Executive Order No. 215 Environmental Impact Statement

Interchange 3 Outside Toll

April 2025

Prepared for

Prepared by

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1 PURPOSE AND NEED

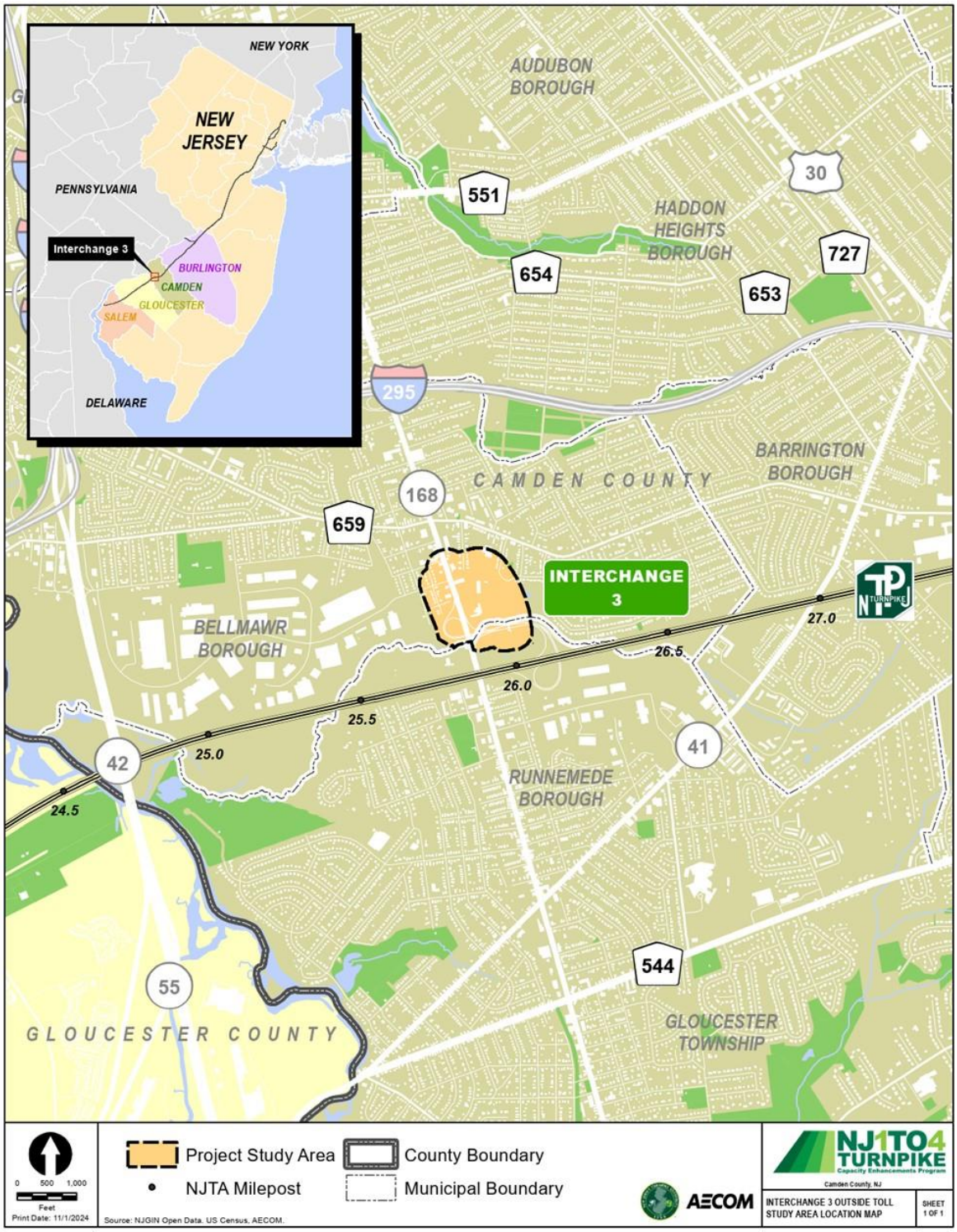
The New Jersey Turnpike Authority (NJTA) proposes to implement operational improvements to the roadway lanes beyond the New Jersey Turnpike (Turnpike) Interchange (Int.) 3 toll plaza to address congestion and safety concerns along Black Horse Pike (Route 168) and at Interchange 3 located in the Boroughs of Runnemede and Bellmawr, Camden County, New Jersey (NJ) (**Figure 1.1-1**). The improvement area that is the subject of this Environmental Impact Statement (EIS) is the Route 168 roadway lanes located immediately north of the toll plaza, existing Interchange 3 Ramp TW as illustrated in the Current Ramp Configuration Map (Appendix B), and the intersection of Route 168 and Benigno Boulevard. The proposed improvements aim to enhance traffic flow, particularly along the westward and northward directions, by providing increased capacity and improving levels of service along Route 168.

In April of 2024, the NJTA submitted an EIS for the Interchanges 1 to 4 Capacity Enhancements Program (Program) to address operational conditions, capacity constraints, maintenance requirements, and safety needs of the NJ Turnpike within the limits of the Program. The Program EIS included the north to south (NS) and south to north (SN) roadways (mainline) between Milepost (MP) 3.5 and MP 36.5, and Interchanges 2, 3, and 4 inside the limits of the interchange toll plazas. The proposed improvements identified in this EIS are for the Interchange 3 Outside Toll project and would be designed and constructed separate from the Interchange 3 improvements of the Program. The Preliminary Preferred Alternative (PPA) for Interchange 3 under the Program *Preliminary Design Report* is focused on addressing mainline capacity issues with improvements inside the toll plaza, such as the addition of a second deceleration lane on Ramp NT, as illustrated in the Current Ramp Configuration Map (Appendix B). Alternatively, the Interchange 3 Outside Toll improvements identified in this EIS are designed to address the location-specific issue of Route 168 congestion near the Turnpike access, and as such have independent utility from the Program.

New Jersey Executive Order No. 215 (EO 215) requires state departments, agencies, and authorities to submit an environmental assessment or environmental impact statement to the New Jersey Department of Environmental Protection (NJDEP) to document the environmental effects of major construction projects. Projects such as Interchange 3 Outside Toll with construction costs in excess of $7 million and land disturbance greater than five acres are categorized as Level 2 projects and are subject to the preparation of an EIS. To comply with EO 215, the NJTA must demonstrate that the project would reduce or eliminate the potential for the proposed improvements to have adverse environmental impacts.

The project Purpose and Need is the foundation of EO 215; it provides the reason and justification for the project and forms the basis for developing and evaluating a reasonable range of alternatives. This Chapter presents the project purpose (Section 1.4, Purpose of the Project) and establishes the needs for the project (Section 1.5, Need for the Project) by outlining the existing and foreseeable future transportation problems in the Interchange 3 Outside Toll project area that the project is intended to address. Data supporting existing and foreseeable future conditions in the Interchange 3 Outside Toll project area are the context for the project and are presented in Section 1.1 (Project Context).

Figure 1.1-1: Study Area Location Map



Source: Program Team, 2024.

1.1 PROJECT CONTEXT

1.1.1 Project Location and Functions

The New Jersey Turnpike is a primary north-south, high-speed, limited access highway serving as part of the spine of the interstate transportation system in the U.S. Northeast and connecting numerous metropolitan areas and interstate highways. The Turnpike also serves a significant function in the intrastate transportation system, collecting significant traffic volumes to, from, and between suburban locations and major employment centers within NJ and nearby cities. Route 168 is a two-way New Jersey Department of Transportation (NJDOT) urban principal arterial roadway providing access to community businesses and neighborhoods and facilitating the transportation of goods and services to/from Camden County. Route 168 is designated as a north-south roadway by NJDOT, but the associated ramp movements within the PSA provide for east-west vehicle travel.

The Interchange 3 Outside Toll project area connects Route 168 in the Boroughs of Runnemede and Bellmawr to the Turnpike mainline at approximately MP 26.0 via a six-lane toll plaza. Interchange 3 serves to support intrastate transportation by connecting the Turnpike to Route 168 and eventually north to I-295, another major north-south high-speed highway, serving as a critical connection for the local communities and for Camden County.

The project study area (PSA) used for most analyses within this EIS, unless otherwise stated for a specific analysis, encompasses 58.6 acres of mixed-use land including the Interchange 3 toll plaza and associated ramps. The PSA is shown in **Figure 1.1-1** and on most Resource Maps (Appendix B) displaying existing environmental conditions.

The existing Interchange 3 ramps provide access to/from the Turnpike mainline, SN and NS, and Route 168 northbound (NB), which feed into adjacent local roadways in Bellmawr Borough to the north and Runnemede Borough to the south. The existing Ramp TW, which provides access from the Interchange 3 toll plaza to Route 168 NB is approximately 600 feet long before merging with Route 168 and is the focus of the proposed improvements of the Interchange 3 Outside Toll project. The additional untolled interchange ramps, which are not included in the project, are Ramp TE, Ramp WT and Ramp ET. The existing Ramp TE is a 150-foot radius loop ramp and provides access from Interchange 3 toll plaza to Route 168 SB and includes a ramp bridge that carries the Ramps TE and WT over Route 168. Existing Ramps WT and ET provide access from Route 168 NB and southbound (SB) to the Turnpike, respectively. These three ramps (TE, WT, and ET) would not be modified by the project, but are of importance as they allow for traffic flow to/from the PSA. The existing configuration of these Interchange 3 ramps are illustrated on the figure titled, Current Ramp Configuration Map (Appendix B).

The existing intersection of Route 168 and Benigno Boulevard is a three-phase signalized intersection with separate phases for Benigno Boulevard and the opposite commercial driveway entrance serving the two hotels located along Route 168 NB at this location. The Route 168 NB approach contains a through lane with a dedicated left-turn lane and a raised curb median, while the SB approach contains a through lane with dedicated left- and right-turn lanes and a raised median curb. Both the Benigno Boulevard approach and the commercial driveway approach contain a shared through-left lane and a dedicated right turn lane. This intersection

provides access to commercial businesses, residential neighborhoods, and community facilities, as well as access to I-295 to the north and NJ Route 42 to the west.

1.1.2 Project Design and Operational Features

The Interchange 3 Outside Toll project improvements would be constructed by a contractor(s) working for the NJTA. The construction contracts would be advertised, awarded, and managed using standard specifications and procurement processes stated at N.J.A.C. 19:9-2 and procurement processes administered by the NJTA.

The proposed improvements represent a notable investment by the NJTA and a moderate construction effort for the contracting industry. The project represents an opportunity to create jobs and would help foster economic activity within the region. The NJTA maintains a robust program encouraging subcontracting to small business enterprises and disabled veteran-owned business enterprises. The project could result in opportunities for such enterprises and contractors during construction.

During construction, traffic flow would be maintained as the majority of the work would be performed offline of existing roadways, minimizing impacts to the traveling public during construction. Final roadway tie-ins and intersection work would be performed in accordance with the NJTA's and NJDOT's standard construction staging and traffic control procedures as appropriate. Where possible, traffic would be maintained and channelized around areas of construction allowing continual traffic flow throughout the work zone without significant interruption. Should temporary road closures be required, construction specifications would provide for the maintenance of detoured traffic.

Site preparation would include the removal of trees, excavation, and regrading of the site to provide the correct configuration for the project's layout. No anticipated burning or blasting would be required in association with the planned work. The anticipated project implementation schedule and detailed description of project construction activities is summarized in Section 2.4 (Overview of Construction Activities).

1.2 EXISTING TRAFFIC VOLUMES AND TRAVEL CONDITIONS

Interchange 3 provides a connection between the NJ Turnpike and Route 168 through a six-lane toll plaza in the Boroughs of Runnemede and Bellmawr, Camden County. Past and present development contributing to traffic volumes and travel conditions in the area of the Interchange 3 Outside Toll project include extensive development of the communities of Runnemede, Blackwood, Bellmawr, Mt. Ephraim, Haddon Heights, Audubon Park, Oaklyn, Collingswood, Camden, and others. In addition, Bellmawr's industrial and warehouse area features distribution centers such as Amazon and U.S. Logistics, manufacturing and business enterprises, and wholesale and retail operations. There is also significant regional traffic utilizing the PSA as described in more detail below.

Congestion within the PSA is a complex issue that would require a multifaceted approach to resolve. One of the key factors contributing to congestion within the PSA is Interchange 3 Ramp TW traffic merging onto Route 168 NB. The existing configuration of Ramp TW requires traffic destined for northbound 168 and Westbound Benigno Boulevard to merge with

northbound 168 traffic a short distance upstream of the signalized intersection contributing to increased queuing of both northbound Route 168 and Ramp TW. During peak hours, this queue routinely reaches beyond the Interchange 3 toll plaza and onto the Turnpike mainline. Furthermore, a large portion of traffic volume on Route 168 and at Interchange 3 is regional in nature due to traffic passing through the Route 168 corridor to access I-295, Route 42, Route 55, and/or I-76.

Since 2020, stakeholders and local municipalities have repeatedly expressed their concerns to NJTA regarding long-standing traffic congestion along Route 168 and the ancillary issues that arise due to this existing condition. Previous coordination between NJTA and local municipalities to examine potential solutions has resulted in the passing of the county and municipal resolutions listed below in support of addressing Route 168 congestion at Interchange 3:

- Camden County, Department of Public Works Resolution #2020-00780;
- Borough of Runnemede Municipal Resolution #20-126;
- Borough of Bellmawr Municipal Resolution #12:239-20;
- Borough of Haddon Heights Municipal Resolution #2020:197;
- Borough of Audubon Municipal Resolution #2020-153;
- Township of Cherry Hill, Board of Fire Commissioners District #13 Resolution #21-01-19-05; and,
- Borough of Mount Ephraim Municipal Resolution # 21-13.

The local roadways within the PSA have experienced significant growth in traffic volumes over time. Contributing factors to congestion include affiliated increases in Turnpike mainline traffic volume and population and employment growth in Camden County. Additional studies have identified the Turnpike mainline NS roadway between Interchanges 3 and 4 to be a highly congested segment of roadway, with some of this congestion feeding into/from Route 168 through the Interchange 3 toll plaza. Heavy congestion and poor levels of service along the Route 168 corridor extending into the PSA to the intersection with Benigno Boulevard have also been documented during these subsequent studies.

A traffic analysis for the Interchange 3 Outside Toll PSA was conducted by the Program Team in January 2025 using a qualitative measure known as level of service (LOS) to describe roadway operating conditions. LOS is a way of describing roadway operations and congestion based on a variety of traffic performance metrics. Roadway congestion is an operating condition during which traffic demand approaches or exceeds the available roadway capacity. The Transportation Research Board's *Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis* (Transportation Research Board, 2016) provides six categories of LOS ranging from A to F. **Table 1.2-1** presents the characteristics of LOS.

Table 1.2-1: Description of LOS Levels

LOS Category	Description of Traffic Operating Conditions
A	Free-flow operating conditions with no delay or effect on operating speeds.
B	Near free-flow operating conditions with little to no delay or effect on operating speeds.
C	Near free-flow conditions with some delay or effect on operating speeds. Compared to LOS A and B, LOS C restricts some freedom to maneuver, and lane changes require care and vigilance on the part of the driver. Minor incidents can deteriorate operating conditions.
D	Absence of free-flow conditions; operating speeds are affected. Freedom to maneuver is seriously limited, drivers experience reduced comfort levels. Minor incidents will create queuing and operating conditions are deteriorated.
E	Absence of free-flow conditions; operating at roadway capacity; speeds are seriously affected. Freedom to maneuver is severely limited. Incidents create severe queuing and operating conditions are deteriorated.
F	Absence of free-flow conditions; operating over roadway capacity; speeds are severely affected; travel time cannot be predicted. No freedom to maneuver.

Source: Transportation Research Board, Highway Capacity Manual, Sixth Edition: *A Guide for Multimodal Mobility Analysis.*

The NJTA is directed by its enabling legislation (NJ Statute § 27:23-1) to construct, maintain, and operate the Turnpike as a modern express highway, and to remove congestion and hazardous conditions to allow vehicular traffic to operate on a non-congested mainline and interchanges in a manner that does not expose motorists to hazardous conditions. To achieve this direction and as documented in its *Strategic Plan* (NJTA, 2019), the NJTA uses LOS C or better as a benchmark for acceptable operations along the Turnpike mainline in non-urban areas. This benchmark is in contrast to other sections of the mainline that exist in dense urban settings where an LOS D can be considered acceptable for freeway operational design due to overall higher traffic volumes. The Turnpike uses LOS D or better as acceptable operating conditions along local roadways.

Due to the complex nature of Route 168 congestion and correspondence with NJDOT indicating that corridor-wide improvements beyond the PSA, aside from minor signal optimization, are not progressing at this time, the Interchange 3 Outside Toll project improvements would not fully resolve congestion and queuing along Route 168 or improve the corridor to LOS D for weekday AM or PM peak hours. Project improvements, however, would significantly improve traffic operations and reduce delays and queuing within the PSA and onto the Turnpike mainline. Such improvements are a critical first step to improving maneuverability in this area and allow future infrastructure projects to further improve conditions along the Route 168 corridor.

The 2025 Program Team traffic analysis was performed using a Base Year of 2019 and Design Year of 2040, and was conducted along the Route 168 corridor from just north of the signalized intersection of Route 168 and Benigno Boulevard to the unsignalized Ramp TW merge with Route 168 NB. At the intersection of Route 168 and Benigno Boulevard, initial traffic counts taken during the 2019 Base Year weekday AM and PM peak hours indicated a combined throughput of between 2,300 and 2,400 vehicles per hour (VPH) in all directions. This volume,

however; was determined to inaccurately illustrate existing traffic conditions within the PSA, as the traffic counts did not account for the unmet, or latent, demand on the Route 168 intersection approaches. In other words, due to congestion and long queues at downstream intersections including Browning Road, vehicles at the Route 168/Benigno Boulevard intersection were unable to pass through the intersection, thus resulting in undercounting. To account for this undercounting, an adjustment factor utilizing Regional Integrated Transportation Information System (RITIS), Replica, and the Delaware Valley Regional Planning (DVRPC) Travel Improvement Model (TIM) 2.5 model was implemented to yield realistic delays, LOS, and queue length. A *Traffic Analysis Memo* (Program Team, 2025) describing study methodology and containing traffic flow volume diagrams can be found in Appendix D.

The traffic analysis evaluated two volume demand scenarios during the 2040 Design Year:

- **No-Build scenario**: assumed only the widening of the mainline Turnpike to six lanes and a one-lane Ramp NT, with no other geometric improvements within the PSA; and,
- **Build scenario**: incorporated the realignment of a two-lane Ramp TW as proposed in the project PPA, with no other geometric improvements north of the Bengino Boulevard intersection or south of the Turnpike ramp bridge included.

The Build scenario incorporates the realignment of Ramp TW as outlined in the project PPA. The project PPA, and the selection process by which the PPA was chosen, are described in detail throughout Chapter 2 (Alternatives Considered). The following assumptions were incorporated into the Build scenario:

- Traffic accessing the hotel located at Block 137, Lot 13, currently through the intersection of Route 168 and Benigno Boulevard, would be relocated to the existing driveway south of the intersection providing access to other hotels between existing Ramp TW and the intersection;
- Due to the relocated hotel access, the existing left-turn lane on Route 168 SB would be removed;
- The existing shared left-through lane on Benigno Boulevard eastbound (EB) would become a left-turn only lane; and,
- Right turns from Route 168 NB would be eliminated at the signalized intersection.

The No-Build scenario assumes that the existing traffic signal phasing/timing and intersection geometry, including hotel access, would be maintained. Additional details pertaining to the No-Build scenario are provided in Section 1.3.4 (2040 Traffic Volumes and Travel Conditions Without the Project).

The traffic analysis for the intersection of Route 168 and Benigno Boulevard under the 2019 Base Year scenario yielded an overall LOS D during AM peak hours and LOS E during PM peak hours. The same analysis conducted for the merge of Ramp TW and Route 168 yielded an overall LOS F during AM peak hours and LOS E during PM peak hours. Both Base Year analyses included latent demand in peak direction of Route 168.

1.3 FUTURE TRAFFIC AND TRAVEL DEMAND

The NJTA chose 2040 as the Design Year for the project because of the availability of reasonably foreseeable data for the future condition in 2040 from the Metropolitan Planning Organization with authority in the project area: the DVRPC. The following subsections describe the demographic growth and development trends and the relationship of those trends to 2040 traffic volumes and travel demand on the PSA and within Camden County.

1.3.1 Demographic Growth and Development Trends

This section presents data regarding foreseeable future trends in population and employment growth that would influence traffic volumes in the project area. The sources for these data include the following:

- The DVRPC's adopted 2021 *Long Range Plan, Connections 2050* (DVRPC Plan);
- Newmark's *Q3 2024 Greater Philadelphia Industrial Market Report*; and,
- The 2021 Planning Board meeting minutes of the project area municipalities.

The DVRPC Plan forecasts 2.0 percent population growth and 11.8 percent employment growth in Camden County by 2040, and 2.3 percent and 12 percent growth, respectively, by 2050. In the greater Philadelphia-Camden-Wilmington Metropolitan Statistical Area, the DVRPC identifies growth in the following job sectors: construction; utilities; information; professional, scientific, and technical services; educational services; and arts, entertainment, and recreation. Employment declines are forecasted in manufacturing; wholesale trade; finance and insurance; and public administration. Additional data on forecasted community trends within the PSA can be found in Section 3.2 (Economic Development and Socioeconomics).

The Land Use Vision in the DVRPC Plan identifies infill and redevelopment of existing developed lands as the primary source of growth in Camden County. The forecasted trend is the result of the emphasis DVRPC places on center-based development, which is a land use concept that focuses and concentrates development and redevelopment in specific geographic areas while preserving agricultural and natural lands outside town centers.

1.3.2 Relationship of Growth Trends to Traffic Forecasting

Growth in population and employment are primary factors used in forecasting future travel demand on the study area. Other factors that contribute to future travel demand include committed transportation and development projects in proximity to the PSA. Additional regional committed projects currently under construction or planned until 2040 are discussed in Chapter 2 (Alternatives Considered) and summarized in **Table 2.1-1**.

1.3.3 2040 Truck Freight Movements in the Study Area

This section presents data to explain current and foreseeable truck freight trends affecting the Interchange 3 Outside Toll study area. According to the NJDOT's *NJ Statewide Freight Plan* (Freight Plan) (NJDOT, 2023), trucks handle 68 percent of New Jersey's state-to-state freight transportation tonnage (defined as the collection and distribution of import and export goods). The other freight modes that make up the balance (32 percent) of state-to-state freight transportation are pipeline, rail, water, and air. Nationally, trucks handle approximately 3

percent of globally imported goods and approximately 9 percent of exported goods by tonnage, and the national percentage of state-to-state truck freight is forecasted to grow by 58.8 percent by 2050.

The bulk of truck freight through New Jersey moves along interstate corridors, including the I-295/I-95/Turnpike corridor, I-80, and I-78. Freight arriving from other countries travels primarily by ship to ports, the largest being in the New York City and Philadelphia areas. At ports, freight is transferred to trucks for shipment to end users (businesses, retail establishments, and consumers). Thereby, interstate highway corridors enable both international and state-to-state truck freight movements. For example, the I-295/I-95/Turnpike corridor provides a north-south route between ports, suppliers, and end users in New York and Pennsylvania, among other nearby states. Within New Jersey, the I-295/I-95/Turnpike corridor also connects to state and local highways, such as Route 168, where suppliers and end users are based.

The Freight Plan notes that the freight industry accounted for nearly 32 percent of New Jersey Gross Domestic Product (GDP) from 2014 to 2020, with the top freight industries within New Jersey being wholesale trade, retail trade, manufacturing, construction, utilities, transportation, and food/agriculture. In Camden County, freight GDP increased 14 percent from 2015 to 2019. New Jersey is also a significant producer and end user of supply chain materials. In addition, retail businesses and consumers in New Jersey are significant end users of goods transported by truck through warehouses, distribution centers, and fulfillment centers. Finally, as a result of New Jersey's prominent role in the production, handling, and consumption of goods, New Jersey is a significant producer of waste hauled by trucks to disposal sites.

The I-295/I-95/Turnpike corridor is one of the primary corridors in New Jersey for handling truck freight. The Freight Plan analyzes the three highways as a single corridor because the highways are roughly parallel to one another and share the bulk of north-south freight traffic. Traffic shifts occur among the highways depending on which highway provides the most efficient routing and where congestion and incidents occur, and connector roadways such as Route 168 serve to support such traffic shifts. The Freight Plan identified the intersection of the Turnpike and Route 168 as the 11th most costly roadway bottleneck (places on the roadway system resulting in higher user costs to the movement of freight) within the Philadelphia Gateway Area, resulting in $3,229 in daily congestion costs in 2019. Roadway bottlenecks result in increased congestion along roadway corridors and costs for businesses using trucking services, as well as broader supply chain impacts.

In proximity to the PSA, prevalence and growth of industrial warehouses correlates with increased truck freight. Distribution centers, manufacturing enterprises, and wholesale operations in the Borough of Bellmawr are major contributors to freight transportation demand. Existing businesses within and beyond the PSA are anticipated to expand in correlation with future Camden County population growth and demand for goods and services, as well as future development.

1.3.4 2040 Traffic Volumes and Travel Conditions Without the Project

The No-Build scenario used for the traffic analysis, as described in Section 1.2.1 (Existing Traffic Volumes and Travel Conditions), and referred to as the No-Build Alternative throughout the remainder of this EIS, is the 2040 condition of the PSA without the Interchange 3 Outside Toll project improvements. The No-Build Alternative assumes that all other regional committed transportation projects within and nearby the PSA as identified in **Table 2.1-1**, including the NJTA Interchanges 1 to 4 Capacity Enhancements Program, would occur. The No-Build Alternative would not allow for improvements to existing congested conditions within the PSA.

Under the No-Build Alternative, the 2040 operating conditions within the PSA would degrade from existing conditions and the LOS of the Route 168 roadway corridor and intersections within the PSA would decline. As displayed in **Table 1.3-1** and **Table 1.3-2**, the 2040 AM and PM peak hour conditions of the intersection of Route 168 and Benigno Boulevard under the No-Build scenario would degrade to LOS F during both AM and PM peak hours. Similarly, as illustrated in **Table 1.3-3** and **Table 1.3-4**, the Ramp TW merge onto Route 168 NB would also decline to LOS F during peak hours under the No-Build scenario. Parameters contributing to this degradation in conditions include predicted population and employment growth in the area, increased demand for goods and services, and increased traffic volume that would result from the regionally committed projects not associated with the Interchange 3 Outside Toll project.

Table 1.3-1 and **Table 1.3-2** present traffic volumes, LOS, delay, and anticipated queue lengths during AM and PM peak periods, respectively, for each movement at the intersection of Route 168 and Benigno Boulevard under the No-Build scenario. Note that traffic volumes in the following tables for shared lanes are indicated as the addition (+) of the individual movement volumes, listed in the order in which the lane directions appear.

Table 1.3-1: Summary of AM Synchro Results Under the No-Build Scenario (Benigno Boulevard Intersection)

Route 168 and Benigno Boulevard Intersection						
Movement (Lanes)	2040 AM Peak Hour (No-Build)					
	Volume (VPH)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
EB LT (1)	180+1	F	139.5	144	284	214
EB R (1)	268	A	9.7	32	102	67
WB LT (1)	4 + 1	C	35.0	3	13	8
WB R (1)	8	A	0.1	0	0	0
NB L (1)	406	E	70.8	112	241	177
NB TR (1)	1,185 + 4	F	136.4	1,116	1,254	1,185
SB L (1)	5	B	12.8	1	8	5
SB T (1)	636	B	21.2	304	445	375
SB R (1)	142	A	2.3	0	27	14
Overall	-	F	83.7	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

Table 1.3-2: Summary of PM Synchro Results Under the No-Build Scenario (Benigno Boulevard Intersection)

Route 168 and Benigno Boulevard Intersection						
Movement (Lanes)	2040 PM Peak Hour (No-Build)					
	Volume (VPH)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
EB LT (1)	147 + 4	D	54.9	97	173	135
EB R (1)	286	C	24.1	127	211	169
WB LT (1)	6 + 2	C	32.8	5	18	12
WB R (1)	9	A	0.1	0	0	0
NB L (1)	323	F	182.1	266	411	339
NB TR (1)	768 + 2	B	17.4	368	490	429
SB L (1)	12	B	13.1	4	14	9
SB T (1)	1,306	F	253.0	1,276	1,533	1,405
SB R (1)	89	A	3.0	0	24	12
Overall	-	F	139.5	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

The existing phasing and timing plan for the Route 168 and Benigno Boulevard intersection under the No-Build scenario would result in LOS E or F in 2040 for several movements. Queue lengths on the northbound approach to this intersection would extend beyond the Ramp TW entrance during weekday AM peak hours, worsening queuing on the Interchange 3 ramps.

A summary of AM and PM peak periods, respectively, for the unsignalized merge of Ramp TW onto Route 168 NB under the No-Build scenario is displayed in **Table 1.3-3** and **Table 1.3-4**.

Table 1.3-3: Summary of AM Synchro Results Under the No-Build Scenario (Ramp TW Merge)

Route 168 and Ramp TW (Merge)						
Movement (Lanes)	2040 AM Peak Hour (No-Build)					
	Volume (VPH)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
WB R (1)	623	F	899.7	-	1,493	-
NB T (1)	972	-	0.0	-	-	-
Overall	-	F	263.8	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

Table 1.3-4: Summary of PM Synchro Results Under the No-Build Scenario (Ramp TW Merge)

Route 168 and Ramp TW (Merge)						
Movement (Lanes)	2040 PM Peak Hour (No-Build)					
	Volume (VPH)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
WB R (1)	677	F	168.2	-	754	-
NB T (1)	415	-	0.0	-	-	
Overall	-	F	51.6	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

Without modifications to Ramp TW, the No-Build scenario would not resolve the existing issue of queuing along the Interchange 3 ramps or congestions along the Route 168 corridor within the PSA. Existing conditions, combined with an increased travel demand would adversely impact operations of traffic exiting the Turnpike mainline via Interchange 3.

Existing and predicted traffic congestion within the PSA, as illustrated by the traffic analysis, was a key driver of the project purpose and need and a major consideration during the evaluation of project alternatives. The selection process resulting in the PPA, and the predicted traffic data for the 2040 Build scenario based on PPA improvements, is discussed in detail throughout Chapter 2 (Alternatives Considered). Traffic flow diagrams generated for the 2040 Design Year No-Build and Build scenarios are included in Appendix D.

1.4 PURPOSE OF THE PROJECT

The Interchange 3 Outside Toll project improvements are being implemented for the purpose of addressing the location-specific issue of Route 168 congestion near Interchange 3 within the PSA. The proposed improvements aim to enhance traffic flow and accommodate increased capacity needs of the following project elements:

- The Route 168 roadway corridor near access to the Turnpike;
- The existing intersection of Route 168 and Benigno Boulevard;
- Interchange 3 Ramp TW; and,
- The Interchange 3 toll plaza.

Maintaining access to/from the intersection of Route 168 and Benigno Boulevard and maintaining current levels of service within the PSA is critical for the surrounding community and daily roadway users. Improvements would be implemented while maintaining access to properties along Route 168, and ROW acquisition has been minimized to the extent necessary for project construction and operation.

1.5 NEED FOR THE PROJECT

The need for the NJTA Interchange 3 Outside Toll project is location-specific and has two identified transportation components: (1) contain interchange ramp queues on NJTA ramps outside toll and (2) relieve congestion and improve safety on Route 168 near Interchange 3 by

removing the Ramp TW merge with Route 168 NB for traffic traveling to Benigno Boulevard by eliminating the existing weave condition.

1.5.1 Need to Contain Interchange 3 Ramp Queues on NJTA Ramps Outside Toll

At the NJTA Interchange 3 Outside Toll project area, the existing Ramp TW is approximately 600 feet long before merging with Route 168. This existing ramp length does not provide adequate space for vehicles to queue on the ramp itself, causing queuing issues along Route 168, at the toll plaza, and onto the Turnpike mainline. During peak travel times on Route 168, traffic build-up on Ramp TW routinely impacts the toll plaza and extends onto the deceleration lane and Turnpike mainline. Within the PSA, significant traffic delays can be experienced along local roadway corridors at peak travel periods as vehicles exiting the Turnpike via the Interchange 3 toll plaza and Ramp TW merge onto Route 168 NB and experience insufficient stacking room.

Improvements to Ramp TW are needed to allow for longer queuing distances on the ramp and reduced queues at the toll plaza and along Route 168. Currently Ramp TW only provides access to Route 168 NB and insufficient distance for traffic to efficiently exit the interchange ramps. Refinements to Ramp TW geometry would be explored as the design progresses, and advance signing prior to the toll plaza would be included to minimize the potential for toll plaza exit traffic crossing paths in advance of the Ramp TW gore area.

1.5.2 Need to Relieve Congestion and Improve Safety on NJ Route 168

The location/orientation of the portion of Route 168 within the PSA contributes to the congested nature of the roadway corridor. From the north, traffic flows south from I-295 onto Route 168 SB through the intersection with Browning Road and into the PSA, making this a populous thoroughfare for Turnpike-bound traffic. Within the PSA, southbound traffic flow experiences delays through the existing intersection of Route 168 and Benigno Boulevard during peak travel times. Northbound traffic along Route 168, as well as Interchange 3 Ramp TW traffic, experiences significant delays and queuing resulting from the existing configuration requiring these movements to merge downstream of the signalized intersection.

As described in Section 1.2.1 (Existing Traffic Volumes and Travel Conditions), the congested traffic condition of the Route 168 roadway corridor has been an identified issue within Camden County and the local municipalities for several years. Preliminary analyses conducted by NJTA and coordination with NJDOT, stakeholders, and local, state, and Federal officials has revealed that congestion along Route 168 is a complex issue that would require multiple corridor-wide improvements from I-295 to Interchange 3 to adequately resolve. NJDOT has indicated that corridor-wide improvements beyond the Interchange 3 Outside Toll project are not progressing at this time, aside from some signal optimization along the corridor. As such, the Interchange 3 Outside Toll PPA was developed to improve congestion and safety within the Route 168 corridor related to the Interchange 3 Ramp TW and northbound Route 168 merge condition.

A combination of ramp geometric improvements and signal optimization would be required to provide accessibility and reduce congestion within the PSA. The goals of the proposed PPA improvements include accommodating additional traffic to an improved LOS, providing sufficient stacking room, and providing a four-way intersection with Benigno Boulevard that would remove

an existing short merge condition between the existing Ramp TW and the intersection. Signal optimization along the Route 168 roadway corridor and at the intersection with Benigno Boulevard would be required to further improve congestion and safety within the Route 168 corridor.

1.6 PUBLIC AND AGENCY OUTREACH

Public and agency involvement would be a key element in the implementation of the Interchange 3 Outside Toll project. Ongoing coordination efforts have demonstrated the need for project implementation and provided insight into alternatives development. This section describes the outreach and coordination activities undertaken by the NJTA and plans for future outreach.

1.6.1 Public Outreach

Public outreach would be an essential component of the Interchange 3 Outside Toll project as it establishes and maintains a collaborative decision-making process that engages the public and stakeholders. Initial public outreach coordination was initiated as part of the NJTA Interchanges 1 to 4 Capacity Enhancements Program, and additional coordination specific to proposed independent utility improvements within the Interchange 3 Outside Toll area is forthcoming. The objectives of public outreach are to:

- Inform and educate the public and stakeholders about the project;
- Provide opportunities for meaningful input and dialogue throughout the project development and evaluation processes;
- Understand community values in order to better develop alternatives; and,
- Foster productive public relations.

1.6.1.1 Summary of Public Outreach Activities and Themes

As discussed in Section 1.2.1 (Existing Traffic Volumes and Travel Conditions), several county and municipal resolutions have been passed in recent years in support of addressing traffic congestion along Route 168 based on stakeholder concerns. Public outreach activities to date have included meetings with elected officials, including municipal officials of Bellmawr and Runnemede Boroughs. Both entities have recognized the need to address congestion issues along Route 168 and the importance of communication with stakeholders. As previously stated, the Interchange 3 Outside Toll project would not resolve the issue of Route 168 congestion as identified in this coordination, but rather would provide improvements specific to the PSA. The following are key themes communicated to the NJTA during municipal outreach activities for the project to date:

- The importance of addressing existing traffic congestion of the entire Route 168 corridor south of I-295;
- The need to reduce impacts to surrounding communities from existing traffic congestion caused by traffic traveling to/from the Turnpike and I-295;
- The need for continued coordination with NJDOT and local municipalities during project development; and,

- Interest in designating portions of the Route 168 corridor as a Redevelopment Area.

During initiation of the NJTA Mainline Capacity Enhancements Program, a Program Virtual Room was established as a means to provide the public with Program information and updates, and in-person Public Information Centers (PICs) are planned for the Summer of 2025. These PICs would be expanded to include information specific to the independent utility improvements of the Interchange 3 Outside Toll project as the project progresses.

1.6.2 Agency Coordination

In the context of New Jersey EO 215, agency coordination establishes and maintains a collaborative decision-making process that engages the agencies with jurisdiction in the project area in the development of the alternatives, selection of an PPA, and evaluation of the PPA. The objectives of agency coordination are:

- Inform and educate the agencies about the project;
- Provide opportunities for meaningful input and dialogue throughout the alternatives' development and evaluation processes;
- Understand the agencies' jurisdictions and regulatory requirements in order to better develop alternatives; and,
- Foster productive agency relations.

1.6.2.1 Summary of Agency Coordination Activities

The NJTA is coordinating with state and Federal agencies with jurisdiction in the PSA as summarized in **Table 1.6-1**. The NJTA would keep these agencies informed of project activities by means of periodic meetings and other consultation processes. In addition, the NJTA has actively considered the agency input it has received, particularly in regard to comparing the alternatives' ability to avoid or minimize impacts, identifying potential strategies to minimize or mitigate adverse impacts, assessing future ability to obtain permits during subsequent design, complying with applicable assessment methodologies, and documenting results.

The following are key themes communicated to the NJTA during agency outreach activities for the project to date:

- Water resources identification protocols (wetlands, flood hazard areas, and waterways);
- Permits and approvals regarding potential project impacts to water resources;
- Threatened and endangered species;
- NJDOT's planned improvements to nearby roadways;
- Need for coordination with state agencies during the project; and,
- Requirements under Section 106 of the NHPA.

Table 1.6-1: List of Involved Agencies

Federal Agencies
U.S. Fish and Wildlife Service (USFWS)
State Agencies
New Jersey Department of Environmental Protection (NJDEP)
New Jersey Department of Transportation (NJDOT)
New Jersey Historic Preservation Office (NJHPO)
New Jersey State Police

Source: Program Team, 2024.

Coordination conducted to date for the resources listed above is described in Sections 3.6 (Historic and Archaeological Resources), 3.11 (Surface Water Resources), 3.12 (Floodplains and Riparian Zones), 3.13 (Wetlands), 3.14 (Ecology and Wildlife), and 3.21 (Environmental Permits).

1.6.3 Agency Coordination After the EIS

Following completion of the EIS, the NJTA would continue agency coordination to obtain required permits and approvals for the project. The role of the regulatory agencies would be to evaluate the project in the context of applicable Federal, state, and other laws and regulations; consider the impacts of the project on the environment; guide the NJTA toward measures to avoid or minimize harm to the environment through design refinement and assist the NJTA in identifying appropriate mitigation commitments to address impacts as part of obtaining regulatory approvals.

1.6.4 Role of Input in the Selection of the PPA

The NJTA's selection of the PPA, as described in detail in Chapter 2 (Alternatives Considered), is the result of considering the engineering, environmental, municipal and agency input during the Conceptual Design phase of project development. Comments and information provided by elected officials, government representatives, and regulatory agencies helped the NJTA design the project improvements in ways that consider other projects that are planned in the PSA, coordinate with the sponsors of those plans (such as NJDOT), and avoid or minimize impacts to the natural and built environment to the extent practicable.

1.6.5 Next Steps

As the project advances to Final Design, the NJTA would continue public and agency outreach activities. These activities would continue to inform the project design and decision-making, and allow the NJTA to continue responding to public and agency concerns in the following ways:

- Continue to address concerns about the project; and,
- Refine the project design to reduce or eliminate impacts.

As required by NJ Executive Order 172, the NJTA is required to undertake public outreach for the project to afford the public an opportunity to express opinions and recommendations. This requirement would be fully achieved during Final Design when public and agency outreach continues through the design and environmental permitting processes.

Environmental Impact Statement

Chapter 2 Alternatives Considered

April 2025

Prepared for

Prepared by

AECOM

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2. ALTERNATIVES CONSIDERED

This Chapter summarizes the process by which the NJTA developed the design of the Interchange 3 Outside Toll project. The process involved the following steps:

1. Identifying the range of alternatives and assessing the potential for these alternatives to address the Project Purpose and Need (Section 2.1);
2. Concept Studies (Section 2.2);
3. Identification of the Alternatives Evaluated in this EIS (Section 2.3); and,
4. Overview of Construction Activities for the Project (Section 2.4).

Other activities the NJTA undertook to inform the design process described in this Chapter are summarized in this EIS as well: Purpose and Need (Chapter 1), Traffic, Safety, and Environmental Evaluations (Chapters 1 and 3), and Public and Agency Outreach (Chapter 1).

2.1 IDENTIFY RANGE OF ALTERNATIVES

The NJTA's initial step in the evaluation process was to identify the range of alternatives and assess the potential for these alternatives to meet the project purpose and need presented in Chapter 1. The categories of alternatives are the following:

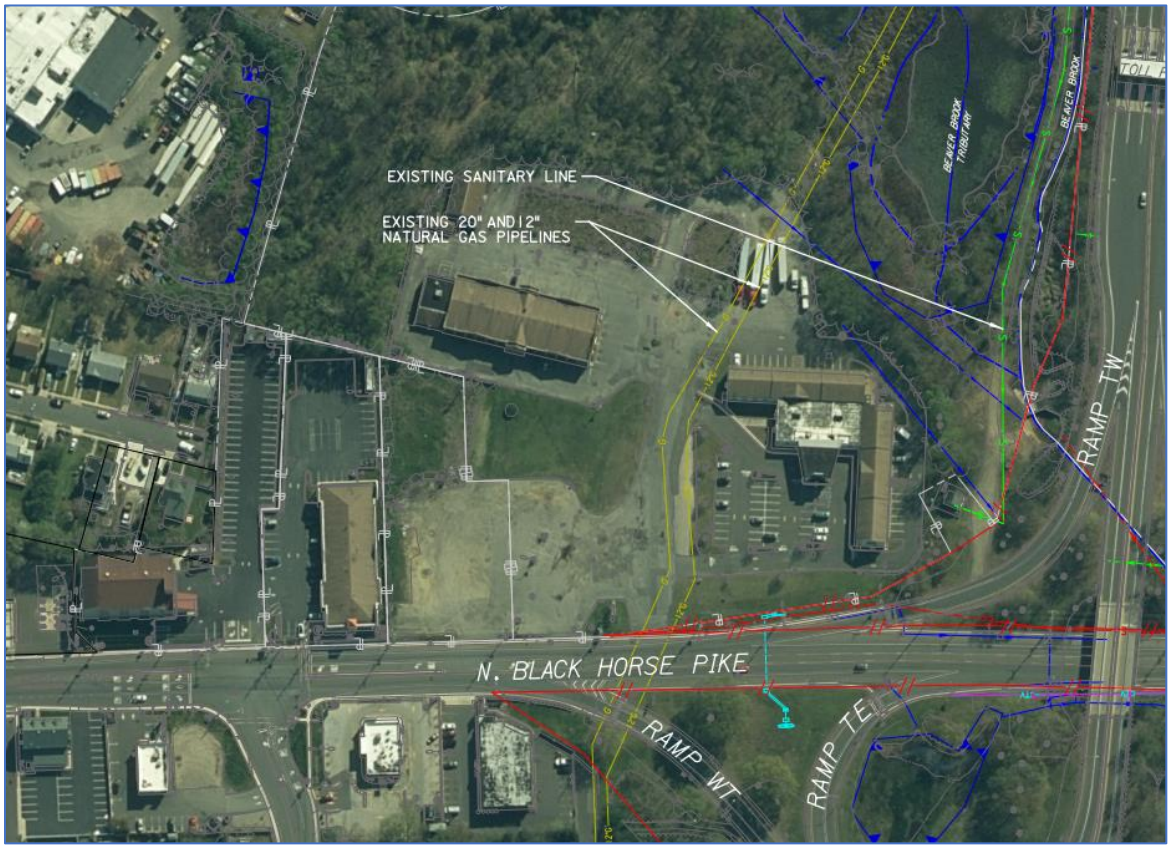
- No-Build Alternative (Section 2.1.1);
- Non-Turnpike Capital or Operational Alternatives (Section 2.2.1.1);
- Interchange 3 Realigned Ramp TW – Initial Alternatives (Section 2.2.1.2); and,
- Interchange 3 Realigned Ramp TW – Refined Alternatives (Section 2.2.1.3).

Each of these alternatives is described and evaluated in the following subsections. The evaluation process resulted in the selection of the Interchange 3 Realigned Ramp TW Preliminary Preferred Alternative (PPA) as described in Section 2.3.1 (Preliminary Preferred Alternative).

2.1.1 No-Build Alternative

The No-Build Alternative is the 2040 condition without the Interchange 3 Outside Toll project which assumes that all other regional transportation projects within and near the PSA would occur. The No-Build Alternative would not result in any capacity or operating improvements to the Interchange 3 Outside Toll area. The existing Interchange 3 Outside Toll area condition is displayed below in **Figure 2.1-1**.

Figure 2.1-1: Interchange 3 Outside Toll Existing Conditions



Source: Program Team, 2024.

As described in Section 1.3 (Future Traffic and Travel Demand), traffic volumes and roadway congestion would continue to increase in the future as population, employment, and vehicular use increases along the north-south travel corridor formed by the Turnpike, as well as the east-west travel corridor formed by Route 168. The NJDOT *NJ Statewide Transportation Improvement Plan FY 2020-2029* (2019) and DVRPC *Connections 2045, Plan for Greater Philadelphia* (2017) were reviewed to compile a list of major regional committed projects in the area that would occur under the No-Build Alternative by other sponsors, as summarized in **Table 2.1-1** below.

Table 2.1-1: Major Regional Committed (Funded) Projects near the Interchange 3 Outside Toll Project

Project (Sponsor)	Type	Description
New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program (NJTA)	Surface Transportation	Proposed widening of one additional lane in each direction from MP 0.0 to just north of the existing Interchange 4 at MP 36.5
Route I-295/42, Missing Moves, Bellmawr (NJDOT)	Highway	New ramps and related improvements
Route 168/I-295 Interchange Improvements (NJDOT)	Roadway	Evaluation of alternatives to upgrade numerous safety and operational deficiencies in the vicinity of the interchange, to include the Prospect Ridge Boulevard and Route 168 intersection

Source: New Jersey Department of Transportation's *NJ Statewide Transportation Improvement Plan FY 2020-2029* and GIS shapefiles from NJGIN Open Data website (https://njogis-newjersey.opendata.arcgis.com/) DVRPC's *Connections 2045, Plan for Greater Philadelphia* and GIS Shapefiles from DVRPC website (https://www.dvrpc.org/mapping/data/).

Along the Turnpike, 2040 operating conditions in the No-Build Alternative would degrade from 2024 conditions and would provide an LOS F (AM and PM) along Route 168 and Benigno Boulevard and an LOS F (AM and PM) for the merge of the existing Ramp TW and Route 168. In the No-Build scenario, traffic delays would be increased and queues would be longer than those observed in the existing condition. For these reasons, the No-Build Alternative would not remove the congestion and negative operating conditions that are present at Route 168 in the vicinity of Interchange 3. As a result, the No-Build Alternative would not address the project purpose and need as it would not provide additional capacity or improved operations for the existing Ramp TW of Interchange 3 or Route 168 within the PSA.

The No-Build Alternative is retained in this EIS to serve as a baseline condition against which the effects of the NJTA's PPA can be compared.

2.1.2 Build Alternatives

The build alternatives that were considered for the Interchange 3 Outside Toll project are described below in Section 2.2 (Concept Studies). The NJTA evaluated the potential of each alternative considered to achieve safety and operational requirements, impact the environment, require right-of-way (ROW) acquisition, impact utilities, and to meet the project purpose and need. Overall costs associated with alternative construction and operation were also a consideration during this analysis.

2.2 CONCEPT STUDIES

The NJTA initiated the design for the project with a Concept Studies process. The purpose of the Concept Studies was to identify and compare reasonable alternative designs and strategies that address the project purpose and need while achieving existing design standards for highway facilities. The focus of the Concept Studies was to address two key issues: 1) congestion on Route 168 at and near Interchange 3 and 2) queueing at the Interchange 3 toll plaza onto the deceleration lane and Turnpike mainline during peak travel periods.

Each alternative and strategy was evaluated by considering existing conditions, the ability to achieve the purpose and need of the project, operational and safety considerations, ROW needs, environmental and utility effects, and construction costs. In developing alternatives and strategies, the NJTA applied the following design criteria for each design element in the project:

- NJTA *Garden State Parkway New Jersey Turnpike Design Manual* (2022), (including pertinent Document Change Announcement's [DCAs]);
- NJDOT *Roadway Design Manual* (2015) (including pertinent Baseline Document Changes [BDCs]); and,
- American Association of State Highway Transportation Officials (AASHTO) publication, *A Policy on Geometric Design of Highways and Streets* (2018) (including Concept and Preliminary Design of local and county roadways; during Final Design, the individual municipality and county should be contacted regarding their specific design criteria, if any).

A major consideration during the Concept Studies process was knowledge of NJDOT's previously considered alternatives for improvements to the Route 168 roadway corridor near Interchange 3. The alternatives analyzed by NJDOT were highly conceptual and considered under a common framework to reduce congestion, improve safety, maintain the use of access driveways, enhance pedestrian and bicycle facilities and minimize ROW and environmental impacts. These NJDOT alternatives were never advanced; however, the methodologies considered combined with prior and ongoing coordination between NJTA and NJDOT was helpful for analyzing Interchange 3 Outside Toll alternatives.

The NJTA developed multiple Ramp TW realignment alternatives to address the congestion issues along Route 168 at and near Interchange 3 and the queuing issues for traffic leaving the toll plaza and entering Route 168. Section 2.2.1.2 discusses the initial ramp realignment alternatives (A, B, B1, C, C1, D, and D1) that were developed. After further discussion with NJTA, a second round of refined Ramp TW alternatives (1A, 1B, 2 and 3) were developed which are described in Section 2.2.1.3.

2.2.1 Design Categories and Alternatives

2.2.1.1 Non-Turnpike Capital or Operational Alternatives

The first category of alternatives considered proposed capacity and operational improvements to either I-295 or I-95 as a means to address existing and forecasted Turnpike mainline and Interchange 3 capacity needs.

There are three parallel north-south routes in general proximity to the project area: I-295, I-95, and the Turnpike. These three roadways accommodate both local and through traffic volumes and are used interchangeably by drivers depending on the operating condition on any one roadway. Due to the interrelatedness of these three roadways, statewide and regional planning considers the north-south travel function of these three roadways as a unit. Each roadway carries substantial traffic and is subject to changes in operating conditions based on congestion and incidents. Similar to the NJTA, the NJDOT (I-295) and the Pennsylvania Department of Transportation (PennDOT) (I-95) plan and implement capacity and operational improvement projects according to need, engineering conditions, and environmental factors related to each

roadway. Adding capacity and addressing operational conditions along one roadway could cause a shift in traffic to another roadway, depending on the driver's estimate of which roadway would provide the best balance of travel time and cost. Route 168 is one such roadway corridor that serves as a connector route for traffic traveling to/from the Turnpike to I-295 for routine commuting and/or to avoid congestion.

Improvements to I-295 or I-95 would not directly address the congested conditions at Interchange 3 or the operational deficiencies along Route 168 in the vicinity of Interchange 3. As such, the other alternative categories discussed in this section became the focus of the Concept Studies process, as those proposed improvements would be location-specific to the Interchange 3 Outside Toll area and would better address the project purpose and need.

2.2.1.2 Interchange 3 Realigned Ramp TW – Initial Alternatives

All concepts for the proposed improvements to Interchange 3 Outside Toll provide for a new realigned Ramp TW that would provide a direct connection from the Interchange 3 toll plaza to Benigno Boulevard at a reconfigured signalized intersection. The ramp realignment would eliminate the need for traffic traveling from the toll plaza to merge onto Route 168 and then weave to the left turn lane to access Benigno Boulevard. This improvement would greatly reduce traffic disruption/congestion on Route 168 in the vicinity of Interchange 3 and improve safety by removing the existing merge condition which increases congestion along both the ramp and the northbound corridor. The realigned Ramp TW would also allow for additional storage capacity for traffic entering Route 168 NB from the toll plaza, thereby eliminating the operational concern caused by queued vehicles extending to the toll plaza.

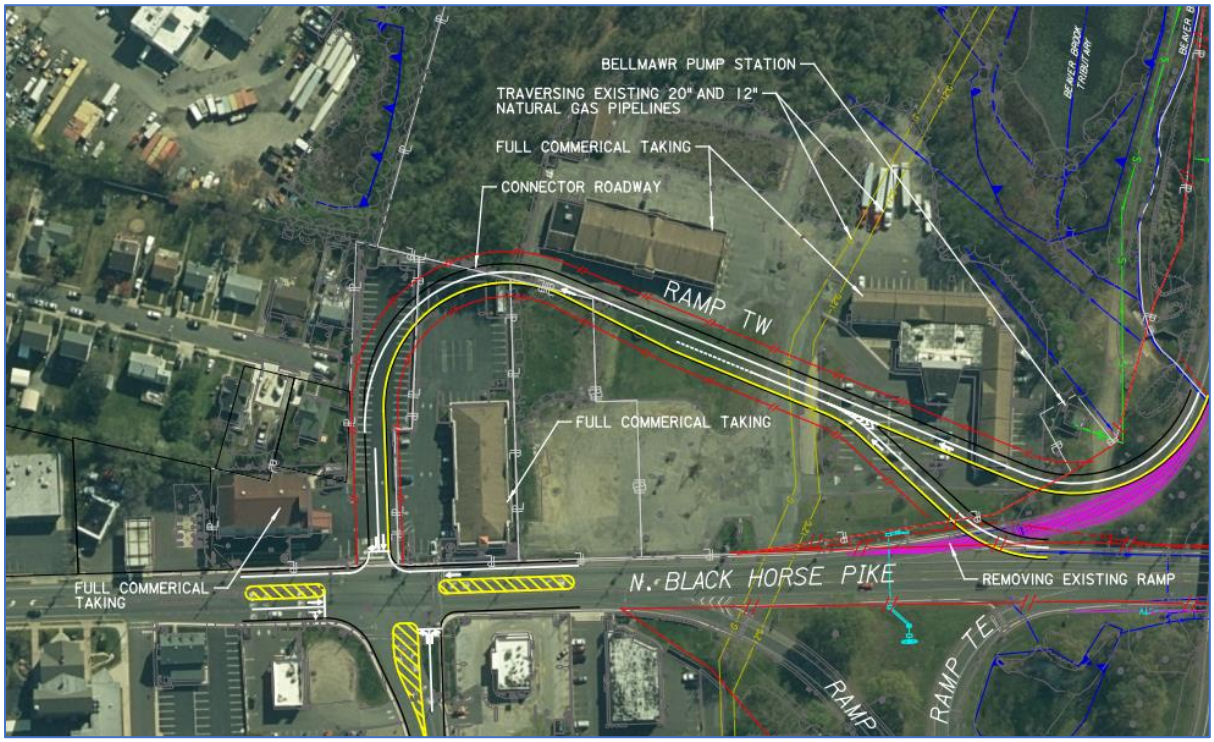
The alternatives shown differ in their degree of impacts (i.e., ROW, environmental) and benefits (i.e., traffic, safety, and design improvements). Due to the presence of the existing commercial businesses adjacent and between the Turnpike and the intersection of Route 168 and Benigno Boulevard, the displacement of commercial businesses would be largely unavoidable; therefore, the new ramp connection would require similar partial and/or full property acquisition needs depending on the realignment alternative chosen, as described below.

Ramp realignment alternatives A, B, and C all include forward jughandles which would allow for northbound Route 168 traffic to merge with the realigned Ramp TW to access Benigno Boulevard. This would permit Route 168 traffic to access Benigno Boulevard without making a left turn, allowing for elimination of the left turn protected signal phase to improve traffic flow through the corridor. Alternatives D and D1 differ from the previous alternatives by proposing the removal of the existing Interchange 3 toll plaza and would require implementation of an All Electronic Tolling (AET) system at this Interchange.

Alternative A

Alternative A would maintain the existing Interchange 3 toll plaza and provide a direct ramp connection to Route 168 at Benigno Boulevard. A jughandle from Route 168 NB would merge with the direct ramp connection, bringing left turning traffic from Route 168 NB to the signalized intersection with Benigno Boulevard, thereby eliminating left turns from northbound Route 168. The direct ramp would maintain one lane for traffic, and vehicles utilizing the jughandle would have to merge with the direct ramp traffic. This alternative would require the acquisition of four parcels resulting in the displacement of four commercial businesses. The proposed Ramp TW would traverse existing 20" and 12" natural gas pipelines operated by Transco/Williams. Alternative A improvements are displayed below in **Figure 2.2-1**.

Figure 2.2-1: Alternative A

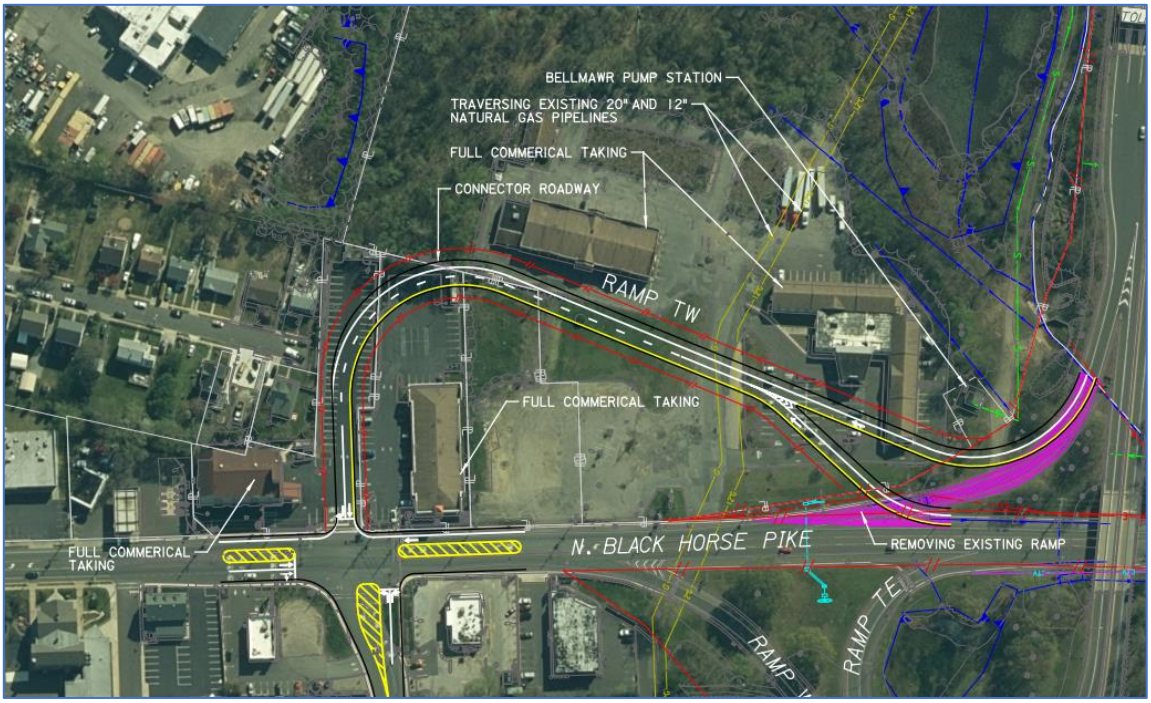


Source: Program Team, 2024.

Alternative B

Alternative B is a minor variation of Alternative A which would provide two lanes of traffic along the direct ramp so that traffic traveling from Route 168 NB and utilizing the jughandle would not need to merge with traffic exiting the toll plaza and traveling along the ramp. This alternative would also require the acquisition of four parcels resulting in the displacement of four commercial businesses. The proposed Ramp TW would also traverse the existing 20" and 12" natural gas pipelines operated by Transco/Williams. Alternative B improvements are displayed below in **Figure 2.2-2**.

Figure 2.2-2: Alternative B

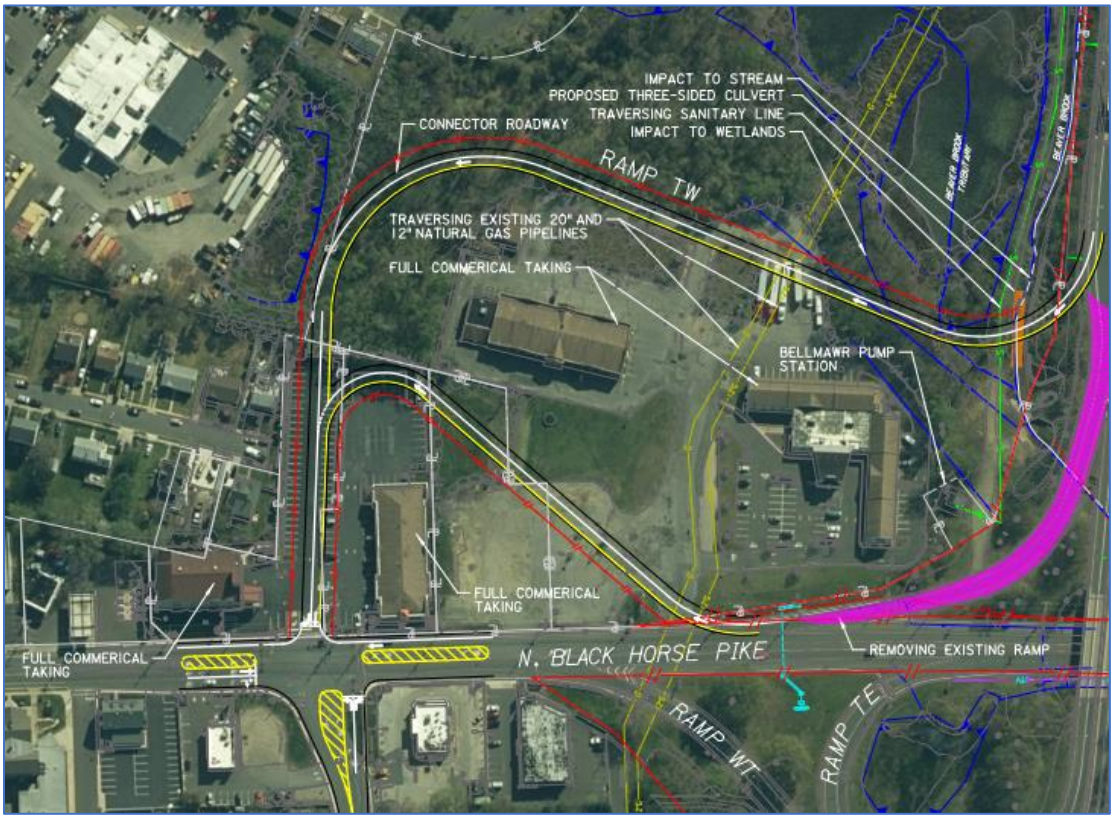


Source: Program Team, 2024.

Alternative C

Alternative C would maintain the existing toll plaza and provide a direct ramp connection to Route 168 at Benigno Boulevard similar to the previous alternatives; however, unlike Alternatives A and B, the direct ramp would traverse behind the hotel buildings. In this alternative, the jughandle from Route 168 NB would be located north of the location proposed in the previous two alternatives. The jughandle would merge with the direct ramp just upstream of the ramp tangent approach to the intersection. This alternative would also traverse the existing 20" and 12" natural gas pipelines operated by Transco/Williams and an existing municipal sewer line. Alternative C would also require the acquisition of four parcels which would result in the displacement of four commercial businesses. Alternative C improvements would result in impacts to the adjacent wetlands and Beaver Brook, and a new culvert would be required for the realigned Ramp TW to traverse Beaver Brook. Alternative C improvements are displayed below in **Figure 2.2-3**.

Figure 2.2-3: Alternative C

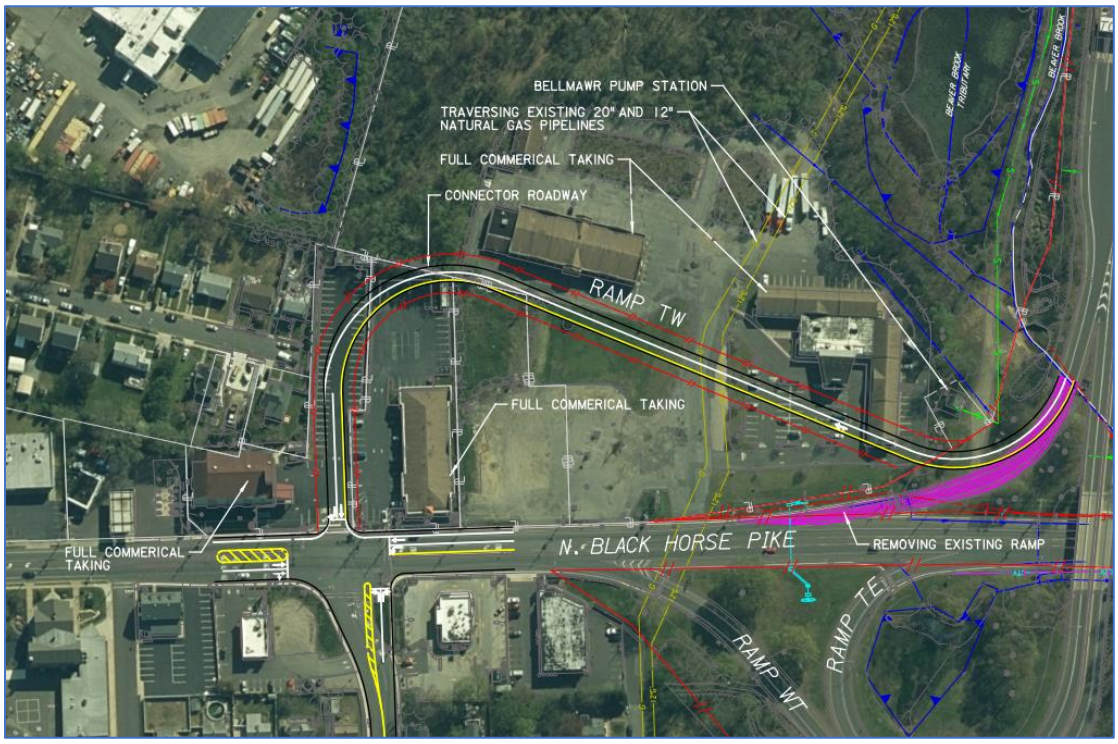


Source: Program Team, 2024.

Alternatives B1 and C1

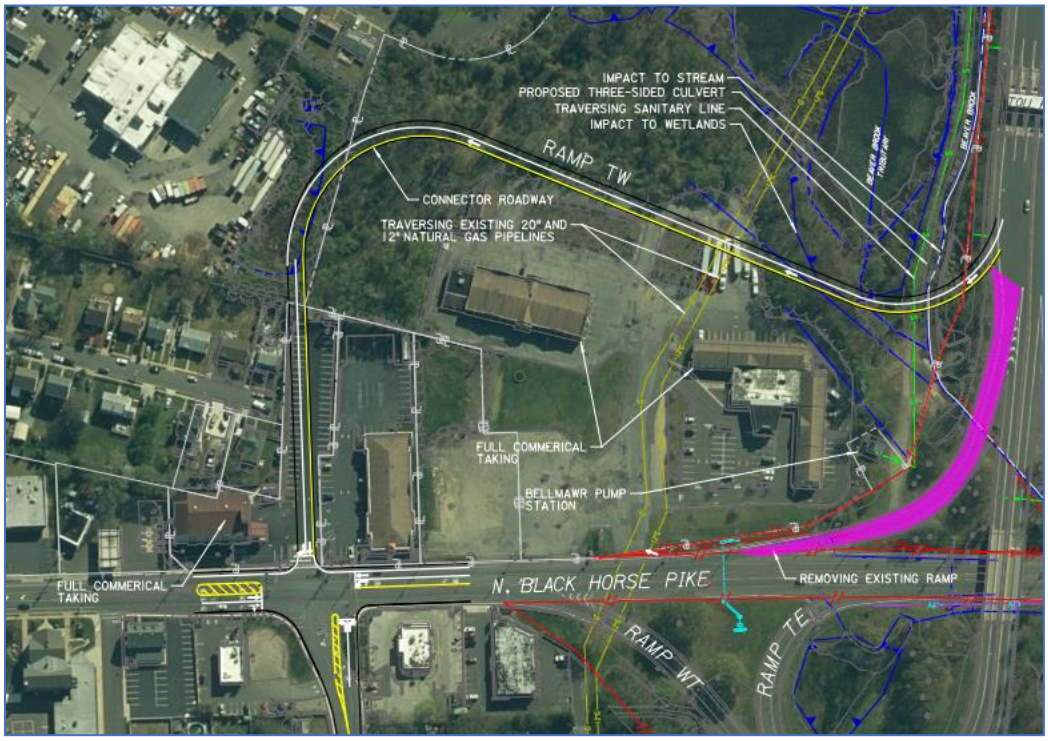
Alternatives B1 and C1 would not utilize a jughandle and instead would allow left turns at Benigno Boulevard for northbound Route 168 traffic while maintaining the new realigned Ramp TW. Similar to the previous alternatives, the proposed Ramp TW would traverse the existing 20" and 12" natural gas pipelines operated by Transco/Williams for both Alternatives B1 and C1, and Alternative C1 would traverse an existing municipal sanitary line. Similar to Alternatives A, B, and C, Alternative B1 would require the acquisition of four parcels resulting in the displacement of four commercial businesses. Alternative C1 would require the acquisition of three parcels resulting in the displacement of three commercial businesses by comparison. Similar to Alternative C, Alternative C1 would impact the adjacent wetlands and Beaver Brook, requiring a new culvert for Ramp TW to traverse Beaver Brook. Alternatives B1 and C1 improvements are displayed below in **Figure 2.2-4** and **Figure 2.2-5**, respectively.

Figure 2.2-4: Alternative B1



Source: Program Team, 2024.

Figure 2.2-5: Alternative C1

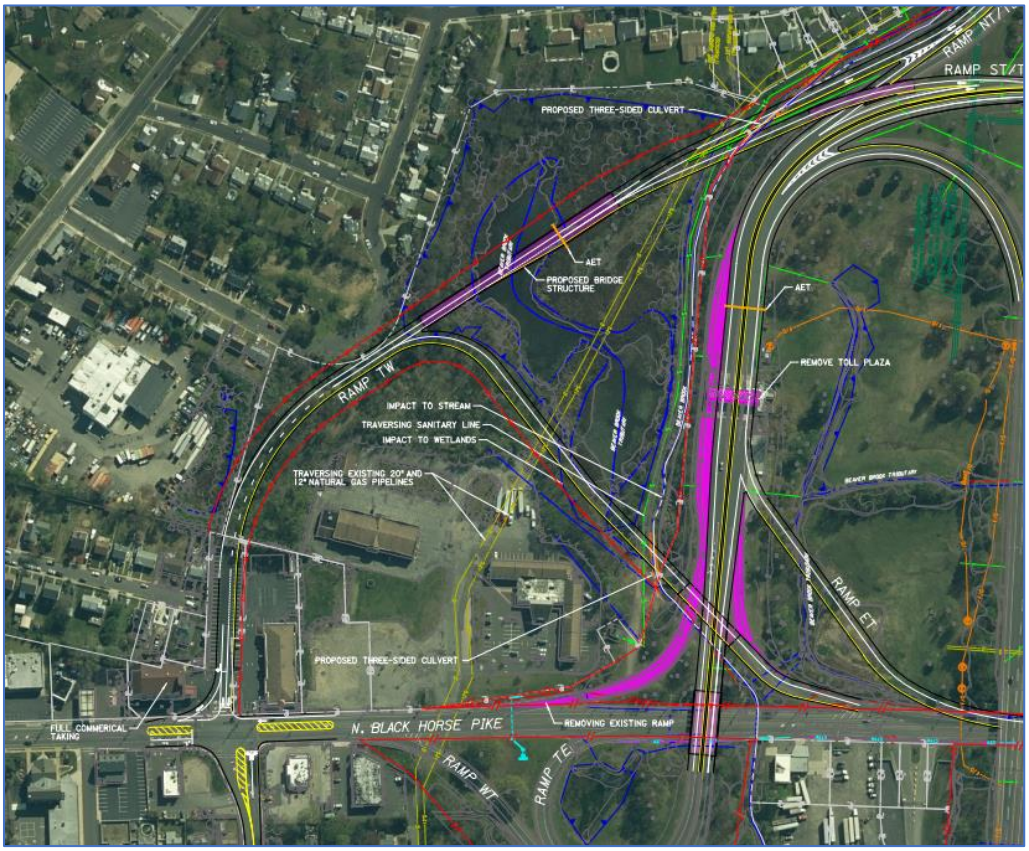


Source: Program Team, 2024.

Alternatives D and D1

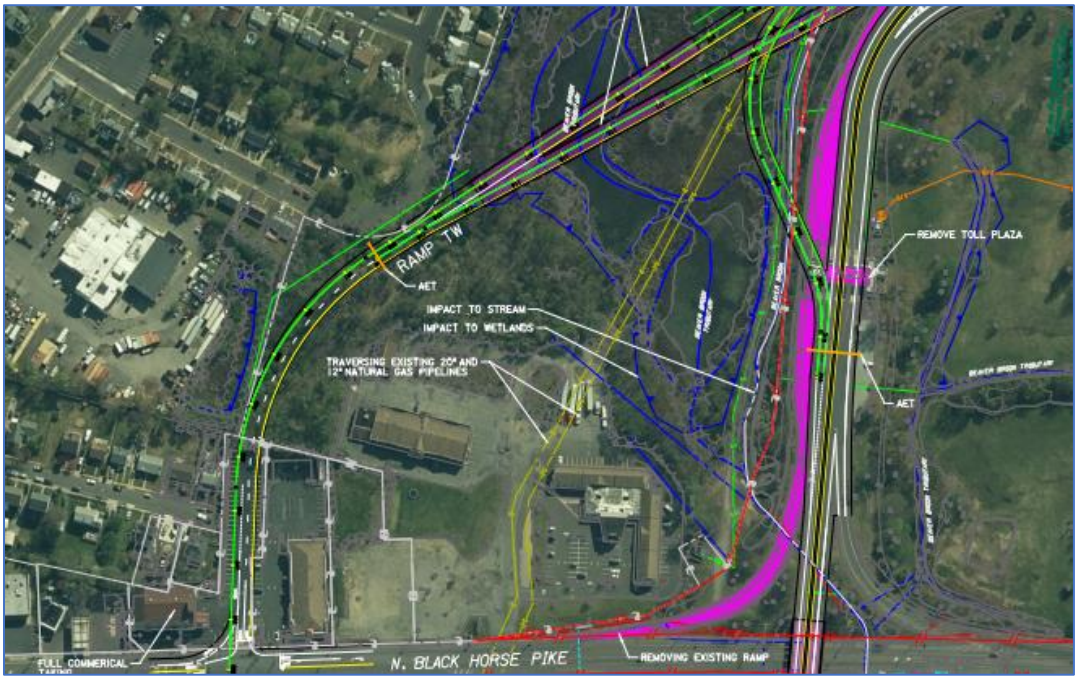
Alternative D would involve removing the Interchange 3 toll plaza and replacing the structure with All Electronic Tolling (AET) and would include both a modified Turnpike Ramp TW and a new jughandle that would be located behind the existing hotels adjacent to Route 168. Alternative D1 is a modified scheme of Alternative D that would eliminate the jughandle from the proposed improvements, retain the proposed Ramp TW that connects to Route 168 NB, and allow a left turning movement from Route 168 NB to Benigno Boulevard. The proposed Ramp TW would also traverse the existing 20” and 12” natural gas pipelines operated by Transco/Williams and the existing municipal sanitary sewer line. Both Alternatives D and D1 would require the acquisition of one parcel resulting in the displacement of one commercial business. Both Alternatives would impact the adjacent wetlands and Beaver Brook. Alternatives D and D1 improvements are displayed below in **Figure 2.2-6** and **Figure 2.2-7**, respectively.

Figure 2.2-6: Alternative D



Source: Program Team, 2024.

Figure 2.2-7: Alternative D1



Source: Program Team, 2024.

Realigned Ramp TW – Initial Alternatives Summary

All initially proposed Outside Toll alternatives would require additional ROW in the form of partial and full property acquisitions. All adjacent hotel properties on the northern side of Route 168 would be impacted in each of the proposed Alternatives, although the degree of these impacts varies with each alternative. The proposed realigned Ramp TW would also traverse existing 20" and 12" natural gas pipelines operated by Transco/Williams and an existing sanitary sewer line operated by the Borough of Bellmawr. Alternatives C and C1 would impact Beaver Brook and require a single culvert, while Alternatives D and D1 would also impact Beaver Brook and would require two culverts to allow for the flow of the stream to be uninterrupted by the realigned ramp. Alternatives C, C1, D, and D1 have an increased tangent length for the ramp away from the Route 168 intersection, this increased space allows for additional capacity and stacking room for traffic along the intersection approach leg which provides safety and operational benefits to traffic existing the Turnpike and entering the corridor.

Comparison of alternatives: The NJTA evaluated each alternative in terms of achieving safety and operational requirements, having potential impacts to the environment, ROW needs, utility impacts, and overall costs (**Table 2.2-1**). The construction costs in the alternatives evaluation table are a high-level estimate based on the Conceptual Design of the alternatives and would require further refinement to provide a more detailed cost comparison. Compared to Alternatives D and D1, which would require the proposed realigned ramp to cross through identified wetlands and riparian zones located west of the toll plaza, the other alternatives outlined in **Table 2.2-1** would have more minor environmental impacts. Alternatives C1, D, and D1 would have the least impact to the adjacent hotel properties, while Alternatives A, B, B1, and C would have a greater impact to the adjacent parcels due to the acquisition of four parcels and the displacement of four commercial businesses required for each to accommodate the realigned ramp. Alternatives D and D1 would replace the existing toll plaza with AET facilities. NJTA has not yet implemented AET, therefore an AET design standard has not yet been determined and would not be operationally suitable for the Turnpike at this location.

Table 2.2-1: Interchange 3 Outside Toll: Summary of Initial Alternatives Evaluation

Alternatives	Description	ROW Impacts	Utility Considerations	Construction Cost	Advantages	Disadvantages
A	Proposed jughandle from NB Rt 168 which merges with Ramp TW connection to Benigno Blvd	23.74 Acres	Traversing existing 20" & 12" Natural Gas Pipelines	$27.4 M	• Eliminates weave on Rt 168 NB approaching Benigno Blvd • Eliminates left turns from Rt 168 NB to Benigno Blvd • Increases green time to Rt 168 SB traffic, improving approach LOS • Maintains/improves overall intersection LOS	• Requires acquisition of four (4) parcels & displacement of four (4) hotels •Removes access to the Bellmawr Borough pump station from Rt 168
B	Variation of Alternative A, 2-lane ramp approach to Rt 168	23.77 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$27.4 M	• Provides 2 travel lanes on Ramp TW to eliminate required merge in Alternative A • Provides a more efficient operation on the ramp compared to Scheme A • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Eliminates left turns from Rt 168 NB • Increases green time to Rt 168 SB traffic, improving approach LOS • Maintains/improves overall intersection LOS	• Requires acquisition of four (4) parcels and displacement of four (4) hotels • Removes access to the Bellmawr Brough pump station from Rt 168
B1	Variation of Alternative B, removes jughandle	23.74 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$27 M	• Does not utilize a Rt 168 NB jughandle • Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Maintains/improves overall intersection LOS	• Requires acquisition of four (4) parcels & displacement of four (4) hotels • Removes access to the Bellmawr Borough pump station from Rt 168
C	Variation of Alternative A, ramp realigned behind hotels	24.67 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$30.1 M	• Longer storage lengths on ramp for traffic queues • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Eliminates left turns from Rt 168 NB to Benigno Blvd • Increases green time to Rt 168 NB traffic, improving approach LOS • Maintains/improves overall intersection LOS	• Requires acquisition of four (4) parcels & displacement of four (4) hotels • Impacts to wetlands • Requires a new culvert crossing Beaver Brook
C1	Variation of Alternative C, removes jughandle	15.68 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$21.8 M	• Does not utilize a Rt 168 NB jughandle • Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Maintains/improves overall intersection LOS	• Requires acquisition of three (3) parcels & displacement of three (3) hotels • Impacts to wetlands • Requires a new culvert crossing Beaver Brook
D	Variation of Alternative A, includes a modified Turnpike ramp and new jughandle	2.98 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$87.4 M	• Provides access from NJ Turnpike SN Roadway • Maintains/improves overall intersection LOS	• Requires acquisition of one (1) parcel and displacement of one (1) hotel • Increased impacts to wetlands • Requires partial relocation of Beaver Brook • Requires several new structures (bridges and retaining walls) • Additional decision points on ramps for traffic exiting the Turnpike • Removes existing toll plaza and utilizes AET facilities at separate toll collection points
D1	Variation of Alternative D, removes jughandle	5.07 Acres	Traversing existing 20" & 12" Natural Gas Pipelines and sanitary sewer line	$82.2 M	• Provides access from NJ Turnpike SN Roadway • Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Maintains/achieves acceptable intersection LOS	• Requires acquisition of one (1) parcel and displacement of one (1) hotel • Highest impact to wetlands • Requires several new structures (bridges and retaining walls) • Requires partial relocation of Beaver Brook • Maintain left turn phase for Rt 168 NB left turn movement • Removes existing toll plaza and utilizes AET facilities at separate toll collection points • Additional decision points on ramps for traffic exiting the Turnpike

Source: Program Team, 2025.
Notes:

1. *Costs are approximate based on Conceptual Design.*
2. *Final Engineering and Construction Supervision are not included in these costs.*
3. *Valuation assessment of properties is to be determined.*
4. *ROW impacts are approximate based on Conceptual Design.*
5. *Utility costs are not included in the estimated costs.*
6. *Environmental costs were not included in the estimated costs.*

2.2.1.3 Interchange 3 Realigned Ramp TW – Refined Alternatives

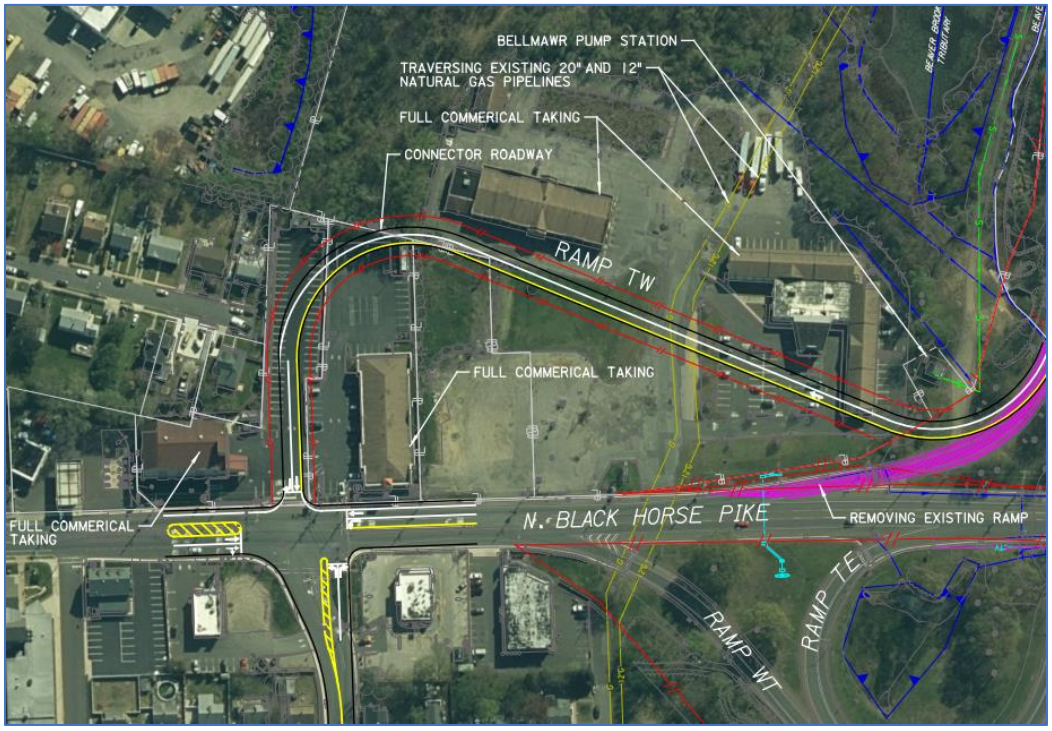
The refined iteration of the Ramp TW realignment alternatives revised the previous concept alternatives identified in Section 2.2.1.2, and expanded on the concepts outlined in alternatives A, B1, and C1. The initial alternatives were revised to continue to address the congestion issues along the Route 168 corridor near Interchange 3 and alleviate queuing concerns from traffic backing up into the toll plaza lanes from Route 168; however, these alternatives would maintain the existing dedicated left turn lane along Northbound Route 168 to access Benigno Boulevard which would eliminate the addition of a new jughandle ramp for this movement.

Removing the jughandles from the refined alternatives would improve safety by providing separation between Ramp TW traffic destined for Benigno Boulevard and Route 168 NB traffic accessing Benigno Boulevard, which would eliminate the merge condition that currently exists with the existing traffic volumes.

Alternative 1A

Alternative 1A is a variation of Alternative B1 from the initially presented alternatives that would maintain the existing Interchange 3 toll plaza and provide a direct ramp connection to Route 168 at Benigno Boulevard. Realigned Ramp TW would begin in a similar location to the existing Ramp TW; however, the proposed ramp would be realigned through multiple hotel parking lots, removing parking lot access or encroaching on the structures. This realignment would require the acquisition of four parcels resulting in the displacement of four commercial businesses. Alternative 1A improvements are displayed below in **Figure 2.2-8**.

Figure 2.2-8: Alternative 1A

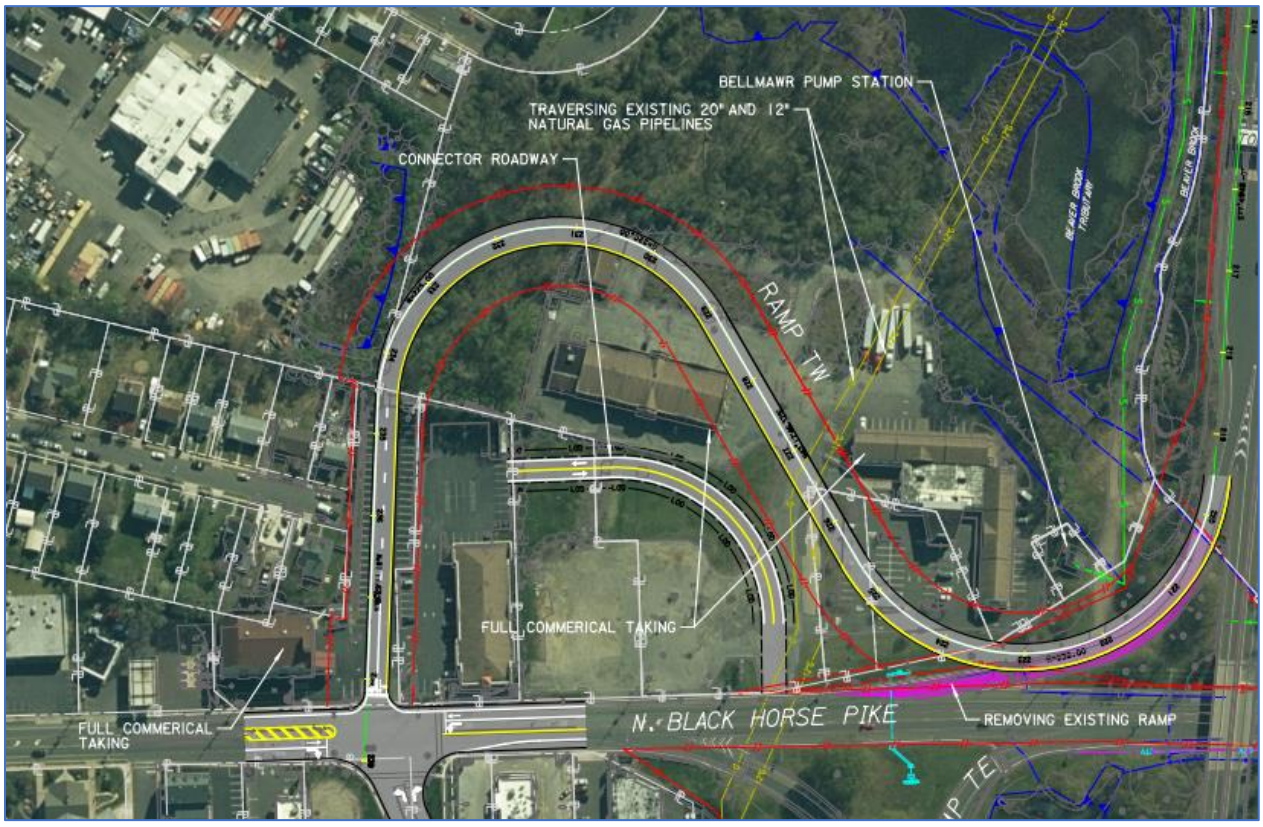


Source: Program Team, 2024.

Alternative 1B

Like Alternative 1A, Alternative 1B would maintain the existing Interchange 3 toll plaza and provide a direct ramp connection to Route 168 at Benigno Boulevard. Similar to Alternative 1A, Ramp TW would begin at the gore of the existing Ramp TW and would be realigned through the adjacent parcels. The proposed ramp would be realigned through multiple hotel parking lots, removing parking lot access or encroaching on the adjacent structures. Unlike Alternative 1A, Alternative 1B would have an increased tangent length of the ramp approaching the Intersection with Route 168 to increase the queuing and stacking capacity of traffic exiting the toll plaza and entering the Route 168 corridor. This alternative would require the acquisition of three parcels resulting in the displacement of three commercial businesses. Alternative 1B differs from 1A in that the displacement of one commercial business would be avoided by proposing a new access driveway to the parcel to mitigate the displacement of the existing access driveway at the signalized intersection by the new Ramp TW. This new driveway would require partial acquisition of an adjacent vacant parcel (Block 137, Lot 14). Alternative 1B improvements are displayed in **Figure 2.2-9**.

Figure 2.2-9: Alternative 1B

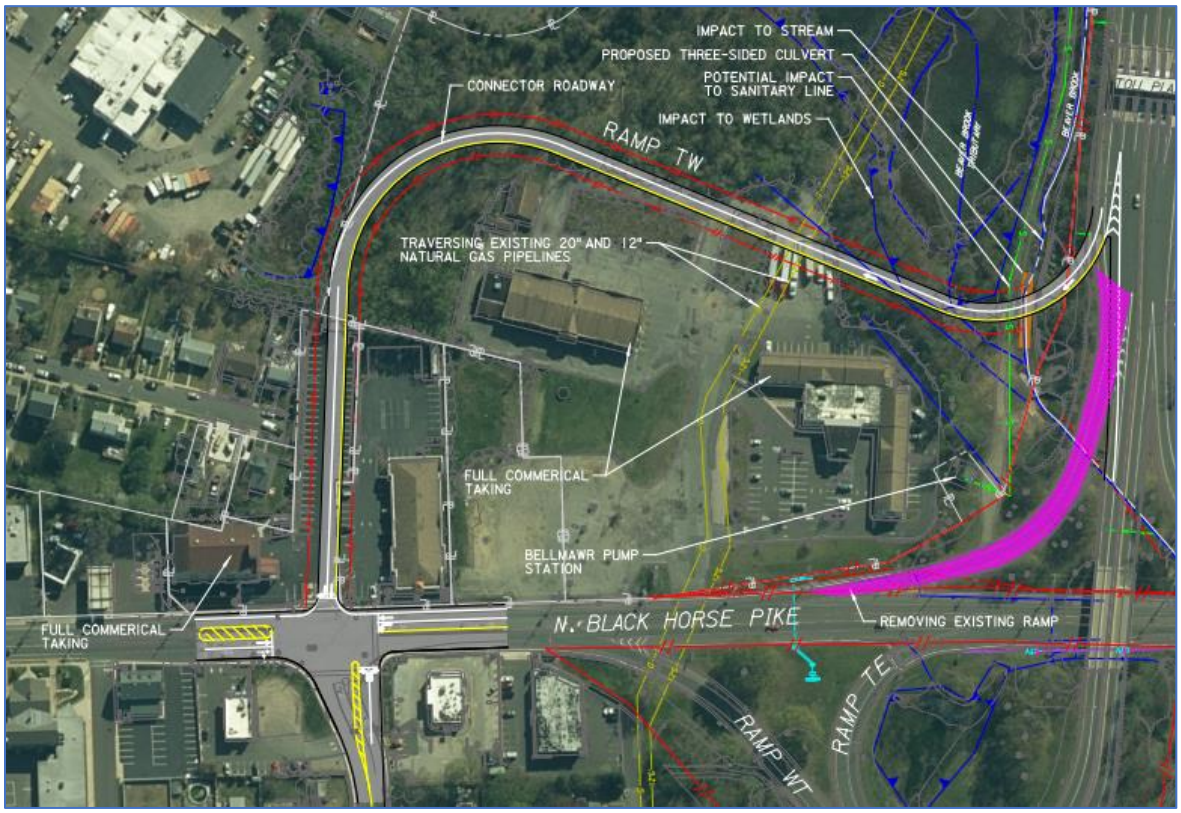


Source: Program Team, 2024.

Alternative 2

Alternative 2 is a refinement of Alternative C1, similarly this alternative would replace the existing Interchange 3 toll plaza with AET facilities and provide a direct connection to Route 168 at Benigno Boulevard with Ramp TW, which would be realigned to the north of the existing hotel structures. The realignment of Ramp TW would require the complete acquisition of 3 parcels containing 3 commercial businesses. Similar to Alternative 1B, the displacement of one commercial business would be avoided by proposing a new access driveway to the subject parcel to mitigate the displacement of the existing access driveway at the signalized intersection by the new Ramp TW. This new driveway would require partial acquisition of an adjacent vacant parcel (Block 137, Lot 14). Alternative 2 improvements would result in impacts to the adjacent wetlands and Beaver Brook, requiring a new culvert to allow for Ramp TW to traverse Beaver Brook. Alternative 2 improvements are displayed below in **Figure 2.2-10**.

Figure 2.2-10: Alternative 2



Source: Program Team, 2024.

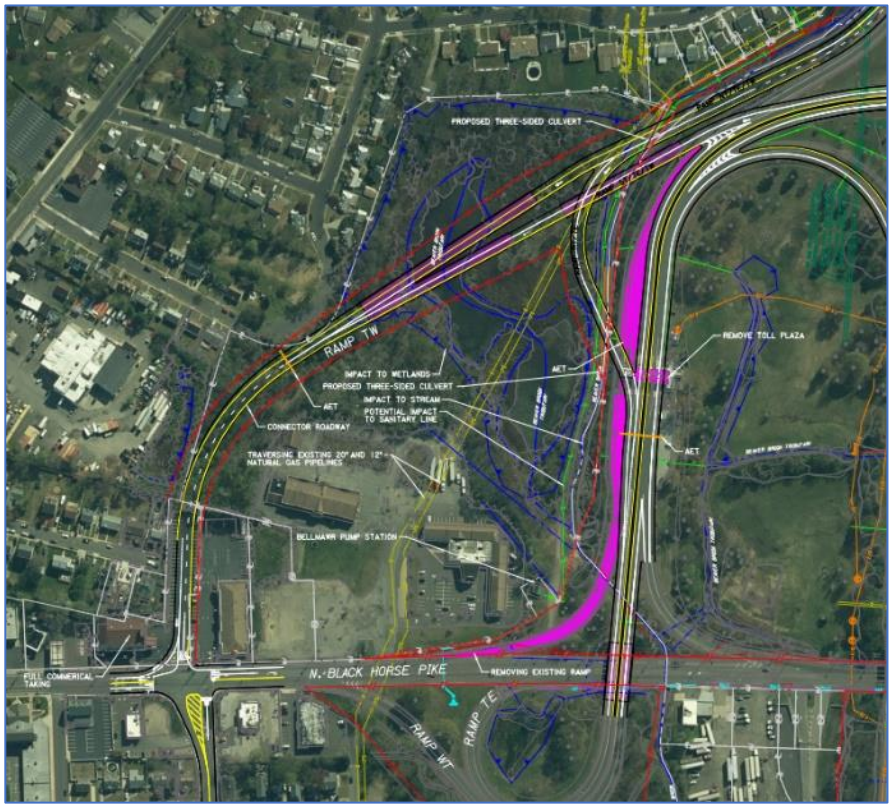
Alternative 3

Alternative 3 is a refinement of Alternative D1. Similarly, Alternative 3 would remove the existing Interchange 3 toll plaza and implement AET facilities in two locations; along Ramp TW before the intersection with Route 168 and south of the removed toll plaza. Under Alternative 3, Ramps ST and NT would merge prior to the existing toll plaza to provide a direct connection to Route 168 at Benigno Boulevard. Ramp TE/NT would split from Ramp NT to provide access to Route 168 SB.

The realignment of Ramp TW would require the acquisition of two parcels resulting in the displacement of one commercial business. A second commercial business displacement would be avoided by acquiring an adjacent vacant parcel to mitigate for lost parking resulting from the ramp realignment and to provide driveway access to the property. This alternative would also traverse the existing 12” and 20” natural gas pipelines operated by Transco/Williams and the existing municipal sanitary sewer line that runs adjacent to the toll plaza.

Alternative 3 improvements would require the construction of three additional bridge structures and multiple retaining walls to support these additional structures. These additional structures would introduce additional decision points to traffic exiting the Turnpike to select which ramp to take dependent on where the vehicles would enter the Route 168 corridor in either the northbound or southbound direction. The Alternative 3 improvements would result in impacts to the adjacent wetlands and Beaver Brook, requiring two new culverts to allow for the proposed ramps to traverse Beaver Brook. Alternative 3 improvements are displayed below in **Figure 2.2-11**.

Figure 2.2-11: Alternative 3



Source: Program Team, 2024.

Comparison with Other Alternatives

The NJTA evaluated each alternative in terms of achieving safety (i.e. eliminating weaving movements, decision points for traffic exiting the Turnpike, and increasing curve radii) and operational requirements (i.e. reducing queuing lengths), potential impacts to the environment, ROW needs, utility impacts, and overall costs (**Table 2.2-2**). Each alternative would have environmental impacts; however, Alternative 1A and 1B would have the least impact to the identified wetland area and riparian zone located west of the toll plaza. Alternative 3 would have the least ROW impacts in terms of commercial business displacements, while Alternatives 1A and 1B would have the greatest ROW impact due to the displacement of four and three commercial businesses, respectively, to accommodate the realigned Ramp TW.

Alternative 3 would remove the existing toll plaza and replace it with AET facilities. NJTA has not yet implemented AET, therefore an AET design standard has not yet been determined and would not be operationally suitable for the Turnpike at this location.

Table 2.2-2: Interchange 3 Outside Toll: Summary of Refined Alternatives Evaluation

Alternatives	Description	Environmental Impacts	ROW Impacts	Utility Impacts	Construction Cost	Advantages	Disadvantages
1A	Direct ramp connection to Benigno Blvd, maintaining existing toll plaza	• No wetland impacts • Impact to riparian zone • Impact to qualifying Not Net Loss Forest	23.69 Acres	Traversing existing 20” & 12” Natural Gas Pipelines	$13.8 - $25.4 M	• Maintains existing toll plaza • Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Maintains/improves overall intersection LOS	• Requires acquisition of four (4) parcels & displacement of four (4) commercial businesses
1B	Direct ramp connection to Benigno Blvd, maintaining existing toll plaza	• Impact to wetlands • Impact to riparian zone • Impact to qualifying No Net Loss Forest	22.96 Acres	Traversing existing 20” & 12” Natural Gas Pipelines	$12.8-18.1 M	• Maintains existing toll plaza • Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Increased tangent length to increase queuing capacity at the Route 168 intersection • Avoids new culvert to traverse Beaver Brook • Maintains/improves overall intersection LOS	• Requires acquisition of three (3) parcels & displacement of three (3) commercial businesses • Requires acquisition of vacant property to provide access to existing hotel • Staged ramp construction required at existing exit ramp • NJTA Operations expressed concern with double curve geometry
2	Direct ramp connection to Benigno Blvd, maintaining existing toll plaza	• Impact to wetlands • Impact to riparian zone • Impact to qualifying No Net Loss Forest	21.98 Acres	Traversing existing 20” & 12” Natural Gas Pipelines and sanitary sewer line	$13.8 - $15.1 M	• Smaller left turn volume for Rt 168 NB to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Increased tangent length to provide increased queuing capacity at the Route 168 intersection • Maintains/improves overall intersection LOS	• Requires acquisition of three (3) parcels & displacement of three (3) commercial businesses • Impacts to wetlands and Beaver Brook • Requires a new culvert crossing Beaver Brook
3	Direct ramp connection to Benigno Blvd merges with Ramps ST and NT, connection from Ramp NT to Rt 168 NB, removal of existing toll plaza and proposes AET facilities	• Impact to wetlands • Impact to riparian zone • Impact to qualifying No Net Loss Forest	10.83 Acres	• Traversing existing 20” & 12” Natural Gas Pipelines • Traversing existing sanitary sewer line • Potential impact to 60” storm drain	$89.0 - $92.1 M	• Provides access from NJ Turnpike SN Roadway to Rt 168 SB • Smaller left turn volume for NB Rt 168 to remain at Benigno Blvd • Eliminates weave on Rt 168 NB approaching Benigno Blvd • Maintains/improves overall intersection LOS	• Requires acquisition of two (2) parcels & displacement of one (1) commercial business • Largest impact to wetlands and Beaver Brook • Requires more structures (bridges and retaining walls) • Requires partial relocation of Beaver Brook • Assumes AET with separate toll collection points (and associated equipment) • Additional decision points on ramps for traffic exiting the Turnpike

Source: Program Team, 2025.
Notes:

1. *Costs are approximate based on Conceptual Design.*
2. *Final Engineering and Construction Supervision are not included in these costs.*
3. *Valuation assessment of properties is to be determined.*
4. *ROW impacts are approximate based on Conceptual Design.*
5. *Utility costs are not included in the estimated costs.*
6. *Environmental costs were not included in the estimated costs.*

2.2.2 Selection of the Preliminary Preferred Alternative

The NJTA's selection of the Preliminary Preferred Alternative (PPA) is the result of considering the engineering, environmental, stakeholder, and agency input during the Conceptual Design phase of the project development; these considerations and impacts are described in **Table 2.2-1** and **Table 2.2-2**.

For the reasons described in the foregoing sections, the NJTA selected a modified version of Alternative 2, which would maintain the existing toll plaza, as the PPA for further study during Conceptual Design, the next phase of the project.

2.2.3 Conceptual Design – Preliminary Preferred Alternative

At the conclusion of the Concept Studies process, the NJTA selected a PPA, presented in **Figure 2.3-1**, for further study and development during Final Design. The PPA was selected as it results in the most desirable roadway geometry within the PSA as per NJTA and NJDOT standards. The PPA consists of the following elements:

- Replacing the existing Ramp TW with a new 1,600-foot ramp with a minimum curve radius of 150 feet as per the standards in the NJTA *Design Manual* (2022). The new ramp would provide two 16.5' wide travel lanes and a 12' wide right shoulder;
- The realigned Ramp TW would provide two lanes (right turn lane and a through-left turn lane) at the intersection with Route 168 and 355 feet of stacking space to increase capacity and reduce queuing issues;
- The realigned ramp would also provide a widened throat at the exit gore to eliminate weave for the center toll lane at Ramp TW and reduce the weaving movement required for traffic in the far-left toll lane. This feature would also help to reducing queuing issues as traffic would no longer be required to travel across the toll plaza in such a short distance as the existing condition;
- One commercial business adjacent to the realigned Ramp TW would have access to the parking lot removed to accommodate the ramp realignment. An access roadway would be incorporated from the hotel parking lot across an adjacent vacant lot and connect to the existing driveway of another hotel property which is being acquired. This condition would avoid the full acquisition of the subject parcel and displacement of a fourth commercial business; and,
- The Route 168 and Benigno Boulevard intersection would be resurfaced and restriped to remove the left turn movement into the hotel parking lot for Route 168 SB traffic and to provide a right and left turn lane for traffic entering the Route 168 corridor from Benigno Boulevard.

2.3 EIS ALTERNATIVES

This EIS examined the No-Build Alternative (Section 2.1.1) and the PPA, which is described in the following subsection.

2.3.1 Preliminary Preferred Alternative

Interchange 3 is located at MP 26.1 within the Borough of Bellmawr and the Borough of Runnemede in Camden County. The interchange serves as a connection between the Turnpike and Route 168. As described in Section 2.2.3 (Conceptual Design – Preliminary Preferred Alternative), the project would provide improvements to the area beyond the Interchange 3 toll plaza to address queuing issues at the Interchange 3 toll plaza and traffic congestion on Route 168 in the vicinity of Interchange 3.

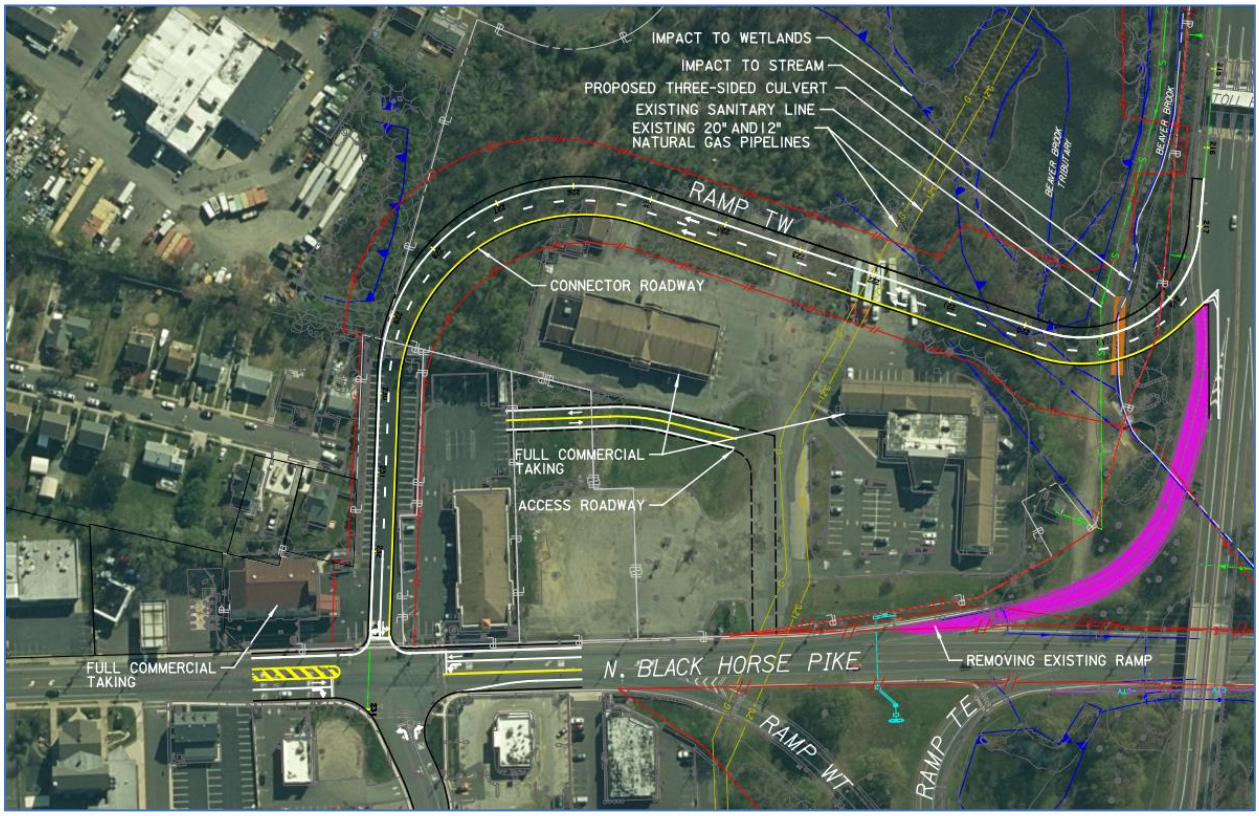
The selected improvements to Ramp TW and the area beyond the toll plaza are a refinement of Alternative 2, which was recommended as the PPA during the Concept Studies phase for the Interchange 3 Outside Toll project and refined during the Conceptual Design phase. The refined Alternative 2 selected as the PPA would require the full acquisition of two commercial parcels, resulting in the displacement of three commercial businesses. All alternatives considered for the project would require commercial property acquisition, and the PPA would preserve one hotel business in the area while resulting in the most desirable roadway geometry and achieving the project purpose and need. PPA improvements would alleviate congestion concerns for the Interchange 3 toll plaza and along the Route 168 corridor in the vicinity of Interchange 3, mitigate operational and safety concerns associated with the existing Ramp TW condition, and satisfy design concerns expressed by stakeholders and the NJTA to accommodate larger truck traffic utilization of the ramp to enter the Route 168 corridor. **Table 2.3-1** provides an overview of the proposed Interchange 3 Outside Toll improvements, and the PPA alignment is illustrated in **Figure 2.3-1**.

Table 2.3-1: Guide to Interchange 3 Improvements

Interchange 3 Improvements - Key Features
• Realign Ramp TW to create a new intersection with Route 168 and Benigno Boulevard • Provide a two-lane exit ramp for Ramp TW to allow additional storage capacity
• Provide additional drainage and stormwater management facilities to address runoff from new impervious pavement • Provide a new box culvert for realigned Ramp TW to traverse Beaver Brook
• Replace existing sign structures and lighting that support interchange operations

Source**:** Program Team, 2024.

Figure 2.3-1: Proposed Improvements at Interchange 3 Outside Toll



Source: Program Team, 2025.

2.3.2 Forecasted Traffic with the PPA

As described in Chapter 1, a traffic analysis was provided by the Project Team in February 2025 for the Route 168 corridor from just north of the signalized intersection of Route 168 and Benigno Boulevard to the unsignalized Ramp TW merge with Route 168 NB. Upon selection of the PPA, the traffic modeling was updated to yield predicted LOS, delay times, and queue lengths for the 2040 Design Year compared to the No-Build scenario. A modification factor was used to account for latent demand and realistic traffic flows within the PSA. Traffic data for the No-Build scenario is provided in Chapter 1 and in the *Traffic Analysis Memo* (Program Team, 2025) included in Appendix D.

For the Build scenario (PPA), traffic forecasted for Ramp TW would be reassigned to the Route 168 intersection with Benigno Boulevard based on origin-destination patterns derived from the regional model, which showed that 64 percent and 92 percent of the forecast Route 168 NB left turns to Benigno Boulevard would originate from Ramp TW in the weekday AM and PM peak hours, respectively.

The traffic analysis results for AM and PM peak hours at the intersection of Route 168 and Benigno Boulevard under the Build scenario are reflected in **Table 2.3-2** and **Table 2.3-3**, respectively. A merge from Ramp TW onto Route 168 would no longer exist under the PPA improvements and, as such, a comparable summary table is not provided for this location. The

westbound approach at the intersection of Benigno Boulevard represents Ramp TW under the PPA. Note that traffic volumes in the following tables for shared lanes are indicated as the addition (+) of the individual movement volumes, listed in the order in which the lane directions appear.

Table 2.3-2: Summary of AM Synchro Results Under the Build (PPA) Scenario

Route 168 and Benigno Boulevard Intersection						
Movement (Lanes)	2040 AM Peak Hour (Build)					
	Volume (vph)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
EB LT (1)	177	E	65.1	100	225	163
EB R (1)	269	B	11.2	0	51	26
WB LT (1)	2 + 191	D	43.3	122	198	160
WB R (1)	430	F	110.9	260	457	359
NB L (1)	215	C	34.9	64	165	115
NB T (1)	765	E	70.4	453	621	537
SB T (1)	642	D	36.8	388	614	501
SB R (1)	141	A	4.7	7	42	25
Overall	-	E	55.4	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

Table 2.3-3: Summary of PM Synchro Results Under the Build (PPA) Scenario

Route 168 and Benigno Boulevard Intersection						
Movement (Lanes)	2040 PM Peak Hour (Build)					
	Volume (vph)	LOS	Delay (seconds)	50th Queue	95th Queue	Avg. Range
EB LT (1)	147	F	129.1	88	219	154
EB R (1)	290	C	21.5	11	114	63
WB LT (1)	2 + 298	F	82.9	208	380	294
WB R (1)	377	B	10.9	7	100	54
NB L (1)	27	A	9.0	6	15	11
NB T (1)	400	B	12.6	144	197	171
SB T (1)	1,319	F	231.1	1,252	1,510	1,381
SB R (1)	89	A	2.5	0	22	11
Overall	-	F	122.3	-	-	-

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.
Notes: Red values indicate data below NJTA's desired thresholds.

Improvements associated with the PPA would significantly improve Ramp TW traffic operations in the 2040 Design Year. As summarized in **Table 2.3-4** below, Ramp TW traffic would experience an average reduction in delay and queue lengths of 15.5 minutes and 1,036 feet, respectively, during the weekday AM peak hours under the PPA Build scenario when compared to those same values under the 2040 No-Build scenario.

Table 2.3-4: Comparison of Delay and Queue Lengths from Ramp TW Traffic

	Weekday AM Peak Hours		Weekday PM Peak Hours	
	Average Delay (min.)	95th Percentile Queue Length (ft.)	Average Delay (min.)	95th Percentile Queue Length (ft.)
Existing Condition (2019)	10.1	920	4.1	726
No-Build (2040)	17.0	1,493	3.9	754
Build (PPA) (2040)	1.5	457	0.7	380

Source: Program Team *Interchange 3 Outside Toll Improvements - Traffic Analysis Memo*, February 2025.

Under the PPA, the Route 168 and Benigno Boulevard intersection would improve to LOS E at AM peak hours. The weekday PM peak hour LOS for the intersection would remain a LOS F, although noticeable incremental improvements to overall delay would be observed. Operational deficiencies occurring north of the PSA at the intersection of Route 168 and Browning Road would still impact Route 168 traffic flow within the PSA, but this congestion would not affect traffic operations of vehicles exiting the Turnpike mainline via Interchange 3 and entering the Route 168 corridor in the northbound direction. The realignment of Ramp TW would remove the existing merge condition with northbound Route 168 and provide sufficient storage length to accommodate the 95th percentile queue lengths, including those caused by downstream congested conditions on Route 168.

As indicated throughout Chapter 1, further improvements north of the Route 168 and Benigno Boulevard intersection and south of the Interchange 3 Turnpike overpass would be required to fully address congestion concerns along Route 168. Such improvements are beyond the scope of the Interchange 3 Outside Toll project and beyond the boundaries of this traffic analysis. The project improvements, however, would successfully decrease weekday AM peak hour delays on Ramp TW and reduce the queue lengths when compared to the No-Build scenario. During weekday PM peak hour, PPA improvements would reduce, or even eliminate, the potential for Interchange 3 ramp queues to extend to the toll plaza and mainline. The 2040 Build scenario traffic data provide documentation that the PPA improvements would execute the project purpose (Section 1.4) and project need (Section 1.5) and serve as a critical first step in addressing traffic congestion along the Route 168 roadway corridor.

A *Traffic Analysis Memo* (Program Team, 2025) describing study methodology and containing traffic flow volume diagrams can be found in Appendix D.

2.4 OVERVIEW OF CONSTRUCTION ACTIVITIES

This section provides an overview of how construction of the Interchange 3 Outside Toll project would be undertaken. Prior to the commencement of construction, the NJTA and its construction contractor(s) would develop specific construction sequencing plans. These plans would describe where the construction would occur and the duration of those activities.

The NJTA would determine the method of constructing the Interchange 3 Outside Toll improvements during Final Design. The NJTA would remain responsible for the Interchange 3 Outside Toll project.

The NJTA and its contractor(s) would be guided during construction by Federal, state, and local laws and standards for construction activities related to the project. In addition, the NJTA would apply its own standards and requirements that govern construction activities including, but not limited to, the NJTA's *Garden State Parkway New Jersey Turnpike Design Manual* (2022) with amendments and the NJTA's 2009 *Design Standards.*

2.4.1 Construction Schedule

The NJTA anticipates construction of the Interchange 3 Outside Toll improvements would take place between 2026 and 2028. This work would occur in advance of the Program Interchange 3 Improvements Project.

2.4.2 Typical Construction Activities

Table 2.4-1 identifies typical construction activity tasks, though actual construction activities and durations would be determined by the NJTA in coordination with its contractors during development of the project construction plan during Final Design.

Table 2.4-1: Typical Construction Activities

Activity	Tasks
Pre-Construction Survey	Locate utilities, establish ROW and project control points and centerlines, and relocate survey monuments
Site Preparation	Relocate utilities and clear and grub ROW (demolition), establish haul routes, erect safety devices and mobilize special construction equipment, prepare construction equipment staging areas and stockpile materials, and establish maintenance of traffic
Heavy Construction	Construct the structures, including three-sided culvert, construct Interchange 3 Ramp TW, remove existing Ramp TW, reconstruct adjacent toll plaza roadways
Medium Construction	Install drainage, minor earthwork, and roadway paving
Light Construction	Finish work, install utilities and traffic signal elements, lighting, landscaping, signage and striping, clean up, and operational testing

Source: Program Team, 2024.

Constructability analysis enabled the NJTA to preliminarily identify staging for the Interchange 3 Outside Toll project. The following sections briefly describe the staging plan that was developed by the NJTA during Conceptual Design.

2.4.2.1 Interchange 3 Outside Toll Staging

The proposed work for the project improvements would include the removal of the existing Ramp TW, construction of the realigned Ramp TW to the Route 168 intersection at Benigno Boulevard, construction of a new commercial access drive to serve the commercial hotel property located at the northeast quadrant of the intersection to maintain access to Route 168, and the restriping of the Route 168/Benigno Boulevard intersection. Due to the off-line

placement of the realigned Ramp TW, the proposed work may be accomplished in two major stages.

Stage 1 of the project would involve construction of the new commercial access road which would be advanced concurrently with initial work associated with the realigned ramp construction while existing traffic is maintained on the existing Ramp TW.

Stage 2 of the project would involve completion of the realigned Ramp TW with pavement tie-ins at the Turnpike exit gore as well as the Route 168 intersection approach leg followed by restriping the Route 168 and Benigno Boulevard intersection to reflect the change in traffic pattern prior to switching traffic and demolishing the existing Ramp TW.

2.4.3 Relationship to Other Planned Development

An assessment of regional development plans from the NJDOT NJ Statewide Transportation Improvement Plan was conducted to identify committed projects within the PSA by 2040. **Table 2.1-1** outlines these additional planned development projects by other sponsors, including the NJDOT Route 168/I-295 Interchange Improvements project and the Route 42 and I-295 Missing Moves project. The NJTA would maintain awareness of these projects through coordination with municipalities as the project advances. Cumulative effects of these committed projects and the Interchange 3 Outside Toll project are discussed throughout Chapter 3 (Environmental Consequences) and summarized in Section 3.22 (Summary of EIS Findings).

2.4.4 Construction Plan

The NJTA would develop and implement a construction plan prior to the start of project construction. The plan would identify procedures and protocols for minimizing impacts to transportation and natural and human environments during project construction. The activities described in this section are preliminary and subject to change as the project design advances. The potential impacts of construction result from several activities:

Haul routes and access points – Project construction would require designated route and access points for workers, construction materials, and equipment to, from, and within the construction site as well as for removing excess materials from the site. The NJTA would coordinate with NJDOT, the counties, and the municipalities to identify haul routes and site access points. Construction site access points would be established where workers, materials, and equipment enter the staging areas of the site and where equipment and unwanted materials leave the site. Where reasonably feasible, access points would be located at staging areas to reduce the need for additional movements of material and equipment. By limiting access points to specific locations, the NJTA would minimize impacts to surrounding properties and resources and limit potential impacts on the transportation network. Potential haul routes would be identified on public roads to move equipment and materials to construction site access points as well as to remove unwanted materials.

Staging Areas – The limit of disturbance (LOD) described in the EIS, as shown in the figure titled Proposed Limit of Disturbance (LOD) Map (Appendix B), delineates the permanent operations and temporary construction work areas within which project activities would occur at

the current level of design. The LOD accommodates likely areas where construction equipment would operate and where construction materials would be stored and moved to the work areas.

Due to the proposed impacts to the hotel businesses operating facilities (i.e., parking lot, outbuildings, etc.) resulting from the realignment of Ramp TW, the full acquisition of Block 137, Lot 14.01 in the Borough of Bellmawr would be required and the commercial businesses would be displaced. The project contractors would be instructed by the NJTA contract documents to use this location for the staging of equipment and materials during construction activities. If additional staging locations are required beyond those identified in the contract documents, the project contractors would be responsible for identifying such areas and for obtaining approvals for such locations.

Activities and Sequencing – The range of construction work to be performed would include clearing, excavation, roadway construction grading and paving, and construction of related infrastructure such as drainage, signage, lighting, and if necessary, traffic signals and utilities. Construction sequencing, as described in Section 2.4.2.1 would be refined when detailed construction activities are more fully developed.

Transportation Management – Prior to construction, the NJTA would develop and implement a Transportation Management Plan (TMP) plan for project construction. The NJTA would develop the TMP in coordination with other providers of roadway, transit, and emergency services to minimize adverse impacts to transportation. The TMP Plan would include, but may not be limited to, schedule and timeline, a public information and outreach program, a monitoring plan, and a maintenance and protection of traffic plan that includes traffic control, temporary lane closures, transit, and roadway operations management, bicycle and pedestrian accommodation, and parking accommodation for affected non-residential property owners.

The NJTA would be responsible for implementing the TMP Plan's public information and outreach program, which is intended to inform motorists, residents, businesses, schools, emergency service and delivery providers, and the public of temporary changes to traffic patterns. Appropriate lines of communication would be maintained with emergency service providers throughout construction regarding current and upcoming construction activities, potential issues, and planned route changes.

Environmental Compliance – Environmental permits and approvals for the project, as preliminarily identified in Section 3.21 (Environmental Permits) would become part of the construction plans to ensure compliance with applicable Federal, state, and local requirements.

Environmental Impact Statement

Chapter 3 Environmental Consequences

April 2025

Prepared for

Prepared by

List of Tables

3 ENVIRONMENTAL CONSEQUENCES

This section provides a description of the existing environmental resources and conditions in the vicinity of the study area for the Interchange 3 Outside Toll project. The study area used for most resource analyses in this Chapter is the PSA shown in **Figure 1.1-1** (Study Area Location Map); and included in Appendix A. Environmental resources described herein are based on existing conditions in 2021-2025, depending on the specific date of the field work performed and/or the secondary data sources used for assessing each resource.

The descriptions of existing conditions presented in this section provide the context for assessment of the environmental consequences of the PPA. This section identifies the direct, indirect, and cumulative consequences of the project as required by EO 215. Cumulative consequences are assessed by the assumptions that 1) the 2040 No-Build Alternative includes completion of all other planned projects described in **Table 2.1-1** without the project, and 2) the PPA assumes the conditions of the 2040 No-Build Alternative with the project. The following environmental disciplines are presented in this section:

- Land Use Patterns, Zoning, and Consistency with Plans
- Socioeconomics and Economic Development
- Property Acquisitions and Displacements
- Community Cohesion and Community Facilities
- Parks, Recreation Areas, and Open Space
- Historic and Archaeological Resources
- Visual and Aesthetic Effects
- Air Quality
- Noise
- Soils and Geology
- Surface Water Resources
- Floodplains and Riparian Zones
- Wetlands
- Ecology and Wildlife
- Terrestrial Vegetation
- Groundwater Resources
- Utilities
- Contaminated Materials, Hazardous Waste, and Solid Waste
- Sustainability and Resiliency
- Environmental Justice
- Environmental Permits

This Chapter is subdivided into separate sections based on each of the above-stated environmental disciplines. In turn, each section is further organized into subsections that provide a description of the methodology used and data sources and the actual existing conditions within the PSA. The assessment of the consequences to each resource is presented for the No-Build Alternative as well as the PPA and any proposed minimization/mitigation for those impacts. Section 3.22 (Summary of EIS Findings) provides a summary of the EIS findings.

3.1 LAND USE PATTERNS, ZONING, AND CONSISTENCY WITH PLANS

3.1.1 Methodology and Data Sources

This section assesses the benefits and impacts of the Interchange 3 Outside Toll project on land use and its consistency with existing regional and local land use plans and zoning requirements. The study area for examining land use and zoning is the PSA shown in **Figure 1.1-1** and is illustrated in the Existing Land Use 2020 Map (Appendix B). Both direct and indirect impacts were assessed. Direct impacts occur when land is acquired for new ROW or other purposes, or if an easement is purchased on a portion of a parcel for such purposes as embankments, drainage, construction staging, and/or utility relocation. An indirect impact is defined as an impact resulting from a project at a later point in time or farther removed in distance (40 CFR 1508.8[b]).

Land use is generally regulated by the county or municipal government. Tools such as comprehensive master plans and municipal development codes, zoning regulations, and regional development and redevelopment plans are used to regulate land use. The compatibility of the project with surrounding land uses and its consistency with local zoning and master plans were evaluated. *Camden County Land-Use Master Plan*, local municipal plans, and zoning maps were reviewed for this assessment. Reports from the DVRPC were referenced to determine employment and population forecasts. Geographic Information System (GIS) data from the New Jersey Geographic Information Network (NJGIN) Open Data portal was analyzed to determine existing land uses, current as of 2020, within the PSA.

3.1.2 Affected Environment

3.1.2.1 Historical Growth Patterns

Growth in Camden County has historically been dependent upon transportation accessibility, first via rail and ferry lines which connected the county to other portions of New Jersey and neighboring Philadelphia, followed by the post-World War II interstate highway construction boom. After the construction of the New Jersey Turnpike, growth sprawled into more rural parts of Camden County.

3.1.2.2 Existing Land Use

The PSA encompasses approximately 58.6 acres (ac) surrounding the Interchange 3 toll plaza and Route 168 roadway corridor near Interchange 3. The 2020 NJDEP land use/land cover dataset was used to examine land conditions within the PSA. The dataset used contained 61 general land use categories; however, for analysis purposes, these uses were aggregated into nine land use types: built-up land; commercial/services; water; forest; residential; recreation and

open space; industrial; wetlands; and transportation, telecommunications, and utilities. Land use categories within the PSA are displayed on the figure titled, Existing Land Use 2020 Map (Appendix B). The measured Land Use totals within the PSA are presented in **Table 3.1-1** below.

Table 3.1-1: Existing Land Use Totals within the Project Study Area

Land Use Type	Percentage of PSA	Acres
Built-Up Land	11%	6.3
Commercial / Services	28%	16.6
Forest	16%	9.3
Recreation / Open Space	1%	0.8
Residential	16%	9.3
Transportation	9%	5.4
Water	7%	4.0
Wetland	12%	7.0
TOTAL	**100**	**58.7**

Source: 2020 NJDEP Land Use/Land Cover GIS Dataset.

In the northern portion of the PSA, the land adjacent to NJ Route 168 is characterized as commercial/services while residential land is located on the outer edge of the PSA and extends beyond it. Forested land, wetlands, and water features are present predominantly in the eastern portion of the PSA, and one parcel of recreational land, the Borough of Bellmawr Dog Park (Block 138, Lot 11), is located along the eastern boundary of the PSA.

In the southern portion of the PSA, the land surrounding the existing toll plaza and the associated ramps is dominated by wetlands, forested land, urban land, and water features including an artificial lake and stormwater basin. A more detailed discussion on the delineated wetlands and forests found within the PSA can be found in Sections 3.13 (Wetlands) and 3.15 (Terrestrial Vegetation), respectively.

3.1.2.3 Existing Zoning

The northern portion of the PSA extends through the Borough of Bellmawr, where the land is zoned primarily for business use with smaller amounts of land zoned for residential; light industrial; office; and municipal, government, and educational uses. The southern portion of the PSA, located within the Borough of Runnemede, is zoned for public/quasi-public.

3.1.3 Environmental Consequences

3.1.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration with no land being acquired for project purposes. Consequently, the project would have no direct or indirect impacts to existing land use patterns. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact existing land use; the sponsors of those projects would be required to comply with applicable regulations regarding such resources.

3.1.3.2 Preliminary Preferred Alternative

Within the Borough of Runnemede, the study area is zoned as Public/Quasi-Public Lands. As the area would remain consistent with this designated use post construction, the project is consistent with the Borough of Runnemede's zoning designations. Within the Borough of Bellmawr, the project is located within land zoned for Business "A". With the exception of the full property acquisition of Bellmawr Block 137, Lot 12 and Block 137, Lot 14.01, which would displace three hotels as described in Section 3.3 (Property Acquisitions and Displacements), all other required acquisitions within the Borough of Bellmawr would be partial acquisitions that would allow economic activity to continue. While the displacement of three hotels would result in a loss of ratables within the PSA, commercial business in the area would benefit greatly from improved traffic flow and accessibility due to project improvements. The potential to reduce impacts to neighboring parcels and maintaining property access was a major consideration throughout the PPA selection process as discussed in Chapter 2 (Alternatives Considered).

Generally, the project would support existing land use patterns and zoning by increasing traffic capacities within the area of Interchange 3. The purpose of the project is to ease vehicular congestion to and from Interchange 3 and Route 168 within the PSA; thereby allowing for the area to better realize its intended commercial and business uses. The increased capacities would allow for the more efficient and timely movement of goods to and from business establishments and would allow regional customers easier access to business districts. Additionally, the project would not preclude the ability of municipalities to undertake its planned land use and zoning designations despite the displacement of three commercial businesses.

Direct land use impacts from the project would result from property acquisitions for additional NJTA ROW, land acquired for the construction of stormwater detention basins, and land acquired for utility relocations, if required. The impacts of proposed property acquisitions are discussed in Section 3.3 (Property Acquisitions and Displacements).

The State Planning Act of 1985 established state-level planning policy and mandated the creation of the *New Jersey State Development and Redevelopment Plan* (NJSDRP). The first Plan was adopted by the State Planning Commission in 1992 and then updated on a three-year cycle. A Draft NJSDRP was released on December 4, 2024; however, since the plan is not final, the project's consistency with the 2001 NJSDRP was investigated. According to the latest NJSDRP Policy Map (dated August 2023), the PSA is located within the Metropolitan Planning Area. The project is consistent with the Public Facility and Services Objective of the Metropolitan Planning Area, which states, "Complete, repair or replace existing infrastructure systems to eliminate deficiencies and provide capacity for sustainable development and redevelopment in the region."

3.1.4 Minimization and Mitigation

To accommodate the project, property acquisitions would occur. Section 3.3 (Property Acquisitions and Displacements) details the property to be acquired, and the minimization and mitigation measures associated with these acquisitions. As the project would support the intended land use within the study area, no further mitigation or minimization measures are anticipated.

3.2 SOCIOECONOMICS AND ECONOMIC DEVELOPMENT

3.2.1 Methodology and Data Sources

This section assesses the benefits and impacts of the project to economic development activity within the PSA shown in **Figure 1.1-1**. To assess the economic and socioeconomic impacts of the project, qualitative and quantitative data from the *Camden County Land-Use Master Plan*, municipal zoning maps, and aerial maps were reviewed. Population, racial, income, and labor force characteristics were compiled from the 2022 American Community Survey Five-Year Estimate Data Profiles. Population and employment forecasts were obtained from the DVRPC's adopted 2021 *Long-Range Plan, Connections 2050* (DVRPC Plan). Additionally, the five-year *Newmark's Q3 2024 Greater Philadelphia Industrial Market Report* was used to further analyze the economic environment and construction of industrial space within the PSA.

An investigation of the planned and approved projects with proximity to the study area was also conducted, and these regionally committed projects are reported in **Table 2.1-1**. This data is preliminary and subject to change as additional applications for site plan approvals occur in the timeframe of the project environmental and design phase processes.

3.2.2 Affected Environment

3.2.2.1 Population and Employment Trends and Forecasts

Located in the southwestern portion of New Jersey, Camden County contains approximately 6 percent of the state's population according to the 2022 Census Five-Year Estimate Data Profiles. The DVRPC Plan forecasts population growth within Camden County of 2.3 percent by 2050, with employment growth of 12 percent during the same time period (**Table 3.2-1**). Within the Borough of Runnemede, population and employment growth is forecasted at 0.5 percent and 6.6 percent, respectively. The Borough of Bellmawr is expected to experience a 0.2 percent population increase and employment growth of 20.8 percent. Additionally, the Camden County Land Use Vision Map identified Runnemede and Bellmawr Boroughs as Priority Growth Investment Areas (PGIAs). Though this designation does not change zoning regulations, it does provide a guide to direct future growth, and it could impact future population and employment numbers in a way that was not captured in the forecasted estimates.

Table 3.2-1: Population and Employment Forecasts, 2015 – 2050

	2015 Population	2050 Population Estimate	Change in Population (Percentage)	2015 Employment	2050 Employment Estimate	Change in Employment (Percentage)
Camden County	507,692	519,476	11,784 (2.3%)	235,055	263,284	28,229 (12.0%)
Bellmawr Borough	11,429	11,446	17 (0.2%)	4,655	5,621	966 (20.8%)
Runnemede Borough	8,303	8,343	40 (0.5%)	2,970	3,166	196 (6.6%)

Source: Data provided is derived from DVRPC 2050 Municipal-Level Population and Employment Forecasts in Five-Year Increments, adopted June 24, 2021.

An investigation of the employment data by industry sector reveals a concentration of employment within management, business, science, and arts sectors followed by the sales sector at the county and municipal level. A detailed breakdown of income and employment sector data for the counties and municipalities that the PSA is within is summarized in **Table 3.2-2**.

Table 3.2-2: Employment and Labor Force Characteristics

	Camden County	Bellmawr Borough	Runnemede Borough
Employed (%)	61.5%	59.5%	63.2%
Not in Labor Force (%)	33.6%	37.1%	31.6%
Management, Business, Science, and Arts (%)	41.7%	36.8%	36.5%
Sales (%)	21.8%	23.4%	25.5%
Services (%)	16.2%	16.5%	15.8%
Production (%)	13.4%	15.0%	13.2%
Natural Resources, Construction, and Maintenance (%)	7.0%	8.3%	9.0%

Source: U.S. Census Bureau, 2022 American Community Survey (ACS) Five-year data. Table DP03 – Selected economic Characteristics. Income data was in 2022 inflation-adjusted dollars.

3.2.2.2 Race/Ethnicity

The 2022 population and racial characteristics of Camden County and the municipalities that the PSA is located within are summarized in **Table 3.2-3**. Over 70 percent of the population within the municipalities of the PSA identify themselves as white, which is a greater percentage than within Camden County. A more detailed discussion of racial characteristics of the communities within the PSA can be found in Section 3.20 (Environmental Justice).

Table 3.2-3: Population and Racial Characteristics

	Camden County		Bellmawr Borough		Runnemede Borough	
	Number	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Total Population	522,581	-	11,677	-	8,307	-
Total Households	198,757	-	4,834	-	3,164	-
White	284,011	54.3%	8,357	71.6%	6,301	75.9%
Black or African American	94,675	18.1%	481	4.1%	608	7.3%
Hispanic or Latino	94,913	18.2%	1,389	11.9%	1,005	12.1%
Asian	30,724	5.9%	1,123	9.6%	211	2.5%
American Indian	238	0.0%	0	0.0%	0	0%
Native Hawaiian	42	0.0%	0	0.0%	0	0%
Some other Race Alone	3,277	0.6%	34	0.3%	0	0%
Two or more races	14,701	2.8%	293	2.5%	182	2.2%

Source: U.S. Census Bureau, 2022 ACS Five-year data, Table DP02: Selected Social Characteristics in the United States and DP05: ASC Demographics and Housing Estimates; numbers are rounded and may not total 100 percent. In the U.S. Census, Hispanic is a separate ethnic category from race (in this area including White, Asian, Black, and Other).

3.2.2.3 Income and Poverty Characteristics

The U.S. Census Bureau reports income and poverty data by county, municipality, and Census Tract. The two Census Tracts encompassing the PSA were utilized for this analysis: Tract 6068 and Tract 6072. As shown in **Table 3.2-4**, within Camden County and the Boroughs of Bellmawr and Runnemede, the median household incomes are all below the average median income within the State of New Jersey, $97,126. Bellmawr has the lowest median income and the highest percentage of families below the poverty line at $71,935 and 7.7 percent, respectively. A more detailed discussion of poverty within the PSA can be found in Section 3.20 (Environmental Justice).

Table 3.2-4: Income and Poverty Characteristics

		Total Families	Families Below Poverty Line	Median Household Income	Households Earning > $100,000
New Jersey	**Number**	2,340,500	161,495	$97,126	1,674,385
	Percent		6.9%		47.8%
Camden County	**Number**	130,234	11,851	$82,005	53,917
	Percent		9.1%		41.4%
Bellmawr Borough	**Number**	2,924	225	$71,935	1,407
	Percent		7.7%		29.1%
Census Tract 6068	**Number**	1,034	139	$80,114	566
	Percent		13.4%		34.7%
Runnemede Borough	**Number**	1,932	137	$85,700	133,837
	Percent		7.1%		42.3%
Census Tract 6072	**Number**	968	84	$77,298	739
	Percent		8.7%		39.6%

Source: U.S. Census Bureau, 2022 ACS Five-year data.

3.2.2.4 Proposed and Approved Developments

Table 2.1-1 summarizes the regionally committed development projects within and nearby the PSA and describes the types of development taking place. However, this data is preliminary and subject to change as additional municipal applications for site plan approvals would occur throughout the project environmental and design phase processes.

According to Newmark's *Q3 2024 Greater Philadelphia Industrial Market Report*, Camden County has 33,354,809 square feet of industrial inventory with 359,600 square feet of industrial space under construction.

3.2.3 Environmental Consequences

3.2.3.1 No-Build Alternative

Economic Impacts

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration, with no land being acquired for project purposes and no construction activity taking place. Consequently, there would be no beneficial impact of project-related construction spending and its related multiplier effects to the area's economy. Other committed projects not associated with the Interchange 3 Outside Toll project (**Table 2.1-1**), would be expected to provide economic benefits in the same way the project is expected to do so.

Fiscal Impacts

The No-Build Alternative would have no project-related impact on municipal property tax revenues as no property would be acquired.

Demographic Impacts

The No-Build Alternative would result in adverse effects on socioeconomic conditions, as increasing travel time required for work commutes and the movement of goods and services in the region would increase the cost of doing business, and ultimately make the region a less desirable location to live and work.

3.2.3.2 Preliminary Preferred Alternative

Economic Impacts

Based on proposed improvements and requirements of the PPA, the project's estimated construction cost is approximately $26.6M, a value which includes the cost of anticipated ROW acquisition. Construction of the project would have a direct beneficial economic impact as it would bring about both job opportunities and material purchases in the region. While job opportunities directly attributable to the project's construction are not extensive due to the project's relatively small size, indirect employment would occur from the construction expenditure, including manufacturing jobs for construction materials. Therefore, the total economic impact of the project incorporates what is known as the multiplier effect, which is composed of the direct, indirect, and induced effects, as described below. The multiplier effect includes the successive rounds of economic activity stimulated by the initial construction spending. Expressed numerically, a multiplier of 1.5 for example, indicates that for every dollar directly generated by the industry under study, an additional $0.50 of ripple effects are felt within the local region, for a total impact of $1.50. The project's total impact includes these three effects:

- **Direct Effect** corresponds to the initial changes in final demand generated by the project;
- **Indirect Effect** includes the consecutive rounds of industry spending that are triggered by the initial change in final demand. Local contractors and their employees typically purchase

some of their materials and services from local businesses, which then purchase from their local suppliers, and so on, and;

- **Induced Effect** refers to the impact triggered by increased household spending by employees of the indirectly affected businesses. Employees spend part of their earnings at local establishments, which then purchase some of their input materials and services locally to satisfy this demand, and so on.

Conversely, construction activities would involve some temporary disruption to the nearby businesses and residents as a result of construction traffic and noise at construction staging sites. In general, temporary construction disruptions would be minimal as the limits of construction largely would not extend beyond the location of the realigned Ramp TW and the four hotel properties identified in Section 3.3 (Property Acquisitions and Displacements). Business disruptions, except for those to the hotels, would be greatly minimized as the majority of proposed construction activities would occur off of the existing ROW of Route 168 and the Interchange 3 ramps/toll plaza, away from alternative commercial areas. Maintaining temporary and permanent access to properties along the Route 168 corridor is a key component of the proposed project and would be evaluated further during the design phases.

Two parcels containing operational hotels would be acquired for the project, resulting in the displacement of three commercial businesses within the PSA. While this would result in an adverse economic effect to the area, methods to minimize and/or mitigate for this impact would be considered during Final Design and are discussed in more detail Section 3.3 (Property Acquisitions and Displacements). In the long-term, a cumulative positive effect is anticipated for the PSA, as described in Section 3.22.1 (Cumulative Impacts), resulting from increased levels of service in the region promoting greater transportation of goods, services, and visitation to the area. The land adjacent to Interchange 3 is zoned for light industrial, business, commercial, public/quasi-public, and residential. Within one mile of the Interchange 3 Outside Toll area, the land is mainly developed, with little remaining developable land. Consequently, the potential of the overall area around the PSA to become more attractive for development with the project is low.

Fiscal Impacts

Implementing the project would require the full acquisition of two properties to create the ROW for the proposed roadway configuration. The financial impact of this acquisition is expected to represent a loss of some tax revenue to the Borough of Bellmawr, although this impact may be mitigated should the displaced businesses choose to relocate to another site within Bellmawr Borough. Additional information on the impacts resulting from this property acquisition and a discussion on the minimization and mitigation measures to be considered by the NJTA can be found in Section 3.3 (Property Acquisitions and Displacements).

Demographic Impacts

It is estimated that implementation of the project would not result in the acquisition of residential properties. Furthermore, the project is not anticipated to impact the demographics within Camden County, nor the local communities. This finding is based upon Conceptual Design and is subject to further evaluation during the project's Final Design process.

3.2.4 Minimization and Mitigation

Economic Impacts

Despite the two full property acquisitions, implementation of the project would result in overall beneficial impacts to the region's economy due to improved accessibility and level of service along Route 168. While; therefore, no mitigation measures are necessary, all minimization and mitigation options would be considered during subsequent design phases to result in the best possible economic condition for the PSA and surrounding region.

During construction of the project, site access points would be established where workers, materials, and equipment would enter the project work area and where equipment and unwanted materials would leave the project work area. Where reasonably feasible, access points would be selected to reduce the need for additional movements of material and equipment. By limiting access points to specific locations, the NJTA would minimize potential impacts to surrounding properties and businesses. Importantly, the NJTA and its contractors would maintain private driveway access, private parking, and pedestrian access to local businesses, except for the hotels being displaced, during construction through coordination with affected businesses during the construction planning phase.

Fiscal Impacts

Due to the full acquisition of two commercial parcels, implementation of the project would result in an adverse impact to the tax base of the Borough of Bellmawr. As part of the Conceptual Design, alternatives were analyzed that proposed additional commercial impacts and necessary acquisitions. These concepts were not selected to be advanced; therefore, mitigation measures were considered during development of the PPA and efforts have been made to mitigate for negative effects on property owners and overall community. The PPA was chosen as it best meets NJTA's desirable design criteria and would provide the municipalities within the PPA with most efficient roadway geometry possible to facilitate traffic flow and safe travel along the corridor, which in turn would support local business and revenue.

Where commercial and/or residential displacements cannot be avoided, an acquisition and relocation program would be implemented in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as further discussed in Section 3.3 (Property Acquisitions and Displacements). Currently no residential displacements are proposed for the project.

Demographic Impacts

Implementation of the project would not result in any changes to the study area's demographic characteristics; therefore, no mitigation measures are necessary.

3.3 PROPERTY ACQUISITIONS AND DISPLACEMENTS

3.3.1 Methodology and Data Sources

Property acquisitions and displacements were identified based on the Conceptual Design of the Interchange 3 Outside Toll project and the proposed alignment of the PPA. All identified acquisition and ROW needs have been developed to a concept engineering level of detail. Parcels that require a partial or full fee acquisition are considered permanent property impacts. This section does not discuss impacts considered to be temporary, specifically parcels that would require a slope or drainage easement. Refinements to the required ROW parcels would occur during Final Design; therefore, the acquisitions and displacements presented in this section are preliminary and subject to change.

Existing ROW and property lines were established from record drawings, NJTA Parcel Property Maps, and municipal tax maps. Land uses, including preserved lands, commercial businesses, and housing units, were identified via various sources including aerial photography, field inspection, tax records, and GIS data from the NJDEP and State Agriculture Development Committee (SADC). For the purposes of this assessment, the PSA as presented in **Figure 1.1-1** was utilized.

Full property acquisitions are those that the NJTA would permanently acquire for the construction of the project. Full property acquisition would result in displacement of the existing occupier of the affected property. Partial property acquisitions are those where the NJTA would acquire a portion of the property for the project.

3.3.2 Affected Environment

The Interchange 3 Outside Toll PSA includes various private and public land uses. Much of the land in the PSA was developed subsequent to the construction of the Turnpike. A more detailed description of the land use patterns throughout the PSA can be found in Section 3.1 (Land Use Patterns, Zoning, and Consistency with Plans). Various utility installations occur within the PSA, as documented in Section 3.17 (Utilities).

A total of 77 properties (60 residential, 11 commercial, 1 industrial, 1 public school, 2 public properties, and 2 vacant) were identified within the PSA. These properties are summarized in the table titled, Properties Within the Project Study Area (Appendix D).

3.3.3 Environmental Consequences

3.3.3.1 No-Build Alternative

Under the No-Build Alternative, the Interchange 3 Outside Toll project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration with no land being acquired for project purposes. Consequently, there would be no project-related residential or business displacements and no physical disruption to existing neighborhoods bordering the PSA. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact residential or commercial properties; the sponsors of such projects would be required to comply with applicable regulations regarding any ROW takings.

3.3.3.2 Preliminary Preferred Alternative

The existing use of each property within the PSA was determined using municipal tax information. Residential displacements are not currently proposed. The project as currently designed would require approximately 22.2 acres of ROW from five parcels. Complete acquisition of two parcels would be needed to facilitate construction; these parcels are commercial properties: 217 South Black Horse Pike, Block 137, Lot 12, Bellmawr Borough and 341 South Black Horse Pike, Block 137, Lot 14.01, Bellmawr Borough. These properties are currently occupied by commercial hotel businesses. Acquisitions are summarized below in **Table 3.3-1**.

Table 3.3-1: Right of Way Impacts

Block/Lot (Bellmawr)	Fee Taking Area	Access Easement Area	Acquisition Type
137/13	0.08 Ac (3,498 SF)	0.01 Ac (436 SF)	Partial
137/12	1.05 Ac (45,738 SF)	-	Full
137/14	-	0.17 Ac (7,425 SF)	Partial
137/14.01	20.66 Ac (899,950 SF)	-	Full
137/43	0.26 Ac (11,346 SF)	-	Partial

Source: 2023 NJDEP BGIS Camden County Parcel Data.

Impacts resulting from the PPA are preliminary; the NJTA would further evaluate ROW needs during Final Design. Partial acquisitions, if necessary, would include areas of utility relocation. Partial acquisitions would not alter the present or future function of the affected parcels.

3.3.4 Minimization and Mitigation

ROW acquisition is not expected to result in the temporary or permanent displacement of any residential properties, schools, or public properties.

During Final Design, the NJTA would refine the Conceptual Design of the project and consider means to minimize the need for additional ROW. At that time, the NJTA would coordinate with affected property owners regarding ROW acquisition and potential displacement of property occupiers.

All acquisitions would be conducted in conformance with relevant Federal and state statutes, regulations, and executive orders. Adherence to these regulations would ensure property owners are compensated for use of their properties, including temporary disruptions during construction. Acquisitions and relocation assistance for the project would follow the relevant procedures set forth in:

- **Uniform Relocation and Real Property Acquisitions Policies Act of 1970 (codified in Chapter 61 of Title 42 of the United States Code) as amended (the Uniform Act)**: All activities related to acquisitions and displacements for the project would be conducted in

conformance with this Act. The Uniform Act provides for uniform and equitable treatment for persons displaced from their homes and businesses and it establishes uniform and equitable land acquisition policies.

- **Public Law 105-117**: These statutes require that certain relocation services and payments be made available to eligible residents, businesses, and non-profit organizations displaced as a direct result of projects undertaken by a Federal agency or with Federal financial assistance.

3.4 COMMUNITY COHESION AND COMMUNITY FACILITIES

3.4.1 Methodology and Data Sources

This section assesses the potential for the project to impact community cohesion and community facilities. Community cohesion is the sense of community or neighborhood character within an area. It is formed by social interaction and physical connection among people and access to community facilities. Community facilities include schools, religious institutions, public libraries, police stations, firehouses, emergency medical services (EMS) stations, post offices, public healthcare facilities, and cemeteries. Parks and recreational areas, which would also be considered community facilities, are discussed separately in Section 3.5 (Parks, Recreation, and Open Space). For the purposes of this assessment, the PSA shown in **Figure 1.1-1** was utilized. Data were obtained via desktop research and field observations, and supplemented with Camden County parcel and MOD_IV tax list search database updated in November 2023.

This assessment consisted of a qualitive evaluation of the effects of the Interchange 3 Outside Toll project and whether these effects have the potential to create, change, or eliminate barriers within the communities located within the PSA. This analysis included assessing land use patterns, reviewing property acquisitions that would result from the project, and determining impacts to Environmental Justice communities, which are discussed in Sections 3.1 (Land Use Patterns, Zoning, and Consistency with Plans), Section 3.3 (Property Acquisitions and Displacements), and Section 3.20 (Environmental Justice), respectively.

The data generated and presented in Section 3.3 (Property Acquisitions and Displacements) was utilized to assess community cohesion and community facilities impacts. Direct and indirect impacts were assessed in this analysis. Direct impacts are those that result in the displacement of an existing facility building, disruption to the physical boundaries of a facility, or changes in access to a facility. Indirect impacts may include changes to the service area or function of the facility or the creation of visual or noise intrusions, as described in Section 3.7 (Visual and Aesthetic Effects) and Section 3.9 (Noise), respectively. These changes have the potential to affect future service or operations of the facility (e.g., changes to the local road network that may increase emergency response times or restrict the purpose of a community facility), or residential displacements that could affect the composition of the user groups for a particular facility. Proposed property acquisitions are based on Conceptual Design of the project, and the NJTA would make refinements to required ROW parcels during Final Design.

3.4.2 Affected Environment

Communities within the PSA consist of private residential developments, with hotels and other commercial businesses dispersed along the Route 168 corridor. The sense of community in an area is derived from social and physical characteristics such as history, geographic proximity, physical separation from other communities, land use patterns, and human relationships; all of which were evaluated for the PSA. The location of the Interchange 3 Outside Toll project between the Turnpike mainline and I-295 provides the communities within the PSA with adequate access to other communities via vehicle travel. Within the PSA, traffic congestion and impaired vehicle mobility along the Route 168 corridor and at the intersection with Benigno Boulevard is one current barrier to community cohesion.

Community facilities identified within the PSA include the Ethel M. Burke Elementary School, which includes the Bellmawr CARE Childcare Center, and the Borough of Bellmawr Dog Park. The Ethel M. Burke Elementary School is located along the northern boundary of the PSA on Block 143, Lot 3 at the intersection of Route 168 and Linden Avenue. The Borough of Bellmawr Dog Park, also known as Petruzzi Playground as per NJDEP Green Acres Program data, is located within the PSA at Block 138, Lot 11 and is Green Acres-encumbered; more information on this parcel can be found in Section 3.5 (Parks, Recreation Areas, and Open Space).

3.4.3 Environmental Consequences

This section describes the potential effects of the Interchange 3 Outside Toll project on community cohesion and community facilities. The findings of this assessment are preliminary and subject to refinement as the NJTA advances the project into Final Design.

3.4.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration with no direct or indirect impacts to land or community facilities resulting from project purposes. Other committed projects within the No-Build Alternative, not associated with the Interchange 3 Outside Toll project, would still occur and would be expected to maintain community cohesion access to community facilities; the sponsors of those projects would be responsible for any impacts to existing communities or substantial changes in community access.

3.4.3.2 Preliminary Preferred Alternative

As described in Sections 3.7 (Visual and Aesthetic Effects) and Section 3.9 (Noise), the potential exists for the project to cause visual change and noise effects to adjacent communities. The NJTA is evaluating reasonable and feasible methods for reducing potential noise impacts, including noise barriers, especially surrounding sensitive noise receptors.

Permanent ROW impacts to community facilities from project activities are not anticipated and would be avoided to the greatest extent practicable. Existing roadway connections would be preserved, and improved mobility within the PSA from the project enhancements would provide for greater community cohesion. All actions would be taken to ensure adequate access to public facilities serving the local community including schools, recreational facilities, and emergency services during project construction and long-term operation. A negative effect on

overall community cohesion is unlikely to occur because the community would remain intact in terms of the relationship of existing land uses to one another.

Vehicular access for the Ethel M. Burke Elementary School is provided via South Lowell Road with an exit-only road to Walnut Avenue. Pedestrian access for this school is located on Route 168 North, Linden Avenue, South Lowell Avenue, and Walnut Avenue. During project construction, typical access effects could include temporary vehicular and pedestrian traffic pattern adjustments such as temporary lane closures and relocation of driveways, which could result in longer travel times. Due to the location of this school property approximately 142 feet north of the project LOD, it is anticipated that indirect impacts from project construction would be minimal.

A detailed analysis of the Green Acres-encumbered Borough of Bellmawr Dog Park (known as the Petruzzi Playground parcel in the Green Acres database) property can be found in Section 3.5 (Parks, Recreation Areas, and Open Space). Vehicle access to the park is from East Browning Road and Sullivan Avenue/Lake Drive which are local streets connecting to Route 168 South; Route 168 South extends south into the PSA. The project is not anticipated to have impacts on the local streets used to access this park.

Construction activities also have the potential to cause temporary visual changes and noise impacts related to proposed improvements and storage of materials and equipment. Given the presence of police stations, firehouses, and EMS stations in the vicinity of the project, the NJTA would analyze potential effects on emergency service response times during Final Design.

3.4.4 Minimization and Mitigation

The findings for community cohesion and community facilities described in this EIS are preliminary and subject to refinement during Final Design. If needed, the NJTA would consider ways to reduce or eliminate impacts to community cohesion and community facilities, including refining ROW needs, construction phase planning to avoid or minimize disruption of traffic and access, and further examination of potential noise impact reduction methods. During Final Design, the NJTA would prepare a Maintenance and Protections of Traffic plan to provide a safe work area for workers within the roadway while facilitating the safe and orderly flow of all roadway users (motorists, bicyclists, and pedestrians) through the work zone.

Sections 3.3.4 (Property Acquisitions and Displacements), 3.7.4 (Visual and Aesthetic Effects), and 3.9.4 (Noise) describe the minimization and mitigation measures to be further considered by the NJTA during Final Design. In addition, the NJTA would continue to conduct outreach to affected communities and undertake coordination with property owners affected by proposed ROW acquisition.

3.5 PARKS, RECREATION AREAS, AND OPEN SPACES

An assessment of parks, recreation areas, and open space resources was conducted to assess potential impacts of the Interchange 3 Outside Toll project. Resources considered in this analysis include parks and outdoor recreational facilities as well as publicly owned open space resources. NJDEP defines open space as “the basic resource for the development of recreational facilities and for satisfying the recreational needs of the state’s citizens.” Open

space land is left in its natural state for the enjoyment of the public and to protect biodiversity. Parks and recreational facilities typically include playgrounds, ball fields, soccer fields, bike trails, golf courses, and others. However, parks and recreational facilities can also be designated for passive recreation.

The NJDEP administers the New Jersey Green Acres Program (GAP) under N.J.A.C. 7:36, which ensures residents and visitors of New Jersey have an adequate supply of public open space and conservation areas. The GAP provides funding to aid in the conservation of public open space and the protection of natural resources and wildlife habitats. The GAP also maintains procedures and standards for the maintenance of parkland resources acquired or developed with Green Acres funding.

The enabling legislation of the GAP establishes restrictions and compensation requirements for the use of all parkland resources, whether funded through Green Acres programs or unfunded resources held by local governments for recreation and conservation purposes, for anything other than outdoor recreation and/or conservation purposes. If Green Acres funding is used to acquire and/or develop all or part of a park, recreational area, or open space resource, then all of that parkland's resources, including those facilities not acquired or developed with Green Acres funding, become subject to, or "encumbered by," Green Acres restrictions and compensation requirements.

3.5.1 Methodology and Data Sources

An assessment of parks, recreation areas, open spaces, and Green Acres lands was conducted within the PSA as shown in **Figure 1.1-1**. Parks, open space, and recreational facilities data was obtained from the Recreation and Open Space Inventory (ROSI) database maintained by the GAP and GIS data provided by the NJDEP Bureau of GIS. Additional public open spaces were identified using Camden County parcel and MOD-IV tax list search databases updated in November 2023. The analysis identified the location of direct and indirect impacts to any of the identified resources.

3.5.2 Affected Environment

The investigation of the PSA identified one (1) park resource. The ROSI-listed Petruzzi Playground parcel, also known locally as the Borough of Bellmawr Dog Park, is a 0.8 acre property located within the Interchange 3 Outside Toll PSA at Sullivan Avenue and Lake Drive on Block 138, Lot 11. The park is presented on the figure titled, Community Facilities Map (Appendix B). The property is managed by Bellmawr Borough and encumbered under the Green Acres Program.

3.5.3 Environmental Consequences

3.5.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 ramps and the Route 168 corridor near Interchange 3 would remain in their current configuration with no land being acquired for project purposes. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact parks, recreation areas, and

open space; the sponsors of those projects would be responsible for impacts to such resources and compliance with applicable regulations.

3.5.3.2 Preliminary Preferred Alternative

This section describes the potential impacts of the project on parks, recreational areas, and open space based on Conceptual Design. As the project advances, the NJTA would refine the design with a goal of avoiding or further minimizing impacts to these resources to the extent reasonably feasible.

No direct impacts to the Borough of Bellmawr Dog Park (Petruzzi Playground GAP ROSI parcel), would occur as a result of the PPA improvements. No property acquisition is anticipated for this parcel. Typical short-term construction impacts to the Green Acres parcel could include increased levels of dust, vehicle emissions, noise, and vibration. Additional information on these effects can be found in Sections 3.8 (Air Quality) and 3.9 (Noise), respectively. Access impacts to this parcel during construction activities would be avoided/minimized to the greatest extent practicable.

3.5.4 Minimization and Mitigation

As the project advances, the NJTA would refine the design and develop construction phase plans with a goal of avoiding or further minimizing temporary impacts to the Borough of Bellmawr Dog Park (Petruzzi Playground ROSI parcel) to the extent reasonably feasible. In this regard, the NJTA would continue to coordinate with the Borough of Bellmawr to implement mitigation measures and minimize all disruptions, as needed.

3.6 HISTORIC AND ARCHAEOLOGICAL RESOURCES

This section summarizes a preliminary cultural resources assessment for the Interchange 3 Outside Toll project. Survey and analysis are underway and consultation with the NJHPO is still ongoing; therefore, this section presents a preliminary assessment of potential cultural resources constraints. Cultural resources include both historic architectural and archaeological resources.

At the state level, cultural resources investigations are being conducted to comply with New Jersey EO 215 and the permitting requirements of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 *et seq*.), administered by the NJDEP Division of Land Resource Protection. Under these regulations, consultation with NJHPO is required.

Coordination with the NJHPO was initiated for the NJTA Mainline Interchanges 1 to 4 Capacity Enhancements Program, which included the Interchange 3 Outside Toll area, on August 18, 2021. A notification letter containing a brief description of the Program, a list of previously recorded archaeological and historic architectural resources, and the proposed methodologies for the archaeological and historic architectural studies was included in this initial coordination. The letter also included a proposed preliminary Area of Potential Effects (APE) for the architectural history survey. Additional coordination with the NJHPO was conducted via email and teleconference calls to refine the archaeological and historic architectural survey

methodologies. These methodologies were also employed for the Interchange 3 Outside Toll project as described below, and project coordination is ongoing.

Area of Potential Effects: The APE, as defined in 36 CFR 800.16(d) as amended, is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." The APE includes an archaeological APE and a historic architectural APE.

The archaeological APE is the limit of disturbance (LOD) for the proposed improvement work necessary for the construction of the project. The figure titled, Cultural Resources Map (Appendix B), shows the LOD for the project. The archaeological APE is the area where the project has the potential to physically damage or destroy historic resources through excavation, demolition, construction, grading, infilling, or other ground-disturbing actions. Based on Conceptual Design plans, project activities expected to result in ground disturbance would include the realignment of Ramp TW, Interchange 3 toll plaza improvements, construction of stormwater management (SWM) basins and drainage infrastructure, installation/relocation of buried utilities, vegetation removal and grubbing, and construction staging and sediment stockpiling areas.

The architectural APE for the Interchange 3 Outside Toll project is a 250-foot buffer surrounding the proposed project alignment (realigned Ramp TW), capturing all properties falling within or intersected by the LOD. The historic architectural APE considers physical or visual effects to properties resulting from construction or operation of the project, as well as from noise, vibration, or atmospheric effects.

3.6.1 Methodology and Data Sources

3.6.1.1 Background Research

This assessment consisted of desktop research to determine the presence or absence of archaeological resources within the archaeological APE and historic architectural resources within the architectural APE. Both APEs utilized for these analyses are displayed in the figure titled, Cultural Resources Map (Appendix B).

Cultural resources are defined as buildings, structures, sites, objects, and districts that are listed in or eligible for listing in the New Jersey and/or National Registers of Historic Places (SR and NRHP). Desktop research was conducted in July 2024 and included a review of online data from the NJHPO's online mapping viewer of the state's cultural resources inventory. The viewer, called LUCY, provides locational data for cultural resources, SR/NRHP eligibility status, and previously conducted cultural resources studies. The NJHPO's LUCY online mapping viewer includes an Archaeological Site Grid data layer, which was also reviewed during this desktop analysis. NJDEP's DataMiner desktop tool was used to gather the cultural resources survey reports found in LUCY and on file at the NJHPO office.

Additional research included coordination with the New Jersey State Museum (NJSM) to obtain files documenting previously recorded archaeological resources present in the Archaeological APE and surrounding area. Archaeological site information on file with the NJSM was obtained via email correspondence in July 2024.

In addition to the NJHPO and NJSM data, documents and images on file with NJTA were reviewed to determine the extent of prior archaeological investigations in the Archaeological APE.

3.6.1.2 Field Survey

The Phase I archaeological survey and the intensive-level historic architectural survey for the Interchange 3 Outside Toll project have not yet been completed. Once completed, separate archaeological and historic architectural reports would be prepared and submitted to NJHPO for review and comment.

3.6.2 Affected Environment

A description of the previously recorded archaeological and historic architectural resources within the archaeological APE and architectural APE is provided below. See the figure titled, Cultural Resources Map (Appendix B), which shows the limits of the archaeological and historic architectural APEs.

3.6.2.1 Previously Recorded Archaeological Resources

Review of NJSM's archaeological site files indicated that no previously recorded archaeological resources are present within the Archaeological APE. Archaeological sites 28Ca20 and 28Ca84 are located approximately 940 and 2,180 feet away from the Archaeological APE, respectively. Both sites are precontact archaeological resources.

The Archaeological APE is within NJHPO-mapped archaeological site grid block BA206. There is the potential that archaeological sites not previously registered with the NJSM or NJHPO are present in the Archaeological APE, which would be identified during the Phase I Archaeological Survey.

Review of previous cultural resources survey reports on file with the NJHPO indicated that limited portions of the Archaeological APE have had archaeological investigations completed previously. These prior investigations have included the southernmost portion of the archaeological APE along Interchange 3 and Beaver Brook.

Prior archaeological investigations in or adjacent to the Archaeological APE include the following:

- *Draft Environmental Impact Statement for E.O. 215 Review of the New Jersey Turnpike Widening, Interchange 1 to 4 from M.P. 0.0 to M.P. 35.0, Salem, Gloucester, Camden, and Burlington Counties, New Jersey (McCormick, Taylor and Associates, 1997)*: This investigation consisted of a Phase I archaeological survey as part of an EIS for the proposed capacity enhancement of the New Jersey Turnpike mainline between mileposts 0.0 and 35.0. While background research noted sites 28Ca20 and 28Ca84, the

investigation did not report the identification of any archaeological resources in the Archaeological APE.

- *Cultural Resources Survey of NJ Route 168 Beaver Brook (M.P. 6.63) Drainage Improvements, Bellmawr, Runnemede, and Barrington Boroughs, Camden County, New Jersey (McCormick, Taylor and Associates, 2004)*: A Phase I archaeological survey was undertaken for proposed drainage improvements along NJ Route 168. A segment of this investigation included the southern portion of the Archaeological APE along Beaver Brook. A pedestrian survey and subsurface testing indicated extensive ground disturbance associated with the construction of the New Jersey Turnpike's Interchange 3, utility installation, and various other construction activities. The survey encountered mixed secondary fill deposits and modern alluvium overlying truncated marsh deposits or subsoils and found that evidence for 28Ca20 in the Interchange 3 vicinity was likely destroyed during Turnpike construction. No intact archaeological resources were identified within or adjacent to the Archaeological APE.
- *Phase IA and Preliminary Phase IB Archaeological Investigation, New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program, Salem, Gloucester, Camden, and Burlington Counties, New Jersey (AECOM, 2023)*: A Phase IA and preliminary Phase IB archaeological survey was undertaken for the proposed Capacity Enhancements Program between Interchanges 1 and 4 of the New Jersey Turnpike. This investigation included an assessment of archaeological potential and limited subsurface testing for the Turnpike mainline. A small portion of the southernmost extent of the Archaeological APE was included in the assessment of archaeological potential, but no subsurface testing was completed in the Archaeological APE.
- *Supplemental Phase IA Archaeological Investigation, New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program, Salem, Gloucester, Camden, and Burlington Counties, New Jersey (AECOM, 2024)*: A supplemental Phase IA archaeological investigation was completed for the New Jersey Turnpike Capacity Enhancements Program between Interchanges 1 and 4 to incorporate LiDAR data, geotechnical data, and the results of prior investigations into the assessment of archaeological potential as required by the NJHPO. The southernmost portion of the Archaeological APE was included in the investigation, though no subsurface testing was undertaken.

3.6.2.2 Previously Recorded Historic Architectural Resources

A review of NJHPO data determined that there are no historic architectural resources within the architectural APE that are currently listed in or eligible for listing in the NRHP. One historic architectural resource, formerly located at 321 Saunders Avenue in Bellmawr, was recorded in 2002 but was demolished that same year. Initially recommended as not eligible for listing in the SR/NRHP, the dwelling was replaced shortly after it was documented in 2002. The former location of this resource is shown in the Cultural Resources Map (Appendix B).

The Turnpike, as a linear resource, has been determined not eligible for listing in the SR or NRHP.

3.6.3 Environmental Consequences

3.6.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration. Consequently, the project would have no direct or indirect impacts to NRHP or SR listed or eligible cultural resources. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact cultural resources; evaluation of that potential is the responsibility of the sponsors of those projects.

3.6.3.2 Preliminary Preferred Alternative

Archaeological and historic architectural resources that fall within the archaeological APE and architectural APE for Interchange 3 Outside Toll project are discussed below. The full extent of the archaeological and historic architectural resources constraints would be determined as part of ongoing studies and reports that address the proposed project activities. At that time, constraints would be assessed in accordance with the requirements of the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 *et seq*.).

There is potential for the proposed project activities to impact archaeological and historic architectural resources, if identified. There is also potential for visual impacts to result from the construction of new above-ground design elements or tree/vegetation clearing that could encroach on the viewshed of potentially NRHP eligible historic architectural resources. Potential impacts associated with tree/vegetation clearing are expected to be minimal, as a notable forested/vegetated screen would still persist along the proposed realigned Ramp TW. Additional discussion regarding potential visual effects within the PSA are found in Section 3.7 (Visual and Aesthetic Effects) and the impacts would be assessed further during Final Design.

As project design advances, a Phase I archaeological survey may be conducted in the Archaeological APE to determine whether archaeological resources are present or absent. If archaeological resources are identified, a Phase II archaeological survey may be necessary to evaluate NRHP eligibility of these resources if avoidance is not feasible. Further archaeological investigations or avoidance and protection may be necessary to comply with state permitting requirements.

Archaeological Resources

Prior to conducting field surveys, a review of NJSM archaeological site files indicated that there are no previously recorded archaeological resources within the Archaeological APE. While a portion of the Archaeological APE area falls within NJHPO-mapped archaeological site grid Block BA206, this grid block likely represents site 28Ca20, located a short distance outside of the archaeological APE.

Review of previous archaeological survey reports on file with NJHPO indicated that a few prior archaeological investigations have overlapped the southernmost extent of the archaeological APE. However, most of the archaeological APE has not been subject to prior archaeological investigation. A Phase I archaeological survey may be required to determine whether

archaeological resources are present within the Archaeological APE in compliance with NJDEP permitting requirements. If archaeological resources are identified in the Archaeological APE, additional investigation or avoidance/mitigation measures may be required.

Historic Architectural Resources

There are no NRHP-listed or eligible historic properties within the architectural APE for Interchange 3 Outside Toll project. In October 2024, Program Team architectural historians conducted a preliminary desktop analysis of properties located within the architectural APE. The findings indicate that there are 49 properties located within the architectural APE that would be 50 years of age or older (i.e., constructed prior to 1976) when construction of the Interchange 3 Outside Toll project is anticipated to start (2026). An intensive-level historic architectural survey and NRHP eligibility evaluations of these properties is underway and consultation with NJHPO would follow. This investigation is being completed in accordance with requirements set forth under NJDEP's Freshwater Wetlands Protection Act.

3.6.4 Minimization and Mitigation

After required field surveys have been conducted, consultation with NJTA and NJHPO would occur to identify any minimization and/or mitigation strategies if impacts to historic and/or archaeological resources are anticipated. All measures to minimize impacts or avoid impacts through matting or protective measures would be considered, and mitigation measures would be developed during Final Design.

3.7 VISUAL AND AESTHETIC EFFECTS

3.7.1 Methodology and Data Sources

New Jersey Executive Order 215 recognizes the visual, scenic, and aesthetic qualities of a landscape as an environmental component that is to be considered in a project's environmental documentation. In addition to this requirement to consider aesthetic quality, the general public is increasingly demanding aesthetic enhancements to existing and proposed transportation facilities.

Aesthetics relates to the enjoyment or study of beauty, and it is most often associated with a sense of beauty. With respect to the practice of transportation design, aesthetics deals with the visual integration of highways and other transportation modes into the fabric of a landscape in a way that blends with or complements that setting. This is important since the view to and from highways and other transportation facilities contributes to the perception of communities and the quality of a place.

Visual quality refers to the aesthetics of a view. Although assessing visual quality is subjective, a standard approach for such assessment has been developed by the Federal Highway Administration (FHWA) for use in documenting its own actions; this approach employs the criteria of vividness, intactness, and unity (FHWA, 1983). Vividness is the visual power or memorability of landscape components as they combine in a visual pattern. Intactness is the visual integrity of the natural and artificial landscape and its freedom from encroaching

elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole.

Visual resources may include unique views and/or views identified as important in local plans, as well as those from properties listed in or eligible for listing in the NRHP or SR, state parks, and county parks. Visual and aesthetic conditions within the PSA presented in **Figure 1.1-1** are described in the Affected Environment section. The Environmental Consequences section assesses changes that would occur as a result of the project.

Aerial photography, United States Geological Survey (USGS) topographic mapping, and field reconnaissance of the PSA was used to characterize the existing landscape and to inventory any unique visual features or viewsheds. The visual quality of the PSA is ranked as low, medium, or high, as described below:

- Views of **high quality** have topographic relief, a variety of vegetation, rich colors, impressive scenery, and unique natural and/or built features;
- Views of **medium quality** have interesting but minor landforms, some variety in vegetation and color, and/or moderate scenery; and,
- Views of **low quality** have uninteresting features, little variety in vegetation and color, uninteresting scenery, and/or common elements.

The FHWA guidelines explain that all three criteria – vividness, intactness, and unity – must be high to indicate high quality.

3.7.2 Affected Environment

General Visual Setting: The area surrounding the northern portion of the Interchange 3 Outside Toll study area consists of residential subdivisions and commercial developments along Route 168, including hotels and restaurants. At the intersection of Route 168 and Benigno Boulevard, views traveling along Route 168 consist of hotels, parking lots, and food establishments. Motorists entering the intersection from Benigno Boulevard view an expansive parking area flanked by two hotels. Separating these artificial elements from the Interchange 3 Outside Toll area is a thin area of deciduous forest. The southern portion of the PSA consists of the Interchange 3 toll plaza and Ramps TW, ET, and TE.

The visual quality of the Interchange 3 Outside Toll area can be described as having views of medium quality resulting from the consistency of natural elements within the ROW and along Beaver Brook and a Beaver Brook UNT and artificial elements within the surrounding area. The visual quality has moderate vividness due to the consistency of the deciduous forest along the ROW and along Beaver Brook and a Beaver Brook UNT that is interrupted by commercial developments in the vicinity of the Interchange 3 toll plaza. Views within this portion of the study area are moderately intact and unified because of the presence of commercial developments in the vicinity of the Interchange 3 ramps and Route 168, which serve as encroaching elements onto the landscape.

View from the Interchange 3 Toll Plaza: Vegetation and a thin area of deciduous forest within the ROW, consisting of deciduous trees and shrubs, screens the view of the PSA from motorists traveling from the Turnpike mainline through the toll plaza, resulting in a view of medium visual quality. The PSA east of Interchange 3 is lined with a thin area of deciduous forest within the ROW. The forested area is approximately 75 feet wide, and the least dense area of vegetation is located in the vicinity of the toll plaza.

View of the Interchange 3 Toll Plaza: Much of Interchange 3, the toll plaza, and Ramp TW are not visible from the surrounding landscape to the west due to the dense vegetation and thin deciduous forest areas within the ROW that effectively screens views, resulting in a view of medium visual quality. The view from the north and northeast of the toll plaza and Ramp TW is a high density of residential subdivisions and commercial establishments where the interchange ramps would be partially visible. The Interchange 3 toll plaza is screened by the presence of artificial features such as homes and commercial buildings, which are partially visible in the area of the Interchange 3 toll plaza and Ramp TW. In addition, the Interchange 3 toll plaza and Ramp TW is partially visible from the hotels along Route 168 as there are minimal obstructions, including few deciduous trees, to screen views.

As discussed in Section 3.6 (Historic and Archaeological Resources), there are no previously recorded archaeological resources within the Archaeological APE or any NRHP-listed or eligible historic properties within the Architectural APE. Additionally, no unique views and/or views identified as important in local plans have been identified within the PSA; therefore, there are no visual resources that could be affected by altered views of the roadway located in the PSA.

3.7.3 Environmental Consequences

3.7.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration with no land being acquired for project purposes and the existing landscaping within the NJTA ROW would remain. As a result, the project would have no positive or negative effect on the visual quality and aesthetics within the PSA. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to modify the nearby landscape and visual quality of the area.

3.7.3.2 Preliminary Preferred Alternative

View from the Interchange 3 Toll Plaza: The project would require the relocation of Ramp TW and the removal of some surrounding vegetation and forested area that currently screen views of the surrounding landscape from the existing ramp. This vegetation removal would result in slightly greater visibility of the surrounding residential subdivision and commercial developments by motorists traveling on the realigned ramp. Despite this required vegetation removal, a significant tree buffer would still exist between the proposed realigned ramp and the commercial and residential properties located to the northeast, providing an effective visual barrier.

View of the Interchange 3 Toll Plaza: Much of the southbound toll plaza and realigned Ramp TW would remain blocked from the surrounding landscape due to the dense vegetation and thin deciduous forest areas within the ROW that effectively screen views, resulting in a view of

medium visual quality. The realignment of Ramp TW would require the removal of some vegetation and forested area in the ROW, which would reduce the screening of the views of the toll plaza and Ramp TW and would cause the realigned ramp to be visible from the surrounding landscape. A notable vegetation buffer would remain along the entire eastern boundary of the proposed realigned ramp, which would provide a visual and noise buffer for the residential properties to the northeast. The area immediately west of the realigned ramp consists of three hotel complexes that function as overnight destinations. Property acquisition is proposed for two of these commercial parcels, resulting in the displacement of three hotels and causing a significant change in views to the east, although vegetation would be maintained to the greatest extent practicable to provide a buffer. Additionally, realigned Ramp TW would be visible from a portion of the residential subdivision located east of the hotel located at Bellmawr Block 137, Lot 12; however, there is an existing fence screening the subdivision from the commercial businesses to the south that would be maintained or modified, as feasible, to provide similar screening for the realigned ramp. All methods to preserve visual quality within the PSA, especially nearby sensitive receptors, would be analyzed during Final Design.

3.7.4 Minimization and Mitigation

Although the project would result in changes in views from various locations along the Route 168 roadway and Interchange 3 toll plaza within the PSA, these changes would not constitute an adverse impact. The user population (i.e., motorists) of Interchange 3 is a transient population that only experiences these views on a temporary basis. The user population of Route 168 is similarly transient in nature; however, it is more likely that those motorists utilize the roadways with regularity to travel throughout town. While the motorists' views would change as a result of the ramp relocation, the change would not constitute an adverse impact. Consequently, no mitigation measures would be necessary. The project would cause Ramp TW to be more visible from certain parts of the study area; however, no unique visual resources would be adversely affected. Additionally, visual mitigation via proposed landscaping would be investigated during the project Final Design.

3.8 AIR QUALITY

This section assesses potential impacts to air quality resources resulting from the No-Build Alternative and the Interchange 3 Outside Toll PPA. The study area used for this analysis is consistent with the traffic impact study area at Interchange 3 Outside Toll, as described in the 2025 Program Team *Traffic Analysis Memo* (Appendix D).

3.8.1 Methodology and Data Sources

3.8.1.1 Pollutants of Concern and National Ambient Air Quality Standards

Criteria Pollutants

Air quality is defined as the concentration of specific pollutants of concern in ambient air. Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses, non-road equipment) and stationary sources (e.g., power plants).

As required under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) for six pollutants for which criteria have been established, referred to as criteria pollutants (40 Code of Federal Regulations (CFR) Part 50):

- Carbon monoxide (CO);
- Nitrogen dioxide (NO_2);
- Ozone (O_3);
- Particulate matter with diameters up to 10 micrometers (µm) (PM_{10}) and diameters up to 2.5 µm ($PM_{2.5}$);
- Lead (Pb); and,
- Sulfur dioxide (SO_2).

The NAAQS include primary and secondary standards. The primary standards were established at levels sufficient to protect public health with an adequate margin of safety. The secondary standards were established to protect the public welfare from the adverse effects associated with pollutants in the ambient air, such as damage to plants and ecosystems. The primary and secondary standards are presented in **Table 3.8-1**. These standards have been adopted as the ambient air quality standards for New Jersey.

Table 3.8-1: National and New Jersey Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead		Primary and Secondary	Rolling 3-month average	0.15 µg/meter^3	Not to be exceeded
Nitrogen Dioxide		Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		Primary and Secondary	Annual	53 ppb	Annual mean
Ozone		Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter	$PM_{2.5}$	Primary	Annual	9 µg/meter^3	Annual mean, averaged over 3 years
		Secondary	Annual	15 µg/meter^3	Annual mean, averaged over 3 years
		Primary and Secondary	24-hour	35 µg/mete^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and Secondary	24-hour	150 µg/meter^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source**:** USEPA (http://www.epa.gov/air/criteria.html).

Mobile Source Air Toxins (MSATs)

In addition to the criteria pollutants, the CAA also identifies 187 air toxins as hazardous air pollutants (HAPs). HAPs include several substances that are known or suspected to cause cancer or other health effects in humans when they are exposed to certain levels of the pollutants. The CAA authorizes the USEPA to characterize and control emissions of these pollutants. However, unlike the criteria pollutants, ambient air quality standards have not been established for most air toxins. Most air toxins originate from human-made (anthropogenic) sources, including on-road mobile sources (e.g., cars, trucks), non-road mobile sources (e.g., airplanes), and stationary sources (e.g., dry cleaners, factories, or refineries). Of the 187 HAPs, 93 have been identified as mobile source air toxic (MSAT) and nine MSATs are considered priority MSATs as shown below:

- Acetaldehyde;
- Acrolein;
- Benzene;
- 1,3-butadiene;
- Diesel particulate matter plus diesel exhaust organic gases (diesel PM);
- Ethylbenzene;
- Formaldehyde;
- Naphthalene; and,
- Polycyclic organic matter (POM).

The MSATs are compounds emitted by highway-traveling vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted when the fuel evaporates or passes through the engine unburned. Other toxins are generated by the incomplete combustion of fuels or as secondary combustion products. Metal air toxins also result from engine wear or from impurities in oil or gasoline.

Greenhouse Gases (GHGs)

Greenhouse gases are gas emissions that trap heat in the atmosphere. The primary long-lived greenhouse gases directly emitted by human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The heating effect from these gases is considered the probable cause of the global warming observed over the last 50 years (Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202[a] of the CAA; Final Rule 2009).

3.8.1.2 Attainment of the NAAQS

The CAA requires geographic areas to be designated according to their ability to attain the NAAQS. These areas are categorized for each criteria pollutant as:

- **Attainment Area**: Areas where no exceedance of NAAQS for a specific criteria pollutant occurred;
- **Non-attainment Area**: Areas where exceedance of NAAQS for a specific criteria pollutant occurred; or,
- **Maintenance Area**: Areas that have previously been designated as a non-attainment area but are still in need of efforts to maintain the improved conditions in the future. Most of the CAA rules for non-attainment areas are still applicable to a maintenance area.

The study area for this air quality assessment encompasses Camden County and is located within the Metropolitan Philadelphia Interstate Air Quality Control Region (Pennsylvania-New Jersey-Delaware) per CFR Part 81. Camden County is designated attainment for all NAAQS, with the exceptions of:

- Marginal and serious non-attainment for 2008 and 2015 ozone standards, respectively;
- Maintenance for $PM_{2.5}$; and,
- Maintenance for CO.

The CAA requires states to develop a general plan to attain and maintain the NAAQS and a specific plan to attain the standards for each area designated non-attainment for a NAAQS. These plans, known as State Implementation Plans (SIP), are developed by state and local air quality management agencies.

Per CAA Section 176(c), Federal agencies are required to ensure that their actions conform to the SIP in non-attainment or maintenance areas for purposes of reducing the severity and number of violations of the NAAQS in an effort to achieve attainment of these standards. There are two sections of the conformity regulations in the CAA that are applicable to Federal actions:

- Transportation projects funded or approved by FHWA or Federal Transit Administration (FTA), which are governed by the Transportation Conformity Rule (TCR). The TCR is enforced on both a regional level and project level.
- Non-FHWA/FTA projects or components of an FHWA/FTA transportation project requiring actions by other Federal agencies, such as the U.S. Army Corps of Engineers (USACE), which are governed by the General Conformity Rule (GCR).

The Interchange 3 Outside Toll project is classified as a transportation project but is not funded or subject for FHWA or FTA approval; therefore, TCR is not directly applicable. However, as the project is considered a regionally significant project as it would occur on a regionally major transportation facility/corridor, it needs to be included in the Transportation Improvement Program (TIP) to determine the region's compliance with Federal air quality standards under the TCR.

To demonstrate project compliance with the SIP according to applicable guidelines (i.e., EO 215 and FHWA transportation conformity guidelines), the potential air quality impact analyses considered in the EIS include the regulatory elements described in Section 3.8.1.3 (Regulatory Compliance and Impact Analysis).

3.8.1.3 Regulatory Compliance and Impact Analysis

Clean Air Act Transportation Conformity

TCR applies to two levels of transportation activity:

- **Regional conformity**: Demonstration of regional transportation conformity, particularly for ozone, a regional pollutant, is through the development of a TIP, which is the responsibility of the metropolitan planning organization (MPO). For the greater Philadelphia region/Delaware Valley (including Camden County), the DVRPC is the designated MPO. The current applicable transportation plan and TIP are known as the *Connections 2050 Long-Range Plan* and the *DVRPC FY2024 TIP for New Jersey (FY24-FY27)* (adopted September 2023), respectively. DVRPC is responsible for demonstrating that the transportation plan and TIP conform to the SIP. The proposed project has independent utility, but would contribute to the goals of the NJTA Interchanges 1 to 4 Capacity Enhancements Program. The Program is currently included in the *Connections 2050 Long-Range Plan* as one of the major regional preservation projects that needs to occur over the next 25 years but has not yet been included the TIP during the current project planning phase. The NJTA anticipates that the project would be advanced and included in a future revision of TIP, and a regional conformity demonstration would be completed by DVRPC at that time.
- **Project-level conformity**: For specific transportation projects, the conformity determination must show that the individual project is included in the TIP in order to be consistent with the SIP conformity determination (i.e., to be exempt from a regional emissions analysis and to be in compliance with the NAAQS on a local level). Potential localized emission impacts should be addressed through a hot spot analysis for localized non-attainment or maintenance pollutants (such as $PM_{2.5}$ and CO) to demonstrate that such emissions would be in compliance with the NAAQS.

Operational CO Impact Analysis (CO Hot-Spot Analysis)

To satisfy the TCR requirements for assessing potential mobile source air quality impacts of CO emissions, the air quality analysis followed the guidelines and procedures established for non-attainment pollutants in 40 CFR 93.123 through an analysis addressing localized mobile source related CO concentrations.

The guidelines identify four categories of projects to be considered for a CO hot spot analysis (40 CFR 93.123[b][1]) and they would be used for the CO microscale analysis for this project:

- For projects in or affecting locations, areas, or categories of sites which are identified in the applicable implementation plan as sites of violation or possible violation;
- For projects affecting intersections that are at LOS D, E, or F or those that will change to LOS D, E, or F because of increased traffic volumes related to the project;
- For any project affecting one or more of the top three intersections in the non-attainment or maintenance area with higher traffic volumes, as identified in the applicable implementation plan; and,
- For any project affecting one or more of the top three intersections in the non-attainment or maintenance area with the worst level of service, as identified in the applicable implementation plan.

The data presented in the *Traffic Analysis Memo* (Program Team, 2025) were used to determine whether a CO hot spot analysis is warranted under the proposed action.

Operational PM2.5 Impact Analysis (PM Hot-Spot Analysis)

The USEPA-developed *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (USEPA 2021) was used in assessing potential localized PM impacts. According to this guidance, typical sample projects of air quality concern as defined by 40 CFR §93.123(b)(1)(i), (iii) and (iv) include:

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than a 125,000 annual average daily traffic (AADT) and eight percent or more of such AADT is diesel truck traffic;
- New exit ramps and other highway facility improvements to connect a highway or expressway to a major freight, bus, or intermodal terminal;
- Expansion of an existing highway or other facility that affects a congested intersection (operated at Level of Service D, E, or F) and has a significant increase in the number of diesel trucks;
- Similar highway projects that involve a significant increase in the number of diesel transit buses and/or diesel trucks;
- A major new bus or intermodal terminal considered to be a "regionally significant project" under 40 CFR § 93.119; and,
- An existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses increases by 50 percent or more, as measured by bus arrivals.

The project would not induce new diesel truck traffic along the Route 168 corridor and Interchange 3 Outside Toll ramps. Therefore, the project does not fall into any of the above-listed categories that would have the potential for PM air quality concern; a hot-spot analysis for PM is not warranted.

Project Emissions Disclosure (Mesoscale Emissions Analysis)

The net changes in mobile source emissions from the project around the interchange improvements are also quantified for disclosure purposes specifically on queuing and idling emissions under both no build and build alternatives.

Construction Period Impacts

In contrast to operational activities, construction activities are usually of short duration and produce temporary air quality effects. However, the impacts of construction vehicle and equipment emissions from large-scale construction activities occurring over many years (typically over five) at a specific local site could cause adverse air quality effects and may need to be quantitatively addressed.

According to CFR 93.123(c)(5), “CO, PM_{10}, and $PM_{2.5}$ hot spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site affected by construction-related activities would be considered separately, using established ‘Guideline’ methods. Temporary increases are defined as those which occur only during the

construction phase and last five years or less at any individual site." Project construction activities are unlikely to occur at an individual site over five years; therefore, potential air quality impacts from construction activities are considered temporary and a hot spot analysis is not warranted under the proposed action.

Localized MSATs

On February 3, 2006, the FHWA and EPA issued joint guidance for the assessment of MSATs for highway projects. The FHWA subsequently released updated guidance on conducting air toxic analyses on September 30, 2009, December 6, 2012, October 18, 2016, and January 18, 2023. This guidance requires analysis of MSATs as part of the environmental analysis for a transportation project. The 2023 update reflects recent regulatory changes, addresses stakeholder requests to broaden the horizon years of emission trends performed with the EPA MOVES model, and updates stakeholders on the status of scientific research on air toxics.

The FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* (FHWA 2023) establishes a three-tiered approach to determine the level of MSAT analysis required by the project:

1) Projects with No Meaningful Potential MSAT Effects such as:
    - Projects qualifying as a categorical exclusion under 23 CFR 771.117;
    - Projects exempt under the Federal conformity regulations or 40 CFR §93.126; or,
    - Other projects with no meaningful impacts on traffic volumes or vehicle mix.
2) For projects with low potential of MSAT effects (such as those projects where the Design Year traffic is projected to be less than 140,000 to 150,000 AADT), a qualitative assessment of emissions projections should be conducted.
3) For projects with a high potential of MSAT effects (such as some limited projects that create new capacity or add significant capacity to urban highways, urban arterials, or urban collector-distributor routes with traffic volumes, where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the Design Year), consultation with the FHWA and a quantitative analysis to forecast local-specific emission trends of the MSAT for each alternative would be required.

The proposed action would not result in any meaningful impact to traffic volume or vehicle mix along the corridor where the Interchange 3 Outside Toll project is located, and therefore, the project would not require a qualitative or quantitative assessment of MSAT effects.

3.8.2 Affected Environment

As discussed previously, Camden County where the project is located is designated as attainment for all NAAQS with the exceptions of 1) Marginal and serious non-attainment for 2008 and 2015 ozone standards, respectively; 2) Maintenance for $PM_{2.5}$; and 3) Maintenance for CO.

The most recent (Year 2024) monitored ambient criteria pollutant concentrations as compared to the NAAQS at the closest monitoring stations with available monitoring data are summarized in **Table 3.8-2**. This data shows that all the measured pollutant concentrations were well below

the NAAQS with the exception of ozone. Therefore, the monitored pollutant concentration levels were consistent with the attainment designation.

Table 3.8-2: Year 2024 Monitored Pollutant Background Concentrations

Pollutant (units)	Averaging Period	Monitoring Location	Background Concentration	NAAQS Primary Criteria
CO (ppm)	1-hr	Camden/ 266-298 Spruce Street	1.7(3)	35
	8-hr		1.5(3)	9
NO_2 (ppb)	1-hr	Camden/ 266-298 Spruce Street	47.5(1)	100
	Annual		10.1	53
$PM_{2.5}$ ($\mu g/m^3$)	24-hr	Camden/ 266-298 Spruce Street	21.2(1)	35
	Annual		9.1(2)	12
PM_{10} ($\mu g/m^3$)	24-hr	Camden/ 266-298 Spruce Street	43(3)	150
Ozone (ppm)	8-hour	Camden/ 266-298 Spruce Street	0.066(4)	0.07

Source: Program Team, 2025; Monitor Values Report | US EPA.
Notes: (1) Value is 98th percentile; (2) Value is the weighted annual mean; (3) Value is the highest; (4) Value is the 4" highest daily maximum (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report).

3.8.3 Environmental Consequences

3.8.3.1 No-Build Alternative

Under the No-Build Alternative, based on a 2040 Design Year, traffic would increase as compared to existing conditions due to natural population growth predicted for the region. However, future vehicle emissions would continue to decline as a result of Federal emissions control programs to more than offset the emissions increase from traffic growth. Therefore, the air quality conditions under the 2040 No-Build Alternative would likely be improved as compared to the existing baseline condition.

3.8.3.2 Preliminary Preferred Alternative – Long-Term Operational Effects

TCR Compliance: Based on the traffic analysis results at the intersection of Route 168 and Benigno Boulevard (see **Table 3.8-3),** LOS D or worse was predicted under the PPA. Therefore, per the EPA hot spot analysis guidelines, a CO hot spot analysis is warranted.

Table 3.8-3: Level of Service (LOS) Conditions at Studied Intersection

Intersection	Peak Period	2040 No Build	2040 Build	LOS D or Worse under Build
Route 168/ Benigno Blvd	AM	F	E	Yes
	PM	F	F	Yes

Source: Program Team, 2025.

A CO hot spot analysis was performed per the EPA guidance, *Using MOVES3 in Project-Level Carbon Monoxide Analyses* dated December 2021, and using CAL3QHC screening dispersion model and MOVES4 emission factor model at the intersection.

Vehicular exhaust emission factors were estimated using the EPA mobile source emissions factor model, MOVES4 (EPA, 2023). This emission factor model can calculate engine emission factors for various vehicle types based on the fuel (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway types, and other factors that influence emissions, such as inspection maintenance programs. The model default input parameters applicable to Camden County where the project is located were used for the 2040 Design Year. MOVES4 was used to predict CO emission factors for approach, departure, and queue links at the intersection of Route 168 and Benigno Boulevard.

Maximum CO concentrations resulting from vehicle emissions were predicted using EPA's CAL3QHC model. Receptors were placed over sensitive locations including sidewalks within 1,000 feet of the intersection. The total estimated concentration levels, combined conservatively from the level predicted at the hot spot and the available monitored highest ambient background in the neighborhood, are compared with the CO NAAQS. The modeled worst-case condition CO concentrations including the background contributions would be 2.1 ppm for 1-hour average and 1.5 ppm for 8-hour average. These levels are well below the 35 and 9 ppm CO NAAQS, respectively, resulting in no significant localized CO impacts.

Additionally, the project would not induce new diesel truck traffic along the project corridor. Therefore, the project does not fall into any of the listed categories that would have the potential for PM air quality concern per the *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*.

Therefore, potential localized long-term operational air quality impacts under the PPA would not be significant and the project would be in compliance with the TCR on a project level.

Mesoscale Emissions

The net changes in mobile source queuing and idling emissions from the project around Interchange 3 are quantified using MOVES4-estimated emission factors and the forecasted delay times during peak hours at each improved intersection for both No-Build and Build Alternative conditions. As summarized in **Table 3.8-4**, the project would result in a net reduction of all pollutant emissions benefiting the air quality condition in the PSA.

Table 3.8-4: 2040 Idling Emissions (Tons per Year)

Pollutant	Route 168/Benigno Blvd (Build 2040)	Route 168/Benigno Blvd (No-Build 2040)	Ramp TW Merge with Route 168 (No-Build)	Build to No-Build Delta
CO	0.0013468	0.0016846	0.001744	-0.0020817
PM2.5	0.0000041	0.0000051	0.000005	-0.000006
PM10	0.0000045	0.0000056	0.000006	-0.000007
NOx	0.0006941	0.0008682	0.000899	-0.001073
VOC	0.0000903	0.0001130	0.000117	-0.00014
GHG	1.0597910	1.3255435	1.372468	-1.63822

Source: Program Team, 2025.

MSATs: The roadways with the potential to be impacted by the project are those areas within the project LOD. The PPA, as compared to the No-Build Alternative, would result in no change in peak period traffic along the Turnpike mainline near Interchange 3 as shown in **Table 3.8-5**.

Furthermore, because the maximum Design Year 2040 peak hour traffic volumes were predicted to be approximately 4,500 in maximum along the mainline segment at Interchange 3 per **Table 3.8-5**, the AADT of 45,000 can be estimated using a 10 percent peak-hour to 24-hour conversion factor. Therefore, under the proposed action, the overall traffic on the mainline at Interchange 3 would be well below the 140,000 AADT level, which is the FHWA threshold whereby a detailed MSAT analysis would be required. The project falls into the category of projects with “Low Potential MSAT Effects.”

Table 3.8-5: Interchange 3 Peak Hour Traffic Volume

Turnpike Interchange	Peak Period	2040 No Build (VPH)	2040 Build (PPA) (VPH)
#3	AM	4214	4214
	PM	4529	4529

Source: Program Team, 2024.

It should be noted that the project may result in a slightly increased exposure to MSAT emissions at certain locations, such as those areas immediately adjacent to the Interchange 3 Outside Toll ramps and toll plaza. However, as a result of the USEPA’s national control programs that are projected to reduce MSAT emissions, FHWA estimates that even if VMT increases by 31 percent from 2020 to 2060 as forecasted, a combined reduction of 76 percent in the total annual emissions for the priority MSAT is projected for the same time period. Therefore, the emissions within sensitive areas immediately adjacent to the Interchange 3

Outside Toll area would be lower than at present in both opening year and Design Year, and the operational MSAT effects because of the project would be negligible.

GHG and Climate Change: The GHG emissions associated with the operation of the project along the main corridor would unlikely change since the AADT remains the same. However, it is anticipated that the proposed improvement of Interchange 3 and Route 168 congestion with slightly improved travel speeds would result in a reduction of GHG emissions as shown in **Table 3.8-4**. Therefore, the project would not result in any appreciable change in GHG emissions as compared to the No-Build Alternative and would not result in adverse natural disaster impacts assessed on a global scale.

3.8.3.3 Preliminary Preferred Alternative – Short-Term Construction Effects

Potential air quality effects from project construction would be temporary and could include the following impacts:

- Localized increases in emissions from construction equipment, particularly diesel-powered equipment. Increased pollutant concentrations could occur in the areas of work activities and haul routes;
- Increases in motor vehicle emissions associated with potential disruption of traffic operations during construction. Effects could occur if temporary lane closures and detours cause congestion and travel delays; and/or,
- Localized dust and airborne particulate matter generated by temporarily exposed soils and earth-disturbance activities.

In contrast to operational activities, construction activities are relatively short-term conditions with the potential to produce temporary air quality effects. However, the impacts of construction vehicle and equipment emissions from large-scale construction activities occurring over many years (typically over five years) at a specific local site could cause adverse air quality effects and may need to be quantitatively addressed. According to the current schedule at a specific construction site, construction activities would not last more than five years and therefore, construction activities are considered temporary as a quantitative hot-spot analysis is not warranted resulting in no potential for significant air quality impacts.

3.8.4 Minimization and Mitigation

Best management practices to minimize temporary construction air quality effects during project construction, particularly for dust control, would be considered by the NJTA during Final Design. No mitigation would be required during the operational phase of the project because no significant impacts on air quality are predicted.

3.9 NOISE

3.9.1 Methodology and Data Sources

Potential negative effects from traffic noise are assessed based on predicted noise levels approaching or exceeding the FHWA Noise Abatement Criteria (NAC). These criteria have been adopted by the NJTA and are included in the *Policy for Traffic Noise Analysis and Abatement* (*Noise Policy*) dated May 2023. As shown in **Table 3.9-1**, the NAC for residences

and other noise-sensitive exterior receivers is a one-hour equivalent sound level (Leq[(h]) of 67 A-weighted decibels (dB[A]). These noise levels are used by NJTA to evaluate the need for noise mitigation measures due to highway improvements. The NJTA Noise Policy has defined impact as approaching within one decibel of the NAC for residential or other similar sensitive land use areas. Additionally, NJTA defines a substantial increase as 10 dB(A) greater than existing noise levels. Commercial properties such as hotels, restaurants, offices, retail, and industrial sites are not considered noise-sensitive receptors under the NJTA *Noise Policy*.

Table 3.9-1: Noise-Sensitive Activity Categories and Criteria for Impact Determination (Hourly A-Weighted Sound Level or dB[A])

Activity Category	Leq(h) Criteria for Impact Determination	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios

Source: NJTA. May 2023. *Noise Policy*.

A noise modeling assessment for the Interchange 3 Outside Toll project was conducted in accordance with the FHWA's *Procedures for Abatement of Highway Traffic Noise and Construction Noise* and the NJTA's *Noise Policy*. To determine the potential effects of the project, a traffic noise prediction model was developed using the FHWA's Traffic Noise Model® (TNM2.5) to determine existing and future noise levels at sensitive receptors within the PSA. Noise-sensitive receptors were selected within a screening distance of 600 feet from the proposed realigned Ramp TW. Based on this screening distance, noise impacts were evaluated at 35 receivers, which includes 34 single-family residences (Category B land uses) and one park (Category C land use). For exterior non-residential facilities (such as schools, churches, and parks), NJTA's lot-size based "equivalent number of residences" (ERU) method was used to determine the number of receptors for the barrier cost-effectiveness calculations.

Based on this methodology, an ERU of 4 was applied to the Bellmawr Dog Park (also known as the Green Acres Petruzzi Playground parcel) based on a conservative estimate of its use.

The NJTA *Noise Policy* has defined 'impact' as approaching within one decibel of the NAC for residential or other similar sensitive land use areas. Additionally, NJTA defines a 'substantial increase' as 10 dB(A) greater than existing noise levels. FHWA guidelines and the NJTA *Noise Policy* indicate that abatement should be considered if the noise criteria described above are exceeded. However, the abatement measures must be found to be both "feasible" and "reasonable" to be recommended for implementation.

Existing or baseline conditions were modeled using 2019 traffic data while future conditions (i.e., the No-Build Alternative and the project PPA) were modeled using 2040 traffic estimates. For all conditions, the PM peak-hour period was used because it represents the highest traffic volumes that would result in the worst-case noise condition. As shown in **Table 3.9-2**, traffic volumes were allocated into the following FHWA vehicle class types:

- CARS – all passenger cars and pick-up trucks;
- MT – all medium trucks with 2 axles and 6 wheels;
- HT – all heavy trucks with 3 or more axles;
- BUS – buses designed to carry more than nine passengers; and,
- MC – motorcycles.

Table 3.9-2: Vehicle Mix Percentages

Roadway	CARS	MT	HT	BUS	MC
Int. 3 Outside Toll Ramps	74%	8%	17.5%	0.5%	0%
Route 168 and Benigno Blvd	84.5%	4%	10.5%	0.5%	0.5%

Source: Program Team, December 2024.

Acoustical adjustments were applied for free-flow and roadway design speeds of 25 MPH for the proposed Ramp TW and Route 168. Other adjustments include truck deceleration at the toll plaza, truck acceleration along Turnpike on-ramps, building shielding, ground attenuation effects, and terrain features such as cuts and fills.

3.9.2 Affected Environment

A noise monitoring program was conducted in October 2024 in the vicinity of two residences to document the current baseline conditions within the PSA. These baseline noise measurements were used to establish a relationship between actual field measurements and the future predicted noise levels from the project. The figure titled, Noise Monitoring Map (Appendix B) shows the locations of noise measurement locations.

As shown in **Table 3.9-3**, existing noise levels measured at the two sites range from 53 dB(A) at Site M2 (residences along Sullivan Avenue) to 54 dB(A) at Site M1 (residences along Chadwick Avenue). These noise levels are dominated by traffic traveling along Route 168 with minimal contributions from the Interchange 3 toll plaza and the Turnpike mainline.

Table 3.9-3: 2019 Base Year Noise Levels (Decibels [dB(A)]) within the Project Study Area

ID	Location	Municipality	Date/Time	Measure	Model	Change	Validate
M1	46 Chadwick Avenue	Bellmawr	10/17/24, 10:35 AM	54.4	53.8	-0.6	valid
M2	36 Sullivan Avenue	Bellmawr	10/17/24, 11:04 AM	53.2	50.3	-2.9	valid

Source: Program Team, December 2024.

As part of the prediction modeling analysis, the existing measurements were "validated" using the same traffic volumes and speeds observed during the monitoring period. The validated software model was then used to predict project noise levels for the 2019 Existing Condition, 2040 No-Build Alternative, and the 2040 Build Alternative (PPA) for comparison with the project impact criteria. As shown in **Table 3.9-3**, the validated noise levels are all within 3 dB(A) of the measured noise levels indicating that the noise prediction model is valid for use with future predictions.

Once the model was validated, existing noise levels were predicted using the existing year (2019) traffic data for the project. Although these noise levels typically form the basis for comparison with the 2040 PPA noise levels against the NJTA relative increase criterion, the validated noise levels were applied instead as a worst-case condition.

3.9.3 Environmental Consequences

3.9.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not occur, and the Interchange 3 Outside Toll ramps and Route 168 corridor would remain in their current configuration. As such, there would be no direct nor indirect impacts on noise within the PSA from the project. Other committed projects, not associated with the Interchange 3 Outside Toll project, would be implemented; sponsors of those projects would be responsible for compliance with all applicable noise regulations. The No-Build Alternative also reflects completion of the Turnpike Interchanges 1 to 4 Capacity Enhancements Program.

Future noise levels under the 2040 No-Build Alternative are anticipated to increase slightly compared to the 2019 Existing Condition. This is due to the 11 to 18 percent increase in traffic predicted during this period. From a noise perspective, this increase is marginal. As shown in **Table 3.9-4**, noise under the No-Build Alternative is predicted to remain essentially the same as the Existing Condition. Similarly, peak-hour noise levels at the noise modeling sites are predicted to range from 55 dB(A) at a residence along Sullivan Avenue (ID# 25) to 61 dB(A) at residence along Chadwick Avenue (ID# 3). Overall noise levels are predicted to increase slightly (1 dB[A]) from the 2019 Existing Condition. Noise under the No-Build Condition is due to traffic along Route 168 and distant traffic from the Turnpike.

Table 3.9-4: Base Year and 2040 Noise Levels Predicted at Select Representative Receivers

ID	Address	Measure/ Validation	2019 Existing	2040 No-Build	2040 PPA	NJTA Criteria	Impact
1	Res, 46 Chadwick Ave	54	54	55	64	66 / 64	Yes
2	Res, 36 Sullivan Ave	50	57	58	59	66 / 60	No
3	Res, 57 Chadwick Ave	54	60	61	64	66 / 64	Yes
4	Res, 55 Chadwick Ave	54	59	61	61	66 / 64	No
5	Res, 53 Chadwick Ave	54	58	60	60	66 / 64	No
6	Res, 49 Chadwick Ave	54	58	59	60	66 / 64	No
7	Res, 45 Chadwick Ave	54	58	59	59	66 / 64	No
8	Res, 37 Chadwick Ave	54	58	59	59	66 / 64	No
9	Res, 33 Chadwick Ave	54	57	58	58	66 / 64	No
10	Res, 27 Chadwick Ave	54	56	57	57	66 / 64	No
11	Res, 18 Chadwick Ave	54	55	57	57	66 / 64	No
12	Res, 26 Chadwick Ave	54	56	57	57	66 / 64	No
13	Res, 30 Chadwick Ave	54	56	57	57	66 / 64	No
14	Res, 34 Chadwick Ave	54	56	58	57	66 / 64	No
15	Res, 38 Chadwick Ave	54	57	58	58	66 / 64	No
16	Res, 40 Chadwick Ave	54	57	59	59	66 / 64	No
17	Res, 42 Chadwick Ave	54	58	60	60	66 / 64	No
18	Res, 32 Sullivan Ave	50	56	57	58	66 / 60	No
19	Res, 28 Sullivan Ave	50	56	57	57	66 / 60	No
20	Res, 24 Sullivan Ave	50	55	56	56	66 / 60	No
21	Res, 20 Sullivan Ave	50	55	56	56	66 / 60	No
22	Res, 16 Sullivan Ave	50	54	55	55	66 / 60	No
23	Res, 12 Sullivan Ave	50	54	55	55	66 / 60	No
24	Res, 15 Sullivan Ave	50	55	56	56	66 / 60	No
25	Res, 19 Sullivan Ave	50	55	55	56	66 / 60	No

ID	Address	Measure/ Validation	2019 Existing	2040 No-Build	2040 PPA	NJTA Criteria	Impact
26	Res, 21 Sullivan Ave	50	55	56	56	66 / 60	No
27	Res, 25 Sullivan Ave	50	55	56	56	66 / 60	No
28	Res, 29 Sullivan Ave	50	56	56	56	66 / 60	No
29	Res, 35 Sullivan Ave	50	57	57	58	66 / 60	No
30	Res, 34 Campanell Ave	50	55	56	56	66 / 60	No
31	Res, 38 Campanell Ave	50	55	56	56	66 / 60	No
32	Res, 119 Lake Dr	50	57	57	58	66 / 60	No
33	Res, 118 Lake Dr	50	56	57	57	66 / 60	No
34	Res, 122 Lake Dr	50	55	56	56	66 / 60	No
35	Bellmawr Dog Park	50	57	58	58	66 / 60	No

Source: Program Team, March 2025.

3.9.3.2 Preliminary Preferred Alternative

Future noise levels under the PPA are anticipated to increase between the 2019 Existing Condition and the 2040 Design Year, with a total projected increase in traffic of approximately 11 to 18 percent. From a noise perspective, this increase is again considered to be marginal, resulting in an anticipated increase of approximately 1 dB(A) when modeled. As shown in **Table 3.9-4**, noise levels under the PPA in the vicinity of the realigned Ramp TW are predicted to increase 3-5 dB(A) compared to the 2019 Existing Condition, but only 1 dB(A) at all other surveyed locations. As a result, future noise levels under the PPA would reflect both these geometric roadway changes and the growth in traffic volumes.

Overall, peak-hour noise levels at the noise modeling sites within the PSA under the PPA are predicted to range from 55 dB(A) at a residence along Sullivan Avenue (ID# 23) to 64 dB(A) at residences along Chadwick Avenue (ID# 1 & 3). Overall noise levels are predicted to increase slightly (1 dB[A]) from the 2019 Existing Condition), except at the southern-most residences along Chadwick Avenue that would abut the realigned Ramp TW. As summarized in Section 3.9.1 (Methodology and Data Sources), there are two thresholds for determining noise impacts at sensitive land use areas: 1) levels within one dB(A) of the NAC based on activity category as summarized in **Table 3.9-1**, or 2) a 10 dB(A) predicted increase from existing noise levels. As shown in **Table 3.9-5**, the PPA is predicted to result in two traffic noise impacts within the PSA. The noise impacts are shown in the figure titled Noise Monitoring Map (Appendix B). At the residences at the southern end of Chadwick Avenue, noise under the PPA is predominantly due to the realigned Ramp TW. At all other sites, noise from Ramp TW would contribute to the background condition, which is currently due to traffic from Route 168 and the mainline.

Table 3.9-5: Base Year and 2040 Noise Impact Counts Predicted within the Project Study Area

FHWA Category	Description	Inventory	Noise Impacts		
			2019 Existing	2040 No-Build	2040 IPA
B	Residences	34	0	0	2
C	Parks	0	0	0	0
Totals	-	34	0	0	2
Change	**-**	**-**	**-**	**0**	**+2**

Source: Program Team, March 2025.

Regarding indirect and cumulative impacts, noise impacts may sometimes compound or increase when combined with other related past, present, and regionally committed projects in the region to result in an incremental effect. The Interchange 3 Outside Toll project would involve the construction and modification of a toll ramp and other roadway modifications, and new pavement to accommodate the realigned Ramp TW. Each of these measures is proposed to improve the mobility and use of the current traffic corridor and is consistent with other existing uses within New Jersey's designated transportation corridors. Although there are other committed regional transportation projects in the area as identified in **Table 2.1-1**, they are not anticipated to have a significant or adverse cumulative effect on the PSA as explained in Section 3.22.1 (Cumulative Impacts).

3.9.4 Minimization and Mitigation

Since noise impacts are predicted at residences under the PPA, mitigation measures would be evaluated in accordance with NJTA's *Noise Policy*.

Accordingly, a noise abatement determination is a two-phased approach including:

1. Is it feasible to provide highway traffic noise abatement from an engineering and acoustical standpoint?
2. Is it reasonable from a cost/benefit, maintainability, and land use conformity consideration to provide highway traffic noise abatement?

A detailed noise modeling analysis was conducted to determine future noise levels from the proposed improvements at nearby residences. Since future modeled noise levels are predicted to exceed the NJTA noise abatement criteria under the Build Alternative, traffic noise abatement consideration is required in accordance with the NJTA *Noise Policy*.

Furthermore, the FHWA guidelines and the NJTA *Noise Policy* indicate that abatement should be considered if the noise criteria described previously are exceeded for a Type I project. For example, feasibility refers to engineering considerations such as if a noise barrier can be built given the topography of the location, can a substantial noise reduction be achieved given certain access, drainage, safety, or maintenance requirements, or are other noise sources present in the area. For instance, maintaining access to residential properties often requires gaps in noise barriers at entrance and exit driveways and reduces their effectiveness to the point where substantial noise reduction is not feasible. Feasibility also includes a minimum

reduction of 5 dB(A) to Design Year noise levels for at least 50 percent of impacted receptors in the first row.

Similarly, reasonableness refers to a barrier's cost effectiveness and the level of public support. Under standards established for the Interchanges 1-4 Capacity Enhancements Program, NJTA considers a noise barrier to be cost effective if the construction cost is less than $78,000 per benefited receptor. Additionally, the barrier should achieve a noise reduction design goal of 7 dB(A) at 50 percent or more of first-row receptors and 10 dB(A) for at least one receptor. Benefited receptors include all residences in the study area attaining at least a 5 dB(A) reduction in noise. Receptors where no impact is predicted but would attain at least a 5 dB(A) reduction in noise are considered to count as one-half benefit credit.

In accordance with the FHWA noise policy CFR 772, the following noise abatement measures were evaluated to reduce the traffic noise impacts. These are grouped into measures that are either feasible or not feasible for this project.

Control measures that are not feasible:

- Traffic management measures (such as traffic control devices and signing for prohibition of trucks, time-use restrictions for trucks, modified speed limits, and exclusive land designations) would not be feasible on an interstate highway that requires open access for truck traffic;
- The alteration of horizontal and vertical alignments would also not be feasible because the PSA roadway elevations and siting have been optimized to minimize traffic and construction effects in the community;
- The acquisition of real property to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise is also not feasible since there is limited ROW.

Control measures that may be feasible:

- The construction of noise barriers (including landscaping for aesthetic purposes) whether within or outside the NJTA ROW could be feasible given that the PSA includes adequate ROW to investigate the effectiveness of noise walls;
- The acquisition of property rights (either in fee or lesser interest) for construction of noise barriers could be possible but highly unlikely given the NJTA intent to minimize property impacts during the project. Any property acquisitions proposed as part of the project would be for roadway modifications and not for acoustical purposes;
- Sound insulation and/or air conditioning to meet interior standards may be considered for public use or non-profit institutional structures listed in FHWA Category D. This control measure is subject to the same cost-effectiveness criterion as noise barriers and is not provided for other buildings including private residences or commercial properties.

During Final Design, additional analysis would be conducted to ascertain locations where noise barriers meet the "feasible and reasonable" criteria in accordance with the NJTA *Noise Policy*. Additionally, a public hearing would be conducted in accordance with the requirements of Executive Order No. 172. During the public hearing comment period, the NJTA would survey the owners and residents of properties benefited by potential noise barriers to determine

community viewpoints on noise barriers. Based on the additional analysis and community feedback, the NJTA would make a determination on the location of noise barriers within the PSA.

Noise levels from project construction activities, although temporary, could be a nuisance at nearby sensitive receptors. Noise levels during construction are difficult to predict and vary depending on the types of construction activity and the types of equipment used for each stage of work. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns and is not usually at one location very long. Additionally, the sequencing of each phase of construction creates further uncertainty about expected cumulative noise effects.

Project construction activities are expected to include site excavation, relocating utilities, and roadway grading. Temporary noise impacts from construction are not expected to be significant, except at areas where sensitive residential receptors are located in proximity to the project. As a result, noise control measures may be required during construction to mitigate temporary impacts in the community. All construction activities would need to comply with the Borough of Bellmawr's local ordinance Chapter 295 *Noise* and the NJTA project specifications.

Standard specifications to be considered for inclusion in the project's construction documents may include the following:

- All construction equipment powered by an internal combustion engine would be equipped with a properly maintained muffler;
- Air compressors would meet current USEPA noise emission exhaust standards;
- Air powered equipment would be fitted with pneumatic exhaust silencers;
- Stationary equipment powered by an internal combustion engine would not be operated within 150 feet of noise sensitive areas without portable noise barriers placed between the equipment and noise sensitive sites. Noise sensitive sites include residential buildings, motels, hotels, schools, churches, hospitals, nursing homes, libraries, and public recreation areas. Portable noise barriers would be constructed of plywood or tongue and groove boards with a noise absorbent treatment on the interior surface (facing the equipment); and
- Powered construction equipment would not be operated before 7:00 AM or after 6:00 PM.

3.10 SOILS AND GEOLOGY

3.10.1 Methodology and Data Sources

This section addresses soil and geological conditions with the potential to impact Interchange 3 Outside Toll project construction activities, as well as the potential for the project to impact soils and geology within the PSA. For the purposes of this assessment, the review and evaluation of potential impacts was conducted within the PSA that is shown on **Figure 1.1-1** and on the figure titled, Soil Survey Map (Appendix B). Information on soils within the PSA was obtained from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soils Survey. A general description of the geological character and soil characteristics and the potential direct or indirect impacts of project construction on these characteristics was completed in this assessment. The soil properties investigated include depth to high water

table, hydric soil rating, and potential to produce acidic soils. The NJDEP Bureau of GIS data was reviewed to identify geologic formations with the potential to produce acid sulfate (acid-producing) soils. The Geologic Map of New Jersey and the New Jersey Geology Survey's website were also reviewed to identify geological formations.

The New Jersey Department of Agriculture's *Standards for Soil Erosion and Sediment Control in New Jersey* were used to outline the compliance requirements of the New Jersey Soil Erosion and Sedimentation Control Act (N.J.S.A.) 4:24-39 *et seq*. These standards were used to outline the mitigation procedure that would be implemented to address potential long-term operational and short-term soil erosion impacts resulting from project construction.

3.10.2 Affected Environment

3.10.2.1 Soils

As per USDA Web Soil Survey data, there are a range of soil types identified within the PSA. A list of the soils and a description of important soil characteristics is provided in **Table 3.10-1**. The figure titled, Soil Survey Map (Appendix B), shows the locations of the various soil types in the PSA.

Table 3.10-1: Soil Types Found within the Project Study Area

Project Study Area Soil Types				
Symbol	**Description**	**Major Component's Depth to Seasonal High Water**	**Major Component Hydric Rating**	**Farmland Status**
FmhAt	Fluvaquents, loamy, 0 to 3 percent slopes, frequently flooded	About 6 to 18 inches	No	Not prime farmland
FrqB	Freehold-Swedesboro-Urban land complex, 0 to 5 percent slopes	More than 80 inches	No	Not prime farmland
HogB	Holmdel, clayey substratum-Urban land complex, 0 to 5 percent slopes	About 6 to 36 inches	No	Not prime farmland
UReB	Urban land-Anthroportic Udorthents complex, transportation corridor, 0 to 10 percent slopes	N/A	No	Not prime farmland

Source: USDA NRCS Web Soil Survey.

The above analysis is reflective of the major component of the soils located within the PSA. The seasonal high-water table ranges from 6 to >80 inches below the ground surface in the PSA. According to surveyed contours within the PSA, the general landform of the area consists of relatively flat terrain with gradual downward slopes bordering wetlands and water resources.

3.10.2.2 Geology

The Interchange 3 Outside Toll PSA is located within New Jersey's Coastal Plain physiographic province. The Coastal Plain is the largest of the four physiographic provinces, encompassing approximately three-fifths of the state. The specific geological formations intersecting the PSA, a brief description of their lithology, and the potential for each formation to produce acidic soils are summarized in **Table 3.10-2**.

Table 3.10-2: Geologic Formations Intersecting the Project Study Area

Geologic Name	Lithology	Potentially-Acid Producing
Englishtown Formation	Quartz sand, fine- to coarse grained, locally interbedded with thin- to thick-beds of clay	Yes
Marshalltown Formation	Quartz and glauconite sand, silty, and clayey	Yes

Source: New Jersey Geological Survey.
Note: Lithology is the description of physical and chemical characteristics of a rock formation.

The PSA is located entirely within the Englishtown and Marshalltown geological formations, which both have the potential to produce acid sulfate (acid-producing) soils. Therefore, the potential to encounter acid-producing soils exists within the entirety of the proposed project alignment. When exposed to air and/or water through excavation and grading, acid sulfate soils can produce very low soil pH conditions, which inhibit establishment of restorative vegetation and may degrade concrete, iron, steel, or other infrastructure elements. In addition, these soils may produce acidic runoff which may affect water quality and aquatic biota.

3.10.3 Environmental Consequences

3.10.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll roadway and ramp corridors would remain in their current configuration, with no land being disturbed for project purposes. Consequently, the project would have no direct or indirect impacts to existing soils or geologic features in the PSA, nor would there be any new exposure of acid-producing soils. Other committed projects in the No-Build Alternative have the potential to cause impacts to soil and geological resources; the sponsors of those projects may be required to comply with applicable regulations to protect such resources.

3.10.3.2 Preliminary Preferred Alternative

No long-term impacts to soils or geology are expected as a result of the completed project operations. Stormwater management systems would be installed to promote the settling of eroded particles, resulting in no long-term impacts to water quality during the operational phase of the project. The design and location of proposed stormwater facilities is preliminary and would be further evaluated during Final Design. Additionally, no blasting or alteration of the underlying geology is anticipated to be required for the project, resulting in no long-term impacts to geology within the PSA.

Short-term construction activities associated with excavation for project improvements would result in land and soil disturbance. Land disturbance has the potential to result in soil erosion as exposed soil can be washed or blown by water and wind, respectively. Unmitigated soil erosion could impact local waterways and aquatic biota by increasing the sediment load. To address any potential effects, the NJTA would comply with the New Jersey Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 *et seq*.) and apply Best Management Practices (BMPs) to control soils over the long-term. Specifically, temporarily exposed soils would be permanently stabilized at the conclusion of project construction.

3.10.4 Minimization and Mitigation

Excavation within areas with the potential to encounter acid-producing soils would be monitored for the presence of such soils during construction. If acid-producing soils are encountered during construction, mitigation measures would be implemented in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*.

An approved Soil Erosion and Sediment Control (SESC) Plan for the project would be obtained from the Camden County Soil Conservation District by the NJTA prior to the start of construction. All land disturbed during construction activities would be restored to their pre-construction grade, and vegetation would be replanted to prevent erosion in accordance with BMPs. Excavated soil would be stockpiled adjacent to the excavation site and stockpile compliance requirements would be followed as outlined in the project's certified SESC Plans. Excess excavated soil would be removed from the site as necessary. If offsite disposal is required, the soil would be sampled and analyzed to inform disposal regulation requirements. A licensed disposal transport facility would be utilized consistent with environmental regulations specific to soil characterization.

3.11 SURFACE WATER RESOURCES

3.11.1 Methodology and Data Sources

Surface water resources, and potential impacts to these resources during construction and long-term operations of the project, were investigated within the PSA as shown in **Figure 1.1-1**. The presence of streams within the PSA was identified using NJDEP GIS data and verified in the field during wetland delineation activities. These data, combined with knowledge of existing infrastructure and previous projects that impacted the flow and tidal nature of nearby waters, were used to delineate waters within the study area and determine tidal influence.

Information on water quality classifications was obtained from the NJDEP Surface Water Quality Standards (SWQS) (N.J.A.C. 7:9B). Information on the quality of surface waters at the sub watershed level was obtained from the *New Jersey 2022 Integrated Water Quality Monitoring and Assessment Report* (Integrated Report), prepared pursuant to Section 303(d) and 305(b) of the Federal Clean Water Act (33 U.S.C. §1251 et seq. [1972]) (CWA). Potential flood hazard and riparian zone impacts are addressed in Section 3.12 (Floodplains and Riparian Zones). Direct effects to waterways are considered State open water (SOW) impacts and are addressed in Section 3.13 (Wetlands).

The current SWQS rules (N.J.A.C. 7:9B) were readopted in 2016 and amended in 2023. The SWQS are used to develop regulatory requirements for other NJDEP programs that will serve to protect the existing and designated uses of the state's surface waters. These programs include the New Jersey Pollutant Discharge Elimination System (NJPDES) rules (N.J.A.C 7:14A) and program, Site Remediation Program, and various programs implemented by the Division of Land Resource Protection.

The SWQS also form the basis for the *Integrated Report*. Waters that exceed SWQS water quality criteria require the development of total maximum daily loads (TMDLs) or other alternative approaches to address the impairment. The NJDEP has developed a *Nutrient Criteria Enhancement Plan* (NCEP) to explain the NJDEP's approach to developing and enhancing the existing SWQS nutrient criteria and policies to protect designated uses of all of New Jersey's surface waters.

Tidelands claim areas include lands now or formerly flowed by the tide, which are owned by the State of New Jersey and managed by the Tidelands Resource Council. Information on the tidal influence of waterways within the PSA was obtained from review of previous nearby infrastructure projects, Tidelands Conveyance maps obtained from NJDEP, and NJDEP GIS data including head of tide and claimed tidelands.

3.11.2 Affected Environment

The PSA is situated within New Jersey Watershed Management Area (WMA) 18 (Lower Delaware). WMA 18 encompasses parts of Salem, Gloucester, Camden, and Burlington counties and is comprised of an assemblage of eight watersheds (Hydrologic Unit Code [HUC]-11) and 52 sub-watersheds (HUC-14).

Beaver Brook and unnamed tributaries (UNTs) to Beaver Brook are located within the Interchange 3 Outside Toll PSA as shown in the figure titled, Streams, Rivers, and Floodplains Map (Appendix B). Beaver Brook and associated tributaries within the PSA are tidally influenced approximately 0.70 miles downstream from the proposed project alignment, but the tidal influence does not extend into the PSA nor are any claimed tidelands present within the PSA. Additional information on wetlands and water resources can be found in Section 3.12 (Floodplains and Riparian Zones) and Section 3.13 (Wetlands), respectively.

According to the NJDEP SWQS, waterways within the PSA are classified as Freshwater 2 Non-Trout (FW2-NT). NJDEP’s Division of Water Resources establishes water quality standards for the state’s waterways. These standards classify surface waters according to water quality and provide the basis for determining which uses are appropriate for those waters. Under this classification system, waters are first classified as Freshwater, Saline/Estuarine, Saline/Coastal or Pinelands waters. The designations are followed by the number 1, 2, or 3 which indicate the relative quality of the water. The 1 designation represents the highest quality, and the 3 designation represents the poorest quality.

As set forth in N.J.A.C. 7:9B, FW2 is a general surface water classification applied to fresh waters that are not considered to have exceptional or unique ecological, recreational, or water

supply significance. The NT suffix identifies surface waters that are generally not suitable for trout but are suitable for a wide variety of other fish species.

In accordance with the 2023 Surface Water Quality Standards (N.J.A.C. 7:9B), the designated uses for all FW2 waters include the following:

1) Maintenance, migration, and propagation of the natural and established biota;
2) Primary contact recreation;
3) Industrial and agricultural water supply;
4) Public potable water supply after conventional filtration treatment (i.e., a series of processes including filtration, flocculation, coagulation, and sedimentation resulting in substantial particulate removal but no consistent removal of chemical constituents) and disinfection; and,
5) Any other reasonable uses.

The PSA is situated within the Big Timber Creek (below NB/SB confl) sub-watershed. A review of water quality information from the *New Jersey 2022 Integrated Water Quality Monitoring and Assessment Report* indicates that, where sufficient data was available, the fish consumption designated use was not supported, while the use of water as sources for drinking water was supported within the sub-watershed. Water quality assessments are categorized into three statuses: fully supporting, not supporting, or insufficient data for assessment.

The NJDEP has developed various TMDLs in accordance with Section 303(d) of the CWA to address specific contaminants in impaired waters. TMDLs can briefly be defined as the pollutant load that a given waterway can assimilate and still remain in compliance with the SWQS. TMDLs consider point source and non-point source pollution and are established through detailed pollutant loading studies which are performed by NJDEP and approved by the USEPA. TMDLs set forth a series of management strategies, which, once implemented, are expected to ultimately result in attainment of water quality standards. No TMDLs exist for Beaver Brook or the UNTs to Beaver Brook present within the PSA.

3.11.3 Environmental Consequences

3.11.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration with no changes to existing waterway crossings, drainage, stormwater management, or water quality characteristics, and no additional impervious motor vehicle surfaces resulting from the project. Other committed projects in the No-Build Alternative have the potential to cause impacts to surface water resources; the sponsors of these projects may be required to comply with applicable regulations to protect such resources.

3.11.3.2 Preliminary Preferred Alternative

Within the Interchange 3 Outside Toll area, the realignment of existing Ramp TW proposed in the PPA would require the construction of a new precast three-sided box culvert to allow the realigned ramp to traverse Beaver Brook without interrupting the flow of the stream. The

construction of the culvert would result in direct impacts to surface water resources from relocating the roadway embankment, increasing culvert lengths, increasing structure widths, modifying channels, and filling for structures to accommodate the two-lane ramp, full width shoulders, and Interchange 3 improvements. Such improvements would be implemented in a manner that would minimize the potential for increased turbidity and pollution levels within PSA waterways and downstream of the study area. Impacts to waterways upstream of the PSA from construction activities would not be anticipated. Construction activities would cause short-term disturbance to subsurface materials by excavations and the installation of structures. Dewatering may be required during construction which could depress the water table locally for a short period and induce flow toward the excavation. This impact would be temporary and would not extend significantly beyond project boundaries.

Land disturbance required to construct the project has the potential to cause erosion of exposed soils and sedimentation of waterways within the PSA. The potential for these impacts would be minimized through strict implementation of an approved SESC Plan. Compliance with the approved SESC Plan would ensure instances of non-compliance with approved state water quality standards are minimized.

The construction phase also has the potential to result in discharges of oils, greases, and other substances into nearby waters from equipment malfunctions, accidents during mobile refueling, and other unforeseeable incidents. This potential would be managed by construction planning that includes spill prevention and management measures.

Most notably from a water quality standpoint is that the PPA would result in a permanent net increase of approximately 1.15 acres of motor vehicle surface area due to the proposed removal of existing Ramp TW, realignment of new Ramp TW, and the proposed access road. Increased impervious surface area has the potential to increase runoff during storm events, change water temperatures, cause sedimentation and turbidity, and change nutrient concentrations. Such changes to water chemistry could cause adverse impacts to aquatic biota and habitats present within and downstream of PSA waterways. To address these changes and minimize/avoid impacts to stream communities, the project design includes a stormwater management plan, which is described below. As previously mentioned, direct impacts to surface waters are quantified as SOW impacts in Section 3.13 (Wetlands).

3.11.4 Minimization and Mitigation

Short-term construction activities would result in the disturbance of land, potentially resulting in soil erosion and sedimentation of waterways and wetlands. These water resources, as well as any surface conduits to the aquifer recharge area, have the potential to carry contaminants and sediment into the groundwater and nearby surface waters. These impacts are generally not quantifiable but are typically successfully controlled or minimized through the implementation of an approved SESC plan and the installation of accepted SESC countermeasures.

During construction of the project, groundwater quality degradation has the potential to occur as a result of spills or leaks of oil-containing and oil storage equipment. The potential for such impacts to groundwater would be addressed proactively by the NJTA enforcing equipment and material staging requirements noted in the NJPDES General Permit (5G3) for Stormwater

Discharge Associated with Construction Activity. Therefore, short-term impacts due to construction activities are expected to be negligible.

Surface water quality impacts could result due to the permanent increase in impervious surface area. These additional impervious surfaces have the potential to increase runoff during storm events, change water temperatures, cause sedimentation and turbidity, and impact nutrient concentrations in surface waters. Potential impacts to surface waters would be minimized as stormwater associated with new impervious surfaces would be directed to stormwater management facilities to treat the stormwater prior to discharge to local surface waters. Preliminary locations for proposed stormwater basins are shown in the figure title, Proposed Stormwater Management Map (Appendix B), and would be further evaluated during Final Design. The NJTA and their contractors would maintain and monitor the implemented BMPs to minimize potential impacts to surface water quality.

3.12 FLOODPLAINS AND RIPARIAN ZONES

3.12.1 Methodology and Data Sources

An assessment of the floodplain and riparian zone resources within the PSA, as shown in **Figure 1.1-1** and in the figure titled, Streams, Rivers, and Floodplains Map (Appendix B), was prepared based on field reconnaissance and information compiled and developed through existing map and survey reviews.

Floodplains are valuable resources providing natural flood and erosion control, biodiversity, and socioeconomic benefits. The Federal Emergency Management Agency (FEMA) defines the 100-year floodplain as the area of land inundated by a flood event that has a 1 percent chance of being equaled or exceeded in any given year. The 100-year floodplain is also known as the "base flood", and it is generally considered the regulated floodplain and used as a benchmark in engineering design. The 100-year floodplain was identified via FEMA National Flood Hazard Layer GIS data. Existing conditions determined through the desktop survey and verified via field investigations were then examined based on the project's consistency with the Federal and state policies.

A riparian zone exists along every regulated water and varies in width (i.e., 50, 150, or 300 feet) depending on water quality classification and presence of threatened or endangered species and/or present or documented habitat for those species critically dependent on the regulated water for survival. To determine riparian zone widths, a desktop survey utilizing data from the NJDEP Bureau of GIS was conducted to determine the presence of the following resources: streams and waterbodies, surface water quality classification, HUC-14 watersheds, and threatened and endangered species. GIS data from the National Oceanic and Atmospheric Administration (NOAA) Fisheries was also analyzed in this assessment. Consultation with the NJDEP Natural Heritage Program (NHP), and USFWS was conducted to further assess the presence of state and Federally listed species.

The NJDEP Division of Land Resource Protection regulates construction in floodplains and riparian zones under the Flood Hazard Area Control Act (N.J.S.A. 58:16A-50 *et seq.*). The Flood Hazard Area Control Act allows NJDEP to delineate and mark flood hazard areas, control

stream encroachment, and integrate flood control activities. This Act is enforced through the NJDEP Flood Hazard Area Control Act Rules (N.J.A.C. 7:13), which define regulated waters and govern construction activities within associated flood hazard areas and riparian zones to mitigate the adverse impacts of flooding to the environment that can be caused by development. These rules define the flood hazard area as the land, and the space above that land, which lies below the flood hazard area design flood elevation. The flood hazard area design flood elevation means the peak water surface elevation that will occur in a water during the flood hazard area design flood, which is a flood equal to the 100-year flood plus an additional amount of water in fluvial areas to account for possible future increases in flows due to development, climate change, and other factors. This additional amount of water also provides a factor of safety in cases when the 100-year flood is exceeded. These rules also establish "riparian zones" defined above which were enacted as an additional level of protection for near-watercourse vegetation and these vegetative buffers play an important role in water quality, stream channel stability, and flood storage.

3.12.2 Affected Environment

The project traverses Beaver Brook and two UNTs to Beaver Brook via existing culverts in the southern portion of the PSA near the Interchange 3 toll plaza. Beaver Brook flows southwest into Big Timber Creek and eventually discharges into the Delaware River. According to the NJDEP Surface Water Quality Standards (N.J.A.C. 7:9B) and as described in Section 3.11 (Surface Water Resources), all waterways within the PSA and within one mile downstream are classified as FW2-NT.

Within the PSA, 100-year floodplains have been identified via FEMA's National Flood Hazard Layer GIS data and riparian zone widths have been determined along all regulated waters. Flood hazard areas and riparian zones are shown in the figure titled, Streams, Rivers, and Floodplains Map (Appendix B). FEMA mapping identifies 100-year floodplains within the southern portion of the PSA where Beaver Brook and UNTs to Beaver Brook either cross or flow adjacent to the proposed project alignment. The floodplain is estimated in these areas, as no base flood elevations (BFE) have been adopted by FEMA. All riparian zones within the PSA are 50 feet wide based on the FW2-NT surface water quality classifications, there are no Category 1 (C1) waters present within the PSA nor within the same Big Timber Creek (below NB/SB confl) HUC14 sub-watershed, and the absence of critically dependent threatened and endangered species or documented habitat for those species. Additional information on threatened and endangered species can be found in Section 3.14 (Ecology and Wildlife). During the project permitting phase, project improvements would be evaluated to determine compliance with the proposed NJDEP New Jersey Protecting Against Climate Threats (NJPACT) and Resilient Environments and Landscape (REAL) rules anticipated to go into effect in Fall of 2025.

The roadways and ramps within the Interchange 3 Outside Toll PSA currently exhibit poor drainage, and the local communities have expressed concern regarding any alternatives that would propose lowering the existing Route 168 corridor. Coordination with municipal officials has occurred acknowledging the history of flooding on Interchange 3 ramps during major storms, including one such storm event that resulted in 4 feet of water on the roadway. Project improvements would incorporate methods to improve existing conditions to accepted standards

as the project progresses into Final Design. Additional measures to address flooding and improve resiliency within the PSA are discussed in Section 3.19 (Sustainability and Resiliency).

During the project's permitting phase, additional analysis of waterways identified during the wetland delineation, which were not shown on FEMA mapping, would be conducted to determine if these waters are regulated in accordance with the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13).

3.12.3 Environmental Consequences

3.12.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration. Consequently, the No-Build Alternative would not provide opportunities to address existing drainage, runoff, or flooding issues that are present in portions of the PSA. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact floodplains and riparian zones; sponsors of those projects would be responsible for compliance with applicable regulations that protect such resources.

3.12.3.2 Preliminary Preferred Alternative

The riparian zones associated with Beaver Brook and UNTs to Beaver Brook would be impacted by the project. A total of approximately 0.9 acres of riparian zones would be impacted due to the realignment of existing Ramp TW and associated toll plaza improvements. In addition, the project would impact the floodplains of the streams that have been identified via FEMA's National Flood Hazard Layer GIS data. As described in Section 3.11 (Surface Water Resources), waters within the PSA have been determined to be nontidal. As such, project activities causing displacement of floodplain storage or conveyance as a result of permanent structures or fill would affect the floodplain or result in flooding of adjacent areas. As previously noted, additional analysis would be conducted during the project's permitting phase to determine if there are other regulated waters and if they have an associated flood hazard area and/or riparian zone that would be impacted.

Excavating, grading, embankment construction, and soil stockpiling would be required during construction. Temporarily exposed soils, dewatering activities, and vegetation removal could result in increased site erosion and sedimentation impacts within the floodplain. Temporary staging within the floodplain could also be required for project construction.

3.12.4 Minimization and Mitigation

During Final Design, impacts to floodplains and riparian zones would be minimized to the maximum extent practicable. Regulated activities proposed within floodplains and riparian zones would likely require an NJDEP Flood Hazard Area Individual Permit. Flood hazard area verifications would also be required for all waterways within or proximate to the area of impact as part of the environmental documentation and permitting process. As an integral part of culvert improvements and/or replacements, impacts to flood hazard areas, including floodway and flood fringe areas, would be evaluated via hydrologic and hydraulic (H&H) studies during Final Design to ensure water flow and floodplain capacity are not constrained. Results of the

H&H studies would be critical to designing the new precast three-sided box culvert in accordance with the NJDEP Flood Hazard Area Control Act Rules. The project would comply to the maximum extent feasible with all applicable rules that pertain to work within the floodplain; therefore, significant floodplain impacts from proposed activities would not be anticipated. Removal of vegetation would be limited to those areas necessary to construct and maintain the project. Mitigation would be required for all riparian zone impacts and must be completed in accordance with Table 11.2 of the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13).

Additional methods to reduce project impacts would be evaluated as design progresses. Proposed side slopes resulting from post-construction grading would not exceed the recommended maximum of 2:1 as per the NJTA *Design Manual* (updated November 2022). As such, a detailed Side Slope Analysis (SSA) process to consider standard roadway side slopes, steeper side slopes, and/or a retaining wall or barrier curb, would not be required and impacts to sensitive environmental resources from steep slopes are not anticipated. Furthermore, an approved SESC Plan and BMPs would be implemented during construction to minimize soil erosion and sedimentation to environmentally sensitive areas. BMPs that may be implemented are listed in Section 3.13 (Wetlands).

Riparian zone mitigation could include on-site or off-site restoration (2:1 ratio), creation (1:1 ratio), enhancement (3:1 ratio), preservation (8:1 ratio), and/or purchase of credits from an approved mitigation bank. If off-site, mitigation for disturbance within a 50-foot riparian zone is to be provided within the same WMA as the disturbance or be provided through the purchase of credits from a riparian zone mitigation bank with a service area within the same WMA as the impacts. If off-site mitigation within the same WMA is not feasible, mitigation may occur in another WMA provided the mitigation is as close as possible to the WMA where the disturbance would occur. Mitigation requirements could be met by using one or a combination of these types of mitigation methods.

In order to minimize impacts from construction activities, soil stockpiles would be located outside of floodplains. In addition, upon completion of construction, all temporarily disturbed areas would be restored to their pre-existing condition and planted with native vegetation species, in accordance with the approved NJDEP permit.

3.13 WETLANDS

3.13.1 Methodology and Data Sources

On a Federal level, wetlands are protected under EO 11990, Protection of Wetlands, which requires a Federal agency to avoid undertaking or providing assistance for new construction in wetlands unless there is no practical alternative to such construction and the proposed action includes all practicable measures to minimize harm to the wetland. Wetlands in the PSA are regulated under Section 404 of the CWA administered by the USACE.

In 1987, the NJDEP assumed regulatory control over the Section 404 program for freshwater wetlands throughout most of New Jersey pursuant to the Freshwater Wetlands Protection Act (N.J.A.C. 7:7A). NJDEP also regulates activities within coastal wetlands pursuant to the Wetlands Act of 1970 (N.J.S.A 13:9A-1). Projects impacting coastal wetlands must comply with

the Coastal Zone Management Rules (N.J.A.C. 7:7E). In addition, the Freshwater Wetlands Protection Act Rules are used in NJDEP's review of water quality certificates subject to Section 401 of the CWA. The USACE retains Section 404 program oversight and jurisdiction in some parts of the state (i.e., coastal waterways or wetlands, waterfront development areas, other waterways within 1,000 feet of ordinary high water or mean high tide, and along the Delaware River). Therefore, impacts to coastal wetlands and areas within 1,000 feet of tidal waterways are regulated by the USACE. Projects with wetland impacts greater than five acres would also likely involve the USEPA review of the USACE and NJDEP permit applications.

Prior to field investigations, a review of background data of resources within the PSA was conducted. Materials reviewed included: NJDEP mapped wetlands; the USFWS National Wetlands Inventory mapping; 1970 Coastal Wetlands Map; USEPA Priority Wetlands; streams and head of tide GIS data; USDA, NRCS Soil Survey of Camden County; and available aerial photography.

After completing the desktop survey, field investigations were conducted, and wetlands and SOWs were field assessed and delineated within a defined delineated study area. The delineated study area, which is shown on the figure titled, Delineated Wetlands Map (Appendix B), encompasses a slightly smaller area than the standard PSA used for other environmental resource analyses as displayed in **Figure 1.1-1**. For areas within the PSA that extended beyond the delineated study area, NJDEP mapped wetlands data shown on the figure titled, NJDEP Wetlands Map (Appendix B), were used to supplement the field investigation.

Wetlands were delineated in accordance with the interagency cooperative *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989), the *Routine Onsite Determination Method outlined in the USACE Wetlands Delineation Manual* (1987), and the *Regional Supplement to the USACE Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (2010), which use a three-parameter approach for identifying and delineating wetlands.

Field investigations included examining soils, hydrology, and vegetation to classify the habitat as wetland or upland. Soils were examined using a hand auger to evaluate hydric soil indicators. The Munsell Soil-Color Charts were used to evaluate hue, value, and chroma as a means of determining the soil matrix and oxidation-reduction reaction colors. Evidence of wetland hydrology indicators, such as surface inundation, soil saturation, water-stained leaves, oxidized rhizospheres on living roots, and topographic indications were noted. To determine if hydrophytic vegetation was present, investigators identified plant species within the delineated study area and reviewed the *USACE National Wetland Plant List for the Atlantic and Gulf Coastal Plain Region* to determine the indicator status of each plant. If the habitat met the regulatory requirement of a wetland, the area was flagged at the wetland/upland boundary and surveyed. Wetland data forms were completed, and photographs of the wetland and upland areas were taken. Wetland habitats were categorized based on field observations using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*., 1979).

Upon completion of field investigations, a request for a Letter of Interpretation (LOI) was submitted to NJDEP on January 30, 2023 for verification of the wetland boundary lines associated with the project. In the Fall of 2023, NJDEP and the USACE conducted field surveys

to verify the wetland boundary lines. On December 6, 2024, NJDEP issued the LOI approval letter (File No. 0000-23-0001.1 FWW230001) verifying the boundary of freshwater wetlands, transition areas, and SOWs (Appendix C).

3.13.2 Affected Environment

The PSA is approximately 58.6 acres, of which delineated wetlands comprise approximately 7.1 acres and delineated SOWs comprise approximately 0.6 acres. For areas outside of the delineated study area, NJDEP mapped wetlands were used to determine if there were potentially other wetlands within the PSA. No other wetlands were identified. Wetlands in the PSA include those associated with watercourses and SWM facilities. Portions of the PSA contain a groundwater table that is at or near the surface for some period during the year; thereby, providing sufficient wetland-sustaining hydrology in some locations.

Wetlands delineated within the delineated study area consist of palustrine forested (PFO) and palustrine emergent (PEM) wetlands. No coastal wetlands were identified within the delineated study area or within the larger PSA. In addition, located along the Interchange 3 Outside Toll ramps to/from the Turnpike mainline are man-made emergent wetlands, swales, and ditches which generally collect and drain stormwater from the roadway surface.

The wetland classification and acreage of each delineated wetland and waterway within the PSA is listed in **Table 3.13-1**. The wetland acreage was determined for only the portion of each wetland located within the PSA rather than the entire wetland system. The figure titled, Delineated Wetlands Map (Appendix B), shows the delineated wetlands and waterways.

Table 3.13-1: Delineated Wetlands and Waterways within the Project Study Area

Wetland ID	Wetland Classification	Acreage[1]	Wetland Transition Area Width (feet)
SB-WSP-WW-AM SB-WSP-WW-AN SB-WSP-WW-AO SB-WSP-WW-AP	Beaver Brook (SOW); SOW	0.2	--
SB-WSP-W-AQ	PFO1	0.4	50
SB-ACM-BN	PEM5	0.3	50
SB-WSP-WW-AS	Beaver Brook Unnamed Tributaries (SOW)	0.1	--
SB-WSP-W-AR	PEM1	0.5	50
SB-WSP-WW-AK	Beaver Brook (SOW)	0.3	--
SB-WSP-W-AL SB-ACM-BM	Beaver Brook Unnamed Tributary (SOW); PFO1/PEM1	5.9	50

Source: Program Team, 2025.
[1] Includes only the portion of the wetland within the PSA
Notes:
ACM: Name of consultant performing delineation
WSP: Name of consultant performing delineation
Key to Wetland Types:
PEM1: Palustrine Emergent Persistent
PEM5: Palustrine Emergent *Phragmites australis*
PFO1: Palustrine Forested Broad-Leaved Deciduous
SOW: State Open Water

A composite species list of vegetation identified within the delineated study area along with the scientific name and regional indicator status for each plant species, as listed in the *USACE National Wetland Plant List for the Atlantic and Gulf Coastal Plain Region*, is included in Appendix D.

A brief description of each wetland habitat type in the delineated study area and major associated vegetation is listed below.

Emergent Wetland – Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

Within the delineated study area, emergent wetlands were dominated by common reed (*Phragmites australis*), Japanese honeysuckle (*Lonicera japonica*), soft rush (*Juncus effusus*), and eastern poison ivy (*Toxicodendron radicans*).

Forested Wetland – Forested wetlands were dominated by trees that are at least 20 feet in height. These wetlands usually have an overstory of trees, an understory of young trees and/or shrubs, and an herbaceous layer.

Within the delineated study area, forested wetlands were dominated by deciduous species. Common species include, but are not limited to, red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), black tupelo (*Nyssa sylvatica*), downy service-berry (*Amelanchier*

arborea), skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmundastrum cinnamomeum*), and jewelweed (*Impatiens capensis*).

More detailed information regarding the wetlands is included in *the 2023 Application for a United States Army Corps of Engineers Jurisdictional Determination and a New Jersey Department of Environmental Protection Letter of Interpretation – Line Verification*.

3.13.3 Environmental Consequences

3.13.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration. Consequently, the project would have no direct or indirect impacts to wetlands or waterways. Other committed projects, not associated with the Interchange 3 Outside Toll project, as identified in Chapter 2 have the potential to impact wetlands and waterways; sponsors of those projects would be responsible for compliance with applicable regulations that protect such resources.

3.13.3.2 Preliminary Preferred Alternative

The Interchange 3 Outside Toll project would impact a total of approximately 0.2 acres of wetlands and approximately 0.1 acres of SOWs due to the project improvements. Wetland transition area widths based on the resource value assigned to each wetland were identified in the LOI approval letter, and impacts to these resources would be identified and assessed during the permitting phase of the project.

The project would result in direct impacts to wetlands and waterways by the filling in or excavation of these resources. The additional impervious surface area associated with the Interchange 3 Outside Toll improvements has the potential to increase water temperature, sedimentation, turbidity, nutrient concentrations, and runoff during storm events. In addition, the project could result in indirect impacts, specifically shading which would result in the potential loss of existing vegetation and could negatively impact wetland functions such as sediment trapping, nutrient retention, streambank stabilization, and aquatic food-chain support.

In addition to permanent impacts, the project would also result in temporary impacts due to soil stockpiling, dewatering activities, and other construction activities. These activities could result in increased site erosion and sedimentation to nearby wetlands and waterways. During project construction, there is also the potential for the discharge of oils, greases, and other substances into nearby wetlands and waters from equipment leaks/malfunctions, refueling of equipment, and other unforeseeable incidents.

3.13.4 Minimization and Mitigation

An NJDEP Individual Freshwater Wetlands and Open Water Fill Permit would be required for the project's impacts to wetlands, wetland transition areas, and waterways. The NJTA would comply with all permit conditions.

During the Final Design phase, means to minimize impacts would be evaluated. Proposed side slopes to be incorporated during post-construction grading would not exceed the 2:1 maximum grading recommendation, which would help to minimize future impacts to wetlands, waterways, and other sensitive environmental resources from stormwater runoff. Furthermore, an SESC Plan and BMPs would be implemented during project construction to minimize soil erosion and sedimentation to environmentally sensitive areas.

BMPs that may be implemented include, but are not limited to, the following:

- The area of proposed soil disturbance would be no larger than is necessary;
- Mulch or other erosion prevention/minimization methods would be used on slopes and other areas, as deemed necessary, to protect from sedimentation and erosion;
- All SESC practices would be constructed in accordance with the most current version of *The Standards for Soil Erosion and Sediment Control in New Jersey*. These measures (i.e., inlet protection, silt fence, etc.) would be installed prior to any major soil disturbance, in their proper sequence, and maintained until permanent protection is established;
- Paved roadways would be kept clean at all times. No fire or garden hoses would be used to clean roads unless runoff is directed to a proper sediment basin;
- All storm drainage inlets would be protected with gravel filters, fabric filter, or hay bales until vegetation has been established;
- All temporarily disturbed areas would be restored to their pre-existing condition and elevation and replanted with indigenous vegetative species of equal or greater value than currently exists;
- All erosion control devices (i.e., silt fences) would be inspected and maintained periodically throughout construction; and/or,
- Any excavated areas that require backfill would be filled with clean soil meeting the NJTA's standards, as well as NJDEP requirements as set forth in the *Technical Requirements for Site Remediation*. No contaminated soils would be used as backfill.

Wetland mitigation would be required by NJDEP for permanent impacts to wetlands and SOWs. Prior to initiating project construction activities, an approved Wetland Mitigation Plan would be implemented to offset impacts to these resources. Mitigation could include: 1) on-site or off-site restoration (2:1 ratio), creation (2:1 ratio), and/or enhancement (typical ratios range from 3:1 to 10:1); 2) purchasing of credits at a wetland mitigation bank in the impacted wetland's WMA; 3) a monetary contribution to NJDEP's in-lieu fee (ILF) program; 4) upland preservation (typically 27:1 ratio); and/or 5) land donation approved by the Wetland Mitigation Council (typically 27:1 ratio).

Mitigation requirements would be met by using one or a combination of these types of mitigation methods. The preferred mitigation hierarchy for a larger disturbance is on-site mitigation followed by off-site mitigation or the purchase of credits from a mitigation bank, monetary contribution to NJDEP's ILF program or upland preservation, and as a last alternative, mitigation in the form of a land donation. In addition, permanent impacts to SOWs would most likely be at a 1:1 creation ratio.

Mitigation banks within the same WMA as the project (WMA 18 Lower Delaware) where credits could potentially be purchased include Willow Grove Lake, Abbot Creek, and Oldmans Creek.

Project construction could also result in temporary impacts to wetlands, wetland transition areas, and SOWs. If the temporary disturbance is within a forested wetland, NJDEP requires either restoration of the area temporarily disturbed to a forested wetland or restoration of the area temporarily disturbed to a non-forested wetland, and in addition, one acre of mitigation for each acre of disturbance. For temporary disturbances to non-forested wetlands, wetland transition areas, and SOWs, the area would be restored to its pre-existing condition upon completion of construction and planted with native species.

Additional minimization and mitigation strategies associated with the project's impacts are discussed in Section 3.11 (Surface Water Resources).

3.14 ECOLOGY AND WILDLIFE

3.14.1 Methodology and Data Sources

3.14.1.1 Wildlife

Within the Interchange 3 Outside Toll PSA, as displayed in **Figure 1.1-1**, wildlife observed or known to be potentially present based on habitat types were identified. This identification utilized various wildlife field guides, including *Peterson Field Guides – Eastern Birds* and *Peterson Field Guides – Mammals*. Habitat types utilized by various wildlife species were determined by field reconnaissance and review of aerial photography.

Additionally, the *NJTA Mainline – MP 3.5 to 36.5 & Interchanges 2, 3, and 4 Executive Order No. 215 EIS* dated June 2024 was used as a reference to determine wildlife species that may also potentially utilize the PSA. The NJTA Mainline EIS includes Interchange 3 and adjacent lands, and as such is comprised of similar wildlife habitats oriented along the same public highway.

3.14.1.2 Fisheries

Sources reviewed to determine fisheries resources located within the PSA include the NJDEP Surface Water Quality Classifications to determine those streams which are designated as trout stocked, trout maintenance, or trout production; the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) Section 7 Mapper to determine those streams which provide habitat for Endangered Species Act (ESA)-listed fishery resources, such as Atlantic or shortnose sturgeon species, and critical habitat and; the NOAA Fisheries Essential Fish Habitat (EFH) Mapper to determine those streams which provide EFH for different life stages of aquatic species, Habitat Areas of Particular Concern (HAPC), and EFH Areas Protected from Fishing (EFHA).

3.14.1.3 Threatened and Endangered Species

Special status species habitats were assessed within the PSA. This assessment consisted of background research including information requests from the New Jersey NHP and the USFWS IPaC system. Database information from the NJDEP Landscape Project (Version 3.4) was also

considered, including an assessment of vernal pools and vernal habitat. In addition, information on Federally protected aquatic species was obtained from NOAA Fisheries.

The NHP, USFWS, and NOAA Fisheries were requested to provide information regarding the presence or absence of endangered, threatened, or special concern species located within, or adjacent to, the PSA. The NJDEP Landscape Project provides habitat mapping for state threatened, state endangered, and Federally listed (endangered or threatened) species. This information was used to consider the potential impacts of the project as well as assess mitigation approaches to avoid or minimize impacts. Additionally, the information was used to determine wetland resource values and associated wetland transition area widths. Impacts to wetland transition areas would be determined during the permitting phase of the project.

3.14.2 Affected Environment

3.14.2.1 Wildlife

Wildlife observed or known to occur within the PSA consists of those species commonly found in residential, commercial, and transportation areas within New Jersey. These species are adapted to human activity and often migrate on a daily or seasonal basis between foraging and nesting habitats. A list of wildlife observed or known to occur within the PSA is presented in **Table 3.14-1**.

Table 3.14-1: Wildlife Observed or Known to Occur Within the Project Study Area

Scientific Name	Common Name
Mammals	
Canis latrans	Coyote
Castor canadensis	Beaver
Didelphis marsupialis	Opossum
Marmota monax	Groundhog
Mephitis mephitis	Striped Skunk
Odocoileus virginianus	White-tailed Deer
Peromyscus leucopus	White-footed Mouse
Procyon lotor	Raccoon
Sciurus carolinensis	Grey Squirrel
Sylvilagus floridanus	Eastern Cottontail
Tamias striatus	Eastern Chipmunk
Vulpes vulpes fulva	American Red Fox
Reptiles/Amphibians	
Elaphe obsoleta	Black Rat Snake
Notophthalmus viridescens	Red-Spotted Newt
Rana catesbeiana	Bullfrog
Rana clamitans	Green Frog
Terrapene carolina	Eastern Box Turtle
Thamnophis sirtalis	Common Garter Snake
Birds	
Agelaius phoeniceus	Red-winged Blackbird

Scientific Name	Common Name
Aix sponsa	Wood Duck
Anas platyrhynchos	Mallard
Ardea alba	Great Egret
Ardea herodias	Great Blue Heron
Bonasa umbellus	Ruffed Grouse
Branta canadensis	Canada Goose
Buteo jamaicensis	Red-tailed Hawk
Cardinalis cardinalis	Northern Cardinal
Carpodacus mexicanus	House Finch
Cathartes aura	Turkey Vulture
Charadrius vociferus	Killdeer
Columba livia	Rock Dove
Coragyps atratus	Black Vulture
Corvus brachyrhynchos	American Crow
Cyanocitta cristata	Blue Jay
Dendroica petechia	Yellow Warbler
Dumetella carolinensis	Gray Catbird
Falco sparverius	American Kestrel
Geothlypis trichas	Common Yellowthroat
Haliaeetus leucocephalus	Bald Eagle
Icterus galbula	Northern Oriole
Larus argentatus	Herring Gull
Larus delawarensis	Ring-billed Gull
Meleagris gallopavo	Wild Turkey
Melospiza melodia	Song Sparrow
Mimus polyglottos	Northern Mockingbird
Nycticorax nycticorax	Black-crowned Night-heron
Pandion haliaetus	Osprey
Parus atricapillus	Black-capped Chickadee
Passer domesticus	House Sparrow
Picoides pubescens	Downy Woodpecker
Quiscalus quiscula	Common Grackle
Spinus tristis	American Goldfinch
Sturnus vulgaris	European Starling
Tachycineta bicolor	Tree Swallow
Troglodytes aedon	House Wren
Turdus migratorius	American Robin
Tyrannus tyrannus	Eastern Kingbird
Zenaida macroura	Mourning Dove

Source: *Peterson Field Guides – Mammals of North America*, 2006; *Peterson Field Guides to Eastern Birds*, 1980; *NJTA Mainline – MP 3.5 to 36.5 & Interchanges 2, 3, and 4 – EO 215 Environmental Impact Statement*, 2024; and Field Investigations, AECOM 2021.

Species commonly identified during field investigations included American crow, white-tailed deer, grey squirrel, turkey vulture, red tailed hawk, Canada goose, eastern chipmunk, and American robin. Reptiles, amphibians, and fish were not often identified likely due to the high daytime temperatures during field investigations.

The variety and abundance of wildlife within a specific location is dependent on abiotic and biotic conditions, which are either beneficial or detrimental to a species within that environment. Abiotic conditions include temperature, air quality, water quality, geology, moisture regime, land use, and size and configuration of habitat. Biotic conditions include prey/food availability, presence of predators, and species' life stages requirements.

3.14.2.2 Fisheries

The only waterways within the PSA are Beaver Brook, two associated UNTs to Beaver Brook, and an unnamed pond (artificial lake) connected to one of the Beaver Brook UNTs.

Trout stocked waterbodies were not identified within the PSA.

Essential Fish Habitat: The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act set forth a requirement that Federal fishery management plans (developed by Regional Fishery Management Councils) be amended to designate EFH for all Federally managed species. According to NOAA Fisheries, EFH includes "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The EFH Mapper (https://www.habitat.noaa.gov/apps/efhmapper/) and associated GIS data were used to identify species and associated life stages for which EFH has been designated in the PSA and the surrounding area. This data is displayed in the figure titled, Essential Fish Habitat Map (Appendix B), and summarized in **Table 3.14-2**.

The EFH Mapper data was utilized for informational and background purposes. Although an EFH Assessment would not be required for the project, the NJTA would implement practices to avoid/minimize all impacts to aquatic biota and habitat to the greatest extent practicable.

Table 3.14-2: Essential Fish Habitat Mapped in the Project Study Area

Associated Regional Fishery Management Council	Species Common Name	Species Scientific Name	Life Stage
Mid Atlantic Fishery Management Council	Atlantic Butterfish	*Peprilus triacanthus*	Larvae, Adult
	Black Sea Bass	*Centropristis striata*	Juvenile, Adult
	Bluefish	*Pomatomus saltatrix*	Juvenile, Adult
	Longfin Inshore Squid	*Doryteuthis pealeii*	Eggs
	Scup	*Stenotomus chrysops*	Juvenile, Adult
	Summer Flounder	*Paralichthys dentatus*	Juvenile, Adult
New England Fishery Management Council	Atlantic Herring	*Clupea harengus*	Juvenile, Adult
	Clearnose Skate	*Raja eglanteria*	Juvenile, Adult
	Little Skate	*Leucoraja erinacea*	Juvenile, Adult
	Red Hake	*Urophycis chuss*	Adult
	Windowpane Flounder	*Scophthalumus aquosus*	Juvenile, Adult
	Winter Skate	*Raja ocellata*	Juvenile, Adult

Source: NOAA Fisheries EFH Mapper Report.

3.14.2.3 Threatened and Endangered Species

The USFWS IPaC correspondence dated September 5, 2024 identified the following species as being potentially located within or adjacent to the PSA:

- One Federally endangered species (northern long-eared bat*, Myotis septentrionalis*);
- One Federally proposed endangered species (tricolored bat, *Perimyotis subflavus*); and,
- One Federal candidate species (monarch butterfly, *Danaus Plexippus*).

The NJDEP Natural Heritage Program, Office of Natural Lands Management correspondence, dated May 30, 2024 identified two species:

- Great Blue Heron (*Ardea herodias*) – rank 2, state special concern, foraging (within the study area, within the immediate vicinity of the study area, and within one mile of the study area).
- Bald Eagle (*Haliaeetus leucocephalus*) – rank 4, state endangered, foraging (within the immediate vicinity of the study area and within one mile of the study area). However, subsequent to issuing the NHP correspondence, the NJDEP removed bald eagle from the state endangered species list in January 2025. The bald eagle is currently identified as a rank 2, state special concern, species in New Jersey.

Federally Endangered Sturgeon Species: Based on the NOAA Section 7 Mapper, no sturgeon or other species are mapped in Beaver Brook or UNTs within the PSA.

State Threatened Freshwater Mussel Species: According to the NJ Landscape Project data, Beaver Brook does not support threatened mussel species within the PSA.

The figure titled, Special Status Species Map (Appendix B), provides a graphical representation of the location of habitat for special status species. Correspondence from the NJDEP and USFWS regarding special species status is provided in Appendix D.

Vernal Pools/Habitat: Based on NJDEP GIS data, and preliminarily confirmed during wetland field investigations, there are no vernal pools nor potential vernal habitat located within the PSA. The nearest vernal habitat as per the Landscape Project (Version 3.4) dataset is located approximately 0.5 miles northwest of the PSA.

3.14.3 Environmental Consequences

3.14.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadway corridors would remain in their current configuration. Consequently, the project would have no new direct or indirect impacts to aquatic and terrestrial ecology. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact ecology and wildlife; the sponsors of those projects would be required to comply with applicable regulations regarding such resources.

3.14.3.2 Preliminary Preferred Alternative

Wildlife: An approximately 150-foot-wide swath of currently wooded land would be removed to facilitate project construction. However, the effect on wildlife is expected to be minimal given that the area is already highly developed, and thus there would be no significant impact to ecological status of wildlife habitat. Given the relatively small area of construction, no significant food chain impacts are expected. Given the identified species are commonplace and adaptable within commercial and transportation areas of New Jersey, construction impacts (noise, dust, and lighting) would be non-substantial. Project impacts to air quality and noise are discussed in more detail in Section 3.8 (Air Quality) and Section 3.9 (Noise), respectively. Permanent impacts to existing terrestrial abiotic and biotic conditions within the PSA would not be anticipated from project activities.

Aquatic Ecology: Beaver Brook and UNTs to Beaver Brook flow along and through the PSA. The NJDEP-mapped head of tide is located downstream from the PSA; therefore, the PSA waterways were determined to be non-tidal in nature. Fisheries resources would be fully considered when designing improvements along or adjacent to Beaver Brook and its tributaries, which are preliminarily identified as EFH. Construction related impacts to aquatic biota and habitats would be limited to noise and vibration and are expected to be temporary and inconsequential.

Threatened and Endangered Species: The NJDEP Landscape Project (Version 3.4) reports no occurrences of state threatened or endangered species in or near the PSA. Construction related impacts to Federally threatened and endangered species and habitats would be limited to noise and vibration and are expected to be temporary and inconsequential.

3.14.4 Minimization and Mitigation

State and Federal environmental regulations would require that any adverse impacts of the project to special status species, or their habitat, be avoided or minimized to the maximum extent practicable. Should avoidance or minimization not be possible, mitigation would be required in the form of assessment, creation, restoration, and/or preservation of habitat to offset the impacts to threatened/endangered species and their habitats.

In addition, environmental permits to be obtained during Final Design and the permitting phase of the project would include construction conditions, such as seasonal timing restrictions to tree cutting and/or in-water work, exclusion fencing, and/or species construction monitoring, to minimize adverse impacts to protected species during construction activities. Further coordination and consultation with NJDEP, USACE, and USFWS in accordance with state regulations and Section 7 of the ESA would continue throughout the project design phases, as applicable. Coordination would identify the mitigation required, as well as conditions to be adhered to during construction.

Other mitigation measures to offset adverse impact to wildlife habitat could include:

- Implementation of SESC measures;
- Mitigation of wetland and riparian zone disturbances through utilization of an approved Wetland Mitigation Bank within the service area of the impact and/or the creation, restoration, or preservation of wetland and/or riparian zone habitats;
- Noise attenuation devices on construction equipment;
- Construction equipment to follow all Federal, state, and local laws and ordinances pertaining to noise and air quality and time-of-day thresholds; and,
- All temporarily disturbed areas would be restored to pre-construction conditions following project completion.

3.15 TERRESTRIAL VEGETATION

3.15.1 Methodology and Data Sources

This section provides an assessment of terrestrial vegetation resources present within the Interchange 3 Outside Toll project area and the potential for the project to impact these resources. For the purposes of this assessment, the PSA shown on **Figure 1.1-1** was utilized. A desktop survey was conducted utilizing the NJDEP Bureau of GIS Land Use/Land Cover of New Jersey 2020 data layer, aerial photography, and surveyed tree lines to identify terrestrial vegetation. In addition, a general habitat assessment of the PSA was conducted during wetland field investigations. Plant species within the area were identified and the *USACE National Wetland Plant List for the Atlantic and Gulf Coastal Plain Region* was reviewed to determine the indicator status of each plant.

The NJDEP Bureau of GIS Land Use/Land Cover of New Jersey 2020 layer was used to calculate the acreage of upland areas designated as agriculture and forested lands within the PSA and to calculate anticipated project impacts. Forested and agricultural data categories within this dataset exclude wetlands; therefore, forested and agricultural acreage calculations

only reflect upland values. Grass area acreage within the PSA, including wetlands and upland terrestrial land, was calculated using the surveyed tree line and aerial photography.

The No Net Loss Reforestation Act (N.J.S.A. 13:1L-14.1 *et seq*.) requires state entities to provide a plan for compensatory reforestation for all areas at least ½ acre in size that are owned or maintained by that state entity and are scheduled for deforestation. A reforestation plan resulting in no net loss of existing forested area is required for areas subject to deforestation.

Pursuant to the No Net Loss Reforestation Act, an examination of potential impacts to regulated upland and wetland forested parcels within the preliminary LOD, as shown in the Proposed Limit of Disturbance (LOD) Map (Appendix B), was conducted. To determine forested grids, the New Jersey Forestry Service (NJFS) No Net Loss ½ acre grid system was utilized. Quadrangle grids that contained at least 33 percent forested area were identified as regulated parcels under the No Net Loss Reforestation Act. A survey of the tree line was conducted and reviewed against aerial photography to determine forested areas. The surveyed tree line was overlain with ½ acre parcels to calculate the overall estimated acreage of regulated forested land within the project's preliminary LOD subject to the No Net Loss Reforestation Act.

3.15.2 Affected Environment

Approximately 19 percent (2.3 acres) of the Interchange 3 Outside Toll LOD is forested land, and there is no land with the designation of agricultural land or barren land. The Existing Land Use Map (Appendix B) shows all existing land uses found within the PSA.

During wetland field investigations, it was observed that upland communities within the delineated study area, as shown on the figure titled, Delineated Wetlands Map (Appendix B), were dominated by forested lands and grass areas. Forested land was predominately comprised of mixed deciduous forests dominated by oaks (*Quercus* spp.), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and black cherry (*Prunus serotina*). A Composite Plant Species List providing more extensive documentation of vegetation observed during wetland field investigations is included in Appendix D.

3.15.3 Environmental Consequences

3.15.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area ramps and roadways would remain in their current configuration. As such, the project would have no direct or indirect impacts to terrestrial vegetation. Other committed projects in the No-Build Alternative, not associated with the Interchange 3 Outside Toll project, have the potential to impact terrestrial vegetation; the sponsors of those projects would be required to comply with applicable regulations regarding those resources.

3.15.3.2 Preliminary Preferred Alternative

Impacts to upland and wetland vegetation would occur as a result of the relocation of existing Ramp TW, relocation of utility lines, and construction of stormwater management basins. According to the NJDEP Land Use/Land Cover 2020 data, terrestrial impacts resulting from improvements to the Interchange 3 Outside Toll area would include approximately 1.7 acres of

grassed land and 2.2 acres of forested land. Direct and indirect impacts to wetlands are discussed in more detail in Section 3.13 (Wetlands).

The No Net Loss grid analysis determined that approximately 2 acres of forest within the project LOD would be subject to No Net Loss reforestation.

3.15.4 Minimization and Mitigation

BMPs would be utilized by the NJTA to minimize impacts to upland terrestrial and wetland forested areas. The area of project disturbance would be no larger than is necessary to construct and maintain the completed project. Areas that would be temporarily disturbed would be reseeded in accordance with an approved SESC Plan. During Final Design, methods to further minimize impacts would be considered.

The NJTA would comply with the No Net Loss Reforestation Act in implementing project improvements. Mitigation would be required for regulated forested impacts in accordance with the No Net Loss Reforestation Act and could include on-site reforestation, alternate-site reforestation, and/or monetary compensation. Mitigation measures would be developed during Final Design after completing efforts to minimize impacts.

Mitigation measures would focus on replacing removed trees within available portions of the NJTA ROW, taking into consideration the required tree offset and clear zones needed for safety requirements. If land within the ROW is not sufficient to meet the No Net Loss Reforestation Act requirements, the NJTA would follow the mitigation hierarchy as outlined in the No Net Loss Compensatory Reforestation Program, Program Guidelines. A reforestation plan would be submitted to the NJDEP Division of Parks and Forestry for review and approval by the NJ Community Forestry Council and a public hearing would be held to allow for comment regarding impacts to forested habitat.

3.16 GROUNDWATER RESOURCES

3.16.1 Methodology and Data Sources

An analysis of the Interchange 3 Outside Toll PSA, as displayed in **Figure 1.1-1** and shown on the Groundwater Recharge Areas Map (Appendix B), was conducted to identify groundwater resources and determine if the project would result in groundwater pollution or impact groundwater recharge. GIS data from the NJDEP Bureau of GIS was analysed to determine the aquifer systems and Well Head Protection Areas (WHPAs) located within the PSA. WHPAs are geographic areas surrounding a public water supply well or wellfield. Groundwater recharge rates and location of groundwater recharge areas were identified and assessed using NJDEP GIS data developed from the NJ Geologic and Water Survey's Groundwater Recharge. This GIS data yielded spatial and attribute data, which allowed for both a site-specific and a watershed-wide analysis.

The New Jersey Groundwater Quality Standards (N.J.A.C. 7:9C) establish criteria for the State's groundwater quality necessary to maintain, restore, and enhance groundwater supply. The New Jersey Stormwater Management Rules (N.J.A.C. 7:8) address stormwater runoff quality, stormwater runoff quantity, and groundwater recharge standards. These standards were used

to determine mitigation requirements for the project. NJDEP's *New Jersey Stormwater Best Management Practices Manual* was used to clarify and explain the design and performance requirements of the Stormwater Management Rules. BMPs were identified to outline the mitigation procedure that would be instituted by the NJTA to address potential long-term operational and construction effects of the project to groundwater. In addition, the standard requirements listed in the NJDEP NJPDES General Permit (5G3) for Stormwater Discharge Associated with Construction Activity, which would be obtained during the permitting phase of the project, were reviewed and would be incorporated into the project to address potential short-term impacts to groundwater associated with construction activities.

3.16.2 Affected Environment

The New Jersey Coastal Plain aquifer system is the primary source of drinking water for southern New Jersey and has been designated as a sole source aquifer pursuant to Section 1424(e) of the Safe Drinking Water Act. Five (5) aquifers make up the New Jersey Coastal Plain aquifer system. Two of these aquifers, the Englishtown aquifer and the Marshalltown-Wenonah aquifer, are found within the PSA of the Interchange 3 Outside Toll project.

The Englishtown aquifer extends from Raritan Bay on the northeast to the Delaware Bay on the southwest and ranges in depth from approximately 150 feet to approximately 50 feet. It consists of upper and lower sand with localized clay beds. The water within this aquifer is typically fresh, moderately hard, and alkaline.

The Marshalltown-Wenonah aquifer extends from Raritan Bay on the northeast to the Delaware Bay on the southwest and ranges in depth from approximately 20 feet to approximately 100 feet. It consists of silt, clay, and thin layers of sand. The water quality within this aquifer is generally good but locally requires chemical treatment.

Recharge to the New Jersey Coastal Plain aquifer system largely takes place through infiltration of precipitation over outcrop areas. Water that infiltrates the ground and reaches the water table is defined as groundwater recharge. According to NJDEP GIS data, groundwater within the PSA recharges at a rate ranging between 0 to 10 inches per year with much of the area exhibiting a groundwater recharge rate of 8 to 10 inches per year. Although not consistently reflected in the NJDEP GIS data, areas covered by impervious surfaces, such as the existing Route 168 corridor and Interchange 3 ramps, have a recharge rate of zero. Additionally, recharge rates are not calculated in areas mapped as wetlands, SOWs, or in areas with hydric soils. The figure titled, Groundwater Recharge Areas Map (Appendix B), shows the groundwater recharge areas in the PSA.

According to NJDEP GIS data of water purveyor service areas, the PSA is serviced by the Bellmawr Water Department and the NJ American Water Company - Western Division. WHPAs were evaluated in this analysis because of their importance in preventing groundwater contamination. The nearest non-community WHPA is located approximately 2,000 feet north of the PSA; however, no WHPAs for community or non-community use are located within the PSA.

3.16.3 Environmental Consequences

3.16.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration. Consequently, the project would have no direct or indirect impacts to groundwater resources. Other committed projects in the No-Build Alternative, not associated with the Interchange 3 Outside Toll project, have the potential to impact groundwater resources; the sponsors of those projects would be required to comply with applicable regulations for groundwater resources.

3.16.3.2 Preliminary Preferred Alternative

Significant impacts to groundwater, as a result of long-term operational effects or short-term construction effects of the Interchange 3 Outside Toll project, are not anticipated. This is because the NJTA would comply with the Stormwater Management Rules (N.J.A.C. 7:8) and apply strategic use of BMPs. The following discussion provides more detail to support this finding.

Due to the proposed removal of existing Ramp TW, realignment of new Ramp TW, and the proposed access road, the project would result in a net increase of 1.15 acres of motor vehicle surface, potentially causing a long-term decrease in groundwater recharge rates and quantity, an increase in stormwater runoff, and introduction of additional automotive pollutants (i.e., oil, fuel) and deicing chemicals. Areas with higher groundwater recharge rates are assumed to have the highest potential for contamination and a reduction in recharge rates resulting from increased impervious surfaces. Contaminants within the groundwater recharge areas have the potential to enter the aquifer and impact drinking water quality. To minimize potential impacts to water quality and groundwater recharge, the NJTA would maintain and monitor the implemented BMPs. These BMPs would include but would not be limited to the construction and maintenance of stormwater management basins, minimizing the area of disturbance, installation and periodic inspections of erosion control devices, having spill kits readily available, and maintaining a designated concrete washout area on site during construction.

During project construction, groundwater quality degradation has the potential to occur as a result of spills or leaks of oil containing and oil storage equipment. The potential for such impacts to groundwater would be addressed proactively by the NJTA by enforcing any equipment and material staging requirements noted in the NJDEP NJPDES General Permit (5G3) Stormwater Discharge Associated with Construction Activity that would be obtained for the project during the permitting phase.

Short-term construction activities would result in the disturbance of land potentially resulting in soil erosion and sedimentation of waterways and wetlands. These water resources, as well as any surface conduits to the aquifer recharge area, have the potential to carry contaminates and sediment into the groundwater. These impacts are generally not quantifiable but are typically successfully controlled or minimized through the implementation of an approved SESC Plan and the installation of accepted SESC countermeasures. Therefore, short-term impacts due to construction activities are expected to be negligible.

3.16.4 Minimization and Mitigation

Adverse impacts to groundwater would be minimized by the NJTA by applying BMPs, which would treat stormwater before it is discharged to receiving waterbodies or before any groundwater recharge can occur. In addition, appropriate construction and operational procedures and design features that promote attenuation of pollutants in the unsaturated zone and prevent intrusion into the groundwater table would be implemented.

In order to mitigate the increase in impervious surface area and associated runoff, the project would comply with the design and performance standards for Stormwater Management measures as outlined in the Stormwater Management Rules (N.J.A.C. 7:8). SWM measures would be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment. These measures would control or reduce runoff of stormwater and associated pollutants and induce or control the infiltration or groundwater recharge of stormwater. Project compliance with the green infrastructure requirements of the Stormwater Management Rules would be necessary in accordance with N.J.A.C. 7:8-5.3 and the *2020 Memorandum of Understanding* between the NJDEP and the Transportation Agencies.

Impacts to groundwater from the long-term operational phase would be minimized by directing water from the new impervious surface areas to stormwater management facilities. The project would also provide stormwater quality measures to reduce post-construction total suspended solid (TSS) in stormwater runoff generated from the Water Quality Design Storm, per N.J.A.C. 7:8-5.5 (d), from the net increase of Motor Vehicle Surface, and existing Regulated Motor Vehicle Surface that is currently receiving water quality treatment.

To comply with the conditions set forth in the NJPDES Highway Agency Stormwater General Permit (NJPDES General Permit No. NJG0153354) issued by NJDEP, the NJTA has an existing *Stormwater Pollution Prevention Plan* (SPPP) for the Turnpike. This plan regulates activities that contribute to the discharge of pollutants originating from the roadways owned and operated by the NJTA to waters via small Municipal Separate Storm Sewer Systems (MS4). The SPPP requires compliance with the SWM Rules and requires information such as: locations of all storm drain inlets and direct discharges to surface waters; inspection, cleaning, and maintenance of storm drain inlets and SWM facilities; inspection of outfall pipes and preventative and corrective maintenance performed; sweeping of roadways operated by the NJTA; and accounting for TMDL for any proposed project. By implementing these measures, the long-term operational effects to groundwater recharge, water quantity, and water quality would be minimized.

The NJTA and project contractors would complete the development of a Spill Prevention, Control, and Countermeasure (SPCC) Plan for project construction activities to minimize the potential of contaminants entering the groundwater. This plan would address additional concerns for water quality impacts during project construction attributed to the materials and equipment being utilized for construction. Plan specifics would address fuel/lubricant handling and storage, containment measures, and unforeseen releases of fuel or hydraulic fluids from equipment breakdowns that could occur in areas that are not contained. Any spills or leaks that

occur during construction would be cleaned up immediately by removing and disposing of impacted soils at an off-site location in a proper and legal manner.

During construction, the NJPDES Plan would provide appropriate methodologies for implementation of BMPs, including type, size, location, and installation requirements. In accordance with the NJDEP NJPDES General Permit (5G3) Stormwater Discharge Associated with Construction Activity, any pesticides, fertilizers, fuels, lubricants, petroleum products, anti-freeze, paints and paint thinners, cleaning solvents and acids, detergents, chemical additives, and concrete curing compounds shall be stored in containers in a dry covered area in order to prevent or minimize waste from these materials entering the stormwater discharge. Weekly inspections of construction area activities would be conducted and documented in order to identify areas contributing to the stormwater discharge and evaluate whether the SPPP is being properly implemented and maintained or whether additional measures are needed to implement the SPPP. Additional inspections would be conducted before and within 8 hours after a rain event, in accordance with the Stormwater Best Management Practices Guide. These inspections would assist in preventing and minimizing impacts associated with weather events.

During Final Design, further means to reduce the area of disturbance and amount of new impervious surfaces, and ways to preserve natural areas to the maximum extent feasible, would be evaluated for the project. A project maintenance plan would also be developed to outline the SWM measures being designed which would include additional mitigation and minimization strategies.

3.17 UTILITIES

3.17.1 Methodology and Data Sources

The locations of existing aboveground and underground utilities were investigated within the established PSA to understand and plan for potential conflicts between the project design and existing utilities, and to identify the requirements of utility owners. Primary data sources used in this analysis were as-built utility plans provided by municipal utility authorities and other utility owners, as shown in the figure titled, Major Utilities Map (Appendix B). It should be noted that the locations of these utilities are preliminary and subject to change based on field verifications.

3.17.2 Affected Environment

A preliminary review of utility resources indicates that numerous aboveground and underground utilities are present throughout the PSA. Known utilities, which adequately provide public water and sewer services, and other utilities found within the PSA include:

- Natural gas pipelines;
- Fiber optic cables;
- Municipal sanitary sewer lines;
- Municipal water supply pipelines;
- Underground electric;
- Pole-mounted electric and communications lines; and,
- Pole-mounted cameras with associated underground cables.

3.17.3 Environmental Consequences

3.17.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration. Consequently, the project would have no direct or indirect impacts on utilities in the PSA. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact utilities; sponsors of those projects would be responsible for identifying and managing potential utility impacts.

3.17.3.2 Preliminary Preferred Alternative

The Interchange 3 Outside Toll project would impact existing utilities as a result of ROW acquisition and construction activities. Impacts to existing utilities could include temporary service interruptions to facilitate facility relocation. Specific impacts to individual utilities would not be fully determined until the Final Design phase, at which time utility staging schemes and a utility relocation plan would be developed. The areas where potential conflicts and modification to existing utilities are expected to occur are generally located along the proposed LOD. Preliminary discussions between NJTA and Transco/Williams Companies, Inc. have concluded that pipeline relocation would not be required for the project and significant impacts to the pipeline are not anticipated.

3.17.4 Minimization and Mitigation

The NJTA would further examine the potential for utility impacts during Final Design. At that time, the NJTA would coordinate the design work with affected utility operators. Coordination with the owners of the major pipelines and electric transmission lines would occur to identify minimization and mitigation measures. Coordination activities would also include planning to prevent utility service interruptions where possible. The NJTA would comply with utility owner notification and timing requirements when there are potential outages. Utilities requiring relocation, adjustment, or modification would be accounted for in the project schedule and budget to avoid disruptions to customers and to ensure that project construction can proceed with limited and temporary utility service interruptions.

3.18 CONTAMINATED MATERIALS, HAZARDOUS WASTE, AND SOLID WASTE

3.18.1 Methodology and Data Sources

To evaluate potential contamination issues within the PSA as displayed in **Figure 1.1-1**, a database of Federal and state regulatory agency records, historical aerial photographs, Sanborn fire insurance maps (no coverage for the PSA), and historical topographic maps provided by a commercial vendor were reviewed. Additionally, potentially contaminated sites and historic fill areas were further evaluated through NJDEP GeoWeb and NJDEP DataMiner databases. Sites with documented environmental concerns were reviewed, and each site located within the PSA was identified.

Applicable policies, rules, and regulations referenced for this evaluation included the NJDEP Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the NJDEP Underground Storage Tanks regulation (N.J.A.C. 7:14B).

Field reconnaissance of the PSA was conducted in August 2021 to verify sites identified in the database report. The identified sites were observed to assess the presence of aboveground storage tanks (AST); storage of containers, drums, waste, or debris; staining of pavement or soil; stressed vegetation; and surface indications of underground storage tanks (UST) such as fill pipes or vents. The reconnaissance was conducted from the public ROW.

In accordance with the NJDEP Site Remediation Program, the identification of potential and confirmed hazardous waste sites that require site remediation for the project would follow the Linear Construction Technical Guidance (N.J.A.C. 7:26).

The New Jersey Solid Waste Management Act (N.J.A.C. 7:26 *et seq*.) provides the framework for the collection, transportation, and disposal of solid waste in the State of New Jersey. Since it was enacted, the Act has been periodically amended to delineate the solid waste responsibilities of municipal, county, and state government. The 21 counties and the New Jersey Meadowlands District are responsible for the development of plans for disposal facility siting and recycling, subject to state review. Municipalities are responsible for the collection and disposal of solid waste in accordance with those county plans. Since 1987, municipalities have also been responsible for providing recycling programs for commercial, institutional, and residential generators, meeting the mandatory state recycling goals.

Disposal of solid waste generated during project construction and subsequent operation would be the responsibility of the NJTA and/or their contractors.

3.18.2 Affected Environment

Several sites within the Interchange 3 Outside Toll PSA have the potential to contain contaminated media. In addition to site-specific concerns, review of geologic information indicates that potentially high acid-producing (sulfate) soils and sediments likely exist within the PSA. These soils are defined as having a pH of 4.0 or less or containing iron sulfide and may require special management or disposal during construction. Acid-producing soils are addressed in detail in Section 3.10 (Soils and Geology).

As shown on the Contaminated Materials and Hazardous Waste Map (Appendix B), seven potentially contaminated sites were identified within the PSA using the methodology described above and are tabulated and further discussed below and in **Table 3.18-1**. NJDEP Program Interest Identification numbers (PI Site ID) are provided for each site for reference.

Given current access constraints to the sites, the presence of unsealed and abandoned (out-of-use) monitoring wells is unknown. For any properties that would be acquired for construction purposes, a monitoring well survey would be conducted. The survey may include visual observation, an NJDEP Division of Water Supply and Geoscience well search, and/or consultation with the New Jersey State Licensed Site Remediation Professional (LSRP).

Table 3.18-1: Known and Potential Contaminated Sites within the Project Study Area

Site #	Name	PI Site ID	Address	Conclusion
1	300 South Black Horse Pike	919920	300 S Route 168, Bellmawr, Camden County	An Unrestricted Use RAO was issued on January 31, 2024. Therefore, no impact expected.
2	North Star Holding	247669	341 S Route 168, Bellmawr, Camden County	Manage abandoned USTs, if encountered.
3	Interchange 3 Toll Plaza	013173	MP 26.1 NS Turnpike, Runnemede, Camden County	Manage historic fill, if encountered. Coordinate with the site LSRP to address the deed restricted area.
4	Bellmawr Auto and Tire	000474	220 S Route 168, Bellmawr, Camden County	The NJDEP case is closed, and USTs were reportedly removed. Therefore, no impact is expected.
5	Exxon Store 3-2135 (Bellmawr Shell Station)	008633	121 S Route 168, Bellmawr, Camden County	The NJDEP case is closed, and former USTs were removed. However, the site is currently occupied by a gasoline service station.
6	Ethel M Burke School	017677	112 S Route 168, Bellmawr, Camden County	The NJDEP case is closed, and UST was reportedly removed. Therefore, no impact is expected.
7	NJDOT Route 168 Benigno Boulevard	506671	Various Sites – Route 168	Linear construction project that includes Bellmawr Auto and Tire, Site 4 above.

Source: NJDEP GeoWeb and DataMiner.

Site 1 – 300 South Black Horse Pike

300 South Black Horse Pike (Route 168) is a fast-food restaurant located on the southern corner of Route 168 SB and Benigno Boulevard in Bellmawr, Camden County. The site was previously a fueling service station between 1976 and 1985. The site has one closed case (case 20-10-13-1342-01, Preferred ID [PI] 919920). An unrestricted use Response Action Outcome (RAO) for the entire site was issued by Ms. Kristin Heimburger, site LSRP, on January 31, 2024.

Site 2 – North Star Holding

North Star Holding is developed as a hotel located at approximately 341 South Route 168 in Bellmawr, Camden County. According to NJDEP DataMiner information, one 3,000-gallon No. 2 heating oil UST was abandoned in-place on January 9, 2006 and one 4,000-gallon No. 2 heating oil UST was removed on July 21, 2021.

The site is identified with two closed cases (Case 06-01-10-1053-48, PI 247669 and case N247669UCL2 10001, PI 247669). Case 06-01-10-1053-48 was issued an unrestricted use RAO on September 3, 2014. Case N247669UCL2 was issued an unrestricted use RAO on September 17, 2021.

Site 3 – Interchange 3 Toll Plaza

The Interchange 3 toll plaza site is located at approximately MP 26.1 in Runnemede, Camden County. Two cases were reported for this site. Case 95-10-31-1443-20, PI 013173 was issued an unrestricted use No Further Action (NFA) on August 12, 1996 and is closed.

Case 97-7-14-1618-53, PI 013173 is open and has been under LSRP oversight since May 8, 2012. A deed restricted area (soil impact) is located west of the toll plaza. A classification exception area (CEA), which documents known groundwater impact, previously defined for the site was removed by the NJDEP on March 12, 2024 because groundwater quality standards were achieved.

According to the UST Tank Summary, one 3,000-gallon heating oil UST and one 290-gallon diesel UST were removed from the Interchange 3 toll plaza site on July 14, 1997 and October 31, 1995, respectively. Mr. Christopher Rossi, NJTA Senior Environmental Manager, confirmed that there currently are no USTs at Interchange 3.

According to the NJ-GeoWeb ArcGIS Online platform, historic fill is present at Interchange 3 within the Interchange 3 Outside Toll study area.

Site 4 – Bellmawr Auto and Tire

This site is located on the northern corner of Route 168 NB and Benigno Boulevard in Bellmawr Borough. Case 95-07-13-1603-53, PI 000474 was issued an unrestricted use NFA letter on August 3, 2010 and is closed.

According to NJDEP DataMiner information, no active USTs are listed. The following USTs were removed in 1995 and 2012: one 3,000 gallon leaded gasoline UST, two 3,000 gallon gasoline USTs, one 550 gallon waste oil UST, one 10,000 gallon diesel UST, and 10,000 gallon gasoline UST, and one 8,000 gallon UST.

Site 5 – Exxon Store 3-2135 (Bellmawr Shell Station)

The Exxon Store 3-2135 site is located along Route 168 NB, approximately 300 feet north of the Benigno Boulevard intersection. Case 89-02-08-1044, PI 008633 was issued a limited restricted use NFA letter on March 31, 1999 and an entire-site unrestricted use NFA letter on October 29, 2007 and is closed.

According to NJDEP DataMiner information, no active USTs are listed for PI 008633. The following USTs were removed in 1992: one 8,000 gallon gasoline UST, two 6,000 gallon gasoline USTs, and one 1,000 gallon waste oil UST.

This parcel is also associated with two NJDEP UST Registration sites. Bellmawr Shell Station (current site occupant), PI 030167, is the site of three 10,000 gallon gasoline USTs and one 10,000 gallon diesel UST. Jims Service Station, PI 011622, is listed as the former site of two leaded gasoline USTs and one diesel UST (capacities not specified).

Site 6 – Ethel M Burke School

The Ethel M Burke School site is located along the northern boundary of the PSA at the intersection of Route 168 and Linden Avenue. Case 11-01-01-1433-01-11, PI 017677 was issued an unrestricted use RAO on March 4, 2014 and is closed.

According to NJDEP DataMiner information, no active USTs are listed. One 5,000 gallon heating oil UST was removed in 2011.

Site 7 – NJDOT Route 168 Benigno Boulevard

This listing relates to an NJDOT linear construction project. Within the PSA, it appears that the only applicable site is Bellmawr Auto and Tire, discussed as Site 4 above.

3.18.3 Environmental Consequences

3.18.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration. Consequently, the project would have no direct or indirect impacts to contaminated materials, hazardous waste, or solid waste. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact sites with contaminated materials or hazardous waste, and to be new sources for solid waste; the sponsors of those projects would be required to comply with applicable regulations regarding contaminated materials and solid waste.

3.18.3.2 Preliminary Preferred Alternative

Impacts to contaminated sites during project construction are not anticipated under the Interchange 3 Outside Toll PPA. Regarding Sites 1, 4, 6, and 7, the NJDEP cases appear to be properly closed as per available data; however, if previously unknown contaminants/impacts are detected at these sites during construction, the NJDEP should be contacted.

Considering that there is reportedly an abandoned-in-place UST at Site 2, the UST should be removed prior to construction by adhering to the NJDEP Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the NJDEP Underground Storage Tanks regulations (N.J.A.C. 7:14B). Regarding Site 3, the LSRP should be contacted prior to construction activities to discuss potential deed restriction implications. Regarding Site 5, the historical NJDEP case appears to be properly closed; however, an active gasoline service station is currently located on the parcel and currently unknown contaminants relating to the current UST system may be present. If additional contaminants/impacts are detected during construction, the NJDEP should be notified.

The NJTA would comply with the Linear Construction Project regulations and criteria outlined in the New Jersey Linear Construction Guidance (N.J.A.C. 7:26C).

Suspected or confirmed historic fill may be encountered during project construction. Historic fill may contain construction debris, dredge spoils, incinerator residue, fly ash materials, and other similar materials that often contain concentrations of contaminants above New Jersey soil remediation standards. These suspected or confirmed fill sites are typically treated as contaminated sites and mitigated accordingly. However, historic fill may also be reused as backfill in trenches or as fill to raise grades in other areas of the PSA that already contain historic fill; provided it is placed beneath an appropriate cap (i.e., clean soil, asphalt, or concrete). Excess historic fill that cannot be reused within the PSA would be properly disposed off-site.

With the identified sites having confirmed contamination (past or present), the NJTA would diligently work to avoid disturbing these sites during Final Design. Where reasonably feasible, subsurface construction activities would avoid these sites to prevent further contamination. In addition, care would be taken to avoid disturbing active USTs.

Soil contamination may warrant replacement of soils in certain contaminated sites where project excavation would occur. In compliance with N.J.A.C. 7:26E, stockpiled contaminated material intended for off-site disposal would be removed and replaced from the site as soon as possible, but no longer than 180 days, pursuant to applicable solid waste requirements, and no longer than 90 days for material characterized as hazardous waste.

Regarding solid waste, per Bellmawr municipal Ordinance 382 and Runnemede Ordinance 316, the municipalities collect solid waste from both residences and commercial businesses within set volumes. If an entity produces more solid waste than allowable volumes, the property owner must contract with a private hauler.

Disposal of solid waste generated during project construction and subsequent operation would be the responsibility of the NJTA and/or their contractors.

3.18.4 Mitigation and Minimization

Former or currently impacted areas on contaminated sites would be avoided, if feasible. If soil disturbance is necessary in these areas, coordination would be conducted with the NJDEP and/or LSRP to develop a work plan.

While no significant adverse impacts to local and county solid waste programs would be anticipated from project activities, mitigation measures would be adopted for the construction and operational phases of the project. To lessen waste stream impacts, recycling and beneficial reuse of waste materials would be implemented during construction, if feasible. For example, during grading, clearing, and grubbing, topsoil would be stored for beneficial reuse, whenever feasible. Materials that are not suitable for reuse would be disposed off-site, in compliance with all applicable regulations including the New Jersey Solid Waste Management Act.

During operation, roadway maintenance activities would maintain their current operational practices without creating a significant increase in solid waste.

3.19 SUSTAINABILITY AND RESILIENCY

3.19.1 Methodology and Data Sources

3.19.1.1 Sustainability

As defined by the USEPA, "Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations." Federal and state policies and regulations pursue sustainability utilizing a broad spectrum of environmental, social, and economic principles.

The purpose of this sustainability assessment is to examine and document the goals of the Interchange 3 Outside Toll project and how they align with the environmental, social, and economic principles of sustainability. This is accomplished by examining the project through its treatment of sustainability principles such as environmental protection, safety, mobility, community cohesion, and asset management. This is an important step in the project planning process as it seeks to encourage increased stakeholder participation, allows for the tracking and assessing of progress, and evaluates current best practices while also meeting applicable policies and regulations. The NJTA understands the importance of sustainability goals outlined in various Federal and state policies and regulations and voluntarily strives to incorporate sustainability measures into the project design.

This assessment was compiled by reviewing applicable existing Federal, state, and local sustainability policies and regulations and identifying how the NJTA, and the Interchange 3 Outside Toll project, would achieve those policies and regulations. The assessment draws from existing research and inventories previously developed for the *New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program, Preliminary Design Report Mainline – MP 3.5 to 36.5* (NJTA, 2022).

3.19.1.2 Resiliency

This resiliency assessment is a qualitative evaluation of NJTA's assets in the Interchange 3 Outside Toll project area and its resiliency management, meaning its ability to withstand or recover quickly from foreseeable events and occurrences. Such events or occurrences may be climate or weather-related, such as storm surges, droughts, wildfires, flooding, extreme temperatures, sea-level rise, and pluvial and fluvial flooding. Storm surge is defined as the rising level of the ocean in response to a storm. A storm surge can extend into freshwater waterways, raising the level of those waterways to higher-than-normal levels. Future sea-level rise is defined as an increase in the surface elevation of the ocean compared to historical levels. Unlike a storm surge, which is temporary in duration, sea-level rise is a longstanding condition. Droughts and wildfires are other temporary conditions caused by a lack of precipitation and are often accompanied by periods of irregularly high temperatures. Pluvial flooding is caused by high rainfall occurring over a short period of time which overwhelms the drainage capacity of

stormwater management systems. This type of flooding can be particularly impactful to low-lying areas where impaired stormwater management systems are present. Fluvial flooding results when high-water levels in waterway channels overflow due to excess rainfall. Other events requiring resiliency management include incidents on the Interchange 3 Outside Toll roadways that temporarily impair normal traffic operations.

Project resilience is also related to the Turnpike's designation by the New Jersey Office of Emergency Management as a Coastal Evacuation Route. This designation means the Turnpike is a roadway that is part of a network of designated roadways that should be used to evacuate during an emergency, such as a tropical storm, to seek shelter. This designation reinforces the importance of maintaining mainline and interchange operations during emergency events or occurrences requiring coastal evacuations. As this project would minimize projected backups onto the Turnpike mainline while addressing the location-specific congestion along Route 168 in proximity to Interchange 3, the project aims to ensure that the Interchange 3 Outside Toll roads remain operating optimally during an emergency.

The assessment relies on the following information resources that identify the events and occurrences requiring resilience planning and management for the project:

- New Jersey Office of Emergency Management, NJ Coastal Evacuation Route Maps (https://nj.gov/njoem/plan-prepare/evacuation-routes.shtml);
- NJDEP's Flood Mapper Data resource (https://www.njfloodmapper.org/datasources);
- NJDEP's June 2021 *Sea-Level Rise Guidance for New Jersey*;
- Rutger's University's November 2019 *New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science and Technical Advisory Panel*; and,
- NOAA's December 2022 *Examining Precipitation Across the Garden State From 1900 to 2020*.

Each of these data sources was examined to evaluate the potential for adverse events, to address the potential for these events or occurrences to affect the PSA, and to identify opportunities to instill resiliency design and management measures as project design progresses.

In this section, both the sustainability and resiliency analyses were conducted based on the PSA as shown in **Figure 1.1-1**.

3.19.2 Affected Environment

3.19.2.1 Sustainability

This section outlines the Federal and state sustainability policies and regulations that would be considered during Final Design.

Infrastructure Investment and Jobs Act (Public Law 117-58*)*

The Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the "Bipartisan Infrastructure Law") was signed into law by President Biden on November 15, 2021. This law provides a long-term Federal infrastructure investment framework that will provide

$550 billion over the fiscal years 2022 through 2026 for infrastructure, including bridges, roadways, mass transit, water, resilience, and broadband. The Federal government will invest $350 billion from 2022 through 2026 on highway projects alone. The Bipartisan Infrastructure Law will create more than a dozen new highway programs that will focus on "rehabilitating bridges in critical need of repair, reducing carbon emissions, increasing system resilience, removing barriers to connecting communities, and improving mobility and access to economic opportunity."

Funding for the Interchange 3 Outside Toll project would be financed through the sale of revenue bonds. Although funding for the project would not be financed through the IIJA, the NJTA recognizes the importance of the IIJA's goals and strives to implement those goals, when feasible and reasonable.

Federal Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

Executive Order 13990: Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis was issued on January 20, 2021, and directs Federal agencies "to immediately review, and take action to address Federal regulations promulgated and other actions taken during the last four years that conflict with national objectives to improve public health and the environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable (including those who disproportionately harm communities of color and low-income communities); reduce GHG emissions; bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and employment." (EO 13990, 2021).

Although funding for the project would be financed through the sale of revenue bonds, the NJTA recognizes the importance of the EO policies and strives to implement those goals that are both feasible and reasonable.

Federal Executive Order 14008: Tackling the Climate Crisis at Home and Abroad

EO 14008: Tackling the Climate Crisis at Home and Abroad was issued on January 27, 2021. EO 14008 "put[s] the climate crisis at the center of United States Foreign Policy and National Security." EO 14008's Section 213 (Sustainable Infrastructure) is applicable to the project and seeks to ensure that Federal infrastructure investment shows a reduction in climate pollution and that such infrastructure projects consider the effects of greenhouse gas emissions and climate change. Section 213 states:

> (a) The Chair of the Council on Environmental Quality and the Director of the Office of Management and Budget shall take steps, consistent with applicable law, to ensure that Federal infrastructure investment reduces climate pollution, and to require that Federal permitting decisions consider the effects of greenhouse gas emissions and climate change. In addition, they shall review, and report to the National Climate Advisor on, siting and permitting processes, including those in progress under the auspices of the Federal Permitting Improvement Steering Council, and identify steps that can be taken,

> consistent with applicable law, to accelerate the deployment of clean energy and transmission projects in an environmentally stable manner.
>
> (b) Agency heads conducting infrastructure reviews shall, as appropriate, consult from an early stage with state, local, and tribal officials involved in permitting or authorizing proposed infrastructure projects to develop efficient timelines for decision-making that are appropriate given the complexities of proposed projects.

Although funding for the project would be financed through the sale of revenue bonds, the NJTA recognizes the importance of the EO policies and strives to implement those goals that are both feasible and reasonable.

United States Department of Transportation Sustainable Highways Initiative

The United States Department of Transportation (USDOT) Sustainable Highways Initiative's goal is the stimulation of economic growth of American workers and businesses through increasing the state of the nation's highways through "assessing vulnerabilities, considering communities and resilience in the transportation planning process, incorporating resilience in asset management plans, and addressing resilience in project development and design."

Although funding for the project would be financed through the sale of revenue bonds, the NJTA recognizes the importance of this Initiative and strives to implement those goals that are both feasible and reasonable.

United States Department of Transportation *Strategic Plan for FY 2022-2026*

The USDOT *Strategic Plan for FY 2022 – 2026* outlines six strategic goals, one of with is Climate and Sustainability. This goal aims to, "Tackle the climate crisis by ensuring that transportation plays a central role in the solution. Substantially reduce greenhouse gas emissions and transportation-related pollution and build more resilient and sustainable transportation systems to benefit and protect communities." (USDOT, 2022). Although funding for the project would be financed through the sale of revenue bonds, the NJTA recognizes the importance of the initiatives of this Plan and strives to implement those goals that are both feasible and reasonable.

New Jersey Executive Order No. 215

EO 215 of 1989 seeks to reduce or eliminate any potential adverse environmental impacts of projects initiated or funded by the state. EO 215 EIS documents must identify direct, indirect, and cumulative impacts, beneficial and adverse, anticipated from the proposed project on all natural, man-made, construction, and project operation. EO 215 requires that EISs, "discuss actions taken during the environmental decision-making process (siting, water efficiency, energy efficiency, material/resources use) to insure [*sic*] that the project is a sustainable development that would avoid or minimize negative impacts, strengthen positive ones, take advantage of environmental opportunity, and protect resources."

New Jersey Turnpike Authority *Strategic Plan 2020 – 2029*

The NJTA's *Strategic Plan 2020 – 2029* addresses resiliency and sustainability in their Core Values, in addition to safety, diversity, innovation, transparency, state of good repair, customer satisfaction, and long-term financial stability. It also sets out a series of goals (i.e., safety, finance, mobility, state of good repair, and people) and provides specific metrics to measure success while allowing for updating on an annual basis, where necessary.

Table 3.19-1 shows how these various regulatory and planning issues are in sync with one another and how some of the same performance measures can be used to track goal progress. As an example, aspects of the NJTA's mobility goal are resilience and sustainability. One way the NJTA explains the enhanced mobility goal is the implementation of technological solutions and modification of the NJTA's business practices to improve mobility without widening roads. Another solution to enhancing mobility is the reduction of travel time in high congestion areas.

Aspects of the NJTA's good repair goal are also aligned with resiliency and sustainability. Maintaining a state of good repair ensures that existing assets are functioning as designed and are sustained through preventative maintenance and replacement programs. State of good repair increases the useful life of the NJTA's assets, results in cost savings over time, and is vital to transportation safety.

Table 3.19-1: Relationships between Sustainability Measures, the Project, and Federal and State Policies and Regulations

Federal and State Policies and Regulations and their Objectives			Project Benefits / Objectives	Performance Measures
Bipartisan Infrastructure Law	**USDOT Sustainable Highways Initiative**	**NJTA Strategic Plan (Core Values [CV] and Goals [G])**		
Reduce carbon emissions	Environmental Protection (Environmental)	Resiliency and Sustainability (CV)	• Minimize environmental impacts • Protect native wildlife • Minimize carbon footprints and energy use • Protect water and land quality • Protect air quality and minimize noise and vibration	• Fuel usage • LOS • Number of EV charging stations • Congestion alleviation
Remove barriers to connecting communities	Livability (Social)	People (G)	• Community acceptance • Preserve community connections	• Community satisfaction level • Stakeholder relationships
Improve mobility and access to economic opportunity	Mobility (Economic)	Resiliency and Sustainability (CV), Mobility (G)	• Reduce travel time • Reduce fuel usage	• Vehicle miles travelled • Travel times • Fuel usage
Create safe streets and roads through highway safety improvement programs	Safety (Social)	Safety (CV), (G)	• Reduce accidents and fatalities • Reduce work zone crashes • Reduce toll collection incidents	• Number of accidents per year

Source: Bipartisan Infrastructure Law (https://www.fhwa.dot.gov/bipartisan-infrastructure-law/); FHWA Sustainable Highways Initiative (https://www.sustainablehighways.dot.gov/default.aspx);The New Jersey Turnpike Authority's (NJTA) Strategic Plan 2020 – 2029; and Amiril, A., *et al*, Transportation Infrastructure Project Sustainability Factors and Performance, 2014, Procedia-Social and Behavioral Sciences.

3.19.2.2 Resiliency

As discussed in Section 3.1 (Land Use Patterns, Zoning, and Consistency with Plans) and Section 3.12 (Floodplains and Riparian Zones), the PSA is located within a highly developed area that experiences urban runoff and roadway flooding during storm surge events. According to the NJDEP's storm surge database, Beaver Brook is the one waterway located within the PSA which is vulnerable to storm surges and future sea-level rise. Beaver Brook would be inundated during a Category 1, 2, 3, or 4 hurricane, as modeled by the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model. The NJDEP storm surge database does not model the Beaver Brook UNTs located within the PSA for inundation during such events.

In addition, the NJDEP's Flood Mapper and Sea-Level Rise Guidance for New Jersey were consulted to identify locations of concern. The Flood Mapper is a resource that illustrates where flooding can be expected to occur as a result of a variety of climate, weather, and other events. The guidance presents the projections for sea-level rise in New Jersey and provides direction for decision-makers in state and local governments as well as private entities and individuals. Additionally, NOAA's December 2022 *Examining Precipitation Across the Garden State From 1900 to 2020* provides a comprehensive overview of precipitation within New Jersey. While these resources were considered, the vulnerability of the waterways within the PSA to flooding or future sea-level rise would be analyzed during the Final Design phase of the project.

3.19.3 Environmental Consequences

3.19.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll ramps and roadways would remain in their current configuration. Consequently, the No-Build Alternative would not provide opportunities to improve sustainability and resiliency within the PSA. The NJTA would continue implementing the elements of its *Strategic Plan 2020 – 2029* involving resiliency and sustainability in their Core Values. Other committed projects, not associated with the Interchange 3 Outside Toll project, would still occur; the sponsors of those projects may also be guided by specific planning for sustainability and resiliency as their projects are implemented.

3.19.3.2 Preliminary Preferred Alternative

3.19.3.2.1 Sustainability

The NJTA recognizes the importance of the project being consistent with applicable Federal and state sustainability policies and regulations and, as shown in **Table 3.19-2,** the project would improve conditions as measured against both metrics.

Table 3.19-2: Public Policies, Programs, and Plan Compliance Summary

Policies and Regulations	Project Conformity with Policies and Regulations
Infrastructure Investment and Jobs Act – IIJA (Public Law 117-58)	The project is consistent with the following IIJA Eligible Activities: • National Highway Performance Program (NHPP): The NJTA would continue to support the function of the Turnpike as an NJ Coastal Evacuation Route as it would alleviate congestion at the Interchange 3 toll plaza and resulting backup on the Turnpike mainline. Also, bio-retention basins with underdrains would be added to help mitigate stormwater impacts. The bio-retention basins are described in greater detail in Section 3.11 (Surface Water Resources)
Federal Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis	The project is consistent with the following Executive Order 13990 Eligible Activity: • Section 5: Accounting for the Benefits of Reducing Climate Pollution. The project would improve forecasted LOS and function of ramps to contain traffic queues within Interchanges 3. More efficient traffic flow would help mitigate air pollution from idling cars and trucks.
Federal Executive Order 14008: Tackling the Climate Crisis at Home and Abroad	The project is consistent with the following Executive Order 14008 Eligible Activity: • Section 219. Policy. Securing Environmental Justice and Spurring Economic Opportunity. The project would improve connections with, and access to, existing roadways that connect to Interchange 3; thereby, benefiting all populations, including Environmental Justice populations.

United States Department of Transportation Strategic Plan for FY 2022-2026	The project would be consistent with the following USDOT Strategic Goals:
	• **Safety:** "Make our transportation system safer for all people. Advance a future without transportation-related serious injuries and fatalities.
	  ○ **Project Applicability**: The NJTA would identify and address safety risks in Final Design."
	• **Economic Strength and Global Competitiveness**: "Grow an inclusive and sustainable economy. Invest in our transportation system to provide American workers and businesses reliable and efficient access to resources, markets, and good-paying jobs."
	  ○ **Project Applicability:** With collaborative planning and design, the project would improve the existing infrastructure to better stimulate growth and economic competitiveness. An upgraded and improved Interchange 3 toll plaza and Outside Toll roadways would allow for better movement of goods, people, and services within the PSA and beyond. The project interchange improvements would improve access to areas that are primarily commercially zoned and serve as focal points for economic growth and development.
	• **Equity**: "Reduce inequities across our transportation systems and the communities they affect. Support and engage people and communities to promote safe, affordable, accessible, and multimodal access to opportunities and services while reducing transportation-related disparities, adverse community impacts, and health effects."
	  ○ **Project Applicability**: No new physical barriers would be created as a result of the project, instead, the project would increase community connectivity by decreasing travel times. The project would improve health effects resulting from air pollution within the surrounding communities, as vehicle idling times are expected to decrease, as further discussed in Section 3.8 (Air Quality).

	• **Climate and Sustainability:** "Tackle the climate crisis by ensuring that transportation plays a central role in the solution. Substantially reduce greenhouse gas emissions and transportation-related pollution and build more resilient and sustainable transportation systems to benefit and protect communities." o **Project Applicability:** Improving Interchange 3 ramp and Outside Toll configuration and capacity would reduce vehicle idling, thereby reducing greenhouse gas emissions and transportation-related pollution.
New Jersey Turnpike Authority Strategic Plan 2020 – 2029	The project is consistent with the following NJTA Strategic Plan Core Values: • **State of Good Repair**: The project would repair and replace infrastructure associated with Interchange 3 Outside Toll. • **Resiliency and Sustainability**: The project would make the interchange network more resilient to future weather events and improve its function as part of the Coastal Evacuation Route. A focus of drainage design activity would also preserve water quality and meet the recharge standards in the NJDEP Stormwater Management Rules. The drainage design is described in greater detail in Section 3.11 (Surface Water Resources). • **Safety**: The project would be made safer by implementing modern design standards. Project capacity and operational improvements would improve forecasted LOS and the function of ramps to contain traffic queues within Interchange 3.

Source: Program Team, 2024.

3.19.3.2.2 Resiliency

As project design progresses, the NJTA would evaluate all methods for improving resiliency of the Interchange 3 Outside Toll area. Project improvements would improve roadway infrastructure to acceptable levels of safety and service in accordance with current standards, thus making the area more resilient to withstanding future storm events and incidents. Outreach efforts to identify the extent of impacts caused by historical flooding in the PSA are ongoing, and methods to avoid/minimize future inundations and account for projected climate events would be implemented to the greatest extent practicable.

As described in Section 1.4 (Purpose of the Project), the purpose of the project is to address existing and foreseeable future traffic congestion at Interchange 3 and along Route 168 in the vicinity of Interchange 3. As the project would address congestion within Interchange 3, it would thereby act to achieve the goals stated in the NJTA's enabling legislation; to construct, maintain, improve, manage, repair, and operate the Turnpike in a manner that facilitates vehicular traffic operations, removes existing handicaps and hazards, and addresses safety needs. Considering that Beaver Brook is vulnerable to storm surges, flooding, and future sea-level rise, project improvements, in turn, improve resiliency of the Interchange 3 Outside Toll area to maintain desired function during storm events and effectively serve as a Coastal Evacuation Route component.

For these reasons, and to address the purpose of the project, the goals of the NJTA's enabling legislation, and to support the function of the Turnpike as a NJ Coastal Evacuation Route, the NJTA would undertake further study of these events or occurrences during the Final Design phase of the project. Further study could consist of:

- Examining the data in the context of the project design;

- Refining the project design to build in resilience and to avoid or minimize the potential for events or occurrences to impair the Interchange 3 toll plaza or Turnpike mainline function in the PSA to the extent reasonably feasible; and,
- Developing a management plan for the project that focuses on Interchange 3 and the Route 168 roadway corridor being able to withstand or recover quickly from foreseeable events or occurrences.

3.19.4 Minimization and Mitigation

Further study during Final Design would identify measures and design solutions the NJTA could implement to incorporate sustainability and resilience and to avoid or minimize the potential for events or occurrences to impair the function of Interchange 3 in the PSA to the extent reasonably feasible. Construction methods and operational improvements that would implement energy efficiency into project design would also be considered. Sustainable practices would be implemented to the extent practicable, including limiting material and resource usage wherever feasible.

3.20 ENVIRONMENTAL JUSTICE

3.20.1 Methodology and Data Sources

This section identifies minority and/or low-income populations (collectively Environmental Justice [EJ] populations) in the PSA. Ensuring Environmental Justice compliance requires an assessment of whether the direct and indirect effects of a proposed action would be disproportionately high and adverse to EJ populations.

Environmental Justice as defined by the USEPA as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Among the guidance is the 1997 CEQ guidelines which provide specific thresholds for determining if a “minority population” is present:

- The minority population exceeds 50 percent in the impacted area;
- The minority population percentage in the impacted area is “meaningfully greater” than the minority population in the general population or other appropriate geographic area; and/or,
- There is more than one minority group present and the minority percentage, as calculated by summing all minority persons, meets one of the thresholds presented above.

The CEQ guidance and USDOT Order 5610.2(a) does not specify thresholds used for identifying low-income populations. In the absence of specific guidance, this analysis applies the same thresholds for low-income populations as for minority populations (i.e., the 50 percent test and the ‘meaningfully greater’ test).

This assessment also follows State of New Jersey Executive Order 131 on environmental justice that requires a commitment to ensuring that communities of color and low-income communities are afforded fair-treatment and meaningful involvement in decision-making. Executive Order 131 requires New Jersey State agencies to: “address disproportionate exposure to environmental hazards.” Additionally, Executive Order 215 requires New Jersey

State agencies to “discuss how environmental justice was considered during the environmental decision making process. If an environmental justice analysis was done, provide information regarding status and/or findings of the analysis”.

The following definitions regarding minority and low-income individuals and populations apply to this analysis:

Minority Individual: The U.S. Census Bureau classifies a minority individual as belonging to one of the following groups: American Indian or Alaskan Native, Asian American, Native Hawaiian, or other Pacific Islander, Black (not of Hispanic Origin), or Hispanic or Latino.

Minority population: A group of persons who identify themselves, as per the U.S. Census Bureau, as belonging to one of the following groups: American Indian or Alaskan Native, Asian American, Native Hawaiian or Other Pacific Islander, Black (not of Hispanic Origin), or Hispanic or Latino.

Low-income Individual: A person whose household income is at or below the U.S. Department of Health and Human Services poverty guidelines.

Low-income Population: Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed program, policy, or activity.

EJ Block Groups: For this analysis, EJ Census Block Groups are defined as those that meet the CEQ guidelines for determining if an EJ community is present as described above.

Disproportionately High and Adverse Effects – An adverse effect that: (1) is predominantly borne by a minority population and/or low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

This assessment also considers New Jersey’s Environmental Justice Law (N.J.S.A. 13:1D-157). This law requires the NJDEP to evaluate the contributions of certain facilities to existing environmental and public health stressors in overburdened communities (OBCs) when reviewing certain permit applications. The State of New Jersey has defined an “overburdened community” as any Census Block Group, as determined in accordance with the most recent United States Census, in which: (1) at least 35 percent of the households qualify as low-income households; (2) at least 40 percent of the residents identify as minority or as members of a state-recognized tribal community; or (3) at least 40 percent of the households have limited English proficiency. As the project does not meet the regulatory definition of a "facility" as defined in the New Jersey Environmental Justice Law, the project is not required to follow the regulatory requirements. However, this EJ assessment identifies overburdened communities within the PSA to provide a comparison to the assessment using the CEQ guidance and USDOT Order 5610.2(a) to determine if a more conservative assessment of EJ communities would be required.

This analysis was based on the PSA as displayed in **Figure 1.1-1.** The analysis is inclusive of Census Block Groups that intersect the PSA. These Census Block Groups include Census Tract 6068, Block Groups 2 and 3 and Census Tract 6072, Block Group 2. The demographic composition of these Block Groups that intersect the PSA was benchmarked and compared against that of Camden County. The PSA reflects the geographic area most likely to experience the direct and indirect environmental impacts from the construction of the Interchange 3 Outside Toll project.

3.20.2 Affected Environment

The 2022 population and racial characteristics of Camden County and that of the Census Block Groups that intersect the PSA are summarized in **Table 3.20-1**. The Census Block Groups that include the PSA are depicted in the figure titled, Environmental Justice Map (Appendix B).

Table 3.20-1: Minority and Low-Income Persons Distribution

	Total Population	Percent Minority	Percent Low-Income
Camden County	522,581	45.7%	27.0%
Census Tract 6068 Block Group 2	1,552	22.7%	31.8%
Census Tract 6068 Block Group 3	1,107	34.0%	15.5%
Census Tract Block 6072 Group 2	883	24.9%	43.4%

Source: U.S. Census Bureau. ACS 5-year 2022 tables, specifically B03002 and C17002.

The percent of minority individuals within the three Block Groups that intersect the PSA is less than the percent of minority individuals within Camden County. Two Census Block Groups, Census Tract 6068 Block Group 2 and Census Tract Block 6072 Group 2, contain a percentage of low-income individuals greater than that of Camden County while Census Tract 6068 Block Group 3 contains a percentage of low-income individuals less than the percentage within Camden County. Census Tract 6068 Block Group 3 also contains the highest percentage of minority individuals.

Minority Residents

No Census Block Groups intersecting the PSA exhibit a percentage of minority residents above 50 percent or a significantly greater percentage than found in Camden County as a whole to qualify as an EJ community as defined by the EPA. Nor do they qualify as a minority-population OBC according to New Jersey's Environmental Justice Law.

Low-Income Residents

No Census Block Groups within the PSA exhibit a percentage of low-income residents above 50 percent or a significantly greater percentage than found in Camden County as a whole to qualify as an EJ community as defined by the EPA. However, as per New Jersey's Environmental Justice Law, Census Tract 6072 Block Group 2 qualifies as low-income and is designated as an

OBC. Within this Census Block Group, 43.4 percent of the population is characterized as low income. This percentage is greater than the 35% threshold in New Jersey's Environmental Justice Law.

3.20.3 Environmental Consequences

3.20.3.1 No-Build Alternative

Under the No-Build Alternative, the project would not be undertaken, and the Interchange 3 Outside Toll area would remain in its current configuration. Consequently, the project would cause no new direct or indirect impacts on EJ populations in the PSA. Other committed projects, not associated with the Interchange 3 Outside Toll project, have the potential to impact EJ populations; sponsors of the projects may be required to address potential impacts of their projects on EJ populations.

3.20.3.2 Preliminary Preferred Alternative

No Census Block Groups within the Interchange 3 Outside Toll PSA contain minority or low-income populations sufficient to meet the definition of an EJ community. According to New Jersey's Environmental Justice Law, Census Tract 6072 Block Group 2 is identified as a low-income OBC. While the project's LOD intersects this Census Block Group, the area of impact contains no residential properties nor community facilities and the majority of the Census Block Group is located south and southeast of the Interchange 3 Outside Toll project LOD.

As described in Section 3.3 (Property Acquisitions and Displacements), no property acquisition would take place within Census Tract 6072 Block Group 2. As no property displacements within EJ communities would occur as a result of the project, no direct impacts to EJ communities are anticipated. Project construction activities could cause temporary air and noise impacts to the surrounding communities as described in Section 3.8 (Air Quality) and Section 3.9 (Noise), respectively. The NJTA would implement BMPs to minimize/avoid such impacts, especially within the OBC identified within the PSA.

3.20.4 Minimization and Mitigation

This analysis of EJ communities is preliminary and based on U.S. Census Bureau and NJDEP data, and more data may become available as project design and public outreach activities progress. The NJTA would coordinate with representatives of potentially affected EJ populations, if any are identified, during Final Design of the project. Coordination activities would help in the identification of minimization and mitigation measures to address potential impacts and avoid a disproportionately high and adverse effect on EJ populations.

3.21 ENVIRONMENTAL PERMITS

Environmental permits, approvals, and/or coordination with agencies required to construct the Interchange 3 Outside Toll project include but are not necessarily limited to the following:

3.21.1 State

3.21.1.1 NJDEP Executive Order No. 215 (EO 215) Environmental Impact Statement (EIS)

All departments, agencies, and authorities of the State of New Jersey, or projects funded by the state, are required to prepare and submit to the NJDEP an EA or EIS in support of major construction projects. Projects with anticipated construction costs in excess of $3 million are subject to the preparation of an EA, while projects with both construction costs in excess of $7 million and land disturbance in excess of five acres are subject to the preparation of an EIS. As project construction cost would exceed $7 million and land disturbance would be more than five acres, the Interchange 3 Outside Toll project requires preparation of a NJDEP EO 215 EIS.

3.21.1.2 Letter of Interpretation (LOI)

An LOI is a document issued by the NJDEP under N.J.A.C. 7:7A-4, indicating the presence or absence of freshwater wetlands, SOWs, or transition areas; verifying or delineating the boundaries of freshwater wetlands, SOWs, and/or transition areas; or assigning a wetland resource value classification. An application for an LOI – Line Verification for the Interchanges 1 to 4 Capacity Enhancements Program was submitted to NJDEP on January 30, 2023, which includes wetlands and SOWs located within the Interchange 3 Outside Toll PSA. The NJTA received the LOI – Line Verification approval letter (File No. 0000-23-0001.1 FWW230001) from NJDEP on December 6, 2024.

3.21.1.3 Freshwater Wetlands General Permit (FWGP) No. 12

The New Jersey Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A) govern activities within freshwater wetlands, transition areas, and/or SOWs. An FWGP No. 12 is required for surveying and investigative activities. Soil borings would be necessary to conduct subsurface geotechnical investigations for the project. An FWGP No. 12 would be required for any borings located within freshwater wetlands, transition areas, and/or SOWs.

3.21.1.4 Freshwater Wetlands Individual Permit (FWIP)

The New Jersey Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A) govern activities within freshwater wetlands, transition areas, and/or SOWs. The project would result in unavoidable impacts to freshwater wetlands, freshwater wetland transition areas, and SOWs; therefore, an FWIP would be required.

3.21.1.5 Flood Hazard Area Individual Permit (FHAIP)

The New Jersey Flood Hazard Area Control Act Rules (N.J.A.C. 7:13) govern activities within flood hazard areas and riparian zones. The objective of these rules is to minimize potential damage to public or private property, to protect and enhance the public's health and welfare by minimizing the degradation of water quality from point and non-point sources discharging into the flood hazard area, and to protect wildlife and fisheries by preserving and enhancing water

quality and the environment associated with the floodplains. An FHAIP would be required for the construction, installation or alteration of any structure or permanent fill along, in or across, the channel or floodplain of any watercourse, or for any alteration of, or discharge into the watercourse itself.

3.21.1.6 Flood Hazard Area Verification

According to the New Jersey Flood Hazard Area Control Act Rules (N.J.A.C. 7:13), a verification is required prior to, or concurrent with, an authorization under a general permit or an individual permit as set forth at N.J.A.C. 7:13-5.5. A Flood Hazard Area verification provides NJDEP's official determination of the flood hazard area design flood elevation, the flood hazard area limits, the floodway limits, and/or the riparian zone limits. As part of the NJDEP permitting process, Flood Hazard Area verifications would be required for all regulated waters in the PSA under N.J.A.C. 7:13.

3.21.1.7 Water Quality Certificate (WQC)

A WQC is required pursuant to Section 401 of the Federal CWA; however, the WQC is issued by NJDEP. NJDEP cannot issue a permit or approval for any activity that is inconsistent with the statewide or area-wide Water Quality Management (WQM) Plan. A consistency determination is the review conducted by the NJDEP to determine whether or not a particular regulated activity conflicts with the statewide or area-wide WQM Plan. WQC review is conducted concurrently with review of Freshwater Wetlands and Flood Hazard Area permit applications. This certification would be issued simultaneously with these permits by the NJDEP.

3.21.1.8 Stormwater Management Approval

If a project or activity meets the definition of a "major development", then the project or activity shall comply with the Stormwater Management Rules (N.J.A.C. 7:8). "Major development" means an individual "development," as well as multiple developments that individually or collectively result in: 1) the disturbance of one or more acres of land since February 2, 2004; 2) the creation of one-quarter acre or more of "regulated impervious surface" since February 2, 2004; 3) the creation of one-quarter acre or more of "regulated motor vehicle surface" since March 2, 2021; or a combination of 2 and 3 that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more. Disturbance for the purpose of this rule is the placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Projects undertaken by any government agency which otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 *et seq*., are also considered "major development". As the project would result in the disturbance of more than one acre of land and would create new impervious surface of one-quarter acre or more, the project must comply with the Stormwater Management Rules.

3.21.1.9 New Jersey Pollutant Discharge Elimination System (NJPDES) General Permit (5G3) for Stormwater Discharge Associated with Construction Activity

A stormwater construction general permit is required under the NJDEP NJPDES program. This authorization applies to point source stormwater discharges from construction activities (e.g., clearing, grading, excavating) that disturb one acre or more.

3.21.1.10 Linear Construction Report

The Administrative Requirements for the Remediation of Contaminated Sites Rules (N.J.A.C. 7:26C) establishes requirements for linear construction projects. This technical guidance applies to any person conducting a linear construction project that excavates more than 200 cubic yards of contaminated soil over the duration of the linear construction project. These requirements are to ensure that contamination encountered during the project is handled in a manner that is protective of human health, safety, and the environment. As part of this requirement, a Linear Construction Project Notification form should be submitted at least 45 days before the start of the construction to inform the NJDEP that a linear construction project is being initiated. Upon completion of the linear construction project, a Final Linear Construction Report should be prepared that summarizes the history of investigations and material management activities as they pertain to the construction of the project.

3.21.1.11 New Jersey Historic Preservation Office (NJHPO) Approval

The New Jersey Register of Historic Places Act Rules (N.J.A.C. 7:4) is designed to ensure that historic properties listed on the New Jersey Register of Historic Places (NJRHP) are given consideration during the planning and execution of regulated activities undertaken by a public agency. These activities include, but are not limited to, construction, rehabilitation and repair, permits, and grants. Whenever a proposed activity requiring state involvement or approval has the potential to encroach upon a historic property listed in the NJRHP, consultation must be undertaken with the NJHPO. An Application for Authorization under the New Jersey Register of Historic Places Act must be submitted by any state, county, or local government agency whose proposed activity may encroach upon a New Jersey Register-listed property. Investigative field survey efforts are ongoing, and further consultation with NJHPO would occur if impacts to archaeological and/or historic architectural resources are anticipated from project activities.

3.21.1.12 No Net Loss Reforestation Act Approval

The No Net Loss Reforestation Act (N.J.S.A. 13:1L-14.1 to 14.4) requires state entities to provide a plan for compensatory reforestation for all areas at least ½ acre in size that are owned or maintained by that state entity and are scheduled for deforestation. A reforestation plan resulting in no net loss of existing forested area is required for all areas subject to deforestation, and a public hearing is required to be held if impacts to existing forested areas exceed one acre. The reforestation plan must be submitted to the NJDEP Division of Parks and Forestry for review and approval by the Community Forestry Council. As project improvements would impact more than one acre of forested area, a reforestation plan and public hearing would be required.

3.21.1.13 NJDEP Endangered and Nongame Species Program (ENSP)/Natural Heritage Program (NHP)

The ENSP and NHP conduct reviews and provide input with respect to applications to the NJDEP Division of Land Resource Protection for permits, LOIs, habitat suitability determinations, etc. that may involve endangered or threatened wildlife or plants. Protection and management actions may be necessary if any listed species may be impacted. Consultation would be required if the project is determined to have the potential to affect any listed species and if any species surveys are required, which would be further evaluated during the permitting phase of the project.

3.21.1.14 New Jersey Protecting Against Climate Threats (NJPACT)

In an effort to build resiliency to sea level rise, extreme weather events, flooding, and general climate change in New Jersey, NJDEP is proposing the REAL initiative under NJPACT. NJDEP anticipates that this rule will become effective in Fall of 2025. Upon implementation of this initiative and throughout the permitting phase, the project would be evaluated for compliance with NJPACT and REAL, and anticipated permitting needs would be identified, if required.

3.21.2 County

3.21.2.1 Camden County Soil Conservation District (CCSCD) – Soil Erosion and Sediment Control (SESC) Plan Certification

Approval of development by all public agencies is conditioned upon approval of a plan for SESC. Certification is required for any activity that disturbs more than 5,000 square feet of surface area of land. Certification is also required for demolition of structures, construction of parking lots, public facilities, operation of mining or quarrying activities, and for clearing or grading of land for other than agricultural or horticultural purposes. Public facility means any building, pipeline, highway, electricity, telephone or other transmission line; or any other structure to be constructed by a public utility, municipality, county, or state, or any agency or instrumentality thereof. The project improvements would disturb more than 5,000 square feet of surface area of land; therefore, an SESC Plan Certification would be required from the CCSCD.

3.22 SUMMARY OF EIS FINDINGS

Table 3.22-1 provides a summary of the benefits and impacts associated with the PPA as described in this Chapter.

Table 3.22-1: Summary of Effects of PPA

Description of PPA Effects
Impact: The LOD for the Interchange 3 Outside Toll project PPA comprises 12.1 total acres of land; including existing ROW, wetlands, SOWs, forested habitat, and riparian zones.
Land Use Patterns, Zoning, and Consistency with Plans (Section 3.1)
Benefit: Consistent with municipal and county land use plans.
Benefit: The project would support existing land use patterns and zoning by increasing traffic capacities within the area of Interchange 3 Outside Toll.
Potential Impact: To allow for desirable geometric improvements to realigned Ramp TW, the project would result in the full acquisition of two parcels currently zoned for commercial use.
Socioeconomics and Economic Development (Section 3.2)
Benefit: The PSA is within an area that is primarily zoned for business use and serves as a focal point for economic growth and development. Increased mobility within the PSA would support economic growth.
No impact: Access to private properties (businesses), except for the hotel businesses being displaced, would be maintained in the long-term.
Potential impact: Temporary changes in access to private properties (businesses) could occur during project construction.
Impact: The displacement of three commercial hotel businesses within the PSA would result in a loss of ratables to the Borough of Bellmawr.
Property Acquisitions and Displacements (Section 3.3)
Impact: Number of potential permanent partial property (parcel) acquisitions: 3 Total; 0 Residential, 1 Commercial, 0 Institutional facilities, 1 Industrial facility, 1 Vacant
Impact: Number of potential permanent full property (parcel) acquisitions: 2 Total; 0 Residential, 2 Commercial, 0 Institutional facilities, 0 Industrial facilities, 0 Vacant
Community Cohesion and Community Facilities (Section 3.4)
No impact: Project improvements to the PSA would not split or fragment existing residential or business communities.
No impact: The project would preserve access within the PSA using existing or replaced structures during operations.
No impact: The project would not require permanent ROW from any existing community (institutional) facilities.
No impact: The project is not anticipated to cause temporary or permanent changes in access to the Borough of Bellmawr Dog Park (Green Acres ROSI parcel identified as Petruzzi Playground).

Description of PPA Effects
Potential impact: During construction, temporary changes in access to Ethel M. Burke Elementary School may occur such as a traffic diversion. The NJTA would coordinate with the school during construction plan development to ensure access is preserved.
Parks, Recreation Areas, and Open Spaces (Section 3.5)
No impact: Project improvements would not eliminate access to existing parks, recreation areas, and/or open space.
No impact: The project would not require permanent ROW from park properties.
No impact: No temporary changes in access to the Borough of Bellmawr Dog Park (Petruzzi Playground GAP parcel), such as a traffic diversion, are anticipated during project construction. The NJTA would coordinate with the entities during construction plan development to ensure access is preserved.
Historic and Archaeological Resources (Section 3.6)
Potential impact: A Phase I archaeological survey would be completed to determine if the project would impact archaeological sites.
Potential impact: There are no NRHP-listed or eligible historic properties within the APE; however, there are 49 historic architectural resources within the architectural APE that have not yet been evaluated. An intensive-level historic architectural survey and NRHP eligibility evaluations of these properties are underway and consultation with NJHPO would follow. If any of the resources are found to be eligible for listing in the NRHP, an effects evaluation would need to be conducted.
Visual and Aesthetic Effects (Section 3.7)
Impact: The project would cause visual changes during construction and operations.
Air Quality (Section 3.8)
Benefit: The project would result in a net reduction of all pollutant emissions when compared to comparable data for the No-Build Alternative, thus benefiting the air quality condition within the PSA.
Potential Impact: Low potential of air quality impacts is anticipated as traffic conditions around the interchange would essentially remain the same as compared to No-Build Alternative during project operation. Temporary air quality impacts from dust and construction equipment emissions would occur during project construction.
Noise (Section 3.9)
Impact: Two Category B (residential) traffic noise impacts are anticipated during project operation.
Soils and Geology (Section 3.10)
No impact: Soils disturbed during temporary project construction activities would be permanently stabilized according to an approved SESC Plan, resulting in no long-term soil erosion or degradation impacts.

Description of PPA Effects
Potential impact: Temporary soil disturbance during construction has the potential to encounter acid-producing soils.
Surface Water Resources (Section 3.11)
Impact: Project improvements would impact waterways and waterbodies, and permits from NJDEP would be required for those impacts.
Impact: Project improvements would result in a net increase of approximately 1.15 acres of motor vehicle surface in the PSA. The project would expand the SWM system to accommodate the additional runoff generated by the new impervious surfaces; therefore, Stormwater Management Approval would be required.
Floodplains and Riparian Zones (Section 3.12)
Impact: The project would impact floodplains of Beaver Brook and two UNTs to Beaver Brook and approximately 0.9 acres of riparian zones, requiring a permit from NJDEP. During the project's permitting phase, additional analysis of waterways identified during field investigations would be conducted to determine the presence of additional regulated floodplains.
Wetlands (Section 3.13)
Impact: The project would impact approximately 0.35 acres of freshwater wetlands/SOWs, requiring permits from NJDEP. Impacts to wetland transition areas would be identified and assessed during the permitting phase of the project.
Ecology and Wildlife (Section 3.14)
Impact: The project would permanently impact the ecology and wildlife habitat in the Turnpike ROW and in additional ROW areas by removing trees and vegetation.
No impact: The project would not permanently impact habitat that is suitable for known threatened and endangered species.
Terrestrial Vegetation (Section 3.15)
Impact: The project would permanently impact approximately 2.0 acres of qualifying No Net Loss habitat. The NJTA would be required by state regulation to submit a reforestation plan, hold a No Net Loss public forum, and replace trees lost in impacted riparian zones.
Groundwater Resources (Section 3.16)
No impact: The project would not permanently or temporarily impact existing wellhead protection areas.
Impact: The project would permanently reduce the ground surface area in the PSA that is available for infiltration of precipitation and runoff to groundwater; permits from NJDEP would be required.
Utilities (Section 3.17)

Description of PPA Effects
Impact: The project would impact existing utilities within the LOD; the NJTA would coordinate with utility providers during Final Design and construction planning.
Contaminated Materials, Hazardous Waste, and Solid Waste (Section 3.18)
Potential impact: Project construction has the potential to impact or be impacted by potentially contaminated sites and/or historic fill material within the PSA; the NJTA's construction and safety protocols and procedures would outline actions to be taken to protect workers and the public if contaminated materials are encountered during project construction.
Impact: Solid waste would be generated from construction.
Sustainability and Resiliency (Section 3.19)
Benefit: The project would be consistent with Federal and state sustainability policies and regulations.
Benefit: During Final Design, the NJTA would further study ways to build resiliency into the project design.
Environmental Justice (Section 3.20)
Benefit: The project would address capacity and operational needs at Interchange 3 and along Route 168; thereby benefiting all the populations in the traveling public, including minority and low-income populations that use the existing roadway.
Benefit: The project would maintain connections with and access to existing roadways that connect to Interchange 3, thereby benefiting all populations, including EJ populations.

Source: Program Team, 2024.

3.22.1 Cumulative Impacts

For compliance with New Jersey EO 215, projects required to submit an EIS must identify the direct, indirect, and cumulative impacts of proposed actions. Direct and indirect impacts of the Interchange 3 Outside Toll project are explained throughout Chapter 3 and summarized in **Table 3.22-1** above. A cumulative impact analysis is included below and considers the combined effects of human activity on the environment over time. Combined effects result from the incremental impact of the proposed actions of the Interchange 3 Outside Toll project and the other committed projects in the area when added to other past, present, and reasonably foreseeable future actions, regardless of the sponsors of those projects.

3.22.1.1 Methodology

This cumulative impact evaluation considered the effects of the Interchange 3 Outside Toll project combined with other planned and/or recently completed improvement projects in proximity to the PSA by Design Year 2040. Other projects considered, as identified in the No-Build Alternative and in **Table 2.1-1**, include:

- **New Jersey Turnpike Interchanges 1 to 4 Capacity Enhancements Program (NJTA)**: Proposed widening of one additional lane in each direction from MP 0.0 to north of the existing Interchange 4 at MP 36.5, and associated interchange improvements;

- **Route I-295/42, Missing Moves, Bellmawr (NJDOT)**: New ramps and related highway improvements; and,
- **Route 168/I-295 Interchange Improvements (NJDOT):** Evaluation of alternatives to upgrade numerous safety and operational deficiencies in the vicinity of the interchange, which includes the Prospect Ridge Boulevard and the Route 168 intersection.

Impacts and benefits summarized in this analysis are preliminary and based on current available data, as the assessment cannot account for design changes or future development projects not yet planned or announced. Due to the relatively small size and the location of the PSA within a highly developed section of Camden County, excessive cumulative impacts are not anticipated. The other committed highway projects considered in this analysis span broader areas and would likely result in cumulative impacts to the greater region due to their larger scale, but such effects would occur beyond the PSA.

3.22.1.2 Negative Cumulative Effects

Cumulative effects of the identified 2040 projects would impact environmental resources within the PSA; however, the avoidance, minimization, and mitigation measures implemented by the respective sponsors of the above-mentioned projects would minimize/offset potential impacts to the greatest extent practicable.

Area improvements would result in the loss of freshwater wetlands, SOWs, floodplains, and riparian zones within the PSA and surrounding area. The projects would be designed to avoid these impacts where practicable, and to effectively mitigate for these losses where impacts are unavoidable. The installation of retaining walls would be considered to avoid and/or minimize impacts to wetlands, waterbodies, and other sensitive environmental resources. Cumulative impacts resulting from the loss of these resources are anticipated to be minimal due to the existing developed and urbanized nature of the PSA.

A permanent increase in impervious vehicle surface area would result from these projects and would cause decreased groundwater infiltration in the area. Increased impervious surface area could also result in potential impacts to surface water resources and aquatic biota/habitat due to increased stormwater runoff. Vegetation removal and land disturbance required for the proposed improvements could also increase soil erosion and result in sedimentation of water resources. Proper implementation of SESC BMPs including soil stabilization, seeding, and construction/expansion of SWM systems would be employed to avoid/minimize runoff and potential water quality impacts.

Implementation of the committed projects would result in minor permanent impacts to vegetative communities. Vegetation impacts would be avoided/minimized where possible, and project sponsors would comply with NJDEP No Net Loss guidelines to ensure vegetation loss would be mitigated for effectively. Impacts from vegetation removal are anticipated to be minimal, as the PSA is located within a developed urban area of limited ecological value, and mitigation/restoration activities would likely result in conditions of equal or greater biological value. Fauna within the area are highly adaptable and have already demonstrated the ability to exist in an urban setting, and further impacts from urbanization and/or habitat loss would not be anticipated.

Future noise levels are anticipated to increase by 2040 due to increased vehicle usership and roadway capacity resulting from these committed projects combined with population and economic growth trends. These increases are not considered to be significant as per noise monitoring standards, and adverse cumulative effects to the PSA are not anticipated. Methods to reduce noise impacts, especially surrounding sensitive noise receptors, would be considered as respective project design progresses.

The displacement of commercial businesses may cause temporary economic impacts within the PSA, and minimization and mitigation methods would be considered during Final Design. However, it is anticipated that the improved level of service of the Route 168 corridor would provide overall economic benefits to the region as described below, which would offset the loss of ratables to the municipalities within the PSA; displaced businesses may also elect to relocate within the Borough of Bellmawr, which would lessen the loss of ratables.

3.22.1.3 Positive Cumulative Effects

All projects considered in this analysis, as identified above, would be implemented for the purpose of addressing operational and safety concerns associated with existing roadway infrastructure, and would be implemented in concurrence with municipal, county, and state master plans and zoning ordinances. Proposed improvements would improve LOS by increasing roadway mobility and alleviating existing traffic congestion within and beyond the PSA; therefore, addressing a critical infrastructure need of the area. Such improvements to roadway capacity and traffic operations would support existing zoning and land use patterns within the PSA.

Operational improvements would result in increased roadway usership as additional vehicles would pass through the PSA per day due to enhanced traffic flow. The projects would maintain and improve access to local roadways, utilities, businesses, and infrastructure. Community cohesion within the area would benefit from improved transportation conditions within the PSA and to/from nearby communities. Cultural and social characteristics of the local communities would be maintained and could be positively affected by improved mobility and cohesion.

Proposed improvements would result in overall socioeconomic benefits within the PSA and surrounding area. Improved LOS and mobility of the transportation corridors would support more efficient transportation of goods and services to/from the area. Reduced traffic congestion would promote increased corridor utilization as roadway users encounter fewer barriers to travel, in turn resulting in greater consumer utilization of local businesses and encouragement of new businesses to establish within the area. In turn, employment rates within the local communities may also increase as more jobs become available. Such improvements could cause the PSA to become a more desirable place to live, which would in turn increase tax revenue and could lead to improvements to schools and community facilities in the long-term. Improvements to the local economy would also support future commercial and industrial growth in the area, which is consistent with regional development plans and initiatives.

Increased vehicle air emissions due to increased roadway usership would be offset by a long-term reduction in vehicle idling due to improved travel times and reduced queuing along the roadway corridors. Such idling/congestion reductions, combined with new national and

statewide regulations setting improved standards for vehicle emissions, would result in decreased overall vehicle emissions and improved air quality in the area.

Improvements of the identified projects would be implemented in concurrence with state and Federal sustainability and resiliency standards to the extent practicable. As such, infrastructure in the area would become more resilient to future climate change and storm events that pose hazards to public health and safety. Sustainable development and infrastructure improvements would result in a positive cumulative effect for future generations by insuring access to resources, transportation corridors, and local services. Improved roadway mobility would result in improved response times for police, fire departments, and emergency service providers in the area, further benefiting public health and emergency response/resilience.