A. SITE IDENTIFICATION AND DESCRIPTION

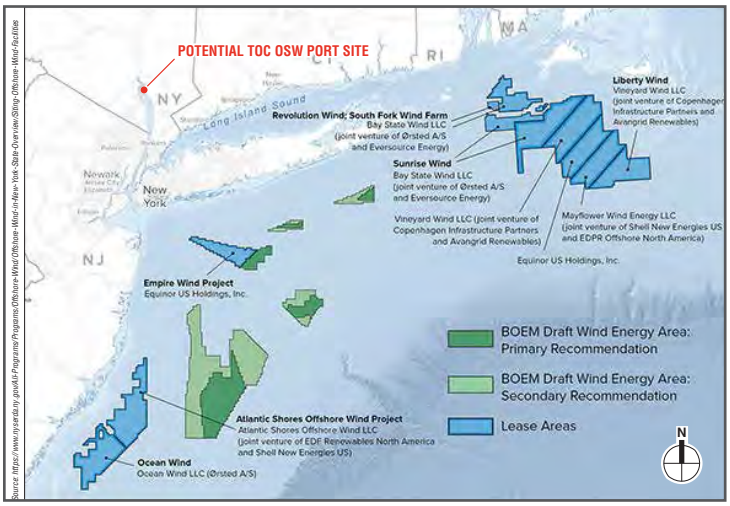
NYSERDA Evaluation Criteria																	
Questions		A. Technical Considerations				B. Financial and Risk/ Return Considerations			C. Economic Benefits			D. Viability					
Section	#	a. Understanding of OSW Supply Chain	b. Technical needs and challenges	c. Physical advantages and barriers to OSW chain	d. Support near- and long-term OSW industry	a. Level and structure of NYS financing	b. Ratio of State to Non-State financing	c. Creditworthiness	a. Benefits relative to NYS Investment	b. Risks associated with achieving such benefits	c. Unlock future supply chain benefits	a. Site's competitive advantage in OSW supply chain	b. Site control / long-term usage	c. Maturity of site development plan	d. Proposed permitting and construction schedule	e. Stakeholder engagement plan	f. Qualification of applicant, team members, other parties
A. Site Identification and Description	1		•														
	2	•											•				
	3	•	•	•													

Existing Site Characteristics	
Location	Latitude: 41°15'24.5"N; Longitude: 73°57'51.9"W
Owner	Town of Cortlandt; (914) 734-1000; http://www.townofcortlandt.com/
Significant Tenants	No active tenants or leases
Surrounding Land Use	Undeveloped (east); Industrial (Continental Building Products and Indian Point Energy Center, north); Residential (Hamlet of Verplanck, south)
Acreage	Town of Cortlandt Property Total: 99 acres TOC OSW Staging and Installation Port Site Upland: 20 Acres
Water Depth	32 ft. MLLW federally authorized Hudson River Channel
Dimensions of Quayside	1,050 feet of waterfront length
Bearing Capacity of the Quayside and Upland Areas	Conducive to constructing a level upland area with bearing capacities in excess of 6,000 psf
On-site Power and Other utilities	Electric and potable water available Sanitary sewage disposal not available
Access to Road and Rail Transportation	Accessible to US Route 9 Not connected to existing freight rail
Infrastructure and Buildings	Several vacant structures
Nautical Distance to WEAs	Empire Wind: 84 nm; Sunrise Wind: 210 nm; Liberty Wind: 224 nm; Atlantic Shores: 128 nm; Ocean Wind: 140 nm; Skipjack Wind: 174 nm
Environmental Conditions	No extensive remediation expected
Protection from Surges, Storms and Hurricanes	100-Year Flood Elevation: 10 to 13 feet (NAVD88)

1. Identify the site(s) of the port facility (the "Site") being discussed in your response. Proper identification should include geographic information system (GIS) data, address, a description of the surrounding neighborhood, and aerial visuals of site delineation.

The potential offshore wind (OSW) Staging and Installation Port under the application would be along the Hudson River in the Town of Cortlandt, Westchester NY ***(see Figure 1.1-Regional Location*)**. **Of the 99 acres owned by the Town of Cortlandt (TOC) at this location (the Property), an approximate 20-acre portion adjacent to the Hudson River (the Site) would be used for this Staging and Installation Port *(see Figure 1.2 - Site Location)*.** The Site is on the Verplanck peninsula bounded by Broadway to the east, the Hudson River to the west, the municipal line with the Village of Buchanan to the north, and 9th and 11th Streets to the south. The Site was formerly owned by Consolidated Edison of New York, Inc. (Con Edison) and is adjacent to a limestone quarry on the Property, which has filled with natural spring waters and is now an approximate 32-acre unclassified surface waterbody (Quarry Pond).

Figure 1.1: Regional Location



The area surrounding the Property is a combination of industrial and residential uses with some commercial uses located along Broadway in Verplanck. The adjacent use to the north of the Quarry Pond is a gypsum manufacturing plant owned and operated by Continental Building Products. In addition, adjacent to the Property to the north is the Indian Point Energy Center (IPEC). ***See response to Question 12* on the planned shutdown and decommissioning of IPEC.** South and east of the Site is the largely residential historic hamlet of Verplanck.

Photo: Aerial of Town of Cortlandt Property (source: Google)

The remaining portions of the Property are largely vacant and include some pocket wetlands, several vacant structures related to the Site's former use as a quarry, overhead transmission lines, the AIM gas pipeline easement and a ball field along Broadway and 11th Street.

The Site is adjacent to two additional parcels, equaling approximately 21 acres, owned and operated by Con Edison for tower-mounted electrical transmission lines. Con Edison retains a reservation of certain easement rights over the Site for access, ingress, and egress from its Parcels and to support continued operation and maintenance of the electric transmission facilities.

2. Identify the current ownership, operational structure, and uses of the Site. This information should include the terms of any current leases relevant to the Proposed Site Investment and Proposed Site Activity.

The Town of Cortlandt owns the property containing the Site of the potential OSW Staging and Installation Port. The Site is currently vacant and has no active uses. The Town has been exploring options for redevelopment of portions of the property since its purchase from Con Edison in 2016, though no final plan for development of the 20-acre Site has been selected yet.

The Site and Property include an underground 42-inch diameter gas pipeline (AIM Gas Pipeline easement) that was recently upgraded in 2017 and is operated by Enbridge (which merged with Spectra Energy in 2017).

The Site is uniquely suited for an OSW Staging and Installation Port due to the absence of railroad track obstructions. The Metro-North Hudson line/CSX tracks run along the edge of the Hudson River for most of Westchester County (and farther northward to Albany). In the vicinity of the Site, the railroad tracks are located inland, adjacent to US Route 9 as shown on ***Figure 1.2 - Site Location***. Therefore, unlike many properties fronting the Hudson River from the Bronx through Westchester, up in to the Hudson Valley, the Site's access to the river is not obstructed by railroad tracks.

The Site entrance on Broadway would be within a 5-minute drive from the US Route 9 exit ramp at Louisa street, and does not require major truck travel through residential areas. This allows the Site to function as a transfer point for materials arriving via truck. At this Site, materials can be staged, assembled and transferred to barges or ships for delivery to OSW Wind Energy Area (WEA) sites without having to travel by truck through the most congested sections of the New York metropolitan area.

The Site is located in the Town of Cortlandt's Designed Industrial (MD) District which is intended to permit and encourage industrial development. Since the 1800s the Site and surrounding area has been highly developed with robust commercial, manufacturing, industrial, and institutional land uses. Land uses in the vicinity of the Site consist of transportation, communication, utilities, manufacturing, industrial, warehousing, or vacant properties. Development of an OSW Staging and Installation Port is consistent with the Site's historical uses.

3. Provide a summary of the existing Site infrastructure. At a minimum, this description should include:

A. Acreage

The Property is a total of 99 acres. The Site is an approximate 20-acre portion of the Property, which has been identified in this application for potential development of an OSW Staging and Installation Port, as depicted on ***Figure 1.2 - Site Location***. Development of an OSW Staging and Installation Port on the Site would not displace any existing tenants or uses. **The development of an OSW Staging and Installation Port at the site could unlock significant acreages of Land-Locked Areas for Potential OSW Manufacturing and Fabrication Facilities *(see responses to Questions 4, 5 and 12).***

Photo: AKRF staff walking along future access road to OSW Port

B. Water depth and seabed conditions of the quayside, adjacent channels, and relevant vessel routes

The Site fronts the Hudson River, which serves as a major route for commercial vessels traveling between Albany and New York Harbor. Water depths of the Hudson River Navigation Channel in the vicinity of the Site range from 50 to 75-feet deep as shown on NOAA Navigation Chart 12343 for the Hudson River from New York [City] to Wappinger Creek.

The riverbed along the western edge of the Site consists of sloped, unconsolidated soil with water depths ranging from 0 to 5-feet deep. **Within 150-feet of the western edge of the Site, water depths range from 14 to 17-feet deep, which could easily accommodate traffic of 13-foot draft depth vessels *(See Figure 3.1 - Hudson River Cross Section)***

C. Dimensions of the quayside

The Site's frontage on the Hudson River is approximately 1,050-feet. Under existing conditions, a quay to serve OSW supply vessels does not exist. Construction of a new wharf over water, potentially combined with riverbed dredging, is required to allow for access by vessels capable of loading and/or unloading of wind turbine components.

D. Bearing capacity of the quayside and upland area

The site geology consists of sand and gravel based soils with depths to bedrock of approximately elevation 75 feet at the water's edge transitioning to as shallow as 2 feet below grade as you move away from the shoreline. **Soil conditions are generally conducive to constructing level upland staging, installation, and operations areas with bearing capacities in excess of 6,000 pounds per square foot with minimal ground improvement apart from cut and fill of existing soils.**

E. On-site power and other utilities

Electric service is available on-site by Con Edison, plus the Site is near the major interconnections due to its being adjacent to the IPEC facility. Under existing conditions, overhead electric service wires run through the Site from the tower-mounted electrical transmission lines (north of the Site on Con Edison Parcel) to the Verplanck neighborhood of Cortlandt (southeast of the Site). Development of the Site for an OSW Staging and Installation Port would involve realigning, and potentially burying, the Con Edison electric service, while installing a new electric service connection for the Port.

Potable water is available to the Site via the Town of Cortlandt's water supply system. A Town water main, exists in 9th Street and terminates approximately 200-feet into the Site. The hydrants on the Site are currently inactive, and sanitary sewer is currently not available on the Site.

F. Access to road and rail transportation

The Site is accessible to road transportation infrastructure by way of US Route 9, which has an entrance/exit for both north/south directions within 2-miles, or a 5-minute drive. US Route 9 connects the area to the State's network of highways and interstates. As the Site is located in an existing industrial zone, the local roadway network between the Site and US Route 9 is suited for traffic of large commercial and construction vehicles.

The Site is not connected to existing freight rail transportation infrastructure. With respect to access to rail/freight, there is an inactive rail spur on a vacant private property in an industrial zoned section in the village of Croton on Hudson, adjacent to a US Route 9 entry/exit less than 3 miles from the Louisa Street exit, which could be used for freight access.

G. Infrastructure and buildings

A portion of the Site is occupied by several vacant structures related to the Property's former use as a quarry and fish hatchery. The structures include an 800-square foot masonry building and 13,000-square feet of concrete fish hatchery structures. All structures are vacant and unused and would require removal for the development of an OSW Staging and Installation Port.

H. Nautical distance from all existing and proposed federal offshore wind energy areas (WEAs) that could be serviced by the Site

The Site is accessible to offshore WEAs by way of the Hudson River. The table below provides a summary of the nautical distances from the Site to key WEAs. (Source: World Geodetic System 1984 - equivalent to GRS 1980)

Offshore Wind Energy Area	Nautical Miles (nm) from Town of Cortlandt OSW Staging and Installation Site
Empire Wind	84
Sunrise Wind	210
Liberty Wind	224
Atlantic Shores	128
Ocean Wind	140
Skipjack Wind	174

I. Key current and historical environmental conditions

Based on a preliminary review of available site data, extensive remediation due to existing environmental conditions is not anticipated. **Response to Question 6 includes additional information on environmental conditions and associated permitting/approval requirements.**

J. Protection from surges, storms, and hurricanes.

Based on the FEMA Preliminary Flood Insurance Rate Map (FIRM) dated December 8, 2014, the Base Flood Elevation (BFE) in the vicinity of the Site ranges from Elevation 10 to Elevation 13 (NAVD88) for the 100-year storm event (i.e. the 1% Annual Chance Flood Hazard). There is not a significant difference between the flood areas for the 100-year and 500-year storm events. The Site is well protected from flooding associated with hurricanes and storm surge as the majority of the Site area is above elevation 13 ***(See Figure 3.2 - 100-Year and 500-Year Floodplains).***

B. PROPOSED SITE ACTIVITY AND INVESTMENT

NYSERDA Evaluation Criteria																	
Questions		A. Technical Considerations				B. Financial and Risk/ Return Considerations			C. Economic Benefits			D. Viability					
Section	#	a. Understanding of OSW Supply Chain	b. Technical needs and challenges	c. Physical advantages and barriers to OSW chain	d. Support near- and long-term OSW industry	a. Level and structure of NYS financing	b. Ratio of State to Non-State financing	c. Creditworthiness	a. Benefits relative to NYS Investment	b. Risks associated with achieving such benefits	c. Unlock future supply chain benefits	a. Site's competitive advantage in OSW supply chain	b. Site control / long-term usage	c. Maturity of site development plan	d. Proposed permitting and construction schedule	e. Stakeholder engagement plan	f. Qualification of applicant, team members, other parties
B. Proposed Site Activity and Investment	4	•	•	•	•				•	•	•	•	•	•	•		
	5	•	•	•	•						•	•	•		•		
	6	•	•	•	•												

Potential TOC OSW Staging and Installation Port Characteristics	
Location	Latitude: 41°15'24.5"N; Longitude: 73°57'51.9"W
Owner	Town of Cortlandt; (914) 734-1000; http://www.townofcortlandt.com/
Significant Tenants	Offshore wind staging and installation port operators
Surrounding Land Use	Undeveloped (east); Industrial (Continental Building Products and Indian Point Energy Center, north) Residential (Hamlet of Verplanck, south)
Acreage	Town of Cortlandt Property Total: 99 acres TOC OSW Staging and Installation Port Site Upland: 20 Acres Base concept plan: +5 acres wharf/bulkhead Alternative concept plan: +3.5 acres wharf/bulkhead
Water Depth	32 ft. MLLW federally authorized Hudson River Channel Minimum 13 foot draft depth at face of wharf
Dimensions of Quayside	1,050 feet of waterfront length
Bearing Capacity of the Quayside and Upland Areas	4,000 psf at wharf; 6,000+ psf at upland
On-site Power and Other utilities	Electric and potable water available Pumped force main to upland treatment or offsite sanitary sewer system
Access to Road and Rail Transportation	Accessible to US Route 9 Not connected to existing freight rail New access road from upland to the Port
Infrastructure and Buildings	New support building
Nautical Distance to WEAs	Empire Wind: 84 nm; Sunrise Wind: 210 nm; Liberty Wind: 224 nm; Atlantic Shores: 128 nm; Ocean Wind: 140 nm; Skipjack Wind: 174 nm
Environmental Conditions	No extensive remediation expected
Protection from Surges, Storms and Hurricanes	100-Year Flood Elevation: 10 to 13 feet (NAVD88) Potential Port elevation: 13 feet (NAVD88) The Site has exceptional capabilities to reduce risks of damage to the Port and materials from surveys, storms and hurricanes
Land/Water Access Constraints	Land: Easement modification; Water: None/Unobstructed
Overhead Restrictions On-Site	None
Limiting Air Draft Restrictions	Mario M. Cuomo Bridge: 135 feet; George Washington Bridge: 210 feet; Verrazano Bridge: 230 feet
Extensive Remediation/Permitting Requirements	No extensive remediation expected See Table 6.1 for the list of permits, authorizations, and agency coordination expected. With the Project Team's experience, there would be no unattainable permitting related barriers to the development of an OSW staging and Installation Port at this location

4. Identify the proposed long-term use of the Site (Proposed Site Activity) as related to offshore wind. At a minimum, the description should include:

A. Role(s) in the offshore wind supply chain

The Town of Cortlandt Site has the potential to be used as an OSW Staging and Installation Port, essential in the support of the overall New York State and regional OSW supply chain. Located along the Hudson River on a currently-vacant site that is extremely well protected from surges, storms and hurricanes, **the Town of Cortlandt OSW Staging and Installation Port would further the State's offshore wind goals by unlocking a critical path along the OSW supply chain—from manufacturing/fabrication facilities to staging and installation facility. The Town of Cortlandt OSW Staging and Installation Port would be uniquely positioned to unlock this particular path in two important ways: 1) providing a destination staging location for offshore wind components being transported via water from existing out-of-state or future water-dependent New York State manufacturing and fabrication facilities, and 2) providing a destination staging location for offshore wind components that may be manufactured or fabricated on nearby upland properties, eliminating the need for water transport to a staging port, and the need to develop a dedicated manufacturing and fabrication port for such components.**

The Town of Cortlandt Staging and Installation Port could also unlock the OSW supply chain by facilitating the transport of offshore wind components to the WEAs. The Site is located between approximately 84 and 224 nautical miles (nm) from the WEAs, and accessible by way of the Hudson River. While air draft restrictions exist between the Site and the WEA's, the potential Town of Cortlandt OSW Staging and Installation Port would nevertheless offer a location where 1) material and equipment could be collected in a central location, 2) an inventory of offshore wind components could be stockpiled, and 3) certain component parts could be pre-assembled before being transported to offshore installation sites or directly to the WEAs. Various vessel strategies would be employed at the Site to address the air draft restrictions, such as shipping components horizontally or using smaller installation vessels or feeder barges; all vessels transporting materials from the Site to the WEAs would need to be Jones Act compliant (***see response to Question 4.D***).

The Site could fulfil all other requirements with respect to staging and installation Port parameters. The upland area identified at this time includes approximately 20 acres; all on TOC-owned property. **While not required for the TOC Port, an additional 10+ acres of contiguous underutilized waterfront property may become available subject to agreements with adjacent landowners. Such future agreements may substantially reduce the costs of construction, while at the same time, increase Port size.** Ample wharf length would be available at the Site for loading and unloading offshore wind components and other cargo. **The Site has the potential to provide a wharf length of approximately 1,050 feet, more than three times the minimum recommended wharf length *(from earlier NYSERDA reports)* for staging and installation facilities being accessed by feeder barges.** The wharf would be designed and constructed with a minimum deck live load capacity of approximately 4,000 pounds per square foot. Soil conditions at the Site are generally conducive to constructing level upland staging, installation, and operations areas with bearing capacities in excess of 6,000 pounds per square foot, and with minimal ground improvement apart from cut and fill of existing soils. The Site fronts the Hudson River, which serves as a major route for large commercial vessels. Water depths of the Hudson River Navigation Channel in the vicinity of the Site range from 50 to 75-feet deep. The Site would be accessed by vessels with an initial maximum draft depth of 13-feet, which is consistent with requirements for a feeder barge system. **Minimal dredging would be required to support berthing of 13-foot draft depth vessels.** If larger vessels would be required, additional dredging would be required to accomodate. The Site is accessible to road transportation infrastructure by way of US Route 9 (***see response to Question 3.G***). Access to the Site would be provided from Broadway by utilizing an existing or modified access easement through the Indian Point Energy Center's (IPEC) property.

The potential OSW Staging and Installation Port could play a crucial role in supporting the near- and long-term OSW industry. Given the scope of the New York State OSW goal, and the obvious supply chain needs to meet that goal, this port is expected to spur investment by component manufacturers within upstate and western New York State and potentially land-locked areas upland of the Site. Major OSW components manufactured at facilities near Albany and elsewhere on the Hudson could travel by water to the Site. Unlocking the potential for component manufacturing upland of the Site

would eliminate the need for water transport to the staging area further incentivizing investment within the State and maximizing long-term economic benefits to the State *(See Figure 4.1-Unlocking NY State OSW Supply Chain Investments)*.

B. Expected end-users of the Site, including the proposed operational structure (long-term vs. short-term leases, single user vs. multiple users, etc.)

Investigations into the type of lease/opportunities will be advanced in response to a future RFP (if this Site is shortlisted by NYSERDA after this RFQL submission). One model of potential operators/users would be the Town of Cortlandt as leaseholder, leasing the potential Staging and Installation facility to a Port Operator in a long term lease arrangement. The expected end user of the facility would be a Port Operator who arranges transport and assembly of components; similar to Red Hook Terminal or New York Container Terminal. The Site will accommodate vessels traveling down via the Hudson River that require staging or assembly of components on their way to one of the OSW WEA sites. It will also accommodate materials traveling from the Northeastern United States via truck that need to be transferred to ship or assembled/staged prior to delivery to OSW sites.

C. The Site's ability to compete with other regional and global port facilities

The TOC Site has unique attributes that would make it extremely competitive to other regional/global port facilities as it pertains to the support of the OSW industry for NY and the region. **Not only could the development/construction of the facility be completed at a construction price point well below those identified to date in the NYSERDA studies for OSW, but it is ideally located for protection against storm surge/hurricanes, which with climate change projections, will progressively become more challenging for storing large equipment on the waterfront.**

The TOC Site will be dedicated to the NYS and regional OSW industry, and will have no conflicts with other uses/demands, including those common to ports sharing uses with other leaseholders/uses.

One of the greatest attributes for this Site to compete would be its tie-in to land-locked areas that, with the Port, would be ripe for manufacturing and fabrication facilities to support OSW supply chains in the region. As part of the initial NYS awards for 1.7 GW of OSW, besides identifying points of interest in/near Albany for foundations fabrication, none of the public information to date has included identification of where some of the largest, critical equipment for the OSW industry will be manufactured/fabricated in NY. This includes transition pieces, towers, nacelles and blades, not only for this first NYS 1.7 GW award, but also the remaining near 18 GW demand expected for the region. The land-locked upland properties should have near-term properties available of size and character that they could provide near-perfect attributes for the siting of major manufacturing and fabrication facilities. **With the potential upland manufacturing and fabrication of blades, nacelles and transition pieces, the TOC Site could be "4 Ports in One!"**

What are the Land-Locked Areas for Potential OSW Manufacturing and Fabrication Facilities?

The major landholders for the land-locked areas are currently Entergy Corporation ("Entergy") and Con Edison. In anticipation of the planned shutdown and decommissioning of the Indian Point Energy Center ("IPEC"), Entergy has reached agreement to sell IPEC to Holtec International (Holtec); Entergy and Holtec will make a joint application to the United States Nuclear Regulatory Commission (USNRC) in 2019 for approval of the License Transfer Agreement, which USNRC is anticipated to issue in November 2020 (***see response to Question 12*** on the planned shutdown and decommissioning of IPEC).

The total acreage of these land-locked properties depicted are approximately 375 acres. Much of this area has relatively flat land for this region of NYS. Approximately 160 acres have less than a 15% slope (65 of these acres have less than a 5% slope). In addition, these parcels have large bearing capacities, and could have direct access to the TOC Site for deliveries to WEAS, especially those parcels on the west side of Broadway for the largest units that need to be manufactured (e.g., blades). ***See Figure 5.2 - Base Concept Plan Rendering.***

D. The types of vessels that would utilize the Site

Based on existing riverbed conditions, the Site would be accessed by cargo vessels and feeder barges with a maximum draft depth of 13 feet. **The proposed draft depth is consistent with requirements for a feeder barge system that supplies downstream installation ports or offshore Wind Turbine Installation Vessels (WTIV).**

If the market demanded to support larger vessels depths to utilize the Site, an approach channel could be dredged from the Hudson River navigation channel to the Site. Approximately 220,000 cubic yards of dredging would be required to provide 32-foot draft depth approach channel needed for larger vessels. However, the costs for this additional dredging are not in the Base Concept Plan or Alternative Concept Plan of a smaller wharf into the Hudson River ***(see response to Question 5 for further information on the Alternative Concept Plan).***

The Jones Act is a federal law that requires goods shipped between U.S. ports to be transported on ships that are built, owned, and operated by United States citizens or permanent residents. Consequently, all vessels transporting materials from the Site to the WEAs would need to be Jones Act compliant.

5. Identify the infrastructure upgrades (Proposed Site Investment) that are required for the Site(s). Information should be sufficiently detailed to support an assessment of the viability of the Proposed Site Activity. At a minimum, the description should address each of the below items and note specifically which, if any, are not relevant for the Proposed Site Investment:

Project Summary

The TOC OSW Staging and Installation Port would involve construction of a pile supported wharf and upland staging, installation, and operations areas as shown on Figure 5.1 - Base and Alternative Concept Plans and Figure 5.2 - Base Concept Plan Rendering. The Port could function as a storage location for wind turbine components manufactured/fabricated at facilities upstream along the Hudson River (such as the Port of Albany or the Port of Coeyman) or manufactured/fabricated at inland properties upland and in the vicinity of the Site.

The concept design, as more fully described in the sections below, has been developed over the period from September 1st-November 15, 2019, and considered concepts/design criteria from NYSERDA reports and other comparable OSW projects under concept design in the region. **At this time, no permitting, construction, or site layout constraints have been identified that would render the Site infeasible for an OSW Staging and Installation Port.** Many of the challenges facing other prospective OSW supply chain port sites that have been previously identified in NYSERDA reports, such as poor soils, wetland impacts, and site acquisition, are not present on the Town of Cortlandt Site. The Site's shallow depth to bedrock, sandy soils, and ownership by the Town present an opportunity that minimizes permitting, construction, and timing risks.

A. Acreage

Approximately 20 acres of the 99-acre Property have been identified for the potential construction and operation of an OSW Staging and Installation Port. Approximately 12 of the 20 acres would be land graded to provide relatively flat areas for wind turbine component staging, pre-assembly and port operations (shown as upland staging, installation, and operations areas on ***Figure 5.1 - Base and Alternative Concept Plans***). The remaining 8 acres would be utilized for land grading transitions, the gas pipeline easement, and a new access road from the upland to the quayside.

In addition, a 1,050-foot-long by 150-foot-wide-pile supported wharf could be constructed over the Hudson River, beyond the Town of Cortlandt property line. The wharf would provide a facility totaling nearly 25 acres with large areas of relatively flat land on soil with high bearing capacity.

An alternative concept plan would construct a 1,050-foot-long by 75-foot-wide pile-supported wharf, combined with approximately 8,500 cubic yards of Hudson River dredging. The alternative wharf provides a Port facility totalling 23.5 acres. (*See response to Question 4:* an additional 10+ acres of contiguous underutilized waterfront property may become available subject to agreements with adjacent landowners. Such future agreements may substantially reduce the costs of construction, while increasing Port size.)

In addition to the acreage in the Port, the Land-Locked Areas for Potential OSW Manufacturing and Fabrication Facilities could provide significant additional acreage for storage of major OSW components.

B. Water depth and seabed conditions of the quayside, adjacent channels, and relevant vessel routes

Access to the potential OSW Staging and Installation Port would be via the Hudson River. The Hudson River provides access to planned upstream manufacturing facilities as well as to planned downstream installation facilities and offshore WEAs.

The maximum proposed wharf would extend 150 feet into the Hudson River to align with the 13-foot vessel draft depth limit. Minimal dredging would be required to support berthing of 13-foot draft depth vessels.

An Alternative Concept Plan would extend the wharf 75 feet into the Hudson River. **For this Alternative Concept Plan, only about 8,500 cubic yards of dredging would be required to provide a 13-foot draft depth at the face of the wharf.**

C. Dimensions of the quayside

The potential OSW Staging and Installation Port would provide a 1,050-foot-long quayside for berthing by feeder barges. Upland of the quayside, an area of approximately 12 acres would be provided for staging, storage, and loading/unloading of wind turbine components.

If the owners of the relatively inactive uses of adjacent waterfront parcels to the Site (approximately 10 acres under two different owners), the dimensions of the quayside could be materially increased compared with these initial upland storage concepts.

D. Bearing capacity of the quayside and upland area

The proposed pile supported wharf would be constructed with a slab thickness, pile diameter, and pile spacing necessary to provide a minimum of 4,000 pounds per square foot of bearing capacity.
Existing quayside and upland site soils, which consist of sand and gravel based soils underlain by relatively shallow bedrock, are conducive to constructing upland staging, installation, and operations areas with bearing capacities in excess of 6,000 pounds per square foot. Earthwork would be completed to level the proposed port staging area and allow for the installation of a 3-foot-thick gravel surface.

E. On-site power and other utilities

The potential TOC OSW Staging and Installation Port would involve rerouting existing, Con Edison-owned overhead electric service wires and poles that currently run through the Site. As part of the rerouting, a new electric service connection for the OSW Staging and Installation Port would be installed.

Potable water supply would be provided via a connection to the Town of Cortlandt water main which terminates at 9th Street. Sewage disposal would require a new pumped force main to either treatment upland of the Site or as a connection to an off-site sanitary sewer system.

F. Access to road and rail transportation

The potential OSW Staging and Installation Port Site is located within 2-miles, or a 5-minute drive, from US Route 9. Access to the Site would be provided from Broadway by utilizing an existing access easement through the IPEC property. The Town of Cortlandt shares the access easement with the Continental Building Products Facility, north of the Town's property.

A new access road would be constructed from the existing IPEC access easement through portions of the Town of Cortlandt and Con Edison properties as shown on ***Figure 5.1 - Base and Alternative Concept Plans***. The current easements for access to the TOC property require passing underneath relatively low overhead transmission lines, so an alternate easement/access road to/through the IPEC property would likely be required. The access road would generally follow the alignment of the existing AIM gas pipeline easement. The access road will diverge from the gas easement alignment in order to descend from the upland area, generally at elevation 85', to the port area at elevation 13 feet, as shown on ***Figure 5.3 - Access Road Schematic Profile***. Existing grades along the gas pipeline easement will generally be maintained upland of the port area.

G. Infrastructure and buildings

The potential OSW Staging and Installation Port would likely require the construction of a new support building for Port operations staff. The Port would also require operations

equipment, such as cranes, to load and unload cargo vessels and feeder barges at a minimum. The size of the proposed building, number of required parking spaces, and nature of the operation equipment would continue to be defined as the Port design is advanced.

H. Nautical distance from all existing and proposed federal offshore wind energy areas (WEAs) that could be serviced by the Site

As described in response to Question 3.H, the Site is located within 84 to 224 nm of key proposed offshore WEAs.

Offshore Wind Energy Area	Nautical Miles (nm) from Town of Cortlandt OSW Staging and Installation Site
Empire Wind	84
Sunrise Wind	210
Liberty Wind	224
Atlantic Shores	128
Ocean Wind	140
Skipjack Wind	174

I. Key current and historical environmental conditions

Based on a preliminary review of available site data, extensive remediation due to existing environmental conditions is not anticipated. **Response to Question 6** includes additional information on environmental conditions and associated permitting/approval requirements.

J. Protection from surges, storms, and hurricanes

The proposed wharf and upland staging, installation, and operations areas would be constructed generally at elevation 13 (NAVD88), which is above the 100-year Floodplain ***(see Figure 3.2-100-Year and 500-Year Floodplains)***.

The proposed location upstream on the Hudson River provides substantial protection from waves and wind, two of the most destructive forces of coastal storms.

- **Anticipated wave action in the 100-year storm event on this Site is limited to the immediate shoreline area, as compared with portions of New York Harbor where destructive waves can penetrate more than 500 feet inland during a 100-year storm. During Superstorm Sandy, wave heights of over 32 feet were measured in New York Harbor.**
- Sustained wind speeds experienced during hurricanes are typically significantly lower in the Hudson Valley as compared with New York Harbor and Long Island Sound. During Superstorm Sandy, sustained wind reports around the Town of Cortlandt topped out at approximately 40 miles per hour, while sustained winds in New York Harbor and Long Island Sound exceeded 65 miles per hour.

The relatively high elevation of this Site, combined with reduced exposure to waves and wind, provides an inherent resiliency for this Site. Though constructed resiliency measures or operational protocols can be very effective to protect against coastal storm risk, they require time and effort to put into place.

- Tracking of tropical storms and hurricanes in the Atlantic Ocean typically begins 120 hours before predicted landfall in the New York area, though given variability in these types of storms, predictions commonly change significantly as the storm advances up the coast. **In general, a reliable forecast of storm path and timing can only be made 48 hours prior to predicted landfall *(defined as the onset of onshore tropical storm force winds)*, leaving little time to make preparations and deploy protections in the areas forecasted to be affected.**
- **Extra-tropical storms, such as Nor'easters, typically form more quickly than tropical storms and hurricanes, leaving an even shorter planning and deployment window.**
- Wherever possible, reliance on pre-storm operational protocols or deployable storm barriers should be minimized, and site topography and natural protective features used to ensure a resilient facility.
- **The Site has exceptional characteristics that would reduce risks of damage to the Port and materials from surges, storms, and hurricanes. Within a 48-hour notice period, the Site would allow movement of any equipment out of the 500-year flood zone, well ahead of such short notice periods (even shorter for Nor'easters). The Site is also highly protected against future climate change expectations, including sea level rise.**

6. Identify any physical or financial barriers to the Proposed Site Activity. These may include:

Land/water access constraints

The potential OSW Staging and Installation Port has unobstructed access to the water through the construction of a pile supported wharf. Unlike many Hudson River properties in Westchester County, the Metro-North Hudson Line is inland of the Site, which eliminates a potential water access obstruction.

Land access requires the construction of a new access road as discussed in section 5.F. The access road will require modifications to easements through IPEC and Con Edison properties in addition to land grading for the physical construction of the road.

Overhead restrictions on Site

Overhead restrictions would not exist provided the access road does not cross under existing overhead electrical transmission lines. As shown on ***Figure 5.1 - Base and Alternative Concept Plans***, the access road could run parallel to the overhead electrical transmission lines following realignment of easements on Con Edison property to eliminate any transport of materials under electrical transmission lines.

Air draft restrictions between the Site and the WEAs

Air draft restrictions along the Hudson River, between the Site and Atlantic Ocean based WEAs, exist at three locations as described in the table below:

Location	Air Draft Restriction
Gov. Mario M. Cuomo Bridge	135 ft
George Washington Bridge	210 ft
Verrazzano Bridge	230 ft

Extensive remediation/permitting requirements

Remediation

A review of historical maps, old documents, and reports indicates that past uses on the Town of Cortlandt parcel included a limestone quarry which operated from the early 19th century into the 1950s, a fishery associated with IPEC, and a white sandy beach on the shore of the Hudson known as White's Beach, which was publically accessible into the 1960s. The Site and Property currently support a 42-inch diameter, underground natural gas pipeline that was recently upgraded in 2017. It is expected that these past and current uses would not trigger active environmental conditions that would require extensive remediation either upland or within the Hudson River.

As part of the environmental review of a port facility on the Town-owned parcel, a Phase I Environmental Site Assessment (ESA), including the review of any available reports, would be completed to identify any known contamination areas, or whether the potential for on-site contamination exists. The results of the Phase 1 ESA would be used to determine whether contamination-related issues exist. Follow up investigation and sampling options, prior to or during construction, are available after the completion of the Phase I ESA to confirm the presence, extent, and concentration of any known contamination. This information is used to identify the handling requirements, which would be based on whether the contaminated material is reused on-site, or is designated for off-site disposal. Although the presence of contamination can limit the reuse potential for excavated material, multiple options are available as part of State regulations and remedial programs (i.e. Beneficial Use Determination [BUD], Brownfield Cleanup Program [BCP]), and these options can be incorporated into the construction process. Even in scenarios where contamination becomes a bigger issue, State programs like the BCP allow for site-wide remediation commensurate with the post-redevelopment end use, and include post-construction financial benefits.

Permitting

The development of an OSW Staging and Installation Port on the Town of Cortlandt-owned property would require multiple permits and approvals as well as coordination with a number of Federal, State, and Local jurisdictions. **Table 6-1 lists the permits, authorizations, and agency coordination that are expected for the development and operation of this project.**

These are typical permitting requirements for a project of this type and scope. As noted in Table 6-1, the anticipated time to secure the identified permits would run about 12 months and, therefore, would not cause issue in developing a port on the Town of Cortlandt Property in the timeframe established by the State to support the OSW Supply Chain. **With the Project Team's experience, there would be no unattainable permitting related barriers to the development of an OSW Staging and Installation Port at this location.**

TABLE 6.1: ANTICIPATED REGULATORY PERMITS AND COORDINATION

Regulatory Agency	Construction and Operation Issue	Potential Documentation	Typical Duration
Federal			
United States Army Corps of Engineers (USACE)	Dredge/Fill in Waters of the United States and Structures in Navigable Waters (Section 404 of Clean Water Act and Section 10 of Rivers and Harbors Act)	Joint Permit Application (with NYSDEC)	Joint Permit Application preparation 6 months. Agency review 6 to 12 months.
US Coast Guard (USCG)	Vessel Activity Within USCG Waters, construction and vavigational markings for structures within the Hudson River, and Private Aides to Navigation (PATON)	Local Notice to Mariners, PATON Permit Application	Notice to Mariners review < 1 week, PATON Permit Application review 2 months.
National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)	Impacts to Endangered or Threatened Aquatic Species, Essential Fish Habitat (EFH), and Marine Mammals and Identification of Construction Windows (January 1 through June 30)	Informal Section 7 Evaluation/ Biological Evaluation/Biological Assessment and EFH Assessment	Agency Consultation 3 to 6 months.
United States Fish and Wildlife Service (USFWS)	Impacts to Endangered or Threatened Wildlife and Plant Species, Migratory Birds, Bald Eagles	Informal Section 7 Evaluation/ Biological Evaluation/Biological Assessment	Agency Consultation 3 to 6 months.
New York State			
New York State Department of Environmental Conservation (NYSDEC)	Work in State Protected Waters - Hudson River (Article 15 of the NY ECL, and Section 401 of the Clean Water Act)	Joint Application (with USACE)	Joint Application preparation 6 months. Agency review 6 to 9 months.
	Impacts to Threatened or Endangered Wildlife (Article 11 of the NY ECL)	Threatened and Endangered Species Consultation, Potential Incidental Take Permit Application	Joint Application preparation 6 months. Agency review 6 to 9 months.
	Stormwater Discharges	Stormwater Pollutant Discharge Elimination System (SPDES) Construction General Permit	Application preparation 3 months. Agency review 1 month.
		5-Acre Earth Disturbance Waiver	Application preparation 3 months. Agency review 2 month.
		SPDES Multi-Sector General Permit (industrial activity)	Application preparation 3 months. Agency review 1 month.
New York State Department of State (NYSDOS)	Coastal Zone Consistency Determination	Joint Application (with NYSDEC and USACE)	Agency review 6 months
New York State Office of General Services (NYSOGS)	Modification to State-owned Lands Underwater	Joint Application (with NYSDEC and USACE)	Agency review 6 months
New York State Historic Preservation Office (SHPO)	Impacts to Historic and Archaeological Resources (Section 106 of the National Historic Preservation Act)	Consultation	Per SEQRA schedule and Joint Permit Application
New York Natural Heritage Program	Work in the Vicinity of Threatened and Endangered Wildlife and Plant Species and Significant Ecological Communities	Database information request and consultation	1 month
Westchester County			
Department of Planning	General Municipal Law Section 239 Project Review	Project Desription and site plan submission	2 months
Department of Health (DOH)	Potable Water Service Connection	Application for Approval of Backflow Prevention Device	2 months
	Sanitary Sewage Disposal	Application for Approval of Sanitary Service Connection	2 months
Town of Cortlandt			
Town Board	Zoning Change if needed		
Planning Board	Site Plan Approval	Municipal review concurrent with SEQRA	6 to 9 months
Town/Planning/Zoning Board	Wetland Permit, Tree Cutting Permit	Municipal review concurrent with Site Plan Review	2 months
Planning Board	State Environmental Conservation Review Act (SEQRA)	Town of Cortlandt as Lead Agency	6 to 9 months
Department of Environmental Services: Highway Division	Road Improvement Permit(s) if needed	Municipal review concurrent with Site Plan Review	3 months
Code Enforcement Division	Buidling Construction and Site Work	Building Permit Application	3 months

C. PROPOSED INVESTMENT STRUCTURE

NYSERDA Evaluation Criteria																	
Questions		A. Technical Considerations				B. Financial and Risk/ Return Considerations			C. Economic Benefits			D. Viability					
Section	#	a. Understanding of OSW Supply Chain	b. Technical needs and challenges	c. Physical advantages and barriers to OSW chain	d. Support near- and long-term OSW industry	a. Level and structure of NYS financing	b. Ratio of State to Non-State financing	c. Creditworthiness	a. Benefits relative to NYS Investment	b. Risks associated with achieving such benefits	c. Unlock future supply chain benefits	a. Site's competitive advantage in OSW supply chain	b. Site control / long-term usage	c. Maturity of site development plan	d. Proposed permitting and construction schedule	e. Stakeholder engagement plan	f. Qualification of applicant, team members, other parties
B. Proposed Site Activity and Investment	7								•	•							
	8														•	•	
	9															•	
	10					•			•	•							
	11						•	•									

7. Identify the estimated costs of the Proposed Site Investment. If applicable, please also identify the class of such cost estimate as designated by AACE International 18R-97 guidelines.

Opinion of Probable Costs (OPCs) have been completed for the Base Concept Plan and for an Alternative Concept Plan ***(see Figure 5.1 - Base and Alternative Concept Plans)***, which reduces the footprint of the pile-supported wharf in lieu of additional dredging.

Costs were developed based on a combination of the design concepts, information/unit costs from NYSERDA reports, and reviews of confidential bids on comparable work done in the past 10 years in downstate NY Harbor. Where appropriate, revisions were made to reflect site characteristics versus other ports proposed/constructed.

OPCs are presented in the summary table below. **Detailed cost estimate worksheets are included in response to Question 15.**

Work Items	Base Concept Plan		Alternative Concept Plan	
	OPC ($)	% of Construction Subtotal	OPC ($)	% of Construction Subtotal
Marine Structures	[redacted]	[redacted]	[redacted]	[redacted]
Earthwork and Ground Improvement	[redacted]	[redacted]	[redacted]	[redacted]
Surface Treatment	[redacted]	[redacted]	[redacted]	[redacted]
Dredging	[redacted]	[redacted]	[redacted]	[redacted]
Miscellaneous	[redacted]	[redacted]	[redacted]	[redacted]
Construction Subtotal	[redacted]		[redacted]	
Contingency (30%)	[redacted]		[redacted]	
Construction w/ Contingency Subtotal	[redacted]		[redacted]	
SUBTOTAL				
Soft Costs	[redacted]		[redacted]	
Total	[redacted]		[redacted]	

8. Provide an estimated construction schedule for the Proposed Site Investment.

Based on the concept plans and the Project Team's experience designing/securing approvals for such plans, a schedule of the upfront planning, permitting, and bid packaging, plus major construction activities is provided in ***Figure 8-1 - Planning, Design, Permitting, Procurement, and Construction Schedule Estimate***. This schedule also includes up-front time/coordination for environmental studies, site design, and permitting/construction documents.

9. The primary mechanism available to New York State for investment is reimbursement, where the Applicant would independently finance the Proposed Site Investment and then, upon completion of the Proposed Site Investment, receive a pre-determined level of reimbursement from New York State. Please comment on this mechanism's ability to support the Proposed Site Investment.

The Town of Cortlandt and Village of Buchanan have only recently become aware of the OSW and related opportunities for the development of port facilities able to support New York State's goal of developing an OSW Supply Chain. In addition, adjacent land-owners have also only recently been informed about such potential opportunities.

While an initial list of some potential teaming partners and investors has been compiled, given the limited timeframe for preparation of this response and the lack of the Town's OSW Supply Chain history, none have been fully secured at this time. **The Project Team envisions that between the submission of this package and the issuance of the 2020 RFP, as part of the initial steps in the stakeholder engagement process (see Stakeholder Engagement Plan summary), a potential port in the Town of Cortlandt would be discussed with industry players to identify potential development, management, and operations teaming partners.** The final team for the Port at the Cortlandt waterfront site would be assembled to support an RFP response if the Project Team is provided the opportunity to participate in that process.

As part of the fact-finding effort undertaken to support this submission and looking more broadly at the area beyond the Town-owned Property, there is the potential for upland parcels in the Village of Buchanan to become available for additional OSW Supply Chain uses including manufacturing and fabrication **(see response to question 12). An OSW Staging and Installation port on the Town's parcel provides future flexibility and could unlock the potential to provide a variety of services important to the Supply Chain on and on parcels adjacent to the Town's property.** The input gathered from adjacent property owners as well as the Supply Chain industry companies regarding their interest in manufacturing and fabrication of OSW components in this location will be first and foremost during the early phase(s) of the stakeholder engagement process. The input received during stakeholder outreach will inform the Project Team not only of the upland parcels and development options that will be available for the provision of other OSW-related services outside of a port facility but of the use types, (i.e. manufacturing and fabrication, assembly, storage) that would be sited on the Port and potentially at other locations upland.

For future RFPs, a financing plan would be prepared for the State's consideration. During this phase of Project Team development, the details of the funding for the project, including reimbursement from the State and that State funding's ability to support the Proposed Site Investment, would be established.

In support of this RFQL response, a preliminary cost estimate was prepared (***see response to Question 7***). Details related to the investment mechanisms, project costs, and how reimbursement will support the development of the project and support the NYS OSW Supply Chain goals would be further clarified in response to an RFP if the Port at Cortlandt is selected to participate in that process.

TOC OSW Staging and Installation Port Stakeholder Engagement Plan Summary

An OSW Staging and Installation Port in the Town of Cortlandt would result in, at a minimum, changes to land uses on the project site and potentially in the surrounding areas, modification to the Hudson River shoreline, introduction of additional vessel traffic, a shift in traffic patterns, and potential impact to flora and fauna. Some or all of these changes will affect landowners, businesses, industries, and local communities. Some may require permits, approvals, and/or authorizations from Federal, State, County, and/or Local entities. **The development and operation of a port at any site will touch a wide range of interests and will therefore require implementation of a robust Stakeholder Engagement Plan (SEP).**

Figure 8.1: Planning, Design, Permitting, Procurement and Construction Schedule Estimate

	Tasks	Predecessor	Duration	Months from initial mobilization
	Permits and Entitlements			
1	SEQRA	Cortlandt Port Selection	12 months	
2	Site Plan (Preliminary and Final)	Cortlandt Port Selection	14 months	
3	Permitting & Construction Documents	SEQRA and Site Plan	12 months	
	Demolition, Clearing, and Grubbing			
4	clear and grub	none	2 months	
	Upland Earthwork and Ground Improvement			
5	access roads	none	2 months	
6	survey and prep	clear and grub	2 months	
7	upland retaining walls	survey	5 months	
8	upland gas line protection	survey	2 months	
9	upland grade and contour	survey, partial bulkhead	9 months	
	Marine Structures			
10	bulkhead install	survey (pending steel availability)	4 months	
11	gas line underwater protection (concrete mattress)	survey	2 months	
12	pile driving (2,000 piles, 5 per day)	survey, partial bulkhead, partial upland contour (pending steel availability)	13 months	
13	scour protection pile infill	partial pile driving	3x1 months	
14	wharf deck	partial pile driving	10 months	
15	fendering/doplins/bollards/ice breakers	wharf deck	3 months	
	Miscellaneous & Surface Treatment			
16	upland utilities	upland grade and contour	3 months	
17	upland roadways	upland grade and contour	2 months	
18	upland gravel and paving	upland grade and contour, utilities	4 months	
19	building facilities	upland grade and contour, utilities	7 months	
20	security systems/fencing	building facilities, utilities	2 months	
21	crane set up	wharf deck and fender	1 month	
22	landscape/signage/etc..	substantial completion	1 month	
23	punch list/ commissioning	substantial completion	2 months	

It is imperative for an intricate and multi-phased project such as the development of an OSW Staging and Installation Port in Cortlandt that a SEP be developed to support the project goals, analyses, and so that local perspectives can be gathered to inform the project's vision, design, permitting, and development. That SEP must include early and regular coordination with stakeholders and regulators to ensure the success and efficient development of the project. It is understood that stakeholder involvement is not only a necessity for successful project delivery, but also an integral part of key data collection and analyses in the consideration of viable alternatives and the refinement of the project design. The data to be compiled across multiple disciplines in this design and development effort will be enhanced by deliberate engagement of stakeholders, adding context and a sense of priority to specific project goals and objectives.

The initial step of the SEP would focus on outreach to the local industrial property owners and OSW Supply Chain manufacture and assembly industry firms. The goal of this first step would be to determine which upland parcels may be available and able to support OSW Supply Chain efforts that would complement the Port and match the owners of those parcels with specific OSW industry firms that would establish a business and conduct operations on those parcels as well as on the Town property. This effort will begin immediately with the goal of establishing the Project Team prior to the issuance of the RFP.

As the Project Team is further refined, and after the RFP is issued, formal stakeholder engagement would ensue. In the SEP, an emphasis would be placed on flexibility in all public engagement endeavors to ensure that communications evolve alongside technical activities and project priorities. Early outreach would be geared toward identifying areas of concern from the varying perspectives of the wide variety of stakeholders interests while subsequent communications and solicitations would be used to obtain feedback on alternatives, permitting, and overall project design.

The strategy for the second step of the SEP would be to reach out to the community, including nearby property and business owners, labor representatives, municipal officials outside of the Town of Cortlandt and Village of Buchanan; local, regional, state and federal agencies; and not-for-profits having an interest in the project or potentially affected, by the installation and operation of a Port on the Town's property and potentially the operation of other OSW Supply Chain operations on other sites.

Additionally, it is important to note that the Town of Cortlandt and Village of Buchanan, very recently, jointly initiated the process of developing a Local Waterfront Revitalization Plan (LWRP) compliant with New York State Department of State (NYSDOS) requirements. This effort will include public outreach to gather input on that plan, which will consider development options for the Town-owned parcel for which the OSW Staging and Installation Port is being considered. Input from the LWRP team outreach efforts will be incorporated into the information gathered during this project's stakeholder engagement process.

10. Provide an estimate for the level of investment that you would expect to request from New York State

As noted in the response to Question 9, the Project Team and the financing plan have not been finalized. However, a cost estimate was developed for the project as envisioned to date (***see response to Question 7***). Potential future upland development is not considered in this estimate; only the OSW Staging and Installation Facility Port was considered for development on the Town of Cortlandt property. Once the development, management, and operations team is established during the initial phase of the stakeholder engagement process, a final level of State investment would be calculated.

For this application, a phased approach to the funding for a Town of Cortlandt Port would likely be requested in response to a future RFP. It is anticipated that funding for stakeholder engagement, sampling/investigations, design and environmental studies to secure all necessary permits and mitigation on the order of [redacted] would be requested. **Since the Port could operate as a major hub along the Hudson River for numerous OSW chain operations, the scope of the environmental studies that would be undertaken for this Port would look at the cumulative impacts on the Hudson River/region from multiple ports/supply chain. This "full chain" assessment will be helpful to understand and secure permits/approvals from the NYSDEC and other critical federal regulators.** A full detailed scope of stakeholder, design, and permitting tasks will be included in response to future RFPs.

11. Identify all investors, including their estimated investment levels, supporting the Proposed Site Investment

See response to Question 9 for information on the status of the Project Team's assembly. As the project is further developed, key project team members would be further identified. These could include investors, adjacent current/future landowners (several of which have already been contacted before submission of this proposal), a port facility operator, and potentially an OSW equipment manufacturer and/or fabricator. As noted, assembly of the evolving Project Team will continue as part of the first phase of the stakeholder engagement process. Project team members and estimated investment levels of each would be established in for future RFPs.

With the initial investment in the Port, the anticipation is that additional upland area would become available for manufacturing, fabrication, and assembly opportunities, thereby expanding the capability of the port to provide added value to the OSW Supply Chain. Conversations will continue with existing and likely future owners on their potential interests related to such before future NYSERDA RFPs for short-listed ports are due.

D. ECONOMIC BENEFITS

NYSERDA Evaluation Criteria																	
Questions		A. Technical Considerations				B. Financial and Risk/ Return Considerations			C. Economic Benefits			D. Viability					
Section	#	a. Understanding of OSW Supply Chain	b. Technical needs and challenges	c. Physical advantages and barriers to OSW chain	d. Support near- and long-term OSW industry	a. Level and structure of NYS financing	b. Ratio of State to Non-State financing	c. Creditworthiness	a. Benefits relative to NYS Investment	b. Risks associated with achieving such benefits	c. Unlock future supply chain benefits	a. Site's competitive advantage in OSW supply chain	b. Site control / long-term usage	c. Maturity of site development plan	d. Proposed permitting and construction schedule	e. Stakeholder engagement plan	f. Qualification of applicant, team members, other parties
B. Proposed Site Activity and Investment	12.a	•			•				•	•	•						
	12.b	•			•				•	•	•						

12. Provide an estimate of the value of Economic Benefits that would result from the Proposed Site Investment. Economic Benefits should include only those benefits that would accrue to New York State under the completion of the Proposed Site Investment, and that would not have accrued but for the completion of the Proposed Site Investment. Economic Benefits should be broken down between the construction phase (execution of the Proposed Site Investment) and the operational phase (execution of the Proposed Site Activity), should be broken down between direct, indirect, and induced benefits, and should be presented between two categories.

Construction and operations of the OSW Staging and Installation Port, facilitated by the Proposed Site Investment, would generate substantial short- and long-term economic and fiscal benefits to New York State. Estimates of the economic and fiscal benefits of the OSW Staging and Installation Port are based on the total estimated investment required to construct the facility. **Given the numerous positive attributes of the Site (detailed in responses to Questions 3, 4, 5, and 6), it is expected that the Site would generate an extremely high "return on investment" for the State's investment amount relative to other sites.** In addition, development of an OSW Staging and Installation Port on the Site could catalyze expansion into upland and/or off-site areas for ancillary OSW industry uses without displacing existing

Economic and Fiscal Benefits Modeled

Estimates of the economic and fiscal benefits of the OSW Staging and Installation Port were developed based on the OPCs (hard and soft costs)/investments required to construct the facility (for both the Base Concept Plan and the Alternative Concept Plan). While the expected staffing/operations for the Port need additional input from industry, a per unit basis "for every 10 direct jobs" metric was employed to estimate the direct, indirect, and induced benefits of Port operations.

In addition, development of an OSW Staging and Installation Port on the Site could catalyze expansion into upland and/or off-site areas for ancillary OSW industry uses without displacing existing tenants or eliminating existing uses. Therefore, a separate economic and fiscal benefit assessment on a "unit basis" for potential future upland OSW manufacturing and fabrication facilities was developed. For this assessment, a "unit basis" of a $100 million investment in the construction of a manufacturing and fabrication facility or facilities at these upland locations was modeled. Given that specific individual or cumulative potential OSW support activities have not been identified, a per unit basis "for every 100 direct jobs" metric was used to estimate the direct, indirect, and induced benefits of manufacturing or fabrication facility operations.

tenants or eliminating existing uses. Therefore, a separate economic and fiscal benefit estimate for future upland OSW manufacturing and fabrication facilities was developed on a per unit basis. All estimates would represent "net new" economic activity (i.e., they would not accrue but for the completion of a Proposed Site Investment).

Estimates of the economic and fiscal benefits from construction and operational activities were conducted using IMPLAN (IMpact Analysis for PLANing), an economic input-output modeling system. IMPLAN was developed by the U.S. government and subsequently privatized by professors at the University of Minnesota. IMPLAN uses the most recent economic data from sources such as the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau to predict effects on the local economy from changes in direct non-payroll expenditures and employment (e.g., during annual operation). The model contains data on up to 536 economic sectors specific to Westchester County and New York State, showing how each sector affects every other sector as a result of a change in the quantity of its product or service.
Using IMPLAN terminology, the reporting breaks out total economic impacts into three components:

1. **Direct effects** represent the initial benefits to the economy of a specific new investment; e.g., including on-site employment (during construction and operations) and associated labor income.
2. **Indirect effects** represent the benefits generated by industries purchasing from other industries as a result of the direct investment. For example, indirect employment resulting from the Port's operational expenditures would include jobs in industries that provide goods and services to support port operations.
3. **Induced effects** represent the impacts caused by increased household income in a region. Direct and indirect effects generate more worker income by increasing employment and/or salaries in certain industries. Households spend some of this additional income on local goods and services, such as food and drink, recreation, and medical services.

Economic and Fiscal Benefits Construction Activities

Key project-related construction benefits to the New York State economy are summarized herein and presented in **Table 12-1** *(table also reports benefits of the Alternative Concept Plan)*.

OSW Staging and Installation Port - Base Concept Plan

- Construction of the OSW Staging and Installation Port (Base Concept Plan) would generate an estimated 1,268 "person-years" of employment in New York State. A person-year is the equivalent of one person working full time for one year. Jobs would include onsite construction managers and workers as well as direct employment in support industries, such as architecture, engineering, and legal services.
- Indirect and induced economic activity that occurs off-site as a result of the Base Concept Plan Port's construction is estimated at 598 person-years, for a total construction employment of 1,866 person-years within New York State.
- Direct labor income (on- and off-site) is equal to about $93 million. Including indirect and induced activity that occurs off-site, total labor income from the Port during construction is estimated at $130 million in New York State.
- The direct value added within New York State (profits) is $142 million, which is the increased value of goods and services and a measure of contribution to Gross Regional Product. Including indirect and induced activity, the Port's total value added to the local economy is estimated at $215 million.
- **The total economic output, or demand for State industries derived from the direct construction spending, is estimated at $339 million in New York State.**
- **Construction of the OSW Staging and Installation Port (Base Concept Plan) would generate approximately $7.61 million in Westchester County and local municipality tax revenues and approximately $6.97 million in tax revenues to New York State.** These taxes include sales tax, personal income taxes, corporate and business taxes, property taxes, and numerous other taxes on construction and secondary expenditures.

Upland OSW Manufacturing and Fabrication Facility

Development of an OSW Staging and Installation Port on the Site could catalyze expansion into upland and/or off-site areas for ancillary OSW industry uses. **To estimate the direct, indirect, and induced economic and fiscal benefits of these future activities, a "unit basis" of a $100 million investment in the construction of a manufacturing and fabrication facility or facilities at these upland locations was modeled.** Key construction benefits to the New York State economy are summarized herein and presented in **Table 12-1.**

- A $100 million investment in the construction of upland OSW manufacturing and fabrication facilities would generate an estimated 636 person-years of direct construction-related employment in New York State. Jobs would include on-site construction managers and workers as well as direct employment in support industries, such as architecture, engineering, and legal services.
- Indirect and induced economic activity that occurs off-site as a result of the manufacturing and fabrication facility's construction is estimated at 197 person-years, for a total construction employment of 833 person-years within New York State.
- Direct labor income (on- and off-site) is equal to about $51 million. Including indirect and induced activity that occurs off-site, total labor income from the Port during construction is estimated at about $63 million in New York State.
- The direct value added within New York State (profits) is about $67 million, which is the increased value of goods and services and a measure of contribution to Gross Regional Product. Including indirect and induced activity, the Port's total value added to the local economy is estimated at around $92 million.
- **The total economic output, or demand for State industries derived from the direct construction spending, is estimated at about $139 million in New York State.**
- The $100 million investment in the construction of OSW manufacturing and fabrication facilities would generate approximately $2.45 million in Westchester County and local municipality tax revenues and approximately $2.67 million in tax revenues to New York State. These taxes include sales tax, personal income taxes, corporate and business taxes, property taxes, and numerous other taxes on construction and secondary expenditures.

Economic and Fiscal Benefits of Operational Activities

Key project-related operational benefits to the New York State economy are summarized herein and presented in **Table 12-2.** Given that specific OSW support activities have not been identified, a per unit basis "for every 10 direct jobs" metric to estimate the direct, indirect, and induced benefits of port operations was employed.

OSW Staging and Installation Port

- Every 10 direct (on-site) permanent full- and part-time jobs would generate an additional 10 jobs within New York State; 5 of those jobs would be generated indirectly through business-to-business activities, and another 5 jobs would be generated through the direct and indirect workers' consumer expenditures within New York State.
- Direct labor income (on-site) is equal to about $590,000 for every 10 jobs. Those same 10 direct jobs support an additional $560,000 in indirect and induced employee compensation, for a total of $1.15 million in employee compensation within New York State for every 10 direct Port jobs.
- The direct value added to the local economy, measured as profits, is $960,000 for every 10 direct Port jobs. **Including indirect and induced activity, the Port's total annual value added to the local economy is estimated at $1.96 million in New York State for every 10 direct Port jobs.**
- Estimated annual tax revenues from port operations are estimated to be (for every 10 direct jobs) $90,000 to Westchester County and local municipalities and $80,000 to New York State. Estimated taxes include sales tax, personal income taxes, corporate and business taxes, and numerous other taxes on construction and secondary expenditures.

OSW Upland Manufacturing and Fabrication Facilities

Key project-related operational benefits to the New York State economy are summarized herein and presented in **Table 12-2.** Given that specific OSW support activities have not been identified, a per unit basis "for every 100 direct jobs" metric to estimate the direct, indirect, and induced benefits of manufacturing and fabrication facility operations.

- **Every 100 direct (on-site) permanent full- and part-time jobs would generate an additional 140 jobs within New York State;** 86 of those jobs would be generated indirectly through business-to-business activities, and another 54 jobs would be generated through the direct and indirect workers' consumer expenditures within New York State.
- Direct labor income (on-site) is equal to about $14.32 million for every 100 jobs. Those same 100 direct jobs support an additional $8.98 million in indirect and induced employee compensation, for **a total of about $23 million in employee compensation within New York State for every 100 direct jobs associated with manufacturing and fabrication.**
- The direct value added to the local economy, measured as profits, would be about $20 million for every 100 direct manufacturing and fabrication jobs. **Including indirect and induced activity, the manufacturing and fabrication facility's total annual value added to the local economy is estimated at around $37 million in New York State for every 100 direct jobs.**
- Estimated annual tax revenues from port operations are estimated to be (for every 100 direct jobs) $1.55 million to Westchester County and local municipalities and $1.34 million to New York State. Estimated taxes include sales tax, personal income taxes, corporate and business taxes, and numerous other taxes on construction and secondary expenditures.

TABLE 12.1: ECONOMIC AND FISCAL BENEFITS FROM CONSTRUCTION

Economic Benefits	Port - Base Concept Plan [redacted]	Port - Alternative Concept Plan [redacted]	Manufacturing and Fabrication Facilities [redacted]
Employment (in person-years)[1]			
Direct	1,268	947	636
Indirect (in support industries)	281	218	67
Induced (from workers' household spending)	317	243	130
Total	1,866	1,408	833
Employee Compensation (Millions of 2019 dollars)			
Direct	93.08	70.40	50.51
Indirect (in support industries)	19.61	15.09	5.23
Induced (from workers' household spending)	17.61	13.49	7.23
Total	130.30	98.98	62.97
Value Added to the Local Economy[2] (Millions of 2019 dollars)			
Direct	142.03	105.42	66.65
Indirect (in support industries)	35.79	27.51	9.95
Induced (from workers' household spending)	36.73	28.15	15.08
Total	214.55	161.08	91.67
Total Effect on the Local Economy[3] (Millions of 2019 dollars)			
Direct	227.57	168.76	100.00
Indirect (in support industries)	55.78	42.68	15.62
Induced (from workers' household spending)	56.11	42.99	23.04
Total	339.46	254.43	138.66
Fiscal Benefits (Tax Revenues) 4 (Millions of 2019 dollars)	**Port - Base Concept Plan [redacted]**	**Port - Alternative Concept Plan [redacted]**	**Manufacturing and Fabrication Facilities [redacted]**
Westchester County and Local Municipalities	7.61	5.71	2.45
New York State Taxes	6.97	5.29	2.67
Total	14.59	11.01	5.12

Notes:

1 A person-year is the equivalent of one person working full-time for a year.

2 The value-added is gross output minus intermediate expenditures.

3 The economic output or demand for local industries derived from the direct construction spending. Output is value added plus intermediate expenditures.

4 Includes sales tax, personal income taxes, corporate and business taxes, property taxes, and numerous other taxes on construction and secondary expenditures.

The following IMPLAN sectors were used to model the economic effects of port construction: Sector 56, Construction of new highways and streets; Sector 57, Construction of new commercial structures; Sector 58, Construction of other new nonbuilding constructions; Sector 445, Environmental and other technical consulting services; Sector 449, Architectural, engineering, and related services. The following IMPLAN sectors were used to model the economic effects of manufacturing and fabrication facility construction: Sector 57, Construction of new commercial structures; Sector 60, Construction of new multifamily residential structures; Sector 395, Wholesale trade; Sector 440, Real estate; Sector 447, Legal services; Sector 449, Architectural, engineering, and related services; and Sector 455, Environmental and other technical consulting services.

Sources: The characteristics and construction cost of the development; IMPLAN economic modeling system; and AKRF, Inc.

TABLE 12.2: ECONOMIC AND FISCAL BENEFITS FROM OPERATIONS

Economic Benefits	Port Operations Estimated Benefits per 10 Direct Jobs	Manufacturing and Fabrication Facility Operations Estimated Benefits per 100 Direct Jobs
Employment (Permanent Full- and Part-time Jobs)		
Direct	10	100
Indirect (in support industries)	5	86
Induced (from workers' household spending)	5	54
Total	20	240
Employee Compensation (Millions of 2019 dollars)		
Direct	0.59	14.32
Indirect (in support industries)	0.29	4.41
Induced (from workers' household spending)	0.27	4.57
Total	1.15	23.3
Value Added to the Local Economy[1] (Millions of 2019 dollars)		
Direct	0.96	20.22
Indirect (in support industries)	0.46	9.18
Induced (from workers' household spending)	0.54	7.42
Total	1.96	36.83
Total Effect on the Local Economy[2] (Millions of 2019 dollars)		
Direct	1.74	52.04
Indirect (in support industries)	0.74	14.04
Induced (from workers' household spending)	0.83	12.48
Total	3.3	78.56
Annual Tax Revenues[3] (Millions of 2019 dollars)		
Westchester County and Local Municipalities	0.09	1.55
New York State Taxes	0.08	1.34
Total	0.17	2.89

Notes:

1 The value-added is gross output minus intermediate expenditures.

2 The economic output or demand for local industries derived from the direct construction spending. Output is value added plus intermediate expenditures.

3 Includes sales tax, personal income taxes, corporate and business taxes, property taxes, and numerous other taxes on construction and secondary expenditures.

The following IMPLAN sectors were used to model the economic effects of the annual operation of the project: Sector 414, Scenic and sightseeing transportation and support activities for transportation (6 Digit Code NAICS 488310: Port and Harbor Operations) and Sector 283, Turbine and turbine generator set units manufacturing (6 Digit Code NAICS 333611: Turbine and turbine generator set units manufacturing)

Sources: The characteristics and construction cost of the development; IMPLAN economic modeling system; and AKRF, Inc.

Planned Shutdown and Decommissioning of the Indian Point Energy Center (IPEC)

Timing of Planned Permanent Shutdown

- IPEC has two remaining active nuclear reactors (Unit 2 and Unit 3).
- Unit 2 is expected to permanently cease operations no later than April 30, 2020
- Unit 3 is expected to permanently cease operations no later than April 30, 2021.
- It is anticipated that all reactors will be permanently de-fueled within about 30 days after permanent shut-downs.

Current and Expected Future Ownership of IPEC

- Entergy currently owns IPEC
- Assuming USNRC approval, Holtec to purchase all Entergy IPEC assets (expected around June 2021).
- Transaction closing dependent upon several conditions, including USNRC License Transfer Approval
- After License Transfer Approval, Holtec will be responsible for decommissioning.

Decommissioning

- Holtec Decommissioning International ("HDI") and Comprehensive Decommissioning International ("CDI") will undertake decommissioning
- The decommissioning fund of $2.1 billion is adequate for the required closure
- Regulated by USNRC for some time
- IPEC/other properties "Land-Locked" for OSW access to water until USNRC release of site
- Holtec requesting accelerated decommission (DECON)
- Accelerate Partial Site Release
- Much faster timeline for Full Site release
- Access to IPEC waterfront not expected until at least 2036

License Transfer Request Will Accelerate Decommissioning/In the Public Interest

- Prompt decommissioning of IPEC (about 15 years)
- Utilizes incumbent IPEC employees
- Potential repurpose of the site by owner
- Holtec commitment to the local community and to be a fair partner
- Holtec anticipates that the decommissioning trust fund will have sufficient $ to cover IPEC site restoration

Additional Information Expected Before RFPs for NYSERDA OSW Ports

- Entergy/Holtec to submit DECON Post-Shutdown Decommission Activities Report (PSDAR) – November 2019
- PSDAR will provide further details on the timeline for activities for decommissioning
- Holtec request for USNRC Approval in November 2020

Source: Indian Point Energy Center, USNRC License Transfer Application, Pre-Submittal Meeting, October 17, 2019, Entergy/Holtec International

NYSERDA Evaluation Criteria																	
Questions		A. Technical Considerations				B. Financial and Risk/ Return Considerations			C. Economic Benefits			D. Viability					
Section	#	a. Understanding of OSW Supply Chain	b. Technical needs and challenges	c. Physical advantages and barriers to OSW chain	d. Support near- and long-term OSW industry	a. Level and structure of NYS financing	b. Ratio of State to Non-State financing	c. Creditworthiness	a. Benefits relative to NYS Investment	b. Risks associated with achieving such benefits	c. Unlock future supply chain benefits	a. Site's competitive advantage in OSW supply chain	b. Site control / long-term usage	c. Maturity of site development plan	d. Proposed permitting and construction schedule	e. Stakeholder engagement plan	f. Qualifiation of applicant, team members, other parties
B. Proposed Site Activity and Investment	13	•	•	•	•	•	•		•	•	•	•	•		•	•	•
	14	•	•	•	•										•		•
	15	•	•	•	•						•			•	•	•	•

13. In no more than 500 words, provide a statement of qualifications that describes the experience and abilities of the Applicant and the Applicant's key team members, organizations, and/or institutions, if applicable.

AKRF is submitting this RFQL response for the potential development of an OSW Staging and Installation Port on property owned by the Town of Cortlandt.

AKRF is an environmental, engineering, and planning firm founded in 1981 with offices located throughout the Northeast and Mid-Atlantic, including White Plains, NY.

Over 350 planners, engineers, and environmental scientists at AKRF partner with clients to develop real-world solutions for complex and time-sensitive projects. We provide support for the planning, stakeholder outreach, design, permitting, construction management, and operation of major projects in the Northeast and Mid-Atlantic. With respect to marine/ port projects, our diverse team of engineers, environmental scientists, ecologists, biologists, environmental toxicologists, statisticians, analysts, and regulatory compliance specialists provide an overall understanding of design needs versus issues critical to regulatory concerns and stakeholders. We take pride in our ability to quickly grasp complex projects, to evaluate potential environmental impacts (especially for projects in early phases of design), to coordinate closely with environmental regulators, and to develop solutions that provide operational flexibility, yet receive buy-in from critical path regulators and the local communities. ***See response to Question 15*** for further qualifications.

As noted in response to Question 9, between the submission of this package and the issuance of the 2020 RFP, as part of the initial steps in the stakeholder engagement process, a potential port in the Town of Cortlandt would be discussed with industry players to identify potential development, management and operations teaming partners. At this time, it is envisioned that key team members (and/or stakeholders) would include the Town of Cortlandt (as property owner), existing and future property owners of upland parcels that may have interest in partnering to expand the scope of the project to include manufacturing and fabrication (such as ConEdison, Entergy, and Holtec), and the adjacent Village of Buchanan to facilitate such partnerships. AKRF has contacted these entities for review of preliminary concepts. An updated team/stakeholder list for the potential OSW Staging and Installation Port at the Site would be assembled and updated to support an RFP response.

14. Identify your experiences in assuming right of way (ROW) acquisition, the assessment and management of environmental and geotechnical risks, and other permitting activities. Which of these are particularly relevant to the Proposed Site Activity and Proposed Site Investment?

Right of way acquisition

As noted, the Town of Cortlandt owns the property on which the upland portion of the OSW Staging and Installation Port could be developed. Therefore, acquisition for upland parcels related to upland port related development would not be required. The over-water portion of the Port facility would require a license, easement, and/or permit (as determined by NYS Office of General Services (OGS) for use of lands underwater. **The Project Team has experience working with the NYS OGS on a variety of large projects in the Hudson and Bronx Rivers for which permissions from the State to use lands underwater were granted, most recently for park projects on the Bronx River**. The Project Team would use its working knowledge of the State process to secure permissions to modify lands underwater and its relationships with the OGS to identify and obtain easements for the overwater portion of the project.

The Project Team also has significant experience securing roadway and ROW easements. AKRF has lead the NYSDOT ROW acquisition and Land Donation process on multiple projects throughout the Hudson Valley. Most recently on the Cortlandt Crossing shopping center project located on the Town's main commercial corridor on US Route 6 and for the Adelaar project for the development of the new Resorts World Drive which provides access to the new casino, waterpark, golf course and entertainment village in the Town of Thompson. Also, as part of Cortlandt Town Center project, the work included extension of a Town road and creation of a new ROW connecting the project and a residential community currently under construction.This experience will be required to modify the Town driveway easement to accommodate the realigned access road. The Town of Cortlandt holds an easement for the current access road over the IPEC parcel, but a new easement would be required to cover the realigned access road that would be developed in support of the OSW Port. Refer to the response to Question 15 below for a list of the current Project Team's qualifications.

Environmental

The Project Team has extensive expertise in conducting all phases of environmental site assessment and remediation of former commercial and industrial sites slated for redevelopment and adaptive reuse. **The Project Team has successfully completed numerous remediation and redevelopment sites as part of the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) and Brownfields Cleanup Program (BCP).**

The Project Team has experience with a broad range of site and remediation engineering services including the design, permitting, installation, and operation of in-situ remediation strategies, vapor mitigation systems, asbestos abatement design and oversight, sediment and erosion controls, and stormwater management. This includes initial problem-solving, proposing a viable engineering solution, negotiations with federal, state, and local agencies, obtaining necessary permits and approvals, preparing design drawings and specifications, implementing the project and construction oversight, and any subsequent monitoring.

We specialize in creating, planning, and executing a work plan to overcome project limitations initially presented by the presence of contamination. Our experience includes design of soil/sediment handling and remediation plans that are incorporated into the construction process to minimize delays and allow redevelopment goals to be achieved. Our work has included several successful waterfront terminal-and-canal related remediation projects where the characterization and post excavation reuse of soil and dredged sediment was essential for project completion.

Anticipated risks for this site include handling of dredged sediment that has documented metal contaminants. **Although the presence of contamination can limit the reuse potential for excavated material, multiple options are available as part of State regulations and remedial programs (i.e. BUD, NYSDEC BCP), and these options can be incorporated into the construction process.** Even in scenarios where contamination becomes a bigger issue, State programs like the BCP allow for site-wide remediation commensurate with the post-redevelopment end use, and includes post-construction financial benefits.

Geotechnical

The Project Team's Geotechnical Lead has performed geotechnical investigations and designs for over 30 Ports/ Marinas; including Port of Newark, New York Container Terminal, Port Ivory, South Brooklyn Marine Terminal, Connecticut State Pier and others US ports (see further qualifications in response to Question 15). Individual team member experience includes the design of bulkheads and pier foundations as well as ground improvement techniques commonly required at ports such as surcharge/settlement programs, slope stabilizations and pavement subgrade improvements. The Geotechnical Lead has also developed land- and water- based soil investigation programs to develop design parameters and evaluate dredging options for ports; including evaluating dredge material for the USACE BUD process.

The geotechnical conditions of the Site have several favorable attributes. **Unlike most waterfront New York City properties, this Site is not reclaimed land. Therefore, there is little concern of the associated settlement and ground improvement that is typically required further downstate.** The OSW Staging and Installation Port is designed for the wharf to lie on the natural 15-foot contour (NAVD88) which is a suitable draft for a majority of vessels. The Site would require very minimal dredging. These two attributes significantly shorten the schedule and reduce costs.

There are two areas of geotechnical risk. The first would be the grading of the Site. It is known from the available data that the Site is underlain by hard metamorphic rock (inwood marble) and has higher elevations as one moves away from the River. In order to produce flat upland staging, installation, and operations area cut and fill would be required to level the existing grade. Available data from other projects on the site indicates the cut and fill would be in soil and much of the material could be re-used. However, the available data are not comprehensive of the entire site and more subsurface investigation will be required to confirm the stratigraphy of the remainder of the site is in agreement with the available data. If the site stratigraphy is inconsistent with the existing data, the quantity of rock excavation may vary.

The second risk is the existence of a recently constructed buried gas line installed via Horizontal Direction Drill (HDD) under the River. The buried gas line will need to be protected from damage during construction, plus also protected from any spud piles as it crosses under the berthing area. While studies performed for the gas line and information on where the HDD originated give a sense of the depth/profile of the gas line have been included in this initial port concept, as-builts will be secured to determine the exact depths/ locations of such for the RFP. **However, based on the Project Team's experience at other locations in downstate NY, nothing in the previous studies/latest information obtained demonstrate the Port could not be built and operate over this buried gas line.**

Even though the bedrock proximity may result in some rock excavation, the rock creates an advantage by allowing a very high capacity wharf to be created with the piles bearing on rock within 100 feet below MLW.

Permitting

The Project Team has permitted a range of waterfront developments within the New York Metropolitan area, including:

- Governor's Office of Storm Recovery (GOSR) Coastal and Social Resiliency Initiatives For Tottenville Shoreline—Living Breakwaters And Tottenville Shoreline Projects along Staten Island's Raritan Bay shoreline
- Living shoreline and shoreline rehabilitation within New York City Department of Parks and Recreation (NYC Parks) Sherman Creek Park on the Harlem River
- NYC Parks Midtown Greenway project and Andrew Haswell Green Park Phase 2B on the East River, portions of FreshKills Park on the Arthur Kill, the Rockaway Boardwalk Reconstruction in Queens
- Support to the Hudson River Park Trust (HRPT) for various segments and elements within the Park including the Pier 55 project, and the Day's End Public Art Installation at Gansevoort Peninsula proposed by the Whitney Museum of American Art
- Major Hudson Valley projects, including the Tappan Zee Bridge Replacement Project (Governor Mario M. Cuomo Bridge)
- Shoreline and park improvements within Roberto Clemente State Park on the Harlem River
- Pier 17 and Tin Building within the South Street Seaport on the East River
- Development of Brooklyn Bridge Park and maintenance and repair activities

The Project Team will use the experience and expertise gained from these diverse projects and our years of working with the agencies that hold jurisdiction of resources that will be affected by the development of a port in Cortlandt to provide services to support the submission of the permit applications that will be required of this project. Refer to Table 6-1 listing the permits, authorizations, and agency coordination that are expected for the development and operation of a port in Cortlandt. In addition, see ***Figure 14.1 Key Permitting Issues***, which highlights some of the key areas for construction and operation of a TOC OSW Staging and Installation Port.

The applicant's team is fully versed in all of these areas of project design, permitting and development. The Project Team will need to call on all of these areas of expertise, and others, for the design, permitting and construction of an OSW Staging and Installation Port at this Site.

See response to Question 15 for additional Project Team qualifications.

15. Please provide any additional information that you believe New York State should consider in its evaluation.

Table of Contents

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November 15, 2019

NYSERDA
c/o Ms. Jillina Baxter
17 Columbia Circle
Albany, NY 12203-6399

Re: OSW Ports RFQL - 2019 Response New York State Energy Research and Development Authority (NYSERDA)

Dear NYSERDA:

The Engineering and Planning firm, AKRF Inc., provided the Town of Cortlandt's Supervisor, Town Board, and several staff members with a conceptual presentation regarding how Town-owned property located on 9th Street, tax parcel 43.13-1-3 (the "Cortlandt Property"), further described below, could potentially be used for the development of future port infrastructure that could advance the offshore wind industry in New York State under the *Offshore Wind Port Infrastructure RFQL 4259*. I was directed by the Town of Cortlandt Town Board ("Town Board") to write this letter indicating conceptual support for AKRF's continued study of future uses of the Cortlandt Property with respect to renewable energy.

According to AKRF, portions of the Cortlandt Property's prime location could be a vital supply chain resource to the burgeoning New York State and Regional offshore wind industry. In addition to its function as a port that could provide vital supply chain resources to the offshore wind industry, this port could also unlock long-term local economic development potential for the mid-Hudson Valley region of New York State. This could include, in the short-term, land-locked upland properties in the Town currently in third party ownership. It could also present longer-term opportunities for the redevelopment of Entergy Corporation's Indian Point Energy Center ("IPEC") site, located in the Village of Buchanan ("Village"). By generating an additional transportation option for any future industrial use of the adjacent or nearby landlocked parcels, it could create a link to greater potential economic opportunity in the longer term for the Town, the Village, and other nearby communities.

The Town Board welcomes the opportunity to further investigate the development of offshore wind infrastructure on portions of the Cortlandt Property and to secure eligibility for future funding from a pool of up to $200 million from future NYSERDA RFPs for Offshore Wind Port development. To this end, the Town Board supports further funding, investigation, and analysis of the following design concept and alternatives:

- a 25-acre port facility in the Town of Cortlandt that could consist of

- up to a 5- acre pile-supported wharf constructed in the Hudson River to allow for loading and unloading of wind turbine components by barge or ship; and
- an upland port area (20-acres) on property owned solely by the Town, adjacent to the proposed pile-supported wharf to allow for storage of wind turbine components in a location that could be protected from surges, storms and hurricanes, pending future delivery of equipment to offshore wind farms or other supply ports as well as on-and off-loading in support of future upland assembly and/or fabrication facilities.

- Alternatives to the design concept could reduce the size of a wharf in the Hudson River, if additional easements or property could be secured adjacent to this portion of the Cortlandt Property. Future discussions may be held with adjacent property owners to determine if there is interest for including these other properties in an Offshore Wind Port.

An Offshore Wind Port in the Town of Cortlandt could offer the potential for significant local job growth, which could include high-quality and well-paying careers. The site could act as a catalyst for development of off-site parcels for manufacturing development and the provisions of business-to-business goods and services, which could further bolster job growth. An Offshore Wind Supply Port on the Town's property could also meaningfully contribute to partially offsetting tax revenue and job losses associated with the impending closure of IPEC.

Therefore, the Town Board conceptually supports AKRF's further study and advancement of the prequalification of the Cortlandt Property for the development of future port infrastructure under the *Offshore Wind Port Infrastructure RFQL 4259*.

Respectfully submitted,

THOMAS F. WOOD, ESQ.
Town Attorney

cc: Hon. Linda D. Puglisi, Supervisor of the Town of Cortlandt
Cortlandt Town Board
Michael Preziosi, P.E., Director of Technical Services for the Town of Cortlandt
Hon. Theresa Knickerbocker, Mayor Village of Buchanan
Trustees - Village of Buchanan

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November 15, 2019

Anthony Russo
AKRD, Inc.
34 South Broadway, Suite 401
White Plains, NY 10601

Dear Anthony,

The Village of Buchanan is in agreement with the concept as is the Town of Cortlandt. We look forward to further exploration on this matter.

Sincerely,

Theresa Knickerbocker
Mayor

2. Additional AKRF Qualifications

AKRF, Inc. (AKRF) is an environmental, engineering, and planning firm founded in 1981 with headquarters located in New York City and offices located throughout the Northeast and Mid-Atlantic, including White Plains, NY.

Over 350 planners, engineers, and environmental scientists at AKRF partner with clients to develop real-world solutions for complex and time-sensitive projects. We provide support for the planning, stakeholder outreach, design, permitting, construction management, and operation of major projects in the Northeast and Mid-Atlantic. With respect to marine/port projects, our diverse team of engineers, environmental scientists, ecologists, biologists, environmental toxicologists, statisticians, analysts, and regulatory compliance specialists provide an overall understanding of design needs versus issues critical to regulatory and other stakeholders. We take pride in our ability to quickly grasp complex projects, to evaluate potential environmental impacts (especially for projects in early phases of design), to coordinate closely with environmental regulators, and to develop solutions that provide operational flexibility, yet receive buy-in from critical path regulators and the local communities.

The AKRF staff who helped develop this application have extensive experience ranging across the planning, design, permitting and support of construction for large-scale infrastructure and land/marine development projects. Highlighted on the following pages are some of these:

Offshore Wind/Renewables

AKRF is currently contributing its consulting expertise to a variety of renewable energy projects on the East Coast, including wind, solar, battery storage, fuel cell, and biogas projects. Samples of relevant projects include:

- Planning/Permitting Support for Skipjack Offshore Wind Farm, MD/DE
- Regulatory Feasibility Study for an OSW Port, Confidential Client, New Jersey
- LIPA Offshore Wind Farm Article VII Environmental Review, Long Island, NY
- Ravenswood Battery Storage Facility (316MW), Queens, New York City, NY
- Permitting Support for Confidential OSW O&M Facility - Midatlantic
- Noble Environmental Power, Wind Project - Various Locations Upstate NY

Ports/Marine

CT State Pier Expansion – OSW Staging Facility
Geotechnical investigations involving modifications to the existing CT State Pier for landfilling of existing berth and reconstruction utilizing cofferdam based wharf face to allow for the site to handle OSW WEA components. This included subsurface investigation program, including water borings, to evaluate conditions of potential settlement subsequent to the filling operation.

South Brooklyn Marine Terminal (Red Hook Terminals)
Geotechnical lead for rehabilitation of existing port to reactivate the site as a break bulk shipping terminal. This included evaluation of dredging for berths, slope stability of pier edge conditions under terminal loading, suitable crane foundation options, foundation depths for potential new buildings, and pavement subgrade conditions. Land- and water- based boring programs were developed, and oversight was provided for the inspection team. Sheet pile lengths for bulkhead stability were determined, as were evaluations of the existing cofferdam for loading capacity.

Cape Wind Offshore Wind Turbine Facility – Atlantic Ocean, NE US
Geotechnical lead for Design Build competition. This included developing subsurface investigation program for wind turbine foundations, offshore substation foundation, cable jet plow alignment, land transition area, and upland cable alignment. Bid documents were developed for subcontractors for land borings, water borings, bathymetry, side scan sonar, magnetometer and vibrocores. Collaboration was also undertaken with European consultants on wind turbine foundation requirements, hydrogeological investigation requirements, best practices and constructability matters.

Port Ivory Intermodal Facility, Staten Island, NY
Geotechnical evaluations for upgrades of facilities at Howland Hook Marine Terminal, including installation of rail yard and storage facility where ship cargo can be transferred to rail lines, plus heavy-duty pavement rail lines, high mast lighting, and utilities. Relocation of the existing oil lines running through an easement on the site was addressed, as was the geotechnical portion of design including determination of the subgrade modulus for the pavement section. Settlement potential of the site was analyzed, including a review of the behavior of the test surcharge location to try to determine

the amount of settlement to be expected. An anchor system for the tie-down of the gantry cranes during storm events were designed, as were construction elements related to drilled shafts, subgrade issues, and tie-down anchors.

Post-Panama Canal Expansion Port Improvements for PANYNJ Ports, New York/New Jersey Harbor

Planning support for the expansion of PANYNJ facilities to accommodate larger vessels into NY Harbor. While initial planning was underway for the Panama Canal Expansion Project (that would significantly increase the vessel sizes and depths up to 50 feet deep), multiple PANYNJ ports were evaluated for potential increases in truck-equivalent units that could be associated with long-term growth of trade for the NY Harbor/region after the Panama Canal Expansion Project. In addition to site-specific improvements required at numerous PANYNJ ports, assessments of the impacts/necessary mitigation were developed to address the additional dredging that would be required in NY Harbor to accommodate vessels with much larger depths/channel requirements.

Cap-Haitien Port Rehabilitation, Haiti (USAID) -

Geotechnical lead for rehabilitation of existing port to improve the economic development of the region and prepare for future leaseholder. This included the design of a foundation system for new substation/electrical generation building, peer review of design of new administration building for future tenant, and review of deliverables and geotechnical investigation reports and analysis.

Wharf of Quest Port/Strangelake Cofferdams, Anaktalak Bay, NL, Canada

Geotechnical lead for an independent design review of 30-meter diameter cofferdams in soft ground placed to create a break bulk wharf at a mine facility and associated reclaimed upland area for material storage.

Long-Range Master Plan for PANYNJ, New York Harbor, NY and NJ

Part of a team preparing a long-range master plan for PANYNJ's Port facilities. The master plan primarily includes Port Newark, Elizabeth Marine Terminal, and Port Jersey within New Jersey, and Howland Hook Marine Terminal and Brooklyn Marine Terminal in New York City. Together, these facilities comprise the busiest port on the East Coast and the third largest container port assembly in North America. The study is advising PANYNJ on its 30-year outlook as it aims to improve functionality and efficiency of its port facilities.

Coastal Resiliency

East Side Coastal Resiliency, NY, NY (+$1.4 Billion Construction Value)

Leading a multidisciplinary design team that was selected by the New York City agency partnership of New York City Department of Design and Construction (NYCDDC), New York City Department of Parks and Recreation (NYC Parks), New York City Department of Transportation (NYCDOT), and the Mayor's Office of Recovery and Resiliency (ORR) to provide engineering, planning, landscape architecture, urban design and community engagement services for the

Preliminary and Final Design Services for East Side Coastal Resiliency (ESCR).

New York City's ESCR Project serves as a groundbreaking example of how dense coastal urban areas in the United States can adapt to the realities of climate change and sea level rise. Born out of the winning "BIG U" concept from the 2014 Rebuild By Design competition, ESCR is the largest coastal flood risk reduction project ever undertaken in New York City. The project's goal is to deliver a 2.4-mile long coastal flood protection system interwoven with existing parks and cityscapes in Lower Manhattan's most vulnerable neighborhoods.

The technical challenges of designing such a system in a dense urban environment are countless, including designing flood protection infrastructure that not only occupies but improves the limited waterfront open space in a highly developed area, crossing century-old infrastructure and multiple state and local jurisdictional boundaries, threading the alignment alongside and across one of the most heavily trafficked roadways in America's largest city, and integrating within the design protection of active high-voltage transmission lines serving more than 1.2 million residents. Further compounding these complexities are the many logistical considerations associated with being at the vanguard of coastal protection in New York City, including balancing the needs and objectives of public and private stakeholders, developing effective protocols and precedent-setting practices, and educating both community stakeholders and project partners about the critical elements of flood protection design, construction, operation, and maintenance.

Coastal and Social Resiliency Initiatives For Tottenville Shoreline—Living Breakwaters And Tottenville Shoreline Projects

AKRF provided environmental review and permitting for two major HUD-funded post-Superstorm Sandy initiatives intended to enhance coastal and social resiliency within a single project site along the Tottenville shoreline*: The Living Breakwaters Project*, with a design team composed of five firms and the *Tottenville Shoreline Protection Project,* with a design team composed of three additional firms.

AKRF prepared the Environmental Impact Statement (EIS) for the project in accordance with the National Environmental Policy Act (NEPA) and State Environmental Quality Review Act (SEQRA). AKRF coordinated closely with the projects' multiple designers throughout the environmental review process to develop all the design and other technical information needed for the EIS and multiple natural resource permit applications, as well as to respond to extensive comments from project stakeholders, the general public, and involved regulatory agencies.

Acquiring discretionary and non-discretionary approvals

AKRF prepared a single Joint Application for Permit (JAP) for the project submitted to the USACE, NYSDEC, NYSDOS and New York City Department of City Planning (NYCDCP) for the Living Breakwaters and the Shoreline Project. The Joint Application described both projects in detail with an emphasis on construction means and methods; included a 404(b)(1) guidelines analysis for specification of disposal sites for dredged or fill material, a Public Interest Review which considers environmental, economic and social concerns associated with activities authorized under Section 404 of the Clean Water Act, and a Draft Conceptual Compensatory Mitigation Plan developed by AKRF working closely with the Governor's Office of Storm Recovery (GOSR), the design team, and NYC Parks for the placement of fill within a jurisdictional wetland and waters of the US within Raritan Bay. Permitting for the project was developed to accommodate different design schedules for the two project elements, something which required frequent coordination with the designers and the regulatory agencies.

Natural resources impact analyses

Working closely with GOSR, AKRF led early agency coordination with state and federal agencies, and developed water quality, fish and benthic, sediment contaminants and clam tissue sampling protocols, and horseshoe crab egg surveys with NYSDEC, NMFS, and USACE. AKRF also completed consultations with the US Fish and Wildlife Service (USFWS) and NMFS under Section 7 of the Endangered Species Act, and under the Magnuson-Stevens Fishery Conservation and Management Act, and developed mitigation alternatives with the USACE and NMFS. The mitigation agreed to take the form of purchase of mitigation credits from the Saw Mill Creek Wetland Mitigation Bank. AKRF also conducted Phase 1A and 1B archaeological studies, and coordinated with SHPO.

Create reliable EIS impact envelope at very early design stage

The EIS was developed on the basis of conceptual designs for both the **Shoreline** and the **Living Breakwaters** projects, each of which advanced at a different pace and with a different design team. Working with different levels of design detail presented challenges that were successfully overcome through close coordination with the design teams, which continued throughout the preparation of both the Draft and Final EISs.

Innovative/Reduce Impacts

At very early stages of the project's design and with detailed information being limited, AKRF identified the times of year during which construction could not take place based on in-water and upland regulatory constraints. This helped minimize/avoid environmental impacts and related regulatory complications. This was made possible by a thorough understanding of the environmental requirements and the ability to work closely with the design teams to develop suitable construction schedules and means and methods. Ultimately this simplified and accelerated an already complex environmental review and permitting process. In addition the extent and environmental impact of the breakwaters was dramatically reduced from the original conceptual design--without diminishing their essential function of reducing potentially destructive wave action. This was accomplished through an extensive iterative process involving the project's coastal engineers, as well as hydrodynamic and shoreline change modelers, all working in close collaboration with AKRF, GOSR and the project's regulatory agencies.

Additional Hudson River Experience

Tappan Zee Hudson River Crossing Project, Westchester/ Rockand, NY ($3+ Billion Construction Value)

AKRF was brought on board by the office of the New York State Governor to prepare the EIS for the **replacement of the Tappan Zee Bridge, now the Mario M. Cuomo Bridge,** which carries the New York State Thruway (NYST) Interstate 87/287 across the Hudson River between Rockland and Westchester Counties, New York. The EIS was prepared in accordance with the NEPA and SEQRA with the Federal Highway Administration (FHWA) as the federal lead agency and NYSDOT and NYSTA as joint lead agencies. AKRF was selected to lead the environmental review process at a critical point when the project was fast-tracked by the White House as one of the 14 high-priority infrastructure projects across the country. AKRF staff worked intensively to complete a Draft EIS in about four months, meeting all schedule targets. Following a robust public review, AKRF prepared the Final EIS in three months with the overall schedule resulting in a Record of Decision less than 11 months following the Notice of Intent.

AKRF continues to work on the Mario M. Cuomo Hudson River Crossing Project as lead environmental consultant to the Project Team, with responsibility for securing all environmental permits, providing environmental oversight to the procurement of a design-build contract, and for ensuring that the mitigation and other requirements of the EIS are carried forward.

Various Services, Town of Cortlandt, NY

AKRF has been providing planning, SEQRA and traffic consulting services to the Town of Cortlandt for close to 30 years. We have supported the Town through the preparation of the Verplanck Waterfront Master Plan, the award-winning Sustainable Master Plan—Envision Cortlandt, and provided design support for the Annsville Trail and Pedestrian Improvements Conceptual Master Plan. We have assisted with the SEQRA review for various large-scale development projects, including Cortlandt Crossing.

AKRF was retained by the Town of Cortlandt to prepare a Due Diligence Traffic Study associated with the proposed Cortlandt Medical Oriented District (MOD) along the Route 202/35 corridor. AKRF performed trip generation surveys and estimated the levels of traffic associated with the proposed development plan including a hospital expansion, medical office space, hotel, retail and residential uses. Traffic levels for currently approved developments were added to existing traffic levels to determine the anticipated impacts (utilizing Synchro/SimTraffic software). The AKRF team then developed improvement measures for the corridor including geometric improvements such as roadway widening and restriping, signal improvements including retiming, phase changes, and upgrades to the existing signal system as well as installation of new signals, and the installation of a two lane roundabout. As critical to the overall success of the Project, working with the Town of Cortlandt, AKRF met and coordinated with the potential developers, County, and NYSDOT officials in order to build consensus for the proposed improvements needed to support the MOD development.

Economic and Fiscal Impact Modelling

AKRF is well known for sophisticated economic and fiscal impact modeling capabilities. Using RIMS II and IMPLAN input-output models, we help economic development agencies, public development corporations, and private-sector developers understand and communicate the value of proposed development and infrastructure projects in terms of direct and indirect jobs, wages and salaries, property and sales taxes, personal income and corporate taxes, and utility and special district taxes. As it relates to our support to the Offshore Wind Energy initiatives along the Mid-Atlantic to New England, we have also become familiar with the Offshore Wind Jobs and Economic Development Impact (JEDI) model, (which is more of a spreadsheet model with several important caveats on its use), designed to demonstrate the potential economic impacts associated with developing and operating offshore wind power plants in the US.

Modelers within our Economic and Real Estate Advisory Services practice have been identifying the economic and fiscal benefits of development since the company's inception in 1981, and have worked on some of the nation's most important projects. Our experiences on hundreds of projects run the gamut of project types, from small-scale single-use development to internationally recognized venues. The following provides a sampling of the breadth and depth of our experience.

Atlantic Yards Arena and Redevelopment Project, Brooklyn, NY

AKRF prepared detailed analysis of fiscal and economic benefits of the Atlantic Yards project; a $4.5 billion mixed-used development including the newly opened Brooklyn Arena, adjacent to Downtown Brooklyn. The analyses included an independent evaluation of revenue projections from arena events, including NBA basketball, NHL hockey, concerts, family shows (circus, Ice Capades, etc.), as well as concession sales and community use. The firm's primary assignment was to project the direct and indirect economic activity that would result from the NBA Nets basketball operations, as well as other non-game events. This included the spending impacts from the increased visitors to the area associated with the arena, and the induced secondary development that would likely occur as a result of the public infrastructure investment in the area. The firm also analyzed the economic and fiscal effects to the City, the New York City Metropolitan Transportation Authority (MTA) (which owns the underlying land), and the State from construction and operation of the entire development, including over 6,000 residential units and nearly 2 million square feet of office space.

Yonkers Rising, Yonkers, NY

AKRF was retained by a private developer to analyze the economic impacts associated with a proposed 410,700-square-foot mixed-use development program planned for downtown Yonkers. AKRF determined the economic activity that would result from investment during the construction period, and the annual economic activity during operation within Yonkers, Westchester County, and New York State. In addition, AKRF also assisted the developer with its successful application to the City of Yonkers for Industrial Development Agency (IDA) financing, and subsequently prepared an updated analysis for use in the developer's New York State Consolidated Funding Application (CFA).

Philadelphia Casino Economic Evaluation Study, Philadelphia, PA

AKRF provided technical support services to the Philadelphia Department of Commerce in its assessment of the relative economic and fiscal impacts of six proposed casino developments. The Pennsylvania Gaming Control Board was considering issuing Philadelphia's single remaining Category II gaming license, and six developers submitted applications in pursuit of the license. The developers' proposed casino projects vary in their programs, with each project including a casino as well as some combination of additional uses including hotel, entertainment, restaurant, retail, event space, and parking.

AKRF helped the Department of Commerce understand the differences in analysis methodologies and assumptions utilized by the gaming license applicants; evaluated the applications for their reasonableness in terms of projected gaming tax revenues; and drew comparisons across proposals for key indicators such as employment, employee compensation, gaming, and non-gaming tax revenues. AKRF presented normalized ("apples-to-apples") economic impact figures for all six proposals based on first-hand impact analysis using IMPLAN and on the application of IMPLAN-derived metrics. In addition, AKRF estimated net gaming tax revenues to the City in light of regional trade area revenue capacity and potential competitive effects with existing SugarHouse Casino, and considered whether variation in the programming and locations of proposals would substantively affect the net tax revenues to the City due to differences in draw, and potential competitive effects with SugarHouse Casino.

New York-Presbyterian Hospital, Westchester Division, White Plains, NY

AKRF has prepared a number of economic studies documenting the existing and potential local, regional, and statewide economic contributions from operations at the hospital campus. For example, AKRF estimated the employment and total economic activity generated within Westchester County for a proposed 384,000-square-foot research laboratory and the Center for Advanced Proton Therapeutics (CAPT) to be built on a 13-acre site. The research laboratory will accommodate the Hospital's growing research activities integrating behavioral, neurological, pharmacological, and genetic studies. AKRF also completed an economic benefit assessment for adaptive reuse of New York Presbyterian's White Plains hospital.

Intrepid Sea, Air and Space Museum, New York, NY

AKRF was retained to conduct the economic and fiscal impacts analysis for the museum's proposed $94 million expansion to house the Enterprise Space Shuttle. AKRF used IMPLAN to project benefits from the construction and operation of the project, and performed an assessment of visitation and visitor spending to the museum pre- and post-expansion.

USTA National Tennis Center, Queens, NY

AKRF prepared an economic and fiscal benefits analysis of the USTA's existing operations and expansion project. AKRF used IMPLAN to estimate the economic benefits from existing operations and benefits from construction and annual operations of the expansion. The analysis also included an estimation of benefits from the US Open Tournament and off-site visitor spending.

Economic Benefits of Silvercup West, Queens, NY

AKRF completed an economic and fiscal benefits analysis for the Silvercup West development, a 2.7-million-square-foot mixed-use development on the East River in Long Island City, Queens. The project includes television and film production studios and residential, office, retail, museum, health club, catering facility, and parking uses. AKRF's economic impact analysis estimated the net economic benefits from construction and annual operation of the project to New York City and New York State.

Expansion of the Museum of Modern Art (MoMA), New York, NY

The firm completed a comprehensive economic impact analysis for the expansion of MoMA in Midtown Manhattan. The substantial reconstruction of the museum over a two-year period provided new galleries, an expanded education program, an additional theater, and a larger restaurant, all of which were projected to increase the number of visitors to more than two million annually. AKRF evaluated the museum's effect on the City and State economies from operating expenditures, employment, and visitor spending prior to the reconstruction program. The firm then projected the economic and fiscal impacts that would result from the $317 million reconstruction project, including employment, wages and salaries, total effect on New York City and State economies, and tax revenues from construction activities, followed by projection of the annual economic and fiscal effects from operation of the expanded facilities.

Montreign Resort Casino at Adelaar, Town of Thomson, NY

AKRF prepared the economic and fiscal impact reporting for Empire Resorts' successful application to develop and operate a gaming facility in New York State. AKRF estimated the economic and fiscal benefits of construction and operations of the proposed gaming facility, which includes the Montreign Resort Casino, Entertainment Village, an Indoor Waterpark Lodge, and the Monster Golf Course. The economic impacts analysis presented direct, indirect, and induced economic benefits to the Town of Thompson, Sullivan County, and New York State. The analysis also considered the fiscal ramifications to local municipalities if the project receives financial assistance under New York State's Industrial Development Agency Act.