LIMITED SCOPE CONCEPT DEVELOPMENT REPORT

RT. 440, Bridges over
RT. 9, RT. 9 Ramps, GSP & GSP Ramps

Structure #: 1234-167

Woodbridge Township, Middlesex County

Prepared For:

New Jersey Department Of Transportation
Division Of Capital Project Management
1035 Parkway Avenue, PO Box 600
Trenton, New Jersey 08625

November 2014

Table of Contents

List of Appendices

I. INTRODUCTION

A. Bridge Information

The Route 440 Bridge (Str.# 1234-167) over Route 9, Garden State Parkway and various ramps was constructed in 1970. This 5-span, simply supported structure with a composite deck over welded steel plate multi-girders has an overall length of 678.0' with the longest span being 168.5'. The out-to-out width is 111.7' and the curb to curb width is 52' southbound and 52.25' northbound. Note that Route 440 is designated a North/South Urban Freeway; however, at the structure location, the northbound (NB) traffic is traveling east and the southbound (SB) traffic is travelling west. Directional references in this report refer to true north.

The bridge carries three 12'-0" lanes of thru traffic in each direction with 3'-3" inside shoulders. The westbound (WB) roadway has a 12'-9" outside shoulder, and a 9" wide curb, while the eastbound (EB) roadway has a 13'-0" deceleration/auxiliary lane and 1'-6" wide safety walk. The eastbound and westbound traffic is separated with a concrete median barrier. The bridge railing configuration consists of a 3-rail aluminum railing.

B. Purpose and Need Statement

Purpose

The purpose is to reconstruct the bridge deck to improve the service life of the structure.

Need

The subject structure has been identified by the Bridge Management System and Structural Evaluation as being in need of reconstruction. The bridge deck exhibits large open spalls with exposed rusted reinforcement, and large deteriorated concrete and bituminous concrete patches amounting to 10 percent of the entire top of deck area (Photos 1 & 6). Although the bridge deck has been overlaid with bituminous concrete, due to the underlying conditions, the deck remains in poor condition. The approach pavement is in satisfactory condition.

Based on the latest Bridge Re-Evaluation Survey Report (17th Cycle, 2013), the deck is in poor condition; however, the overall condition of the structure is satisfactory due to the superstructure and substructure. Since the previous inspection (16th Cycle, 2011), the deck remained in poor condition and the superstructure remained in satisfactory condition. The substructure has been upgraded from fair to satisfactory condition due to recent epoxy concrete repairs to all spalled areas on the abutments and piers.

Goals and Objectives

The deck is structurally deficient due to the large amount of spalls; therefore, based on the poor condition rating of the deck, the Bridge Management System has recommended the replacement of the deck. Bridge parapet/railing and approach guiderail will be upgraded to current standards. New approach curb will transition to the new bridge parapet/railing. The work will be designed to minimize environmental impacts to the greatest extent possible, and new impervious cover will be less than the one-quarter acre threshold of the Stormwater Management Rules.

C. Project Location

The Route 440 Bridge (Structure No. 1234-167) over Route 9, Garden State Parkway and associated ramps is located at MP 2.01 on Route 440 in Woodbridge Township, Middlesex County. The bridge crosses over Route 9 Milepost 132.99 and GSP Milepost 128.00. Location maps and the applicable Straight Line Diagrams are provided in Appendix C.

D. List of Other Projects in the Vicinity

A review of all applicable databases has indicated that there are two other active projects in Concept Development, Preliminary Engineering, Final Design, or Construction that could have an impact on the proposed project. Those projects are as follows:

- RT 440, Ramp "J" over RT 35 Ramp "G" is a limited scope bridge deck replacement project located approximately 1.2 miles to the northeast. This project is scheduled to be advertised in December 2015 and construction completed by September 2016. Since construction on the subject bridge is not scheduled to begin until November 2016 no coordination is anticipated unless there are schedule changes.
- RT 440, CR 514 (Woodbridge Ave) to Kreil Street is a concrete pavement repair project that begins west of the subject project and extends beyond it to the east. It is not expected to commence until after completion of the bridge deck replacement; therefore, no coordination is anticipated.

II. EXISTING CONDITIONS ANALYSIS

A field trip was conducted on December 5, 2013 and September 23, 2014 to assess the existing conditions of the structure and to ascertain other features that could potentially have an impact on the delivery of the project. Based on discoveries made during this field

trip and subsequent follow-up, several issues were identified, which will be addressed as part of the project. The following provides a summary of these issues:

A. Structure

i. **Deck** – The eastbound bridge deck was overlaid in 2011 and exhibits little distress (Photo 5). The westbound deck was overlaid in 2009 and exhibits numerous asphalt and concrete repairs totaling over 1,100 SF or 3 percent of the deck area (Photos 9 & 10). Spalls and cracking at the deck joints have recently been repaired (Photo 7); however, deck joint sealer is depressed, deteriorated, or de-bonded from the deck (Photo 8). The latest Bridge Re-Evaluation Survey Report (17th Cycle) continues to rate the deck as "poor" due to numerous concrete repaired areas and asphalt patched spalls underlying the bituminous concrete overlay (Photo 6).

ii. **Superstructure** – According the latest Survey Report, the bridge was last painted in September 2001 and the superstructure is currently rated satisfactory (6) due to impact damaged horizontal bracing at the north fascia over SB GSP located over 4th and 5th lanes numbered from right to left, looking south. Additional superstructure deficiencies were noted during the latest field inspection. Rocker Bearing 12 at Pier 4 is excessively contracted, shifted off of its pintle, and in contact with the Span 5 bearing pedestal while the remaining bearings are slightly expanded (Photo 21)). The bottom brace in the north fascia bay, Pier 4, exhibits section loss (Photo 22) and the Pier 4 north fascia bearings exhibit moderate to severe rusting. The fascia bearings typically exhibited greater rusting than the interior bearings.

iii. **Substructure** – The substructure is currently rated satisfactory-6 due to several wide horizontal cracks at the piers and patched areas that have been rebuilt with epoxy concrete. Distresses observed during the field inspection include horizontal cracks, spalls, and incipient spalls in the west abutment and in Piers 2 and 3 Photos 15, 18 & 20).

iv. **Other** – The following "other" conditions/issues were observed:

- Approach roadway guide rail is attached to the existing pylon at all four corners of the structure.
- A 1.5' wide curb/safety walk exists on the south side of the bridge and a 9" wide curb exists on the north side. Approach roadway curb is cracked and settled on all approaches and no sidewalks are present.
- Underdeck lighting exists beneath Spans 1, 2, & 3 (numbered from the west abutment) served by wiring contained in 1-1/2" rigid metallic conduit cast into the deck. Note that no roadway exists beneath Span 1; GSP Ramp 1 (formerly Ramp GO) that was originally designed to traverse beneath Span 1, now traverses beneath Span 2, adjacent to the mainline GSP. Six pole-mounted lights exist along the eastbound parapet/railing served by

wiring contained in 3" rigid metallic conduit cast into the curb. Light Standard Bases exist along the westbound parapet/railing; however, no poles or lights are installed. All lighting is under NJDOT jurisdiction.

- This structure does not have approach or transition slabs.
- A bridge-mounted sign structure exists on the south fascia of Span 3. The top of the structure is supported by the deck/railing base and the bottom is supported by the superstructure (Photo 10). Sign support mounting plates exist on the north fascia of Span 2; however, the sign structure has been removed.

B. Pavement

The existing structure consists of an 8" thick reinforced concrete deck with bituminous concrete overlay of unknown thickness. The approach roadway pavement consists of 9" thick reinforced concrete over 12" thick Subbase (6" Type I, Class A over 6" Type I, Class C). The eastbound west approach has recently (2014) been overlaid with bituminous concrete, and both westbound approaches were previously overlaid with bituminous concrete. Shoulder pavement consists of 2" thick FABC-1, 7" thick Subbase Type 5, Class A over 12" thick Subbase Type I, Class C.

C. Drainage

The approach roadway is curbed with inlets providing drainage. Two scuppers are located on the bridge deck at Pier 2; one along the eastbound median and one along the westbound outside curb. Field inspection found the eastbound scupper to be completely filled with soil and vegetation; however the westbound scupper was functional and only the grate was partially obstructed. Significant soil erosion has occurred beneath the pipe on the north side of the pier (WB scupper) exposing a portion of the pier's pile cap (Photo 17). The existing deck profile provides positive drainage away from the bridge deck, and no evidence of drainage issues were observed due to the clogged eastbound scupper. The inlet grate at the NW approach roadway was completely clogged (Photo 12).

Route 440 over Route 9 MP 2.00 to 2.06 ranks 173 in Drainage Management Unit's DMS Ranking List. The Drainage Management Unit's data is provided in Appendix J – SME Correspondence.

D. Traffic Control within the Project Limits

There are no traffic control devices within the limits of the project.

E. Utility Facilities

Other than underdeck and highway lighting, neither aerial nor deck/superstructure mounted utility facilities exist within the project limits. Underground fiber optic cable exists between the west abutment and Pier 1, as well as sanitary and storm sewer, in several locations below the at-grade highways. No impact to these facilities is anticipated from the proposed scope of work.

F. Access

There are no driveways within the limits of the project.

G. ITS Facilities

A pole-mounted Camera Surveillance System (CSS) exists at the NE corner of the bridge approximately 65 feet east of the bridge. No other ITS facilities were observed during the field investigation, and the ITS Office device listing (Appendix J) confirms that no other ITS facilities exist within the project limits.

H. Geometrics

The following controlling substandard design elements will require a Design Exception:

1. Vertical Clearance (Under-clearance to Garden State Parkway Ramp 1)
2. Stopping Sight Distance (SSD) - Horizontal Curve (EB Route 440)
3. Superelevation
4. Shoulder Width
5. Deceleration Lane Length (Route 440 WB to GSP SB)

Reasonable assurance of design exception approval has been received and is included in Appendix J SME Correspondence.

I. Community Concerns

The closest residents are over 500 feet away from the project limits and the closest business is 250 feet. Neither has direct access to Route 440. The concerns of the community should be limited to work hours (noise) during construction activities and traffic congestion (inconvenience).

J. Environmental Concerns

Based on the environmental screening and the scope of this project, there does not appear to be any environmental issues present at the project site.

K. Management System Input

In addition to the Bridge Management System, the following Management Systems have been cross referenced:

- Drainage Management System – Route 440 over Route 9 MP 2.00 to 2.06 ranks 173 in the Drainage Management Unit's DMS Ranking List.
- Congestion Management System – This section of Route 440 is "Very Congested" and has a "High" Priority Rating. The proposed deck replacement is expected to have no positive or negative impact on congestion once construction is complete.
- Safety Management System – The crash data for the section of Route 440 from MP 1.90 to 2.20 was analyzed and found to have a crash rate of 2.92 crashes/mvm; well above the 2012 statewide average crash rate for roadways with similar cross-sections (1.65 crashes/mvm). Upon further investigation it was determined that many of the crashes (32) occurred on ramps that fall within those mileposts but are unrelated to the bridge and its cross-section. Furthermore, nine (9) of the crashes occurred on the same date and time and are related to debris in the roadway. Removing these crashes from the data results in a crash rate of 1.80 crashes/mvm; only slightly above the statewide average. Crash data was further analyzed by Bureau of Transportation Data and Safety with respect to Controlling Substandard Design Elements present on the bridge. It was determined that crashes associated with those design elements were not overrepresented when compared to the 2012 State Highway Average Crash Values. Crash data and analysis are presented in Appendix F.

L. Pedestrian and Bicycle Facilities

There are no sidewalks or other pedestrian facilities on the bridge or on the approaches, and none are proposed. The existing bridge is currently not a Bicycle-Compatible Roadway as defined in N.J.A.C. 5:21 due to the lack of a shoulder along the EB roadway, and no bicycle facilities are planned.

III. ALTERNATIVES ANALYSIS

A. Alternatives Analysis Narrative

The Bridge carrying Route 440 over Route 9, Route 9 Ramps, Garden State Parkway, and GSP Ramps, has been identified by the Bridge Management System and Structural Evaluation as being in need of reconstruction. The condition ratings of various elements of the structure; Deck – poor (4), Superstructure – satisfactory (6), and Substructure – satisfactory (6), indicate that a Limited Scope Deck Replacement is the appropriate alternative.

A no-build alternative does not address the project need of reconstructing the deck and improving the service life of the structure, nor does it meet the Bridge Management System goals; therefore, the no-build alternative was eliminated from consideration.

Based on the satisfactory condition rating of the superstructure, a "superstructure replacement" option was not considered. Likewise, based on the condition ratings of the substructure, a "full replacement" option was not considered.

Deck Reconstruction Alternatives

The traditional and tested deck replacement option is a cast-in-place deck. Route 440 is one of the most heavily travelled roadways in New Jersey. Two options for deck replacement were considered based on duration of construction, inconvenience to the motoring public and construction cost.

Alternative A: Cast-in-place high early, high performance concrete (HE-HP) deck

Alternative B: Precast Concrete Panels

The advantages and disadvantages of each are presented below:

<u>Alternative A: High Early – High Performance Concrete (HE-HPC) Cast-in Place Reinforced Concrete Deck</u>

The NJDOT Design Manual method of deck reconstruction uses single course cast-in-place reinforced concrete deck. The single course Hi-Early-High Performance Concrete (HE-HPC) cast-in-place reinforced concrete deck is proposed to replace the existing deck. HE-HPC's behavior is similar to conventional concrete, but does offer a reduced construction duration (curing period) when compared to single course cast-in-place reinforced concrete deck. The advantages and disadvantages of this method are as follows:

Advantages:

- Well established track record
- Contractor Familiarity
- Allows for continuance of current maintenance procedures
- Can accommodate complex geometry
- Minimal prep work required (pour HE-HPC and cure HP-HPC)
- Low Initial Cost ($3,520,000)

Disadvantages:

- Longer construction duration than precast
- Weather Limitations
- Falsework Required
- Reinforcement layout and installing SIP forms
- Higher risk of cracking and more susceptible to chloride contamination

Alternative B: Precast Concrete Deck Panels

Precast concrete deck panels typically provide the shortest construction duration and the least traffic impacts. Precast concrete deck panels are formed and cast in a pre-stressing facility, shipped to the site, and placed using cranes or other lifting means. The precast panels can be made composite with the girders via shear studs in pre-formed pockets. The panels are usually transversely pre-stressed or post-tensioned and can also be post tensioned in the longitudinal direction to tie the panels together and limit cracking. The panels are either cast with a sacrificial layer of concrete for diamond grinding and/or are overlaid in the field, both of which improve rideability.

Precast deck panels are best utilized at locations where the geometry is regular (tangent, small skew, constant cross slope, constant girder spacing) and where the continuity over the support girders in the transverse direction can be maintained. The optimum layout for this system is where a single panel spans the entire width of the deck and is pre-stressed transversely. Ideally, the panels are then post-tensioned longitudinally to limit cracking and reduce future cracking and maintenance issues between the panels. The maximum shipping size for the panels is 40' wide by approximately 8' long.

Future maintenance to the precast panel system is more complex. The complexity of maintenance stems from the post-tensioning ducts and/or pre-stressing strands, congestion of reinforcement and localized grouping of the shear connectors. Standardized methods of isolated precast concrete deck panel repairs have not

been developed at this time. Therefore, the possibility of complicated maintenance and repairs of the panels may have a significant effect on their long term viability and cost effectiveness.

Advantages:

- Accelerated construction technique
- Higher quality concrete
- Weight reduction
- Fewer weather limitation on construction
- No reinforcement layout

Disadvantages:

- Higher initial cost ($5,050,000)
- Newer construction method (limited contractor familiarity)
- Limited statistics for in-situ service life
- Geometric limitations
- Panel size limitations
- Higher maintenance needs due to transverse/longitudinal joints
- Greater staging area
- Larger equipment needed to transport and install the panels
- Extensive prep-work required (setting precast panels, grouting panels, grout cure, post-tensioning, PT grout cure, pouring joint closer with HE-HPC, HE-HPC Concrete cure, milling overfilled grout, deck overlay)

The estimated cost savings in using the High Early, High Performance Concrete cast-in-place reinforced concrete deck method is over $1.5 million. and therefore, is the preferred method of construction.

Traffic Maintenance Alternatives

A feasible detour is not available, so the project will be completed using staged construction. Four staging options were evaluated to maintain either 2 or 3 lanes of traffic in each direction. Although maintaining only 2 lanes of traffic in each direction would provide the most economical construction options, it would also create the most disruption to traffic flow in a highly congested area. For that reason, two of the four options that maintained only two lanes in each direction were eliminated from further consideration. Of the remaining options, Staging Option 1 maintains 3 lanes of traffic in each direction throughout the 4 stages of construction. It involves removing median barrier before and after the work zone to shift one lane of traffic onto the opposing roadway. The last staging option attempted to maintain 3 lanes of traffic without a lane shift onto the opposing roadway; however, due to the curvilinear deck and the linear girders, deck

widening would be required to achieve the minimum lane widths required during construction. Therefore Staging Option 1 is the preferred staging plan option (see Appendix E).

Conclusion

Several published documents concerning the design, detailing, fabrication, load testing, previous performance and installation of precast concrete deck panels were reviewed and in general, the use of precast panels does have the advantage of (but not limited to) quick installation durations, fewer weather limitations on construction, higher quality concrete and a potential for weight reduction; however, the complex superstructure geometry (tangent beams on radial deck), limited work/staging area and high initial cost of precast panels, make the use of precast panels unfavorable.

The preferred alternative is a cast-in-place reinforced concrete deck using High Early, High Performance Concrete and Construction Staging Option 1.

IV. PRELIMINARY PREFERRED ALTERNATIVE

A. Scope of Work

i. **Structural -** Replacement of the existing bridge deck is recommended. Further, it is recommended that replacement be completed using staged construction and standard construction methods (i.e. cast-in-place construction). The possibility of eliminating some of the deck joints should be evaluated in Final Design. The 3-rail aluminum railing, which does not meet current standards, will be replaced with a 4-bar open steel parapet to maintain the overall appearance of the structure and conform to current standards. The current lane configuration will be maintained.

The superstructure is currently rated satisfactory (6) and was last painted in 2001; however, due to the moderate rusting of the bearings, cleaning and painting of the bearings should be included in the scope of work. The damaged horizontal diagonal bracing at the north fascia over SB GSP, the bottom brace in the Pier 4 north fascia bay, and Rocker Bearing 12 at Pier 4 will be replaced.

The existing bridge-mounted sign structure shall be replaced with a new sign structure supported entirely by the superstructure, in accordance with current design standards.

The substructure is currently rated satisfactory (6); however, wide/medium horizontal cracks, will be sealed with pressure injected epoxy, and spalls in the west abutment, Pier 2, and Pier 3 will be repaired with epoxy concrete.

ii. **Pavement –** Approach/transition slabs will be constructed, and approach curb will be reconstructed to transition to the new 4-bar open steel parapet. The limit of work will be the end of the new approach slabs on either side of the bridge.

iii. **Drainage -** No new drainage will be added within the limits of the project; however, the scuppers and existing drainage should be functional and the eroded soils beneath the outfall replaced with rip-rap. Inlet curb pieces along the westbound approach will be replaced to match current curb reveal standards and aligned with the curb transition to the new bridge parapet.

B. Anticipated Impacts to Existing Facilities

i. **Utility -** The only anticipated utility impact will involve the pole-mounted and deck-mounted highway lighting. Electrical wiring associated with the lighting is within the conduit contained in the north side safety walk. Lighting shall be maintained during construction and the existing lighting reconstructed, with the exception of the Span 1 underdeck lighting. The Span 1 underdeck lighting illuminates no roadways or ramps and is not warranted. There are no aerial facilities or utility facilities supported by the bridge deck or superstructure.

ii. **Access –** There are no anticipated access impacts. There are no driveways within the limits of the project.

iii. **ITS –** There are no anticipated ITS impacts. Installation of one (1) ITS conduit crossing the bridge structure shall be included in the scope of work. The ITS Office will coordinate with the designer during Final Design to determine the location.

C. Maintenance of Traffic During Construction

There is no feasible detour available for this project; therefore, the project will be completed in stages. A conceptual staging plan has been developed and approved by Traffic Operations North. Final Staging plans will be developed during the Final Design phase of work and will be submitted to Traffic Operations for final approval. The conceptual staging plan and approved lane closure hours are provided in Appendix E.

D. Controlling Substandard Design Elements to be addressed in a Design Exception Report.

The following Controlling Substandard Design Elements (CSDE's) exist within the limits of the project and will need to be addressed by a Design Exception:

1. Vertical Clearance (under-clearance to Garden State Parkway)
2. Stopping Sight Distance (Horizontal Curve)
3. Superelevation
4. Shoulder Width
5. Deceleration Lane Length

Reasonable Assurance of Design Exception Approval has been received.

E. Community Concerns

Notice of the project was provided to County and Township Engineers in late April; however, no concerns or comments have been received. The community, local officials, New Jersey Turnpike Authority, NJ Transit, and property owners will be further consulted and apprised of the proposed work as Final Design progresses.

F. Environmental Document Summary

The project is classified as a Categorical Exclusion (CE) and does not have any significant environmental impacts.

G. Pedestrian and Bicycle Facilities

There are no existing pedestrian or bicycle facilities within the limits of the project and none are proposed.

Appendix A

Concept Development Checklist

Concept Development Checklist
Bridge Deck Replacement Project

Project Name:	**RT. 440, Bridges over RT. 9, RT. 9 Ramps, GSP & GSP Ramps**
Structure Number(s):	1234-167
Milepost	2.010
UPC Number:	XXXXX
Municipality(ies):	Woodbridge Township
County:	Middlesex County
Project Manager:	XXXXX XXXXX
CD Designer:	XXXXX XXXXX

Notes:

- ***All item checked "Y" or "N"*** *shall be briefly discussed in the* ***'Comments'*** *section below the checklist items.*
- *NFI:* ***N****eeds* ***F****urther* ***I****nvestigation in Final Design (explain below).*

Concept Development Checklist

A. Structural Scope Of Work

Y	N	N/A	NFI	
X				1. Is a Deck Replacement needed and warranted by the Deck Rating contained in the SI&A Sheet of the most recent Structural Evaluation and/or Bridge Inspection report? *(provide the rating in the* ***'Comments'*** *section below)*
	X			2. Is a Superstructure Replacement needed and warranted by the Superstructure Rating contained in the SI&A Sheet of the most recent Structural Evaluation? *(provide the rating in the* ***'Comments'*** *section below)*
X				3. Are additional Structural Repairs required? *(list required repairs in the* ***'Comments '*** *section below)*
	X			4. Is the structure in need of painting? *(list below in the* ***'Comments'*** *section the year the structure was last painted)*

			X	5. Does the structure require the construction/installation of seismic retrofit measures?
	X			6. Is the structure considered 'Scour Critical'?
	X			7. Does the existing under-clearance meet design standards? (*list below in the **'Comments'** section, the existing vertical clearance)*
X				8. If the structure has a substandard under-clearance, has reasonable assurance been obtained that a Design Exception can be obtained? ****
	X			9. Are approach/transition slabs present at the structures?
X				10. Do the existing approach/transition slabs require rehabilitation/replacement?
		X		11. For partial depth deck replacements, do the existing traffic barriers [parapets and bridge railings] meet design standards? *(provide the SI&A rating in the **'Comments'** section below)*

Comments:	1.	Replacement of the deck is warranted based on the SI & A (6/13/2013) deck condition rating of Poor '4' (Photo No. 6).
	2.	A superstructure replacement is not warranted based on the SI & A (6/13/2013) condition rating of Satisfactory '6'.
	3.	Replace the damaged horizontal diagonal bracing at the north fascia over SB GSP (Photo 17), the bottom brace in the Pier 4 north fascia bay (Photo 22), and Rocker Bearing 12 at Pier 4 (Photo 21). Seal wide/medium horizontal cracks and repair spalls in the west abutment, Pier 2, and Pier 3 with epoxy concrete (Photos 15, 18 & 20).
	4.	The structure was last painted in September 2001 and is still in good condition; however, cleaning and painting of the bearings is recommended.
	5.	Seismic analysis will consist of checking bridge seat widths and capacity/demand of the bearings for seismic loading.
	6.	The structure is not over water; therefore, it is not 'scour critical.'
	7.	The existing under-clearance over SB GSP/Ramp 1 under the north fascia is inadequate at 14'-4", and under-clearance over GSP Ramps 2 & 3 is 15'-0" (SI & A dated 6/13/2013); however, no truck traffic is permitted on these sections of the Parkway. All other under-clearances are above minimums.

	8.	Reasonable Assurance of Design Exception Approval has been received.
	9.	No approach/transition slabs exist at the structure. The approach roadway consists of 9" thick reinforced concrete pavement, some of which has been overlaid with bituminous concrete.
	10.	Approach slabs are required for all bridges on the State Highway System.
	11.	Not Applicable

** **Coordination with the Department of Defense MUST be conducted on ALL Interstate Structures where the existing/proposed vertical under-clearance is substandard. The coordination is required if the resulting vertical under-clearance remains substandard; whether the under-clearance is reduced, maintained, or improved.**

B. Replacement Method Recommendation

Y	N	N/A	NFI	
X				1. Are traditional Cast-In-Place construction methods recommended?
	X			2. Is a Pre-Cast Deck replacement option recommended?
		X		3. Is a Pre-Cast Superstructure replacement option recommended?

Comments:	1.	Cast-in-place construction methods are recommended due to the cost savings it provides.
	2.	Cost comparison and geometric complexity preclude use of pre-cast deck.
	3.	This is a deck replacement project and the replacement of the superstructure is not warranted.

C. Traffic Management Recommendations

Y	N	N/A	NFI	
X				1. Staged Construction - Is it necessary and/or feasible? Has conceptual approval been received from Traffic Operations?
	X			2. Detour – Is it necessary and/or feasible? Has conceptual approval been received from Traffic Operations?
X				3. Have Lane Closure Hours been obtained from Traffic Operations? *(approval from the Director of Traffic Operations is required)*

	X			4. Is there a need for a Temporary Bridge to maintain vehicular traffic during construction?
	X			5. Is there a need for a Temporary Bridge to maintain pedestrian traffic during construction?

Comments:	1.	Staged construction is feasible and necessary. Conceptual approval from Traffic Operations has been received.
	2.	Detour is not feasible.
	3.	Lane closure hours have been obtained and are provided in Appendix E – Staging Plan & Approved Lane Closure Hours.
	4.	A temporary bridge is not feasible.
	5.	There are no sidewalks on the structure or on either approach, nor is there any evidence indicating pedestrian traffic.

D. Utility Facilities

Y	N	N/A	NFI	
	X			1. Are there Aerial Facilities within the limits of the project? *(provide a list of identified Aerial Facilities in the **'Comments'** section below. Also, provide photos of existing facilities in an **Appendix of the CD Report**)*
	X			2. Are there existing facilities under the deck? *(provide a list of identified Aerial Facilities in the **'Comments'** section below. Also, provide photos of existing facilities in an **Appendix of the CD Report**)*
	X			3. Are there anticipated impacts to existing facilities as a result of the proposed deck/superstructure replacement and related work activities?

Comments:	1.	There are no aerial facilities within the limits of the project.
	2.	There are no utility facilities hanging from the deck or supported by the superstructure.
	3.	No impacts are expected as a result the proposed work. See response to Checklist item F.3. for lighting impacts.

E. ITS

Y	N	N/A	NFI	
X				1. Are there existing ITS facilities within the limits of the project?
	X			2. Are any new ITS components required within the limits

				of the project?

Comments:	1.	A pole-mounted camera surveillance system exists at the NE approach.
	2.	Installation of ITS conduit crossing the bridge structure shall be included in the scope of work. The ITS Office will coordinate with the designer during Final Design to determine location.

F. Miscellaneous Items

Y	N	N/A	NFI	
X				1. Is there existing guide rail within the limits of the project?
	X			2. If there is existing guide rail within the limits of the project, does it meet current design standards?
X				3. Is there existing lighting within the limits of the project?
	X			4. Is there existing fencing within the limits of the project?
X				5. Have all Controlling Substandard Design Elements been identified? ****** *(list existing CSDE's in the **'Comments'** section below)*
X				6. Has reasonable assurance been obtained that a Design Exception can be obtained for the identified CSDE's?
	X			7. Is there a need for the acquisition of any Temporary Right of Way Easements for construction access or utilities? *(list below in the **'Comments'** section a detailed description of the location and purpose of the temporary easement)*
X				8. Is there existing curbing within the limits of the project?
X				9. If there is existing curbing (roadway) within the limits of the project, will it need to be replaced? *(if yes, explain why below in the **'Comments'** section)*
X				10. Are there any signs structures/signs mounted to the structure?

Comments:	1.	Guide rail exists at all four corners and is attached to the bridge pylon.
	2.	The existing guide rail does not meet current standards and should be upgraded as part of the proposed improvements.

	3.	There is existing pole-mounted lighting along the south fascia with foundations cast into the deck/railing base. Foundations are present along the north fascia; however, no poles or lighting exist. There is lighting under Spans 1, 2 & 3 of the structure, mounted to the underdeck, and served by conduit cast within the deck slab. As-built plans indicate three inch diameter rigid metallic conduit with electrical wiring was constructed within the eastbound and westbound curb. Deck and under-deck lighting are under NJDOT jurisdiction and should be maintained during construction. New permanent lighting should be installed.
	4.	No fencing is present within the project limits.
	5.	Using as-built plans, the following Controlling Substandard Design Elements have been identified: • Vertical Under-Clearance (to GSP and GSP ramps). • Stopping Sight Distance – Horizontal (eastbound only). • Superelevation. • Shoulder Width. • Deceleration Lane Length (westbound only)
	6.	Reasonable Assurance of Design Exception Approval has been received.
	7.	All work can be performed within the existing right-of-way.
	8.	Curb exists at all four approaches.
	9.	Curb will be replaced at all approaches (within project limits) to transition to the new parapets and to meet current design standards.
	10.	Sign structures are mounted to the third span of the south fascia. The top of the sign is supported by the bridge deck/railing base and the bottom of the sign is supported by the superstructure. The sign serves NB GSP Ramp traffic exiting to Route 9 NB and Route 440/287. The sign support structure should be reconstructed to be supported entirely by the superstructure in accordance with current standards. Modifications to the superstructure will be required. Signage shall be maintained throughout construction. Sign structure mounting plates exist at the second span of the north fascia; however, the sign structure has been removed.

** **The Design Exception Report for Bridge Deck & Superstructure Replacement projects only needs to address the Controlling Substandard Design Elements that exist within the limits of the structure. The roadway work associated with these projects is considered transitional and therefore, exempt from the Design Exception Report.**

G. Community Impacts

Y	N	N/A	NFI	
	X			1. Are there any private residences within the limits of the project?
	X			2. Are there any commercial businesses within the limits of the project?
	X			3. Are there any schools ***within a half mile radius*** of the limits of the project?
	X			4. Other *(e.g., Malls, Entertainment Complexes, Churches, etc.)*

Comments:		
	1.	The nearest residence is over 800 feet beyond the project limits.
	2.	The nearest commercial business is located at 326 Smith Street; approximately 250 feet from the project limits. There is no direct access to Route 440 or its associated ramps.
	3.	There are no schools within one-half mile radius.
	4.	N/A

H. Community Involvement Action Plan Recommendations - All Information to be obtained from the Office of Community and Constituent Relations

Y	N		30 days or more prior to FDS	30 days or less prior to Construction **
X		1. Officials Briefing	X	X
X		2. Public Information Center – Design	X	X
X		3. Public Information Center – Construction		X
X		4. Letters to Officials	X	
	X	5. Letters to Property Owners	N/A	N/A
X		6. Letters to all in zip code/neighborhood	To property owners within 400’ of project limits	

X		7. Kiosk or display in a Public Place		X
X		8. Information on DOT Website		X
X		9. Press release		X

**** Pre-Construction Officials Briefings and Pre-Construction Public Information Centers, if required by O.C.C.R., should be held after the project has been awarded and should be attended by the State's Resident Engineer and by the Contractor.**

I. Environmental Impacts/Concerns

Y	N	N/A	NFI	
	X			1. Is the structure listed/eligible as Historic?
X				2. Is the structure within a Historic Corridor/District?
	X			3. Are Wetlands Impacts possible as a result of the proposed work?
	X			4. Are Stream Encroachment Impacts possible as a result of the proposed work?
X				5. Is there a potential for Hazardous Waste on the project?
	X			6. Is there a potential for other permits being needed as a result of the proposed work? *(if yes, list potential permits in the **'Comments'** section below)*

Comments:	1.	The structure was constructed in 1970, less than 50 years ago, and has no historical significance.
	2.	Project is located within the Area of Potential Effects of the Garden State Parkway Historic District. Section 106 was initiated and the SHPO has concluded that the proposed project will have No Adverse Effect on the Garden State Parkway Historic District.
	3.	No Wetland areas are located within, or near, the limits of the project and no impacts to Wetlands are anticipated.
	4.	There are no streams within the limits of the project.
	5.	Since there are several NJDEP enforcement cases within the project area, there is potential for involvement with regulated material or contaminated sites if any ROW acquisition is proposed. Since no ROW

		acquisition is proposed, no potential for Hazardous Waste is anticipated.
	6.	No permits are anticipated being required on this project.

J. Offices/SME's consulted on this Project

Y	N	Office	Name / Phone #	
X		1. Structures	XXXXX XXXXX	5-XXXX
X		2. Quality Management Services (for Design Exceptions)	XXXXX XXXXX	5-XXXX
X		3. ITS	XXXXX XXXXX	5-XXXX
X		4. Operations	XXXXX XXXXX	5-XXXX
X		5. Traffic Operations North	XXXXX XXXXX	5-XXXX
X		6. Value Solutions	XXXXX XXXXX	5-XXXX
X		7. Office of Community Relations	XXXXX XXXXX	5-XXXX
X		8. Construction Management (Constructability Review)	XXXXX XXXXX	5-XXXX
X		9. Environmental	XXXXX XXXXX	5-XXXX
X		10. Communications	XXXXX XXXXX	5-XXXX
X		11. Traffic Engineering & Investigations	XXXXX XXXXX	5-XXXX
X		12. Transportation Data Development	XXXXX XXXXX	5-XXXX

K. Management Systems Cross-Check/Reference Cross-Checks

Y	N	
X		1. Safety
X		2. Drainage
X		3. Congestion
X		4. Pavement
X		5. Project Reporting System (PRS)

X		6. Operations

L. Funding/Authorization Information

Y	N	
X		**1. Is the Project Programmed in the STIP for all Phases of Work? Please provide Line Item info below**
X		**2. What is the anticipated FD authorization date and estimate? Provide info below.**
X		**3. What is the anticipated CON authorization date and estimate? Provide info below.**
X		**4. THIS PROJECT IS EXEMPT FROM CONFORMITY**

Comments:	**1.**	Yes, Federal Bridge Deck / Superstructure Line item
	2.	**XXXX**
	3.	**XXXX**

M. Verification of Limited Scope Project Development

Y	N	
X		Based on the information obtained/observed during the field visit, input obtained from SME's, and coordination/cross-checks with the various Management Systems, does the proposed scope of work for this project fit the definition of a *'Limited Scope Project'*?

Approved: _____ _____

***(Insert Name)*, Project Manager** Date

Appendix B

Structural SI&A Sheet

Appendix C

Location Map & Straight Line Diagram

Appendix D

Photographs

Appendix E

Staging Plan
&
Approved Lane Closure Hours

Appendix F

Crash Data/Analysis

Appendix G

Environmental Screening Report

Appendix H

Preliminary Construction Cost Estimate

Appendix I

As-Built Plans

Appendix J

SME Correspondence

Appendix K

Final Design Scope Statement