

# **Consolidated Edison Company of New York, Inc.**

## **M29 Transmission Line Project**

### **Executive Summary**

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### **Project Overview**

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Applicant”) is submitting this Application for a Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the New York State Public Service Law (“PSL”) to authorize the construction and operation of an approximately 9.5-mile, 345 kV high-pressure fluid filled (HPFF pipe-type), primarily underground, transmission line connecting Con Edison’s existing Sprain Brook Substation in the City of Yonkers, Westchester County, with the new Academy Substation to be located in the Inwood section of upper Manhattan, in the City of New York (the “Project”). The HPFF pipe-type transmission line will be installed primarily below grade, primarily within publicly-owned street rights-of-way and previously developed Con Edison property. Equipment required to accommodate the new transmission line will be added at both the Sprain Brook Substation and new Academy Substation. The interconnection of the proposed 345 kV transmission line at the Sprain Brook Substation will include the installation of new 345 kV circuit breakers, 345 kV disconnect switches, 345 kV pothead structures, "A" frame towers, related equipment and a pressurizing plant with a tank that will hold 20,000 gallons of dielectric fluid. At the new Academy Substation, which is planned as an indoor, gas-insulated type station (“GIS”), the major equipment that will be installed includes 345 kV circuit breakers, 345 kV disconnect switches, 345 kV pothead structures, 345 kV/138 kV autotransformers, 138 kV phase angle regulators, and related equipment. The substation will contain a pressurization plant with two tanks for dielectric fluid with a total capacity of 30,000 gallons. The work at the existing Sprain Brook Substation will be completed within its existing fence and property lines, and the connection of the new transmission line to the Academy Substation will occur within the former Sherman Creek Generating Station property, in previously disturbed areas historically used for power plant operations.

As noted, the proposed transmission line will be installed primarily underground (primarily within public roadway rights-of-way and previously developed Con Edison property) with the exception of four bridge crossings where the line will be mounted to the underside of the bridges or installed within the bridge roadway. The four bridge crossings are:

- Tuckahoe Road Bridge over the New Croton Aqueduct;
- Old Nepperhan Avenue Bridge over the Saw Mill River;
- Nepperhan Avenue Bridge over the Saw Mill River; and

- West 252<sup>nd</sup> Street Bridge over the Henry Hudson Parkway.

Along most of the proposed route, the M29 Transmission Line, as it is designated, will be installed within an open-cut trench. This will require an approximate two- to five-foot wide by four- to eight-foot deep excavation. The width and depth of the excavation will vary depending on the location along the preferred transmission route (i.e. state right-of-way vs. non-state right-of-way) and proximity to existing underground utilities. Generally, a four- to five-foot deep trench will be required within the boundaries of the City of New York and a seven- to eight-foot deep trench will be required within the City of Yonkers. Where the line crosses the Harlem River into upper Manhattan, the pipe-type cable feeder will be installed using horizontal directional drilling (“HDD”).

The installation of the M29 Transmission Line and associated upgrades at the existing Sprain Brook Substation and the new Academy Substation will allow Con Edison to meet expected electrical load growth in the East 179<sup>th</sup> Street load area, which includes portions of the Bronx and upper Manhattan. The Project will also improve reliability on the Con Edison electric transmission and distribution system. First contingency overload conditions, as reflected in Con Edison’s most recent Ten-Year Load Relief Forecasts for the Sherman Creek Substation, serving the Bronx and upper Manhattan, will be relieved through construction of the Project. The Project will also provide electric system reliability benefits to portions of Westchester County within Con Edison’s Dunwoodie North load area. Additionally, the Project would increase Con Edison’s ability to import power into New York City by about 300 MW, thereby allowing the increased delivery of economy power to its in-City customers.

## **Environmental Studies**

Con Edison conducted comprehensive environmental studies of the Project. The results of these studies are summarized below:

***Land Uses:*** Land uses along the preferred M29 transmission line route were identified from several sources, including reconnaissance surveys, aerial photography, and inventories/maps of land use, cultural, visual, and recreational resources. Cultural resources included archaeological sites, historic places and structures on the State and National Registers of Historic Places and city-designated historical sites. Westchester, Bronx and New York County parks, local municipal parks, and parkways were identified. The preferred M29 transmission line route falls within the New York State Coastal State Boundary in the Bronx and upper Manhattan, and

follows a portion of the zone's eastern boundary in Yonkers, Westchester County. However, as demonstrated in the coastal zone consistency assessment included as Appendix C of this Application, the Project is consistent with and will not preclude the coastal zone management goals contained within the New York State Coastal Management Program or the New York City New Waterfront Revitalization Plan.

Land uses adjacent to or near the proposed underground transmission line consist of a mix of residential, commercial, industrial, and institutional uses, open space and transportation corridors. Manufacturing/industrial uses in the vicinity of the preferred route include several warehouses and manufacturing buildings along Nepperhan Avenue in Yonkers and the existing Sherman Creek Substation and adjacent warehouses and manufacturing buildings near the new Academy Substation, in upper Manhattan. Institutional and governmental uses adjacent to the route include St. John's Riverside Hospital, Yonkers City Hall and Courthouse municipal complex, the College of Mt. Saint Vincent, Manhattan College, and the New York-Presbyterian Hospital, as well as several local schools in the Bronx (i.e., P.S. 81, Robert J. Christen School and P.S. 37, Multiple Intelligence School) and Manhattan (i.e., P.S. 5, the Ellen Lurie School, and P.S. 18 Park Terrace Early Child). Commercial uses along the preferred route include several first-story commercial uses, such as gas stations, dry cleaners and local retail shops. Major transportation corridors traversed by the preferred route include the New York State Thruway and the Saw Mill River Parkway in Yonkers and the Henry Hudson Parkway in the Bronx. The preferred transmission line route also crosses New York City's Croton and New Croton Aqueducts.

The parks or recreational uses adjacent to the preferred transmission line route include Smith Park and Cerrato Park in Yonkers, Ewen Park and Marble Hill Playground in the Bronx and Baker Field, Isham Park and Monsignor Kett Playground in upper Manhattan. Additional recreational uses in proximity to the Academy Substation site include Swindler Cove Park, the northernmost portion of Highbridge Park, and Roberto Clemente State Park. A total of 7 National Register Historical sites are located adjacent to the preferred route.

For the majority of the preferred route, the transmission line will be installed within existing roadway rights-of-way or within previously developed Con Edison property. All work at the Sprain Brook Station will occur within the developed portion of the existing 38-acre substation property. All equipment required to complete the Academy Substation will be installed within the new Academy Substation building. Therefore, no land use conflicts are anticipated. For a small portion of the route, in the vicinity of the HDD crossing of the Harlem River, easements

will be required from the New York City Housing Authority, Kingsbridge Associates, Time Warner Inc., the New York-Presbyterian Hospital, and the Metropolitan Transit Authority to allow for the installation of segments of the proposed transmission line within property under the control of these parties. Once installed, the transmission facilities will not affect surrounding land uses. As established in Section 4.9 of Exhibit 4, electric and magnetic fields produced by the Project will not exceed applicable State standards nor will they endanger the public or surrounding property.

The Academy Substation is being developed as a gas-insulated substation (“GIS”) in response to ongoing discussions with New York City representatives. The use of a GIS design minimizes the space required for the substation equipment along Academy Street and the adjacent Sherman Creek. The substation’s design will be consistent with the City of New York’s planned residential and commercial redevelopment of the Sherman Creek neighborhood, and the substation’s façade will visually complement the existing marinas located in the Project area, south of Sherman Creek. The substation’s enclosed design also ensures the safety of the public and maximizes security for the substation.

During the installation of the transmission line at the crossing of the Harlem River, increases in ambient noise levels would result from operation of HDD equipment. An approximate three- to four-month timeframe would be required to complete HDD-related construction activities. Over the course of several days, 24-hour drilling operations, subject to the approval of the City of New York, may be required to ensure the integrity of the drill hole in non-bedrock areas. Because of the magnitude of the drilling noise during these operations and the proximity of residential housing, these operations have the potential to result in significant, although short duration, noise impacts. Con Edison is in discussions with contractors to develop noise mitigation measures to reduce the impact of this activity. Con Edison will discuss these mitigation measures with the City of New York and local residents. Proposed noise mitigation measures will be presented in the Project’s EM&CP.

In addition to increases in ambient noise levels, the HDD activities at the Marble Hill Houses will likely necessitate the relocation of approximately 60 parking spaces associated with the apartment complex that is currently located at the proposed site of HDD activities. Con Edison anticipates providing, at its cost, replacement parking within a parking garage situated at the retail/commercial complex development that is located across West 225<sup>th</sup> Street from the Marble Hill Houses. Further, the installation of the HDD boring pit within the NYCHA parking area will require the removal of the existing 2-bay maintenance garage structure that is located at the

rear of the NYCHA parking area. Con Edison will reconstruct or replace the garage upon the completion of drilling activities in consultation with NYCHA.

Temporary noise and traffic disruption during construction will be the primary impact to land uses along the trenched portion of the transmission line route (potential traffic and noise impacts resulting from the construction of the Project are detailed in Exhibit E-6, “Effect on Transportation”, and Section 4.8 of this Exhibit, respectively). During trench excavation and HPFF pipe-type cable installation, access to driveways and parking lots may be curtailed temporarily. On-street parking spaces may also be temporarily restricted. During construction along the trenched portion of the route, potential impacts on adjacent land uses will be minimized by such means as limiting work crew time on site, equipment noise reduction through use of functional equipment mufflers, prompt restoration and reopening of travel lanes on public roadways, and the implementation of traffic control measures to ensure safe and adequate flow of traffic through the Project area.

***Aesthetics and Visual Resources:*** Noted visual or aesthetic resources located in the vicinity of the proposed transmission route include the Harlem Heights Heritage Area, Alexander Smith Carpet Mills Historic District, and Fort Tyron Park and the Cloisters. Visual resources, such as numerous historic resources, parks and playgrounds, which intersect with the preferred route, include the William Dyckman House, the Inwood branch of the U.S. Post Office, Cerrato and Vark Parks, and Marble Hill playground.

The equipment additions at the Sprain Brook and Academy Substations will not result in any impact to visual and aesthetic resources, being primarily hidden from view by existing substation equipment and/or within existing Con Edison property located within an existing industrial area. Since the transmission line will be installed primarily below grade, aside from four short aboveground segments at certain bridge crossings, upon completion of construction activities there will be minimal visual signs of the Project (mainly manholes and potentially aboveground markers to identify the presence of underground facilities). No major vegetation clearing in the vicinity of the recreation areas or residential developments will be required during construction. The construction activities for the installation of the pipe-type cable system will create a temporary visual impact, from the trenching and soil stockpiling, however there will be no long-term, adverse visual impacts attributable to the proposed transmission line.

The proposed HDD activities at the Marble Hill Houses in support of the transmission line’s crossing of the Harlem River will result in the installation of the HDD boring pit within a

parking lot at the complex and will require the removal of the existing two-bay maintenance garage structure that is located at the rear of the parking area. Con Edison will reconstruct or replace the garage upon the completion of drilling activities in consultation with NYCHA.

The completed Academy Substation will enhance the aesthetic and urban design values in the Project area, and provide investment in the local economy at an underutilized industrial site that has been historically used for energy and utility use. The Academy Substation is being developed as a GIS substation in response to ongoing discussions with New York City representatives. The use of a GIS design minimizes the space required for the substation equipment along Academy Street and the adjacent Sherman Creek. The substation's design will be consistent with the City of New York's planned residential and commercial redevelopment of the Sherman Creek neighborhood, and the substation's façade will visually complement the existing marinas located in the Project area, south of Sherman Creek. The substation's enclosed design also ensures the safety of the public and maximizes security for the substation.

***Cultural Resources:*** The preferred transmission line route and the existing substation sites were reviewed to determine the presence or likely presence of archaeological and historic structures, artifacts, sites, and areas, and the impact of the proposed facilities on these resources. Cultural resources refer to both historic and archaeologically sensitive places. Due to intensive development within the area during the first quarter of the twentieth century, the majority of the recorded archaeological sites have been destroyed. Other sites in the Project area are likely compromised due to continued extensive development of the area. Though a few sites, discovered during the early twentieth century, are within the immediate Project area, it is highly unlikely that any intact archaeological deposits would remain due to extensive disturbance by utility services (including water, sewer, electrical, gas and telephone). Construction of the proposed transmission line and upgrades to the existing substations will have no impact on cultural resources. The proposed transmission line will be installed primarily within the curb-to-curb portion of the rights-of-way of public roadways. Prior disturbance along these rights-of-way essentially eliminates the potential for encountering significant archaeological sites along these routes. Furthermore, even though the proposed transmission line will occur adjacent to numerous National Register Listed properties, because the transmission line will be installed below grade or affixed to existing bridge structures, the Project poses no adverse direct or visual effect to these properties.

***Terrestrial Ecology and Wetlands:*** The area traversed by the preferred route for the transmission line does not contain any unusual or unique ecological communities. The proposed

transmission line will be installed within existing paved roadways for nearly the entire length from the Sprain Brook Substation to the Academy Substation. Accordingly, the vegetative communities within the Project area consist almost entirely of roadside areas and previously developed areas. Furthermore, because the work at the Sprain Brook Substation and the new Academy Substation will take place within the confines of an existing Con Edison substation and the site of the former Sherman Creek Generating Station, this substation work will not disturb any natural habitats. Potential impacts, if any, on these communities that could occur as a result of the construction and operation of the electric transmission line have been analyzed as part of this Application.

***Topography, Hydrology, and Soils:*** The proposed 345 kV high-pressure, fluid filled (HPFF pipe-type) transmission line will be designed, constructed, operated and maintained to be compatible with geologic conditions along the proposed transmission route and at the Sprain Brook and Academy Substation sites. The facilities will be designed and constructed in accordance with applicable building codes and other applicable local, state and federal regulations and requirements, except as noted in Exhibit 7 of the Application.

As the transmission line will primarily be placed in existing roadway right-of-ways, soil types and topography encountered along the transmission route are ideally suited to the common construction methods to be employed. When completed, the portion of the corridor excavated for the transmission line will be returned to its original topography and drainage conditions. A state-licensed contractor will dispose of excavated soils and asphalt at an appropriately licensed facility. Due to the previously developed nature of the proposed transmission route and the best management practices to be employed during the construction activities supporting the installation of the transmission facilities, adverse impacts as a result of soil excavation should not occur.

Due to the previously developed nature of the Sprain Brook Substation site, minimal excavation and grading will be required to install the new equipment in a manner that promotes good site drainage and controls stormwater runoff. Further, inasmuch as the design and installation of the new equipment and the pressurizing plant will be consistent with the existing equipment at the substation, potential risks associated with seismic events are minimal. The new Academy Substation is being developed on the site of a former power plant, and the new electrical equipment proposed as part of this Project would be installed entirely within the new substation building that will be constructed on the former power plants' foundation pad. As a consequence, the potential risks associated with seismic events are minimal. Further, because the new

equipment shall be located entirely indoors, no excavation and grading activities are anticipated with the equipment installation.

An EM&CP will be prepared in accordance with the Erosion and Sediment Control, Best Management Practices Manual Series, Westchester County, N.Y., 1991 and the New York Guidelines for Urban Erosion and Sediment Control. With the implementation of best stormwater management practices, no environmental impacts are anticipated. All soils to be transported off-site would be disposed of in accordance with all applicable rules and regulations.

**Water:** Construction of the transmission facilities will require minimal water supply. If water is required for construction activities, such as for dust control, pavement cutting, etc., water will be brought to the construction site in tanker trucks. No water supply will be required for the transmission facilities during operation. No changes to the Sprain Brook Substation's stormwater management, water supply, or sanitary demands are anticipated with the proposed substation improvements. Further, as the Academy Substation site currently comprises impervious surfaces, the proposed development will not result in an increase in impervious surfaces or in the volumes of stormwater generated. All pollutant sources (i.e., pressurization plant and transformers) will be located within the building at the Academy Substation, within secondary containment. Con Edison will prepare a Construction Stormwater Pollution Prevention Plan ("CSWPP") to avoid impacts to the local environment caused by uncontrolled stormwater runoff. During final design of the Project, Con Edison will work with the City of Yonkers, Westchester County, and the NYCDEP to ensure that the construction and operation of the transmission line and the operations of the substations do not have any impacts to existing infrastructure, including the water supply distribution, sanitary sewer, and stormwater sewer systems.

**Traffic and Transportation:** The Project's transmission line will be installed primarily within the curb-to-curb portion of the rights-of-way of public roadways. All construction will be conducted within guidelines set forth by the NYSDOT, the NYCDOT, and the City of Yonkers and Westchester County, as applicable. Consequently, no significant impacts on traffic are anticipated due to lane closures during the construction of the transmission line. Further, all Project-related work will commence and/or end prior to morning and evening peak periods to minimize traffic impacts. The traffic impacts along the preferred transmission line route will be minimized by the work that will progress over the route at multiple locations, rather than one location being the focus of construction activities for an extended period. The preferred

construction time will be during non-peak load periods to minimize the impacts on the Con Edison transmission system. Con Edison will ensure that impacts to the surrounding community will be minimized. Operation of the proposed transmission line will not generate any traffic, with the exception of occasional maintenance activities.

**Noise:** Construction noise-related impacts from the installation of the trenched portion of the proposed transmission line are expected to be short-term at any given location and therefore minimal. Construction noise, while varying according to the equipment in use, will be mitigated by the attenuating effect of distance, the intermittent and short-lived character of the noise, and the use of functional mufflers on all construction equipment. Further, the nature of construction to be performed for the transmission line dictates that construction activities and associated noise levels will move along the construction corridor and that no one residence will be exposed to significant noise levels for an extended period. When operational, the underground transmission line will not generate noise.

During the installation of the transmission line at the crossing of the Harlem River, increases in ambient noise levels would result from operation of Horizontal Directional Drilling (HDD) equipment. An approximate three- to four-month timeframe would be required to complete HDD-related construction activities. Over the course of several days, 24-hour drilling operations, subject to the approval of the City of New York, may be required to ensure the integrity of the drill hole in non-bedrock areas. Because of the magnitude of the drilling noise during these operations and the proximity of residential housing, these operations have the potential to result in significant, although short duration, noise impacts. Con Edison is in discussions with contractors to develop noise mitigation measures to reduce the impact of this activity. Con Edison will discuss these mitigation measures with the City of New York and local residents. Proposed noise mitigation measures will be presented in the Project's EM&CP.

The construction activities associated with the installation of required new equipment at the Sprain Brook Substation and the new Academy Substation will generate some noise; however, as with the transmission line, construction will be short-term and corresponding impacts will be minimal. The new Academy Substation will be enclosed. Calculated offsite noise levels for the substation will be in compliance with New York City noise standards at both the Project lot line and at the nearest residences. Accordingly, operation of the completed Academy Substation is not expected to create any significant noise impacts. No new noise generating sources are planned for the Sprain Brook Substation. Accordingly, continued operation of the Sprain Brook Substation is also not expected to create any additional noise impacts.

***Electric and Magnetic Fields (“EMF”)***: An analysis of potential EMF impacts associated with the proposed transmission line and the Sprain Brook and Academy Substations was conducted. Calculations performed to determine the EMF produced during peak load conditions indicate that the maximum magnetic field level directly above the centerline of the transmission line is approximately 3.8 mG. The calculated level decreases to approximately 0.4 mG at a distance of 20 feet from the centerline of the feeder, and to approximately 0.04 mG at a distance of 75 feet from the centerline of the feeder. These calculated magnetic field levels are well below the NYSPSC interim standard of 200 mG at the edge of the right-of-way. The buried 345 kV HPFF pipe-type cable will not produce electric fields because normal construction material and the soil above the feeder provides virtually total shielding. Accordingly, the proposed transmission line will not result in electric field levels exceeding the NYSPC interim standard of 1.6 kV/m for Article VII electric transmission lines. The addition of the M29 Transmission Line and its associated equipment (i.e., 345 kV circuit breakers) at the Sprain Brook Substation would increase the magnetic field levels in some areas. The projected magnetic field levels along the east fence line at the Sprain Brook Substation are 33 mG to 55 mG. At the Academy Substation, calculated EMF levels will be well below the 200 mG NYSPSC standard at all locations. The calculated magnetic field levels: 1) are 2 mG or less along the east fence line, 2) are 3 mG or less along the south fence line, 3) range from 2 – 20 mG along the west fence line, and 4) range from 2 – 141 mG on W. 201<sup>st</sup> Street along the north fence line. The peak magnetic field levels here are due to the 138 kV transmission feeders that run from the Academy Substation to the Sherman Creek East and West Switchyards. The peak magnetic field directly above these feeders is 141 mG, but decreases rapidly to 10-20 mG within a lateral distance of approximately 25 feet.

## **Application Organization**

The Application is organized as follows:

***Project Information:*** Provides the Affidavit of Service, Statement of Publication (with copy of Public Notice), Matter of the Application, and Motion for Waivers.

***Exhibit 1, General Information Regarding Application:*** Provides the name, address, and telephone number of the Applicant.

***Exhibit 2, Location of Facilities:*** Provides detailed maps showing the routes of the Project transmission facilities and the location of the Sprain Brook and Academy Substations sites on aerial photographs and a NYSDOT map. This exhibit also provides a description of the Project.

***Exhibit 3, Alternatives:*** Provides a discussion of the alternative structures, routes, and construction methods investigated for the Project.

***Exhibit 4, Environmental Studies:*** Contains detailed analyses of the potential impacts on all environmental resource areas, including Land Uses; Aesthetics and Visual Resources; Cultural Resources; Terrestrial Ecology and Wetlands; Topography, Soils, and Hydrology; Noise; and Transmission Line and Substation EMF.

***Exhibit 5, Design Drawings:*** Presents the centerline profile for the Project's transmission line and the Project's design standards.

***Exhibit 6, Economic Effects of Proposed Facilities:*** Provides the anticipated economic effects of the construction and operation of the Project.

***Exhibit 7, Local Ordinances:*** Provides a listing of local ordinances applicable to the Project.

***Exhibit 8, Other Pending Filings:*** Identifies other pending filings with governmental departments or agencies, which concern the subject matter of the Project.

***Exhibit 9, Cost of Proposed Facilities:*** Provides a statement regarding costs of the Project.

***Exhibit E-1, Description of Proposed Transmission Facilities:*** Provides a detailed description of the proposed transmission facilities that comprise the Project.

***Exhibit E-2, Other Facilities:*** Discusses facilities associated with the transmission line.

***Exhibit E-3, Underground Construction:*** Provides a discussion of the Project transmission facilities, design standards and construction methods as related to underground construction.

***Exhibit E-4, Engineering Justification:*** Provides the engineering justification for the Project, and discusses specific benefits with respect to reliability.

***Exhibit E-5, Effect on Communications:*** Provides a statement describing the anticipated effects of the Project and related equipment on communication systems.

***Exhibit E-6, Effect on Transportation:*** Provides a statement regarding the anticipated effect of the Project and associated construction on the surrounding transportation systems.

***Pre-Filed Testimony:*** Provides expert testimony in support of the Application.

***Appendices:*** Provide supporting information for the various studies and outreach efforts described within the Application.