Chapter 18 Indirect and Cumulative Effects

18.1 INTRODUCTION

This section assesses the potential for the Build Alternative to result in indirect and cumulative effects. Potential indirect effects are generally defined as those induced or "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR § 1508.8(b) [2012]). Potential cumulative effects may result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions (40 CFR § 1508.7[2012]).

18.2 INDIRECT EFFECTS

The proposed Project will not result in an increase in train frequency, capacity or rail ridership. It will not induce development or result in indirect effects related to population or employment increases since none are expected to occur. The assessments for Land Use (Chapter 3) and Socioeconomic Conditions (Chapter 5) included consideration of the proposed Project's potential to cause direct and indirect effects and concluded that the proposed Project will not have an adverse impact on the population, land use, or socioeconomic activities in the study area.

The project will result in indirect air emissions (including greenhouse gas emissions [GHGs]), which were not accounted for in Chapter 7, "Greenhouse Gas Emissions." Air emissions result from the manufacturing of equipment and materials used in a project's construction. Indirect air emissions are also known as embodied or lifecycle emissions. At this time, there is no consistent or standardized method for calculating the lifecycle emissions for transportation projects. There are no tools currently available for clearly and meaningfully discerning which emissions are attributable to a specific project and which emissions would have occurred without the project. However, it is important to note that these short-term emissions occur only during the manufacturing of specific equipment and materials. Vendors that produce equipment and materials are subject to regulation at their facilities.

The presence of temporary workers during the construction phase will likely cause a short-term demand for services in the area, including increased demand at restaurants and gas stations. However, the construction phase is temporary and will not contribute to permanent growth-related effects, such as demand for municipal services in the area. Following the construction period, there will be approximately 30 permanent employees at the Main Facility (Preferred Alternative Project Component A). These permanent jobs would not be expected to result in any substantive residential construction or construction-related emissions, or create indirect effects related to demand on municipal services.

As a common occurrence of construction-related activities, noise and vibration will present a temporary displacement of terrestrial, avian or aquatic species that may frequently or infrequently traverse the Project area. However, the fragmented nature and limited wildlife function and value provided by these

resources, established active rail corridors and current active construction in the Project area present the same indirect effects on species, whether temporary or long term.

18.3 CUMULATIVE EFFECTS

The cumulative effects of the proposed Project with past and present actions have been assessed and described in each resource Chapter, as appropriate. Past and present actions include:

- The industrial development of the Kearny Peninsula and surrounding areas, including high voltage electrical towers and several power plants: the 452MW PSE&G Fossil Kearny Generating Station, the 620MW PSE&G Fossil Hudson Generating Station, and the 81MW PSE&G Fossil Essex Generating Station. In addition, the Kearny Landfill was converted into a Solar Facility (3MW) by PSE&G as part of a movement toward the production of clean energy.

- The industrial use of the properties within the Redevelopment Area, which resulted in soil and groundwater contamination and the current designation of the area as a brownfield site. (The Main Facility will be located on blocks and lots that are on NJDEP's Known Contaminated Sites List [KCSL] and the nearby Standard Chlorine Chemical Company [SCCC] site is a USEPA Superfund site).

- The preparation of the Koppers Koke Site for development by HCIA, including Processed Dredge Material (PDM) operation that has capped and elevated the site to meet all relevant floodplain criteria.

- The development of railroad infrastructure, including substations, tracks and yards associated with the Northeast Corridor and the Morris & Essex Line, some of which lies within the Meadowlands District boundaries.

Reasonably foreseeable future actions that will occur within the two-mile study area include:

- Improvements to substations (Mason, Henderson Street, and Building 9) on the Northeast Corridor and Morris & Essex Line, as identified in the No Action Alternative.

- Development within the Redevelopment Area, including the warehouse development on the Koppers Koke Site and additional adjacent development.

- Construction of the Wittpenn Bridge Replacement, which is underway and being completed in phases. The entire project is expected to be complete in 2022 (NJDOT 2016).

- Elements of Amtrak's Gateway Program, a series of rail infrastructure improvements designed to improve rail service, enhance capacity, and allow four mainline Northeast Corridor tracks between Newark, New Jersey, and Penn Station, New York. Phase 1 is currently underway and includes the Portal North Bridge Project and the Hudson Tunnel Project. Reasonably foreseeable components in the study area include construction of Portal Bridge North over the Hackensack

River and the Sawtooth Bridges Replacement Project in Kearny. (The Gateway Program Development Corporation 2018).

- New Jersey has adopted a renewable portfolio standard that will require nearly one-fourth of net electricity sales to come from renewable energy resources by 2021. Specific solar and offshore wind requirements are included in the standard.

- The redevelopment of the former Van Leer Chocolate Factory site into the Enclave Jersey City, a multi-use residential and commercial complex including apartment units, retail space and a parking garage.

Additional development that either would not occur within the two-mile study area or occur only partially within those boundaries but would nevertheless have synergistic effects with the proposed Project include the other projects in NJ TRANSIT's Resilience Program, Amtrak's Hudson River Tunnels resiliency project, and the Rebuild by Design administered by the U.S. Department of Housing and Urban Development (HUD) efforts planned for the Meadowlands.

As part of its Resilience Program, NJ TRANSIT is proceeding with the implementation of the DISTRIBUTED GENERATION SOLUTIONS project to provide power to rail and bus stations and other NJ TRANSIT infrastructure in northeastern New Jersey independent of the services supported by the NJ TRANSIT TRACTION POWER SYSTEM project (i.e., proposed Project). There are currently seven individual DISTRIBUTED GENERATION SOLUTIONS projects in the planning and design stages. The DISTRIBUTED GENERATION SOLUTIONS projects will focus on supplying reliable power to certain train stations, bus garages and other transportation infrastructure. These projects have independent utility from the proposed Project as well as from each other as the purpose of these projects is to provide reliable power solutions that would run entirely on their own during a commercial grid outage. Power equipment would be installed at each individual facility and would be capable of supplying power (to that facility only) when the commercial grid is down, allowing for continued operations during a power outage or otherwise as needed to support efficient operations. The installed power equipment at each individual facility would be maintained and operated by the staff familiar with that specific facility.

Five of these projects received FTA and NJ HPO approval through Categorical Exclusion and Section 106 reviews, respectively, under NEPA in spring and summer 2018. NEPA documentation, for the remaining two project sites is currently in progress, based on 20% design for the individual project.

The proposed Project in combination with above described initiatives would enhance railroad service reliability by reducing flooding potential and/or restoring service quickly after a major storm.

18.3.1 Land Use, Visual Quality, Noise and Vibration

Preferred Alternative Project Components A and B of the Project, together with the other planned development in the Redevelopment Area, would restore vacant and remediated brownfield property to active use and actualize many of the goals and objectives of the NJSEA plan. As described in Chapter 2, "Project Alternatives," the project will leave the existing pad at Substation No. 41 in place (Preferred

Alternative Project Component D). Amtrak will continue to own the parcel and may use the fill pad for ancillary railroad purposes. The proposed Project is not expected to create significant adverse land use impacts, visual quality, noise or vibration on an individual or cumulative basis. The installation of additional electrical lines, new substations, and other project components would not have any cumulative effects beyond those discussed in Chapter 3, "Land Use, Zoning and Public Policy" Chapter 8, "Visual Quality," and Chapter 11, "Noise and Vibration."

18.3.2 Air Quality and GHG Emissions

The air quality modeling accounted for current ambient air conditions; therefore, the impacts of past contributors to pollutant concentrations in the area have been considered. On an individual or cumulative basis, neither the proposed Project nor the other energy-related initiatives in the area would violate the National Ambient Air Quality Standards (NAAQS). Air pollution concentrations, which have been decreasing over the past couple of decades in response to increasingly strict environmental rules, would be expected to continue to decrease as progress is made on meeting the goals of the State's Energy Master Plan, as more coal-fired plants convert to using natural gas as the primary fuel, and as more electric generation capacity is converted to renewable energy sources, such as solar and wind. The proposed Project will result in additional GHG emissions, which combined with increasing global emissions, would result in climate change and associated effects. However, the increase in GHG emissions form the proposed Project in comparison to those in New Jersey, the United States and the world, are negligible. In 2015, New Jersey GHG emissions for electrical generation were 17.7 million metric tons of carbon dioxide equivalents (MMTCO2e) (of a total of 100.9 MMTCO2e). The NJ TRANSITGRID emissions of 0.577 MMTCO2e/year would be 3.3% of GHG emissions from power production in New Jersey. This would also be 0.00953% of the total GHG emissions of the United States in 2014, and 0.00141% of the world GHG emissions in 2014 (World Resources Institute, 2019).

18.3.3 Natural Resources

Past, present and reasonably foreseeable future actions have affected or will affect natural resources in the study area. The proposed Project is partially located within the New Jersey Meadowlands District, an approximate 8,400-acre mixed use and tidal and freshwater wetland preservation area, and the Main Facility site (Preferred Alternative Project Component A) is directly adjacent to the Hackensack River.

Wetlands

HCIA's planned access improvements to the Koppers Koke Site will cause a permanent loss of what are already fragmented low functioning wetlands, which are dominated by invasive common reed within the Redevelopment Area. These resources have been devalued by the remedial activities initiated in 2008 which resulted in the placement of PDM throughout the site.

Prior to the start of remedial activities, the Koppers Koke Site had a total of approximately 17 acres of mapped regulated wetlands. The HCIA completed a re-delineation of the onsite wetlands which reduced the quantity of regulated wetlands from approximately 17 acres to approximately 3.27 acres, and HCIA obtained a revised permit from the USACE for the re-delineated wetlands. In response to the USACE

permit conditions, two wetland credits for every acre impacted were purchased by HCIA for the land-based wetlands areas from a wetland mitigation bank (Marsh Resources, LLC) and these credits were accepted by the USACE, Interagency Review Team (IRT) and the NJDEP as a suitable compensatory wetland mitigation alternative and compliance with permit conditions. Onsite wetlands were filled as part of the remedial activities. Remedial activities in the Hackensack River in the westerly portion of the Koppers Koke Site also impacted intertidal wetlands. USACE and NJDEP permit requirements for the impacts required the construction of a wetlands mitigation area and this area was constructed by Beazer East, Inc., along the northern perimeter of the property where the site had tidal interchange with the Hackensack River (HCIA 2013).

SCCC had a total of 1.68 acres of on-site wetlands prior to remedial construction. This total included 0.34 acres of isolated wetlands, 1.32 acres of freshwater emergent wetlands and 0.03 acres of *Spartina* wetlands. Diamond Shamrock had a total of 0.51 acres of onsite wetlands prior to remedial construction. This total included 0.48 acres of isolated wetlands and 0.03 acres of *Spartina* wetlands. The disturbance of a total of 1.65 acres of wetlands was required for implementation of remediation on SCCC and Diamond Shamrock. In accordance with federal and state policies, a joint wetlands mitigation restoration plan was submitted to the USEPA to restore 1.65 acres of wetlands and it included the 0.45 acres of intertidal wetlands (0.18 acres on the Diamond Shamrock site and 0.27 acres on the SCCC Site) along the Hackensack River shoreline and 1.20 acres of freshwater emergent wetlands on the SCCC Site in upland areas. Due to unexpected site conditions, the plan was modified during construction and approved by USEPA and NJDEP. The final mitigation activities included 1.41 acres of mudflat restoration, establishment of 1.28 acres of freshwater wetlands on the SCCC property and the purchase of 0.225 acres of off-site wetland mitigation bank credits (HCIA 2013).

The proposed Project is anticipated to impact 1.7 acres of wetlands for the construction of the new Kearny Substation and 0.3 acres for the installation of the monopole within Cedar Creek Marsh South (Preferred Alternative Project Component D), as well as 3.27 acres for the construction of Preferred Alternative Project Component A, and 0.26 acres of for the construction of Preferred Alternative Project Component B. Preferred Alternative Project Component E will require 0.18 acres of impacts to the Hackensack River channel bed should the cable lay down method be utilized. The wetlands in the study area are considered low-resource value because:

- The vegetation is and was predominately invasive vegetation common to altered urbanized, fragmented areas that provide limited access for wildlife or consequential benefits for foraging, breeding or shelter;
- The resources in question are not systematically contiguous nor are they tidally connected to the Hackensack River. They no longer represent or provide the historic benefits and functions of the larger tidally-influenced Meadowlands Habitat Complex; and
- The fragmented nature of the wetlands and their limited foraging resources, combined with the presence of active rail lines which create noise and disturbance to wildlife, reduce the likelihood that terrestrial or avian species frequent these locations.

Any temporary wetland impacts due to construction staging, and any permanent wetland disturbances, would be mitigated through the purchase of wetland mitigation bank credits, prior to start of construction. Mitigation credit purchase will provide a "no net loss" through the purchase of wetland credits released for sale based on the restoration and establishment of wetland functions and native wetland vegetation. Although up to 2 acres of low value isolated wetlands will be eliminated by the Build Alternative, through mitigation, the project will support the restoration of up to 5 acres of high value, functional wetlands. The loss of low value wetlands will be mitigated through mitigation credit purchase of high-resource value wetlands from a restored federally and state approved mitigation bank(s). Thus, there will be no cumulative impact to wetlands from the proposed Project.

Water Quality

Significant cumulative adverse effects on the water quality of the Hackensack River are not anticipated. Construction of the Wittpenn Bridge, Portal Bridge North, and development in the Redevelopment Area would implement landward and in-water soil erosion sediment control (SESC) measures and BMPs to minimize the potential for runoff and increased sedimentation in the Hackensack River.

No unique geologic, soil, or mineral resources would be affected by the proposed Project. Thus, on an individual or cumulative basis, the proposed Project would not significantly affect soil or geologic resources.

18.3.4 Traffic and Public Transportation

The cumulative effects on traffic and public transportation were evaluated in Chapter 10, "Traffic and Transportation." Warehouse development within the Redevelopment Area could increase traffic on study area roadways. Traffic associated with the Main Facility site would be easily accommodated into the traffic network with little noticeable effect.

The cumulative effects of the proposed Project, together with the other transportation resiliency projects in the study area, including the DISTRIBUTED GENERATION SOLUTIONS project, would improve the reliability of public transportation in the core service territory during commercial grid power outages.

18.4 SUMMARY OF SIGNIFICANT ADVERSE IMPACTS AND MITIGATION MEASURES

The proposed Project would not have indirect adverse effects on population, land use, or socioeconomic conditions in the study area. The construction phase of the project is not anticipated to result in any long-term growth. In addition, while noise and vibration are expected to increase during construction, this would be temporary, and is not expected to permanently displace mobile natural resources.

There are potential beneficial cumulative effects associated with the proposed Project. In conjunction with state and federal initiatives, the proposed Project will enhance railroad reliability by reducing flooding potential and/or restoring rail service quickly after a major storm. In addition, public transportation would be improved as both the cumulative effects of the proposed Project and neighboring transportation resiliency initiatives materialize.

The installation of new substations, electrical lines, and other project components would not have any cumulative effects beyond those discussed in Chapters 3 (“Land Use, Zoning and Public Policy”), 8 (“Visual Quality”) and 11 (“Noise and Vibration”). Air quality and GHG emissions would not present adverse cumulative effects. There is the potential to have cumulative effects on wetlands; however, these are not considered significant adverse impacts. Furthermore, no significant cumulative adverse impacts are anticipated to Hackensack River water quality, and no unique soil, geologic or mineral resources would be affected.