

Glossary

100-year floodplain	Area in which a flood event has a 1% probability of occurring in any given year
500-year floodplain	Area in which a flood event has a 0.2% probability of occurring in any given year
Acela	High-speed Amtrak trains
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-containing material
ACS	American Community Survey
AERMOD	Dispersion model used to determine the potential for air quality impacts during construction of the Preferred Alternative
AHERA	Asbestos Hazardous Emergency Response Act
AIS	Automatic Identification System
Amtrak	The National Railroad Passenger Corporation
AMS	American Meteorological Society
ANSI	American National Standards Institute
Anthropogenic	Caused by human activity
APE	Area of potential effect for historic resources; the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of historic properties, if such properties exist (i.e., the study area)
APTA	American Public Transportation Association
ARC	Access to the Region's Core, a study conducted by FTA and NJ TRANSIT between 1995 and 2010 that evaluated several options for construction of a new tunnel under the Hudson River in combination with an expansion of station capacity in Midtown Manhattan to accommodate predicted future growth in commuters
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
A Yard	Below-grade rail storage tracks between Ninth and Tenth Avenues west of PSNY
BAT	Best available tailpipe (technology)
Bench wall	Ledge along a tunnel's side wall that can serve as a walkway for maintenance and emergency use; the bench wall also houses ducts that contain electrical wiring, equipment, cables, and other essential equipment



BGEPA	Bald and Golden Eagle Protection Act
BFE	Base Flood Elevation, the elevation of floodwaters during the 100-year storm, as mapped by FEMA
Block 675	Manhattan block located between West 29th and West 30th Streets from Eleventh to Twelfth Avenues
Block 675 East	Proposed rezoning and related actions being evaluated by NYCDP for the eastern portion of Block 675
BMP	Best Management Practice
BMS	Building Management System
BOD	Biological oxygen demand
Build Alternative	Term used to describe Project alternatives that attempt to address the Project purpose and need through construction of new or rehabilitated facilities; used in opposition to the No Action Alternative
Bulkhead	Seawall designed to limit erosion along the shoreline
CAFRA	Coastal Area Facility Review Act
CARB	California Air Resources Board
Carbon sequestration	A natural or artificial process by which CO ₂ is removed from the atmosphere or diverted from emission sources and stored in the ocean, terrestrial environments, or geologic formations to combat climate change
CARP	Contamination Assessment and Reduction Program
Catenary	System of overhead wires used for supplying electricity to trains
CEA	Classification Exception Areas
CEQ	Council on Environmental Quality
CEQR	New York City Environmental Quality Review
CMP	Coastal Management Program
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	CO ₂ equivalent; unit representing how much a given amount of a particular GHG may contribute to global warming, expressed in terms of the equivalent amount of CO ₂
Cofferdam	Watertight structure designed to allow dewatering of areas that are normally submerged to facilitate construction in those areas
COPR	Chromite ore processing residue
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Con Edison	Consolidated Edison; a New York power utility company

Cooperating Agency	Any Federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative; the Cooperating Agencies for this Project are USACE and FTA
Consulting party	Party invited to participate in the Section 106 process
Cross passage	Tunnel segments connecting the two parallel tubes of the North River Tunnel or new Hudson River Tunnel
CPP	Construction Protection Plan
CREATE	FTA's Chicago Rail Efficiency and Transportation Efficiency model
CSO	Combined sewer outfall or combined sewer overflow
Culvert	Tunnel carrying a stream or open drain under a railroad or roadway
Cut-and-cover	Construction method in which a trench is excavated from the ground surface and a tunnel is constructed within the trench, then covered over
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Federal Coastal Zone Management Act
dB	Decibel; a unit used to measure sound pressure levels
dBA	A-weighted decibels; a decibel measurement that is weighted to account for the frequencies most audible to the human ear
DC	Direct current
Deep foundation installation	The installation of piles deep into the earth to support various types of structural elements above
DEIS	Draft Environmental Impact Statement
DFE	Design flood elevation
DHS	Department of Homeland Security
DO	Dissolved oxygen
DOI	U.S. Department of the Interior
DPF	Diesel particulate filter
Drill-and-blast	The controlled use of explosives to break apart rock for excavation
DSNY	New York City Department of Sanitation
Dual-mode locomotive	Dual-mode locomotives can be operated in either diesel or electric mode



Economic output	Economic activity that would result from a construction expenditure, consisting of the sum of the costs of goods and services used to produce a product and the associated payments to workers, taxes, and profits
EDPL	New York State Eminent Domain Procedure Law
EDR	Environmental Data Resources
EFH	Essential Fish Habitat
EIA	Energy Information Administration
EIS	Environmental Impact Statement
Embankment	Raised section of railroad infrastructure constructed above the surrounding grade on fill material that is supported by side slopes
EMF	Electric and Magnetic Fields
Empire Corridor / Line	Principal passenger and freight rail route through New York State, extending between New York City and the Canadian border at Niagara Falls; also referred to as Empire Line as the route approaches PSNY.
EMS	Emergency Medical Services
Energy Star	An international standard for energy-efficient consumer products
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPBM	Earth-pressure-balance boring machine
FAA	Federal Aviation Administration
FAR	Floor area ratio; a measure of density establishing the amount of development allowed in proportion to the base lot area
FAST	Fixing America's Surface Transportation Act, a Federal funding and authorization bill passed in 2015
FDNY	New York City Fire Department
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTE	Full-time equivalent, a measure used to convert full- and part-time employment into the equivalent of one employee working full-time
FTRC	Flat Top Reinforced Concrete

Fugitive emissions	Dust emissions from construction activities
FY	Fiscal Year
Gateway Program	Program of strategic rail infrastructure improvements designed to improve current services and create new capacity on the NEC between Newark, New Jersey and PSNY
GHG	Greenhouse gas; a gas in the atmosphere that absorbs and emits radiation within the thermal infrared range, contributing to global warming and climate change
GIS	Geographic Information System
Ground-borne noise	A low-frequency rumble that can radiate from the motion of room surfaces even when the motion itself cannot be felt
Ground freezing	Technique in which a freezing agent is circulated through a piping system that has been constructed in the ground, freezing the ground in proximity to the pipes; used to increase the strength and stability of soils to facilitate construction
Grouting	The injection of a cementing agent into the soil
GWP	Global warming potential; a relative measure of how much heat a GHG traps in the atmosphere
Hand excavation	Excavation performed by workers using hand tools and/or small mechanical tools
HARBS/EA	Historic Architectural Resource Background Study and Effects Assessment
HBLR	Hudson-Bergen Light Rail
HEP	New York-New Jersey Harbor Estuary Program
HFC	Hydrofluorocarbon
High Line	A 1.45-mile-long linear park on the structure of a former elevated freight rail line in Manhattan
Historic structure	A nationally or locally listed landmark structure or a contributing structure in a listed historic district
HLTC	High Line Transfer Corridor
HMDC	Hackensack Meadowlands Development Commission
Hoboken fan plant site	Proposed site for a fan plant for the Preferred Alternative on West 18th Street in Hoboken
Hoboken staging site	Proposed construction staging site on West 18th Street in Hoboken for the Preferred Alternative
Hp	Horsepower
HRPT	Hudson River Park Trust
HRE	Hudson Raritan Estuary
HUD	U.S. Department of Housing and Urban Development



Hudson River Tunnel	New tunnel between North Bergen, New Jersey and PSNY proposed as part of the Preferred Alternative
Hudson Yards	Neighborhood near LIRR West Side Yard, also used to refer to three major redevelopment projects (Western Rail Yard, Eastern Rail Yard, and Manhattan West projects) that will collectively result in a new high-rise neighborhood built on platforms above the West Side Yard and other subsurface tracks west of PSNY
Hudson Yards Right-of-Way Preservation Project	A separate initiative from the Hudson Tunnel Project that is constructing a concrete casing beside the West Side Yard to preserve rail right-of-way beneath the Hudson Yards platform and overbuild project
Hz	Hertz; the standard unit for measuring frequency
I Ladder	Diagonal track that provides connections to and between the platform tracks at PSNY
IMPLAN	IMpact Analysis for PLANning, an input-output model for estimating economic benefits from construction expenditures
Indirect economic benefits	Economic benefits generated by construction expenditures in other economic sectors, resulting in a ripple effect
Induced economic benefits	Economic activity caused by increased income in a region
Interlocking	A system of switches and signals that allows trains to make connections from one track to another
IPaC	Information for Planning and Consultation, a project planning tool provided by USFWS
IPCC	Intergovernmental Panel on Climate Change
JCMUA	Jersey City Municipal Utility Authority
Jet grouting	Ground stabilization technique that involves injecting cement grout and air and water in a mixture under high pressure into the ground
John D. Caemmerer Yard	LIRR's West Side Yard, a rail storage yard between West 30th and West 34th Streets from Tenth to Twelfth Avenue, west of PSNY
KCSL	Known Contaminated Sites List
KW	Kilowatts
KWH	Kilowatt hours
Ladder tracks	Diagonal tracks that provide connections to and between the platform tracks at PSNY
Land use	The activities that occur on land and within the structures that occupy it
LCP	Linear Construction Project
L _{dn}	Day-night average sound level; the average noise level over a 24-hour period

Lerner Building	The building at 450 West 33rd Street (on Tenth Avenue between West 31st and 33rd Streets) in Manhattan
LEP	Limited English Proficient
L_{eq}	Equivalent Sound Level; a method to describe sound levels that vary over time, resulting in a decibel value that considers the total sound energy over a given period of time
Lincoln Tunnel Helix	Curved ramp on I-495 in Weehawken, New Jersey, that brings vehicles to and from the Lincoln Tunnel portal
LIRR	Long Island Rail Road
Low cover area	Area in Hudson River approximately 550 feet long and 120 feet wide where in-river construction would occur for the Preferred Alternative
LOS	Level of service (for traffic)
LPC	New York City Landmarks Preservation Commission
LSRP	Licensed Site Remediation Professional
LTCP	Long-Term Control Plan
LWRP	Local Waterfront Revitalization Program
MAP-21	Moving Ahead for Progress in the 21st Century Act, a Federal transportation funding and authorization bill passed in 2012
MEP	Mechanical, Electrical and Plumbing
MERI	Meadowlands Environmental Research Institute
Mesoscale	Regional, in terms of air pollutants
MG	Motor-generator
Microscale	Local, in terms of air pollutants
MIS	Major Investment Study
MLW	Mean low water
MLLW	Mean lower low water
MMP	Materials Management Plan
MOVES	EPA Motor Vehicle Emission Simulator, a model used to determine truck emissions resulting from Project construction
MPO	Metropolitan Planning Organization
MPT	Maintenance and Protection of Traffic
MTA	Metropolitan Transportation Authority
MWh	Megawatt hours
N_2O	Nitrous oxide
NAA	Non-attainment area; a geographic region that has been designated as not meeting one or more of the NAAQS



NAAQS	National Ambient Air Quality Standard
NAVD88	North American Vertical Datum of 1988, a benchmark for measuring water elevations established by the National Oceanic and Atmospheric Administration, which holds fixed the height of the primary tidal benchmark because of variations in sea surface topography
Navigation channel	Channel maintained at an authorized depth by the U.S. Army Corps of Engineers; in the Hudson River, the navigation channel has a central 45-foot-deep shipping channel with 40-foot-deep “wing” channels on either side
NEC	Northeast Corridor, the rail corridor extending between Washington, D.C., and Boston, Massachusetts
NEC FUTURE	FRA planning effort to create a comprehensive investment plan to improve current and future intercity and commuter passenger rail service along the NEC rail corridor between Washington, D.C., and Boston, Massachusetts
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NF ₃	Nitrogen trifluoride
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act of 1966
NJDEP	New Jersey Department of Environmental Protection
NJDOL	New Jersey Department of Labor
NJDOT	New Jersey Department of Transportation
NJEIFP	New Jersey Environmental Infrastructure Financing Program
NJHDG	New Jersey Harbor Discharges Group
NJHPO	New Jersey State Historic Preservation Office
NJMC	New Jersey Meadowlands Commission
NJNHP	New Jersey Department of Environmental Protection, Natural Heritage Program
NJPDES	New Jersey Pollutant Discharge Elimination System
NJSA	New Jersey Register of Historic Places Act
NJSEA	New Jersey Sports and Exposition Authority
NJTPA	North Jersey Transportation Planning Authority
NMFS	National Marine Fisheries Service
NO ₂	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
No Action Alternative	Project alternative representing the decision not to take any action to address the Project purpose and need

Non-motorized vehicles	Includes bicycles, rollerblades, skateboards, and any other human-powered vehicle
NONROAD	Air quality model used to determine emissions for on-site construction engines
NO _x	Nitrogen oxide
North River	Historical alternate name for the Hudson River, based on early Dutch name
North River Tunnel	Existing NEC tunnel beneath the Hudson River
NPL	Federal National Priority List, the list of contaminated sites that are eligible for cleanup under the federal Superfund program
NPCC	New York City Panel on Climate Change
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRHP-Eligible	Eligible for listing on the National Register of Historic Places, as determined by the SHPO
NWI	National Wetland Inventory
NYCDCP	New York City Department of City Planning
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCHD	New York City Historic District
NYCL	New York City Landmark
NYCL-Eligible	Eligible for NYCL designation, as determined by LPC
NYCMOS	New York City Mayor's Office of Sustainability
NYCORR	New York City Mayor's Office of Recovery and Resiliency
NYC Parks	New York City Department of Parks and Recreation
NYCT	New York City Transit
NYMTC	New York Metropolitan Transportation Council
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
NYSDEL	New York State Department of Labor
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSHPO	New York State Historic Preservation Office
NYSW	New York Susquehanna & Western Railway
O ₃	Ozone
OCC	Operations Control Center



OCS	Overhead Contact System, a type of system for providing electricity to power trains
OEM	Original equipment manufacturer
OneNYC	<i>One New York: The Plan for a Strong and Just City</i> ; a comprehensive plan developed by the New York City Mayor's Office of Long Term Planning and Sustainability
One-seat ride	Direct service
Open cut	A below-grade area where the surrounding grade is supported by side slopes rather than walls
Operational Impacts	Permanent impacts of the Preferred Alternative, as opposed to those related to construction
OPRHP	New York State Office of Parks, Recreation and Historic Preservation
OSHA	Occupational Safety and Health Administration
PA	Programmatic Agreement
PABT	Port Authority Bus Terminal
PAH	Polycyclic aromatic hydrocarbon
Palisades	A line of steep cliffs that run along the western side of the Hudson River from northeastern New Jersey into southern New York State. In North Bergen and Union City, the Palisades are approximately 300 feet above the land to their west and east
Palisades tunnel	The section of the new Hudson River Tunnel between the North Bergen portal and the Hoboken shaft
PANYNJ	Port Authority of New York & New Jersey
Parkland alienation	New York State legal process that addresses the sale, lease, or discontinuance of municipal parkland, including the sale of subsurface easements beneath parkland
Participating Agency	Federal, state, or local agencies or Federally recognized tribal governmental organizations with an interest in the Project
PCB	Polychlorinated biphenyl
Penn Station Infrastructure Renewal Project	Accelerated maintenance and repairs for tracks and systems at PSNY
Perturbed condition	Congested train operations when trains are stopped or moving slowly for extended periods
PFC	Perfluorocarbon
Pierhead line	Legal boundary established as the farthest point to which piers and other structures may legally extend into otherwise navigable waters
Piles	Long post-like cylindrical foundation members made of a strong material that are driven into the ground to act as a steady support for structures built on top of them

PlaNYC	<i>PlaNYC: A Greener, Greater New York</i> ; plan of sustainability and resiliency initiatives by the New York City Mayor's Office of Long Term Planning and Sustainability
Plenum	A chamber that houses air flow as part of a ventilation system
PM	Respirable particulate matter; a broad class of air pollutants
PPV	Peak particle velocity; a metric used for evaluating vibration
Preferred Alternative	Alternative identified as the Build Alternative recommended for advancement for the Hudson Tunnel Project; Proposed Project
Project site	All areas where the Preferred Alternative would have construction activities or permanent features
Project Sponsor	The entity that will advance the Hudson Tunnel Project through final design and construction, including compliance with mitigation measures. The Project Sponsor has not yet been identified, and may include one or more of the PANYNJ, Amtrak, NJ TRANSIT, and/or another entity that has not yet been determined.
PSE&G	Public Service Electric and Gas; a New Jersey power utility company
PSNY	Penn Station New York
PSSTF	Penn Station Security Task Force
PTC	Positive Train Control, a train control system designed to prevent train accidents by automatically controlling train speeds and movements should a train operator fail to take appropriate action for the conditions at hand
RCRA	Federal Resource Conservation and Recovery Act
Retained cut	Depressed section of railroad infrastructure like an open cut, but where space is insufficient for full side slopes and the surrounding grade is supported by retaining walls
Retained fill	Elevated section of railroad infrastructure similar to an embankment, but where space is insufficient for full side slopes and the surrounding grade is supported by retaining walls
Right-of-way	The land occupied by transportation features
River tunnel	The section of the new Hudson River Tunnel between the Hoboken shaft and the Twelfth Avenue shaft
RJTW	Reverse journey-to-work
Road-header	A type of excavation equipment
ROD	Record of Decision
ROSI	New Jersey Recreation and Open Space Inventory
RMS	Root mean square; a technique used to measure vibration amplitude



SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, a Federal transportation funding and authorization bill passed in 2005
SAV	Submerged Aquatic Vegetation
SCADA	Supervisory Control and Data Acquisition system; a supervisory control system for train control, electric traction, and communications
Secant piles	Individual drilled holes filled with concrete and steel, reinforced, and installed adjacent to one another to form a continuous wall
SCFWH	Significant Coastal Fish and Wildlife Habitat, a designation assigned by the New York State Department of State in certain locations in New York
SCO	Soil Cleanup Objectives
SDEIS	Supplemental Draft Environmental Impact Statement
Section 4(f)	Legislation codified at 23 USC 138 and 49 USC 303 that governs the use of land from publicly owned parks, recreation areas, and wildlife and waterfowl refuges and publicly or privately owned significant historic sites that may be affected by projects approved or funded by USDOT
SEM	Sequential Excavation Method, a mining technique
SESC	Soil Erosion and Sediment Control
SF ₆	Sulfur hexafluoride
Sheet piles	Steel sheet sections with intersecting edges that are installed in the ground to form a barrier
SHPA	New York State Historic Preservation Act
SHPO	State Historic Preservation Officer (or Office)
SIP	State Implementation Plan; delineates how a state plans to achieve air quality that meets the NAAQS after it has been designated as an NAA by EPA
Shotcrete	A type of concrete sprayed from high-powered hoses
Slurry walls	Concrete walls constructed through the use of a slurry bentonite, a natural, clay-like liquid material that is poured into a previously constructed void and then replaced by concrete poured afterward
SMMP	Soils and Materials Management Plan
SO ₂	Sulfur dioxide
Soilcrete	Soil mixed with cement and water to create soil with moderate strength similar to low strength rock
Soldier piles with timber lagging	A type of retaining structure, consisting of piles installed at regularly spaced intervals combined with timber planks or steel sheeting

SO _x	Sulfur Oxide
Spoils	Excavated rock and soil
SPDES	State Pollutant Discharge Elimination System
SPPP	Stormwater Pollution Prevention Plan
SRP	Site Remediation Program
SSURGO	Soil Survey Geographic Database
STARS	Spill Technology and Remediation Series
Superstorm Sandy	Major storm that affected New Jersey and New York in October 2012
Surface alignment	Proposed new tracks through the Meadowlands as part of the Preferred Alternative
SVOC	Semi-volatile organic compound
Tail tracks	Railroad tracks at the end of a rail line to provide a place to store or hold trains, or for trains to switch tracks to reverse direction
TBM	Tunnel boring machine
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
Tonnelle Avenue staging site	Construction staging areas on both sides of Tonnelle Avenue near existing and proposed new tunnel portals as part of the Preferred Alternative
Traction power	Electricity supplied to trains
TSA	Transportation Security Administration
TSD	Treatment, Storage, and Disposal
Tube	Single-track tunnel; several adjacent or parallel tubes can be collectively referred to as a single tunnel
Twelfth Avenue fan plant site	Proposed site for a new fan plant for the Preferred Alternative on the west end of the block between West 29th and West 30th Streets and Eleventh and Twelfth Avenues
Twelfth Avenue staging site	Proposed construction staging site for the Preferred Alternative on the west end of the block between West 29th and West 30th Streets and Eleventh and Twelfth Avenues
ULSD	Ultra-low sulfur diesel
ULURP	Uniform Land Use Review Procedure, New York City's official land use decision-making process
Underpinning	A process in which the existing structural support of a building or structure is stabilized or reinforced from below to permit construction underneath
UPS	Uninterruptible Power Supply
USA	Use and Standards Attainment Program



USACE	U.S. Army Corps of Engineers
USBM	U. S. Bureau of Mines
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	United States Postal Service
UST	Underground storage tank
Utility relocation	Involves moving buried or overhead utilities that are within the footprint of a construction zone
VdB	Vibration decibels; a unit used to measure vibration levels
Ventilation shaft	Vertical shaft connected to a tunnel that serves as an emergency exit and air shaft between the tunnel and the surface
Viaduct	Multi-span bridge consisting of steel or concrete girders spanning a series of piers
VOC	Volatile organic compound
West Side Yard	LIRR's rail storage yard between West 30th and West 34th Streets from Tenth to Twelfth Avenue, west of PSNY (also called John D. Caemmerer Yard)
Wing channel	Navigation channel maintained at an authorized depth by the U.S. Army Corps of Engineers; in the Hudson River, the navigation channel has a central 45-foot-deep shipping channel with 40-foot-deep "wing" channels on either side
WRP	Waterfront Revitalization Program
WWTP	Wastewater treatment plant
XBL	Exclusive Bus Lane *