NSI	Cantilever	Turnpike NSI Roadway
44	MP 73.44SO	73.44 NSO	Cantilever	Turnpike NSO Roadway
45	MP 73.53RNI	73.53R SNI	Cantilever	Turnpike SNI Roadway
46	MP 73.65NO	73.65 SNO	Cantilever	Turnpike SNO Roadway
47	MP 73.89CR	73.89CR OSENT/OSXT	Four Chord Sign Bridge	Turnpike Interchange 8A OSENT/OSXT
48	MP 73.89D	73.89D ISENT/ISXT	Four Chord Sign Bridge	Turnpike Interchange 8A ISENT/ISXT
49	MP 73.89ER	73.89ER TN/ST	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8A Ramp TN/ST
50	MP 73.89FR	73.89FR ST/TNI/TNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8A Ramps ST/TNI/TNO
51	MP 73.89G	73.89G ISENT/ISXT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 8A ISENT/ISXT
52	MP 74.10SO	74.10 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
53	MP 74.12SI	74.12 NSI	Cantilever	Turnpike NSI Roadway
54	MP 74.22SO	74.22 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
55	MP 74.30SI	74.30 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
56	MP 74.59NO	74.59 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
57	MP 74.60NI	74.60 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
58	MP 75.07S	75.07 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
59	MP 75.54S	75.54 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
60	MP 76.11SI	76.11 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
61	MP 76.11SO	76.11 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway

No.	Asset Name	Asset Code	Type ID	Location
62	MP 76.39N	76.39 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
63	MP 76.82SI	76.82 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
64	MP 76.82SO	76.82 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
65	MP 77.07S	77.07 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
66	MP 78.07NI	78.07 SNI	Cantilever	Turnpike SNI Roadway
67	MP 78.26NI	78.26 SNI	Cantilever	Turnpike SNI Roadway
68	MP 78.30NO	78.30 SNO	Cantilever	Turnpike SNO Roadway
69	MP 78.45NO	78.45 SNO	Cantilever	Turnpike SNO Roadway
70	MP 78.88SAN	78.88 SANO/SANI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA8N Ramps SANO/SANI
71	MP 79.76NO	79.76 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
72	MP 79.77NI	79.77 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
73	MP 80.95N	80.95 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
74	MP 81.51N	81.51 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
75	MP 81.80N	81.80 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
76	MP 81.90S	81.90 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
77	MP 82.14N	82.14 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
78	MP 82.33SI	82.33 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
79	MP 82.34SO	82.34 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
80	MP 82.84NO	82.84 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
81	MP 82.85NI	82.85 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
82	MP 83.15NI	83.15 SNI	Cantilever	Turnpike SNI Roadway
83	MP 83.15NO	83.15 SNO	Cantilever	Turnpike SNO Roadway
84	MP 83.34F	83.34F TW/TN/TE	Four Chord Sign Bridge	Turnpike Interchange 9 Ramps TW/TN/TE
85	MP 83.42BR	83.42BR ST/TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 9 Ramps TN/S
86	MP 83.42C	83.42C TN	Cantilever	Turnpike Interchange 9 Ramp TN
87	MP 83.42ER	83.42ER TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 9 Ramp TS
88	MP 83.42G	83.42G TN/ST	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 9 Ramps TN/ST
89	MP 83.91SO	83.91 NSO	Cantilever	Turnpike NSO Roadway
90	MP 83.92SI	83.92 NSI	Cantilever	Turnpike NSI Roadway
91	MP 84.07SO	84.07 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
92	MP 84.11SI	84.11 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
93	MP 84.79S	84.79 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
94	MP 84.87NI	84.87 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
95	MP 84.87NO	84.87 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
96	MP 85.00SI	85.00 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
97	MP 85.00SO	85.00 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
98	MP 85.15S	85.15 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
99	MP 85.44S	85.44 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
100	MP 85.80S	85.80 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
101	MP 85.87N	85.87 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
102	MP 86.28NI	86.28 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway

No.	Asset Name	Asset Code	Type ID	Location
103	MP 86.28NO	86.28 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
104	MP 86.57N	86.57 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
105	MP 86.88N	86.88 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
106	MP 87.32N	87.32 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
107	MP 87.32RSI	87.32R NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
108	MP 87.32RSO	87.32R NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
109	MP 87.63NI	87.63 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
110	MP 87.70NO	87.70 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
111	MP 87.80NI	87.80 SNI	Cantilever	Turnpike SNI Roadway
112	MP 87.97NO	87.97 SNO	Cantilever	Turnpike SNO Roadway
113	MP 88.09E	88.09E TN	Cantilever	Turnpike Interchange 10 Ramp TN
114	MP 88.09F	88.09F ISENT	Cantilever	Turnpike Interchange 10 ISENT
115	MP 88.13A	88.13A ISENT/ISXT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 10 ISENT/ISXT
116	MP 88.13CR	88.13CR ISENT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 10 ISENT
117	MP 88.13DR	88.13DR OSXT	Four Chord Sign Bridge	Turnpike Interchange 10 OSXT
118	MP 88.28BR	88.28BR TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 10 Ramp TS
119	MP 88.49RSO	88.49R NSO	Cantilever	Turnpike NSO Roadway
120	MP 88.60SI	88.60 NSI	Cantilever	Turnpike NSI Roadway
121	MP 88.65RSO	88.65R NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
122	MP 88.80SI	88.80 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
123	MP 89.08NI	89.08 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
124	MP 89.08NO	89.08 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
125	MP 89.22S	89.22 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
126	MP 89.46S	89.46 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
127	MP 89.59N	89.59 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
128	MP 89.76SI	89.76 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
129	MP 89.76SO	89.76 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
130	MP 89.86N	89.86 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
131	MP 89.98S	89.98 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
132	MP 90.36RNI	90.36R SNI	Cantilever	Turnpike SNI Roadway
133	MP 90.52RNO	90.52R SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
134	MP 90.53S	90.53 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
135	MP 90.78NI	90.78 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
136	MP 90.83RNO	90.83R SNO	Cantilever	Turnpike SNO Roadway
137	MP 90.99IR	90.99IR TS/TN	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps TS/TN
138	MP 90.99JR	90.99JR TPS/TK	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps TPS/TK
139	MP 90.99KR	90.99KR OSXT	Four Chord Sign Bridge	Turnpike Interchange 11 OSXT
140	MP 90.99NR	90.99NR KPN/KT	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps KPN/KT (GSP NB MP 129.4)

No.	Asset Name	Asset Code	Type ID	Location
141	MP 90.99OR	90.99OR TK/TPS	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps TK/TPS
142	MP 90.99PR	90.99PR PNT/PNK	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps PNT/PNK (GSP SB MP 129.5)
143	MP 90.99R	90.99R PNT/PNK	Four Chord Sign Bridge	Turnpike Interchange 11 Ramps PNT/PNK (GSP SB MP 129.8)
144	MP 90.99T	90.99T ISENT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 11 ISENT
145	MP 91.32CR	91.32CR TNI/TNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 11 Ramps TNI/TNO
146	MP 91.32DR	91.32DR TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 11 Ramp TN
147	MP 91.32E	91.32E TN	Monotube Type Sign Support	Turnpike Interchange 11 Ramp TN
148	MP 91.60RSO	91.60R NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
149	MP 91.65RSI	91.65R NSI	Cantilever	Turnpike NSI Roadway
150	MP 91.77SI	91.77 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
151	MP 91.77SO	91.77 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
152	MP 91.82NI	91.82 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
153	MP 91.82NO	91.82 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
154	MP 91.91SI	91.91 NSI	Cantilever	Turnpike NSI Roadway
155	MP 92.13SI	92.13 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
156	MP 92.13SO	92.13 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
157	MP 92.28S	92.28 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
158	MP 92.43NO	92.43 SNO	Cantilever	Turnpike SNO Roadway
159	MP 92.46NI	92.46 SNI	Cantilever	Turnpike SNI Roadway
160	MP 92.54SO	92.54 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
161	MP 92.55SI	92.55 NSI/SASI	Four Chord Sign Bridge	Turnpike NSI Roadway and SA10S Ramp SASI
162	MP 92.61NO	92.61 SNO	Cantilever	Turnpike SNO Roadway
163	MP 92.76BR	92.76BR SAS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA10S Ramp SAS
164	MP 93.11BR	93.11BR SAS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SA10S Ramp SAS
165	MP 93.22SO	93.22 NSO	Cantilever	Turnpike NSO Roadway
166	MP 93.38SI	93.38 NSI	Cantilever	Turnpike NSI Roadway
167	MP 93.40SO	93.40 NSO	Cantilever	Turnpike NSO Roadway
168	MP 93.51NI	93.51 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
169	MP 93.51NO	93.51 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
170	MP 93.56RSI	93.56R NSI	Cantilever	Turnpike NSI Roadway
171	MP 93.79S	93.79 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
172	MP 93.81N	93.81 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
173	MP 94.00NO	94.00 SNO	Cantilever	Turnpike SNO Roadway
174	MP 94.00SO	94.00 NSO	Cantilever	Turnpike NSO Roadway
175	MP 94.30S	94.30 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
176	MP 94.72N	94.72 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
177	MP 95.14NI	95.14 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
178	MP 95.14NO	95.14 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
179	MP 95.14SI	95.14 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
180	MP 95.14SO	95.14 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
181	MP 95.48RNI	95.48R SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
182	MP 95.50NO	95.50 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway

No.	Asset Name	Asset Code	Type ID	Location
183	MP 95.67NI	95.67 SNI	Cantilever	Turnpike SNI Roadway
184	MP 95.69NO	95.69 SNO	Cantilever	Turnpike SNO Roadway
185	MP 95.92CR	95.92CR ISENT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 12 Ramps TS/NT
186	MP 95.92D	95.92D TS/NT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 12 Ramps TS/NT
187	MP 95.95C	95.95C OSENT/OSXT	Four Chord Sign Bridge	Turnpike Interchange 12 OSENT/OSXT
188	MP 95.95D	95.95D WT	Butterfly	Turnpike Interchange 12 Ramp WT & Roosevelt Ave.
189	MP 95.96BRII	95.96BRII TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 12 Ramp TN
190	MP 95.96CR	95.96CR ISENT	Four Chord Sign Bridge	Turnpike Interchange 12 ISENT
191	MP 96.12SI	96.12 NSI	Cantilever	Turnpike NSI Roadway
192	MP 96.12SO	96.12 NSO	Cantilever	Turnpike NSO Roadway
193	MP 96.34SO	96.34 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
194	MP 96.35RSI	96.35R NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
195	MP 96.56RNO	96.56R SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
196	MP 96.71NI	96.71 SNI	Cantilever	Turnpike SNI Roadway
197	MP 96.93NI	96.93 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
198	MP 96.93NO	96.93 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
199	MP 97.09NO	97.09 SNO	Cantilever	Turnpike SNO Roadway
200	MP 97.22SO	97.22 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
201	MP 97.27SI	97.27 NSI	Cantilever	Turnpike NSI Roadway
202	MP 97.33N	97.33 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
203	MP 97.58N	97.58 SNI/SNO	Butterfly	Turnpike SNI/SNO Median
204	MP 97.60SI	97.60 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
205	MP 97.60SO	97.60 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
206	MP 97.70NO	97.70 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
207	MP 97.73NI	97.73 SNI	Cantilever	Turnpike SNI Roadway
		Turnpike Signs Group 3		
1	MP 98.00NO	98.00 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
2	MP 98.00SO	98.00 NSO	Cantilever	Turnpike NSO Roadway
3	MP 98.10	98.10 NSI/NSO	Butterfly	Turnpike NSI/NSO Median
4	MP 98.16NO	98.16 SNO/SOT	Four Chord Sign Bridge	Turnpike SNO Roadway and Interchange 13 Ramp SOT
5	MP 98.19NI	98.19 SNI	Cantilever	Turnpike SNI Roadway
6	MP 98.40S	98.40 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
7	MP 98.54RNI	98.54R SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
8	MP 98.65NI	98.65 SNI	Cantilever	Turnpike SNI Roadway
	MP 99.13D	99.13D TS	Four Chord Sign Bridge	Turnpike Interchange 13 Ramp TS
9	MP 99.13DR	99.13DR TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 13 Ramp TS
10	MP 99.13ER	99.13ER ISENT	Four Chord Sign Bridge	Turnpike Interchange 13 ISENT
11	MP 99.26N	99.26 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
12	MP 99.35E	99.35E TW/TE	Four Chord Sign Bridge	Turnpike Interchange 13 Ramps TW/TE

No.	Asset Name	Asset Code	Type ID	Location
13	MP 99.35G	99.35G TW/TL	Four Chord Sign Bridge	Turnpike Interchange 13 Ramps TW/TL
14	MP 99.35H	99.35H TW/TL	Four Chord Sign Bridge	Turnpike Interchange 13 Ramps TW/TL
15	MP 99.35I	99.35I TW/TL	Four Chord Sign Bridge	Turnpike Interchange 13 Ramps TW/TL
16	MP 99.70BR	99.70BR TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 13 Ramp TN
17	MP 99.84SI	99.84 NSI	Cantilever	Turnpike NSI Roadway
18	MP 99.87SO	99.87 NSO/NOT	Four Chord Sign Bridge	Turnpike NSO Roadway and Interchange 13 Ramp NOT
19	MP 100.00SI	100.00 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
20	MP 100.00SO	100.00 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
21	MP 100.01RNI	100.01R SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
22	MP 100.01RNO	100.01R SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
23	MP 101.11NI	101.11 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
24	MP 101.11RNO	101.11R SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
25	MP 101.19R	101.19R NSI/NSO	Butterfly	Turnpike NSI/NSO Median
26	MP 101.23RNO	101.23R SNO	Cantilever	Turnpike SNO Roadway
27	MP 101.24RNI	101.24R SNI	Cantilever	Turnpike SNI Roadway
28	MP 101.24RSI	101.24R NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
29	MP 101.24RSO	101.24R NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
30	MP 101.53C	101.53C TS	Four Chord Sign Bridge	Turnpike Interchange 13A Ramp TS
31	MP 101.53CR	101.53CR TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 13A Ramp TS
32	MP 101.54CR	101.54CR TS/TN	Four Chord Sign Bridge	Turnpike Interchange 13A Ramps TS/TN
33	MP 101.65ER	101.65ER TWX/TWL/TE	Four Chord Sign Bridge	Turnpike Interchange 13A Ramps TWX/TWL/TE
34	MP 101.65F	101.65F TE	Four Chord Sign Bridge	Turnpike Interchange 13A Ramp TE
35	MP 101.96SI	101.96 NSI	Cantilever	Turnpike NSI Roadway
36	MP 101.96SO	101.96 NSO	Cantilever	Turnpike NSO Roadway
37	MP 102.07SI	102.07 NSI	Four Chord Sign Bridge	Turnpike NSI Roadway
38	MP 102.10B	102.10B TN	Four Chord Sign Bridge	Turnpike Interchange 13A Ramp TN
39	MP 102.10BR	102.10BR TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 13A Ramp TN
40	MP 102.11SO	102.11 NSO	Four Chord Sign Bridge	Turnpike NSO Roadway
41	MP 102.49S	102.49 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
42	MP 102.69N	102.69 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
43	MP 102.92S	102.92 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
44	MP 103.10N	103.10 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
45	MP 103.38NI	103.38 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
46	MP 103.38NO	103.38 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
47	MP 103.44SI	103.44 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
48	MP 103.44SO	103.44 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
49	MP 103.55N	103.55 SNI/SNO	Butterfly	Turnpike SNI/SNO Roadways
50	MP 103.59S	103.59 NSI/NSO	Butterfly	Turnpike NSI/NSO Roadways
51	MP 103.85SO	103.85 NSO	Cantilever	Turnpike NSO Roadway

No.	Asset Name	Asset Code	Type ID	Location
52	MP 104.10NI	104.10 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
53	MP 104.12BR	104.12BR TSO/TSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 14 Ramps TSO/TSI
54	MP 104.12CR	104.12CR HS	Signbridge	Turnpike Interchange 14 Ramp HS
55	MP 104.12D	104.12D TS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 14 Ramp TS
56	MP 104.15RNO	104.15R SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
57	MP 104.29NI	104.29NI SIT/SIH	Cantilever	Turnpike Interchange 14 Ramps SIT/SIH
58	MP 104.31NO	104.31 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
59	MP 104.40SO	104.40 SOT/SOH	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps SOT/SOH
60	MP 104.51SO	104.51 SOT/SOH	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps SOT/SOH
61	MP 104.56BR	104.56BR SIT/SIH	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps SIT/SIH
62	MP 104.56CR	104.56CR SIT/SIH	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps SIT/SIH
63	MP 104.70NIR	104.70R SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
64	MP 104.70NOR	104.70R SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
65	MP 104.83BR	104.83BR NT	Four Chord Sign Bridge	Turnpike Interchange 14 Ramp NT-14
66	MP 104.83DR	104.83DR TH/TN/TS	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps TH/TN/TS
67	MP 104.91NI	104.91 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
68	MP 104.91NO	104.91 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
69	MP 105.00NI	105.00 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
70	MP 105.00NO	105.00 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
71	MP 105.35NT	105.35 NT	Four Chord Sign Bridge	Turnpike Interchange 14 Ramp NT-14
72	MP 105.39SI	105.39 NSI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSI Roadway
73	MP 105.39SO	105.39 NSO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSO Roadway
74	MP 105.40NI	105.40 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
75	MP 105.40NO	105.40 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
76	MP 105.40TN	105.40 TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 14 Ramp TN-14
77	MP 105.61NI	105.61 SNI	Four Chord Sign Bridge	Turnpike SNI Roadway
78	MP 105.61NT	105.61 NT	Four Chord Sign Bridge	Turnpike Interchange 14 Ramp NT-14
79	MP 105.62NI	105.62 SNI	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNI Roadway
80	MP 105.62NO	105.62 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
81	MP 105.62TN	105.62 TN	Four Chord Sign Bridge	Turnpike Interchange 14 Ramp TN-14
82	MP 105.63NO	105.63 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
83	MP 105.75NO	105.75 SNO	Four Chord Sign Bridge	Turnpike SNO Roadway
	MP 105.76NO	105.76 SNO	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNO Roadway
84	MP 105.80TN	105.80 TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 14 Ramp TN-14
85	MP 105.92TN	105.92 TN	Four Chord Sign Bridge	Turnpike Interchange 14 Ramp TN-14
86	MP 105.92TNR	105.92 TNR	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 14 Ramp TN-14
87	MP E106.02NSE	E106.02 NET/NSE-O	Four Chord Sign Bridge	Turnpike Interchange 14 Ramps NET/NSE-O
88	MP E106.02R	E106.02R NSE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE Roadway
89	MP E106.10NI	E106.10 SNIE	Cantilever	Turnpike SNI-E Roadway
90	MP E106.19NSE	E106.19 NSE-O	Four Chord Sign Bridge	Turnpike NSE-O Roadway

No.	Asset Name	Asset Code	Type ID	Location
91	MP E106.29NO	E106.29 SNO-E	Cantilever	Turnpike SNO-E Roadway
92	MP E106.38NSE	E106.38 NSE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE Roadway
93	MP E106.50NSE	E106.50 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
94	MP E106.65RII	E106.65RII SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
95	MP E106.65RSNE	E106.65R SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
96	MP E106.77NSE	E106.77 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
97	MP E106.83R	E106.83R SET	Cantilever	Turnpike Interchange 15E Ramp SET
98	MP E106.87BR	E106.87BR ISENT	Four Chord Sign Bridge	Turnpike Interchange 15E ISENT
99	MP E106.87C	E106.87C TW/TL/TE	Four Chord Sign Bridge	Turnpike Interchange 15E Ramps TW/TL/TE
100	MP E106.87D	E106.87D TN	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 15E Ramps TN
101	MP E106.89B	E106.89B TSW/TNW	Butterfly	Turnpike Interchange 15E Ramps TSW/TNW
102	MP E106.89C	E106.89C TNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 15E Ramp TNW
103	MP E107.03R	E107.03R NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
104	MP E107.17NSE	E107.17 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
105	MP E107.17SNE	E107.17 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
106	MP E107.37RNSE	E107.37R NSE	Cantilever	Turnpike NSE Roadway
107	MP E108.63	E108.63 NSE/SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE/SNE Roadways
108	MP E108.97	E108.97 NSE/SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE/SNE Roadways
109	MP E109.19SNE	E109.19 SNE	Cantilever	Turnpike SNE Roadway
110	MP E109.20NSE	E109.20 NSE	Cantilever	Turnpike NSE Roadway
111	MP E110.35	E110.35 NSE/SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE/SNE Roadways
112	MP E110.60SNE	E110.60 SNE	Cantilever	Turnpike SNE Roadway
113	MP E110.67C	E110.67C NET/ISENT	Four Chord Sign Bridge	Turnpike Interchange 15X Ramp NET & ISENT
114	MP E110.79NSE	E110.79 NSE	Cantilever	Turnpike NSE Roadway
115	MP E110.80D	E110.80D ISENT/ISXT	Butterfly	Turnpike Interchange 15X ISENT/ISXT
116	MP E110.80K	E110.80K WT	Cantilever	Turnpike Interchange 15X Ramp WT
117	MP E110.80L	E110.80L TW/WT	Four Chord Sign Bridge	Turnpike Interchange 15X Ramps TW/WT
118	MP E110.91SNE	E110.91 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
119	MP E111.01NSE	E111.01 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
120	MP E111.32SNE	E111.32 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
121	MP E111.55NSE	E111.55 NSE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE Roadway
122	MP E111.55SNE	E111.55 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
123	MP E111.73NSE	E111.73 NSE/NSA	Four Chord Sign Bridge	Turnpike NSE Roadway and Alexander Hamilton SA Ramp NSA
124	MP E111.91NSE	E111.91 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
125	MP E111.91SNE	E111.91 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
126	MP E112.10RSNE	E112.10R SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
127	MP E112.11NSE	E112.11 NSE	Cantilever	Turnpike NSE Roadway
128	MP E112.18SNE	E112.18 SNE	Overhead Sign	Turnpike SNE Roadway
129	MP E112.57NSE	E112.57 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
130	MP E112.58ER	E112.58ER P/TE	Four Chord Sign Bridge	Turnpike Interchange 16E Ramps P/TE and Lincoln Tunnel Ramp XBL

No.	Asset Name	Asset Code	Type ID	Location
131	MP E112.58FR	E112.58FR TE	Four Chord Sign Bridge	Turnpike Interchange 16E/17E Ramp TE
132	MP E112.58G	E112.58G TE	Four Chord Sign Bridge	Turnpike Interchange 16E/17E Ramp TE
	MP E112.64SNE	E112.64 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
133	MP E112.70NSE	E112.70 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
134	MP E112.86NSE	E112.86 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
135	MP E112.95ER	E112.95ER Q/TE	Four Chord Sign Bridge	Turnpike Interchange 17E Ramps Q/TE
136	MP E112.95FR	E112.95FR F	Four Chord Sign Bridge	Turnpike Interchange 16E Ramp F
137	MP E112.95GR	E112.95GR F	Four Chord Sign Bridge	Turnpike Interchange 16E Ramp F
138	MP E112.95H	E112.95H F	Four Chord Sign Bridge	Turnpike Interchange 16E Ramp F
139	MP E113.05NSE	E113.05 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
140	MP E113.41RNSE	E113.41R NSE/NET	Four Chord Sign Bridge	Turnpike NSE Roadway and Interchange 17E Ramp NET
141	MP E113.50NSE	E113.50 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
142	MP E113.69RNSE	E113.69R NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
143	MP E113.70SNE	E113.70 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
144	MP E114.49NSE	E114.49 NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
145	MP E114.49RNSE	E114.49R NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
146	MP E115.38RNSE	E115.38R NSE	Four Chord Sign Bridge	Turnpike NSE Roadway
147	MP E115.39RSNE	E115.39R SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
148	MP E115.40SNE	E115.40 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
149	MP E115.62NSE	E115.62 NSE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSE Roadway
150	MP E115.62SNE	E115.62 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
151	MP E115.92SNE	E115.92 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
152	MP E116.15SESA	E116.15 SESA	Cantilever	Turnpike Vince Lombardi SA Ramp SESA
153	MP E116.20RNESA	E116.20R NESA	Cantilever	Turnpike Vince Lombardi SA Ramp NESA
154	MP E116.45NSE	E116.45 NSE	Cantilever	Turnpike NSE Roadway
155	MP E116.58SNE	E116.58 SNE	Four Chord Sign Bridge	Turnpike SNE Roadway
156	MP E116.64SNE	E116.64 SNE	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNE Roadway
157	MP E116.86NSE	E116.86 NSE NS80-W	Four Chord Sign Bridge	Turnpike NSE Roadway and Ramp NS80-W
158	MP N0.22HS	N0.22 HS	Cantilever	Turnpike Interchange 14 Ramp HS
159	MP N0.32RII	N0.32RII HWE/HEW/NOH/HS	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways and Interchange 14 Ramps NOH/HS
160	MP N0.50RII	N0.50RII HWE/HEW/SH/NOH/HNO/HLT	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways and Interchange 14 Ramps SH/NOH/HNO/HLT
161	MP N0.69RII	N0.69RII HWE/HEW/SH/HNO/HLT	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways and Interchange 14 Ramps SH/HNO/HLT
162	MP N0.80E	N0.80 HWE	Cantilever	Turnpike HWE Roadway
163	MP N0.93RII	N0.93RII HWE/HEW	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways
164	MP N1.10	N1.10 HWE/HEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike HWE/HEW Roadways
165	MP N2.35E	N2.35 HWE	Art Deco	Turnpike HWE Roadway

No.	Asset Name	Asset Code	Type ID	Location
166	MP N2.76	N2.76 HWE/HEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike HWE/HEW Roadways
167	MP N2.93	N2.93 HWE/HEW	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways
168	MP N3.11RE	N3.11R HWE	Cantilever	Turnpike HWE Roadway
169	MP N3.29RWT	N3.29R WT	Cantilever	Turnpike Interchange 14A Ramp WT
170	MP N3.37W	N3.37 HEW	Cantilever	Turnpike HEW Roadway
171	MP N3.49RET	N3.49R ET	Cantilever	Turnpike Interchange 14A Ramp ET
172	MP N3.53AR	N3.53AR TW/TE	Four Chord Sign Bridge	Turnpike Interchange 14A Ramps TW/TE
173	MP N3.53J	N3.53J OSEXT/OSENT	Four Chord Sign Bridge	Turnpike Interchange 14A OSXT/OSENT
174	MP N3.53K	N3.53K 440	Four Chord Sign Bridge	NJ Route 440/Turnpike Interchange 14A Ramp 440 Con Ent
175	MP N3.53L	N3.53L Con Ent/Ext	Four Chord Sign Bridge	Turnpike Interchange 14A Ramps 440 Con Ent/Ext
176	MP N3.53M	N3.53M 440 Con Ext	Four Chord Sign Bridge	Turnpike Interchange 14A Ramp 440 Con Ext
177	MP N3.53N	N3.53N	Cantilever	Turnpike Interchange 14A Connector Road ET
178	MP N3.53O	N3.53O OSEXT	Cantilever	Turnpike Interchange 14A OSXT (to Avenue E)
179	MP N4.00E	N4.00 HWE	Cantilever	Turnpike HWE Roadway
180	MP N4.00W	N4.00 HEW	Cantilever	Turnpike HEW Roadway
181	MP N4.40	N4.40 HWE/HEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike HWE/HEW Roadways
182	MP N4.96	N4.96 HWE/HEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike HWE/HEW Roadways
183	MP N5.20E	N5.20 HWE	Cantilever	Turnpike HWE Roadway
184	MP N5.41WT	N5.41 WT	Cantilever	Turnpike Interchange 14B Ramp WT
181	MP N5.51	N5.51 HWE/HEW	Four Chord Sign Bridge	Turnpike HWE/HEW Roadways
182	MP N5.56CA	N5.56CA TE	Cantilever	Turnpike Interchange 14B Ramp TE
183	MP N5.56CB	N5.56CB TW	Cantilever	Turnpike Interchange 14B Ramp TW
184	MP N5.71W	N5.71 HEW	Cantilever	Turnpike HEW Roadway
185	MP N5.79W	N5.79 HEW	Four Chord Sign Bridge	Turnpike HEW Roadway
186	MP N5.94	N5.94 OSXT	Cantilever	Turnpike Interchange 14C OSXT
187	MP N6.04E	N6.04 HWE	Four Chord Sign Bridge	Turnpike HWE Roadway
188	MP N6.06W	N6.06 HEW	Four Chord Sign Bridge	Turnpike HEW Roadway
189	MP N6.36E	N6.36 HWE	Four Chord Sign Bridge	Turnpike HWE Roadway
190	MP N6.69W	N6.69 HEW	Cantilever	Turnpike HEW Roadway
191	MP N6.72E	N6.72 HWE	Four Chord Sign Bridge	Turnpike HWE Roadway and Ramp B (To Grand St)
192	MP N7.64W	N7.64 HEW	Cantilever	Turnpike HEW Roadway (North Terminal Ramps)
193	MP N7.88W	N7.88 HEW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike HEW Roadway
194	MP N8.12RW	N8.12R HEW	Art Deco	Turnpike HEW/NJ 139 WB Roadways
195	MP N8.25W	N8.25 HEW	Art Deco	Turnpike HEW/NJ 139 WB Roadways

No.	Asset Name	Asset Code	Type ID	Location
Turnpike Signs Group 4				
1	MP 117.02 SN95	117.02 SN95	Four Chord Sign Bridge	Turnpike SN95 Roadway
2	MP 117.04 NS80	117.04 NS80	Four Chord Sign Bridge	Turnpike NS80 Roadway
3	MP 117.04 NS95	117.04 NS95	Four Chord Sign Bridge	Turnpike NS95 Roadway
4	MP 117.04 SN80	117.04 SN80	Four Chord Sign Bridge	Turnpike SN80 Roadway
5	MP 117.04 SN95	117.04 SN95	Four Chord Sign Bridge	Turnpike SN95 Roadway
6	MP 117.05 NS80	117.05 NS80	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS80 Roadway
7	MP 117.05 NS95	117.05 NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
8	MP 117.25R SN95	117.25R SN95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95 Roadway
9	MP 117.29R NS80	117.29R NS80	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS80 Roadway
10	MP 117.29R NS95	117.29R NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
11	MP 117.41R SN95	117.41R SN95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95 Roadway
12	MP 117.57 SN95	117.57 SN95	Cantilever	Turnpike SN95 Roadway
13	MP 117.60RII NS80	117.60RII NS80	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS80 Roadway
14	MP 117.60RII NS95	117.60RII NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
15	MP 117.63D	117.63D 46	Four Chord Sign Bridge	Turnpike Ramp SL (Route 46)
16	MP 117.67BR	117.67BR ET	Four Chord Sign Bridge	Turnpike Interchange 68 Ramp ET
17	MP 117.80 SN95	117.80 SN95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95 Roadway
18	MP 117.85 NS80	117.85 NS80	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS80 Roadway
19	MP 117.89TW	117.89 TW	Three Chord Sign Bridge	Turnpike Interchange 68 (Route 46) Ramp TW
20	MP 118.05 NS80	118.05 NS80	Four Chord Sign Bridge	Turnpike NS80 Roadway
21	MP 118.07 SN95	118.07 SN95	Four Chord Sign Bridge	Turnpike SN95 Roadway
22	MP 118.11 SN80	118.11 SN80	Four Chord Sign Bridge	Turnpike SN80 Roadway
23	MP 118.24R SN95	118.24R SN95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95 Roadway
24	MP 118.25 NS95	118.25 NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
25	MP 118.30 NS80	118.30 NS80	Four Chord Sign Bridge	Turnpike NS80 Roadway
26	MP 118.40 SN80	118.40 SN80	Four Chord Sign Bridge	Turnpike SN80 Roadway
27	MP 118.40R SN95	118.40R SN95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95 Roadway
28	MP 118.55 NS95	118.55 NS95	Cantilever	Turnpike NS95 Roadway
29	MP 118.58 SN95	118.58 SN95X/SN95L	Four Chord Sign Bridge	Turnpike SN95X/SN95L Roadways
30	MP 118.65 NS80	118.65 NS80	Four Chord Sign Bridge	Turnpike NS80 Roadway
31	MP 118.72 NS95	118.72 NS95	Four Chord Sign Bridge	Turnpike NS95 Roadway
32	MP 118.74 SN80	118.74 SN80	Four Chord Sign Bridge	Turnpike SN80 Roadway
33	MP 118.74 SN95L	118.74 SN95L	Cantilever	Turnpike SN95L Roadway
34	MP 118.88 95WNL	118.88 95WNL	Cantilever	Turnpike 95WNL Roadway
35	MP 118.90 95WNL	118.90 95WNL	Cantilever	Turnpike 95WNL Roadway
36	MP 118.91 SN80	118.91 SN80	Four Chord Sign Bridge	Turnpike SN80 Roadway
37	MP 118.93 NS95	118.93 NS95	Cantilever	Turnpike NS95 Roadway
38	MP 119.05 95WNL	119.05 95WNL	Four Chord Sign Bridge	Turnpike Route 95WNL Roadway
39	MP 119.21CD	119.21 CD	Four Chord Sign Bridge	Turnpike Interchange 70 Ramp CD
40	MP 119.36CD	119.36 CD	Four Chord Sign Bridge	Turnpike Interchange 70 Ramp CD
41	MP 119.39 95NXW/NS95X	119.39 95NXW/NS95X	Four Chord Sign Bridge	Turnpike 95NXW/NS95X Roadways
42	MP 119.39 NS95L/NWL	119.39 NS95L/NWL	Four Chord Sign Bridge	Turnpike NS95L Roadway and Ramp NWL
43	MP 119.48CD	119.48 CD	Four Chord Sign Bridge	Turnpike Interchange 70B Ramp CD
44	MP 119.60 NS95L	119.60 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
45	MP 119.60 NS95X	119.60 NS95X	Four Chord Sign Bridge	Turnpike NS95X Roadway

No.	Asset Name	Asset Code	Type ID	Location
46	MP 119.60 SN95L	119.60 SN95L/CD	Butterfly	Turnpike SN95L Roadway and Ramp CD Median
47	MP 119.70 NS95L	119.70 NS95L	Cantilever	Turnpike NS95L Roadway
48	MP 119.83 NS95L	119.83 NS95L	Cantilever	Turnpike NS95L Roadway
49	MP 120.00 NS95X/NS95L	120.00 NS95X/NS95L	Butterfly	Turnpike NS95X/NS95L Roadways Median
50	MP 120.00R SN95L	120.00R SN95L	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95L Roadway
51	MP 120.00R SN95X	120.00R SN95X	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95X Roadway
52	MP 120.14 SN95L	120.14 SN95L	Cantilever	Turnpike SN95L Roadway
53	MP 120.28 NS95L	120.28 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
54	MP 120.28 NS95X	120.28 NS95X	Four Chord Sign Bridge	Turnpike NS95X Roadway
55	MP 120.65 NS95L	120.65 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
56	MP 120.78 SN95X	120.78 SN95X	Cantilever 2CH	Turnpike SN95X Roadway
57	MP 120.84 NS95L	120.84 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
58	MP 120.84 NS95X	120.84 NS95X	Four Chord Sign Bridge	Turnpike NS95X Roadway
59	MP 120.84 SN95L	120.84 SN95L	Cantilever	Turnpike SN95L Roadway
60	MP 120.95 SN95L	120.95 SN95L	Four Chord Sign Bridge	Turnpike SN95L Roadway
61	MP 121.08 NS95	121.08 NS95L/NS95X	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95L/NS95X Roadways
62	MP 121.16 SN95L	121.16 SN95L	Four Chord Sign Bridge	Turnpike SN95L Roadway
63	MP 121.16R SN95L	121.16R SN95L	Overhead Sign	Turnpike SN95L Roadway
64	MP 121.27 NS95L	121.27 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
65	MP 121.27 NS95X	121.27 NS95X	Four Chord Sign Bridge	Turnpike NS95X Roadway
66	MP 121.32R SN95L	121.32R SN95L	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95L Roadway
67	MP 121.46 SN95X	121.46 SN95X	Cantilever	Turnpike SN95X Roadway
68	MP 121.48 SN95L	121.48 SN95L	Four Chord Sign Bridge	Turnpike SN95L Roadway
69	MP 121.52 NS95L	121.52 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
70	MP 121.67 SN95L	121.67 SN95L	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SN95L Roadway
71	MP 121.70 SN95X	121.70 SN95X	Cantilever	Turnpike SN95X Roadway
72	MP 121.76 95NXW	121.76 95NXW	Cantilever	Turnpike 95NXW Roadway
73	MP 121.80 SN95L	121.80 SN95L	Four Chord Sign Bridge	Turnpike SN95L Roadway
74	MP 121.88 95NXW	121.88 95NXW	Four Chord Sign Bridge	Turnpike 95NXW Roadway
75	MP 121.88 NS95L	121.88 NS95L	Four Chord Sign Bridge	Turnpike NS95L Roadway
76	MP 121.88R NS95L	121.88 NS95L	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
77	MP 121.90 SN95L	121.90 SN95L	Four Chord Sign Bridge	Turnpike SN95L Roadway
78	MP 121.90 SN95X	121.90 SN95X	Cantilever 2CH	Turnpike SN95X Roadway
79	MP 121.98R NS95L	121.98R NS95L/NLW	Cantilever	Turnpike NS95L Roadway and Interchange 72A Ramp NLW
80	MP 121.99R SN95X	121.99R SN95X	Four Chord Sign Bridge	Turnpike SN95X Roadway
81	MP 121.99RII NS95	121.99RII NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
82	MP 122.03R NS95	122.03R NS95	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NS95 Roadway
83	MP W106.21NSW	W106.21 NSW-O/NSW-I	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW-O/NSW-I Roadways
84	MP W106.27NSW	W106.27 NSW-O/NSW-I	Four Chord Sign Bridge	Turnpike NSW-O/NSW-I Roadways
85	MP W106.39NSW	W106.39 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
86	MP W106.74RNSW	W106.74R NSW	Cantilever	Turnpike NSW Roadway

No.	Asset Name	Asset Code	Type ID	Location
87	MP W106.85SNW	W106.85 SNW	Cantilever 2CH	Turnpike SNW Roadway
88	MP W106.93RIINSW	W106.93RII NSW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW Roadway
89	MP W107.11NSW	W107.11 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
90	MP W107.25SNW	W107.25 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway
91	MP W107.31R	W107.31R NSW/SNW	Four Chord Sign Bridge	Turnpike NSW/SNW Roadways
92	MP W107.57	W107.57 NSW/SNW	Four Chord Sign Bridge	Turnpike NSW/SNW Roadways
93	MP W108.44	W108.44 NSW/SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW/SNW Roadways
94	MP W108.64SWT	W108.64 SWT	Cantilever	Turnpike Interchange 15W Ramp SWT
95	MP W108.75NSW	W108.75 NSW	Cantilever	Turnpike NSW Roadway
96	MP W108.79BR	W108.79BR TNW/TSW/NET/NWT	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 15W Ramps TNW/TSW/NET/NWT
97	MP W108.79CRII	W108.79CRII TNE/TNW/TSW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Interchange 15W Ramps TNE/TNW/TSW
98	MP W108.79D	W108.79D WT/TW/OSENT/OSXT	Four Chord Sign Bridge	Turnpike Interchange 15W Ramps WT/TW/OSENT/OSXT
99	MP W108.79EA	W108.79EA TW	Four Chord Sign Bridge	Turnpike Interchange 15W Ramp TW
100	MP W108.79EB	W108.79EB WT	Four Chord Sign Bridge	Turnpike Interchange 15W Ramp WT
101	MP W108.79F	W108.79F OSXT	Four Chord Sign Bridge	Turnpike Interchange 15W OSXT
102	MP W108.90SO	W108.90 NSO	Cantilever	Turnpike NSO Roadway
103	MP W109.03RNWT	W109.03R NWT	Four Chord Sign Bridge	Turnpike NSW Roadway and Interchange 15W Ramp NWT
104	MP W109.12SNW	W109.12 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway
105	MP W109.85NSW	W109.85 NSW	Cantilever	Turnpike NSW Roadway
106	MP W110.37SNW	W110.37 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway
107	MP W110.38NSW	W110.38 NSW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW Roadway
108	MP W110.49SNW	W110.49 SNW	Cantilever	Turnpike SNW Roadway
109	MP W110.85NSW	W110.85 NSW	Cantilever 2CH	Turnpike NSW Roadway
110	MP W111.55SNW	W111.55 SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
111	MP W112.29RSNW	W112.29R SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
112	MP W112.31NSW	W112.31 NSW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW Roadway
113	MP W112.51SWT	W112.51 SWT	Four Chord Sign Bridge	Turnpike SNW Roadway and Interchange 16W Ramp SWT
114	MP W112.72ER	W112.72ER SWT/NWT/TSW/TNW	Four Chord Sign Bridge	Turnpike Interchange 16W Ramps SWT/NWT/TSW/TNW
115	MP W112.72FR	W112.72FR OSENT/OSXT	Four Chord Sign Bridge	Turnpike Interchange 16W OSENT/OSXT
116	MP W112.72H	W112.72H WT	Cantilever	Turnpike Interchange 16W Ramp WT at Route 3 Eastbound
117	MP W112.72HR	W112.72HR WT	Cantilever	Turnpike Interchange 16W Ramp WT at Route 3 Eastbound
118	MP W112.81NSW	W112.81 NSW	Cantilever	Turnpike NSW Roadway
119	MP W112.90SNW	W112.90 SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
120	MP W113.04RNSW	W113.04R NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
121	MP W113.36NSW	W113.36 NSW	Cantilever	Turnpike NSW Roadway

No.	Asset Name	Asset Code	Type ID	Location
122	MP W113.41RSNW	W113.41R SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
123	MP W113.58SNW	W113.58 SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
124	MP W114.05AR	W114.05AR CNW/CSW	Four Chord Sign Bridge	Turnpike Interchange 19W Ramps CNW/CSW
125	MP W114.05B	W114.05B CW/NWC	Four Chord Sign Bridge	Turnpike Interchange 19W Ramps CW/NWC
126	MP W114.10NSW	W114.10 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
127	MP W114.15SNW	W114.15 SNW	Four Chord Sign Bridge	Turnpike SNW Roadway
128	MP W114.30NSW	W114.30 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
129	MP W114.58NSW	W114.58 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
130	MP W114.78NSW	W114.78 NSW	Four Chord Sign Bridge	Turnpike NSW Roadway
131	MP W114.78SNW	W114.78 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway
132	MP W114.98	W114.98 NSW/SNW	Four Chord Sign Bridge	Turnpike NSW/SNW Roadways
133	MP W115.51R	W115.51R NSW/SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW/SNW Roadways
134	MP W115.74BR	W115.74BR SANW/SAS	Four Chord Sign Bridge	Turnpike Vince Lombardi SA Ramps SANW/SAS
135	MP W115.74C	W115.74C SESA	Four Chord Sign Bridge	Turnpike Vince Lombardi SA Ramp SESA
136	MP W115.74R	W115.74R NSW/SNW	Four Chord Sign Bridge	Turnpike NSW/SNW Roadways
137	MP W115.89SWSA	W115.89 SWSA	Cantilever	Turnpike Vince Lombardi SA Ramp SWSA
138	MP W115.92BR	W115.92BR SAS	Vierendeel Overhead VMS/Hybrid Sign	Turnpike Vince Lombardi SA Ramps SAS
139	MP W115.92RII	W115.92RII NSW/SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike NSW/SNW Roadways
140	MP W116.29SNW	W116.29 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway
141	MP W116.71SNW	W116.71 SNW	Vierendeel Overhead VMS/Hybrid Sign	Turnpike SNW Roadway

Total 751

14. FHWA ULTRASONIC ANCHOR INSPECTION PROCEDURE

ULTRASONIC ANCHOR INSPECTION PROCEDURE

Referenced from Appendix D of the FHWA Guidelines for the Installation, Inspection, Maintenance, and Repair of Structural Supports for Highway Signs, Luminaries, and Traffic Signals (Publication No. FHWA NHI 05-036, March 2005)

FISH INSPECTION AND TESTING LLC

ULTRASONIC ANCHOR BOLT INSPECTION PROCEEDURE

Scope

This procedure when specified shall be the method used to ultrasonically examine bolts to locate fatigue cracks perpendicular to bolt length.

Reference Documents

ASME Section V
American Welding Society D1.1
Qualification and Certification of NDT Personnel
Control of Measuring and Test Equipment

Personnel Requirements

The personnel implementing this procedure shall be certified in accordance with Fish Inspection and Testing LLC NDE Quality Assurance Manual "Qualification and Certification of NDT Personnel," as either Level II or III to evaluate results, or Level I to perform the operational portion of the examination and record data while under the direct supervision of a Level II or III.

Equipment and Material

1. Equipment and materials used to implement this procedure will be calibrated and certified in accordance with Fish Inspection and Testing LLC NDE Quality Assurance Manual "Control of Measuring and Testing Equipment." A copy of the equipment and material certifications will be available at the request of the client.

   A. Instrumentation
   The ultrasonic instrument shall be a Pulse-Echo type unit equipped with an A scan presentation and capable of generating frequencies over the range of 1 MHz to 5 MHz. The instrument will also be equipped with a calibrated attenuator in one (1) or two (2) db steps with an accuracy over its range of ± 2db.

   B. Transducers
      1. Search units should be single element transducers.
      2. Transducers may be 1 MHz to 5 MHz in frequency.
      3. Search unit crystals may be 3/8 inch to 1/2inch in diameter.

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C. Calibration blocks shall be either International Institute of Welding (IIW) Type I of Type II or Distance and Sensitivity Calibration Block (DSC) used in conjunction with calibration standards of Paragraph D. At the option of the client, specific calibration standards can be prepared at their discretion to verify adequacy of this procedure.

D. Calibration Standards
Calibration standards shall be made out of the same or similar material as the bolts being examined. The standard shall be made of material free of indications that may affect calibration. The optional standards should be of the same diameter and length and material type as the bolts being examined. The standards shall be machined with a 1/8 inch deep saw cut below the root of the threads. The saw cut shall be located at 2 inches, 4 inches, 6 inches, and 8 inches from the threaded end of the bolt. The saw cut shall be located perpendicular to the end of the bolt. The end of the bolt shall be flat and smooth as to not interfere with free movement of the search unit. The saw cuts shall be located in different quadrants so they do not mask the notch below.

Prerequisites, Precautions and Limitations

A. The surface of the test material shall be flat, smooth and in its final condition prior to the examination. This may require the use of hand grinders to facilitate search unit movement.

B. The same equipment used for calibration shall be the same as used for examination purposes. This includes the ultrasonic instrument, cables, search unit and couplant. Any change in this equipment requires recalibration.

C. This procedure may be used for 1/2 inch to 3-inch diameter bolts. The area of interest shall be the first ten inches. If the area past the first ten inches is to be examined, further evaluation should be performed before using this procedure with special attention to beam spread and mode conversion. This evaluation will be performed by Fish Inspection and Testing LLC level ultrasonic examiner and results approved by the client prior to any examinations.

Procedure Requirements

A. The surface to be examined shall be smooth and free of roughness or other conditions that would interfere with free movement of the search unit or impair the transmission of ultrasonic waves. The nut should be fully threaded past the end of the bolt so as not to interfere with search unit scanning area.

B. Examination Calibration

1. Calibration shall include the complete ultrasonic examination system. Any changes in search units, shoes, couplant, cables, instruments, or recording devices will result in a calibration check. The initial calibration must take place on the IIW, DSC or optional calibration standards.
2. The CRT screen shall be calibrated for a 10-inch screen range using the approved calibration blocks in Paragraph 1. Then place the search unit on the threaded end of the calibration standard. Locate the closest or 2-inch saw cut. Adjust the amplitude to 90 percent. Record the instrument setting on the examination sheet. Next, locate the 4-inch saw cut. Note the peak amplitude on the examination sheet. Also, mark the screen with an erasable marker. Do the same for the remaining two saw cuts. Next, connect the marks of the screen to create a Distance Amplitude Curve (DAC).

C. Straight Beam Examination of Bolts

1. With CRT screen calibrated according to Paragraph B.2. Position the search unit on the bolt to be examined. The entire surface of the bolt shall be scanned at 12Db over reference.
2. Accept/reject standards – any indication within 20 percent DAC at reference level, the indication shall be recorded. If any indications are found to exceed DAC at reference level, the bolt shall be considered reject and should be recorded on the examination sheet. If no indications are found, the bolt shall be considered acceptable.

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D. Length Measurement

1. Anchor bolt length may be verified if plans showing anchor bolt details are available. Caution: If anchor bolts have a bent hook at ends, length measurement may not be possible.

2. Calibrate the instrument for screen range required to analyze full bolt length using the AWS IIW block. Take measurements of the total bolt length and record it on the examination sheet for each of the bolts.

E. System Calibration Check

1. A system calibration check which verifies the instruments' sensitivity and sweep range calibration shall be performed at the start and finish of each examination or with any change of examination personnel or at least every 4 hours during the examination.
2. System recalibration shall take place when one or more of the following occur.
   a. Any change of examination personnel.
   b. Any change of examination equipment cables, transducers or instruments.
   c. Any change of interruption in the power supply.
   d. When the operator doubts the validity of the calibration.

F. Post Cleaning

1. All excess couplant shall be removed after completing examination.
2. If original coating was removed for examination, examination area shall be recoated with a rust inhibitive coating approved by the client.

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G. Corrective Actions

1. If any point on the DAC curve has decreased 20% of 2db of its amplitude, all data sheets since the last calibration will be marked void. A new calibration sheet shall be completed and all areas examined since the last calibration shall be re-examined.
2. If any point on DAC curve increases 20% or 2 db of its amplitude, the same corrective action as Paragraph G.1 shall be taken.
3. If any point on the DAC curve moves more than 10% of the horizontal sweep, all data taken since the last calibration shall be corrected.

H. Evaluation and Recording of Results

1. All defects or discontinuities revealed by the examination will be evaluated in accordance with Paragraph C2 and reported to the client.

FISH INSPECTION AND TESTING LLC *Structural Material Analysis*
8964 Waterford Road Sauk City Wisconsin 53583 **Phone 608-643-6458**
Fax 608-643-0213

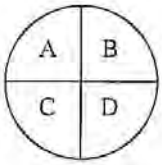
Ultrasonic Testing of Anchor Bolts
Distance Amplitude Correction Method (DAC)

General Information			
Structure ID:	Project No:	Report No:	Inspection Date & Time:

Testing Equipment Information		
UT Unit Make & Model:	Serial No:	Couplant Manf. & Grade:
Search Unit Manf., Dia., & Frequency:		Search Unit Beam Spread (sin $\theta = 1.22\lambda / d$):
Search Unit Near Zone ($L = D^2/4\lambda$):	Smallest Detectable Defect (0.5λ):	**Typical Anchor Bolt layout Sketch**

Calibration Information	
Calibration Standard:	
Calibration Settings	**% of Screen Height**
Amplitude of Notch at 2"	
Amplitude of Notch at 4"	
Amplitude of Notch at 6"	
Amplitude of Notch at 8"	
Visual Anchor Bolt Conditions:	

- *Number Anchor Bolts clockwise-designate location of starting point*
- *Divide each anchor bolt into 4 quadrants(A,B,C,D)and report each quadrant in the evaluation*



Ultrasonic Testing Evaluation

Anchor Bolt Number	Diameter	Measured Length	Evaluation (*N.S. = No Significant Indication)*				Remarks
			A	B	C	D	

Inspector Name (Print):_____

Inspector Signature:_____ ASNT Level:_____ Date:_____

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