UNITED STATES COAST GUARD (COAST GUARD) FINAL ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED NEWARK BAY-HUDSON COUNTY EXTENSION INTERCHANGE 14 TO 14A/NEWARK BAY BRIDGE REPLACEMENT AND ASSOCIATED IMPROVEMENTS ACROSS NEWARK BAY, MILE 3.8, BETWEEN NEWARK, ESSEX COUNTY, AND BAYONNE, HUDSON COUNTY, NEW JERSEY P(2-25-1)

This Coast Guard final environmental assessment (FEA) was prepared in accordance with Environmental Planning Policy, COMDTINST 5090.1 (series) and is in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321 to 4370h) and the Council on Environmental Quality Regulations dated 28 November 1978 (40 C.F.R. §§ 1500–1508).[1]

This FEA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI). This FEA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This FEA also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during FEA preparation.

See e-signature Date	STIEB.JEFFREY.D.1062179976 Digitally signed by STIEB.JEFFREY.D.1062179976 Date: 2025.05.07 07:50:36 -04'00' Jeffrey Stieb Document Preparer[2]	Senior Bridge Management Specialist Title/Position

I reviewed the FEA and submitted my written comments to the Proponent.

See e-signature Date	Matthew S. Robertson Digitally signed by Matthew S. Robertson Date: 2025.05.07 08:28:35 -04'00' Matthew S. Robertson Environmental Reviewer[3]	Bridge Management Specialist Title/Position	Level II Provisional, Interim, I, II, or III

I reviewed the FEA and submitted my written comments to the Proponent.

See e-signature Date	Shelly Sugarman Digitally signed by Shelly Sugarman Date: 2025.05.07 08:34:27 -04'00' Shelly H. Sugarman Senior Environmental Professional[3]	Chief, Permits & Policy Division Title/Position	Level II Interim, II, or III

[1] On 21 January 2025, President Trump signed Executive Order 14173 (Ending Illegal Discrimination and Restoring Merit-Based Opportunity). EO 14173 revoked EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). As a result of the revocation and in alignment with DHS, environmental justice has not been considered as part of this USCG permit action.

In addition, President Trump signed Executive Order (E.O.) 14148, Initial Rescissions of Harmful Executive Orders and Actions. E.O. 14148 rescinded the following Executive Orders E.O. 14008, Tackling the Climate Crisis at Home and Abroad; E.O. 14013, Rebuilding and Enhancing Programs to Resettle Refugees and Planning for the Impact of Climate Change on Migration; E.O. 14027, Establishment of the Climate Change Support Office; E.O. 14030, Climate-Related Financial Risk; and E.O. 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. In alignment with the rescission of the Executive Orders listed, the USCG has eliminated the use of climate change terminology in this USCG NEPA document.

[2] The USCG Preparer signs for NEPA documents prepared in-house. The USCG environmental project manager signs for NEPA documents prepared by an applicant, a contractor, or another outside party.

[3] Signature of the Environmental Reviewer/Senior Environmental Professional for the Bridge Administration Program may be that of the Preparer's.

In reaching my decision/recommendation on the Coast Guard's proposed action, I considered the information contained in this FEA and considered and acknowledge the written comments submitted to me from the Environmental Reviewer(s).[4]

See e-signature	DUNN.BRIAN.L.1173033954 Digitally signed by DUNN.BRIAN.L.1173033954 Date: 2025.05.07 08:49:25 -04'00'	Chief, Office of Bridge Programs
Date	Brian L. Dunn Proponent	Title/Position

[4] In accordance with Executive Order 14154 Unleashing American Energy and the Council on Environmental Quality's February 19, 2025 memo on implementing the National Environmental Policy Act, the Coast Guard is voluntarily using the 2024 version of 40 CFR parts 1500–1508 and applying current Coast Guard and DHS procedures.

New Jersey Turnpike Authority
Newark Bay–Hudson County Extension
Interchange 14 to Interchange 14A / Newark Bay Bridge Replacement and Associated Improvements

FINAL ENVIRONMENTAL ASSESSMENT

Submitted to:

UNITED STATES COAST GUARD
U.S. DEPARTMENT OF HOMELAND SECURITY

Submitted by:

New Jersey Turnpike Authority

April 18, 2025

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GLOSSARY/ACRONYMS

ACS	American Community Survey
AMSL	above mean sea level
APE	Area of Potential Effects
APE-Archaeology	APE for Archaeology
APE-Architecture	APE for Historic Architecture
ATR	Automated Traffic Recorder
Authority	New Jersey Turnpike Authority
AVE	Area of Visual Effect
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CEA	Classification Exception Area
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
Conrail	Consolidated Rail Corporation
CWA	Clean Water Act
CY	calendar year
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel
DPS	Distinct Population Segment
EDR	Environmental Data Resources, Inc.
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ENSP	Endangered and Nongame Species Program
E.O.	Executive Order
EO 215	State of New Jersey Executive Order No. 215
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EWR	Newark Liberty International Airport
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHA	Flood Hazard Area
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
FWPA	Freshwater Wetlands Protection Act
FY	fiscal year
HAP	hazardous air pollutant
HAPC	Habitat Area of Particular Concern
HPO	Historic Preservation Office
HUC	hydrologic unit code
HW	height to width
IPaC	Information for Planning and Consultation
IRM	Interim Remedial Measure
JD	jurisdictional determination
kW	kilowatt
LCP	Linear Construction Project

LNAPL	light non-aqueous phase liquid
LOI	Letter of Interpretation
LOS	level-of-service
LSRP	Licensed Site Remediation Professional
MHWL	mean high water line
MPO	Metropolitan Planning Organization
MSAT	mobile source air toxic
MOVES	Motor Vehicle Emission Simulator
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NBB	Newark Bay Bridge
NB-HCE	Newark Bay-Hudson County Extension
NCHRP	National Cooperative Highway Research Program
NEH	no-exceed height
NEPA	National Environmental Policy Act of 1969, as amended
NFHL	National Flood Hazard Layer
NHP	National Historic Preservation Act of 1966
NHS	National Highway System
NJ	New Jersey
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJHPO	New Jersey Historic Preservation Office
NJRTM-E	North Jersey Regional Travel Model Enhanced
N.J.S.A	New Jersey Statutes Annotated
NJSM	New Jersey State Museum
NJTPA	North Jersey Transportation Planning Authority
NMFS	National Marine Fisheries Service
NPL	National Priority List
NOAA	National Oceanic and Atmospheric Administration
NOx	oxides of nitrogen
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NRHP	National Register of Historic Places
O_3	ozone
OPPN	Office of Permitting and Project Navigation
OPRA	Open Public Records Act
PAH	polycyclic aromatic hydrocarbon
PAMT	Port Authority Marine Terminal
PANYNJ	Port Authority of New York and New Jersey
Pb	lead
PCB	polychlorinated biphenyl
PM_{10}	particulate matter with an aerodynamic diameter smaller than or equal to 10 micrometers
$PM_{2.5}$	particulate matter with an aerodynamic diameter smaller than or equal to 2.5 micrometers
POM	polycyclic organic matter
ppt	parts per thousand
ROSI	Recreation and Open Space Inventory
SESC	soil erosion and sediment control
sf	square feet
SHPO	State Historic Preservation Officer

SIP	State Implementation Plan
SO_2	sulfur dioxide
SRHP	New Jersey Register of Historic Places
SRP	Site Remediation Program
SSHASP	site-specific health and safety plan
STRAHNET	Strategic Highway Network
SVOC	semi-volatile organic compound
TIC	Tentatively Identified Compound
TIP	Transportation Improvement Plan
TNM2.5	FHWA Traffic Noise Model Version 2.5
TOY	time of year
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USDA-NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VIA	Visual Impact Assessment
VOC	volatile organic compound
WMA	Wildlife Management Area

EXECUTIVE SUMMARY

Introduction

The New Jersey Turnpike Authority (Authority) proposes a modernization of the Newark Bay-Hudson County Extension (NB-HCE) between Interchange 14 in Newark, Essex County, and Interchange 14A in Bayonne and Jersey City, Hudson County, to meet current and future needs of patrons of the NB-HCE, current design standards, and the Authority's operational and maintenance needs (the Proposed Action). A major element of the Proposed Action is the replacement of Newark Bay Bridge (NBB), officially, the Vincent R. Casciano Memorial Bridge, which comprises nearly half of the total length of the NB-HCE between Interchanges 14 and 14A. Approval of the location and plans for the NBB replacement is needed through a bridge permit from the U.S. Coast Guard (USCG) pursuant to the General Bridge Act of 1946, as amended (the location and plans of the existing bridge were approved in 1952 and 1953).

The Authority has applied for a bridge permit from USCG and for other permits and approvals that are required for the Proposed Action to be constructed. USCG's bridge permit decision is subject to requirements of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. § 4321 et seq.). The Authority, as the Project Sponsor, has prepared this Environmental Assessment (EA)[1] for USCG review in support of USCG decision-making on the bridge permit application.

The USCG is the lead Federal agency for implementing the requirements of NEPA and for coordinating Federal review of the Proposed Action. The U.S. Army Corps of Engineers (USACE), the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS a/k/a NOAA Fisheries), the New Jersey Department of Environmental Protection, and the U.S. Environmental Protection Agency (USEPA) have agreed to serve as cooperating agencies. The U.S. Department of the Interior U.S. Fish and Wildlife Service (USFWS) declined to serve as a cooperating agency but has served as a participating agency in the NEPA review of the Proposed Action.

Background

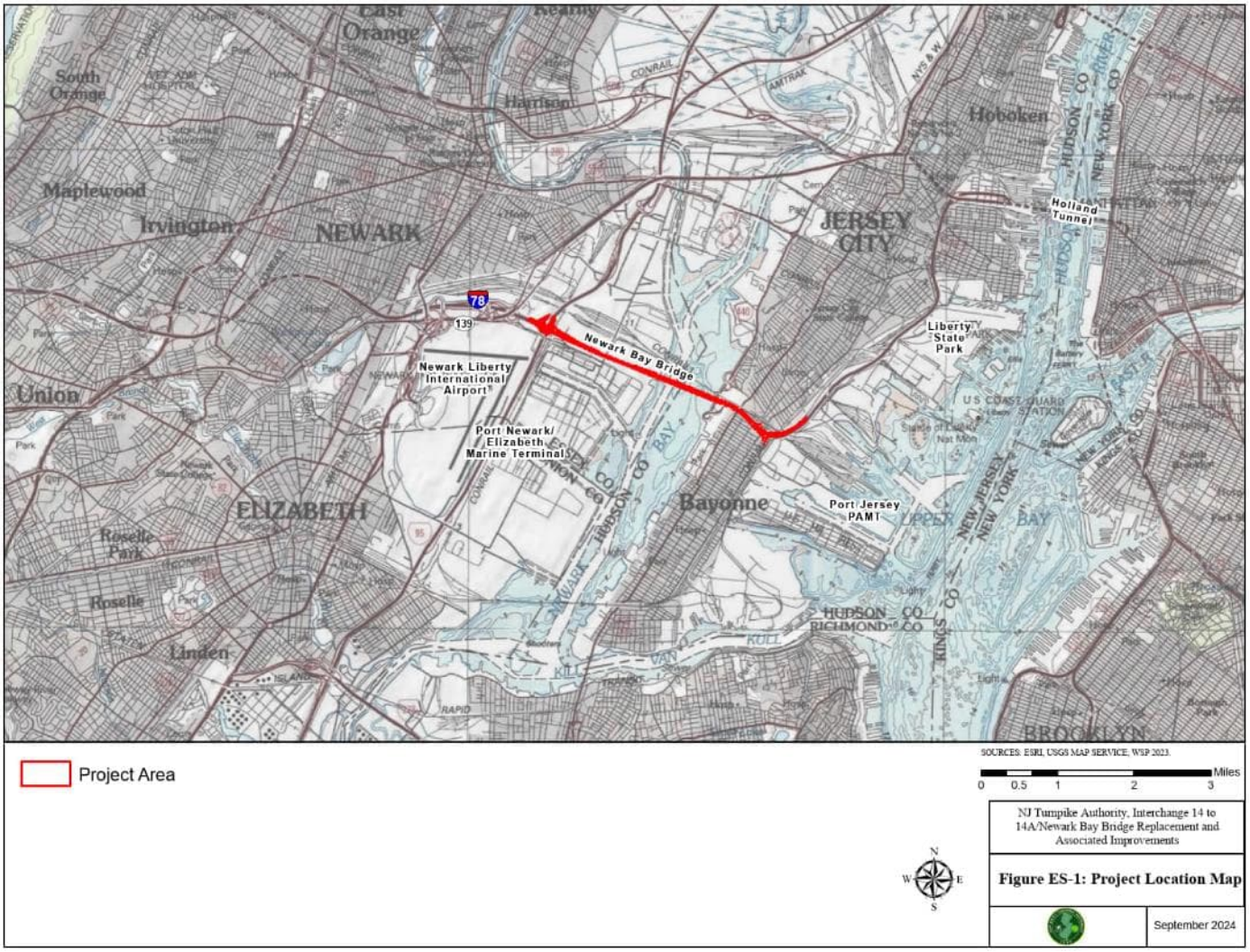
The NB-HCE consists of two travel lanes in each direction from Interchange 14 in Newark (milepost N0.0) to its eastern terminus at Jersey Avenue in Jersey City, Hudson County (milepost N8.1) (see Figure ES-1). The NB-HCE forms a portion of Interstate Route 78 (I-78) which has its western terminus at I-81 northeast of Harrisburg, Pennsylvania, and its eastern terminus at the New York portal of the Holland Tunnel in Lower Manhattan. At the Jersey Avenue NB-HCE terminus, I-78 merges with New Jersey (NJ) Route 139 to form the Port Authority of New York and New Jersey's approach roadways to and from the Holland Tunnel under the Hudson River connecting Hudson County and New York County in New York.

The NB-HCE alignment runs within and provides access between Newark in Essex County, at the Turnpike's Mainline (I-95) and I-78 west at Turnpike Interchange 14, and Bayonne and Jersey City in Hudson County. The NB-HCE serves facilities of national, regional, statewide, and local importance, including Newark Liberty International Airport (EWR) and Port Newark-Elizabeth Marine Terminal (Interchange 14), the Port Jersey Port Authority Marine Terminal (Port Jersey PAMT) (Interchange 14A, milepost N3.5), Liberty State Park and Statue of Liberty National Monument (Interchange 14B, milepost N5.5), Liberty Science Center and Hudson-Bergen Light Rail Park-Ride (Interchange 14C, milepost N5.9), and New York City via the Holland Tunnel (at Jersey Avenue). The Port of New York and New Jersey, of which the Port Newark-Elizabeth and Port Jersey

[1] The final EA differs in format from the draft EA circulated for public comment to comply with NEPA requirements limiting page length. Detailed technical analyses previously presented in the main body of the draft EA are now presented in a set of technical appendices to this final EA.

PAMT are major components, is the second largest port in the United States based on cargo volume, and EWR is the nation's fifteenth busiest airport by passenger volume.

Figure ES-1. Project Location Map



Purpose & Need for the Action

The purpose of the Proposed Action is as follows:

- Improve the long-term integrity of the structures on the NB-HCE between Interchanges 14 and 14A to provide a minimum 100-year service life to a goal of a 150-year service life by resolving the factors contributing to the deterioration of the structures and in so doing minimizing the frequency of disruptions to roadway users from maintenance and repair over the life cycle of the improvements.
- Improve mobility between Interchanges 14 and 14A by attaining level-of-service (LOS) D or better traffic flow quality and in so doing enhance access to communities, businesses, and multimodal facilities served by the NB-HCE near the interchanges, while safely and efficiently accommodating growing vehicular demand on this portion of the NB-HCE into the foreseeable future.

These purposes are consistent with the goals of the Authority's Strategic Plan.

Traffic growth and substantial port-related heavy vehicle/truck activity have degraded operating conditions in the corridor and have contributed to the current poor physical conditions of the NB-HCE's roadway pavement and bridges, leading to development of a Proposed Action that addresses repair and mobility needs, while addressing substandard roadway and structural features. The North Jersey Transportation Planning Authority (NJTPA) Long-Range Plan addresses multiple projects for mass transportation and roadway improvements.[2] The Proposed Action is necessary even with the other planned and programmed investments in mass transportation to handle projected increases in passenger vehicular trips (including those originating and destined for Jersey City) and freight-based trips associated with regional port activity.

Alternatives Including the Proposed Action

Section 2 of this EA describes the Proposed Action, the No Action Alternative, and other alternatives considered but screened out from further environmental review.

The Proposed Action will:

- Replace all existing structures, including the NBB with two parallel spans.
- Increase the number of travel lanes in each direction from two to four to provide travel lane capacity for uncongested traffic flow.
- Provide adequately wide roadway left shoulder area to provide for safety, future maintenance, and emergency vehicles.
- Modify and improve ramp merges with the NB-HCE roadway and the sequencing of consecutive merges and lane drops to address the current substandard design.

Under the No Action Alternative, the Proposed Action described above would not be constructed. The Authority would continue to make state-of-good-repair improvements to the NB-HCE structures but would not add capacity or safety improvements. The No Action Alternative is, however, the baseline against which the environmental consequences of the Proposed Action are compared.

Nine discrete alternatives were considered and evaluated, including the Proposed Action and No Action alternatives. Of the nine alternatives considered other than the No Action, four alternatives involved replacement of the NBB, and four alternatives involved rehabilitation of the NBB. Each alternative was evaluated for its ability to meet the criteria of the stated purpose and underlying needs for the project in an initial round of evaluation. Five alternatives were eliminated in the first-round evaluation: the four rehabilitation alternatives and the alternative that involved replacing the NBB and widening the NB-HCE between Interchanges 14 and 14A to three travel lanes instead of four travel lanes as under the Proposed Action. The rehabilitation alternatives were eliminated primarily because none could meet the stated purpose to improve the long-term integrity of the structures on the NB-HCE between Interchanges 14 and 14A. Primarily, identifying factors contributing to the deterioration of the structures, and minimize future maintenance and repair of the structures over the life cycle of the improvements. The three-lane in each direction widening alternative was eliminated because it would not provide for the traffic flow demand to at least 2050.

The Proposed Action and the other two NBB replacement alternatives were further evaluated and compared using four key performance measures. The Proposed Action meets all the key performance measures while the other two NBB replacement alternatives do not. Alternative 3 (realigning the NB-HCE so that a parallel bridge would be constructed to the south of the existing NBB before replacing the NBB) was eliminated from further

[2] https://www.njtpa.org/Planning/Plans-Guidance/Plan-2050.aspx

consideration because it would require displacement of approximately 20 single- and multi-family buildings and would impact a section of major energy supply infrastructure: the Colonial interstate petroleum pipeline. Alternative 4 (replacing the NBB with structures having a shorter main span over Newark Bay) was eliminated from further consideration because the alternative would alter and occupy the Newark Bay North Reach Federal Navigation Channel, a civil works project authorized by the U.S. Congress and maintained by the U.S. Army Corps of Engineers (USACE) for navigation operation and safety.

Two alternatives, the Proposed Action and the No Action, are, therefore, retained for further evaluation and comparison in this EA.[3]

Affected Environment and Environmental Consequences

Section 3 of the EA describes the human environment and natural resources that would be affected by the Proposed Action. The description of the existing environment (and, as relevant, other reasonably foreseeable projects) provides the baseline for comparing impacts of the Proposed Action and No Action alternatives.

As detailed in Section 3 and the technical appendices to this EA, and summarized below, the Proposed Action would not result in impacts that could not be mitigated to a point below a threshold of significance. Table ES-3, below, summarizes the mitigation actions to be undertaken to avoid, minimize, or otherwise compensate for adverse impacts of the Proposed Action. Each of these specific mitigation plans includes implementation and monitoring activities to demonstrate compliance with specific State and/or Federal permit requirements.

Land Use

The Proposed Action will have no significant impact on land use, zoning, or public policy. The Proposed Action includes compensation to property owners based on property appraisals and negotiations depending upon property classification, including aerial easements, partial acquisitions, and the full acquisition, as required to implement the Proposed Action. Pending completion of the design and construction, negotiations for aerial easements and partial acquisitions have yet to be finalized. The full acquisition of the former Marist High School property would represent a modest reduction in economic development (and property tax revenues) within the City of Bayonne. The assessed value of the property acquisition is less than one-half of one percent of the total assessed value of all properties in Bayonne. Thus, the reduction in tax revenues due to partial or full property acquisitions would not have a significant fiscal effect on the City of Bayonne. In addition to coordination with owners of the affected properties, the Authority will continue to coordinate with the municipalities, counties, and State on measures to manage temporary impacts on land uses during construction and avoid or minimize long-term effects on land use following construction. The Authority will also continue to coordinate with the New Jersey Department of Environmental Protection (NJDEP) and the Cities of Newark and Bayonne on finalization of the public access project proposal and its implementation. With incorporation of these measures, no further mitigation is necessary.

[3] As noted in Section 2.3 of this EA, the No Action Alternative is not considered feasible as: (1) the integrity of highway structures, which comprise 80 percent of the NB-HCE between Interchanges 14 and 14A, would continue to deteriorate from traffic load and the elements to the point where the structural sufficiency of the structures, including the NBB, could not be maintained even with extensive repairs and maintenance; (2) traffic flow would continue to deteriorate from already congested conditions, and from disruptions due to increasingly frequent repair and maintenance activities (resulting in increasing traffic delays along the NB-HCE and at access points from Bayonne, Jersey City, and Port Jersey PAMT; and (3) roadway operations and drainage, vehicle maneuverability, and emergency response would be compromised by inadequate left shoulder areas, inadequate ramp merge areas, and other roadway geometric deficiencies that would not be corrected.

Socioeconomics

As shown in Table ES-1, the project's construction expenditures are anticipated to generate the following economic impacts:

- Approximately 25,500 total jobs during the construction period.
- $2.0 billion earned in labor income by employees.
- $2.8 billion in value added (value added is equivalent to the investment's contribution to the gross regional product).
- $519.8 million in Federal, state, and local taxes ($357.8 million in Federal taxes and $162.0 million in state and local taxes).

Table ES-1. Estimated Construction Economic Impact

Metrics	Direct	Indirect	Induced	Total
Employment	18,786	2,845	3,863	25,494
Value Added	$1,902.0	$478.8	$468.5	$2,849.3
Labor Income	$1,437.1	$314.8	$262.6	$2,014.6
State/Local Taxes	$50.4	$62.9	$48.7	$162.0
Federal Taxes	$247.4	$59.0	$51.4	$357.8

Note: Monetary values are in millions of 2021 dollars.

With the mitigation to be implemented by the Authority, the Proposed Action will have no significant impact on socioeconomics, demographic conditions, or community character in the study area. Community feedback has been incorporated into the design of the Proposed Action and mitigation options and the Authority will continue to conduct stakeholder meetings throughout the design and construction of the Proposed Action. The Authority has developed an Adaptive Management Plan (see Appendix H) that describes on-going monitoring and outreach efforts through the construction period to address potential concerns by the adjacent community.

Cultural Resources

The Proposed Action has the potential to impact historic and cultural resources. Pursuant to Section 106 of the National Historic Preservation Act, the Proposed Action has the potential to result in an adverse effect on properties listed or eligible for listing on the NRHP.

Under the Proposed Action, the NBB, a historic resource considered by the NJHPO as individually eligible for listing in the NRHP as an intact example of a mid-twentieth-century cantilevered truss structure, would be removed. The removal of the current NBB would have an adverse effect on the bridge because removal will physically destroy the entire bridge.

The Proposed Action may have an adverse effect on the NJR and NRHP-listed Morris Canal. Archaeological monitoring within the canal footprint will be conducted to record canal-related structural features and to mitigate project-related adverse effects to the historic property.

Archaeological monitoring of the outfall stormwater pipe trench excavation adjacent to the Jersey Eagle archaeological site will be conducted to mitigate potential Proposed Action-related adverse effects to the archaeological historic property.

In addition to the above referenced historic properties, the remains of a circa 1908 New York Bay Railroad Co. turntable may be present within the proposed stormwater detention basin HUC3-C located southeast of the

NB-HCE on Block 30306, Lot 2 in the City of Jersey City. Survey Test Pit 10 conducted during the Supplemental Phase IB Archaeological Survey indicated that there was no potential for intact rail-related resources within Basin HUC3-C.

The Authority has executed a Programmatic Agreement with the USCG and NJHPO that outlines the steps required to complete remaining cultural resources survey tasks in accordance with the Section 106 consultation process.

Visual Resources

A Visual Impact Assessment was prepared in accordance with FHWA visual assessment policies, which are consistent with the policies, procedures, and guidelines contained in established methodologies, including the FHWA Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015).

The Proposed Action will have no significant impact on visual resources, and no mitigation is required.

Traffic, Transportation, and Utilities

An assessment of the Proposed Action's potential for impact to vehicular traffic, rail traffic, marine traffic, and aviation was performed. See Technical Appendix 3.7 for a detailed report.

Traffic

As shown in Table ES-2, the Proposed Action will improve the traffic flow conditions as measured by roadway level-of-service (LOS) compared to both Existing and No Build congested traffic flow conditions and provide LOS D (stable traffic flow) or better traffic flow.

Table ES-2. 2050 NB-HCE Interchanges 14 to 14A Existing, No Action, and Proposed Action Traffic Conditions

AM Peak Hour Traffic Flow					PM Peak Hour Traffic Flow			
	Traffic Volume	Density	v/c	Level of Service	Traffic Volume	Density	v/c	Level of Service
2021 Existing								
Eastbound	4,533	*	1.31	F	3,852	*	1.04	F
Westbound	3,640	*	1.04	F	3,569	42.3	0.97	E
2050 No Action								
Eastbound	4,909	*	1.41	F	4,172	*	1.13	F
Westbound	3,942	*	1.10	F	3,866	*	1.06	F
2050 Proposed Action								
Eastbound	5,986	34,2	0.86	D	5,088	26.4	0.70	D
Westbound	4,806	26.2	0.69	D	4,713	24.5	0.65	C

Note: v/c = traffic volume divided by roadway lane capacity.
* Density (passenger car equivalents per mile per lane) is not calculated when v/c exceeds 1.00.

Railroads and Other Roadways

Under the Proposed Action, there will be no realignment or relocation of railroads and other roadways crossed or otherwise in proximity of the Proposed Action, except for one roadway: the existing connector roadway between JFK Boulevard and Avenue C in Bayonne, essentially one block north of West 58th Street, from which point drivers can turn onto Avenue C or continue straight to enter NJ Route 440 southbound. Permanent elimination of the connector roadway will be necessary to minimize the impact on NJ Route 440 and adjacent properties caused by the Proposed Action's addition of two new travel lanes in each direction on the NB-HCE between Interchanges 14 and 14A. The impact on traffic from eliminating the connector roadway will be minimal as there are numerous alternate roadway routes between JFK Boulevard and Avenue C to Route 440.

The analysis of local street traffic in the residential neighborhoods in Newark, Bayonne, and Jersey City in closest proximity to the NB-HCE between Interchanges 14 and 14A under the Proposed Action indicates minor changes in traffic volumes on local streets relative to the No Action. Approximately 65 – 70 percent of local streets in the Newark, Bayonne and Jersey City study areas will experience lower traffic volumes due to the Proposed Action. For those local streets that are estimated to experience an increase in traffic, the traffic increase will be between 3% and 8%. The Authority will coordinate with the municipalities on such measures as signal timing or lane striping changes to mitigate any adverse effects.

The portion of West 58th Street near Avenue B will be permanently narrowed by the Proposed Action. The existing single one-way travel lane will be maintained. However, parking on both sides of the street for approximately 100 feet on each side of the roadway, or approximately 9 to 12 on-street parking spaces in total, will be eliminated. Reconnaissance of the affected area indicates that the capacity of on-street parking exceeds the demand for on-street parking, likely because many residential units in the area have off-street parking. Consequently, the elimination of the on-street parking will have a minor adverse effect.

Utilities

Construction of the Proposed Action will require modifications to or relocations of several major utilities within the corridor, including existing power, telephone, fiber optic, water and wastewater utilities that are currently attached to the NBB.

In addition, Williams Companies' fuel line and two 16-inch Gas Mains of an unknown owner, all in Newark near Interchange 14, will require protection during construction. Utility relocations should be completed in advance of construction to avoid or minimize adverse impacts. Coordination will occur with utility providers to avoid or minimize adverse construction impacts.

Waterway Navigation and Ports

The main span of the replacement NBB structures over the 500-foot wide Federal Newark Bay North Reach will be approximately 800 feet. Consequently, the replacement structures' piers and pier foundations will not encroach on the channel and will avoid an impact on the channel. Meanwhile, each of the structures will have minimum navigational clearances of 550 feet horizontal and 135 feet vertical above mean high water (MHW). The Authority is designing the proposed structures to maximize vertical navigational clearance greater than 135 feet above MHW to the extent possible accounting for relevant site and design constraints (wind performance, vertical profile and grade, and aviation clearance).

There will be a need for temporary use of the channel by construction tugboats and barges. The Authority will coordinate with the USCG and mariners using the waterway to minimize interference with navigation through the channel. Methods such as the use of cantilevered construction of the main spans and trestles outside the navigation channel to serve as platforms to construct the Proposed Action structures and demolish the existing structure should minimize the need for using tugboats and barges during construction once the trestles are in place.

The Proposed Action will not acquire port property nor interfere with goods movements by rail or roadway except for the temporary closures or detours during construction. The Authority will coordinate with Conrail and port operators and tenants on the timing of the temporary closures and detours to minimize the impact on goods movement and customers.

By increasing the long-term capacity and improving traffic flow on the NB-HCE between Interchanges 14 and 14A, the Proposed Action complements the goals and objectives of the Port Master Plan 2050 (PANYNJ 2019) by improving the service reliability for an increased volume of containers and automobiles entering the port and shipped by truck from the growing Port Jersey Port Authority Marine Terminal to distribution centers along the NJ Turnpike (I-95) Mainline and I-78 in Pennsylvania.

Navigable Airspace

The maximum height of the replacement NBB structures will be at or below the EWR Runway 29 approach and departure paths no-exceed heights for each structure's respective locations.

Federal Aviation Administration (FAA) regulations, specifically, 14 Code of Federal Regulations (CFR) Part 77, establish that notification of construction or alteration in the vicinity of airports, including potential obstruction and lighting impacts, must be submitted 45 days prior to construction. According to a Determination issued by the FAA, its aeronautical study revealed that the replacement NBB structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, the FAA determined that the structure would not be a hazard to air navigation.

Conclusion

The Proposed Action will have no significant adverse impact on traffic, transportation, or utilities.

Air Quality

Construction-related emissions were calculated for ozone precursors (oxides of nitrogen and volatile organic compounds), carbon monoxide, PM_{10}, and $PM_{2.5}$ for the three highest construction activity years (2033, 2034, and 2035). Construction-related emissions are the only source of emissions to compare with the General Conformity Rule *de minimis* thresholds. Peak construction-related emissions were estimated in 2034. The analysis performed demonstrates that construction of the Proposed Action does not exceed *de minimis* thresholds and, therefore, can be presumed to conform to the New Jersey SIP. Meanwhile, hot-spot analyses of construction emissions in 2034 show no exceedance of the NAAQS for the criteria pollutants CO and $PM_{2.5}$. Nevertheless, the Authority will implement an air quality monitoring program during construction and apply adaptive management to reduce emissions, as necessary (see the Adaptive Management Plan in Appendix H).

With the mitigation to be implemented by the Authority, the Proposed Action will have no significant impact on air quality. Pursuant to Clean Air Act requirements, the Proposed Action's construction and operational effects on air quality must conform with the SIP. The analysis of construction-related emissions shows that the emissions do not exceed the General Conformity Rule *de minimis* thresholds and, therefore, can be presumed to conform to the New Jersey SIP. The Proposed Action is included in a long-range transportation plan that has been subject to Transportation Conformity Rule requirements. In addition, no meaningful differences in criteria pollutants or mobile-source air toxics emissions are expected for the 2050 Proposed Action, as compared to the 2050 No Action Alternative.

Noise

Traffic Noise

Based on noise prediction modeling, noise levels under the Proposed Action would approach or exceed the FHWA and New Jersey Turnpike Authority Noise Abatement Criteria (NAC) threshold of noise interference of 67 A-weighted decibels (dBA) (L_{eq}) for Activity Category B (residential properties) at 32 single-family, 67 dual-family, and four multi-family residential structures within the noise study area, equating to 181 total

dwelling units. Noise levels would "approach" or exceed the threshold of noise interference of 67 dBA (L_{eq}) for Activity Category C (exterior noise levels at schools, hospitals, and parks) within a portion of Mercer Park (approximately 158,585 square feet [sf]), equating to 54 total dwelling units. Interior noise levels would approach or exceed the Activity Category D NAC (52 dBA L_{eq}) at the Woodrow Wilson School #10, including all three classroom floors of the east building and the second and third floors of the west school building. Without access to school building floor plans, it was assumed the impacted receptors represent 13 highway-facing classrooms.

South of the NB-HCE. As the existing noise barrier would need to be removed to accommodate the proposed widening, analysis reflects noise levels predicted without a noise barrier. The Authority's commitment to replacing the noise barrier is set forth in the Mitigation Matrix (Table ES-3) at item 10. Predicted traffic noise impacts south of the NB-HCE roadway are primarily located along JFK Boulevard, West 56th Street, West 57th Street, and West 58th Street, where the existing noise barrier required removal to accommodate the NB-HCE widening. Additional impacted residential structures include fourth and fifth floor balconies at the Liberty Bay Club multi-family residential structure. Impact to the Liberty Bay Club is likely resulting from a combination of traffic changes on NJ Route 440 as well as changes to the NB-HCE corridor as a result of the Proposed Action. The predicted interior impact would occur at the Woodrow Wilson School #10, located along West 57th Street.

North of the NB-HCE. North of NB-HCE roadway, Activity Category B impacts are located along Merritt Street within the Jersey City Housing Authority Curries Woods neighborhood and on Garfield Avenue. In addition, the Activity Category C NAC would be exceeded at Mercer Park within the football field and along the walking trail that parallels JFK Boulevard (approximately 158,585 sf), equating to 54 residential dwelling units.

To mitigate predicted Proposed Action impacts to Mercer Park, two dual-family residences on Merritt Street that are part of the Jersey City Housing Authority's Curries Woods neighborhood, and one dual-family residence on Garfield Avenue, a potential three-part noise barrier system was evaluated along the westbound shoulder of the widened NB-HCE roadway. As detailed in Section 3.9, the three-part noise barrier "system" would not provide benefit to any of the impacted receptors as intended because it would not yield the minimum required noise level reduction of 5 dBA at impacted receptors; therefore, the three-part noise barrier "system" is not a recommended mitigation measure.

Construction Noise

Noise-sensitive receivers within project limits will experience an increase in noise levels during construction activities. Typical construction activities, such as roadway deck demolition, bridge repairs and milling/paving are known to produce high noise levels. Equipment such as but not limited to hoe rams, jackhammers, impact pile drivers, rivet removers, concrete trucks, scarifiers, paving machines, backhoes, and dump trucks, may be utilized. Resultant noise levels can range between approximately 70 to 90 dBA at noise-sensitive sites.

For construction activities, standard specifications for inclusion in the proposed construction contract documents may include the following:

- All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.
- Air compressors shall meet current U.S. Environmental Protection Agency noise emission exhaust standards.
- Air powered equipment shall be fitted with pneumatic exhaust silencers.
- Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise-sensitive areas without portable noise barriers placed between the equipment and noise-sensitive sites. Portable noise barriers shall be constructed of plywood or tongue and groove boards

with a noise absorbent treatment on the interior surface (facing the equipment).

- Powered construction equipment shall not be operated before 8:00 a.m. or after 8:00 p.m. within 150 feet of a noise-sensitive site.

Conclusion

The Proposed Action will have adverse impacts to noise at several receptors. The Authority will implement a noise monitoring program during construction and apply adaptive management to reduce sound levels, as necessary (see the Adaptive Management Plan in Appendix H). Following construction, with implementation of the proposed noise wall, and tree planting within NJ Turnpike ROW, where feasible, the long-term noise impacts will be mitigated to the maximum extent practicable such that they would not be considered significant impacts.

Hazardous Materials and Contaminated Sites

The Proposed Action will have minimal impact on hazardous materials. The systematic approach to identifying site contamination has occurred during project development. Further investigations, including sampling of soil and groundwater, will occur during final design to identify measures to be undertaken during construction to protect public and worker health and safety and avoid the spread of contamination. A sampling plan and protective measures will be developed by the project team in coordination with relevant property owners, as appropriate.

Regarding the Newark Bay Study Area (Diamond Alkali) Superfund Site - Operable Unit 3, the Authority and USEPA have coordinated on the potentially coinciding timelines of the NBB Replacement and the Newark Bay remediation and have agreed to continue coordination on the respective projects. It is possible that USEPA's future remedy (not yet selected) for the Newark Bay Study Area will require construction activity proximal to the existing/new bridge alignment, to remediate comparatively elevated areas of contamination in the Newark Bay sediment. The Authority has reviewed USEPA's current interim remedial plan for Newark Bay and focus areas proximate to the Newark Bay Bridge. The Authority will continue to coordinate with USEPA to share information on remediation and construction schedules to avoid conflicts. Currently, no conflicts between the two projects are anticipated.

By following the above-described approach, no significant impacts will result.

Natural Resources

The Proposed Action will have impacts to natural resources; however, the measures outlined in Section 3.11 will reduce any impacts to the maximum extent practicable. These measures and others have been incorporated as conditions of the permit issued by NJDEP on April 3, 2024, for the activities of the Proposed Action relating to the replacement of the Newark Bay Bridge, essentially, extending along the NB-HCE corridor from just west of Doremus Avenue in Newark to just west of JFK Boulevard in Bayonne. The Authority submitted an application to NJDEP for multiple permits for these activities on October 20, 2023. The permit issued by NJDEP (numbered 0000-23-0012.2 LUP230001) consists of the following authorizations:

- Waterfront Development Individual Upland Permit.
- Waterfront Development Individual In-Water Permit.
- Flood Hazard Area Individual Permit.
- Freshwater Wetlands Individual Permit.
- Water Quality Certificate.

NJDEP also determined that the approved activities meet the requirements of the State's Flood Hazard Area Control Act, Coastal Zone Management, and Stormwater Management rules. The permit, which is found in Appendix F, lists conditions that will be implemented and monitored by the Authority to mitigate impacts on the environment from the Newark Bay Bridge replacement activities.

The Authority will submit applications for permits for Proposed Action activities in areas between Interchanges 14 and 14A outside the limits of the Newark Bay Bridge in the future during final design. No Federal permits, approvals, or funding is needed for activities in these other areas outside the limits of the Newark Bay Bridge.

The Proposed Action will have measurable impacts on water quality, but pollutant concentrations would be below applicable standards, regulations, and guidelines, and within existing conditions or designated uses. Pursuant to the Coastal Zone Management Act, the Proposed Action will have no reasonably foreseeable effects on coastal uses and resources. Pursuant to the Marine Mammal Protection Act, the Proposed Action is not likely to or will not result in takes of marine mammals. Pursuant to the Magnuson-Stevens Act, the Proposed Action will have no effect to Essential Fish Habitat or Habitat Areas of Concern. Pursuant to the Migratory Bird Treaty Act, the Proposed Action will not result in take of migratory birds or the parts, nests, or eggs of such bird. Pursuant to the Bald and Golden Eagle Protection Act (BGEPA), the Proposed Action will not result in take of Bald or Golden Eagles or the parts, nests, or eggs of such bird.

Mitigation Summary

A summary of mitigation actions to be undertaken to avoid, minimize or otherwise compensate for adverse impacts of the Proposed Action is found in Table ES-3. Each of these specific mitigation plans includes implementation and monitoring activities to demonstrate compliance with specific State and/or Federal permit requirements. The Adaptive Management Plan (Appendix H) also provides additional non-permit required environmental monitoring and is one of several resource-specific mitigation plans that support the Proposed Action. The Adaptive Management Plan includes monitoring and compliance for specific environmental resources (as needed) before and during construction, to minimize potential impacts on the community.

Table ES-3. Mitigation Summary Matrix

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
1. Property acquisitions and easements (see detailed discussion in Section 3.3.5). It is anticipated that the Proposed Action will result in 29 new aerial easements, partial acquisition of unimproved portions of 10 properties, and full acquisition of one property containing four tax lots. The full property acquisition will eliminate the potential for redeveloping the privately owned and vacant former Marist High School property into either residential or commercial uses per the redevelopment plan approved by the City of Bayonne. Applicable Mitigation Plan: Applicable law for acquiring properties or easements.	The existing property owners will be compensated by the Authority for easements and acquisitions per applicable laws. The proposed use of a portion of the former Marist High School property is for a stormwater basin, constructed for treating runoff to comply with NJDEP stormwater management regulations from the NB-HCE, and for contractor lay down areas and future maintenance needs. The construction of new in-water structures would require an application to the Bureau of Tidelands for a new Instrument. The proposed use of a portion of the property for a stormwater detention basin supports the Proposed Action's meeting the State's Stormwater Management Regulations and avoids the potential for meeting the regulations through acquisition of developed property(ies) and displacement of existing land use(s) in this densely developed area.	Implementation: The Authority will follow applicable law for acquiring properties or easements. Prior to the construction of any structures and/or the placement of fill within any tidelands areas authorized under the NJDEP permit, the Authority will apply to the NJDEP's Bureau of Tidelands Management for a tidelands instrument (e.g., a license or lease) for the use and occupation of tidelands. Monitoring: The Authority will not exercise easements nor take possession of properties until applicable laws have been met.
2. Potential Effect on Public Access to Tidal Waterfront Areas on Newark Bay in Newark and Bayonne Required for New Right-of-Way (ROW) for the Replacement of the Newark Bay Bridge (see detailed discussion in Section 3.3.5). Applicable Mitigation Plan: NJTA Public Access Project proposal; and NJDEP Permit requirements.	On the Newark side, an in-lieu fee contribution for offsite mitigation is proposed in support of a City of Newark's planned waterfront public access initiative from the NJDEP-approved Municipal Public Access Plan submitted by the City. On the Bayonne side, the ROW is in an area included in Hudson County plans for the Hackensack River Greenway, also known as the Hackensack RiverWalk. The portion within the Authority's ROW in the NB-HCE project area is currently a gap in the completed Greenway. Conceptually, the Authority has proposed providing public access, such as a waterfront path within its 310 feet of ROW and extend additional waterfront pathway to connect the on-ROW segment to the existing Riverwalk path in Rutkowski Park to the south. This would result in approximately 1,040' of new	Implementation: Prior to construction, the Authority will submit a formal and complete public access project proposal to NJDEP for its review. Following coordination with NJDEP on the public access project proposal, the Authority will execute an escrow agreement with NJDEP for which the funds will be held in trust in an attorney trust account of a licensed New Jersey attorney. Monitoring: The Authority will continue to coordinate with Newark and Bayonne on implementation of the public access project proposal, including the incorporation of the planned waterfront path or similar by the

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	public access.in Bayonne to meet the public access requirement of N.J.A.C. 7:7-16.9(a). Implementation of these measures will benefit the municipalities and waterfront users by supporting the advancement of waterfront public access improvements.	Authority into final design for construction by the Authority's contractor. The Authority and/or respective municipalities will secure all requisite permits and approvals for the agreed upon public access improvement projects in their respective municipalities prior to the start of any site disturbance, pre-construction earth movement or construction of the Bridge Replacement.
3. Potential for Adverse Effects on Adjacent Communities During Construction. It is anticipated that the Proposed Action will potentially impact air quality, noise, contaminated sediments and soils. Please refer to specific discussions of these items in this table. Applicable Mitigation Plan: See Adaptive Management Plan.	*Please see discussion of specific mitigation of the potential air quality, noise, water quality, and natural resources impact of the Proposed Action in this table.* In support of the NEPA process the Authority will implement an Adaptive Management Plan (AMP) to continue outreach and communication before and during construction. The AMP includes ongoing outreach, improved transparency, and air, noise, and vibration monitoring in communities located adjacent to construction work zones.	*Refer to discussion of specific mitigation of the potential traffic, air quality, noise, water quality, and natural resources impact of the Proposed Action in this table.* Implementation: The Authority will continue to meet stakeholders. The community engagement will continue to focus on engaging and partnering with local community organizations at their events, and co-hosting small business and employment opportunity events with them. Other mitigative measures to be implemented by the Authority through an Adaptive Management Plan include the following: Financial support by the Authority of revitalization efforts by Hudson County in Mercer Park in Jersey City. Planting trees on the former Marist High School property to enhance the environment for neighbors of the property. Additional greenspace, landscaping, tree planting, and related improvements to be coordinated with specific communities as the

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
		project advances. Where space and safety considerations permit, plant vegetative barriers within NJ Turnpike right-of-way adjacent to residential neighborhoods between JFK Boulevard and Avenue C in Bayonne. Coordination with Hudson County to support its efforts to conduct a summer Vo Tech Camp to encourage students to advance Vo Tech careers. Monitoring: The Authority will continue to work closely with municipalities in the study corridor, to ensure that the proposed mitigation is fully implemented and complete. The AMP also includes a comprehensive outreach program to improve public participation and transparency, and a monitoring program for air, noise, and vibration to quickly identify and minimize potential impacts.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
4. Demolition of the Existing Newark Bay Bridge, a resource eligible for listing in the New Jersey Register (NJR) National and National Register of Historic Places (NHRP) (see detailed discussion in Section 3.5.5). Applicable Mitigation Plan: Section 106 Programmatic Agreement.	Prior to the removal, demolition, or alteration of any components of the Newark Bay Bridge, the Authority, using the services of an Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] in Architectural History, will document the existing conditions of the bridge to Level III equivalent standards of the Historic American Engineering Record (HAER). The Authority, using the services of a qualified consultant meeting the Secretary of the Interior's Professional Qualifications Standards [48 FR 44738-9] in History and/or Architectural History, will develop and install interpretive signage regarding the history and significance of the Newark Bay Bridge, including the structure's involvement in the construction of the NB-HCE and its design as a cantilevered truss bridge. The signage will incorporate historic images of the bridge and will be installed in a publicly accessible location near the bridge such as the Richard A. Rutkowski Park in the City of Bayonne. Develop a Programmatic Agreement to resolve adverse effects and conclude the Section 106 process.	Implementation: The Authority will submit the HAER documentation to the New Jersey Historic Preservation Office (HPO) The Authority will consult with the HPO on the design, layout, and content of interpretive signage, as well as its proposed location. The signage will be installed within six months of the project completion, and the Authority will submit photographs of the installed signage to the HPO within 30 days of installation. Monitoring: A Programmatic Agreement was drafted that outlines the steps that would be required to complete remaining cultural resources survey tasks and conclude the Section 106 consultation process. The Programmatic Agreement will be signed by the Authority, the Coast Guard, and the New Jersey Historic Preservation Office.
5. Potential Disturbance of Archaeological Resources (see detailed discussion in Section 3.5.5). The Proposed Action, at the proposed abutments for Structure N3.24R carrying the NB-HCE over Avenue C in the City of Jersey City and at proposed Piers 13–15, a portion of Pier 17, and the eastern abutment for Structure No. N3.73R (Southeast Viaduct), may have an adverse effect on portions of the NJR and NRHP-listed Morris Canal The Proposed Action may have an adverse effect on the portion of Site 28-Hd-45 (Jersey Eagle archaeological Site) (a.k.a. The Jersey Eagle Site) in the APE-Archaeology on Block 30306, Lot 7 in the City of Jersey City.	The Authority will prepare an archaeological monitoring plan for the Proposed Action and submit the plan to the HPO and the NJDEP Division of Land Resource Protection (DLRP). The approved archaeological monitoring plan will be referenced in project documents, plans, and bid proposals. The Authority submitted an Application for Project Authorization (APA) under the New Jersey Register of Historic Places Act for review by the HPO and the New Jersey Historic Sites Council. The Authority will prepare an avoidance and protection plan to safeguard the Marist High School site during Project activities. The Authority will also conduct a Phase IB archaeological survey within an undisturbed portion of the former Marist High School property for Basin HUC2-1 to identify the presence or absence of archaeological deposits. If	Implementation: The Authority will submit the archaeological monitoring plan to the HPO and the DLRP prior to the start of construction. The archaeological monitoring plan will outline measures to document buried cultural features, artifact deposits, and elements of the Morris Canal historic property and the Jersey Eagle Site, if encountered, during Project activities. The Authority will immediately cease all ground disturbing activities and contact the HPO if potential human burials or human

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
The Marist High School Site (28-Hd-55) is present within the APE-Archaeology on Block 13, Lot 1 in the City of Bayonne and near Basin HUC2-1. The proposed basin is on land previously being used as a staging and construction area by the prior property owner. Phase IB archaeological survey via mechanical excavation assistance was recommended once Authority assumes control of the property to determine the presence or absence of intact archaeological deposits. Applicable Mitigation Plan: Section 106 Programmatic Agreement.	the Phase IB identifies archaeological resources that will be impacted by the Project, the Authority will conduct a Phase II archaeological survey following a HPO-approved archaeological work plan. The Phase II archaeological survey will assess the effects of the proposed Project on any resources identified as eligible for listing in the New Jersey and National Registers of Historic Places. The Authority will submit a minimization and/or Phase III mitigation plan to the HPO if impacts to resources eligible for listing in the NJR and NHRP cannot be avoided. The Authority will ensure that all phases of the archaeological survey and reporting will be in keeping with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the archaeological survey and report rules at N.J.A.C. 7:4-8.4 through 8.5. Evaluations to determine the National Register eligibility of archaeological sites should be in keeping with the National Park Service's 2000 National Register Bulletin, Guidelines for Evaluating and Registering Archaeological Properties. The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation are available on the National Park Service's website: http://www.nps.gov/history/local-law/arch_stnds_0.htm) The Authority will ensure that the individual(s) conducting the work meet the Secretary of the Interior's Professional Qualifications Standards for Archaeology and Historic Architecture (48 FR 44738-9). The Authority will ensure that all artifacts from State and National Register eligible archaeological sites will be analyzed, catalogued, and curated in accordance with the National Park Service Standards, codified as 36 CFR Part 79. All archaeological reports will identify the repository where the project records and artifacts will be located.	skeletal remains are encountered. The potential burials and/or human skeletal remains shall be left in place unless imminently threatened by human or natural displacement. Conduct the Phase IB archaeological survey prior to construction on the portion of the former Marist High School property. Additional archaeological investigations, including Phase II and potentially Phase III mitigation may also be conducted prior to construction activities associated with Basin HUC2-1. Submit an avoidance and protection plan to the HPO and the DLRP within 30 days of completion of the Phase II archaeological survey for any resources eligible for inclusion or listed in the NJR and NRHP to prevent Project impacts. Monitoring: The minimization and/or mitigation plan(s) must be approved by the HPO prior to the commencement of on-site construction activities or any data recovery activities to ensure that the research designs, work plans, proposed archaeological buffer zones, data recovery plans, and public outreach components are acceptable to the HPO. The Authority will ensure complete draft Phase IB and Phase II reports will be submitted to the HPO for review and approval within three months after respective phases of fieldwork are completed. The Authority will ensure a complete draft Phase

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
		III report will be submitted to the HPO for review and approval within six months after fieldwork is completed. Final reports for each phase of survey will be submitted to the HPO within two months after comments are received on the respective draft reports. Other timelines (for example, for public outreach) will be established in consultation with the HPO, as necessary, based on the findings of the archaeological survey. The Authority will notify the HPO within three days of the completion of each phase of archaeological fieldwork. The Authority will ensure that within two months of the submission of the final Phase II report and any final Phase III data recovery report to the DLRP and the HPO, the artifacts, field records (including the artifact catalogue), and copies of all phases of survey from National Register-eligible sites will have been turned over to the New Jersey State Museum or other institution meeting the Secretary of the Interior's Standards for Curation. A copy of the New Jersey State Museum Deed of Gift Form (or a Deed of Gift Form from another suitable curation facility) will be submitted to the HPO at that time as an indicator of the final transmission of the artifact collection.
6. <u>Potential Disruption of Traffic on Roadways, Railroads, and Utilities During Construction</u> (see detailed discussion in Section 3.7.5). There will be only one discontinuance of railroads and other roadways crossed by the Proposed Action: the existing connector roadway between JFK Boulevard and Avenue	The construction of Proposed Action will be staged and sequenced to maintain two travel lanes in each direction on the NB-HCE between Interchanges 14 and 14A, maintaining the travel lane capacity of the existing roadway during construction and minimizing disruption of users of the NB-HCE.	Implementation: Coordination has been ongoing and will continue by the Authority with Conrail, NJDOT, Hudson County, and the municipalities during Proposed Action design and prior to construction on the design of the Proposed Action on and in the vicinity of the infrastructure on measures to

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
C in Bayonne. Permanent elimination of the connector roadway will be necessary to minimize the impact on NJ Route 440 and properties caused by the Project's addition of two new travel lanes in each direction on the NB-HCE between Interchanges 14 and 14A. The impact on traffic from eliminating the connector roadway will be minimal as there are numerous alternate roadway routes between JFK Boulevard and Avenue C to Route 440. For construction over Conrail's Garden State Secondary line track and local roadways, temporary closures or outages on those crossings will be required for removing existing superstructure, erecting proposed steel, and placement and removal of shielding. Construction will require relocations of several overhead and underground utility lines including fiber optic cable, petroleum pipelines, cable television/internet, electric, sanitary sewer, and water. There may be a need for temporary use of the Newark Bay North Reach navigation channel by construction tugboats and barges. Applicable Mitigation Plan: Maintenance and Protection of Traffic Plans and the overall Traffic Management Plan; USCG Bridge Permit.	Crossing-specific maintenance and protection of traffic plans will be developed to detail temporary detours or other measures to be employed to minimize disruption and maintain traffic flow and safety during the construction activities affecting the crossing until railroad and roadway vehicular (automobile, trucks, and emergency vehicles), pedestrian, and bicycle traffic can be restored to full service, pre-construction conditions. Utility relocations will typically be completed in advance of the construction to avoid or minimize adverse impacts on service. Methods such as the use of cantilevered construction of the main spans and trestles outside the navigation channel to serve as platforms to construct the new NBB structures and demolish the existing structure should minimize the need for using tugboats and barges during construction once the temporary trestles are in place.	avoid or minimize adverse construction impacts. Coordination will continue by the Authority with utility providers during Proposed Action design and prior to construction on and in the vicinity of the infrastructure to avoid or minimize adverse construction impacts. Any temporary use of the navigation channel by tugboats or barges by the Authority's contractor will be coordinated with the USCG to avoid any interference with navigation through the channel. Monitoring: The Authority will continue coordination with Newark, Bayonne, and Jersey City on the potential effect of the Proposed Action on local streets and on measures, such as changes in signal timing or intersection striping, needed to mitigate any localized impact.
7. Effect on Air Quality from Equipment Emissions During Construction (see detailed discussion in Section 3.8.5).	Analysis demonstrates that the emissions from the Proposed Action's construction do not exceed *de minimis* thresholds and, therefore, can be presumed to conform to the New Jersey State Implementation Plan and satisfy the Clean Air Act General Conformity requirements. In addition, construction	Implementation: Mitigation measures to be further developed by the Authority during final design for incorporation as specifications into bid documents. The Authority will develop and implement an

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
Applicable Mitigation Plan: Adaptive Management Plan and best practices.	hot-spot analyses estimate that construction-related air quality will be below applicable national ambient air quality standards. The following measures identified by NJDEP's Bureau of Mobile Sources are among those that will be applied during construction: Provide that hydraulic hoses for medium and heavy-duty construction vehicles are frequently checked for leaks, and that operators of these vehicles inspect their vehicles for oil and transmission leaks before, during, and after use of each vehicle. Provide that idling of diesel-fueled construction equipment, vessels, and commercial vehicles involved in the process be monitored in times of operation. This could include control strategies and training for equipment operators to ensure that vessel and equipment operating times are minimized and controlled. Project partners should focus on monitoring onshore construction sites and ports used for the offshore stations, as these are located within some nonattainment and maintenance areas. That non-road diesel construction equipment operating in a small geographic area over an extended period of time implement the following measures to minimize the impact of diesel exhaust: o All on-road vehicles and non-road construction equipment operating at, or visiting, the construction site comply with the three-minute idling limit, pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15. o Consider purchasing "No Idling" signs to post at the site to remind contractors to comply with the idling limits. Signs are available for purchase from the Bureau of Mobile Sources at 609/292-7953 or http://www.stopthesoot.org/sts-no-idle-sign.htm. o All non-road diesel construction equipment greater than 100 horsepower used on the project for more than ten days have engines that meet the USEPA Tier 4 non-road emission standards, or the best available emission control	Adaptive Management Plan to monitor for the effectiveness of mitigation measures during construction. The Authority will conduct baseline air quality, noise, and vibration monitoring prior to the commencement of construction near residential neighborhoods and then conduct monitoring throughout construction. Monitoring: Specific attention will be provided to adjacent communities in the study area to minimize potential impacts, and provide updates through community meetings, walk-in project offices, and the project website. The Authority will continue to meet with residents of the adjacent communities and assess ways to incorporate community feedback into the design and construction of the Proposed Action, and the mitigation of impacts. In support of the NEPA process the Authority will implement an Adaptive Management Plan to expand ongoing outreach and communication before and during construction activities. The AMP includes ongoing outreach, improved transparency, and air, noise, and vibration monitoring in communities located adjacent to construction work zones.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	technology that is technologically feasible for that application and is verified by the USEPA or the California Air Resources Board as a diesel emission control strategy for reducing particulate matter and/or NOx emissions. o All on-road diesel vehicles used to haul materials or traveling to and from the construction site use designated truck routes that are designed to minimize impacts on residential areas and sensitive receptors such as hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities. In accordance with N.J.A.C. 7:27-14 and 15, that diesel vehicles do not idle for more than 15 consecutive minutes when the vehicle has been stopped for 3 or more hours and only if the temperature is <25 deg. F. In accordance with N.J.A.C. 7:27-14 and 15, that diesel vehicles idle if the engine provides power for mechanical operations such as: refrigeration units for perishable goods, hydraulic lifts, "cherry pickers", or similar equipment. Meanwhile, the requirements of N.J.A.C. 7:27-8.2(c) 1-22 for stationary permitting requirements will be applied, as applicable, including but not limited to construction equipment-stationary construction equipment or emergency generators that may require air pollution permits if it is located on the site for longer than one year (N.J.A.C. 7:27-8.2(d)15). Included among these requirements are general permits for boilers and emergency generators if the units can meet the prescribed requirement in the general permits. Vehicles involved on the Project will adhere to the idling standards (less than 3 minutes) stipulated (N.J.A.C. 7:27-14 and 15), that air pollution, including odors that are detectable offsite that are injurious to human health or would result in citizen complaints are prohibited (N.J.A.C. 7:27-5.2) and that dust emissions, either windblown or generated from construction activities, should be controlled to prevent offsite	

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	impacts or material tracked onto the roadways (N.J.A.C. 7:27-5.2).	
8. Effect on Air Quality from Roadway Traffic After Completion of Construction (see detailed discussion in Section 3.8.5). CO and $PM_{2.5}$ hot-spot analyses were conducted to assess potential concentrations of CO and $PM_{2.5}$ along publicly accessible areas nearby the NB-HCE. The results of the analyses indicate no exceedances of national ambient air quality standards. The Proposed Action modeled concentrations of these pollutants are estimated to be only slightly higher than modeled No Action concentrations. Applicable Mitigation Plan: NJTPA Long-range Transportation Plan	The Proposed Action is included in a long-range transportation plan that has been subject to Transportation Conformity Rule requirement for conforming to the State Implementation Plan. The Authority has on-going initiatives to reduce $PM_{2.5}$ roadway operational emissions, for example, through routine sweeping of fugitive dust from its roadways, including the NB-HCE, and by annually providing over $500 million to the State to support public transportation. The Authority is also investing in electric vehicle (EV) charging stations systemwide at its rest areas in an effort to support use of EVs and reduce emissions from vehicles using the New Jersey Turnpike. No further mitigation is necessary.	Implementation: On-going initiatives are being implemented by the Authority to reduce $PM_{2.5}$ and other air pollutant emissions. Monitoring: On-going Conformity analysis by NJTPA as part of its long-range planning process will assess regional long-term compliance with air quality standards.
9. Effect from Equipment Noise During Construction (see detailed discussion in Section 3.9.5). Noise-sensitive receivers within project limits will experience an increase in noise levels during construction activities. Typical construction activities, such as roadway deck demolition, bridge repairs and milling/paving are known to produce high noise levels. Equipment such as, but not limited to hoe rams, jackhammers, impact pile drivers, rivet removers, concrete trucks, scarifiers, paving machines, backhoes, and dump trucks, may be utilized. Resultant noise levels can range between approximately 70 to 90 dBA at noise-sensitive sites.	Standard specifications for inclusion in the proposed construction contract documents may include the following: o All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler. o Air compressors shall meet current EPA noise emission exhaust standards. o Air powered equipment shall be fitted with pneumatic exhaust silencers. o Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise-sensitive areas without portable noise barriers placed between the equipment and noise-sensitive sites. o Portable noise barriers shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).	Implementation: Mitigation measures to be further developed by the Authority during final design for incorporation as specifications into bid documents. During construction, as required, there will be installation of noise and visual shielding, e.g., trees and evergreens, where staging and construction activities are proximate to residential properties. Monitoring: Specific attention will be provided to adjacent communities in the study area, to minimize potential impacts, and provide ongoing updates through community meetings, walk-in project offices, and the project website. The Authority will continue to meet with residents of the adjacent communities and assess ways to incorporate

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
Applicable Mitigation Plan: Adaptive Management.	o Powered construction equipment shall not be operated before 8:00 a.m. or after 8:00 p.m. within 150 feet of a noise-sensitive site.	community feedback into the design and construction of the Proposed Action, and the mitigation of impacts. In support of the NEPA process the Authority will implement an Adaptive Management Plan to expand ongoing outreach and communication before and during construction activities. The AMP includes ongoing outreach, improved transparency, and air, noise, and vibration monitoring in communities located adjacent to construction work zones.
10. Effect on Sound Levels from Roadway Traffic After Completion of Construction (see detailed discussion in Section 3.9.5). Widening of the NB-HCE under the Proposed Action necessitates removal of the existing noise barrier adjacent to a portion of the eastbound roadway in Bayonne. The change in traffic volumes on the NB-HCE under the Proposed Action will increase traffic noise in the vicinity of the NB-HCE. Applicable Mitigation Plan: Design drawings of the proposed noise wall.	Under the Proposed Action, the existing noise barrier adjacent to a portion of the eastbound NB-HCE in Bayonne will be replaced with a new barrier adjacent to the widened NB-HCE eastbound roadway. The new barrier, which will be longer and higher than the existing barrier, will be designed to satisfy the Federal Highway Administration noise abatement criteria (23 CFR 772). No other potential traffic noise impacts warrant mitigation under applicable noise abatement criteria and policies.	Implementation: Replacement of the existing noise wall in Bayonne will occur during construction of the Proposed Action by the Authority's contractor. Monitoring: Two new bridge spans, new roadway driving surface, free-flow traffic, and reduced emergency closures due to incidents and maintenance, is expected to minimize roadway noise following the completion of construction.
11. Potential Disturbance of Contaminated Soil or Groundwater During Construction (see detailed discussion in Section 3.10.5). A hazardous waste survey identified 14 contaminated sites and other sources of hazardous materials (areas of potential environmental concern) near the NB-HCE between Interchanges 14 and 14A. Contaminated sediments in the Newark Bay Study Area (Diamond Alkali) Superfund Site -	Pre-construction sampling of potential contaminated media (soil, sediment, and ground water) will be conducted throughout the project area, including within Newark Bay, to assess the nature and extent of contamination to be encountered during construction, determine remedial measures (if necessary), identify waste disposal or reuse options, and determine the level of health and safety measures. The pre-construction sampling plan will be developed based on such design information as earthwork volumes, excavation limits, the exact horizontal and vertical	Implementation: A pre-construction sampling plan and Phase I Environmental Site Assessments will be developed by the Authority during final design to identify locations of contaminated material that may need to be managed during construction. The disturbance, handling, and disposal of any contaminated waste and materials, and appropriate preventive measures will be undertaken under the oversight of the

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
Operable Unit 3 will be disturbed during construction of the replacement Newark Bay Bridges and demolition of the existing bridge. Without proper management and control of hazardous materials during construction, there is the potential for contaminants to be released to surface water, groundwater, or the atmosphere. Applicable Mitigation Plan: Material Handling Plan; Pollution Prevention and Control Plan; site-specific Health and Safety Plan; and Specifications.	limits of disturbance, and the exact areas of land to be acquired for project right-of-way. Land to be acquired for the project will be evaluated by a Phase I Environmental Site Assessment in conjunction with developing the sampling plan. Based on the presence of surrounding chromate production waste and contaminated sites throughout the study area, the properties to be acquired may be contaminated and environmental due diligence will be performed in accordance with NJDEP's Technical Requirements for Site Remediation. A New Jersey-Licensed Site Remediation Professional (LSRP) will be retained by the Authority to oversee the management of contamination encountered during the linear construction project. The State's licensing program for LSRP's was established under New Jersey's Site Remediation Reform Act. The LSRP's highest priority is protection of public health and safety and the environment through adherence to NJDEP clean-up standards. Among the requirements and measures to mitigate contamination disturbance during construction of the Proposed Action are the following: o NJDEP Linear Construction Technical Guidance, to ensure that contamination encountered during construction is handled in a manner that is protective of human health, safety, and the environment. o A Materials Handling Plan, to conform to the requirements of Subsection 213.03(b) of the Authority's 2016 Standard Specifications and the construction contractor(s) will be required to comply with applicable federal, state, and local laws, rules, and regulations governing construction projects and will be responsible for the proper management of excavated material. o A dewatering effluent management approach and a Pollution Prevention and Control Plan as specified in Subsection 213.03(c) of the Authority's 2016 Standard Specifications.	retained LSRP to protect the safety of the public, construction workers, and the greater environment from exposure to contaminated materials. Monitoring: The Authority and USEPA have been coordinating on the potentially coinciding timelines of the Newark Bay Bridge Replacement and the Newark Bay Study Area Superfund Site remediation. The Authority and USEPA agreed to continue coordination on the respective projects during development of the Proposed Action's final design. Securing of dewatering permits will occur during final design and be included as part of the construction specifications in the Authority's bid documents. The Materials Handling Plan, Pollution Prevention and Control Plan, SSHASP, and other required plans will be prepared by the Authority's contractors for approval prior to commencing construction.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	o Capping and restoration of chromate-contamination as outlined in the NJDEP's Chromium Guidance Moratorium dated February 8, 2007. o Best Management Practices for in-water work when handling contaminated sediment as specified in the NJDEP's (1997) Dredging Technical Manual. o A site-specific health and safety plan (SSHASP), in accordance with 29 CFR 1910.120 and Hazardous Waste Operations and Emergency Response regulations to define the requirements necessary to protect nearby residents and workers involved in the remedial activities to be conducted within the project limits. The SSHASP will also conform to the requirements of Subsection 213.03(a) of the Authority's 2016 Standard Specifications. o Asbestos, lead-based paint, PCB-containing oil in electrical equipment, and other hazardous materials will be removed in accordance with regulations by NJDEP, New Jersey Department of Community Affairs, and New Jersey Department of Labor, as well as the Federal Occupational Safety and Health Administration, and USEPA.	
12. Potential Effect on Surface Waters During Construction (see detailed discussion in Section 3.11.5). Construction activities such as clearing and grubbing, excavations, and the creation of equipment staging areas could expose and disturb soil, potentially leading to soil erosion. While soil erosion and sediment control measures will be in place, some quantity of soils exposed due to construction and demolition activities would be naturally transported to the surrounding wetlands and waterways via erosion activities (e.g., rainfall and wind).	NJDEP's permitting of the Newark Bay Bridge Replacement on April 3, 2024, includes approval of a Water Quality Certificate pursuant to Section 401 of the Clean Water Act. To avoid and minimize potential soil erosion during construction, erosion and sediment control measures will be implemented to mitigate adverse impacts to erodible soils, which may include a combination of turbidity barriers, silt fences, hay bales, diversion ditches, temporary grading, and vegetative or other protective coverings for exposed soils. In accordance with the Soil Erosion and Sediment Control Act of 1975, as amended (N.J.S.A. 4:24-39 et. seq.), soil erosion and sediment control (SESC) plans will be prepared and implemented. The plans will meet the Standards for Soil	Implementation: Soil erosion and sediment control plans will be developed by the Authority during final design for certification by the Hudson-Essex-Passaic Soil Conservation District. Monitoring: Certified soil erosion and sediment control plans will be incorporated into the bid documents' construction plan sets by the Authority and adherence to the plans by the contractors will be monitored by the Authority's Construction Manager. Coordination by the Authority with the BWAWP will occur during final design on the appropriate authorization type(s) for

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
In-water construction of the temporary construction trestle and new bridge piers, and removal of the trestle and existing bridge piers, could impact water quality via increases in suspended sediments from disturbance of bottom sediments in Newark Bay. Applicable Mitigation Plan: NJDEP Soil Erosion and Sediment Control Plan; and NJDEP Permit requirements.	Erosion and Sediment Control in New Jersey at N.J.A.C. 2:90. Measures to minimize impacts to surface waters from dewatering activities will follow NJDEP's Bureau of Water Allocation and Well Permitting (BWAWP) Construction Related Dewatering Guidance.	dewatering activities to be obtained by the contractors.
13. <u>Potential Effect on Surface Waters Following Completion of Construction</u> (see detailed discussion in Section 3.11.5). The Proposed Action will increase the area of existing paved roadway on the NB-HCE and, when combined with increased traffic volume, will increase the volume of stormwater runoff and pollutant loading in the runoff from these paved surfaces entering Newark Bay and municipal combined sewer systems. Applicable Mitigation Plan: NJDEP Stormwater Management Plans; Operations and Maintenance Plan for Stormwater Management Measures; and NJDEP Stormwater Permit requirements.	NJDEP's permitting of the Newark Bay Bridge Replacement on April 3, 2024, includes approval of a Water Quality Certificate pursuant to Section 401 of the Clean Water Act. To demonstrate compliance with the NJDEP's Stormwater Management Rules (N.J.A.C. 7:8), stormwater management analysis for the Proposed Action has been developed based on analytical procedures and hydrological computations within each HUC-14 watershed to estimate the number, sizes, and locations of stormwater management detention basins for treating stormwater runoff from the NB-HCE. Based on the analysis, the 19 stormwater basins have been located and will be constructed as part of the Proposed Action to intercept and treat stormwater runoff from the roadway to mitigate impacts to surface waters related to the increase in paved surfaces. NJDEP has determined in its permitting of the Newark Bay Bridge replacement that the replacement meets the requirements of the State's Stormwater Management rules at N.J.A.C. 7:8. Following construction, guidance set forth in the New Jersey Stormwater Best Management Practices Manual will be followed to the maximum extent practicable. It is expected that, overall, the Proposed Action will improve the stormwater detention and water quality of NB-HCE runoff over existing conditions due to the presence of the new detention facilities in corridor where none presently exist.	Implementation: NJDEP has determined in its permitting of the Newark Bay Bridge replacement on April 3, 2024, that the replacement meets the requirements of the State's Stormwater Management rules at N.J.A.C. 7:8. Application by the Authority for approval of Stormwater Management Plans for the other portions of the Proposed Action (those outside of the Newark Bay Bridge replacement limits) will occur during final design. Monitoring: The Stormwater Management Plans developed during final design will be incorporated into the bid document construction plan sets by the Authority and adherence to the plans by the contractors will be monitored by the Authority's Construction Manager. Following construction of the detention basins, the Authority will adhere to the operations and maintenance plan for the stormwater management measures incorporated into the design in accordance with N.J.A.C. 7:8-5.8.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
14. <u>Placement of Temporary and Permanent Fill in Wetlands and Subtidal, Intertidal, and Tidal Waters During Construction</u> (see detailed discussion in Section 3.11.5). The Proposed Action will result in the following impacts: o Approximately 3.808 acres of permanent impacts and 10.374 acres of temporary impact to tidal waters within Newark Bay. o Approximately 2.045 acres of permanent impact and 5.449 acres of temporary impact on intertidal and sub-tidal shallow areas of Newark Bay. o Approximately 9.118 acres of permanent impact to freshwater wetlands and 3.910 acres of permanent freshwater (New Jersey-regulated) transition area impact, and approximately 10.460 acres of temporary freshwater wetland impact and 4.062 acres of temporary transition area impact. o Permanently impact approximately 5.5 acres and temporarily impact approximately 3.0 acres of New Jersey-regulated riparian zones. Applicable Mitigation Plan: Wetlands and Riparian Zone Mitigation Plans; and NJDEP Permit requirements.	By permit dated April 3, 2024, NJDEP has authorized the Newark Bay Bridge Replacement under and in conditional compliance with the applicable Coastal Zone Management Rules (N.J.A.C. 7:7-1.1 et seq.) as amended through October 5, 2021, the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1.1 et seq) as amended through November 7, 2022, and the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-1.1 et seq.) as amended through July 17, 2023. Wetlands temporarily disturbed during construction will be restored to their original grade and planted with indigenous wetland vegetation. Mitigation of impacts to wetlands, subtidal, intertidal, and tidal waters will likely include the purchase credits from approved mitigation banks but could also include permittee-(Authority-) provided restoration, creation, and/or preservation of wetland habitats. The use of a mitigation bank would be accomplished through the purchase of credits in a bank that has established similar or higher wetland values and functions as the area disturbed by the Proposed Action, including similar wildlife habitat, similar vegetative species coverage, and density, equivalent flood water storage capacity, and equivalency of other relevant values or functions. Finally, mitigation could be provided via in lieu payment into the NJDEP Wetlands Mitigation Fund. Specifically, for the portion of the Proposed Action involving the replacement of the Newark Bay Bridge, the Authority will develop plans to accomplish the following: o Mitigate for the disturbance of 9.156 acres of herbaceous wetlands through an on- site or off-site creation, restoration, or enhancement project or with the purchase of credits from a mitigation bank serving the appropriate watershed management area in accordance with the mitigation hierarchy (N.J.A.C. 7:7A-11 et seq).	Implementation: Prior to construction, the Authority will submit mitigation proposals for herbaceous wetlands, intertidal and subtidal shallows, tidal water, and riparian zone vegetation to NJDEP for review and approval. Construction in these regulated areas will not begin until the Authority has obtained written approval of mitigation plans from NJDEP. Application by the Authority for approval of activities under the Freshwater Protection Act Rules for the other portions of the Proposed Action (those outside of the Newark Bay Bridge replacement limits) will occur during final design of those portions (portions of the Proposed Action outside the Newark Bay Bridge replacement limits are outside the coastal zone and waters of the U.S.). Monitoring: The Authority will be responsible for ensuring that all mitigation for permanent disturbances will be conducted prior to or concurrent with the construction of the Proposed Action and that all mitigation for temporary disturbances shall be conducted immediately following completion of the activity that caused the disturbance. Temporary disturbances in-water would be restored upon removal, as tidal waters will refill trestle and cofferdam sheet pile areas. Trestle and cofferdam sheet pile areas, and construction access routes located in estuarine or freshwater marshes will be regraded to original elevations and re-planted

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	o Mitigate for the loss of 2.045 acres of intertidal and subtidal shallows and 3.808 acres of tidal water (N.J.A.C. 7:7-17.13). o Mitigate the disturbance of 4.358 acres of herbaceous riparian zone vegetation in accordance with the standards at N.J.A.C. 7:13-13.	or seeded, as detailed on the approved NJDEP Freshwater Wetland/Waterfront Development Restoration Plans. Restored grades will be reflected in as-built drawings and re-vegetated wetland areas will be revisited during the first growing season following construction to determine the success of the replanting and seeding. Adaptive management may include herbicide treatment of invasive species and/or spot re-seeding and replanting as needed to ensure the restored areas return to their intended condition.
15. <u>Potential Effect from the Placement of Fill in the Floodplain</u> (see detailed discussion in Section 3.11.5). The Proposed Action would require construction within the 100- and 500-year floodplains of Newark Bay. Bridge piers and towers would be constructed in the floodplains and the placement of these structures would displace some floodplain volume. However, the existing and proposed NB-HCE structure is above the floodplain except for the piers and abutments that are located within the floodplain. Given the minor modifications to the floodplain that would result from the Proposed Action, and its location within a tidal waterbody, adverse impacts to the floodplain or flooding of areas adjacent to the study area are not expected. Applicable Mitigation Plan: Construction Plan sets; and NJDEP Permit requirements.	In its permitting of the Newark Bay Bridge Replacement, NJDEP has authorized under and in conditional compliance with the applicable Coastal Zone Management Rules (N.J.A.C. 7:7-1.1 et seq.) as amended through October 5, 2021, the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1.1 et seq) as amended through November 7, 2022, and the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13-1.1 et seq.) as amended through July 17, 2023.	Implementation: The Federal Emergency Management Agency requires communities to review and permit all proposed construction or other development within their Special Flood Hazard Area (SFHA) to participate in the National Flood Insurance Program (NFIP). The local Floodplain Administrators have responsibility to ensure all development occurring within their community's SFHA is compliant with the local Flood Damage Prevention Ordinance, and minimum NFIP standards, regardless of any state-issued permits. Monitoring: The Authority will coordinate with local Floodplain Administrators during the final design to ensure that all elements adhere to the NFIP and Flood Hazard Area requirements. Measures to mitigate any identified floodplain impacts will be included by the Authority in bid documents.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
16. <u>Potential Effect of In-Water Construction on Fishes and Fish Habitat</u> (see detailed discussion in Section 3.11.5). Direct impacts to Newark Bay, which comprises potential habitat for the Endangered Species Act (ESA)-listed endangered Atlantic sturgeon and shortnose sturgeon, would occur during construction of the temporary construction trestle and bridge support structures, and during demolition of the existing Newark Bay Bridge. While Newark Bay is not within a migration path to spawning grounds for Atlantic sturgeon and shortnose sturgeon, adult Atlantic sturgeon could occur near the bridge. The Proposed Action would introduce sound into the water and potentially impact adult Atlantic sturgeon. Injurious levels of underwater noise for sturgeon or underwater noise levels that may affect sturgeon behavior would only occur very near the source. Vessel traffic associated with bridge construction and demolition could increase the risk of vessel strikes with Atlantic and shortnose sturgeon. The Newark Bay Bridge also intersects Essential Fish Habitat within Newark Bay for 11 fish species/management units and one Habitat Area of Particular Concern (HAPC), the Mid-Atlantic HAPC for summer flounder. Applicable Mitigation Plan: Protection Plan for Anadromous Fish Species and Winter Flounder Specifications; and NJDEP Permit requirements.	To protect anadromous species spawning runs within the Newark Bay and associated tributaries, a timing restriction from March 1 through June 30 will be employed for any in-water disturbance, sediment generating activities and pile driving activities. A separate timing restriction of January 1 through May 31 will be observed to protect Winter Flounder species during migration and spawning in the area. This Winter Flounder species timing restriction period will be applied to tidal waters ranging from near-shore (sub-tidal) to 20-foot depths, in low to moderate tidal velocity areas, and in waters averaging between 10 - 32 parts per thousand salinities. Measures will also be used during construction for activities outside Newark Bay to prevent the introduction of sediment into the Bay and/or increase its turbidity. In its permitting of the Newark Bay Bridge Replacement, NJDEP has authorized the Authority to conduct pile driving installation for trestle construction during the above referenced timing restriction period, by allowing for the use of bubble curtains, both with and without external confinement casings, provided that the contractor uses best management practices, as applicable, including use of noise attenuation and minimization measures during piles driving, such as: o Driving piles in the dry or during low water conditions for intertidal areas. o Use of vibratory hammers and construction phasing to minimize acoustic impacts. o Driving piles as deep as possible with a vibratory hammer prior to using an impact hammer. o Minimizing the number and size of temporary and permanent piles. o Limiting pile driving activities to no more than 12 hours per day. o Providing a 12-hour quiet (recovery) period between pile driving days. o Use of “soft start” or “ramping up” pile driving (e.g., driving does not begin at 100% energy).	Implementation: Prior to construction, the Authority will prepare for review by NJDEP a project schedule and plan describing how the installation methods avoid or minimize noise during sensitive life stages (migration and spawning) of ESA-listed species, federally managed species, and other National Oceanic and Atmospheric Administration (NOAA)-trust resources such as anadromous fish. The Authority will coordinate with USCG on Section 7 ESA consultation with NOAA National Marine Fisheries Service prior to construction regarding the assessment of potential effects on the Federally endangered fish species and any additional measures to protect the species during construction. Following coordination with NJDEP on the project schedule and plan, the provisions of the plan and schedule will be incorporated by the Authority as specifications in construction bid documents and the Authority’s construction manager will monitor contractor compliance with the provisions. Sheetpile cofferdams, sediment control structures, and other water isolation measures will be installed between July 1 and December 31 (outside of the January 1 through June 30 timing restriction). The main bridge tower foundations will be founded on drilled shafts supporting large concrete footing caps. Deeper water approach piers will consist of drilled shafts supporting waterline footings, and where the water depths are shallow the approach piers may consist of drilled shafts directly supporting

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
	o Use of cushion blocks when using an impact hammer. o Using drilled shafts instead of hammered piles where appropriate. Implementation of these and other measures will serve to minimize potential impacts on the endangered fish species and Essential Fish Habitat.	the pier columns. All drilled shafts will include steel casings driven into the top of weathered rock, soil removed via auger, and concrete filled. Cofferdams or bubble curtains may be used for drilled shaft construction depending on the concrete cap footings. Concrete cap footings may be constructed within cofferdams or using precast or preformed forms supported by the drilled shafts (no traditional cofferdams). The precast or preformed technique may be preferred where poor soils or deeper water depths exist. During timing restrictions, the drilled shafts for the bridge foundations will be advanced inwater with bubble curtains and turbidity barriers to minimize sediment resuspension and reduce impacts on the aquatic community. Where needed, steel sheetpile cofferdams will be installed outside of timing restrictions using vibratory pile driving to minimize the intensity of resulting shock waves. Bridge footing cap construction will take place within the cofferdams or precast or preformed forms to mitigate impacts to aquatic life. All other in-water construction work activities that will be conducted during the timing restriction period will be completed within sediment control structures. The demolition work will require removing existing piers down to at least two (2) feet below the mud line. All demolition work will occur behind the installed turbidity barriers, sheetpile cofferdams, and other sediment control structures.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
17. Potential Effect of Construction on Terrestrial Wildlife and Their Habitat (see detailed discussion in Section 3.11.5). Several Birds of Conservation Concern and state-listed endangered, threatened, and special-concern species could occur in the study area, including the bald eagle, black-crowned night-heron, cattle egret, glossy ibis, least tern, little blue heron, osprey, peregrine falcon, snowy egret, tricolored heron, and yellow-crowned night-heron. In 2021, a state-endangered peregrine falcon nest was documented on the Newark Bay Bridge. Construction and demolition activities may affect species that are habituated to only lower levels of baseline disturbance and some species could potentially be temporarily displaced or otherwise adversely affected. The birds with the most potential to be affected are those that would occur in closest proximity to the areas of construction, such as peregrine falcons that nest on the bridge, and waterbirds that forage in Newark Bay. Applicable Mitigation Plan: NJDEP Permit requirements; Peregrine Falcon Impact and Avoidance Plan; Migratory Bird Monitoring Plan; and Specifications.	Measures will be undertaken to protect Peregrine Falcon nesting habitat during construction. These measures, which will be included in an impact avoidance proposal, include installation of a replacement nest structure on Block 5078, Lot 91 and the City of Newark near the Newark Bay Bridge in accordance with specifications detailed by NJDEP in its permit for the Newark Bay Bridge replacement. Exclusionary measures will also be implemented prior to construction to discourage Peregrine Falcons from occupying the original nest location in the arch of the bridge and in the area of the placed nest box on the bridge. These measures will include cleaning (pressure blowing) debris from horizontal surfaces on the bridge substructure and placing exclusionary netting over the previous nesting locations as well as other areas of the bridge that may provide preferred nest locations.	Implementation: The Authority has submitted a Peregrine Falcon impact avoidance plan to NJDEP for review. The plan includes a detailed work schedule regarding measures to exclude Peregrine Falcon from nesting on the Newark Bay Bridge and construction of the alternate nest structure. The provisions of the approved plan will be incorporated by the Authority as specifications in construction bid documents and the Authority's construction manager will monitor contractor compliance with the provisions. Monitoring: The Authority will engage a qualified wildlife biologist, with sufficient knowledge of and experience with avian species, and particularly Peregrine Falcon behavior, to monitor the project area from March 1 through July 31 of the given calendar year. The wildlife biologist will document Peregrine Falcon usage of the newly installed nest structure and continued use of the bridge proposed for demolition. All State-listed (endangered, threatened, special concern) species observed must be reported by the Authority to the NJDEP, Division of Fish and Wildlife, Endangered and Nongame Species Program. The Authority will detail all efforts to exclude Peregrine Falcon from using the Newark Bay Bridge prior to construction as well as efforts to discourage Peregrine Falcon from nesting on the newly constructed Newark Bay Bridge.

Potential Impact of the Proposed Action to be Mitigated and Applicable Plan/Permit/Agency	Description of the Mitigation	Mitigation Implementation and Monitoring
		Where milkweed (Asclepias spp.) is present and proposed for removal, it will be removed between October 1 and April 30 outside of the active season for monarchs in New Jersey. Temporarily disturbed areas will be revegetated post-construction. Regarding bats, the Authority will implement appropriate avoidance and minimization measures to include avoiding the removal or trimming of any tree that provides suitable roosting substrate within the project limits between October 1 and March 31. All upland, freshwater wetland, and tidal marsh vegetation would be removed outside of the breeding window for migratory bird species in New Jersey (March 15 through September 15). In addition, the Authority will prepare a Migratory Bird Monitoring Plan to be implemented during construction.

Summary of Required Permits and Approvals

Various permits and approvals will be required to implement the Proposed Action. Decisions on applications for federal permits are subject to review under NEPA to ensure that federal agencies consider the environmental impacts of their actions in the decision-making process. In addition to review of the applications for federal permits and review of the Proposed Action under NEPA, several other regulatory requirements must be met before the federal permits are issued. For the most part, applications for the state and local permits required to implement the Proposed Action will be made by the Authority after the federal permits are issued and the NEPA process is completed. A summary of all required permits and approvals is provided below. Additional detail is provided in Section 4 of this Environmental Assessment.

Applicable Permits and Approvals Required by Federal Laws and Regulations

- Bridge Permit – USCG
- Section 404 Permit – USACE (application submitted on April 20, 2023)
- Section 408 Permission – USACE (application submitted on January 25, 2024)
- National Environmental Policy Act – USCG
- Section 401 Water Quality Certification – NJDEP (issued on April 3, 2024)
- Section 307 Coastal Zone Consistency Determination – NJDEP (issued on April 3, 2024)
- Section 106 of the National Historic Preservation Act – USCG
- Section 7 Endangered Species Act Consultation – NMFS (completed October 17, 2024) and USFWS
- Protection of Wetlands (Executive Order 11990) – USCG
- Floodplain Management (Executive Order 11988) - USCG
- Part 77 Determination - FAA (issued on July 24, 2023)

Applicable Permits and Approvals Required under State Laws and Regulations

The Authority submitted a Permit Readiness Checklist to NJDEP's Office of Permitting and Project Navigation (OPPN) on April 16, 2021, for the NB-HCE Program. OPPN's reply on May 14, 2021, described the following anticipated permits, approvals, and other NJDEP requirements:

- Executive Order No. 215 – NJDEP (review completed May 22, 2023)
- Land Resource Protection Permits – NJDEP (issued for activities related to replacement of the Newark Bay Bridge on April 3, 2024; application for activities outside of Newark Bay Bridge replacement will be made in the future during final design)
- Fish and Wildlife Coordination – NJDEP (conducted during Executive Order No. 215 review and permit application review; will continue during final design and construction)
- Freshwater Wetlands Letter of Interpretation – NJDEP (issued on May 22, 2023)
- Stormwater Management – NJDEP (issued for activities related to replacement of the Newark Bay Bridge on April 3, 2024)
- Historic and Cultural Resources – NJHPO (conducted during Executive Order No. 215 review and permit application review; will continue during final design and construction)
- New Jersey Register Review – NJHPO (The HPO determined on May 28, 2024 that the NB-HCE Project is in conformance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* and the *Standards and Guidelines for Archeology and Historic Preservation* and, therefore, the project will not constitute an encroachment upon the Morris Canal which is listed on the New Jersey Register of Historic Places).
- Tidelands License – NJDEP
- State Owned Lands – NJDEP
- Linear Construction Project – NJDEP

- Soil Erosion and Sediment Control – Hudson-Essex and Passaic Soil Conservation District and NJDEP
- Surface Water General Permit – NJDEP.

Public and Agency Coordination

The Authority has coordinated with numerous agency and public stakeholders throughout the concept plan and preliminary engineering development and environmental review phases of the project. In some cases, the Authority met on a recurring basis with certain agencies or stakeholders. The following list identifies those agencies or stakeholders with which the Authority coordinated:

- USCG (lead Federal agency)
- USACE (cooperating agency)
- U.S. Environmental Protection Agency (cooperating agency)
- National Marine Fisheries Service (cooperating agency)
- U.S. Fish and Wildlife Service (participating agency)
- NJDEP
- NJHPO
- New Jersey Department of Transportation
- New Jersey Transit
- Port Authority of New York and New Jersey
- The Maritime Association of the Port of New York – New Jersey: Harbor Safety, Navigation, and Operations (Harbor Ops) Committee
- Essex County
- Hudson County
- City of Jersey City
- City of Bayonne
- City of Newark
- Ironbound Community Corporation
- Hudson County Complete Streets
- Regional Plan Association
- I Love Greenville
- Empower New Jersey
- New Jersey Future
- Newark Affirmative Action Review Council
- South Ward Environmental Alliance
- Essex County Building Trades
- Hudson County Central Labor Council
- Hudson County Building Trades
- Associated Construction Contractors of New Jersey
- Utility &Transportation Contractors Association
- CMA CGM (tenant operator of Port Jersey Port Authority Marine Terminal)
- Global Container Terminal (former tenant of Port Jersey PAMT)
- Conrail
- PSE&G
- Colonial Pipeline, Inc.

In addition to coordination with these entities, the Authority conducted public information centers in Newark (February 27, 2024), Bayonne (May 28, 2024), and Jersey City (July 9, 2024), with a combined attendance of approximately 500 people.

1 Purpose and Need for the Action

1.1 Introduction

The New Jersey Turnpike Authority (Authority) proposes a modernization of the Newark Bay-Hudson County Extension (NB-HCE) between Interchange 14 in Newark, Essex County, and Interchange 14A in Bayonne and Jersey City, Hudson County, to meet current and future needs of patrons of the NB-HCE, current design standards, and the Authority's operational and maintenance needs (the "Proposed Action"). A major element of the Proposed Action is the replacement of Newark Bay Bridge (NBB), officially, the Vincent R. Casciano Memorial Bridge, which comprises nearly half of the total length of the NB-HCE between Interchanges 14 and 14A. Approval of the location and plans for the NBB replacement is needed through a bridge permit from the U.S. Coast Guard (USCG) pursuant to the General Bridge Act of 1946, as amended (the location and plans of the existing bridge were approved in 1952 and 1953).

The Authority has applied for a bridge permit from USCG and for other permits and approvals that are required for the Proposed Action to be constructed. The Authority has prepared this Environmental Assessment for USCG review in support of USCG decision-making on the bridge permit application. USCG's bridge permit decision is subject to requirements of the National Environmental Policy Act of 1969 (NEPA), as amended, and related USCG policies and procedures, including USCG Environmental Planning Implementing Procedures Office of Environmental Management (CG-47) (February 21, 2020).

The Proposed Action is described in Section 2.2. This section of the Environmental Assessment explains the purpose and need for the Proposed Action, setting out the essential requirements that must be satisfied.

1.2 Background

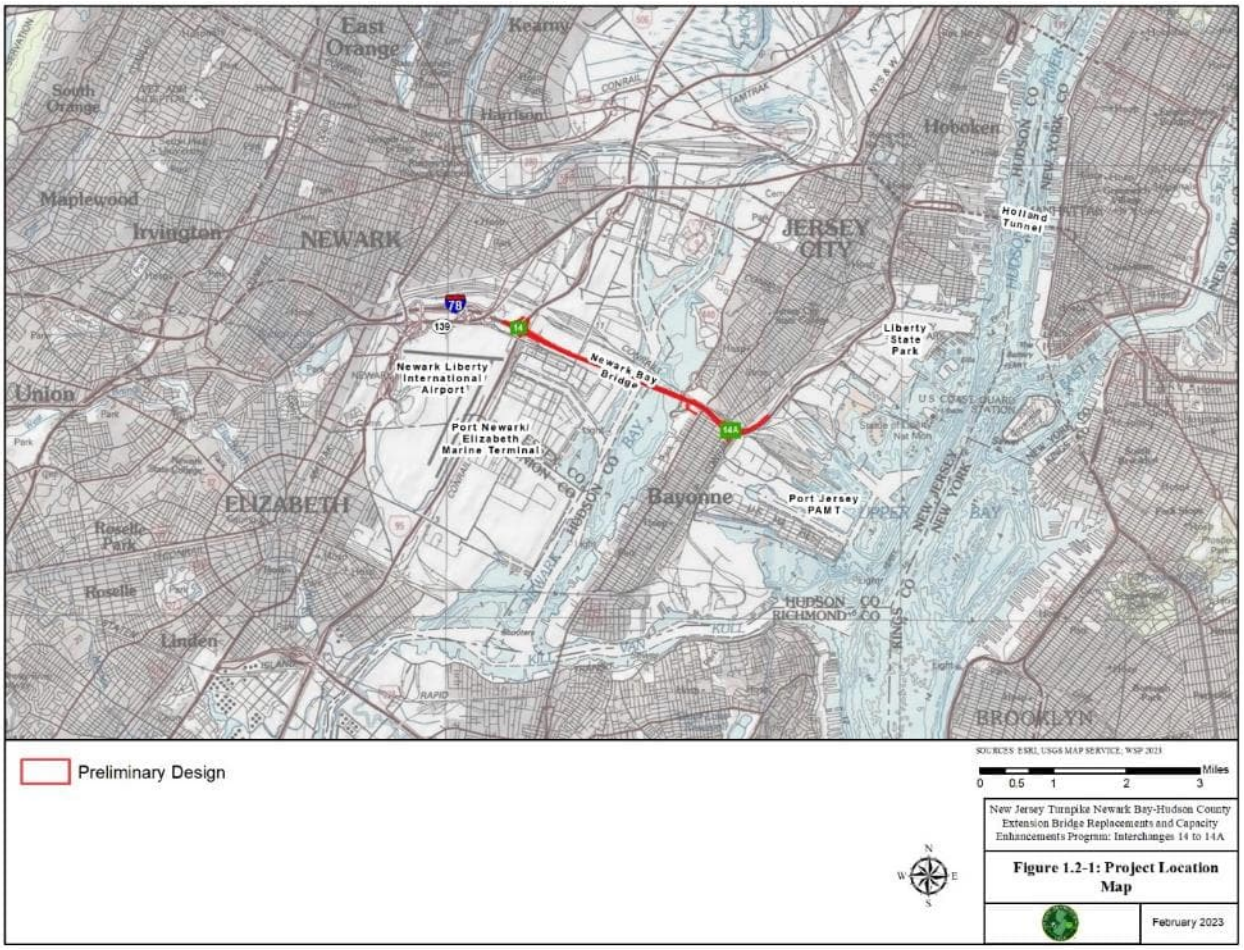
1.2.1 Newark Bay-Hudson County Extension and the Regional Context

The New Jersey (NJ) Turnpike was the first modern toll road in New Jersey and the third in the nation when it opened in 1951. The 8.1-mile-long NB-HCE was added to the NJ Turnpike system in 1956.

The NB-HCE consists of two travel lanes in each direction from Interchange 14 in Newark (milepost N0.0) to its eastern terminus at Jersey Avenue in Jersey City, Hudson County (milepost N8.1). The location, limits, and route of the NB-HCE are shown in Figure 1.2-1. The NB-HCE forms a portion of Interstate Route 78 (I-78) which has its western terminus at I-81 northeast of Harrisburg, Pennsylvania, and its eastern terminus at the New York portal of the Holland Tunnel in Lower Manhattan. At the Jersey Avenue NB-HCE terminus, I-78 merges with NJ Route 139 to form the Port Authority of New York and New Jersey's (PANYNJ's) approach roadways to and from the Holland Tunnel under the Hudson River connecting Hudson County and New York County in New York.

The NB-HCE provides access between Newark in Essex County, the NJ Turnpike's mainline (I-95) at I-78 west at Turnpike Interchange 14, and Bayonne and Jersey City in Hudson County. The NB-HCE serves facilities of national, regional, statewide, and local importance, including Newark Liberty International Airport (EWR) and Port Newark-Elizabeth Marine Terminal (Interchange 14), the Port Jersey Port Authority Marine Terminal (Port Jersey PAMT) (Interchange 14A, milepost N3.5), Liberty State Park and Statue of Liberty National Monument (Interchange 14B, milepost N5.5), Liberty Science Center and Hudson-Bergen Light Rail Park-Ride (Interchange 14C, milepost N5.9), and New York City via the Holland Tunnel (at Jersey Avenue). The Port of New York and New Jersey), of which the Port Newark-Elizabeth and Port Jersey PAMT are major components, is the second largest port in the United States based on cargo volume, and EWR is the nation's fifteenth busiest airport by passenger volume (Burnson 2021).

Figure 1.2-1. Project Location Map



The NB-HCE is part of the National Highway System (NHS) which was established by National Highway System Designation Act of 1995 and approved by Congress. As such, the NB-HCE is part of the network of nationally significant highways that are important to the nation's economy, defense, and mobility. With the Moving Ahead for Progress in the 21st Century Act of 2012, the scope and extent of the NHS was modified to create the Strategic Highway Network (STRAHNET) of highways critical to the Department of Defense's domestic operations. The STRAHNET is a system of roads deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S. military operations. The NB-HCE is part of the STRAHNET, and the portion of NJ Route 440 between Prospect Avenue/Port Terminal Road and Interchange 14A is designated as a STRAHNET connector.

The NB-HCE is also designated as a Coastal Evacuation Route by the New Jersey Office of Emergency Management.

1.2.2 NJ Turnpike Authority Strategic Plan and Long-Range Capital Plan

The Authority adopted a Long-Range Capital Plan in May 2020 that includes capacity enhancements to the NB-HCE between Interchanges 14 and 14A and Interchanges 14A and 14C, and reconstruction of the NB-HCE between Interchange 14C and Jersey Avenue. The Long-Range Capital Plan is an outgrowth of the Authority's Strategic Plan, adopted in January 2020. During the development of the Strategic Plan, specific goals were identified for each of five major categories – safety, finance, mobility, state of good repair, and

people – of which safety, mobility, and state of good repair relate directly to the development of the NB-HCE Program.

With respect to safety, the Strategic Plan notes:

Safety of our customers, employees, and contractors has always been and will continue to be a priority of the Authority. We provide our customers with safe roadways by maintaining our infrastructure and implementing emerging safety technologies. We also deliver our customers safe passage through work zones and offer service areas to rest along their journeys.

The mobility goal of the Strategic Plan is summarized as follows:

A primary goal of the Authority is to provide mobility, that is, a safe and efficient roadway system to allow people and goods to travel from one location to another. Maintaining and improving mobility is directly related to the Authority's core values of customer satisfaction, innovation, and resiliency and sustainability.

One specific initiative of mobility in the Strategic Plan is vehicle throughput. The initiative identifies and implements solutions to relieve high congestion areas at toll collection points, ramps, and mainline sections.

As for state of good repair, the Strategic Plan notes:

As a foundation of safety, resiliency and sustainability, and customer satisfaction, the Authority strives to maintain a state of good repair for all of our assets. A state of good repair means that existing assets are functioning as designed and are sustained through preventive maintenance and replacement programs. Maintaining a state of good repair will increase the useful life of Authority assets, result in cost savings over time, and is vital to customer safety.

The intent of this goal is to maintain a state of good repair for the Authority's bridges using both timely preservation methods for bridges in poor condition, and the replacement of those determined to be at or near the ends of their service lives. This goal provides for the continued safety and well-being of the customers. In addition, the Authority endeavors to maintain its drainage infrastructure to properly route water. This increases resiliency, prevents damage to infrastructure, and allows continued use of the roadways during storm events.

1.2.3 New Jersey Turnpike Authority Design Manual

The Authority publishes and periodically updates its *Design Manual* (NJTA, 2020) with current, uniform procedures and guidelines for the application and design of safe, convenient, and efficient roadways. The Design Manual contains current, uniform criteria and guidelines to be used in the performance of work on Authority projects.

The Authority updated its Design Manual in 2020 to reflect current industry design specification guidance and practice, including requirements related to bridge service life design. These updates included the following service life goals to reflect the Authority's objectives for bridge durability:

- Comprehensive Bridge Rehabilitation: Such projects generally are intended to extend the service life of a bridge for an additional 60 to 75 years.

- New Major Bridge: Major Bridges, such as the Newark Bay Bridge, are designed for a 150-year overall service life.

There has been much improvement in the material science and engineering for the construction of new bridges and the rehabilitation of existing bridges since the design and construction of the existing Newark Bay Bridge and other NB-HCE bridges. These improvements are reflected in the Authority's and other transportation agencies' goals to attain increased service life expectations of their new bridge construction and bridge rehabilitation projects.

1.3 Purpose of the Proposed Action

The purpose of the Proposed Action is as follows:

- Improve the long-term integrity of the structures on the NB-HCE between Interchanges 14 and 14A to maintain the structures in a state of good repair over a minimum 100-year service life to a goal of a 150-year service life by resolving the factors contributing to the deterioration of the structures and in so doing minimizing the frequency of disruptions to the roadway's users from maintenance and repair.
- Improve mobility between Interchanges 14 and 14A by attaining level-of-service (LOS) D or better traffic flow quality and in so doing enhance access to communities, businesses, and multimodal facilities served by the NB-HCE near the interchanges, while safely and efficiently accommodating growing vehicular demand on this portion of the NB-HCE into the foreseeable future.

These purposes are consistent with goals of the Authority's *Strategic Plan*.

1.4 Underlying Transportation Problems and Needs

As described more fully below, traffic growth and substantial port-related heavy vehicle/truck activity have degraded operating conditions in the corridor and have contributed to the current poor physical conditions of the NB-HCE's roadway pavement and bridges, leading to development of a Proposed Action that addresses the associated state of good repair and mobility needs, while addressing substandard roadway and structural features. The North Jersey Transportation Planning Authority (NJTPA) Long-Range Plan ("Plan 2050", NJTPA 2021a) addresses multiple projects for mass transportation and roadway improvements. The Proposed Action is necessary even with all of the other planned and programmed investments in mass transportation to handle projected increases in vehicular trips and other freight-based trips associated with regional port activity.

1.4.1 Need to Address the Integrity of Roadway and Structures

Over 80 percent of the NB-HCE roadway between Interchanges 14 and 14A is on bridge structures, all of which are approaching or at the end of their design service lives. The NBB is the main feature of the NB-HCE between Interchanges 14 and 14A. Approximately 1.85 miles long and comprising the main bay span and the west and east approaches, the bridge itself encompasses nearly half of the approximately 4-mile NB-HCE length between Interchanges 14 and 14A.

The main span of the NBB is a through tied arch. As such it has two major load carrying members known as tie-chords. These tie-chords are non-redundant tension members that are designated as Fracture Critical Members (FCMs) and, as is typical with a bridge of this age, have experienced a degree of deterioration. Structural redundancy is required for the long-term serviceability and resiliency of new bridges and highly desired in rehabilitation schemes for existing bridges. There is no economically feasible way to retrofit the existing NBB to provide long-term full-service structural redundancy. Therefore, full replacement is required to remedy the current FCM status of the bridge.

Most of the NB-HCE structures were constructed circa 1955, putting the typical structure's age at 67 years; 75 years is the generally accepted anticipated useful life of bridges constructed in the 1950s. The structures were designed to 1949 American Association of State Highway Officials Standard Specifications for Highway Bridges, which primarily used riveted steel member superstructures and cast-in-place concrete substructures supported on steel H-piles and timber piles. Most of the structures do not meet current truck live loading capacity or seismic (earthquake event-related) standards.

The NBB has experienced nearly 70 years of fatigue-inducing dynamic live load stresses on steel members, typical of any structure of that age. Current and future live loading substantially exceeds the original design

loads both in magnitude and frequency. As a result, future fatigue cracks in critical structural members are inevitable.

The NB-HCE structures require regular, extensive, and costly maintenance and rehabilitation, which necessitate complicated traffic control and protection measures and cause substantial delays and inconvenience to motorists. Recently, the Authority has realized an increase in the required repairs for the existing structures resulting in a nearly constant state of construction, which is anticipated to continue for the foreseeable future. In addition, the Authority has experienced emergency repairs of the existing structures necessitating the temporary closure of the roadway until repairs could be completed.

1.4.2 Need to Reduce Congestion

There has been long-term overall growth in traffic using the NB-HCE since its opening in 1956 despite periodic disruptions to roadway usage such as the 1970s oil crisis, 1990 and 2008 recessions, traffic diversions to NB-HCE from the 2014 to 2018 Pulaski Skyway Reconstruction, and recoveries from 9/11, Superstorm Sandy, and the COVID pandemic. The increase in traffic volumes on the NB-HCE between Interchanges 14 and 14A in two recent years are largely outside a "disruption period," which is reflected by the differences in 2013 (pre-Pulaski Skyway Reconstruction) and 2019 (post-Pulaski Skyway reconstruction and pre-COVID) traffic volumes. In terms of two-way annual traffic volumes, the 2013 volume was 28,111,653 and the 2019 volume was 33,994,191; this is a 20.9 percent increase. While these data points do not represent a trend, they are indicative of increasing travel demand between Interchanges 14 and 14A during a period of economic growth.

The traffic growth on the NB-HCE is attributed to various factors, including the following[4]:

- Population and employment growth in the region.
- A general increase in automobile ownership and usage over time.
- Transformation of large portions of the Jersey City and Hoboken waterfront from port and railroad uses into densely developed commercial, retail, and residential uses.
- The increase in the movement of goods through the ports served by the roadway, including the repurposing of the former Military Ocean Terminal at Bayonne into Port Jersey South and the Global Container Terminal.
- The increase in online merchant deliveries to homes and businesses, among other factors.

Jersey City has experienced strong population growth since 1980, turning around 50 years of population decline. Between 2010 and 2020 alone, Jersey City's population grew 18.1 percent, while Jersey City employment grew 23.4 percent. The Jersey City waterfront business district has seen substantial growth since 1980, transforming the district into "Wall Street West." Strong population and employment growth in the cities served by the NB-

[4] The Purpose and Need for the Proposed Action, as well as relevant traffic and environmental studies to assess the impact of the Proposed Action, were completed before Manhattan Central Business District Tolling (also known as "Congestion Pricing") had been initiated. Beginning on January 5, 2025, vehicles entering Manhattan below 60th Street were charged a fee. While implementation of Congestion Pricing will likely result in changes in travel patterns, the Purpose and Need for the Proposed Action remains unchanged. It continues to be focused on safety and the needs of vehicles traveling between Interchange 14 and Interchange 14A. Nearly 80% of the eastbound traffic using the NB-HCE is destined for Jersey City (56%), Bayonne (17%), and other parts of Hudson County (6%), not the Holland Tunnel. Thus, implementation of Congestion Pricing will not affect the Purpose and Need for the Proposed Action, and would only have negligible impacts associated with the Proposed Action. The Metropolitan Transportation Authority (MTA) prepared a NEPA EA for the Manhattan Central Business District Tolling program. That NEPA EA, approved by the Federal Highway Administration in 2023, indicated no significant impact to the NB-HCE as a result of the proposed tolling program.

HCE, and associated travel demand growth, is expected to continue to the current regional planning forecast year, 2050, as shown in Table 1.4-1.

Table 1.4-1. NB-HCE Cities' Projected Population and Employment Growth: 2020-2050

	Population Projections			Employment Projections		
City	2020	2050	Compound Average Growth Rate	2020	2050	Compound Average Growth Rate
Bayonne	66,655	74,750	0.3%	18,022	22,999	0.7%
Hoboken	53,488	58,282	0.2%	23,261	27,503	0.5%
Jersey City	274,752	387,098	1.0%	130,425	165,144	0.7%
Newark	289,500	334,773	0.4%	159,745	183,214	0.4%
Four-City Total	684,395	854,903	0.6%	331,452	398,860	0.5%

Source: NJTPA 2021b

During the 2020-to-2050-time frame, Jersey City's population is expected to grow at a robust 1.0 percent annual rate. Jersey City's employment is also projected to experience strong growth at a 0.7 percent annual rate. Meanwhile, Bayonne's employment growth rate is projected to match that of Jersey City's, driven in large part by port and intermodal employment growth from the expected expansion of Port Jersey PAMT near Interchange 14A in Bayonne and Jersey City along the New York Upper Bay waterfront, as described in the PANYNJ 2050 Port Master Plan (PANYNJ 2019).

The chief measure of freeway operational quality is Level of Service (LOS), which is categorized as follows:

- LOS A - Free-flow operation.
- LOS B - Reasonably free flow.
  - Ability to maneuver is only slightly restricted.
  - Effects of minor incidents still reasonably absorbed.
- LOS C - Speeds at or near free-flow speeds.
  - Freedom to maneuver is noticeably restricted.
  - Queues may form behind any significant blockage.
- LOS D - Speeds decline slightly with increasing flows.
  - Density increases more quickly.
  - Freedom to maneuver is more noticeably limited.
  - Minor incidents create queuing.
- LOS E - Operations at or near capacity.
  - No useable gaps in the traffic stream.
  - Operations extremely volatile.
  - Any disruption causes queuing.
- LOS F - Breakdown in flow.
  - Queues form behind breakdown points.
  - Demand exceeds capacity.

LOS D is the Authority's desired operational quality of service for such urbanized sections of the NJ Turnpike system as the NB-HCE.

As shown in Table 1.4-2, existing (2021) roadway traffic volumes exceed the roadway's capacity, causing LOS F traffic flow conditions during the peak hour in both directions, except for the PM peak westbound direction where volumes are only slightly below the roadway's capacity (LOS E).

Table 1.4-2. 2021 (Base Year) and 2050 No Action Travel Conditions between Interchanges 14 and 14A

	AM Peak Hour Traffic Flow			PM Peak Hour Traffic Flow		
	Traffic Volume	Volume/Capacity Ratio	Level of Service	Traffic Volume	Volume/Capacity Ratio	Level of Service
2021 Existing						
Eastbound	4,533	1.31	F	3,852	1.04	F
Westbound	3,640	1.04	F	3,569	0.97	E
2050 No Action						
Eastbound	4,909	1.41	F	4,172	1.13	F
Westbound	3,942	1.10	F	3,866	1.06	F

Source: WSP 2022

Traffic flow on the NB-HCE will only worsen in future years as travel demand grows. Without additional roadway capacity between Interchanges 14 and 14A, LOS on the NB-HCE will further deteriorate from already congested conditions.

In addition, while there are alternate routes to the NB-HCE for vehicles traveling between areas served by Interchange 14 and Interchange 14A and other destinations served by the NB-HCE, these routes have limitations. U.S. Route 1/9 provides a connection between Newark and Jersey City via two paths: the Pulaski Skyway and U.S. Route 1/9 Truck. Trucks have been barred from the Pulaski Skyway since 1934. U.S. Route 1/9 design is considered functionally obsolete for an expressway; for example, the roadway has no shoulders, making it subject to frequent traffic congestion. U.S. Route 1/9 Truck begins at Raymond Boulevard in Newark, crosses over the Passaic and Hackensack Rivers on moveable lift bridges and reconnects with U.S. Route 1/9 north of the Tonnele Circle in Jersey City before NJ Route 139 carries traffic from the end of the Pulaski Skyway and the Tonnele Circle to a junction with the NB-HCE at Jersey Avenue and the approach to the Holland Tunnel. The portion of U.S. Route 1/9 Truck in Jersey City is a land-access route with numerous signalized intersections with local streets and curb cuts for driveways.

NJ Route 440 connects the Bayonne Bridge to the south and U.S. Route 1/9 Truck in Jersey City, and it intersects with the NB-HCE at Interchange 14A. Much of NJ Route 440 is predominately an arterial roadway and not a freeway and using it as part of an alternate route between the Interchange 14 area and the Interchange 14A area, via either U.S. Route 1/9 Truck or via the Goethals Bridge/I-278 and the Bayonne Bridge, greatly increases the travel distance and duration relative to the NB-HCE route. This explains why only the short segment of NJ Route 440 between Port Jersey PAMT's access roads and Interchange 14A is designated as a connector to the STRAHNET, of which the NB-HCE is a component.

Among the consequences of the increasing traffic congestion between Interchanges 14 and 14A in the absence of additional NB-HCE capacity are increased travel costs for users of other roadways from delays and general impedance of economic activity at the major economic activity centers.

1.4.3 Need to Address Substandard Safety Features of the Existing Roadway

The following three existing substandard roadway issues for substantial portions of the NB-HCE between Interchanges 14 and 14A affect safety factors such as driver maneuverability, roadway drainage, and emergency response to incidents:

1. A left shoulder width of 2 feet, below the minimum required 5 feet for a two-lane roadway section.
2. Roadway cross slope of 1.0 percent on the NBB, below the minimum 1.5 percent desired for proper drainage from the higher centerline of the roadway to a drainage system on the lower sides of the roadway during rainfall events. Other sections of the NBB roadway between Interchanges 14 and 14A also have roadway cross slopes of less than 1.5 percent.
3. Substandard geometric elements, including inadequate configuration of interchange ramp merges with the NB-HCE, and undesirable consecutive ramp merges and lane drops. In addition, the NB-HCE in Bayonne between the east end of the NBB and Interchange 14A has inadequate stopping sight distance and acceleration/deceleration lane lengths.

Inadequate shoulder width negatively affects the following:

- The ability of motorists to have an "escape zone" to avoid potential crashes or reduce crash severity.
- Driver comfort and roadway capacity.
- Emergency response vehicle mobility.
- The ability to provide lane shifts to maintain traffic flow during roadway maintenance activities. Specifically, the substandard existing left shoulder widths contribute to the complicated traffic control necessary to maintain the traffic lanes during frequent maintenance operations discussed in Section 1.4.1.
- The available lateral clearance for the placement of signs, guide rails, or other roadside appurtenances.

The flatter-than-desired minimum roadway cross slope translates into slower roadway drainage during precipitation events, which can negatively affect vehicle tire contact with the roadway and driver visibility. Meanwhile, substandard geometric elements negatively affect roadway capacity and vehicle maneuverability.

There is a need to address these issues to enhance NB-HCE roadway user, maintenance and construction worker, and emergency responder safety.

1.5 Key Performance Measures

In addition to the purpose and need, the Proposed Action has the following key performance measures:

- Incorporate measures to avoid and minimize environmental and community impacts through use of the Adaptive Management Plan.
- Avoid displacement of residences, businesses, and community facilities.
- Minimize impacts on other infrastructure assets, specifically navigation channels, aviation airspace, railroads, transit facilities, bicycle-pedestrian facilities, and electrical transmission and petroleum product distribution infrastructure.
- Minimize the economic impacts from changes to navigational vertical (height) clearance of the NBB.

These performance measures provide a further basis for the comparative evaluation in Section 2.4 of those alternatives that meet the project purpose and adequately resolve the project needs.

1.6 Conclusion

There are numerous underlying and interrelated transportation problems that urgently need to be addressed through a modernization of the NB-HCE between Interchanges 14 and 14A, a roadway that was constructed nearly 75 years ago to the specifications and needs of that period. Over 80 percent of the roadway is on bridge structures and nearly half of the roadway is on the Newark Bay Bridge. The road and structures are nearing the end of their useful service lives. Without the modernization, more frequent and disruptive maintenance and repair investments will be needed for the Authority to maintain the roadway and structures in a state of good repair. Replacing the structures, including the NBB, to meet current loads and seismic requirements is an opportunity to address substandard design features of the existing roadway, provide a modern facility with at least a 150-year service life, and provide sufficient travel lane capacity for growing travel demands from rapidly growing population and employment in the cities served by the NB-HCE and from goods movement related to the growing Port Jersey PAMT, which is primarily accessed through the connecting NJ Route 440 at Interchange 14A.

2 Alternatives Including the Proposed Action

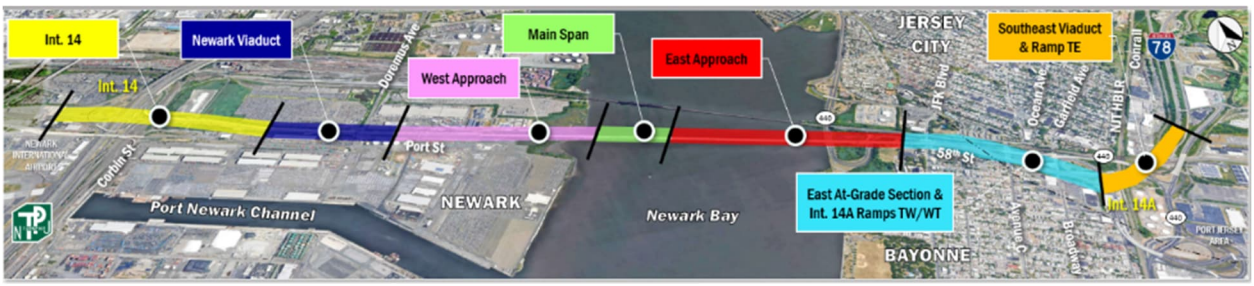
2.1 Introduction

This section describes the Proposed Action and the process and criteria for comparing the Proposed Action with other alternatives.

2.2 Description of the Proposed Action

Conceptual planning of the NB-HCE corridor was undertaken to initially develop the Proposed Action. The portion of the NB-HCE between the Interchanges 14 and 14A was divided into seven discrete areas longitudinally and laterally into preliminary limits of disturbance to facilitate analysis of design options in consideration of environmental resources and right-of-way impacts. The limits of the seven areas within the Proposed Action are shown on Figure 2.2-1.

Figure 2.2-1. Interchanges 14 to 14A Project Overview



Source: Gannett Fleming (2022)

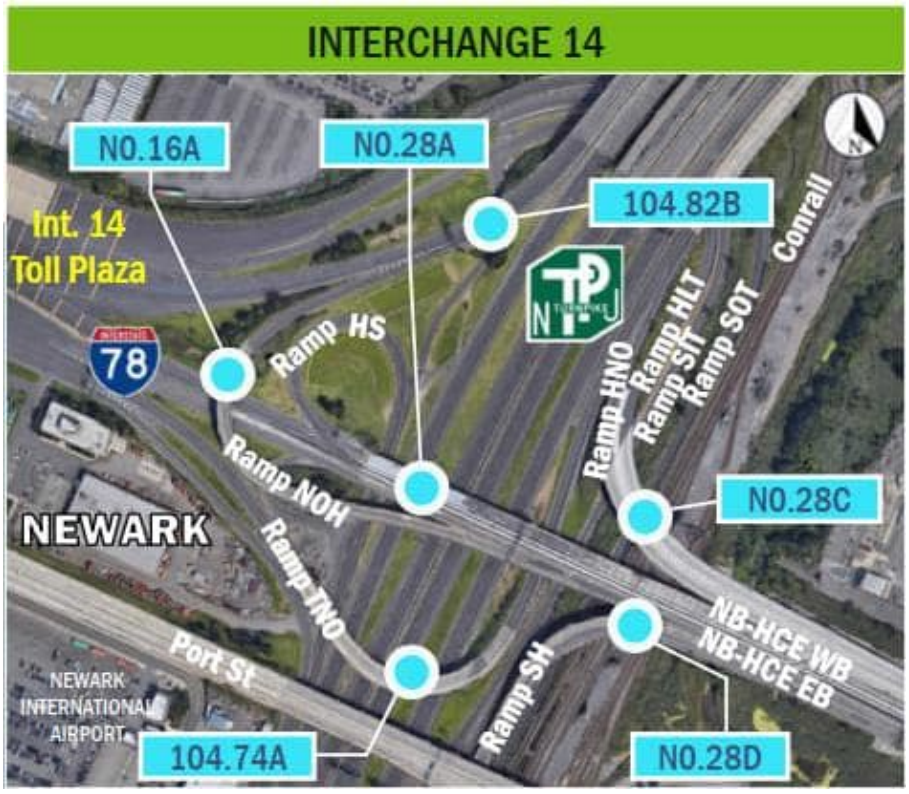
The limits of the discrete areas analyzed and the proposed improvements within each area are as follows.[5]

1. Interchange 14 ramp connections (MP N0.0 to MP N0.9). The Proposed Action will provide an interchange configuration that minimizes Ramp NOH[6] intrusion into the approach flight path to EWR Runway 29L while improving the Ramp SH profile grade by crossing under the NB-HCE eastbound while reconstructing and realigning Ramp TNO (see Figure 2.2-2).
2. Newark Viaduct (MP N0.9 to MP N1.2). The Proposed Action will realign the NB-HCE westbound to the north to avoid impacting an existing Colonial Pipeline facility, minimize right-of-way acquisition, and allow a crossover between the existing and proposed NB-HCE viaduct structures to facilitate construction sequencing.
3. NBB West Approach - Newark (MP N1.2 to MP N1.7). The Proposed Action will realign the NB-HCE westbound to the north to avoid staged demolition of the NB-HCE westbound viaduct structure, provide the necessary median gap width to accommodate the long-span main span bridge over Newark Bay, and minimize right-of-way impacts to a chemical facility property to the north.

[5] "MP" indicates milepost and "N" refers to the NB-HCE, with MP N0.1 representing a point just east of the Interchange 14 Toll Plaza where the NB-HCE diverges eastward from the ramps connecting Interchange 14 to the north-south NJ Turnpike Mainline.
[6] The Authority's Procedures Manual (Exhibit 1-1, Rev. July 2019) defines Turnpike roadway and ramp names by their origin and destination. For example, "Ramp NOH" carries traffic from the North Outer (southbound) roadway to the NB-HCE, "Ramp SH" carries traffic from the South (northbound) roadway to the NB-HCE, and "Ramp TNO" carries traffic from the Toll to the North Outer roadway.

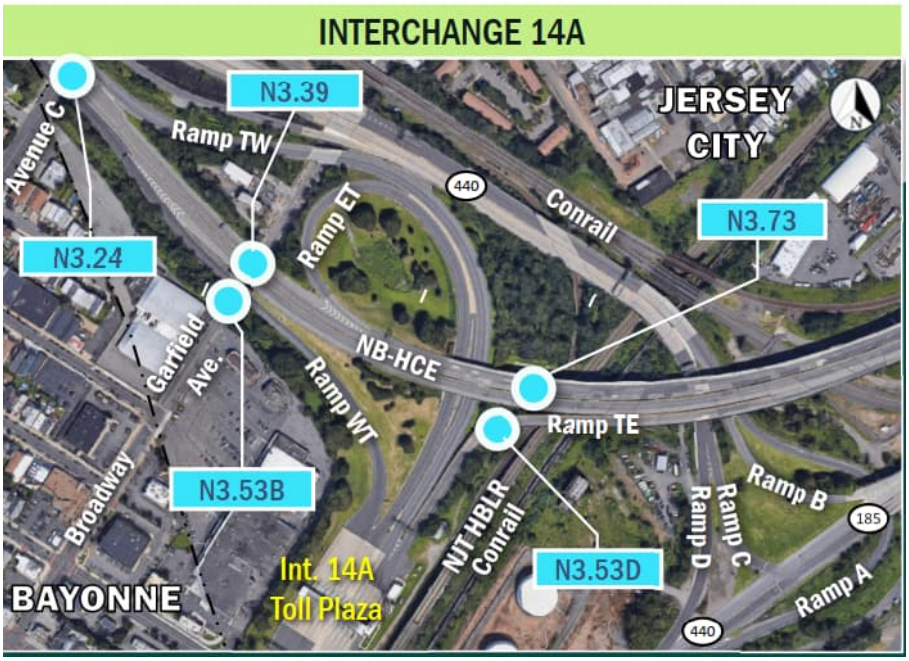
4. NBB Main Span over the Newark Bay Federal Navigation Channel (MP N1.7 to MP N2.0). The Proposed Action will realign the NB-HCE westbound to the north to provide the minimum distance between the existing and proposed bridges to accommodate a long-span bridge over Newark Bay.
5. NBB East Approach - Bayonne (MP N2.0 to MP N2.7). The Proposed Action will realign the NB-HCE westbound to the north that transitions gradually from the main span offset to the horizontal curve in Area 6.
6. Embankment Section through Bayonne and into Jersey City to the NB-HCE eastbound off-ramp to Interchange 14A and the Interchange 14A on-ramp to NB-HCE westbound toward Newark (N2.7 to MP N3.4). The Proposed Action will improve substandard geometric elements (minimum radius, stopping sight distance, acceleration/deceleration lane length) while minimizing impacts to adjacent residential properties and avoiding impacting Route 440 (see Figure 2.2-3). In addition, the existing connector roadway from JFK Boulevard to the Avenue C/Route 440 southbound on-ramp intersection in Bayonne will be eliminated. Meanwhile, the existing entry ramp from Avenue C to NJ Route 440 southbound will be slightly realigned to provide land for a stormwater management basin.
7. Southeast Viaduct and Ramp TE. The Proposed Action will reconstruct Structure No. N3.73 and Structure No. 3.53D, which carry the NB-HCE and Interchange 14A Ramp TE, respectively, over Interchange 14A Ramps ET and TW, multiple Conrail tracks, NJ Transit's Hudson Bergen Light Rail (HBLR), and NJ Route 440.

Figure 2.2-2. Interchange 14 Ramp and Structures



Source: Gannett Fleming (2022)

Figure 2.2-3. Interchange 14A Ramp and Structures



Source: Gannett Fleming (2022)

Traffic studies conducted during concept planning confirmed the need to increase the NB-HCE travel lane capacity of all six areas between Interchanges 14 and 14A from the existing two travel lanes in each direction to four travel lanes in each direction to accommodate existing and future travel demand safely and efficiently, with LOS D conditions in the 2050 planning year of analysis. In addition to replicating the 12-foot right roadway shoulders of the existing NB-HCE, the new roadway would provide standard 12-foot-wide left shoulders from Interchange 14 to Interchange 14A. The cross slope of the new roadway will also provide a standard slope for improved drainage relative to that of the existing roadway.

The existing NBB and its approaches would be replaced with two parallel bridges. The replacement bridges' main spans would meet minimum requirements for horizontal and vertical navigation clearances of 500 feet and 135 feet (above MHW), respectively. Like the existing bridge's main span, the replacement bridges' main spans would be wider than the 500-foot Newark Bay North Reach Federal Navigation Channel. The proposed bridge approach spans will have a 3 percent profile grade, consistent with the profile grade of the existing approach spans. The proposed NBB will also not intrude on the designated EWR runway takeoff and landing airspace. The west and east approaches of the existing bridge would be replaced in conjunction with construction of the new bridges.

The replacement NBB construction would be staged as follows: (1) one of the new parallel bridges and its approaches would be constructed north of and nearby the existing bridge; (2) after construction of the first of the new bridges, eastbound and westbound traffic would be temporarily shifted from the existing bridge to the new bridge and the existing bridge would be demolished; (3) after demolition of the existing bridge, the second of the new bridges and approaches would be constructed on essentially the same roadway alignment of the existing bridge; and (4) after completion of the second bridge, eastbound NB-HCE traffic would be shifted to that new bridge's four travel lanes while westbound traffic would remain on the initially constructed bridge's four travel lanes.

The construction of the ramp and roadway improvements west and east of the NBB approaches would be staged to maintain traffic flow during construction.

The preliminary schedule for the Proposed Action is to begin construction in 2026, and complete construction in 2037.

The project design concept resulting from the conceptual planning level analysis meets all elements of the Purpose and Need identified in Sections 1.3 and 1.4:

- Achieves current structural load standards and otherwise provides a 150-year service life to enable a state of good repair with minimal traffic disruption during maintenance activities.
- Eliminates all substandard features by providing a full left shoulder width (in addition to a full right shoulder width), a minimum 1.5 percent roadway cross slope, and standard ramp merges, stopping sight distance, and acceleration and deceleration lane lengths.
- Provides at least LOS D traffic flow quality to at least 2050, thereby addressing increasing travel demand generated by growth in port activity and residential and commercial development.

Meanwhile, the Proposed Action has been planned and designed to meet the project objectives identified in Section 1.5:

- Avoids and minimizes environmental and community impacts to the extent practicable.
- Avoids displacement of residences, businesses, and community facilities.
- Avoids impacts on other infrastructure assets, specifically, navigation channels, aviation airspace, railroads, transit facilities, bicycle-pedestrian facilities, and major electricity and petroleum product distribution infrastructure.
- Provides adequate vehicle throughput and work-zone safety throughout the duration of construction.
- Minimizes NB-HCE life-cycle maintenance needs and costs over the next 150 years to the extent practicable.
- Maintains a minimum vertical clearance of 135 feet above mean high water (MHW) accounting for relevant site and design constraints (wind performance, vertical profile and grade, and aviation clearance).

The Proposed Action has independent utility from the three NB-HCE Program improvements proposed by the Authority east of Interchange 14A. Specifically, the Proposed Action:

- Is independently justified, that is, it addresses a transportation purpose and need on its own without needing to construct other projects;
- Has logical beginning and end points, that is, at Interchange 14 at the beginning of the NB-HCE and at Interchange 14A, which serves the substantial travel demand of Port Jersey PAMT, Bayonne, and the Greenville neighborhood of Jersey City via connections to NJ Route 440 and NJ Route 185; and
- Does not limit the range of alternatives for the three NB-HCE Program projects east of Interchange 14A.

This conclusion is supported by analysis conducted by the Authority under which traffic operating conditions on NB-HCE sections east of Interchange 14A were analyzed for the scenario under which the Proposed Action is constructed but there is no change to NB-HCE roadway capacity east of Interchange 14A.

The analysis shows that the existing two-lane eastbound roadway east of Interchange 14A (to Interchange 14B) would not adequately serve the design year 2050 No-Build traffic volume forecasts during the weekday AM peak hour. Therefore, because the existing two-lane NB-HCE east of Interchange 14A would not acceptably serve design year 2050 forecast traffic volumes regardless of whether Interchange 14-to-Interchange 14A improvements are constructed, the Proposed Action does not force the Authority to make additional capacity changes east of Interchange 14A.

Implementation of the Proposed Action addresses a transportation purpose and need as a stand-alone project and has logical beginning and end points, as evidenced by the improvement in LOS between Interchanges 14 and 14A with implementation of the Proposed Action. Meanwhile, since it is unclear what geometry will be progressed east of Interchange 14A, construction of Project 1 does not preclude the Authority from considering any improvement option or schedule east of 14A.

2.3 Description and Assessment of Alternatives Considered

This section describes various alternatives considered by the Authority. Section 2.4 and Section 2.5 describe a screening process to assess feasibility of each of the alternatives and why only the Proposed Action and No Action alternatives are advanced for evaluation of environmental impacts.

Alternative 1: Proposed Action

Description – The Proposed Action requires USCG approval of the NBB location and plans included as part of the Proposed Action described in Section 2.2 through issuance of a bridge permit pursuant to the General Bridge Act of 1946, and in compliance with all other relevant federal and state regulatory approvals identified in Section 4.1.

Assessment – The Proposed Action would enable the Authority to construct a project that meets all elements of the purpose and need, and the project objectives as discussed in Section 2.2.

Alternative 2: No Action Alternative

Description – Under the No Action Alternative, the improvements described in Section 2.2 would not be constructed. The Authority would continue to make state-of-good-repair improvements to the NB-HCE structures but would not add capacity or safety improvements. The No Action Alternative is the baseline against which the environmental consequences of the Proposed Action are compared.

Assessment – With this alternative: (1) the integrity of structures, which comprise 80 percent of the NB-HCE between Interchanges 14 and 14A, would continue to deteriorate from traffic load and the elements to the point where the structural sufficiency of the structures, including the NBB, could not be maintained even with extensive repairs and maintenance; (2) traffic flow would continue to deteriorate from already congested conditions, and from disruptions due to increasingly frequent repair and maintenance activities (resulting in increasing traffic delays along the NB-HCE and at access points from Bayonne, Jersey City, and Port Jersey PAMT; and (3) roadway operations and drainage, vehicle maneuverability, and emergency response would be compromised by inadequate left shoulder areas, inadequate ramp merge areas, and other roadway geometric deficiencies that would not be corrected. For these reasons, the No Action Alternative does not address the underlying needs nor fulfill the project purpose. In addition, under the No Action Alternative, an encroachment on the Newark Bay North Reach Channel Federal navigation channel by a portion of the southernmost main span pier of the existing NBB, created when the channel was widened pursuant to Congressional authorization in 1966, would remain, potentially impacting navigation safety.

Alternative 3: Fully Replace NBB and Add New Parallel NBB Structure to the South

Description – This alternative is identical to the Proposed Action except that instead of constructing a new parallel bridge to the north of the existing bridge to carry westbound traffic and then replacing the existing NBB with a new bridge to carry eastbound traffic, a new parallel bridge would be constructed to the south of the existing bridge to carry eastbound traffic, and the existing bridge would be replaced with a new bridge to carry westbound traffic.

Assessment – Conceptually, this alternative could meet the stated project purpose and all the underlying need criteria as it would essentially mimic the Proposed Action except that the new parallel structure would be provided to the south of the existing alignment rather than to the north.

Alternative 4: Fully Replace NBB with Structures Having Shorter Main Spans

Description – This alternative is identical to the Proposed Action except that instead of the new NBB main span maintaining the existing NBB's permitted horizontal clearance of 550 feet relative to the congressionally authorized 500-foot-wide Newark Bay North Reach Federal Navigation Channel, the new NBB would provide as narrow as 300 feet horizontal clearance. This alternative was considered by the Authority because the nearby Upper Bay (Lehigh Valley Railroad) Bridge over Newark Bay has a horizontal clearance of 300 feet, which is less than the Federal Channel's authorized 500-foot width.

Assessment – Conceptually, this alternative could meet the stated project purpose and all the underlying need criteria.

Alternative 5: Fully Replace NBB and Increase Directional Capacity to Three Travel Lanes

Description – This alternative would be like the Proposed Action in that it would provide a full replacement of the NBB. However, under this alternative the roadway travel lane capacity between Interchanges 14 and 14A would increase from two to three lanes in each direction rather than increased to four travel lanes in each direction as with the Proposed Action.

Assessment – This alternative would address geometric and other design-related issues of the NB-HCE between Interchanges 14 and 14A, including those of the existing NBB. While the NB-HCE capacity increases, LOS E or worse would still occur in the eastbound direction during the AM peak hour. In addition, operational deficiencies would not be fully resolved. Immediately east of Interchange 14 toll plaza and NJ Turnpike Mainline, five lanes of traffic from three eastbound ramps would merge into the three-lane NB-HCE, requiring the dropping of the two right lanes. All traffic exiting the northbound NJ Turnpike to the eastbound NB-HCE would be required to merge. On the westbound side, three lanes would approach four ramps that require five lanes requiring two lanes to open up on the right side. The right lane would carry all traffic exiting to the north-south NJ Turnpike and local side of the Interchange 14 toll plaza.

Alternative 6: Rehabilitate Existing NBB without Adding Travel Lanes or Making Other Roadway Operational Changes

Description – Under this alternative, the existing NBB and other structures would be extensively rehabilitated and modified as described below, and there would be no change in the travel lane capacity between Interchanges 14 and 14A. It is assumed that sections between Interchanges 14 and 14A having substandard roadway horizontal issues such as inadequate roadway and interchange ramp merge areas and limited sight distances could be corrected through reconstruction and realignment.

Assessment – The following factors were considered in assessing this alternative:

1. Extending the life of the existing NBB for even another 60 to 75 years through comprehensive bridge rehabilitation, let alone another 100 to 150 years, would be a continuous task of repairing deterioration (rust and rot) and repairing fatigue cracks which would accelerate and intensify. In addition, existing superstructure elements would need to be substantially replaced with modern materials and connections. Due to the lack of an existing left shoulder, the significant rehabilitation and frequent continued maintenance of the existing NBB would produce frequent disruption of travel and delays for roadway users from the maintenance activities due to the lane closures and traffic shifts needed to accommodate safe work zones and equipment and material staging areas.

2. The existing NBB piers do not meet the current design codes for items such as seismic design. To achieve the stated purpose of the project, significant strengthening of the piers and foundations would be required. This strengthening will likely necessitate increasing the existing cross-sectional area of the substructures and the footprint of the foundations, which would reduce the bridge's horizontal navigation clearance from that presently permitted by the USCG.

3. Further modification to the NBB structure would be required to achieve the Proposed Action's resiliency goals, including meeting current design codes for redundant structural system load paths and materials used in critical members as well as adjustment of the NBB superstructure to address minimum navigational clearance.

4. Correcting the relatively flat roadway cross surface would require replacing the deck of the bridge and stringers, at substantial cost and disruption. The placing of "fill" on the existing deck to raise the roadway centerline would increase the deadload, accelerate fatigue, and possibly induce fatigue failure and is not a viable option.

5. As noted in Section 1.4.1, there is no economically feasible way to retrofit the existing NBB and other structures to provide long-term full-service structural redundancy.

In light of the above considerations, this alternative would not address the project purpose of resolving the factors contributing to the deterioration of the NBB and other structures and in so doing minimizing the frequency of disruptions to the roadway's users from maintenance and repair of the NBB and other structures over the life cycle of the improvements, especially in consideration of the critical function the NBB and other structures addresses for the region, the relatively high volume of traffic and the unacceptable risk of serviceability failure.

In addition to the above considerations, this alternative would not address the stated purpose of reducing congestion, because it would not add travel lane capacity to attain at least LOS D traffic flow, nor would it address the roadway and ramp geometric deficiencies that impede the Authority's ability to accommodate growing travel demand safely and efficiently between Interchanges 14 and 14A. Further, under Alternative 6, an encroachment on the Newark Bay North Reach Channel Federal navigation channel by a portion of the southernmost main span pier of the existing NBB, created when the channel was widened pursuant to Congressional authorization in 1966, would remain, potentially impacting navigation safety.

Alternative 7: Rehabilitate Existing NBB and Improve Traffic Flow through Roadway Operational Changes

Description – This alternative would be like Alternative 6 (Rehabilitate Existing NBB without Adding Travel Lanes or Making Other Roadway Operational Changes) except operational changes would be made in an attempt to improve traffic flow on the existing roadway between Interchanges 14 and 14A. Such operational changes that could theoretically be used are peak-period reversible travel lanes and peak-period shoulder use as a travel lane, as well as a combination of the two traffic management concepts. Implementing reversible lanes would require retrofitting the roadway cross-section and signage to have a moveable median barrier and transition zones for tapering directional lane drops and adds. Peak-period shoulder use would similarly require retrofitting signage, implementing transition zones, and providing at-the-ready incident response for crashes and breakdowns given the lack of a shoulder to better manage such incidents. A peak-period shoulder use concept alone could provide three lanes for vehicle travel in each direction, that is, the two existing travel lanes plus the right shoulder used as a travel lane. Meanwhile, the reversible lanes/shoulder use combination could provide up to four travel lanes in the peak-period peak direction while leaving two travel lanes in the other direction.

Assessment – The Authority temporarily implemented eastbound morning peak-period shoulder use during the Pulaski Skyway reconstruction to support the multi-agency regional approach to maintaining overall transportation system performance between Essex and Hudson counties during the reconstruction period between 2014 and 2018, and for an additional nine months after the Skyway reopened to traffic.

Research and case studies of this temporary shoulder use and implementation of shoulder use on other freeways have produced criteria for assessing the suitability of altering a freeway to allow shoulder use (FHWA 2016; Transportation Research Board 1995). Application of these criteria shows that an alternative providing permanent peak shoulder between Interchanges 14 and 14A while reducing congestion would not meet the stated purpose of safely and efficiently accommodating growing vehicular demand into the foreseeable future for the following reasons:

- The NBB cannot be retrofitted to provide pull-off or vehicle refuge areas for disabled vehicles or vehicles damaged in a crash. This situation applies to not only the NBB but also to most of the NB-HCE between Interchanges 14 and 14A as the roadway is 80 percent on structure. The general inability to provide periodic vehicle refuge areas combined with an elimination of the shoulder as a breakdown or emergency response lane during shoulder use periods means that emergency response times will be slowed and incidents stopping traffic will cause a relatively quicker deterioration in traffic flow relative to the effect that similar incidents have on an unaltered NB-HCE.
- Vehicles in the shoulder lane would have a shorter sight distance and greatly limited lateral clearance, negatively affecting traffic flow and vehicle maneuverability in the shoulder lane relative to conditions in normal travel lanes.
- A higher truck crash rate would be expected with shoulder use compared to an unaltered freeway having a comparable number of travel lanes.
- A higher crash rate at ramp entries and exits would be expected with shoulder use compared to an unaltered freeway having a comparable number of travel lanes. Interchange 14A and the ramps between the NB-HCE and NJ Turnpike Mainline are all relatively high traffic volume entries and exits.

Meanwhile, an alternative of retrofitting the NB-HCE between Interchanges 14 and 14A, whether with or without peak period shoulder use, would not reduce congestion or meet the stated purpose of safely and efficiently accommodating growing vehicular demand into the foreseeable future. A reversible lane reallocates roadway capacity for one direction of travel to provide additional capacity for the opposite direction of travel, typically, the higher travel direction during the peak period. For reversible lanes to be effective as a congestion reduction strategy, there needs to be a relatively large percentage difference in the directional traffic volumes, such as on freeway corridors that exhibit heavy commuter-oriented traffic directionality, so that the "lane-donor" direction's traffic flow is not negatively impacted by the shift of a travel lane. As shown by the traffic volume data in Table 1.4-2, directional volumes between Interchanges 14 and 14A are relatively balanced during the peak travel hours with a 55.5 percent/44.5 percent eastbound/westbound split in the morning peak hour and a 51.9 percent/49.1 percent eastbound/westbound split in the evening peak hour. Even with a combined reversible-lane and peak shoulder use scenario, the two lanes for travel in the lower westbound direction would be insufficient for providing LOS D traffic flow.

In addition to the operational and safety issues, by retaining and rehabilitating the existing NBB structure, this alternative would have the same structural integrity issues of Alternative 6 (Rehabilitate Existing NBB without Adding Travel Lanes or Making Other Operational Changes), noting that correcting the roadway cross slope issue would be necessary not only for proper drainage but also for roadway safety given that the left travel lanes would have varying directional traffic flow between peak and off-peak periods. Further, under Alternative 7, an encroachment on the Newark Bay North Reach Channel Federal navigation channel by a portion of the southernmost main span pier of the existing NBB, created when the channel was widened pursuant to Congressional authorization in 1966, would remain, potentially impacting navigation safety.

Alternative 8: Rehabilitate Existing NBB and Add New Parallel NBB Bridge

Description – This alternative is similar to the Proposed Action in that it would provide adequate travel lane capacity to the NBB. However, unlike the Proposed Action, the existing NBB would be rehabilitated rather than replaced and would carry NB-HCE traffic in one direction and a new parallel structure, either north or south of the existing NBB, would be constructed to carry traffic in the opposite direction.

Assessment – While this alternative would meet the stated purpose of reduced traffic congestion, retaining the existing NBB structure and rehabilitating it would have the same structural integrity issues of Alternative 6 (Rehabilitate Existing NBB without Adding Travel Lanes or Making Other Operational Changes), noting that correcting the roadway cross slope issue would be necessary not only for proper drainage but also for roadway safety given that the existing NBB roadway would be converted from bi-directional traffic flow to one-way flow. This would greatly magnify the negative effects discussed for Alternative 6. Further, under Alternative 8, an encroachment on the Newark Bay North Reach Channel Federal navigation channel by a portion of the southernmost main span pier of the existing NBB, created when the channel was widened pursuant to Congressional authorization in 1966, would remain, potentially impacting navigation safety.

Alternative 9: Rehabilitate Existing NBB for Cars-Only Use and Add New Parallel Bridges for Mixed Car-Truck-Bus Use

Description – This alternative would be similar to Alternative 8 (Rehabilitate Existing NBB and Add New Parallel NBB Bridge) except that instead of having one eastbound bridge and one westbound bridge, the existing NBB would be rehabilitated to carry two-way car-only traffic, and two flanking parallel bridges, one to the north and one to the south, would be constructed to carry all vehicle classes, that is, cars, trucks, and buses in each direction. This concept is the "dual-dual" roadway concept that characterizes the existing NJ Turnpike Mainline between the Pearl Harbor Memorial Turnpike Extension near Interchange 6 and the split between the NJ Turnpike Eastern and Western Spurs just north of Interchange 14. The "dualization" of the NB-HCE between Interchanges 14 and 14A would require extensive reconstruction and expansion of the footprint of the interconnections between the NB-HCE and the NJ Turnpike Mainline northbound and southbound roadways, and between the NB-HCE eastbound exit to Interchange 14A and the Interchange 14A entrance to the NB-HCE westbound. Moreover, the separate westbound roadways would then merge after the exiting ramps to the Mainline southbound and then immediately pass through the Interchange 14 barrier toll plaza a short distance away. Similarly, the separate eastbound roadways would merge after the eastbound Interchange 14A exit ramps to the two-travel lane NB-HCE east of Interchange 14A. Based on the similar merges on the NJ Turnpike Mainline from a dual-dual roadway to a dual roadway carrying all vehicle classes, a merge transition area of over 0.50 mile and a greater than 0.50-mile eastbound diverge transition from the dual roadway to the dual-dual roadway would also be necessary.

Assessment – While this alternative would meet the stated purpose of reduced traffic congestion, retaining the existing NBB structure and rehabilitating it would have the same structural integrity issues of Alternative 6 (Rehabilitate Existing NBB without Adding Travel Lanes or Making Other Operational Changes) as the seismic retrofit and substantial replacement of bridge elements would still be necessary and significant and frequent continued maintenance during the life cycle would still be required on the remaining bridge elements. While wear on the existing bridge would be reduced from shifting trucks and buses to new bridges, trucks and buses would still use the existing NBB during times when one or both of the mixed-vehicle roadways is closed for routine maintenance. The alternative would also not address the substandard left shoulder width need. Meanwhile, dualization of the less than 4-mile section of roadway between Interchanges 14 and 14A would be inefficient from a traffic operations perspective given the complexity of the system and the need to provide relatively long merge and diverge transition roadway sections between the dual roadway and dual-dual roadways of adjoining sections of the NB-HCE.

These reasons aside, the massive reconstructions of the NB-HCE interconnections with Interchanges 14 and 14A, and well as the NJ Turnpike Mainline, required for the dualization combined with the alignments of the

mixed traffic roadways on both sides of the existing NB-HCE alignment would require extensive amounts of additional right-of-way. Further, under Alternative 9, an encroachment on the Newark Bay North Reach Channel Federal navigation channel by a portion of the southernmost main span pier of the existing NBB, created when the channel was widened pursuant to Congressional authorization in 1966, would remain, potentially impacting navigation safety.

2.4 Comparative Evaluation of Alternatives

Based on the assessments of the alternatives in Section 2.3, two rounds of alternatives comparisons were conducted. In the first round, alternatives were evaluated and either retained for additional analysis in a second round or eliminated from further analysis. Table 2.4-1 summarizes the assessments for comparison in the first round of analysis. An alternative was retained for analysis in the second round if it met both components of the stated purpose and adequately addressed all the underlying transportation problems and needs. An alternative was eliminated from consideration in the second round of analysis if it did not meet one or both components of the stated purpose because it does not adequately address one or more underlying needs, that is, the alternative cannot solve the transportation problem(s) articulated in the statement of purpose and need.

Based on the first round of evaluation, all the alternatives under which the existing NBB would be rehabilitated were eliminated from further analysis as each of them would have multiple unresolved issues related to long-term structural integrity and roadway user operations and safety. The lesser widening alternative of replacing the NBB with new structures providing three lanes of travel in each direction rather than four as under the Proposed Action does not meet the stated purpose of operating with LOS D level of traffic flow.

Although it does not meet the purpose and needs, the No Action Alternative is retained to provide a baseline for the evaluation of existing and future conditions.

The following three alternatives passed the first round of alternatives evaluation:

- Alternative 1: Fully Replace NBB and Add a New Parallel NBB Structure to the North (Proposed Action)
- Alternative 3: Fully Replace NBB and Add a New Parallel NBB Structure to the South.
- Alternative 4: Fully Replace NBB with Structures Having Shorter Main Spans (including a new structure and directional alignment either being north of or south of the alignment of the present NBB).

Table 2.4-1. Summary Comparative Evaluation of Alternatives

	Long-Term Structural Integrity Factors		Roadway User Operational & Safety Factors			
Alternative	Resolves Structural Deterioration and Recurring Substantial Costs and Roadway User Disruptions	Achieves Current Load & Seismic Requirements	Achieves Minimum of LOS D to at least 2050	Provides Standard Left Shoulder Width	Eliminates Substandard Roadway & Ramp Geometry	Achieves Desired Roadway Cross Slope
1. Proposed Action – Fully Replace NBB and Add New Parallel NBB Structure to the North	●	●	●	●	●	●
2. No Action (No Build)	○	○	○	○	○	○
3. Fully Replace NBB and Add New Parallel NBB Structure to the South	●	●	●	●	●	●
4. Fully Replace NBB with Structures Having Shorter Main Spans	●	●	●	●	●	●
5. Fully Replace NBB and Increase Directional Capacity to Three Lanes	●	●	○	●	●	●
6. Rehabilitate Existing NBB without Adding Travel Lanes or Making Operational Changes	○	◐	○	○	●	○
7. Rehabilitate Existing NBB and Improve Traffic Flow through Roadway Operational Changes	○	◐	○	○	●	○
8. Rehabilitate Existing NBB and Add New Parallel NBB Bridge	○	◐	●	●	●	◐
9. Rehabilitate Existing NBB for Cars-Only Use and Add New Parallel Bridges for Mixed Use	○	◐	●	○	●	◐

Key: ● Meets stated purpose and underlying need(s). ◐ Partially meets stated purpose and underlying need(s). ○ Does not meet stated purpose and underlying need(s).

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In the second round of evaluation, the three retained alternatives were evaluated based on each alternative's performance with respect to key performance measures identified in Section 1.5.[7] These alternatives were Alternative 1 (the Proposed Action), Alternative 3 (Fully Replace NBB and Add New Parallel NBB Structure to the South), and Alternative 4 (Fully Replace NBB with Structures Having Shorter Main Spans).

Based on conceptual planning, the Authority concluded that the Proposed Action can be designed to adequately accomplish each of the key performance measures by incorporating measures to avoid, minimize, or mitigate environmental and community impacts; avoid displacement of residences, businesses, and community facilities; generally avoiding and otherwise minimizing impacts on other major infrastructure assets; and providing additional freeboard above the minimum vertical clearance requirement of 135 feet above MHW.

Alternative 3 (Fully Replace NBB and Add a New Parallel NBB Structure to the South) performs similarly to the Proposed Action except for two measures, specifically, Alternative 3 would have significant adverse community effects by impacting approximately 20 single- and multi-family buildings along 58th Street in Bayonne after touching down on the east side of Newark Bay and impact a segment of Colonial interstate petroleum distribution pipeline in Newark on the west side of Newark Bay. This alternative cannot be designed to meet the second-round criteria related to community impacts, residential displacements, and other major infrastructure.

Other impacts of Alternative 3 would be comparable to those of the Proposed Action given the same traffic volumes, similar footprint, and similar affected environment to that of the Proposed Action, that is, Newark Bay and associated wetlands, and proximate rail and other highway infrastructure, port-related business in Newark, and residential neighborhoods in Bayonne and Jersey City between Newark Bay and Interchange 14A. With respect to wetland impacts, Alternative 3 is estimated to result in approximately 16.05 acres of permanent wetland impacts versus 14.82 acres for the Proposed Action. Meanwhile, Alternative 3 is estimated to result in approximately 24.76 acres of temporary wetland impacts versus 26.23 acres for the Proposed Action. Because the notable differences between Alternative 3 and the Proposed Action have been identified as the unavoidable residential displacements and the major infrastructure impact of Alternative 3, and there is a clear distinction in favor of the Proposed Action in a relative comparison of impacts, there is no need to consider Alternative 3 as a reasonable alternative to evaluate further.

Alternative 4 (Fully Replace NBB with Structures Having Shorter Main Spans) performs similarly to the Proposed Action[8] except for one measure: Alternative 4 would impact the Newark Bay North Reach Federal Navigation Channel. The Authority met on several occasions with representatives of the USACE, which developed and maintains the Channel as authorized by Congress; the USCG, which is authorized to approve the location and plans, including the horizontal and vertical navigational clearances of bridges over navigable waters; and the Maritime Association of the Port of New York-New Jersey sponsored Harbor Safety, Navigation, and Operations Committee which leads coordination of a major portion of the operational

[7] In addition to the purpose and need, the Proposed Action has the following key performance measures:

- Incorporate measures to avoid and minimize environmental and community impacts.
- Avoid displacement of residences, businesses, and community facilities.
- Minimize impacts on other infrastructure assets, specifically navigation channels, aviation airspace, railroads, transit facilities, bicycle-pedestrian facilities, and electrical transmission and petroleum product distribution infrastructure.
- Minimize the economic impacts from changes to navigational vertical (height) clearance of the NBB.

These performance measures provide a further basis for the comparative evaluation of those alternatives that meet the project purpose and adequately resolve the project needs.

[8] For example, Alternative 4 is estimated to result in approximately 15.72 acres of permanent wetland impacts versus 14.82 acres for the Proposed Action. Meanwhile, Alternative 4 is estimated to result in approximately 27.01 acres of temporary wetland impacts versus 26.23 acres for the Proposed Action.

waterway stakeholders. Together, all ensure the continued safe and efficient operation of area waterways. During these meetings, the Authority discussed the alternative of instead of replacing the NBB with parallel bridges having main spans replicating the existing NBB's permitted horizontal clearance of 550 feet relative to the congressionally authorized 500-foot-wide Newark Bay North Reach Federal Navigation Channel, the new NBB parallel bridges main spans would provide as narrow as 300 feet horizontal clearance. This alternative was considered by the Authority because the nearby (approximately 1,000 feet upstream) Upper Bay (Lehigh Valley Railroad) Bridge over Newark Bay has a horizontal clearance of 300 feet, which is less than the Federal Channel's authorized 500-foot width, and a shorter NBB main span could potentially have lower construction and long-term maintenance costs with a replacement NBB relative to those of the Proposed Action. The general feedback to the Authority on this alternative was that it would substantially impact navigation operations and safety in the federal navigation channel.

As an alteration or permanent occupancy of the Federal Navigation Channel, Alternative 4 would be reviewed by USACE under 33 Code of Federal Regulations (CFR) 408 (Section 408). As noted by the USACE, "Proposed alterations must not be injurious to the public interest or impair the usefulness of the USACE project" (USACE 2018). In accordance with applicable USACE guidance and standard practice, this alternative could not be designed to meet the public interest in navigation operations and safety, and that the alternative would impair the usefulness of the congressionally authorized USACE civil works project. Further, under the USACE guidance, if there is a practicable alternative that avoids altering the USACE civil works project, in this case the Proposed Action, then USACE will not authorize the alteration. For this reason, Alternative 4 is not a reasonable alternative to evaluate further.

2.5 Conclusion

Nine discrete alternatives were considered and evaluated, including the Proposed Action and No Action alternatives. Of the nine alternatives considered other than the No Action, four alternatives involved replacement of the NBB, and four alternatives involved rehabilitation of the NBB. Each alternative was evaluated for its ability to meet the criteria of the stated purpose and underlying needs for the project in an initial round of evaluation. Five alternatives were eliminated in the first-round evaluation: the four rehabilitation alternatives and the alternative that involved replacing the NBB and widening the NB-HCE between Interchanges 14 and 14A to three travel lanes instead of four travel lanes as under the Proposed Action. The rehabilitation alternatives were eliminated primarily because none could meet the stated purpose to improve the long-term integrity of the structures on the NB-HCE between Interchanges 14 and 14A to maintain the structures in a state of good repair over at least a 150-year life cycle. The three-lane in each direction widening alternative was eliminated because it would not provide for the traffic flow demand to at least 2050.

The Proposed Action and the other two NBB replacement alternatives were further evaluated and compared using four key performance measures for the project. The Proposed Action meets all the key performance measures while the other two NBB replacement alternatives do not. Alternative 3 (realigning the NB-HCE so that a parallel bridge would be constructed to the south of the existing NBB before replacing the NBB) was eliminated from further consideration because it would require displacement of approximately 20 single- and multi-family buildings and would impact a segment of major energy supply infrastructure: the Colonial interstate petroleum pipeline. Alternative 4 (replacing the NBB with structures having a shorter main span over Newark Bay) was eliminated from further consideration because the alternative would alter and occupy the Newark Bay North Reach Federal Navigation Channel, a civil works project authorized by the U.S. Congress and maintained by the USACE for navigation operation and safety.

Two alternatives, the Proposed Action and the No Action, are, therefore, retained for further evaluation and comparison in this environmental assessment.

3 Affected Environment and Environmental Consequences

3.1 Introduction

The Authority has applied for a bridge permit from USCG and for other permits and approvals that are required for the Proposed Action to be constructed. USCG's bridge permit decision is subject to requirements of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. § 4321 et seq.), as amended. The Authority, as the Project Sponsor, has prepared this Environmental Assessment for USCG review in support of USCG decision-making on the bridge permit application.

This section of the Environmental Assessment describes the human environment and natural resources that would be affected by the Proposed Action. The description of the existing environment provides the baseline for comparing impacts of the Proposed Action and No Action alternatives on the affected environment (or the Existing Conditions).

Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health. Effects also include effects on Tribal resources. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial. The Methodology and Criteria sub-sections of each resource section of the EA describe the methodology(ies) used to assess the effects of the No Action and Proposed Action alternatives on the environment.

Compliance with other applicable regulatory processes is described along with descriptions of measures proposed to be undertaken in implementing the Proposed Action to avoid, minimize, and otherwise mitigate and monitor adverse environmental impacts, where appropriate.

3.2 Regional and Local Settings

The cities traversed by the NB-HCE have historically been and continue to be largely emblematic of the greater region: the New York-Newark-Jersey City Metropolitan Statistical Area.

Economically, the region developed around global trade, industry, and commerce, beginning with the asset of New York Harbor and the Hudson River for ports, including in Bayonne and Jersey City. The 19th century saw expanding connections from the Hudson River across Newark Bay through Newark to the interior of the U.S. via the Morris Canal and railroads (on the Bayonne and Jersey City side of Newark Bay, the NB-HCE traverses a topographically low point southern end of the New Jersey Palisades, locally Bergen Hill, which made it attractive as a transportation corridor, including in more recent times, the Morris Canal and one of the railroads). Factories and homes followed; the factories were principally located along railroads lines, the Hudson River, Newark Bay, and the Passaic River. Following World War I, parts of the region began to economically diversify, including Newark, with growing financial and insurance sectors and the formation of central business districts. This period also saw demographic diversification in large parts of the region with the migration of African Americans from the rural south in search of employment. The period after World War II saw extensive flight from the region's urban core to suburbs. Many of the region's larger cities, including those traversed by the NB-HCE, experienced disinvestment and population decline.

Currently, this is one of the most dynamic regions in the U.S. The region is fast growing and is one of the least affordable metropolitan areas in the U.S. Newark and Jersey City saw tremendous population and employment growth between the 2010 Census and 2020 Census, reversing decades of decline. Much of the population growth has been fueled by sharp increases in the Hispanic and foreign-born populations. The region is also aging. Newark and Jersey City are key employment centers for the region. While the regional economy continues to diversify, traditional manufacturing, distribution, and maritime and other transportation activities

were, and largely remain, driving forces of the economy of the three cities and major sources of employment for a diverse population.

The portion of the NB-HCE west of Newark Bay lies in Newark in the City's East Ward. The East Ward contains the Ironbound District, Port Newark, and the Newark Industrial District/Newark Liberty International Airport (EWR). According to the Newark Citywide Master Plan (Newark 2022), much of the port-industrial area and the airport are within flood zones, as are sections of the Ironbound neighborhood. It was noted in the Master Plan that efforts to increase sustainability in the City's industrial areas starts with flood mitigation, which would also limit the risk of pollution during flood events. Among takeaways from engagement by the City during development of the Master Plan include the following:

- Pollution from the Doremus Industrial Area and Newark Airport were mentioned as huge concerns, as well as the extensive flooding that has taken place in the area.
- Residents called for tree planting initiatives and taking measures to lower truck traffic on residential streets. It was noted that port traffic also brings harmful air quality impacts to Newarkers, especially residents of the nearby Ironbound neighborhood.

Crossing Newark Bay into Bayonne, the NB-HCE passes through a less densely developed (predominantly lower density residential) area, with waterfront parks and highways, a scattering of late nineteenth- and early twentieth-century residential and commercial development, and extensive highway interchanges, connector roads, and railroads along the boundary of Bayonne and Jersey City. Among the objectives of the City of Bayonne noted in the City's Reexamination Report of the Master Plan (Bayonne 2017) are the following:

- Capitalize on the Hudson Bergen Light Rail Transit System (five stops in Bayonne).
- Addressing parking needs in both established residential and commercial areas and planning for parking demand associated with future residential, commercial and industrial growth in targeted areas of the City.
- Plan for and promote the redevelopment of underutilized or vacant commercial and industrial properties.
- Support and enhance the extensive intermodal transportation system consisting of roads, highways, mass transit, bicycle, pedestrian friendly facilities, freight rail and port for on-going revitalization efforts.
- Support the Port Jersey complex as an active marine terminal including providing adequate truck and freight access with an emphasis to increase intermodal connections.
- Capitalize on the City's competitive advantages for economic development purposes including its location in the center of the northern New Jersey/New York City region, extensive transportation and utility infrastructure, land available for redevelopment, stable labor force and quality of life.
- Preserve and maintain park facilities, enhancing links to the municipal park system and increasing access to Mercer Park.
- Development of the Newark Bay/Hackensack River Walkway.
- Remediate contaminated sites and brownfield redevelopment to enhance the local environment and return vacant sites to productive use.
- Address the environmental and stormwater management issues associated with combined sewer systems.
- Acknowledge the importance of historic resources in providing a link to the past, preserving the City's unique character, enhancing the visual appearance of neighborhoods and promoting economic development.

Jersey City is one of the most diverse cities in the U.S. Jersey City has six wards. The Project Action lies within the southernmost portion of Greenville, which is the ward bordering on Bayonne. In the early 2000s, residents began getting priced out of downtown Jersey City, which created an influx to Greenville and other parts of the City.

Common themes and objectives of Jersey City's master plan update (Jersey City 2021) include the following:

- Make Jersey City more transit friendly.
- Connect parks and neighborhoods.
- Improve access between Jersey City and the greater region.
- Enhance residential neighborhoods.
- Prioritize reinvestment in Environmental Justice Communities.
- Accommodate population growth and address changing needs.
- Improve climate mitigation efforts.
- Protect & restore environmental assets and plan for sustainability.
- Expand City-wide green infrastructure and stormwater management.

The portion of the Proposed Action in Newark west of Newark Bay lies in an area which was historically part of the Newark Meadows. Before European settlement the Newark and Hackensack meadows (also known as the Meadowlands, the Jersey Meadows, and the Newark and Hackensack Tidal Marsh) made up a large complex of tidal, brackish, and freshwater wetlands located in northeastern New Jersey (Marshall, 2004). They surrounded most of the lower Hackensack River, bordered part of the lower Passaic River, and formed the western edge of Newark Bay. The Newark and Hackensack meadows have been impacted by the extraction of natural resources, alteration of hydrology, conversion of portions of wetlands into upland, and pollution from the import and deposit of refuse, sewage, and hazardous wastes (in the 19th century, the Meadowlands and Newark Bay began experiencing substantial pollution from the sewage and industrial wastes poured into the Passaic River). Invasive exotic species, environmental contaminants, and water quality are major issues confronting the successful restoration of the Meadowlands.

The present-day Meadowlands cover a much smaller area than in the past. The Meadowlands then extended north to Hackensack and south to Elizabeth. The southern portion of the Meadowlands, located on the west side of Newark Bay, was known as the Newark Meadows and has been entirely developed. These former wetlands are now covered by Port Newark/Elizabeth, Newark Liberty International Airport, the New Jersey Turnpike, and other urban infrastructure. In recent decades, several State and Federal agencies, along with local governments and non-governmental organizations have partnered to promote and support the remediation, restoration, and long-term protection of the remaining Meadowlands ecosystem.

With respect to air quality, pollution levels have improved significantly over the decades since the State began monitoring air quality in 1965 because of State, regional and national air pollution reduction efforts. However, ground level ozone and particulate matter levels still periodically exceed national ambient air quality standards for protection of public health as evidenced by certain days during the year when these pollutants reach levels that can affect those with the highest risk, such as children, older adults, pregnant people and those living with chronic disease.

These and other trends, along with comparison to the No Action, provide the context for assessing the impact of the Proposed Action on environmental and community resources as presented in the remainder of this section of the EA.

3.3 Land Use

Technical Appendix 3.3[9] provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to land use.

For assessment of potential impacts to land use the study area is the NB-HCE corridor between Interchanges 14 and 14A including portions of Newark, Bayonne, and Jersey City within approximately 0.25-mile (1,320 feet) of the NB-HCE (see Figures 3.3-1a and 3.3-1b). This distance reflects the typical extent of freeway operational and accessibility effects, for example, noise and development influence, on land uses near the freeway.

The western end of the NB-HCE between Interchanges 14 and 14A extends through a heavily developed portion of Northern New Jersey characterized by major port intermodal and other transportation infrastructure, including receiving and shipping terminals, warehouses, railroad facilities, highways, access roads anchored by the Port Newark-Elizabeth Marine Terminal on Newark Bay immediately south of the NBB and EWR at Interchange 14, and the Port Jersey Port Authority Marine Terminal on Upper New York Bay immediately east of Interchange 14A. The residential and business districts of Newark lie to the west of Interchange 14. Crossing Newark Bay into Bayonne, the NB-HCE passes through a less densely developed southern end of the New Jersey Palisades, locally Bergen Hill, with waterfront parks and highways, a scattering of late nineteenth- and early twentieth-century residential and commercial development, and extensive highway interchanges, connector roads, and railroads along the boundary of Bayonne and Jersey City.

City of Newark

The Proposed Action is estimated to result in the following property impacts from right-of-way in Newark: aerial easements[10] on 16 tax lots and partial fee acquisitions of five tax lots. Of the aerial easements, 10 are on railroad-owned (Conrail) tax lots, five are on commercially owned tax lots (four individual businesses), and one is on a vacant City-owned tax lot. Of the partial fee acquisitions, one is on a railroad-owned tax lot, two are on commercially owned lots (two individual businesses), and one is on the vacant City-owned tax lot. While the railroad and commercial properties have rail track, buildings, and other improvements, none of the easements or partial acquisitions are expected to impact business operations, buildings, or access.

With respect to the potential for the Proposed Action to cause indirect effects on land use, the underlying factors that shape land uses in the Newark portion of the study area, specifically, the continued operations of EWR, the Port Newark-Elizabeth Marine Terminal, the City's access to the regional highway and rail systems, zoning, and real estate market conditions would not be affected by the Proposed Action as the access and connections afforded by the NB-HCE through its interchanges have been in place since the mid-1950s. The Proposed Action, combined with other actions in the study area that have, are, or will affect land use, will not substantially change land use.

[9] Technical appendices have been given numbers corresponding to the section of the EA they support. There are no appendices for Sections 1, 2, 3.1, or 3.2; thus, numbering for technical appendices begins with Technical Appendix 3.3.
[10] "Aerial easements" are needed for above-ground structures that encroach on a property, but do not affect the land surface. "Partial fee acquisitions" are small portions of a property that would be purchased by the Authority but that would not affect the existing property use or access. "Full acquisitions" refer to properties that would be acquired by the Authority with any existing use removed. See Section 3.3.5 for additional details.

Figure 3.3-1a. Land Use, Community Resources and Proposed Development – Newark

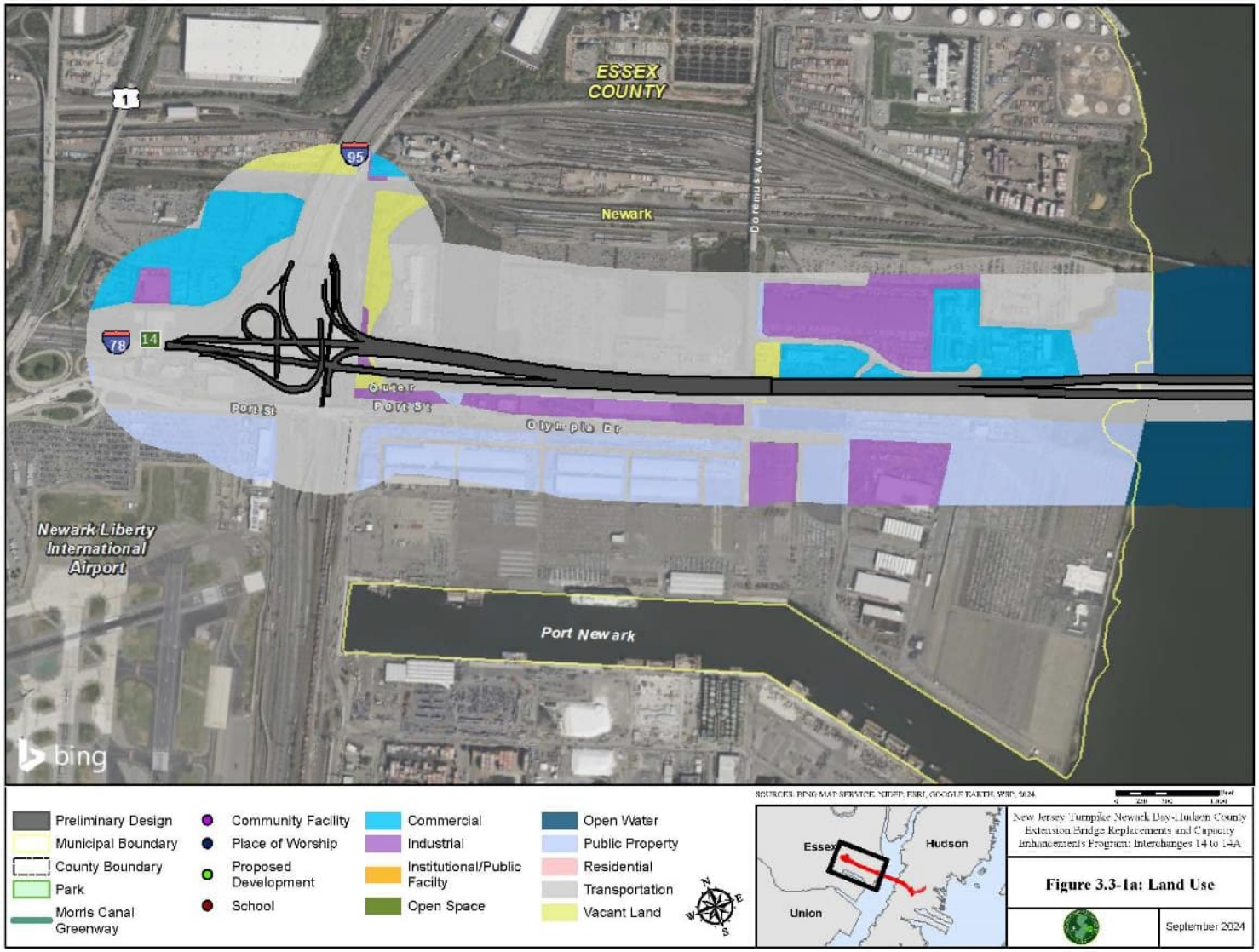
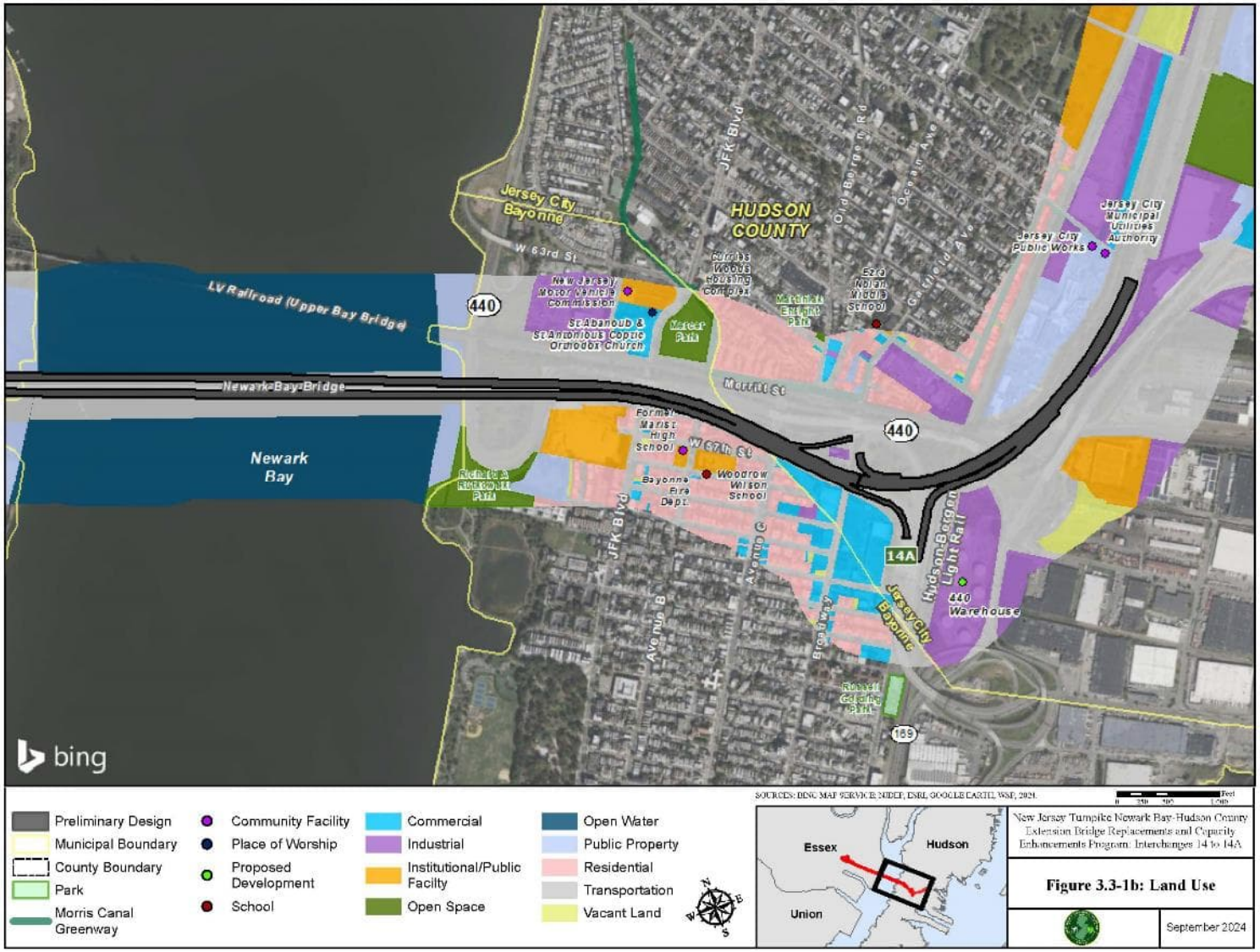


Figure 3.3-1b. Land Use, Community Resources and Proposed Development – Bayonne and Jersey City



City of Bayonne

The Proposed Action is estimated to result in the following property impacts from right-of-way in Bayonne: three aerial easements on State-owned (New Jersey Department of Transportation) tax lots (associated with NJ Route 440), one partial fee acquisition of a City-owned tax lot (associated with West 58th Street), and full acquisition of four tax lots. Neither the aerial easements nor the partial fee acquisition, both of which are on portions of roadway right-of-way, are expected to have substantial impact on the use of the right-of-way or transportation operations. The Proposed Action will not encroach on paved portions of State-owned land (NJ Route 440 right-of-way). The portion of West 58th Street near Avenue B, while not relocated, will be permanently narrowed by the Proposed Action. The existing single one-way travel lane will be maintained. However, parking on both sides of the street for approximately 100 feet on each side of the roadway, or approximately 9 to 12 on-street parking spaces in total, will be eliminated. Reconnaissance of the affected area indicates that the capacity of on-street parking exceeds the demand, likely because many residential units in the area have off-street parking. Consequently, the elimination of the on-street parking will have a minor adverse effect on this land use.

One full property acquisition, consisting of four tax lots, would be of the former Marist High School property. The proposed use of this property is for a stormwater basin constructed for treating runoff to comply with New Jersey Department of Environmental Protection (NJDEP) stormwater management regulations from the NB-HCE, and for contractor lay down areas and future maintenance needs. This acquisition would not result in displacement or relocation as there is presently no active use of the property. However, the Proposed Action would eliminate the potential for redeveloping this property into residential or industrial uses per the redevelopment plan as the entire property would be acquired under the Proposed Action.

With respect to the potential for the Proposed Action to cause indirect effects on land use, the underlying factors that shape land use in Bayonne proximate to the study area would not be affected by the Proposed Action. The access and connections afforded by the NB-HCE corridor and its interchanges have been in place since the mid-1950s. Potential development activities in Bayonne (i.e., the redevelopment of the former Military Ocean Terminal and nearby properties), transit-oriented development near the Hudson-Bergen Light Rail Transit stations, and the City's access to the regional rail and highway systems would not change with the Proposed Action. The Proposed Action, combined with other actions in the study area that have, are, or will affect land use, will not substantially change development patterns.

City of Jersey City

The Proposed Action is estimated to result in aerial easements on 10 tax lots and partial fee acquisitions of four tax lots. Of the aerial easements, eight are over railroad-owned (Conrail) tax lots, one is over railroad tracks owned by Jersey City Redevelopment Agency, and one is in NJDOT's Route 440 right-of-way. Of the partial fee acquisitions, one is over a vacant portion of a commercially owned lot, one is on a PANYNJ lot within the NJ Route 440 interchange with NJ Route 185, and two are on slivers of vacant City-owned tax lots adjoining the NB-HCE.

With respect to the potential for the Proposed Action to cause indirect effects on land use, the underlying factors that shape land uses in the Jersey City portion of the study area would not be affected by the Proposed Action. The access and connections afforded by the NB-HCE corridor and its interchanges has been in place since the mid-1950s. Potential development activities in Jersey City (i.e., port growth and redevelopment of nearby properties for port-oriented uses), transit-oriented development near the Hudson-Bergen Light Rail Transit stations, and the City's access to the regional rail and highway systems would not change with the Proposed Action. Indeed, the Proposed Action supports Jersey City Master Plan's element supporting continued use of "port-related uses where located close to highway access and with limited impacts on residential areas." The Proposed Action, combined with other actions in the study area that have, are, or will affect land use, will not substantially change land use.

Tidal Waterfront Public Access

Portions of the replacement of the Newark Bay Bridge will require new right-of-way (ROW) within tidal waterfront areas abutting Newark Bay in Newark and Bayonne. Use of this ROW will potentially affect public access to this tidal waterfront area. Presently, public access to these new areas of ROW is limited, particularly on the Newark side of the Bay.

On the Newark side, the Authority is negotiating an in-lieu fee contribution for offsite mitigation in support of a City of Newark planned waterfront public access initiative from the NJDEP-approved Municipal Public Access Plan submitted by the City.

On the Bayonne side, the ROW is in an area included in Hudson County plans for the Hackensack River Greenway, also known as the Hackensack River Walk. The portion within the Authority's ROW in the NB-HCE project area is currently a gap in the completed Greenway. The Authority has proposed providing public access, such as a waterfront path within its 310 feet of ROW and extend additional waterfront pathway to connect the on-ROW segment to the existing Riverwalk path in Rutkowski Park to the south. This would result in approximately 1,040 feet of new public access.in Bayonne to meet the public access requirement of N.J.A.C. 7:7-16.9(a).

Conclusion

The Proposed Action will have no significant impact on land use, zoning, or public policy. The Proposed Action includes compensation to property owners based on property appraisals and negotiations. depending upon property classification, including aerial easements, partial acquisitions, and the full acquisition, as required to implement the Proposed Action. Pending completion of the design and construction, negotiations for aerial easements and partial acquisitions have yet to be finalized. The full acquisition of the former Marist High School property would represent a modest reduction in economic development (and property tax revenues) within the City of Bayonne. The assessed value of the property acquisition is less than one-half of one percent of the total assessed value of all properties in Bayonne. Thus, the reduction in tax revenues due to partial or full property acquisitions would not have a significant fiscal effect on the City of Bayonne. In addition to coordination with owners of the affected properties, the Authority will continue to coordinate with the municipalities, counties, and State on measures to manage temporary impacts on land uses during construction and avoid or minimize long-term effects on land use following construction. The Authority will also continue to coordinate with the New Jersey Department of Environmental Protection (NJDEP) and the Cities of Newark and Bayonne on finalization of the public access project proposal and its implementation. With incorporation of these measures, no further mitigation is necessary.

3.4 Socioeconomics

Technical Appendix 3.4 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to socioeconomics.

The socioeconomics study area for the Proposed Action represents the portions of Newark, Bayonne, and Jersey City within approximately 0.25-mile (1,320 feet) of the NB-HCE between Interchanges 14 and 14A. This distance reflects the typical extent of freeway operational and accessibility effects, for example, noise and development influence, on communities nearby the freeway. See Figure 3.4-1 for key neighborhoods and features within the study area.

Figure 3.4-1. Socioeconomic Study Area

Social and Economic Factors – The Proposed Action will not affect the community character of the study area as it will not affect those factors influencing community character: land use plans and planned investments in open space, the Morris Canal Greenway, and transit-oriented development around Hudson-Bergen Light Rail Stations, among other changes to the physical environment. It is anticipated that the Proposed Action will not affect community cohesion in the study area as the Proposed Action involves widening and improving a highway and NBB that have been in place for nearly 75 years under which existing travel corridors crossed by the NB-HCE will be retained. The Proposed Action will not affect potential future investments along major north-south corridors that are expected to enhance community cohesion, such as increased neighborhood retail development identified in the Jersey City Master Plan along JFK Boulevard and Garfield Avenue corridors. The Proposed Action will have little to no effect on population and household demographics.

The Proposed Action will not affect the availability of essential business services for community residents as it does not conflict with efforts such as the Ocean Avenue South Redevelopment Plan in Jersey City to attract and retain local businesses to serve the community.

One property (four tax lots) has been acquired in full for the Proposed Action. Acquisition of the former Marist High School property removed this property from the tax rolls as the Authority is exempt from property taxes. The former Marist High School property will be repurposed for use as a stormwater management basin and for contractor lay down areas and future maintenance needs.

The Proposed Action is expected to have a beneficial effect on planned port and port-related growth in and around the study area by providing sufficient roadway capacity to at least 2050 between Interchanges 14 and 14A, which provide access between the ports, railyards, and warehouses and the regional transportation system. In this way, the Proposed Action supports the continued economic growth and employment opportunities of Transportation and Warehousing, a major industrial sector in the area, as well as increases in assessed values and property tax payments from related property improvements. Finally, by providing sufficient roadway capacity to at least 2050 on the section of the NB-HCE between Interchanges 14 and 14A, the Proposed Action will also have a beneficial effect on workers and other users of the region's roadway system for journey to work and other trip purposes.

Construction Economic Effect – As shown in Table 3.4-1, the project's construction expenditures are anticipated to generate the following economic impacts:

- Approximately 25,500 total jobs during the construction period.
- $2.0 billion earned in labor income by employees.
- $2.8 billion in value added (value added is equivalent to the investment's contribution to the gross regional product).
- $519.8 million in federal, state, and local taxes ($357.8 million in federal taxes and $162.0 million in state and local taxes).

Table 3.4-1. Estimated Construction Economic Impact

Metrics	Direct	Indirect	Induced	Total
Employment	18,786	2,845	3,863	25,494
Value Added	$1,902.0	$478.8	$468.5	$2,849.3
Labor Income	$1,437.1	$314.8	$262.6	$2,014.6
State / Local Taxes	$50.4	$62.9	$48.7	$162.0
Federal Taxes	$247.4	$59.0	$51.4	$357.8

Note: Monetary values are in millions of 2021 dollars.

Community Character – The NB-HCE between Interchanges 14 and 14A traverses census block groups in the study area having population that meet the criteria of low-income populations, minority populations, or both. The communities of Newark, Bayonne, and Jersey City have elevated indices of ground-level ozone, fine particulate matter, diesel particulate matter, and other air toxics that are typically associated with asthma and higher rates of cancer. Many of these indices are above the 80th percentile of indices of other communities within New Jersey. The high-density urban pattern with relatively low ratios of open space and tree canopy was developed on and around former industrial properties with histories of contamination and is now in close proximity to transportation infrastructure (road and rail) with high volumes of heavy vehicles. These stressors tend to exacerbate public health concerns. Engagement with the adjacent communities on the planning of the Proposed Action began during concept planning in early 2022, continued throughout preparation of the preliminary design of the Proposed Action and the draft EA, and will continue through final design and construction. Community feedback has been incorporated into the design of the Proposed Action and mitigation options.

Below are summaries of the detailed impact evaluations conducted in the referenced sections of this Environmental Assessment which provide the specific reasons why the Proposed Action will adversely affect community character compared to the No Action Alternative:

- Destruction or disruption of community cohesion or a community's economic vitality. As discussed under Social and Economic Factors (Section 3.4.5.1 if Technical Appendix 3.4), no adverse effect is anticipated for either the Proposed Action or the No Action Alternative.
- Destruction or disruption of the availability of public and private facilities and services. As discussed under Social and Economic Factors (Section 3.4.5.1 of Technical Appendix 3.4), no adverse effect is anticipated.
- Adverse employment effects. As discussed under Social and Economic Factors (Section 3.4.5.1 of Technical Appendix 3.4), no adverse effect is anticipated. The Proposed Action is expected to have a beneficial effect on port and port-related growth in and around the study area by providing sufficient roadway capacity to at least 2050 between Interchanges 14 and 14A, both of which provide access between the ports, railyards, and warehouses and the regional transportation system.
- Bodily impairment, infirmity, illness or death. One of the purposes of the Proposed Action is to improve motorist and worker safety on the section of the NB-HCE between Interchanges 14 and 14A. Maintenance and protection of traffic and work-zone safety measures will be incorporated into the project to protect the safe movement of travelers and workers during construction.
- Air pollution. As detailed in Section 3.8.5 of Technical Appendix 3.8, the results of the criteria pollutant and mobile source air toxics analyses indicate no meaningful differences are expected between the No Action Alternative and the Proposed Action. Emissions associated with the project are not expected to create or contribute to new violations of the national ambient air quality standards, increase the frequency or severity of National Ambient Air Quality Standards violations, or delay timely attainment of the standards. Assessment of construction-period air emissions, including through hot spot analyses within each municipality, indicates that construction of the Proposed Action would not exceed *de minimis* thresholds and, therefore, would conform to the New Jersey State Implementation Plan (SIP). The inclusion of an Adaptive Management Plan (Appendix H) to monitor air quality during construction work hours will reduce the potential for construction-related air quality impacts.
- Noise. A noise analysis (Technical Appendix 3.9) of existing conditions and conditions under the No Action and Proposed Action alternatives was conducted in accordance with the Authority's Noise Barrier Policy and is generally consistent with the Federal Highway Administration's *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (23 CFR 772). Based on the analysis, the existing noise barrier on the NB-HCE in the study area along the south side of the NB-HCE beginning west of the NB-HCE crossing of JFK Boulevard and continuing past the crossing of Avenue C to the east will be replaced under the Proposed Action with a noise barrier designed to mitigate NB-HCE traffic noise under the Proposed Action's 2050 traffic conditions. Measures to minimize construction noise,

as described in Section 3.9.5.3 of Technical Appendix 3.9, will be implemented to minimize impacts to the maximum extent practicable. The inclusion of an Adaptive Management Plan (Appendix H) to monitor noise during construction work hours will reduce the potential for construction-related noise impacts.

- Water pollution. As noted in Section 3.11.5 of Technical Appendix 3.11, by increasing the number of travel lanes and providing full width shoulders, the Proposed Action increases the area of impervious surface on the NB-HCE between Interchanges 14 and 14A. However, while the existing NB-HCE provides no stormwater treatment of roadway stormwater runoff, the Proposed Action will provide stormwater management of this section of the NB-HCE by collecting stormwater in basins for treatment. The Proposed Action addresses potential flooding through being designed to conform with NJDEP's Flood Hazard Area requirements.
- Soil and groundwater contamination. As noted in Section 3.11.5 of Technical Appendix 3.11, the Proposed Action will not create any new contaminated sites. The Proposed Action includes measures to manage, control, and treat existing contaminated sites in the study area that will be affected by construction in a manner that protects public and worker health and safety.
- Destruction or disruption of man-made or natural resources. Replacement of bridge structures on the NB-HCE is an integral part of maintaining the structural reliability aspect of the project's purpose. The project's construction will also result in the unavoidable temporary disruption of utilities and other roadways affected by the project's construction (Section 3.7.5 of Technical Appendix 3.7). The Authority is coordinating with the owners of the affected utilities and other roadways on measures to minimize disruption of service.

  The replacement of NB-HCE bridge structures will result in unavoidable adverse effects on Newark Bay and nearby wetlands (Section 3.11.5 of Technical Appendix 3.11). The effects will be minimized through such measures as using structure rather than fill material in wetlands and avoiding in-water construction in Newark Bay between January 1 and June 30. Unavoidable impacts that cannot be minimized will be mitigated through compensatory mitigation, such as habitat restoration or enhancement.
- Destruction or diminution of aesthetic values. As noted in Technical Appendix 3.6, the NB-HCE, NBB, and the nearby Conrail Upper Bay Bridge are important aesthetic features of portions of the study area near Newark Bay to residents, users of waterfront parks, and to roadway users. The NBB would be replaced under the Proposed Action with two new parallel bridge structures. Views of the nearby Conrail Upper Bay Bridge will be the same or similar to existing views.
- Vibration. According to the U.S. Department of Transportation Federal Highway Administration (FHWA) guidance, there are no federal requirements directed specifically to highway traffic induced vibration (FWHA 2011). Prior studies documented by FHWA with the guidance that assessed the impact of operational traffic induced vibrations have shown that both measured and predicted vibration levels are less than any known criteria for structural damage to buildings. The Proposed Action will include measures to reduce construction-related vibration (e.g., use of drilled shafts as opposed to driven piles). The inclusion of an Adaptive Management Plan (Appendix H) to monitor vibration during construction work hours will reduce the potential for construction-related vibration impacts.
- Displacement of persons, businesses, firms, or nonprofit organizations. The Proposed Action would not displace persons, businesses, firms, or nonprofit organizations.
- Increased traffic congestion. A stated purpose of the Proposed Action is to reduce traffic congestion on the NB-HCE between Interchanges 14 and 14A. The Proposed Action reduces traffic congestion from levels projected under the No Action Alternative (Section 3.7.5 of Technical Appendix 3.7).
- Isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community. The Proposed Action will not create circumstances that would isolate, exclude, or separate minority or low-income individuals within the study area's communities. By addressing congestion on the NB-HCE between Interchanges 14 and 14A, the Proposed Action improves access and mobility to and from the study area's communities and the

broader community.

- The denial of, reduction in, or significant delay in the receipt of, benefit of USCG programs, policies, or activities. The Proposed Action will not deny, reduce, or delay benefits of the project (e.g., reduced traffic congestion and travel times and improved treatment of stormwater from the NB-HCE) to minority populations and to low-income populations.

Conclusion

With the mitigation to be implemented by the Authority, the Proposed Action will have no significant impact on socioeconomics, demographic conditions, or community character in the study area. Community feedback has been incorporated into the design of the Proposed Action and mitigation options and the Authority will continue to conduct stakeholder meetings throughout the design and construction of the Proposed Action. The Authority has developed an Adaptive Management Plan (see Appendix H) that describes on-going monitoring and outreach efforts through the construction period to address potential concerns by the adjacent community.

3.5 Cultural Resources

Technical Appendix 3.5 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to cultural resources. In addition, Appendix A provides reports and other documents supporting the technical analysis in Technical Appendix 3.5.

Background research identified four historic properties formally listed in the New Jersey State Register of Historic Places (also referred to as the "New Jersey Register" and herein abbreviated as "NJR") and National Register of Historic Places (NRHP) or determined to be eligible for listing in the NRHP within the Area of Potential Effect (APE)-Architecture (see Figures 3.5-1a – 3.5-1c). An additional archaeological historic property in the APE-Archaeology was formally determined eligible for listing in the NRHP. The New Jersey Historic Preservation Office (NJHPO) has made a formal determination of eligibility for the NBB and Port Authority Administration Building (Building 260) in the APE-Architecture. As such, the cultural resources survey also considered project effects on both historic resources. In separate NJHPO technical assistance correspondence, NJHPO concurred with the assessment that the NB-HCE apart from the NBB is not recommended as eligible for listing on the NRHP.

Prior to the removal, demolition, or alteration of any components of the Newark Bay Bridge, the Authority, will document the existing conditions of the bridge to Level III equivalent standards of the Historic American Engineering Record (HAER) and will develop and install interpretive signage regarding the history and significance of the Newark Bay Bridge, including the structure's involvement in the construction of the NB-HCE and its design as a cantilevered truss bridge. The signage will incorporate historic images of the bridge and will be installed in a publicly accessible location near the bridge such as the Richard A. Rutkowski Park in the City of Bayonne.

Based on coordination with NJHPO, a supplemental Phase I archaeological survey dated November 2023 including a detailed review of geotechnical boring log data was submitted to the NJHPO. Preparation of an archaeological monitoring protocol for review and approval by the NJHPO is recommended for all areas of recommended archaeological monitoring.

As the Project design is ongoing, a Draft Programmatic Agreement (PA) for addressing potential adverse effects of the Proposed Action on properties listed in or eligible for listing in the NRHP and NJR pursuant to Section 106 of the National Historic Preservation Act is found in Appendix A: Cultural Resources. A Programmatic Agreement may be used by a Federal agency to document the measures the agency will implement to resolve adverse effects through avoidance, minimization, or mitigation.

Conclusion

The Proposed Action has the potential to impact historic and cultural resources. Pursuant to Section 106 of the National Historic Preservation Act, the Proposed Action has the potential to result in an adverse effect on properties listed or eligible for listing on the NRHP.

Figure 3.5-1a. Areas of Potential Effect—Newark

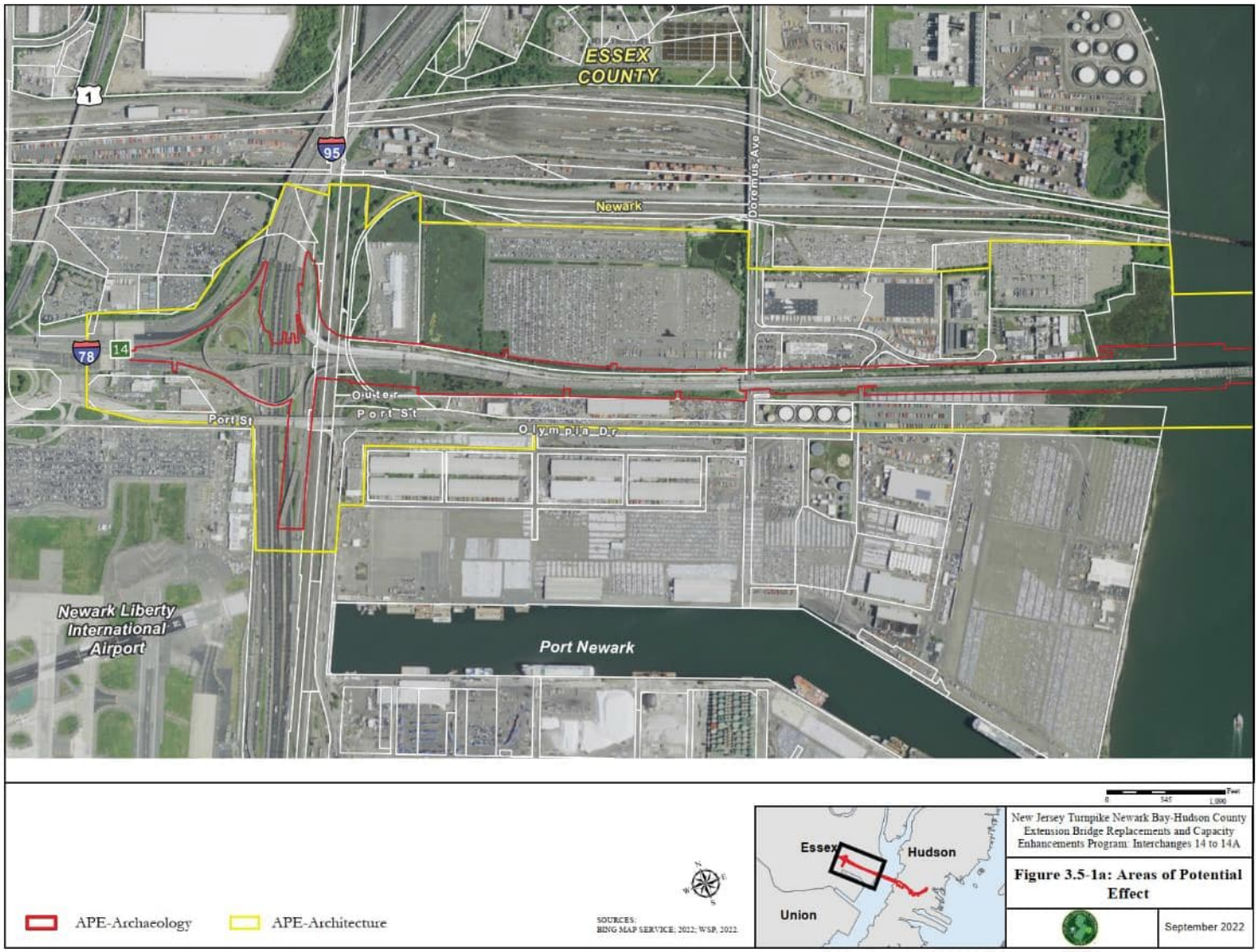


Figure 3.5-1b. Areas of Potential Effect—Bayonne and Jersey City

Figure 3.5-1c. Areas of Potential Effect—Jersey City

Under the Proposed Action, the NBB, a historic resource considered by the NJHPO as individually eligible for listing in the NRHP as an intact example of a mid-twentieth-century cantilevered truss structure, would be removed. The removal of the current NBB would have an adverse effect on the bridge because removal will physically destroy the entire bridge.

The Proposed Action may have an adverse effect on the NJR and NRHP-listed Morris Canal. Archaeological monitoring within the canal footprint will be conducted to record canal-related structural features and to mitigate project-related adverse effects to the historic property.

Archaeological monitoring of the outfall stormwater pipe trench excavation adjacent to the Jersey Eagle archaeological site will be conducted to mitigate potential Proposed Action-related adverse effects to the archaeological historic property.

In addition to the above referenced historic properties, the remains of a circa 1908 New York Bay Railroad Co. turntable may be present within the proposed stormwater detention basin HUC3-C located southeast of the NB-HCE on Block 30306, Lot 2 in the City of Jersey City. Survey Test Pit 10 conducted during the Supplemental Phase IB Archaeological Survey indicated that there was no potential for intact rail-related resources within Basin HUC3-C.

The Authority has executed a Programmatic Agreement with the USCG and NJHPO that outlines the steps required to complete remaining cultural resources survey tasks in accordance with the Section 106 consultation process.

3.6 Visual Resources

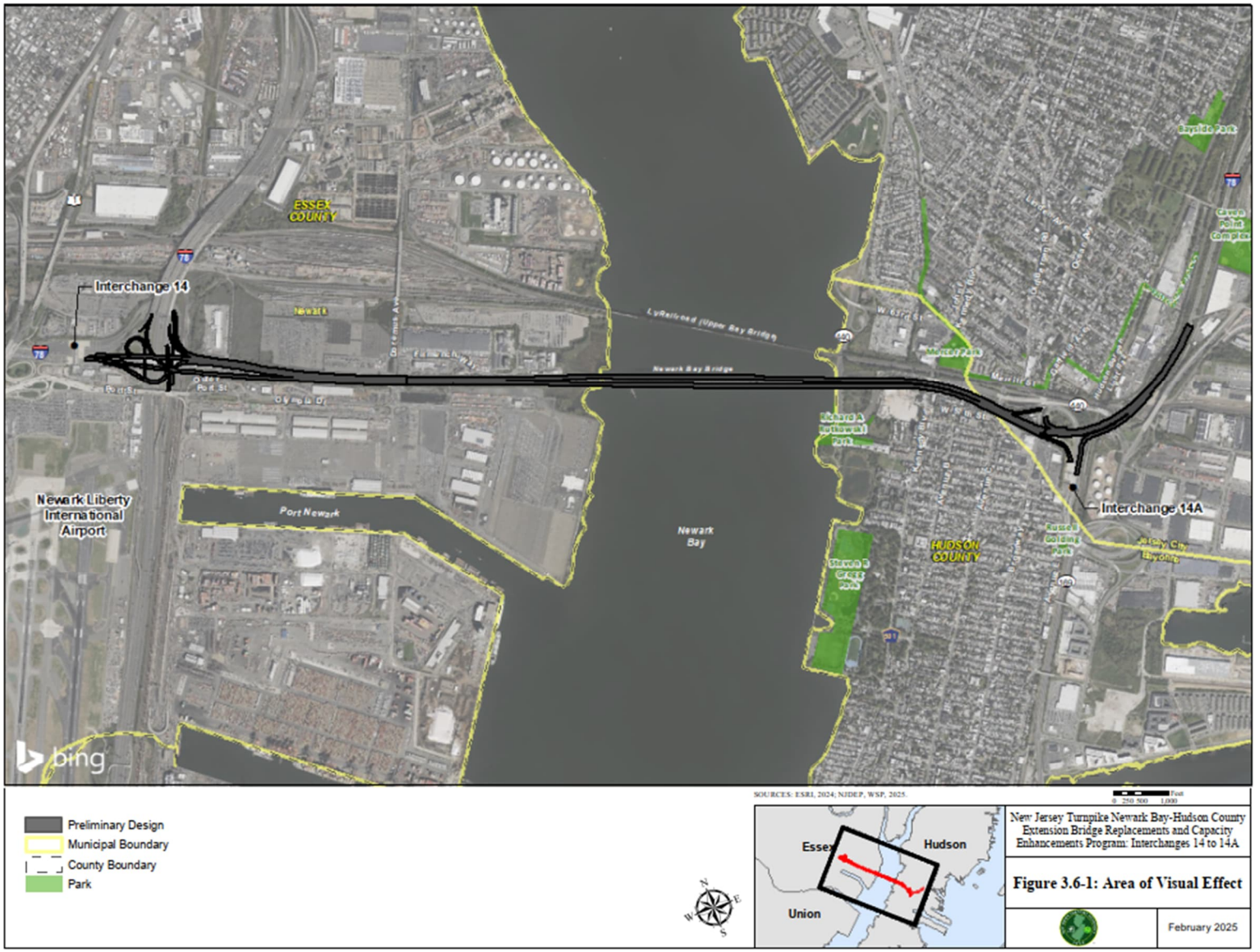
Technical Appendix 3.6 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to visual resources.

A Visual Impact Assessment was prepared in accordance with FHWA visual assessment policies, which are consistent with the policies, procedures, and guidelines contained in established methodologies, including the FHWA Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015).

The visual analysis study area, the Area of Visual Effect (AVE), is defined as the area within visual range of Interchange 14 in Newark to Interchange 14A in Bayonne (see Figure 3.6-1). The potential viewshed is shaped by the study area's topography, as well as its built (e.g., structures) and natural (e.g., primarily vegetation) environment. For the most part, the viewshed of the NB-HCE from adjoining lands is limited, primarily because of topographic features, vegetative screening, and obstructing structures. The study area is more expansive along Newark Bay to account for the many views possible of the NBB.

The AVE primarily includes a heavily developed portion of Northern New Jersey characterized by major port intermodal and other transportation infrastructure, including receiving and shipping terminals, warehouses, railroad facilities, highways, access roads anchored by the Port Newark-Elizabeth Marine Terminal on Newark Bay immediately south of the NBB and EWR at Interchange 14, and the Port Jersey Port Authority Marine Terminal on Upper New York Bay immediately east of Interchange 14A. The adjacent industrial properties have parking lots and driveways close to the right-of-way line. The residential and business districts of Newark lie to the west of Interchange 14. Crossing Newark Bay into Bayonne, the NB-HCE passes through a less densely developed southern end of the New Jersey Palisades, locally Bergen Hill, with waterfront parks and highways, a scattering of late nineteenth- and early twentieth-century residential and commercial development, and extensive highway interchanges, connector roads, and railroads along the boundary of Bayonne and Jersey City.

Figure 3.6-1. Area of Visual Effect



Visibility of the existing NB-HCE structure west of Newark Bay from public rights-of-way is limited by existing industrial development along Port Street south of the existing NB-HCE viaduct and other industrial land uses north of the existing NB-HCE viaduct. Where the viaduct is visible, it is not a major visual element or an element that is out of character with the overall industrial landscape. Even along portions of Port Street east of Doremus Avenue, where the viaduct continues to elevate toward the western approach of the NBB, the viaduct is visible within the context of empty industrial lots or large storage tanks.

The City of Bayonne occupies the land east of Newark Bay north and south of the NB-HCE. Interchange 14A occupies a small corner of the City of Jersey City. Mixed-use neighborhoods occupy the southwest to northeast trending major avenues within Bayonne (JFK Boulevard, Avenue B, Avenue C, and Broadway). Visibility of the NB-HCE viaduct is limited to the last few city blocks south and north of the NB-HCE and primarily along the major avenues. Residences and businesses immediately adjacent to the NB-HCE have partial views of the viaduct.

The Proposed Action would be a notable change to the AVE. However, given the generally low visual sensitivity of the AVE, this notable change may be considered a positive benefit. Although, the new bridges would be distinct from the mid-20th century bridge, the proposed cable-stayed bridges would be consistent with a bridge type commonly used in the United States for long spans today. It has also become a common bridge form for long spans particularly in the New Jersey-New York metropolitan area. The proposed bridges' superstructure would likely be visually lighter and more transparent than the denser steel truss work of the existing NBB. Because of the lighter superstructure and considerably wider span, the decks of the proposed bridges would create a strong, horizontal form across the water in approximately the same location as the existing NBB. While span length, general alignment, and vertical clearance above the water are similar for the existing NBB, the proposed bridge design could have fewer piers and taller towers. Consequently, the overall visual experience of the Proposed Action over the water would be notably different from the existing one; however, the overall character of this transportation infrastructure would not be changed significantly. The proposed bridges would become a notable visual element reinforcing the commercial and transportation character of the visual environment.

Conclusion

The Proposed Action will have no significant impact on visual resources, and no mitigation is required.

3.7 Traffic, Transportation, and Utilities

Technical Appendix 3.7 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to traffic, transportation, and utilities. In addition, Appendix B provides additional data supporting the technical analysis in Technical Appendix 3.7.

Traffic

The Proposed Action will be staged and sequenced to maintain two travel lanes in each direction between Interchanges 14 and 14A, that is, the travel lane capacity of the existing roadway.

As shown in Table 3.7-1, the Proposed Action will improve the traffic flow conditions as measured by roadway level-of-service (LOS) compared to both Existing and No Build congested traffic flow conditions and provide LOS D (stable traffic flow) or better traffic flow.

Table 3.7-1. 2050 NB-HCE Interchanges 14 to 14A Existing, No Action, and Proposed Action Traffic Conditions

	AM Peak Hour Traffic Flow				PM Peak Hour Traffic Flow			
	Traffic Volume	Density	v/c	Level of Service	Traffic Volume	Density	v/c	Level of Service
2021 Existing								
Eastbound	4,533	*	1.31	F	3,852	*	1.04	F
Westbound	3,640	*	1.04	F	3,569	42.3	0.97	E
2050 No Action								
Eastbound	4,909	*	1.41	F	4,172	*	1.13	F
Westbound	3,942	*	1.10	F	3,866	*	1.06	F
2050 Proposed Action								
Eastbound	5,986	34,2	0.86	D	5,088	26.4	0.70	D
Westbound	4,806	26.2	0.69	D	4,713	24.5	0.65	C

Note: v/c = traffic volume divided by roadway lane capacity.
* Density (passenger car equivalents per mile per lane) is not calculated when v/c exceeds 1.00.

Typical of highway capacity expansion projects, the Proposed Action (and the proposed NB-HCE Program) is expected to create some level of induced travel (projects that may increase highway capacity can lead to changes in travel behavior that, in turn, can increase the overall amount of travel). However, based on the analyses documented in Section 3.7.5 of Technical Appendix 3.7 using a framework recommended by the Federal Highway Administration, it can be concluded that the principal induced travel effect of the Proposed Action will manifest as highway route diversions. These estimated highway route diversions are included in the traffic impact analysis of the Proposed Action, as well as in the air quality impact analysis of the proposed action. Little to no induced travel is expected from induced land development, transit to auto mode shifts, or traveler behavior effects attributed to the Proposed Action.

Consequently, the congestion-relief benefit of the Proposed Action is not overstated. Because the vehicle-miles traveled (VMT), criteria air pollutant emissions, and mobile source air toxics analyses results reported for the Proposed Action capture the route diversion effects of the Program, those impacts are not understated. The expected limited effect of the Proposed Action on VMT (and air quality) is supported by the past roughly 20 years of VMT data in New Jersey as a whole and in Northern New Jersey, which indicates that VMT growth is strongly correlated to population growth and not to highway lane-mile additions, a trend that is expected to continue well into the future.

Railroads and Other Roadways

Under the Proposed Action, there will be no realignment or relocation of railroads and other roadways crossed or otherwise in proximity of the Proposed Action, except for one roadway: the existing connector roadway between JFK Boulevard and Avenue C in Bayonne, essentially one block north of West 58th Street, from which point drivers can turn onto Avenue C or continue straight to enter NJ Route 440 southbound. Permanent elimination of the connector roadway will be necessary to minimize the impact on NJ Route 440 and adjacent

properties caused by the Proposed Action's addition of two new travel lanes in each direction on the NB-HCE between Interchanges 14 and 14A. The impact on traffic from eliminating the connector roadway will be minimal as there are numerous alternate roadway routes between JFK Boulevard and Avenue C to Route 440. Among the alternate routes for southbound traffic on JFK Boulevard that currently uses the connector roadway are Pamrapo Avenue to Avenue C and NJ Route 440 southbound via Ocean Avenue and Merritt Street, and West 63rd Street to NJ Route 440 Southbound. Among the alternate routes for northbound traffic on JFK Boulevard that currently uses the connector roadway are West 56th Street, West 54th Street, and West 53rd Street all of which connect JFK Boulevard and Avenue C.

As the former Marist High School at West 57th Street and JFK Boulevard is no longer operational, vehicles destined to that site have been dramatically reduced from previous years. Said property has been acquired by the Authority for stormwater management, contractor lay down, and future maintenance. Access to this site during Project construction is proposed to be directly from the adjacent existing transportation right-of-way between NJ Route 440 southbound and the property for property access/egress needs, thereby minimizing the impact of construction traffic on the local street system.

The analysis of local street traffic in the residential neighborhoods in Newark, Bayonne, and Jersey City in closest proximity to the NB-HCE between Interchanges 14 and 14A under the Proposed Action indicates minor changes in traffic volumes on local streets relative to the No Action. Approximately 65 – 70 percent of local streets in the Newark, Bayonne and Jersey City study areas will experience lower traffic volumes due to the Proposed Action. For those local streets that are estimated to experience an increase in traffic, the traffic increase will be between 3% and 8%. The Authority will coordinate with the municipalities on such measures as signal timing or lane striping changes to mitigate any adverse effects.

The portion of West 58th Street near Avenue B will be permanently narrowed by the Proposed Action. The existing single one-way travel lane will be maintained. However, parking on both sides of the street for approximately 100 feet on each side of the roadway, or approximately 9 to 12 on-street parking spaces in total, will be eliminated. Reconnaissance of the affected area indicates that the capacity of on-street parking exceeds the demand for on-street parking, likely because many residential units in the area have off-street parking. Consequently, the elimination of the on-street parking will have a minor adverse effect.

Utilities

Construction of the Proposed Action will require modifications to or relocations of several major utilities within the corridor, including existing power, telephone, fiber optic, water and wastewater utilities that are currently attached to the NBB.

In addition, Williams Companies' fuel line and two 16-inch Gas Mains of an unknown owner, all in Newark near Interchange 14, will require protection during construction. Utility relocations should be completed in advance of construction to avoid or minimize adverse impacts. Coordination will occur with utility providers to avoid or minimize adverse construction impacts.

Waterway Navigation and Ports

The main span of the replacement NBB structures over the 500-foot wide Federal Newark Bay North Reach will be approximately 800 feet. Consequently, the replacement structures' piers and pier foundations will not encroach on the channel and will avoid an impact on the channel. Meanwhile, each of the structures will have minimum navigational clearances of 550 feet horizontal and 135 feet vertical above mean high water (MHW). The Authority is designing the proposed structures to maximize vertical navigational clearance greater than 135 feet above MHW to the extent possible accounting for relevant site and design constraints (wind performance, vertical profile and grade, and aviation clearance).

There will be a need for temporary use of the channel by construction tugboats and barges. The Authority will coordinate with the USCG and mariners using the waterway to minimize interference with navigation through

the channel. Methods such as the use of cantilevered construction of the main spans and trestles outside the navigation channel to serve as platforms to construct the Proposed Action structures and demolish the existing structure should minimize the need for using tugboats and barges during construction once the trestles are in place.

The Proposed Action will not acquire port property nor interfere with goods movements by rail or roadway except for the temporary closures or detours during construction. The Authority will coordinate with Conrail and port operators and tenants on the timing of the temporary closures and detours to minimize the impact on goods movement and customers.

By increasing the long-term capacity and improving traffic flow on the NB-HCE between Interchanges 14 and 14A, the Proposed Action complements the goals and objectives of the Port Master Plan 2050 (PANYNJ 2019) by improving the service reliability for an increased volume of containers and automobiles entering the port and shipped by truck from the growing Port Jersey Port Authority Marine Terminal to distribution centers along the NJ Turnpike (I-95) Mainline and I-78 in Pennsylvania.

Navigable Airspace

The maximum height of the replacement NBB structures will be at or below the EWR Runway 29 approach and departure paths no-exceed heights for each structure's respective locations.

Federal Aviation Administration (FAA) regulations, specifically, 14 Code of Federal Regulations (CFR) Part 77, establish that notification of construction or alteration in the vicinity of airports, including potential obstruction and lighting impacts, must be submitted 45 days prior to construction. According to a Determination issued by the FAA, its aeronautical study revealed that the replacement NBB structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, the FAA determined that the structure would not be a hazard to air navigation.

Conclusion

The Proposed Action will have no significant adverse impact on traffic, transportation, or utilities.

3.8 Air Quality

Technical Appendix 3.8 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to air quality. In addition, Appendix C provides additional data supporting the technical analysis in Technical Appendix 3.8.

An air quality study was performed to ensure the Proposed Action conforms with regulations established under the Clean Air Act (CAA). Hot-spot analyses were performed for the NB-HCE corridor (NB-HCE roadway and ramps between Interchange 14 and Interchange 14A) under 2050 No Action and 2050 Proposed Action Alternatives as well as at localized intersections (Port Street and Doremus Avenue, JFK Boulevard and 63rd Street, and JFK Boulevard and 57th Street) affected during the peak construction year of 2034.

The mobile source air toxics (MSAT) air quality study area for the Proposed Action includes the NB-HCE corridor as well as beyond the NB-HCE corridor to include roadways that would experience changes in traffic because of the overall proposed NB-HCE Program. The MSAT regional emissions inventory analysis includes specific roadways bound by the I-287 corridor, including the NB-HCE roadway. The roadways within the regional emissions inventory analysis includes roadways within the area bounded by I-287 in northern New Jersey within the NJRTM-E transportation model. The study area for the MSAT, therefore, includes all of Essex, Hudson, and Union Counties and portions of Middlesex, Somerset, Morris, Passaic, and Bergen Counties.

The Proposed Action will be constructed over a 12-year period, commencing in 2026 and ending in 2037. A General Conformity applicability analysis was performed for heaviest construction years for activities in Newark (Essex County), Jersey City and Bayonne (Hudson County) during calendar years 2033, 2034 and 2035. Construction-related emissions were estimated for all activities necessary to construct the Proposed Project and compared to *de minimis* thresholds.

The Proposed Action is located within the planning area of the NJTPA. The NJTPA performs regional emissions analyses to demonstrate that emissions from the area's transportation system are within the limits outlined in the New Jersey State Implementation Plan (SIP). The NB-HCE Program (DBNUM: TPK24001) is included in Appendix B of the fiscal year (FY) 2022 TIP for regionally significant non-federally funded projects. The FY 2024 to FY 2027 TIP was approved on September 12, 2023. Operational emissions resulting from the NB-HCE Program were included in the previous conformity determination for scenario year 2030. NJTPA detailed the analysis demonstrating conformance to the SIP within "Plan 2050: Transportation, People, Opportunity and the FY 2024-2027 Transportation Improvement Program" document, dated September 12, 2023. Consequently, the Proposed Action meets the Clean Air Act Transportation Conformity requirement as it is included in the regional emissions analysis of a conforming Plan and TIP.

Motor vehicle emissions were computed using USEPA's Motor Vehicle Emission Simulator (MOVES4) based on a project-specific fleet mix and speed data and incorporation of the most current guidance available from USEPA and NJDEP. Peak concentrations of carbon monoxide (CO) and fine particulate matter ($PM_{2.5}$) would occur closest to the NB-HCE, specifically along public sidewalks. Total concentrations for CO and $PM_{2.5}$ were modeled and based on modeling results, the Proposed Action condition will be below the National Ambient Air Quality Standards (NAAQS) for these criteria pollutants. USEPA has noted that Federal rules and programs, in partnership with state, Tribal, and local partners, will help to improve air quality around the country and reduce particle pollution and it further notes that most counties with monitors (including Essex and Hudson Counties) already meet the strengthened particle pollution standard and that it projects continued reduction of emissions that cause fine particle pollution such that more than 99% of counties in the U.S. (including Essex and Hudson Counties) are projected to meet the revised standard in 2032.

The results of the mobile source air toxics (MSAT) analysis indicate no meaningful differences are expected for the Proposed Action in 2050, as compared to the No Action Alternative in 2050. As no meaningful differences in MSAT emissions are predicted, mitigation does not need be considered.

It is noted that the analysis does not account for recently adopted State regulations that will reduce motor vehicle emissions in the future. Consequently, the actual air pollutant emissions and concentrations with adoption of the regulations are expected to be lower than the air pollutant emission levels presented in this document.

Construction-related emissions were calculated for ozone precursors (oxides of nitrogen and volatile organic compounds), carbon monoxide, PM_{10}, and $PM_{2.5}$ for the three highest construction activity years (2033, 2034, and 2035). Construction-related emissions are the only source of emissions to compare with the General Conformity Rule *de minimis* thresholds. Peak construction-related emissions were estimated in 2034. The analysis performed demonstrates that construction of the Proposed Action does not exceed *de minimis* thresholds and, therefore, can be presumed to conform to the New Jersey SIP. Meanwhile, hot-spot analyses of construction emissions in 2034 show no exceedance of the NAAQS for the criteria pollutants CO and $PM_{2.5}$. Nevertheless, the Authority will implement an air quality monitoring program during construction and apply adaptive management to reduce emissions, as necessary (see the Adaptive Management Plan in Appendix H).

Conclusion

With the mitigation to be implemented by the Authority, the Proposed Action will have no significant impact on air quality. Pursuant to Clean Air Act requirements, the Proposed Action's construction and operational

effects on air quality must conform with the SIP. The analysis of construction-related emissions shows that the emissions do not exceed the General Conformity Rule *de minimis* thresholds and, therefore, can be presumed to conform to the New Jersey SIP. The Proposed Action is included in a long-range transportation plan that has been subject to Transportation Conformity Rule requirements. In addition, no meaningful differences in criteria pollutants or mobile-source air toxics emissions are expected for the 2050 Proposed Action, as compared to the 2050 No Action Alternative.

3.9 Noise

Technical Appendix 3.9 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to noise. In addition, Appendix D provides additional data supporting the technical analysis in Technical Appendix 3.9.

The roadways incorporated in the traffic noise prediction modeling network include the NB-HCE corridor from approximately Interchange 14 to Interchange 14A, associated ramps, and local roadways such as Firmenich Way in Newark, NJ Route 440, JFK Boulevard, Avenue C, Merritt Street, Garfield Avenue, as well as West 58th Street and West 56th Street in Bayonne and Jersey City. Figure D-1 within Appendix D: Noise details the traffic noise modeling roadway network.

A detailed noise measurement study was performed to document peak traffic noise levels within the study area. Ambient noise levels within the study area are affected by vehicular traffic traveling along the NB-HCE corridor, NJ Route 440, associated ramps, and the local roadway network. Other mobile sources within the study area affecting ambient noise levels include rail activity associated with the Conrail freight line that parallels the NB-HCE corridor, as well as aircraft flyovers associated with EWR. The noise measurement study was performed in general accordance with the FHWA Measurement of Highway-Related Noise, Final Report (FHWA-PD-96-046).

Traffic Noise

Based on noise prediction modeling, noise levels under the Proposed Action would approach or exceed the FHWA and New Jersey Turnpike Authority Noise Abatement Criteria (NAC) threshold of noise interference of 67 A-weighted decibels (dBA) (L_{eq}) for Activity Category B (residential properties) at 32 single-family, 67 dual-family, and four multi-family residential structures within the noise study area, equating to 181 total dwelling units. Noise levels would "approach" or exceed the threshold of noise interference of 67 dBA (L_{eq}) for Activity Category C (exterior noise levels at schools, hospitals, and parks) within a portion of Mercer Park (approximately 158,585 square feet [sf]), equating to 54 total dwelling units. Interior noise levels would approach or exceed the Activity Category D NAC (52 dBA L_{eq}) at the Woodrow Wilson School #10, including all three classroom floors of the east building and the second and third floors of the west school building. Without access to school building floor plans, it was assumed the impacted receptors represent 13 highway-facing classrooms.

South of the NB-HCE. As the existing noise barrier would need to be removed to accommodate the proposed widening, analysis reflects noise levels predicted without a noise barrier. Predicted traffic noise impacts south of the NB-HCE roadway are primarily located along JFK Boulevard, West 56th Street, West 57th Street, and West 58th Street, where the existing noise barrier required removal to accommodate the NB-HCE widening. Additional impacted residential structures include fourth and fifth floor balconies at the Liberty Bay Club multi-family residential structure. Impact to the Liberty Bay Club is likely resulting from a combination of traffic changes on NJ Route 440 as well as changes to the NB-HCE corridor as a result of the Proposed Action. The predicted interior impact would occur at the Woodrow Wilson School #10, located along West 57th Street.

Based on the Authority's second impact criterion, four dual-family residential structures on Sunset Avenue, equating to eight dwelling units, were predicted to experience a noise level increase of 10 dBA or greater, relative to 2021 Existing Condition noise levels. Noise levels were predicted to increase by more than 10 dBA under

the Proposed Action due to the removal of shielding provided by the Marist High School building and associated ancillary structures. Proposed Action noise levels on Sunset Avenue would only increase by 1 dB, relative to the No Action Alternative, which is not perceivable.

A noise barrier was thereby evaluated along the widened eastbound NB-HCE shoulder at a uniform height of 18 feet (i.e., the maximum allowable height under the Authority's policy), from just east of where the NB-HCE roadway crosses over NJ Route 440 to approximately 75 feet west of Garfield Avenue. The eastern terminus is approximately the same as the existing noise barrier's eastern terminus; however, the western terminus was extended approximately 556 feet west. The western extension was evaluated to mitigate Proposed Action noise impacts predicted at three dual-family residential structures on West 57th Street, adjacent to the former Marist High School property, and noise impacts predicted at four dual-family residential structures on Sunset Avenue meeting the Authority's second impact criterion (i.e., 10 dBA or greater increase in Build noise levels, relative to existing noise levels). The western extension was also evaluated to mitigate noise impacts predicted at one fourth floor and three fifth-floor balconies at the Liberty Bay Club, south of NJ Route 440.

North of the NB-HCE. North of NB-HCE roadway, Activity Category B impacts are located along Merritt Street within the Jersey City Housing Authority Curries Woods neighborhood and on Garfield Avenue. In addition, the Activity Category C NAC would be exceeded at Mercer Park within the football field and along the walking trail that parallels JFK Boulevard (approximately 158,585 sf), equating to 54 residential dwelling units.

To mitigate predicted Proposed Action impacts to Mercer Park, two dual-family residences on Merritt Street that are part of the Jersey City Housing Authority's Curries Woods neighborhood, and one dual-family residence on Garfield Avenue, a potential three-part noise barrier system was evaluated along the westbound shoulder of the widened NB-HCE roadway. As detailed in Section 3.9.5.2 of Technical Appendix 3.9, the three-part noise barrier "system" would not provide benefit to any of the impacted receptors as intended because it would not yield the minimum required noise level reduction of 5 dBA at impacted receptors; therefore, the three-part noise barrier "system" is not a recommended mitigation measure.

Construction Noise

Noise-sensitive receivers within project limits will experience an increase in noise levels during construction activities. Typical construction activities, such as roadway deck demolition, bridge repairs and milling/paving are known to produce high noise levels. Equipment such as but not limited to hoe rams, jackhammers, impact pile drivers, rivet removers, concrete trucks, scarifiers, paving machines, backhoes, and dump trucks, may be utilized. Resultant noise levels can range between approximately 70 to 90 dBA at noise-sensitive sites.

For construction activities, standard specifications for inclusion in the proposed construction contract documents may include the following:

- All construction equipment powered by an internal combustion engine shall be equipped with a properly maintained muffler.
- Air compressors shall meet current U.S. Environmental Protection Agency noise emission exhaust standards.
- Air powered equipment shall be fitted with pneumatic exhaust silencers.
- Stationary equipment powered by an internal combustion engine shall not be operated within 150 feet of noise-sensitive areas without portable noise barriers placed between the equipment and noise-sensitive sites. Portable noise barriers shall be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment).
- Powered construction equipment shall not be operated before 8:00 a.m. or after 8:00 p.m. within 150 feet of a noise-sensitive site.

Conclusion

The Proposed Action will have adverse impacts to noise at several receptors. The Authority will implement a noise monitoring program during construction and apply adaptive management to reduce sound levels, as necessary (see the Adaptive Management Plan in Appendix H). Following construction, with implementation of the proposed noise wall, and tree planting within NJ Turnpike ROW, where feasible, the long-term noise impacts will be mitigated to the maximum extent practicable such that they would not be considered significant impacts.

3.10 Hazardous Materials and Contaminated Sites

Technical Appendix 3.10 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to hazardous materials and contaminated sites. In addition, Appendix E provides additional data supporting the technical analysis in Technical Appendix 3.10.

Potential sources of hazardous materials and contaminated sites resulting from previous or existing uses were identified for the NB-HCE corridor between Interchanges 14 and 14A, with a particular focus on areas within 250 feet on either side of preliminary project limits of disturbance, through a Hazardous Waste Survey Technical Environmental Study Report (see Appendix E). The purpose of the hazardous waste survey was to assess whether the soil or shallow groundwater that will be disturbed by project construction activities could contain hazardous waste or other contaminated materials requiring special handling or disposal.

The presence of contamination potentially affects the development and construction of the project in multiple ways, including: (1) design of cut areas and other subsurface elements; (2) construction document specifications for managing and handling contaminated soils and groundwater; (3) regulatory oversight by NJDEP; (4) worker and public health and safety during construction; and (5) property acquisition process and costs, as well as liability concerns.

During project construction, historic fill and otherwise contaminated soil and/or water could be encountered in places along the entirety of the project during clearing, excavation, grading, demolition, and the construction of piers and footings of the viaducts and bridges. Soil disturbance will also occur during construction of temporary and permanent access roads, construction staging areas, and stormwater basins. Construction activities within contaminated media (soil, sediment, groundwater) have the potential to cause contaminants to migrate both vertically and horizontally. Contaminant release and transport mechanisms during construction include contaminated soil transported as dust and volatilization of contaminants from the soil and groundwater matrices to the soil vapor phase, and existing soil vapor contaminants. The most likely route of exposure will be through breathing volatile/semi-volatile compounds or particulate-laden air released during demolition, excavation, and construction activities.

A New Jersey Licensed Site Remediation Professional (LSRP) will be retained to oversee the management of contamination encountered during the linear construction project. The disturbance, handling, and disposal of any contaminated waste and materials, and appropriate preventive measures will be undertaken under the oversight of the retained LSRP to protect the safety of the public, construction workers, and the greater environment from exposure to contaminated materials.

Conclusion

The Proposed Action will have minimal impact on hazardous materials. The systematic approach to identifying site contamination has occurred during project development. Further investigations, including sampling of soil and groundwater, will occur during final design to identify measures to be undertaken during construction to protect public and worker health and safety and avoid the spread of contamination. A sampling plan and protective measures will be developed by the project team in coordination with relevant property owners, as appropriate.

Regarding the Newark Bay Study Area (Diamond Alkali) Superfund Site - Operable Unit 3, the Authority and USEPA have coordinated on the potentially coinciding timelines of the NBB Replacement and the Newark Bay remediation and have agreed to continue coordination on the respective projects. It is possible that USEPA's future remedy (not yet selected) for the Newark Bay Study Area will require construction activity proximal to the existing/new bridge alignment, to remediate comparatively elevated areas of contamination in the Newark Bay sediment. The Authority has reviewed USEPA's current interim remedial plan for Newark Bay and focus areas proximate to the Newark Bay Bridge. The Authority will continue to coordinate with USEPA to share information on remediation and construction schedules to avoid conflicts. Currently, no conflicts between the two projects are anticipated.

By following the above-described approach, no significant impacts will result.

3.11 Natural Resources

Technical Appendix 3.11 provides a detailed technical analysis of the affected environment and potential impacts of the Proposed Action related to natural resources. In addition, Appendix F provides additional reports and correspondence supporting the technical analysis in Technical Appendix 3.11

The study area for assessing natural resources encompasses all areas within 250 feet of the anticipated limit of disturbance based on preliminary design plans with the following exceptions: (1) the study area was reduced in areas where the study area crossed a rail line, parking lot, or any development that would not be altered by the Proposed Action, and (2) the study area was expanded near Newark Bay to account for changes to the NB-HCE roadway alignment for the NBB replacement.

The Proposed Action will have impacts to natural resources; however, the measures outlined below will reduce any impacts to the maximum extent practicable. These measures and others have been incorporated as conditions of the permit issued by NJDEP on April 3, 2024, for the activities of the Proposed Action relating to the replacement of the Newark Bay Bridge, essentially, extending along the NB-HCE corridor from just west of Doremus Avenue in Newark to just west of JFK Boulevard in Bayonne. The Authority submitted an application to NJDEP for multiple permits for these activities on October 20, 2023. The permit issued by NJDEP (numbered 0000-23-0012.2 LUP230001) consists of the following authorizations:

- Waterfront Development Individual Upland Permit.
- Waterfront Development Individual In-Water Permit.
- Flood Hazard Area Individual Permit.
- Freshwater Wetlands Individual Permit.
- Water Quality Certificate.

NJDEP also determined that the approved activities meet the requirements of the State's Flood Hazard Area Control Act, Coastal Zone Management, and Stormwater Management rules. The permit, which is found in Appendix F, lists conditions that will be implemented and monitored by the Authority to mitigate impacts on the environment from the Newark Bay Bridge replacement activities.

The Authority will submit applications for permits for Proposed Action activities in areas between Interchanges 14 and 14A outside the limits of the Newark Bay Bridge in the future during final design. No Federal permits, approvals, or funding is needed for activities in these other areas outside the limits of the Newark Bay Bridge.

The Proposed Action will have measurable impacts on water quality, but pollutant concentrations would be below applicable standards, regulations, and guidelines, and within existing conditions or designated uses. Pursuant to the Coastal Zone Management Act, the Proposed Action will have no reasonably foreseeable effects on coastal uses and resources. Pursuant to the Marine Mammal Protection Act, the Proposed Action is not likely to or will not result in takes of marine mammals. Pursuant to the Magnuson-Stevens Act, the Proposed Action will have no effect to Essential Fish Habitat or Habitat Areas of Concern. Pursuant to the

Migratory Bird Treaty Act, the Proposed Action will not result in take of migratory birds or the parts, nests, or eggs of such bird. Pursuant to the Bald and Golden Eagle Protection Act (BGEPA), the Proposed Action will not result in take of Bald or Golden Eagles or the parts, nests, or eggs of such bird.

Geology and Soils

Under the Proposed Action, construction and associated excavation and drilling activities would reconfigure surface topography but are not expected to adversely affect the underlying geology of the area. Vibration due to pile driving would be largely avoided by using drilled shaft foundations for the bridge piers.

Construction and demolition activities would involve the excavation of soils for installing cofferdams around pier structures, building stormwater basins, and establishing permanent access roads for construction, maintenance, and security access. To avoid and minimize potential increases in soil erosion during construction, erosion and sediment control measures would be implemented, which may include a combination of turbidity barriers, silt fences, hay bales, diversion ditches, temporary grading, and vegetative or other protective coverings for exposed soils. All excavations in wetlands and open water would be conducted from within cofferdams, where water within would be pumped out to settling tanks before being discharged. In accordance with the Soil Erosion and Sediment Control Act of 1975, as amended (New Jersey Administrative Code [N.J.S.A.] 4:24-39 et. seq.), a soil erosion and sediment control plan will be prepared and implemented. The plan would meet the Standards for Soil Erosion and Sediment Control in New Jersey at N.J.A.C. 2:90 (New Jersey SSCC 2017) and be certified by the Hudson Essex Passaic Soil Conservation District. Upon completion of the replacement bridges and demolition of the existing NBB, all staging areas and temporary access roads would be removed, and the soils would be restored to their original grade and revegetated.

Water Resources

Surface Water Impacts

During construction, soil erosion and resuspension of bottom sediments would be expected to cause the greatest potential impacts to surface waters. Construction activities such as clearing and grubbing, excavations, and creating equipment staging areas would expose and disturb soil, potentially leading to soil erosion. Construction of additional impervious surfaces would lead to increased stormwater runoff volumes and impact surface water quality via potential increase of sediments and contaminants entering Newark Bay. In-water construction would impact water quality via increases in suspended sediments. The introduction of suspended sediment in the water column of Newark Bay could result in increased total suspended solids and turbidity, decreased dissolved oxygen levels (due to increases in Biochemical Oxygen Demand), and decreased photosynthesis due to increased turbidity. Surface water quality in Newark Bay could also be affected by additional metal or chemical (organic or inorganic) loadings associated with sediments. Metals, nutrients, and other chemicals may be released into the surrounding waterways during the dredging, dewatering of cofferdams, and movement of construction material, fuels, and lubricants.

Because sediments within Newark Bay are known to be heavily impacted with polychlorinated biphenyls, dioxins, and metals, best management practices would be implemented to minimize the potential for, and magnitude of, adverse environmental impacts that could result. Adverse water quality impacts associated with construction would be minimized by restricting in-water work to dry conditions within cofferdams and implementing a soil erosion and sediment control (SESC) plan. Measures will be taken during construction of piers to minimize disturbance of bottom sediments and reduce turbidity, such as driving piles within casings using turbidity barriers or bubble curtains around drilled shafts. The Proposed Action would comply with the New Jersey Stormwater Management rules at N.J.A.C. 7:8 and the stormwater design would achieve the required design and performance standards. Lastly, as Newark Bay is a Traditionally Navigable Waterway under the jurisdiction of the USACE, the Authority would comply with all the terms and conditions of a Section 404 Permit and provide compensatory mitigation for permanent impacts, inclusive of temporary impacts greater than 6 months in duration, by restoring 0.817 acres of tidal open water through the removal of the existing bridge piers following construction of the new bridge. Compensation for unavoidable impacts would include

purchasing mitigation credits from existing mitigation banks within Watershed Management Area (WMA) 5 (Hackensack River, Hudson River and Pascack Brook Watersheds) and WMA 7 (Arthur Kill Watershed); or potentially, permittee-responsible mitigation project(s).The Proposed Action would increase the area of existing paved roadway by almost 45 percent, from approximately 60 to 86 acres, including both pavement at ground level and elevated bridge/viaduct surfaces. The paved surface area of the existing NBB over top of open water in Newark Bay would approximately double, from around 7 acres under existing conditions to over 15 acres, after accounting for the demolition of the existing bridge. Stormwater runoff from these paved surfaces would be improved over existing conditions by installing approximately 19 new stormwater basins. Impacts to water quality would be minimized over the long-term, despite an increase in impervious surfaces, because the new basins would intercept and treat stormwater runoff from the roadway. The proposed stormwater basins will achieve the goal of not increasing peak flows to any local storm sewer system receiving runoff from the NB-HCE.

Groundwater Impacts

Groundwater would be encountered during excavation for the construction and demolition of pier footings for the viaducts and bridges. Based on previous monitoring of several properties in the study area, groundwater encountered may be considered contaminated. A pre-construction sampling plan will be developed during final design to identify locations of contaminated groundwater that may need to be managed during construction. Construction activities within contaminated groundwater have the potential to cause contaminants to migrate both vertically and horizontally. Appropriate remedial actions, such as engineering controls, would be developed and implemented to avoid the potential for adverse impacts to construction workers, surrounding communities, and the environment. Dewatering will be required to lower the groundwater table and reach the proposed excavation depths. Appropriate groundwater management approaches will be used for the safe disposal of water removed from the ground during construction. Remedial actions or measures may include off-site disposal or treatment of contaminated groundwater. Institutional and engineering controls would be used to avoid the potential for post-construction impacts. The contractor would obtain a Surface Water General Permit from NJDEP's Division of Water Quality prior to undertaking activities that would discharge groundwater from construction activities to surface waters. The Proposed Action would also follow the NJDEP Linear Construction Technical Guidance to address any contaminated groundwater that is encountered during excavation and prevent the excavation from serving as a conduit for the spread of contaminated water.

Coordination with and approvals obtaining required permits from NJDEP will occur prior to the disturbance, handling, and disposal of any contaminated groundwater. The specifications for any remedial measures would be established in permit documents and would be subject to NJDEP review (should a reportable condition be encountered or if the site is already subject to agency oversight) and would address the procedures for monitoring/oversight to ensure the remedial measures are properly implemented. Appropriate preventive measures will be undertaken to protect the safety of the public, construction workers, as well as the greater environment from exposure to contaminated groundwater.

Wetlands

Eighteen wetlands, one waterbody, and one stream were delineated within the study area. Several delineated wetlands would be disturbed by the implementation of the Proposed Action. The Proposed Action will result in approximately 3.808 acres of permanent impacts and 10.374 acres of temporary impacts to tidal waters within Newark Bay. In addition, the Proposed Action will result in approximately 2.045 acres of permanent impacts and 5.449 acres of temporary impacts on intertidal and sub-tidal shallow areas of Newark Bay.

Several delineated freshwater wetlands would also be disturbed by the implementation of the Proposed Action. Most are freshwater wetlands, and nearly all are palustrine (non-tidal) features that are dominated by the invasive *Phragmites australis*. Permanent freshwater wetland impacts total 8.957 acres and permanent freshwater (New Jersey-regulated) transition area impacts total 3.910 acres. Permanent freshwater wetland impacts can be divided into three categories: (1) wetlands impacted by the footprint of the elevated NB-HCE roadway and the

placement of fill to provide "permanent access" underneath the structure for maintenance, inspections, and security, including impacts from viaduct support structures and stormwater basins, (2) wetlands impacted by proposed pier footings that would extend beyond the edge of the permanent access; and (3) wetlands impacted by roadway embankment. A total of 10.413 acres of temporary freshwater wetland impacts and 4.062 acres of temporary transition area impacts are anticipated to result from the proposed project. All activities considered temporary (to be removed) will be in place for greater than 6 months. Temporary activities include construction access, cofferdams for new piers, cofferdams for existing pier removal, cofferdams for the fender system, and the construction trestle (both pilings and shading of wetlands). Temporary impacts can be divided into four categories: (1) wetlands impacted by construction staging and access areas, (2) wetlands impacted by the installation and removal of cofferdam sheetpiles around bridge pier footings, and (3) wetlands impacted by NBB construction trestle piles. To prevent soil compaction and minimize impacts within freshwater wetlands and transition areas during temporary disturbance, construction pats, timber matting, and/or geotextile fabric would be used, in addition to standard BMPs like using oversized, low-pressure tires.

Wetlands temporarily disturbed during construction will be restored to their original grade and planted with indigenous wetland vegetation. Wetland mitigation will be required for all wetland and open water impacts, and because wetland disturbances are expected to exceed 1 acre, NJDEP would require mitigation for permanent impacts at a minimum of a 2:1 ratio. Table 3.11-3 summarizes the anticipated off-site compensatory wetland riparian zone mitigation required to implement the Proposed Action.

Table 3.11-3. Anticipated Compensatory Wetland and Riparian Zone Mitigation

Resource Type	Total Permanent	Total Temporary
Tidal Water	3.808	10.374
Tidal Marsh	2.045	5.449
Nontidal Freshwater Marsh	8.957	10.413
Total Wetlands/Waters	14.810	26.236
Total Riparian Zones	5.500[11]	3.000

The Authority will acquire available wetland mitigation credits from existing mitigation banks with Service Areas that overlap Watershed Management Area (WMA) 5 (Hackensack River, Hudson River, and Pascack Brook Watersheds) and WMA 7 (Arthur Kill Watershed). If necessary, the Authority will also pursue permittee-responsible mitigation to provide for the balance of the compensatory requirements not covered by available mitigation credits. The form and type of the additional mitigation activity will be coordinated with the regulatory agencies and may include third-party turnkey mitigation projects as well as publicly funded tidal wetland mitigation opportunities.

Floodplains

The Proposed Action would require construction within the 100- and 500-year floodplains of Newark Bay. Bridge piers and towers would be constructed in the floodplains and the placement of these structures would

[11] Riparian zone mitigation acreages are estimated for the Interchange 14 to 14A extent, because regulated riparian zones outside of the Newark Bay Bridge limits have not been formally determined. Final design will determine final riparian impacts and mitigation for the 14 to 14A limits.

displace some floodplain volume. However, the existing and proposed NB-HCE structure is above the floodplain except for the piers and abutments that are located within the floodplain.

Given the minor modifications to the floodplain that would result from the Proposed Action, and its location within a tidal waterbody, adverse impacts to the floodplain or flooding of areas adjacent to the study area are not expected. The final design of the proposed structures will ensure that all elements adhere to the Flood Hazard Area requirements.

The Proposed Action would permanently impact approximately 5.5 acres of New Jersey-regulated riparian zones. There would be approximately 3.0 acres of temporary impacts on riparian zones. The Authority would provide compensatory mitigation for these impacts.

The Proposed Action would comply with the provisions of E.O. 11988 by following the Interagency Water Resources Council implementation guidelines (Interagency Water Resources Council 2015).

Coastal Zone and Tidelands

The construction of new in-water structures would require an application to the Bureau of Tidelands for a new Instrument. For the tidally claimed areas impacted by the Proposed Action, the Authority would determine whether there is a Tidelands License or Riparian Grant for these areas and if any licenses are still valid. If there is no grant or licenses are no longer valid, then the Authority would apply for a new Tidelands Instrument for work proposed within the claimed areas.

Aquatic Biota

Construction of the bridge support structures would directly impact aquatic ecosystems, including freshwater and tidal wetlands, and open water in Newark Bay. Bridge construction methods may include a combination of drilling shafts and pile driving for the bridge support structures, which would introduce sound into the water and would disturb fish habitat in Newark Bay. This could disturb important fish habitat and disrupt migration of fish during spring spawning runs of striped bass, as well as shad and river herring, through the Newark Bay area. Other temporary impacts such as suspension of sediments and increased turbidity would occur during construction.

Short-term effects on aquatic biota resulting from the Proposed Action include the following: displacement of fish from available water column habitat in Newark Bay due to avoidance of areas of hydrological disturbance; noise and vibrations caused by construction; increased turbidity and levels of resuspended solids and contaminants; and temporary sediment disturbance and associated loss of the benthic community within cofferdams. These impacts to Newark Bay would last for the duration of construction, or around two years, but would not be simultaneous because of construction sequencing.

Additional temporary impacts would result from spud barge movements and associated vessel propeller wash in the shallow waters of Newark Bay. Any temporary impacts to pelagic species from the Proposed Action are expected to be negligible. The Authority is coordinating with the National Marine Fisheries Service (NMFS) during its regulatory review of the Bridge Permit Application, pursuant to the Magnuson-Stevens Act Provisions for Federal Agency Consultation with the Secretary (50 CFR Part 600.920). The project is not in or adjacent to National Marine Sanctuary Area or Marine Protected Area.

Long-term effects on aquatic biota include effects resulting from construction activities in Newark Bay, including the alteration of substrate types and benthic habitats; changes in depth, hydrodynamics, and sedimentation rates; and permanent loss of water column and benthic habitats resulting from new bridge piers.

To avoid interference with spring spawning runs of striped bass and other migratory fish, as well as Atlantic Sturgeon, NJDEP recommended that the Proposed Action follow the "NY/NJ Harbor Agreement: February

1 – May 31" (NJDEP 2021b). Additionally, best management practices will be implemented to reduce impacts of construction on migrating fish by monitoring and controlling turbidity, noise, and overall habitat disturbance.

Terrestrial Vegetation and Wildlife

The Proposed Action would result in the permanent loss of approximately 11.330 acres of wetland communities, which provide most of the limited wildlife habitat within the study area, split between 8.957 acres of freshwater wetland impacts and 2.373 acres of tidal wetland impacts; and cause temporary impacts to 12.753 acres of wetlands, split between 10.413 acres of freshwater wetland impacts and 2.340 acres of tidal wetland impacts. Most impacted wetlands are dominated by *Phragmites australis*, except for the *Spartina* marsh located west of Newark Bay, north of the NB-HCE. The habitat value of the *Phragmites*-dominated communities is generally low due to low species diversity, and high levels of anthropogenic activities and disturbance; thus, impacts to wildlife and vegetative species are anticipated to be negligible. The loss of tidal marsh may cause adverse impacts to foraging habitat used by many species, including mammals like mink, muskrat, and raccoon; reptiles like the northern diamondback terrapin; wading birds, including several special-status species; other water birds like mallard, double-crested cormorant, and ring-billed gulls; diurnal raptors like osprey, Peregrine Falcon, and red-tailed hawk; and many passerines including killdeer, red-winged blackbird, song sparrow, swamp sparrow, and marsh wren. The removal of suitable habitat would cause displacement of individuals to nearby suitable habitat and may increase competition for reproductive, foraging, nesting, and migratory habitat. Wildlife mortality could increase if no suitable habitat exists nearby, but the loss of vegetation communities would result in minor adverse impacts to wildlife resources of the region. Marsh vegetation would be removed outside of the breeding window for these species in New Jersey (March 15 through September 15) to eliminate the potential for nesting during the active season if work cannot avoid breeding season timing restrictions for migratory bird species. Additionally, a Migratory Bird Monitoring Plan will be developed prior to construction and a qualified biologist will be on-site between March 15 and September 15 during construction.

In total, the Proposed Action would intersect approximately 47 acres of unpaved, vegetated uplands as identified on preliminary design plans. In addition to the wetland impacts discussed above, the Proposed Action would cause approximately 17.5 acres of permanent impacts and 18.4 acres of temporary impacts to these uplands, of which the vast majority are mowed grass and bare ground that provide little to no wildlife habitat. Upland vegetative communities within the survey area are also very limited in size and dominated by invasive plant species. Following construction, disturbed areas not occupied by permanent structures would be revegetated with a native seed mix of species indigenous to this region of New Jersey to the greatest extent practicable in accordance with a revegetation plan that would be in compliance with E.O. 13112, Invasive Species.

Given the existing levels of noise and other human activity to which birds and other wildlife are accustomed and the low disturbance sensitivity of these species, the Proposed Action is not expected to elevate noise levels to the point that there would be significant disturbance to birds. The bird species occurring closer to the NB-HCE are expected to be habituated to elevated noise and anthropogenic activity from ongoing traffic and maintenance work. However, construction and demolition activities may affect species that are habituated to only lower levels of baseline disturbance and some species could potentially be temporarily displaced or otherwise adversely affected.

Special-status Species

The Proposed Action would have no effect on federally threatened and endangered species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) because USFWS indicates that no species listed under the Endangered Species Act (ESA) may occur within the boundary of the Proposed Action and/or may be affected by the Proposed Action; they identified one proposed endangered species (tricolored bat), one candidate species (monarch butterfly), and one species currently under review for listing (saltmarsh sparrow). Also, the Proposed Action would have no potential to affect the designated or proposed critical habitat of any ESA-listed species under USFWS jurisdiction. The Authority has coordinated with the USFWS New Jersey

Field Office on measures to be taken to minimize impacts to the proposed, candidate, or species under review in the event they become formally listed prior to or during the project implementation.

There are only potential effects to ESA-listed species under NMFS jurisdiction. Also, the Proposed Action would have no potential to affect the designated or proposed critical habitat of any ESA-listed species. Direct impacts to Newark Bay, which comprises potential habitat for the ESA-listed endangered Atlantic sturgeon and shortnose sturgeon, would occur during construction of bridge support structures. While Newark Bay is not within a migration path to spawning grounds for Atlantic sturgeon and shortnose sturgeon, adult Atlantic sturgeon could occur near the NBB. No eggs, larvae, or juvenile Atlantic or shortnose sturgeon are anticipated to occur within Newark Bay and its adjacent bays and tributaries. Per the NMFS Harbor Deepening Biological Opinion, shortnose sturgeon are not expected to occur in the study area; they have only been observed as far south as the Statue of Liberty, which is more than 10 miles away via the most direct water route.

The Proposed Action would introduce sound into the water and potentially impact adult Atlantic sturgeon. Injurious levels of underwater noise for sturgeon would only occur very near the source, within 230 feet. Underwater noise levels that may affect sturgeon behavior would also only occur near the source, within 295 feet. Use of a soft start would give sturgeon the opportunity to vacate the area, minimizing the likelihood for potential injury. Should sturgeon enter into areas within the threshold distances for injury or behavior, it is likely that they would move away from the noise source. This possible modification of normal movement patterns of some individuals is expected to be insignificant because underwater noise would be limited in duration, affect only a small area within Newark Bay, and would not pose a barrier to migration or the availability of other more suitable habitat. Thus, interference with feeding, reproduction, migration, or other activities necessary for survival is not expected. To ensure that migrating fish are not impacted, no construction operations in open water would take place from January 1 to June 30. Trestle pile installation is permitted to occur between January 1 and June 1 with bubble curtains and additional mitigation measures in place as described under Special-status Species below.

Vessel traffic associated with bridge construction and demolition could increase the risk of vessel strikes with Atlantic and shortnose sturgeon. Tugboats, spud barges, crew boats, and other vessel types would be operating daily over a six-day work week for the ten-year duration of construction and demolition. Vessel traffic associated with bridge construction and demolition would constitute most of the vessel traffic in the area. Most of the construction and demolition would be performed via the temporary access trestle, thereby minimizing vessel use. However, work vessels would be slow moving with drafts well above the portion of the water column used by sturgeon, so have very low likelihood of striking a sturgeon. Lastly, the potential aquatic habitat modification and loss, as detailed above under *Aquatic Biota*, could displace Atlantic sturgeon from water column and benthic habitat occupied by cofferdams and trestle piles for the duration of construction, or approximately two years for any given temporary in-water structure. As sturgeon forage in the sediment, they would be potentially affected by the loss of bay bottom foraging habitat. However, the area of loss is relatively small compared to the overall area of intertidal and subtidal shallows available in Newark Bay. Based on the impacts described above and the fact that adults of both species are highly mobile and could easily avoid the area during active construction, no adverse effects are anticipated.

Several Birds of Conservation Concern and state-listed endangered, threatened, and special-concern species could occur in the study area, including the bald eagle, black-crowned night-heron, cattle egret, glossy ibis, least tern, little blue heron, osprey, Peregrine Falcon, snowy egret, tricolored heron, and yellow-crowned night-heron. The Proposed Action would involve construction in areas adjacent to special-status species habitat. Impacts would depend on the species' population size and type of activity. This is primarily a concern for construction activities within the vicinity of waters and wetlands, where the vast majority of habitat suitable for special-status species is found in the study area. One exception is the checkered white butterfly (*Pontia protodice*), a butterfly that is found in a wide variety of sites, including dry weedy areas, vacant lots, fields, pastures, sandy areas, railroad beds, and roads. In the past, checkered white butterflies have been observed at EWR along the Peripheral Ditch near the NB-HCE. Portions of the airfield and Port Newark have been classified as suitable habitat for the butterflies (NJDEP 2017). However, ecologists performing surveys of the study area did not

find suitable habitat for the checkered white butterfly, which typically occurs in open areas such as savannas, old fields, vacant lots, power line rights-of-way, and along forest edges. Also, construction would be performed outside of the checkered white butterfly habitat. Therefore, the Proposed Action would not be expected to have any effect on the checkered white butterfly.

The shorelines of Newark Bay and wetlands located on either side of the Bay provide suitable foraging habitat for state-listed wading bird species, including black-crowned night-heron and yellow-crowned night-heron (State threatened) which were observed during field investigations. Other species that may forage in or around the study area include the State-endangered bald eagle and Peregrine Falcon, the State-threatened cattle egret (*Bubulcus ibis*), and other state species of concern. As these birds are highly mobile and capable of avoiding construction activities, disturbance from construction activities would be minor, short-term and localized.

Peregrine Falcons were documented nesting on the NBB starting in 2021 and presumably remain in the area year-round. In 2023, the nesting pair moved to a nest box placed on an above-land pier of the NBHCE on the Newark side of the Bay. The nesting activity and associated behavior of Peregrine Falcons would continue to be monitored on a weekly basis during the breeding season (February 15 to July 31), or until fledging occurs, prior to bridge replacement, during construction activities, and for two years following completion of bridge construction and demolition activities. This would promote adaptive management of the mitigation proposed for the falcon nest over the course of the Proposed Action. Consultation was initiated with the NJDEP Division of Fish and Wildlife, Endangered and Nongame Species Program (ENSP) as part of the NJDEP DLRP permit review. Per Threatened and Endangered Species permit conditions in NJDEP DLRP Permit 0000-23-0012.2, an alternate nest platform will be installed in the marsh north (>300 feet) from proposed construction activities and the new bridge. Efforts will be made to exclude the Peregrine Falcons from their current nest location on the NBHCE pier and previous nest location just west of the NBB main span. Monitoring of the Peregrine Falcons will be conducted by a qualified wildlife biologist and ongoing coordination with ENSP will occur to encourage the safe relocation of the nesting pair to the off-site nest platform.

Construction activities within or alongside Newark Bay could impact bald eagles that forage in the bay. Tree clearing or disturbances to mature trees or dead snags, which would be required in limited areas along the eastern shoreline of Newark Bay, may affect eagles roosting or foraging in the area. The NJDEP Landscape Project mapping shows foraging habitat for the bald eagle within the study area and a nest is located about 1.5 miles to the north, at Kearny Point. Reproduction is the period when bald eagles are most sensitive to disturbance, but the Proposed Action would occur far enough away that no disturbance to nesting would occur. Based on USFWS (2008) guidelines for minimizing disturbances to bald eagles, which recommend a maximum buffer distance of 0.5 miles between bald eagles and extremely loud noises, it can be conservatively estimated that bald eagles would avoid a maximum of 0.5 miles of river in each direction from the bridge during construction. Displacement of eagles from this area would represent an insignificant temporary reduction in the amount of foraging habitat available on Newark Bay and the lower Passaic and Hackensack River.

NJDEP Landscape Project Mapping indicates that emergent wetlands within the vicinity of the Proposed Action provide suitable foraging habitat for State-listed wading birds. The black-crowned night-heron and yellow-crowned night-heron were observed during field investigations. However, heron nesting habitat is absent in the study area due to a lack of suitable wetland tree and shrub cover, dominance of *Phragmites australis*, and high levels of human disturbance. Because there is no documented nesting habitat for special-status species, it is unlikely that agencies would require mitigation (preservation, enhancement, or creation of new habitat) for impacts to foraging habitat because it is not the limiting factor for these species.

There is potential for the Proposed Action to affect bats via tree clearing and bridge demolition, which could reduce roosting habitat or potentially cause direct mortality if an occupied roost tree or bridge is disturbed when bats are present. USFWS did not identify any ESA-listed bat species that may occur within the boundary of the Proposed Action and/or may be affected by the Proposed Action; they identified one proposed endangered species (tricolored bat). NJDEP notes that the northern long-eared bat, little brown bat, eastern small-footed

myotis, and tricolored bat are found state-wide and have a "Consensus Status" of "Endangered" in NJ; therefore, these species are presumed to be present and must be considered if tree clearing is required. Because potential bat habitats cannot be avoided, the Authority would coordinate with USFWS and New Jersey Fish and Wildlife to identify appropriate avoidance and minimization measures.

Impacts to marine mammals are not anticipated based on their unlikely occurrence within the study area. Only temporary, insignificant disturbances to marine mammals would be anticipated to occur from disturbance related impacts. No harassment to marine mammals would be anticipated at either Level A (injury) or Level B (disturbance).

4 Summary of Required Permits and Approvals

Various permits and approvals will be required to implement the Proposed Action. Decisions on applications for federal permits are subject to review under NEPA to ensure that federal agencies consider the environmental impacts of their actions in the decision-making process. In addition to review of the applications for federal permits and review of the Proposed Action under NEPA, several other regulatory requirements must be met before the federal permits are issued. For the most part, applications for the state and local permits required to implement the Proposed Action will be made by the Authority after the federal permits are issued and the NEPA process is completed. A summary of required permits and approvals is detailed below.

4.1 Applicable Permits and Approvals Required by Federal Laws and Regulations

4.1.1 Bridge Permit – U.S. Coast Guard

Federal law prohibits the construction of any bridge across the navigable waters of the United States unless first authorized by the USCG. The USCG permits the location and plans of bridges and causeways and imposes any necessary conditions relating to the construction, maintenance, and operation of these bridges in the interest of public navigation. A bridge permit is the written approval of the location and plans of the bridge or causeway to be constructed or modified across a navigable waterway of the United States.

The USCG approves bridge location and plans under the authority of the General Bridge Act of 1946, as amended. The purpose of this Act is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce. The General Bridge Act of 1946, as amended, requires the location and plans of bridges and causeways across the navigable waters of the United States be submitted to and approved by the Secretary of Homeland Security prior to construction. The Secretary of Homeland Security has delegated this authority to the Commandant, USCG.

A bridge permit is required from the USCG for the following activities:

- Construction of the two bridges that will replace the existing NBB.
- Demolition of the existing NBB.
- Construction of temporary bridges (trestle structures) in Newark Bay for construction access.

The Authority submitted a bridge permit application to the USCG on May 17, 2022, and submitted a revised application on December 20, 2024.

4.1.2 Section 404 Permit – U.S. Army Corps of Engineers

Regulations implementing Section 404 of the Clean Water Act (CWA) require approval from the USACE prior to discharging dredged or fill material into waters of the United States. Waters of the United States include but are not limited to waters subject to the ebb and flow of the tide. USACE has jurisdiction over all tidal and interstate waters of the United States in New Jersey (known as non-delegable waters). Newark Bay and adjacent tidal wetlands meet the definition of waters of the United States. Implementation of the Proposed Action will include such activities as excavation and filling of navigable waters of the United States and placing fill in waters of the United States. Because these regulated activities are incidental to construction of the bridges to replace the NBB, the Authority applied for Section 404 authorization on April 20, 2023, and the application is being processed by USACE under Nationwide General Permit #15, U.S. Coast Guard Approved Bridges.

4.1.3 Section 408 Review – U.S. Army Corps of Engineers

The USACE Section 408 program allows another party, such as a local government, company, or individual, to alter a USACE Civil Works project. The Newark Bay North Reach which is crossed by the NBB is a USACE Civil Works project. Building a bridge across a navigable waterway maintained and surveyed by USACE, as is the case under the Proposed Action, is one example of a project that needs USACE Section 408 permission. Section 408 permission is also required for the temporary occupation or use of a USACE Civil Works project, for example, to temporarily moor a barge to construct a bridge foundation or pier.

The Section 408 program verifies that changes to authorized USACE Civil Works projects will not be injurious to the public interest and will not impair the usefulness of the project. This requirement was established in Section 14 of the Rivers and Harbors Act of 1899, which has since been amended several times, and is codified at 33 USC 408, the section of USC that gives the program its name.

Section 408 review is undertaken in conjunction with USACE's Section 404 permit application review. The Authority's application for Section 408 permission was submitted to USACE on January 25, 2024.

4.1.4 National Environmental Policy Act – U.S. Coast Guard

NEPA is a procedural statute intended to ensure federal agencies consider the environmental impacts of their actions in the decision-making process. The purpose and function of NEPA is satisfied if federal agencies have considered relevant environmental information, and the public has been informed regarding the decision-making process. Regulations promulgated by the CEQ provide direction to federal agencies to determine what actions are subject to NEPA's procedural requirements and the level of NEPA review. Under the CEQ NEPA regulations, a federal agency acts as a lead agency if more than one federal agency is involved in the same action. In this case, the USCG is the lead federal agency for implementing the provisions of NEPA for the Proposed Action and the USCG has determined that the level of NEPA review is an environmental assessment. The USCG will prepare a finding of no significant impact if the agency determines, based on the environmental assessment, not to prepare an environmental impact statement because the Proposed Action will not have significant effects.

4.1.5 Section 401 Water Quality Certification – New Jersey Department of Environmental Protection (issued April 3, 2024)

Under Section 401 of the CWA, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a Section 401 water quality certification is issued, or certification is waived. States and authorized tribes where the discharge would originate are generally responsible for issuing water quality certifications. Among the major federal licenses and permits subject to Section 401 are Section 404 permits and Rivers and Harbors Act Section 9 and 10 permits.

The CWA provides that in making decisions to grant, grant with conditions, or deny certification requests, certifying authorities, which for the Proposed Action is NJDEP, consider whether the federally licensed or permitted activity will comply with applicable water quality standards, effluent limitations, new source performance standards, toxic pollutants restrictions, and other appropriate water quality requirements of state law. In New Jersey, the State's Coastal Zone Management Rules, which are administered by NJDEP through its review of a Land Resource Protection Permit Applications (see discussion under Section 4.2.1), are the standards used for the review of water quality certificates subject to Section 401 of the CWA.

A federal agency may not issue a license or permit for an activity that may result in a discharge into a water of the United States without a water quality certification or waiver.

4.1.6 Section 307 Coastal Zone Consistency Determination – New Jersey Department of Environmental Protection (issued April 3, 2024)

The CZMA encourages states to take a leading role in the management of their coastal regions. As one incentive for state participation in the federal coastal zone management program, Section 307 of the CZMA requires that various federal activities that are reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with a state's approved coastal zone management program. Newark Bay and surrounding lands lie within New Jersey's coastal zone. Before certain activities can take place in the coastal zone, federal agencies or applicants for federal approvals or assistance must submit a consistency determination or certification to the state coastal management agency that the activity will be conducted consistent with the state's federally approved coastal management program. Through this process, the state has the opportunity to evaluate those federal activities which affect the state's coastal zone and ensure that the activities meet state coastal management policies. In New Jersey, the State's Coastal Zone Management Rules, which are administered by NJDEP through its review of a Land Resource Protection Permit Applications (see discussion under Section 4.2.1), govern the use and development of coastal resources and are the standards used for the review of federal consistency determinations under Section 307 of the CZMA.

4.1.7 Section 106 of the National Historic Preservation Act – U.S. Coast Guard

Section 106 requires federal agencies to consider the effects of their actions on any historic properties, which includes historic districts, sites, buildings, structures, or other objects listed in or determined eligible for listing in the NRHP. Properties listed in or eligible for the NRHP include archaeological resources and historic architectural resources. Under this provision, the NEPA lead agency, the SHPO, affected Native American tribes, and other "consulting" parties participate in a consultation process regarding the potential effects of the undertaking on historic resources. The Section 106 review process consists of the following four steps: (1) initiation, (2) identification, (3) assessment of adverse effects, and (4) resolution of adverse effects.

4.1.8 Section 7 Endangered Species Act Consultation

The ESA created a regulatory regime to protect imperiled fish, wildlife, and plants from extinction and to promote the recovery of those species and the ecosystems that support them. Section 7 of the ESA requires that federal agencies ensure that none of the activities that it authorizes, funds, or carries out is likely to jeopardize the continued existence of threatened or endangered species, or results in the destruction of designated areas (critical habitats) that are important in conserving those species. The two agencies primarily responsible for administering the ESA are the USFWS and the NMFS. Generally, USFWS has jurisdiction over terrestrial and freshwater species and NMFS is responsible for protecting any endangered or threatened marine species. Under Section 7 of the ESA, any federal agency that is sponsoring or assisting a project must engage in consultation with the USFWS and/or NMFS before taking any action that has the potential to affect listed species or designated critical habitat. Consultation with NMFS was completed on October 17, 2024, when NMFS notified USCG that it had completed its consultation under Section 7 of the ESA and that based on its knowledge, expertise, and the materials provided, NMFS concurred with the conclusion that the Proposed Action is not likely to adversely affect any NMFS ESA-listed species or designated critical habitat. Therefore, no further consultation pursuant to section 7 of the ESA is required. USFWS suggested mitigation measures for terrestrial threatened and endangered species which the Authority will implement; no consultation with USFWS is necessary.

In 1996, amendments to the Magnuson-Stevens Fishery Conservation and Management Act established EFH provisions to protect and enhance important habitats of federally managed marine and anadromous (fish that migrate up rivers from the sea to breed in freshwater) fish species. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." Similar to the provisions of Section 7 ESA, any federal agency that is sponsoring or assisting a project must consult NMFS before taking any action that has the potential to affect EFH. Consultation with NMFS includes an October 22, 2024 letter

from NMFS acknowledging the measures the Authority would use to avoid, minimize, or mitigate potential effects and requesting USCG to adopt EFH conservation recommendations provided by NMFS.

4.1.9 Protection of Wetlands (Executive Order 11990)

This Federal Executive Order requires minimization of the destruction, loss or degradation of wetlands and encourages preservation and enhancement of their natural and beneficial values. It requires Federal agency actions to avoid, to the extent possible, adverse impact on wetlands; and avoid supporting actions affecting wetlands when there are practicable alternatives for implementing function of proposed project.

4.1.10 Floodplain Management (Executive Order 11988)

This Executive Order directs Federal Agencies to: assert leadership in reducing flood losses and losses to environmental values served by floodplains; avoid actions located in or adversely affecting floodplains unless there is no practicable alternative; take action to mitigate losses if avoidance is not practicable; and establishes a process for flood hazard evaluation based upon the 100-year base flood standard of the National Flood Insurance Program (NFIP). It also directed Federal agencies to issue implementing procedures; provided a consultation mechanism for developing the implementing procedures; and provided oversight mechanisms.

4.1.11 14 CFR Part 77—Safe, Efficient, Use, and Preservation of the Navigable Airspace

Part 77 establishes the requirements to provide notice to the Federal Aviation Administration (FAA) of certain proposed construction, or the alteration of existing structures; the standards used to determine obstructions to air navigation, and navigational and communication facilities; the process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and the process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

Following a request from the Authority the FAA conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning the NBB Replacement. According to a Determination issued by the FAA on July 24, 2023, the aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, the FAA determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met: as a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, red lights-Chapters 4,5(Red),&15; any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Air Missions (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number; and it is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or within 5 days after the construction reaches its greatest height (7460-2, Part 2).

4.2 Applicable Permits and Approvals Required Under State Laws and Regulations

The Authority submitted a Permit Readiness Checklist to NJDEP's Office of Permitting and Project Navigation (OPPN) on April 16, 2021, for the NB-HCE Program. OPPN's reply on May 14, 2021, described the anticipated permits, approvals, and other NJDEP requirements, which are detailed in the following sections.

4.2.1 Executive Order No. 215– New Jersey Department of Environmental Protection

The State of New Jersey Executive Order No. 215 (EO 215) of 1989 requires departments, agencies, and authorities of the State to prepare and submit to the NJDEP an Environmental Assessment or Environmental Impact Statement (EIS) in support of major construction projects. Under EO 215, the Proposed Action is categorized as a "Level 2" project requiring the preparation of an EO 215 EIS. The Authority submitted an

EO 215 EIS to NJDEP for review on April 20, 2023. NJDEP provided its review comments to the Authority on May 22, 2023 and the Authority's responses to those comments were submitted by the Authority to NJDEP on August 3, 2023.

4.2.2 Land Resource Protection Permits – New Jersey Department of Environmental Protection

NJDEP's Division of Land Resource Protection regulates land use activities through a permit process in accordance with the rules promulgated in support of the following statutes that apply to the Proposed Action: Freshwater Wetlands Protection Act (FWPA), Flood Hazard Area Control Act, Wetlands Act of 1970, Waterfront Development Law, Tidelands Act, and Water Pollution Control Act. Permits are issued jointly for a particular project whenever possible.

Through the FWPA, New Jersey is one of three states nationally that has assumed the Section 404 program under the CWA. The wetland management program is implemented by NJDEP in conjunction with the Coastal Zone Management Program and the Flood Hazard Area Program.

The FWPA provides a comprehensive permitting program that regulates all activities in freshwater wetlands, as well as in "transition areas," upland buffers adjacent to the wetlands, and satisfies both state and federal requirements. The CWA provides that the USACE retains permitting authority in certain tidal waters and other specified waters currently related to the transport of interstate or foreign commerce.

The Wetlands Act of 1970 requires permits for activities proposed within tidal and estuarine wetlands in New Jersey. All wetlands to be protected are shown on regulatory maps. Unmapped wetland areas are regulated by the FWPA.

The State's Coastal Zone Management Rules, among other things, implements the Waterfront Development Law to regulate activities within the regulated waterfront area, including tidal waterways and lands lying thereunder, up to and including the MHWL and adjacent areas within 100 feet of the MHWL. For properties within 100 feet of the MHWL that extend inland beyond 100 feet from the MHWL, the regulated waterfront area extends inland 500 feet or to the first paved public road, railroad, or surveyable property line that existed on September 26, 1980, and generally parallels the waterway. Approval of activities within the regulated waterfront area is through Waterfront Development Permits.

A pre-application meeting for the various permits was held with NJDEP on June 13, 2022. Applications related to the replacement of the NBB portion of the Proposed Action were submitted to NJDEP on October 20, 2023 through a multi-permit application, as follows: Inland and Upland Waterfront Development Permit, Freshwater Wetlands Individual and Open Water Fill Permits, Water Quality Certificate, Coastal Zone Consistency Determination, and Flood Hazard Area (FHA) Permit. The application was then determined by NJDEP to be administratively complete and the application underwent technical review by NJDEP.

Through a permit issued by NJDEP on April 3, 2024 (numbered 0000-23-0012.2 LUP230001), NJDEP conditionally approved the activities of the Proposed Action relating to the replacement of the Newark Bay Bridge, essentially, extending along the NB-HCE corridor from just west of Doremus Avenue in Newark to just west of JFK Boulevard in Bayonne. The permit issued by NJDEP consists of the following authorizations:

- Waterfront Development Individual Upland Permit.
- Waterfront Development Individual In-Water Permit.
- Flood Hazard Area Individual Permit.
- Freshwater Wetlands Individual Permit.

- Water Quality Certificate.

NJDEP also determined that the approved activities meet the requirements of the State's Flood Hazard Area Control Act, Coastal Zone Management, and Stormwater Management rules. The permit, which is found in Appendix F, lists conditions that will be implemented and monitored by the Authority to mitigate impacts on the environment from the Newark Bay Bridge replacement activities.

The Authority will submit applications for permits for Proposed Action activities in areas between Interchanges 14 and 14A outside the limits of the Newark Bay Bridge in the future during final design. No Federal permits, approvals, or funding is needed for activities in these other areas encompassed by the Proposed Action.

4.2.3 Fish and Wildlife Coordination– New Jersey Department of Environmental Protection

Several Coastal Zone Management Rules administered by the Marine Fisheries Administration relevant to marine fisheries apply to the Proposed Action. In addition, Species Occurrence Area and Landscape mapping indicates habitats valued for, and possible occurrences of, Threatened and Endangered and "Species of Concern" within the expected area of impact of the Proposed Action. Coordination with New Jersey Fish and Wildlife, part of NJDEP, will be conducted through the EO 215 EIS review and during the Division of Land Resource Protection multi-permit review.

4.2.4 Freshwater Wetlands Letter of Interpretation – New Jersey Department of Environmental Protection

To determine land that meets the definition of a wetland in New Jersey, NJDEP issues an LOI under the FWPA, which includes the following items: indication of the presence or absence of wetlands, State open waters, or transition areas; verification or delineation of the boundaries of freshwater wetlands, State open waters, and/or transition areas; and assignment of a wetland resource value classification. A request for LOI was submitted to NJDEP for the Proposed Action on January 27, 2022, and deemed administratively complete by NJDEP on February 16, 2022. The LOI was issued by NJDEP on May 22, 2023.

4.2.5 Stormwater Management – New Jersey Department of Environmental Protection

NJDEP's Stormwater Management Rules apply to the Proposed Action because it would increase impervious surface by greater than 0.25 acre and cause more than 1 acre of land disturbance. Once a project triggers review under the Stormwater Management Rules, it must meet certain minimum design and performance standards, as applicable, for Erosion Control, Stormwater Runoff Quality, Stormwater Runoff Quantity, and Groundwater Recharge; and must meet certain Maintenance Requirements for stormwater infrastructure.

4.2.6 Historic and Cultural Resources – New Jersey Historic Preservation Office

New Jersey's Historic Preservation Office (HPO) is housed with NJDEP. HPO's concurrence will be needed on the following items related to the Proposed Action: (1) areas of potential effect (APEs) for archaeology and historic architecture; (2) determinations of eligibility for those archaeological and historic architectural resources within the APE for which national and state register eligibility determinations have not already been issued; (3) concurrence with determinations of effect of the Proposed Action on register-eligible or listed resources; and (4) mitigations of effects, through a Programmatic Agreement between the Authority, HPO, and USCG. Review will occur through the NHPA Section 106 process described in Section 4.1.8. State-level review of the Proposed Action will also occur through the EO 215 EIS review process. Based on coordination with HPO to date, the Authority has submitted and received responses from HPO on two intensive-level historic architectural surveys: one for the NBB and one for the entire NB-HCE corridor, so that specific areas of sensitivity and areas requiring additional archaeological and geotechnical investigations can be identified for subsequent consultation, as necessary. In addition, the Authority submitted a Supplemental Phase I

Archaeological Survey to HPO for review and HPO concurred with its findings. A copy of the Programmatic Agreement is included in Appendix A.

4.2.7 New Jersey Register Review – New Jersey Historic Preservation Office

The Register of Historic Places Act allows historic properties to be nominated and entered in the New Jersey Register of Historic Places, which is maintained by HPO. Once a property is listed in the New Jersey Register, any public undertaking that would "encroach upon, damage or destroy" the registered historic property must by reviewed pursuant to this law and receive prior authorization from the NJDEP Commissioner.

The Proposed Action will encroach on a New Jersey Register listed property: the route of the Morris Canal. The Authority submitted an Application for Project Authorization to HPO and to the gubernatorially appointed Historic Sites Council for review on April 30, 2024. Based on its review of the application, HPO determined on May 28, 2024 that the Project is in conformance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* and the *Standards and Guidelines for Archeology and Historic Preservation* and that the Project will not constitute an encroachment upon the Morris Canal and that the project may proceed as documented in the application.

4.2.8 Tidelands License – New Jersey Department of Environmental Protection

Conveyances of tidelands, which are held in public trust in New Jersey, are governed by the New Jersey Tidelands Act. The permanent use by the Proposed Action of tidal waters not previously conveyed necessitates a tidelands conveyance through a license or grant. The Authority will coordinate the Proposed Action's use of tidelands/lands underwater with the NJDEP Bureau of Tidelands Management and submit a Tideland application during the Proposed Action's final design.

4.2.9 State-owned Lands

The Authority will coordinate with NJDOT and NJDEP on needed conveyances of State-owned lands, as appropriate, during the Proposed Action's final design.

4.2.10 Linear Construction Project – New Jersey Department of Environmental Protection

The NJDEP LCP rules, associated with the implementation of the 2009 Site Remediation Reform Act, outline the requirements for remediating suspected or known contamination when constructing LCPs. The analysis summarized in Section 3.10.5 above identified areas where construction would likely encounter contaminated soil and/or groundwater. It is anticipated that an LSRP will be engaged, and the Proposed Action will be enrolled as an LCP under the NJDEP (2012b) Linear Construction Technical Guidance. If necessary, the Proposed Action will also be conducted in full compliance with the Technical Requirements for Site Remediation. Coordination with NJDEP for this approval will occur during EO 215 EIS review and during the Proposed Action's final design.

4.2.11 Soil Erosion and Sediment Control – Hudson Essex Passaic Soil Conservation District and New Jersey Department of Environmental Protection

New Jersey requires the management of soil erosion and stormwater from virtually all non-agriculture, construction-based soil disturbances through adoption of the Soil Erosion and Sediment Control Act. Implemented by the New Jersey Department of Agriculture and the state's soil conservation districts, the Act requires all construction activities greater than 5,000 square feet to be developed in accordance with a plan to control erosion during construction. The plan must also ensure that erosion will not occur once construction is completed. In addition, soil conservation districts also administer the New Jersey Pollutant Discharge Elimination System Phase II program in conjunction with NJDEP Division of Water Quality. The Stormwater Discharger Permit Program requires construction activities including clearing, grading, and excavating that

disturb one acre or more obtain authorization of a construction general permit. This permit must be acquired in addition to a Soil Erosion and Sediment Control Plan certification through the local soil conservation district.

Coordination on Soil Erosion and Sediment Control Plans for the Proposed Action will occur with the Hudson Essex Passaic Soil Conservation District during final design.

4.2.12 Surface Water General Permit – New Jersey Department of Environmental Protection

The NJDEP Bureau of Surface Water and Pretreatment Permitting (BSWPP) regulates facilities discharging domestic and industrial wastewater directly into surface waters of the state as part of the New Jersey Pollutant Discharge Elimination System (NJPDES) program. In addition, the BSWPP also implements the States's Pretreatment Program which is intended to protect local agency sewage treatment plants from non-domestic wastewater which may interfere with treatment processes, contaminate sewage sludge, or pass through sewage treatment plants. Prior to undertaking dewatering activities that would discharge groundwater to a surface water or combined sewer overflow system, the contractor will prepare and submit the appropriate form and related documentation (Application Completeness Checklist or Request for Authorization) required to obtain this General Permit.

A NJPDES Discharge to Surface Water General Permit will be needed for a surface water discharge from construction related dewatering and that if the discharge will be uncontaminated groundwater generated during construction activities. In such case, the appropriate NJPDES Discharge to Surface Water General Permit is the B7 - Short Term De Minimis General Permit requirements and analytical lab data of specific parameters will be submitted, and the results must demonstrate that they are below the effluent standards.

If the discharge will be treated groundwater from remediations and dewaterings, the appropriate NJPDES Discharge to Surface Water General Permit is the BGR – General Groundwater Remediation Clean-up Permit and that as per the BGR permit application, a summary of the contaminants of concern will be submitted where the data was collected no more than 12 months prior to the submittal of the application. A Treatment Works Approval from the Bureau of Environmental, Engineering and Permitting may be needed for the construction of the treatment system; coordination will occur with the Bureau prior to construction, as necessary.

5 Public and Agency Coordination

Beginning in 2021, the Authority has coordinated with numerous agencies and public stakeholders throughout the concept plan, preliminary design development and environmental review phases of the project. In some cases, the Authority met on a recurring basis with certain agencies or stakeholders. The following list identifies those agencies or stakeholders with which the Authority coordinated:

- USCG (the lead Federal agency)
- USACE (a cooperating agency)
- USEPA (a cooperating agency)
- NMFS (a cooperating agency)
- USFWS (a participating agency)
- NJDEP (a cooperating agency)
- NJHPO
- NJDOT
- New Jersey Transit
- PANYNJ
- The Maritime Association of the Port of New York – New Jersey: Harbor Safety, Navigation, and Operations (Harbor Ops) Committee
- Essex County
- Hudson County
- City of Jersey City
- City of Bayonne
- Bayonne Chamber of Commerce
- City of Newark
- Ironbound Community Corporation
- Hudson County Complete Streets
- Regional Plan Association
- I Love Greenville
- NJ Future
- Empower NJ
- Newark Affirmative Action Review Council
- South Ward Environmental Alliance
- Essex County Building Trades
- Hudson County Central Labor Council
- Hudson County Building Trades
- Associated Construction Contractors of New Jersey
- Utility &Transportation Contractors Association
- CMA CGM (tenant operator of Port Jersey Port Authority Marine Terminal)
- Global Container Terminal (former tenant operator of Port Jersey PAMT)
- Conrail
- PSE&G
- Colonial Pipeline, Inc.
- Port Newark Container Terminal
- New York Shipping Association

In addition to coordination with these entities, the Authority conducted Public Information Centers in Newark (February 27, 2024), Bayonne (May 28, 2024), and Jersey City (July 9, 2024), with a combined attendance of approximately 500 people. The Authority also posted a Virtual Public Information Center on the project's website (267 views on YouTube, as of the conclusion of the draft EA public comment period), and also posted Fact Sheets on the project in six languages, including Arabic, Hindi, Polish, Portuguese, Spanish, and Tagalog (over 6,435 website homepage views as of the conclusion of the draft EA public comment period).

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