

## **Appendix A: NJ TRANSIT's Site Screening Analysis for NJ TRANSITGRID**

---

## **APPENDIX A: NJ TRANSIT'S SITE SCREENING ANALYSIS FOR NJ TRANSITGRID**

### **A.1 INTRODUCTION**

The Federal Transit Administration (FTA) and New Jersey Transit Corporation (NJ TRANSIT) will prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA) and FTA's regulations for implementing NEPA for the proposed NJ TRANSITGRID TRACTION POWER SYSTEM (the proposed Project). The proposed Project is a first of a kind microgrid designed to provide highly reliable power to support a core segment of NJ TRANSIT's critical transportation services and infrastructure needs. As defined by the U.S. Department of Energy (DOE), a microgrid is a localized grouping of electricity sources and loads that normally operate connected to and synchronous with the traditional centralized grid, but can disconnect and function autonomously as physical and/or economic conditions dictate.

The proposed Project will include an approximate 104-megawatt (MW)<sup>1</sup> natural gas fired electric power generating plant (Main Facility) and associated infrastructure to provide traction power (i.e., the electricity needed to electrify railroad tracks) to enable trains to operate during widespread power failures on a portion of NJ TRANSIT and Amtrak systems, including some sections of the Amtrak Northeast Corridor (NEC) and NJ TRANSIT Morris & Essex Line, and the Hudson-Bergen Light Rail System. The proposed Project will also be designed to support non-traction loads including the signal system on a portion of the NJ TRANSIT Main Line (so that diesel trains can operate during power outages), signal systems at NJ TRANSIT Hudson-Bergen Light Rail Stations and at the NJ TRANSIT Hoboken Terminal, and other NJ TRANSIT signal power, tunnel ventilation, pumping, and lighting loads.

The proposed Project will be located in Kearny, Hudson County, New Jersey in close proximity to the traction power substations it will serve (see Figure 1).

### **A.2 SITING ANALYSIS OVERVIEW**

NJ TRANSIT conducted a siting analysis for the selection of the location of the proposed Main Facility that included screening 21 industrial properties on the Kearny Peninsula<sup>2</sup> based on criteria related to land availability and how well each site would support the goals and objectives established for the proposed Project. One site—the central portion of the Koppers Coke Peninsula Redevelopment Area

---

<sup>1</sup> UPDATE in 2018: This siting analysis was completed in November 2015. As discussed in the Preface of the Draft Environmental Impact Statement (DEIS), the engineering/design phase of the project has progressed and the best design option is one that generates approximately 104MW to 140MW. However, the siting analysis conducted in 2015 remains valid and the preferred site has not changed.

<sup>2</sup> For an expanded siting analysis that included sites outside of Kearny, NJ, please see section 2.4 of Chapter 2, "Project Alternatives" of the DEIS.

## Legend



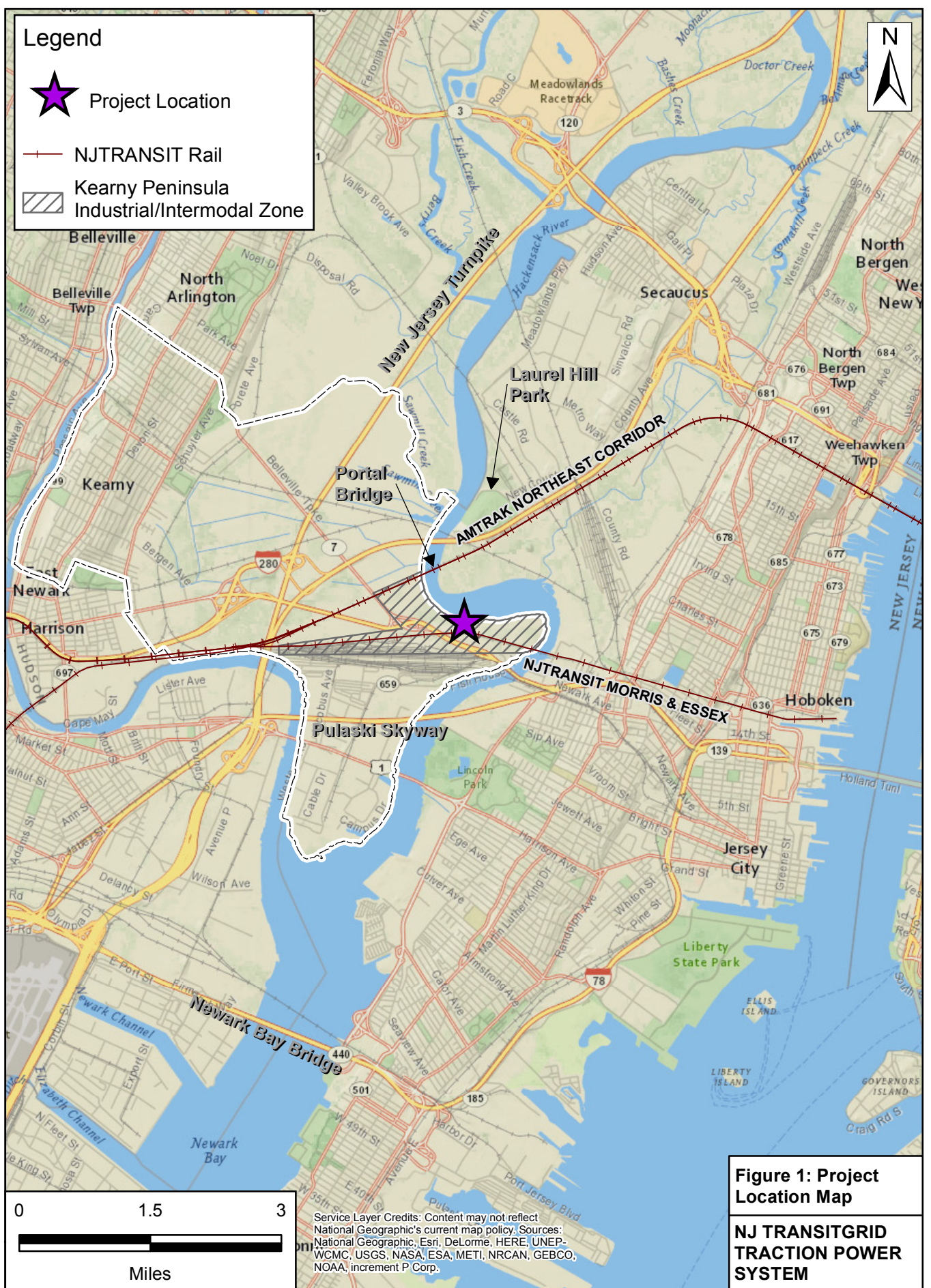
Project Location



NJTRANSIT Rail



Kearny Peninsula  
Industrial/Intermodal Zone



Service Layer Credits: Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

**Figure 1: Project Location Map**

**NJ TRANSITGRID  
TRACTION POWER  
SYSTEM**

- was selected because it meets all aspects of the siting criteria. In addition, no other site offers any advantage over use of the proposed Project site.

Only sites on the Kearny Peninsula were considered in the siting analysis because that is where NJ TRANSIT's Mason and Amtrak's Sub 41 substations are located. These two substations will receive the highest electrical loads from the microgrid via transmission lines that run from the generation site to the substation. Electricity is lost during transmission due to resistance and the amount of electricity that is lost increases as the length of the transmission line increases. To compensate for the transmission line power losses, more electricity, and therefore greater air emissions, would be generated. In order to minimize transmission line power losses, the Main Facility is proposed in close proximity to its greatest loads -- the substations that support rail service on the Northeast Corridor and Morris & Essex Line. In addition, natural gas lines span the length of the Kearny Peninsula, which further reduces the proposed Project's property acquisition requirements and potential for impacts to community and environmental resources.

The first step in the site selection screening process was to identify properties of a minimum size and layout to host such a facility, which was determined to be at least 20 acres. The site must accommodate an access road, a parking lot, water and ammonia tanks, gas turbine or reciprocating engine equipment (potentially with a steam power plant to improve operating efficiencies), and a main building with engine, turbine, and auxiliary bays and general spaces for a machine shop, locker room, laboratory, and office facilities. Substations, transformers, and switchgear and motor controls for the auxiliary (black start) power system are also needed. Based on a preliminary site layout, which follows standard industry requirements for distances between certain equipment, the minimum size of the parcel needed is 20 acres.

If an individual site was not greater than or equal to 20 acres, adjacent parcels were combined to total 20 acres and included for consideration as a site alternative. Property boundaries and ownership information were obtained from a variety of sources.<sup>3</sup> The Kearny Peninsula is bounded by the Hackensack River to the north and east, the Passaic River to the south, and the New Jersey Meadowlands to the northwest. Sites beyond these boundaries were not considered in the siting analysis due to their distance away from the substations and the desire to reduce the need to construct transmission lines in or above open waterways and wetlands. The 21 parcels on the Kearny Peninsula that were evaluated in the siting analysis are identified in Figure 2.

### A.3 SITING CRITERIA

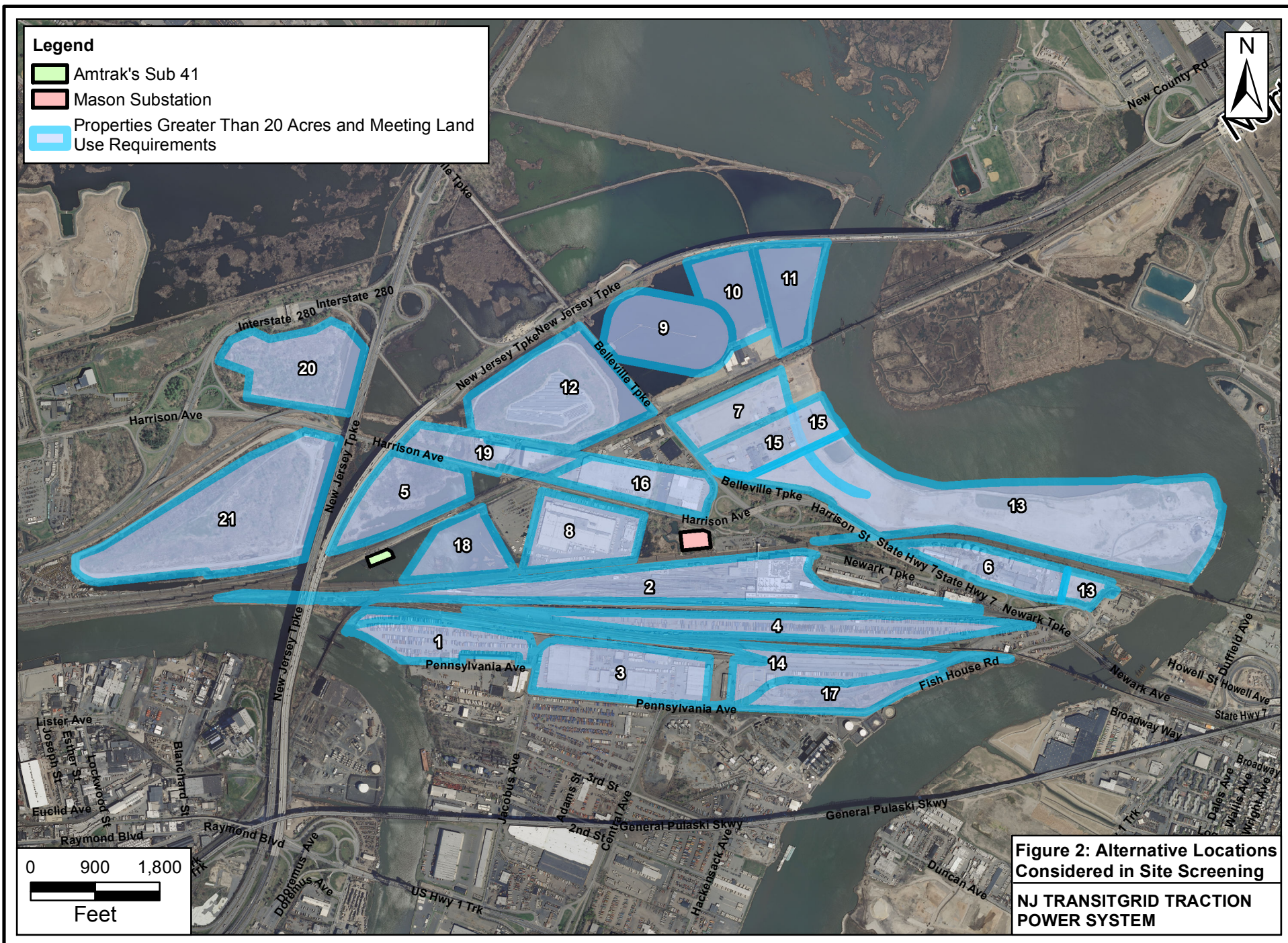
The 21 sites on the Kearny Peninsula were evaluated based on siting criteria that considered:

- Land availability; and

---

<sup>3</sup> New Jersey Geographic Information Network, State of New Jersey Composite of Parcels Data, and tax information from the New Jersey Treasury Department.







- How well each site would facilitate the Preferred Alternative's ability to meet the Project goals and objectives.

The entire State of New Jersey is currently designated as nonattainment for ozone. Since ozone is a result of emissions of Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds (VOCs) transported downwind from combustion sources (including out-of-State sources), siting power generation anywhere within New Jersey would have similar impacts with respect to ozone nonattainment. Therefore, use of each site would be expected to result in similar air quality impacts.

#### A.4 RESULTS OF SITE SCREENING

Sites that have been previously developed, but do not contain an active use, were selected over undeveloped areas and those that would require displacement of a business. Several properties listed in the property database are open waters. These were also eliminated from further consideration. Of the 21 parcels identified via property records, 13 of them were eliminated based on the existence of current land uses on the site or if the property is comprised of open water (see Table 1).

**Table 1: Parcels Evaluated in Site Screening Analysis**

<u>Parcel</u>	<u>Acreage</u>	<u>Property Owner</u>	<u>Existing Use</u>	<u>Reason for Elimination</u>
1	24.0	CSX	Transportation	Existing Use
2	68.1	NJ Transit	Transportation	Existing Use
3	39.2	Sunset Cahuenga Dunn Real Estate	Commercial/ Warehouse	Existing Use
4	42.3	Conrail	Transportation	Existing Use
5	31.5	Town of Kearny	Undeveloped	Potential Impacts to Wetlands
6	20.9	Owens Corning	Industrial	Existing Use
7	20.5	Diamond Shamrock	Undeveloped	Programmed for Partial Development/ Contamination/Construction Risk
8	30.2	Multiple	Commercial	Existing Use
9	36.5	Straus Communications	Open Water	Water Body/Existing Use (radio tower)
10	21.7	Hackensack Meadowlands Development Commission	Open Water	Water Body
11	23.6	Hackensack Meadowlands Development Commission	Open Water	Water Body
12	60.0	Town of Kearny	Undeveloped	Existing Use/Landfill/Construction Risk
13	139.8	HCIA	Undeveloped	Not Applicable/Preferred Site
14	36.0	Town of Kearny	Transportation	Existing Use
15	25.2	Standard Chlorine Chemical Company	Undeveloped	Federal Superfund Site

<u>Parcel</u>	<u>Acreage</u>	<u>Property Owner</u>	<u>Existing Use</u>	<u>Reason for Elimination</u>
16	23.5	AMB Institutional Alliance Fund III	Commercial/ Warehouse	Existing Use
17	21.4	Multiple	Undeveloped	Potential Impacts to Wetlands, multiple properties, distance to railroad
18	20.5	Multiple	Open Water/ Utility	Existing Use/Water
19	21.4	Multiple	Commercial	Existing Use
20	39.6	Town of Kearny	Undeveloped	Potential Impacts to Wetlands/Trees/Water Bodies
21	91.7	Town of Kearny	Undeveloped	Landfill/Construction Risk

The eight remaining sites are as follows:

**Parcel 5** is approximately 32 acres in size and is owned by the Town of Kearny. Use of this parcel would impact wetlands (see Figure 3).

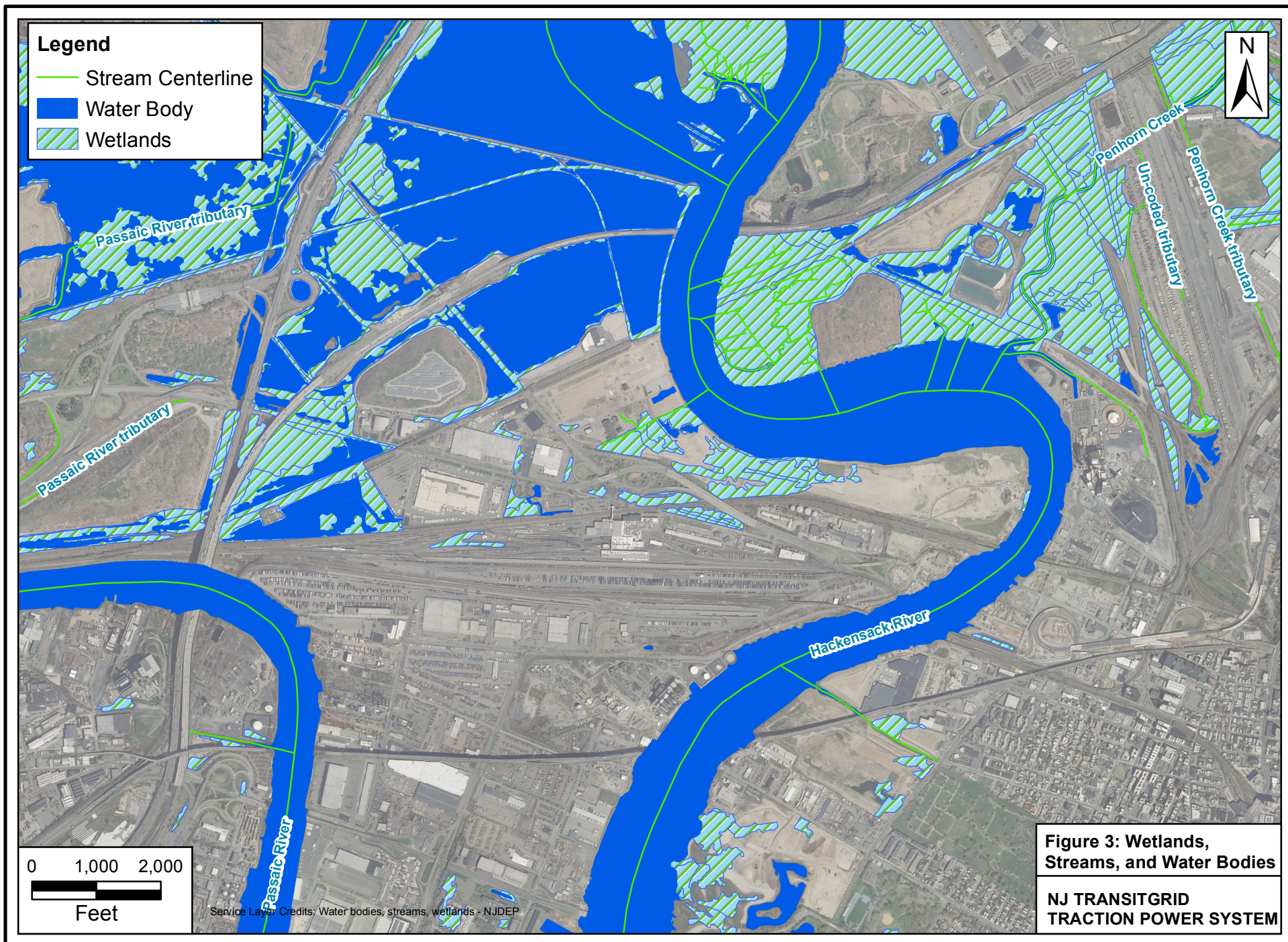
**Parcel 7** is approximately 21 acres and is owned by Diamond Shamrock. A portion of this site is currently slated for development as part of the Portal Bridge Project. In addition, hexavalent chromium (carcinogen) is known to be onsite, which presents health and safety concern when handling soils.

**Parcel 12** is a 60-acre site comprised of a solar generation plant on a capped landfill. This parcel is designated as an Environmental Conservation zone in the Meadowlands Regional Commission Official Zoning Map. The Environmental Conservation zone is designed to preserve and enhance the ecological values of wetlands, open water and adjacent uplands within the district.

**Parcel 13** is a 140-acre site, formerly the Koppers Seaboard Site, owned by the HCIA. The site was contaminated and has been subject to a number of remedial efforts including capping. A dredging operation has been active on the site along a portion of the Hackensack River shoreline and processed dredge material is being used to cap the site and ready the site for development. NJ TRANSIT currently has an option to purchase roughly 26 acres within Parcel 13. Use of this site would require a zoning variance from the Meadowlands Regional Commission since power would be generated for use beyond the Koppers Coke Peninsula Redevelopment boundary and the Plan permits power generation for on-site uses only.

**Parcel 15** consists of five individual parcels totaling 25 acres. A portion of this parcel is a Federal Superfund Site known as Standard Chlorine Chemical Company. The site has several areas of concern including: dioxins in the soil; volatile and semi-volatile organic compounds in all media; and groundwater contamination including dense non-aqueous phase liquid. Contaminated fill material consisting of Chromium ore processing residues from non-site related activity is also present and hexavalent chromium contamination is documented on the western portion of the site.







**Parcel 17** consists of three parcels that approximate 21 acres. Utility easements and potential wetlands (see Figure 3) are present on this site. It is relatively far from the Morris & Essex Line and gas pipelines, and would require the purchase of multiple properties and permanent easements.

**Parcel 20** is adjacent to the NJ Turnpike toll plaza and is owned by the Town of Kearny. The site is adjacent to wetlands (see Figure 3) and would require development of a previously undeveloped parcel requiring removal of trees and impacts to natural resources. Construction of the transmission line to Amtrak's Kearney Substation would require crossing wetlands and major roadways.

**Parcel 21** is a closed landfill owned by the Town of Kearny and is approximately 40 acres in size.

Each of these parcels was evaluated with respect to the degree to which it would facilitate the Preferred Alternative's ability to meet Project objectives. Those that relate to siting the facility include the objective to:

- Minimize construction risk
- Minimize schedule risk
- Maximize efficiencies in the environmental review and permitting processes
- Minimize property acquisition requirements to the maximum extent feasible
- Reduce direct and indirect sources of air emissions to the maximum extent feasible
- Minimize the need to construct in wetlands and open waters
- Avoid impacts on parklands, open spaces, and environmental conservation areas; and
- Minimize construction impacts to the extent feasible.

The results of the evaluation are presented below and summarized in Table 2.

#### ***Minimize Construction Risk***

Two of the eight parcels (Parcel 12 and 21) are capped landfills. Landfills are structurally undesirable and present safety concerns related to subsurface contamination and the increased potential for explosion due to methane gas. Use of these sites would not support the objective of minimizing construction risk. Parcels 7 and 15 are contaminated and would also present a high level of construction risk. Relative to these sites, construction risk would be minimal at the other four sites. Parcel 13 offers the lowest construction risk due to the site investigations and remediation that have already occurred and since the site is being readied for development by HCIA, which reduces the potential to encounter unexpected conditions during construction.

#### ***Minimize Schedule Risk***

Parcel 13 presents the least risk to the Project schedule since it is available for redevelopment and site preparation is well underway. The parcels that have a high construction risk (Parcels 7, 12, 15, and 21) present a risk to the Project schedule. The parcels that require property acquisition from multiple owners (Parcel 15 and 17) increase the chance that condemnation proceedings would be required, which increase risk to the Project schedule.

***Maximize Efficiencies in the Environmental Review and Permitting Processes***

The parcels that have a high degree of contamination (Parcel 7, 12, 15 and 21) and those that would adversely impact natural resources and require permits for construction (Parcel 5, 17 and 20) would not meet the objective of streamlining the environmental review and permitting processes. Relative to the other sites, Parcel 13 best meets this objective as it is devoid of wetlands and vegetation and is available for redevelopment.

***Minimize Property Acquisition Requirements to the Maximum Extent Feasible***

Parcels that are comprised of multiple properties (Parcel 15 and 17) and those that would require property acquisition for the transmission line routes or connection to the natural gas line (Parcels 5, 7, 12, 20 and 21) would not meet this objective. Parcel 13 meets this objective as it is directly adjacent to the Morris & Essex Line and gas pipeline for routing of the transmission line and gas pipeline connection and it is available for redevelopment from HCIA.

***Reduce Direct and Indirect Sources of Air Emissions to the Maximum Extent Feasible***

Each of the sites would permit relatively short transmission lines between the generation site and the substations, thereby reducing energy losses, air emissions and the Project's carbon footprint. Therefore, each of the parcels would meet this objective to the same degree.

***Minimize the Need to Construct in Wetlands and Open Waters***

Potential impacts to wetlands would be minimal with use of Parcels 7, 12, 13, and 15. Use of Parcels 5, 17, 20 and 21 would impact wetlands either because wetlands are present on site or the installation of transmission lines would require work in or near wetlands.

***Avoid Impacts on Parklands, Open Spaces, and Environmental Conservation Areas***

Parcel 12, which is in a designated Environmental Conservation zone, and Parcel 20, vegetated open space, would not meet this Project objective. The other parcels would meet this objective to the same degree.

***Minimize Construction Impacts to the Extent Feasible***

The parcels are located in an industrial area with good highway access. Construction impacts would be similar at all of the sites. Parcel 13 would minimize construction impacts to the maximum extent since it is a large site that is being readied for development by HCIA.



**Table 2: Site Screening Evaluation Matrix**

		Objectives:							
		Minimize construction risk	Minimize schedule risk	Maximize efficiencies in the environmental review/ permitting processes	Mimimize property acquisition requirements to the maximum extent feasible	Reduce direct and indirect sources of air emissions to the max extent feasible	Minimize the need to construct in wetlands and open waters	Avoid impacts on parklands, open spaces and environmental conservation areas	Minimize construction impacts to the extent feasible
Alternate Sites:	Parcel 5	⦿	⦿	◯	◯	●	◯	●	⦿
	Parcel 7	◯	◯	◯	◯	●	◯	●	⦿
	Parcel 12	◯	◯	◯	◯	●	◯	◯	⦿
	Parcel 13	●	●	●	●	●	●	●	●
	Parcel 15	◯	◯	◯	◯	●	●	●	⦿
	Parcel 17	⦿	◯	◯	◯	●	◯	●	⦿
	Parcel 20	⦿	⦿	◯	◯	●	◯	◯	⦿
	Parcel 21	◯	◯	◯	◯	●	◯	●	⦿

**Key:**

- Meets objective
- ⊘ Meets objective to some degree
- Does not meet objective