

3.6 Construction-Related Impacts To Transportation

A. INTRODUCTION

Construction of the Build Alternative would begin in 2009 and would be completed in 2017 when revenue operation is expected to begin. Peak construction activity of the Build Alternative would be in 2012. Peak cumulative construction activity for the Build Alternative plus other nearby construction projects in Manhattan associated with Hudson Yards and other West Side development (see Section 4.2), was also assessed to be 2012.

All Build Alternative construction activities (see Section 5.1) would begin between 2009 and 2012, with the exception of construction of an additional platform at Frank R. Lautenberg Station. During this period, the cut-and-cover construction under Tonnelle Avenue and the West End Wye, two relatively minor project elements, would be completed. During 2012, the peak construction year, both the Manhattan tunnels and the additional platform at Frank R. Lautenberg Station would be under construction. After 2012, peak activity would diminish following the completion of the Manhattan tunnels. Construction of the Manhattan tunnels and NYPSE caverns, along with related railroad systems construction in New York, are the longest-duration activities within the overall project schedule and comprise the project's critical path to completion.

Impacts during Build Alternative construction have been assessed for each of the modes described in Sections 3.1 through 3.5: Public Transportation, Station Access and Parking, Roadways, Pedestrians, and Freight Movement. These construction impacts are in addition to those impacts described by issue area and resource in Chapter 5.

B. PUBLIC TRANSPORTATION

NEW JERSEY

COMMUTER RAIL/AMTRAK

The NEC is owned by Amtrak and serves both Amtrak and NJ TRANSIT lines. The Build Alternative would require limited temporary NEC off-peak nighttime and weekend track outages or frequency reductions in New Jersey during construction as the NEC embankment would be widened and new viaduct structures would be erected. These nighttime and weekend track outages on the NEC would occur intermittently until the project opens in 2017, and would be required only when modifications to existing track, signals or equipment would be needed. Work requiring outages would occur over approximately 20 weekends. The work area would be isolated from the active tracks.

Temporary off-peak nighttime and weekend track outages or frequency reductions would also be required on Amtrak's NEC service and the Main/Bergen/Pascack Valley lines just south of Frank R. Lautenberg Station, to construct the Build Alternative track connections to the NEC. Similarly, these outages on Amtrak's NEC service and Main/Bergen/Pascack Valley lines would be required only when modifications would occur to existing tracks or equipment, which would be limited to the south side alignment. Although the duration of this work on Amtrak's NEC service and the Main/Bergen/Pascack Valley lines would occur between 2010 and 2013, the weekend and night outages would be limited to a period of 9 to 12 months.

BUS

Construction equipment and trucks would temporarily disrupt bus traffic on local streets near construction areas, including the fan plant/construction access shaft sites in Hoboken and on Tonnelle Avenue in North Bergen throughout the day, on weekdays and weekends. These temporary disruptions would occur between 2010 and 2017.

HUDSON RIVER

No impacts would be anticipated since construction of the new tunnels would be separate from, and would not affect, existing NJ TRANSIT or Amtrak service through the existing North River Tunnels.

NEW YORK

BUS

NYCDOT has proposed the construction of bus rapid transit (BRT) exclusive curb bus lanes on 34th Street. These lanes would be reserved for bus operations and right-turning vehicles during peak travel hours. To accommodate bus operations in these lanes, Build Alternative construction would be scheduled to keep these lanes open during weekday peak periods.

NYPSE entrances on the south side of West 34th Street east of Eighth Avenue, at the west side of the intersection of Seventh Avenue and West 34th Street, and at the west side of the intersection of Sixth Avenue and West 34th Street would entail cut-and-cover construction. This construction would require the closure of the curb bus lane at different locations on West 34th Street intermittently during off-peak hours between 2010 and 2017. The curb bus lane would not be closed during the weekday peak periods when the BRT regulations would be in effect. Maintenance and Protection of Traffic (MPT) plans would maintain bus service on West 34th Street throughout the project.

SUBWAY

The Build Alternative would include connections from NYPSE to existing NYCT subway stations, utility relocations, and modifications to existing station access stairs, public areas, and program spaces between 2010 and 2014. Subway service would not be impacted. Station access would be maintained throughout the project, although individual entrances may be closed intermittently.

MITIGATION

- NJ TRANSIT and Amtrak operate services on the NEC under long-standing agreements. NJ TRANSIT will continue to coordinate with Amtrak, through design and construction phases, to minimize service disruptions to Amtrak and NJ TRANSIT rail service in New Jersey. Such coordination will continue to occur on a regularly scheduled basis, and will specifically deal with this issue during the final design phase of the project. Track outages will be scheduled with Amtrak approval during off-peak periods, at night and on weekends, when train frequency is only 35 percent of weekday service. Although the duration of this work on the NEC and the Main/Bergen/Pascack Valley lines will take several years to complete, the weekend and night outages will be limited to a period of nine to 12 months. During final design of the project, staging plans will be developed in coordination with Amtrak to identify required outages. New project initiative agreements will be prepared as required to address construction affecting Amtrak facilities on the NEC.
- NJ TRANSIT will work with local municipalities and Hudson County to develop and implement an MPT plan to maintain bus service, including bus service on streets near the Hoboken Fan

Plant/Construction Access Shaft, and bus service to Frank R. Lautenberg Station. During construction, changes in traffic patterns will be necessary to maintain safe travel through the work area. The MPT plan will illustrate detour routes and signing; lane closures for staged construction; placement of temporary traffic control devices; temporary pavement; and temporary pedestrian walkways where necessary to maintain bus service.

- NJ TRANSIT will develop and implement an MPT plan in coordination with NYCT and NYCDOT to mitigate impacts to bus service. The MPT plan will be developed during final design of the project, and will require excavations to be covered during peak periods so that all travel lanes on West 34th Street, including the bus lanes, can be maintained. The MPT plan will maintain off-peak bus service on West 34th Street.
- NJ TRANSIT will work with NYCT to maintain station operations and adequate station access and egress throughout construction. Approved signs and notices of street access stair closures will be posted in advance of construction to minimize passenger impacts. NJ TRANSIT and NYCT will maintain access to each subway station, but not necessarily each individual entrance location, during construction.

C. STATION ACCESS AND PARKING

NEW JERSEY

During construction activities in the vicinity of Frank R. Lautenberg Station, impacts to buses that serve the station and to riders directed to different platforms or station areas to avoid construction activities, would occur. Construction of a permanent new island platform at Frank R. Lautenberg Station between 2012 and 2015 to serve the two new tracks south of the NEC as part of the ARC project could alter riders' access to existing platforms and station services.

During construction of roadway station access and parking facilities beyond ARC project area limits (considered an indirect impact of the Build Alternative and addressed in Sections 4.18 and 5.18), introduction of on-site construction equipment and construction trucks on local streets would create temporary disruptions to traffic flow. These activities could also create short-term air quality and noise impacts to nearby receptors and to passengers accessing these stations from existing parking facilities.

HUDSON RIVER

No impacts in this portion of the project area would be anticipated.

NEW YORK

During construction of NYPSE, impacts to pedestrians accessing PSNY and NYCT stations from West 34th Street, and pedestrians walking within PSNY, would occur periodically. Construction of the ADA Access/Emergency Personnel Access elevator entrance within a 500-space parking garage located on West 34th Street between Eighth and Ninth Avenues would result in the temporary loss of 24 to 38 off-street parking spaces. One lane in/out of the garage from West 34th Street would be used for construction vehicle access/egress and unloading during late night hours.

MITIGATION

- NJ TRANSIT will work the New Jersey Department of Transportation (NJDOT), Hudson County, the Township of Secaucus, and other local municipalities to develop and implement a MPT plan to maintain access to Frank R. Lautenberg Station during construction. The MPT plan, developed during final design of the project, will minimize conflicts between roadway vehicles, buses, and construction vehicles on local streets near stations and parking facilities. It will include proposed lane closures, detours, and hours of effect.
- NJ TRANSIT will work with NYCT, LIRR and Amtrak during final design of the project to develop a PSNY pedestrian access plan to allow pedestrians and riders to avoid station areas impacted by construction activities. Approved signs and notices will be posted in advance of construction to minimize passenger impacts.
- No mitigation is proposed for the temporary loss of 24 to 38 off-street parking spaces in the 500-space garage. Sufficient off-street parking capacity would remain in the project area.

D. ROADWAYS

NEW JERSEY

TRAFFIC IMPACTS

Build Alternative construction in New Jersey would include truck traffic associated with excavated material removal from the proposed Palisades and Hudson River tunnels; movement of construction materials by trucks (e.g., concrete, forms); construction workers traveling to New Jersey construction sites; and trucks hauling material excavated from Manhattan construction sites to fill sites in New Jersey between 2009 and 2017. Excavated material from the Palisades tunnels would be removed from the Tonnelle Avenue Construction Access Shaft in North Bergen, and excavated material from the Hudson River tunnels would be removed from the Hoboken Construction Access Shaft. Excavated material would be transported to the proposed Kearny Rail Yard site in Kearny, proposed rail embankments along the NEC and the Secaucus Connection loop tracks, or to an approved disposal site. The project would generate an aggregate of 375 trucks of excavated materials each day, 60 trucks per day each from the Tonnelle Avenue and Hoboken sites and 255 trucks per day from Manhattan sites.

It is important to note that the rate of production of excavated tunnels materials at each construction access shaft would vary over the course of the project based on the level of construction activity and the types of rock and soil encountered by the tunnel boring machines. Similarly, the required volumes of excavated tunnels materials at the proposed Kearny Rail Yard site and proposed rail embankments along the NEC and the Secaucus Connection loop tracks would vary over the life of the project depending on construction activity and composition of excavated materials. While some excavated materials would be trucked directly to its final destination in Kearny or Secaucus, a portion may be trucked to the Kearny Rail Yard site initially and then trucked to Secaucus as necessary. Haul routes would vary depending on conditions on the NJ Turnpike and local roads as well as contractor needs. NJ TRANSIT and PANYNJ will continue to refine the haul routes and Maintenance and Protection of Traffic plans during final design. The FEIS traffic analysis conservatively assesses capacity and level of service at intersections on key travel corridors. Potential haul routes through New Jersey are illustrated on Figures 3.6-B through 3.6-D in Appendix 3.6.

The peak construction activity in New Jersey for excavated tunnels material removal, trucks delivering material and workers reporting to work would occur in 2012. Peak construction activity for the Manhattan sites would also be 2012. Construction activity in 2012 at the Tonnelle Avenue and Hoboken

Construction Access Shaft sites would generate approximately twelve truck trips (six inbound and six outbound) per hour, including during the AM and PM peak hours on any given work day. These truck trips would total approximately 240 inbound and outbound for both shaft sites. In addition, project construction activities would generate approximately 20 worker (auto) trips per shaft site during the AM and PM peak hours.

Existing traffic volumes were collected at intersections around the shaft sites during the AM and PM peak hours. No Build construction traffic volumes (2012) were developed using a 1-percent-per-year growth rate applied to existing traffic volumes. The Build Alternative traffic volumes were developed by adding construction vehicles (including excavated material removal trucks, material trucks, and workers autos) to other traffic on these streets. It was assumed that workers would arrive within the hour prior to the start of their shift and leave in the hour after their shift ends. Therefore, workers would arrive at and depart from a site either before or after the peak traffic hour. It was assumed that some staff (estimated at 10 vehicles) would arrive and depart during the peak hours.

Traffic generated by construction activity at the Tonnelle Avenue Construction Access Shaft site would enter and exit the east side of Tonnelle Avenue. It is expected that most trucks from this site would be directed to Secaucus rather than the proposed Kearny Rail Yard site due to the proximity of the shaft to Secaucus. The following route assumptions were made regarding trucks at the Tonnelle Avenue shaft site:

- Vehicles departing from the site: Tonnelle Avenue northbound; U-turn at Route 3 to Tonnelle Avenue southbound, through jughandle traffic signal at Secaucus Road Exit; then west on Secaucus Road to County Avenue; then south to New County Road and Seaview Drive to Secaucus.
- Vehicles returning to the site: Seaview Drive and New County Road to County Avenue; to Secaucus Road; and enter Tonnelle Avenue northbound returning to shaft site.

For traffic intersection impact analyses, all truck traffic from the Tonnelle Avenue Construction Access Shaft site was assumed to travel northward along Tonnelle Avenue through two critical intersections in the vicinity of the Tonnelle Avenue Construction Access Shaft site:

- Tonnelle Avenue at the Route 3 ramps, a three-legged intersection controlled by a two-phase traffic signal
- Tonnelle Avenue at the jughandle (milepost 57), a three-legged intersection controlled by a two-phase traffic signal

It is expected that most trucks generated by construction activity at the Hoboken Construction Access Shaft site would be directed to use the following routes to/from the NJ Turnpike:

- Vehicles departing from the site: Service road to Willow Avenue northbound (under the Willow Avenue Bridge), merge onto Willow Avenue, right turn onto 19th Street, left turn onto northbound Park Avenue/JFK Boulevard East to entrance ramp to I-495 west to NJ Turnpike
- Vehicles returning to the site: NJ Turnpike to I-495 EB to Weehawken/Hoboken Exit, south on JFK Boulevard East/Park Avenue, across 19th Street, bear right onto Park Avenue south to service road to access site

Three critical intersections in the vicinity of the Hoboken Construction Access Shaft site were analyzed for construction traffic impacts:

- Willow Avenue at 19th Street, a four-legged intersection controlled by a three-phase traffic signal
- Park Avenue at 19th Street, a four-legged intersection controlled by a three-phase traffic signal
- JFK Boulevard East and the I-495 Marginal Road (ramps), a double T-intersection controlled by a single three-phase traffic signal

Most traffic generated by construction activity at the proposed Kearny Rail Yard site would be directed to the following routes to/from the NJ Turnpike:

- Vehicles departing from the site: Exit at Fish House Road, right turn from driveway, merge with Route 7 westbound, exit to Newark-Jersey City Turnpike westbound to I-280 eastbound to NJ Turnpike
- Vehicles returning to the site: NJ Turnpike to Exit 15E to I-280 westbound to the Newark-Jersey City Turnpike eastbound, merge with Route 7 eastbound, U-turn to Route 7 westbound, right turn into the proposed Kearny Rail Yard site

One critical intersection in the vicinity of the proposed Kearny Rail Yard site was analyzed for construction traffic impacts:

- Newark-Jersey City Turnpike (CR 7) and the driveway of the U.S. Postal Facility, a double T-intersection controlled by a three-phase traffic signal

Traffic diversions associated with WittPenn Bridge work could indirectly impact traffic operations on ARC haul routes if vehicles are diverted to avoid WittPenn construction.

In the vicinity of Frank R. Lautenberg Station, trucks would access the embankment construction area from the NJ Turnpike Secaucus exit (Exit 15X) to Seaview Drive, then turn west onto New County Road to the entrance to Frank R. Lautenberg Station. The trucks would continue along the entrance roadway and pass beneath the NEC to the employee parking area. From that point, a temporary apron roadway from the parking area would provide access to the unimproved roadway, which would permit access through the embankment construction area. The empty trucks would return to the NJ Turnpike by the reverse route.

In the vicinity of Frank R. Lautenberg Station, access to the Secaucus Connection construction area would be from the Turnpike Exit 15X to Seaview Drive. A temporary access point would be provided off Seaview Drive near the station parking lot, immediately south of the station building and the NEC. This arrangement would permit access to the Secaucus Connection construction area immediately south of the station, and the construction area within Croxton Yard to the east.

The trucks from the Tonnelle Avenue Construction Access Shaft would pass through four major intersections on their way to Secaucus:

- Tonnelle Avenue ramp at Secaucus Road
- Secaucus Road at County Avenue
- County Avenue at New County Road
- New County Road at Seaview Drive

Each of these intersections are signalized, with the exception of County Avenue at New County Road, which would provide the trucks with a free movement. Each of these roadways pass through industrial land use areas, with the exception of a short section of County Avenue (between Metro Way and Washington Avenue) that has private residences. Among the major generators in the area are Croxton Yard and the USPS mail distribution center, each generating hundreds of truck trips each day. Several other developments along Secaucus Road also generate significant heavy truck traffic.

Traffic analysis of the major intersections along this route was not performed because, at the time of this study (May 2008), major roadway construction was underway on Route 1 at Route 3 with detours that altered traffic patterns throughout the area. Traffic data collected under current conditions could not be considered reliable, or easily adjustable, to reflect future conditions in 2012. Thus, a qualitative assessment of potential traffic impacts due to the Secaucus construction was prepared.

3.6: Construction-Related Impacts to Transportation

Each of the roadways along the Secaucus haul route has multiple lanes to accommodate future growth. These roadways were observed to serve current traffic levels with little traffic congestion. Truck traffic is significant, as expected given the land usage in the area. Build Alternative final design would accommodate their geometry and signal head locations to determine if impacts can be avoided or adjustments are required.

The Tonnelle Avenue construction access shaft site would generate approximately 60 truck trips daily to the Secaucus embankment site, or approximately six truck trips each hour per direction during peak hours. Construction is anticipated 24 hours per day until ARC opens in 2017. This magnitude of truck trips would not be expected to have any noticeable impact on the roads comprising the haul route, or the adjacent areas.

The remaining approximately 60 daily haul truck trips destined to the Secaucus embankment site would arrive via the NJ Turnpike. These trips also would average approximately six trucks each hour per direction. Of these, the only trucks that would need to enter the street system would be those serving the construction area to the south of Seaview Drive. These trucks would turn left (west) onto New County Road, then to the Frank R. Lautenberg Station entrance. By observation, this segment of roadway has sufficient excess capacity to accommodate construction traffic. Trucks destined for the construction area north of Seaview Drive would exit Seaview Drive from a temporary roadway and not enter upon New County Road. Trucks would operate 24 hours a day.

Existing, No Build and Build Alternative AM and PM peak hour traffic volumes at the intersections analyzed for the Tonnelle Avenue Construction Access Shaft, Hoboken Construction Access Shaft, and proposed Kearny Rail Yard sites are shown in **Tables 3.6-1 through 3.6-3**, respectively. **Tables 3.6-4 through 3.6-6**, respectively, summarize the impact of construction traffic on these intersections in terms of volume/capacity ratio, delay, and level of service, by movement. Analyses were performed for signalized intersections using the analytical procedures described in the HCM, 2000.

Traffic generated by Build Alternative construction would cause an impact during the AM peak hour on the northbound Tonnelle Avenue approach of the intersection with Route 3 in North Bergen. Delay would increase from 138.4 to 139.7 seconds, worsening an existing LOS F condition (see **Table 3.6-4**). This increase is deemed significant, since an existing LOS F with greater than 120 seconds of delay would deteriorate by more than one second. No additional impacts would occur at this intersection or at the intersection of Tonnelle Avenue and the jughandle.

Build Alternative construction would also impact the intersections of Willow Avenue at 19th Street and Park Avenue at 19th Street in Weehawken. During the AM peak hour, the northbound approach of Willow Avenue would experience an impact with a deterioration of LOS E of greater than four seconds. During the PM peak hour, the northbound approach would also be impacted with a deterioration of LOS D of greater than five seconds. At the Park Avenue and 19th Street intersection, impacts would occur during the AM peak hour at the northbound approach (deterioration of LOS F), the southbound approach (deterioration of LOS F), and the eastbound (de facto left) approach (degradation from LOS C to LOS D). No impacts would occur at the intersection of JFK Boulevard East and I-495 Marginal Road intersection (see **Table 3.6-5**).

Build Alternative construction would not cause any impacts at the Newark-Jersey City Turnpike (CR 7) and USPS mail distribution center intersection (see **Table 3.6-6**).

TABLE 3.6-1: AM & PM PEAK HOUR TRAFFIC VOLUMES AT TONNELLE AVENUE CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
Tonnelles Ave @ Jughandle	NB	T	2,180	2,291	2,296
	SB	T	2,004	2,106	2,117
	EB	L	380	399	399
		R	49	51	51
	Total		4,613	4,847	4,863
Tonnelles Ave @ Route 3 Ramp**	NB	T	1,762	1,852	1,857
		R	835	878	878
	SB	T	669	703	719
		R	921	968	968
	EB	T	1,612	1,694	1,699
	Total		5,799	6,095	6,121
Tonnelles Ave @ Jughandle	NB	T	2,173	2,284	2,284
	SB	T	1,911	2,008	2,024
	EB	L	271	285	290
		R	53	56	56
	Total		4,408	4,633	4,654
Tonnelles Ave @ Route 3 Ramp**	NB	T	1,545	1,624	1,629
		R	994	1,045	1,045
	SB	T	721	758	768
		R	636	668	668
	EB	T	1,341	1,409	1,409
	Total		5,237	5,504	5,519

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

** In Highway Capacity Software, NB is NB, SB is WB and EB is SB, to provide proper analysis

TABLE 3.6-2: PEAK HOUR TRAFFIC VOLUMES AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
Willow Avenue @ 19 th Street 7:00 AM to 8:00 AM	NB	L	98	103	103
		T	483	508	508
		R	79	83	99
	SB	L	312	328	328
		T	321	337	337
		R	267	281	281
	EB	L	180	189	189
		T	249	262	262
		R	213	224	224
	WB	L	74	78	78
T		67	70	70	
R		324	341	341	
Total			2,667	2,804	2,820
Park Avenue @ 19 th Street 7:30 AM to 8:30 AM	NB	L	67	70	70
		T	450	473	473
		R	370	389	389
	SB	L	59	62	62
		T	452	475	491
		R	268	282	282
	EB	L	171	180	190
		T	344	362	362
		R	61	64	64
	WB	L	85	89	89
		T	202	212	212
R		33	35	35	
Total			2,562	2,693	2,719

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

** In Highway Capacity Software, NB Left-turn modeled as NB Right-turn to allow for phase overlap and provide proper analysis

TABLE 3.6-2: PEAK HOUR TRAFFIC VOLUMES AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS (CONTINUED)

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
JFK Boulevard East @ 495 Marginal Road 7:00 AM to 8:00 AM**	NB	L	431	453	464
		T	144	151	151
	SB	T	351	369	369
		R	134	141	141
	EB	L	110	116	116
		R	1,035	1,088	1,103
	Total		2,205	2,318	2,344

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

** In Highway Capacity Software, NB Left-turn modeled as NB Right-turn to allow for phase overlap and provide proper analysis

TABLE 3.6-2: PEAK HOUR TRAFFIC VOLUMES AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS (CONTINUED)

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
Willow Avenue @ 19 th Street 5:00 PM to 6:00 PM	NB	L	152	160	160
		T	411	432	432
		R	129	136	156
	SB	L	273	287	287
		T	102	107	107
		R	76	80	80
	EB	L	248	261	261
		T	509	535	535
		R	46	48	48
	WB	L	164	172	172
		T	314	330	330
R		339	356	356	
Total			2,763	2,904	2,924
Park Avenue @ 19 th Street 4:30 PM to 5:30 PM	NB	L	56	59	59
		T	491	516	516
		R	169	178	178
	SB	L	18	19	19
		T	444	467	477
		R	223	234	234
	EB	L	163	171	187
		T	217	228	228
		R	92	97	97
	WB	L	132	139	139
		T	476	500	500
		R	71	75	75
Total			2,552	2,683	2,709

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

** In Highway Capacity Software, NB Left-turn modeled as NB Right-turn to allow for phase overlap and provide proper analysis

TABLE 3.6-2: PEAK HOUR TRAFFIC VOLUMES AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS (CONTINUED)

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
JFK Boulevard East @ 495 Marginal Road 4:15 PM to 5:15 PM**	NB	L	478	502	518
		T	332	349	349
	SB	T	298	313	313
		R	124	130	130
	EB	L	345	363	363
		R	1,026	1,078	1,089
	Total			2,603	2,735

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

** In Highway Capacity Software, NB Left-turn modeled as NB Right-turn to allow for phase overlap and provide proper analysis

TABLE 3.6-3: AM & PM PEAK HOUR TRAFFIC VOLUMES AT KEARNY RAIL YARD SITE INTERSECTION

Intersection	Approach	Movement	2007 Existing Volume	2012 No Build Volume	2012 Build Alternative Volume*
Newark & Jersey City Turnpike @ Postal Service Driveway	NB	L	155	163	163
		R	105	110	110
	EB	T	1,632	1,715	1,754
		R	39	41	41
	WB	L	27	28	28
		T	1,295	1,361	1,400
	Total		3,253	3,418	3,496
Newark & Jersey City Turnpike @ Postal Service Driveway	NB	L	32	34	34
		R	26	27	27
	EB	T	1,507	1,584	1,623
		R	64	67	67
	WB	L	42	44	44
		T	1,437	1,510	1,549
	Total		3,108	3,266	3,344

Source: Transit Link Consultants, 2008.

* Each truck counted as two "Passenger Car Equivalents"

TABLE 3.6-4: CONSTRUCTION TRAFFIC IMPACTS AT TONNELLE AVENUE CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS: BUILD ALTERNATIVE

Intersection	Approach	Movt.	2007 Existing AM			2012 No Build AM			2012 Build AM		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
Tonnelles Ave @ Jughandle	NB	T	1.09	70.5	E	1.15	93.0	F	1.15	94.2	F
	SB	T	1.00	41.8	D	1.06	57.4	E	1.06	59.4	E
	EB	L	0.55	42.0	D	0.58	42.9	D	0.58	42.9	D
		LR	0.68	46.6	D	0.71	48.1	D	0.71	48.1	D
	INTERSECTION			55.3	E		72.6	E		73.9	E
Tonnelles Ave @ Route 3 Ramp	Tonnelles Ave NB	T	1.17	112.9	F	1.23	138.4	F	1.23	139.7	F
	Rt.3 EB	T	0.67	34.9	C	0.71	35.9	D	0.72	36.4	D
	Tonnelles Ave SB	T	1.09	81.3	F	1.15	103.5	F	1.15	105.0	F
		INTERSECTION			86.3	F		106.0	F		107.0

Intersection	Approach	Movt.	2007 Existing PM			2012 No Build PM			2012 Build PM		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
Tonnelles Ave @ Jughandle	NB	T	1.01	44.2	D	1.07	60.9	E	1.07	60.9	E
	SB	T	0.98	35.0	D	1.02	47.6	D	1.03	50.0	D
	EB	L	0.39	37.9	D	0.41	38.4	D	0.42	38.5	D
		LR	0.46	39.6	D	0.49	40.2	D	0.49	40.3	D
	INTERSECTION			39.7	D		53.4	D		54.4	D
Tonnelles Ave @ Route 3 Ramp	Tonnelles Ave NB	T	1.03	59.5	E	1.08	77.2	E	1.08	78.6	E
	Rt.3 EB	T	0.67	34.8	C	0.70	35.9	D	0.71	36.2	D
	Tonnelles Ave SB	T	0.99	49.4	D	1.04	63.0	E	1.04	63.0	E
		INTERSECTION			50.8	D		63.7	E		64.3

Source: Transit Link Consultants, 2008.

Note: Shading indicates impacts between the No Build and the Build.

TABLE 3.6-5: CONSTRUCTION TRAFFIC IMPACTS AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS: BUILD ALTERNATIVE

Intersection	Approach	Movt	2007 Existing AM			2012 No Build AM			2012 Build AM			
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	
Willow Avenue @ 19 th Street 7:00 AM to 8:00 AM	NB	LTR	0.95	56.9	E	1.00	68.7	E	1.03	76.8	E	
	SB	LTR	1.43	226.2	F	1.50	259.5	F	1.50	259.5	F	
	EB	LTR	0.97	50.7	D	1.02	62.8	C	1.02	62.8	C	
	WB	L		1.16	180.7	F	1.24	208.5	F	1.24	208.5	F
		T		0.17	22.7	C	0.17	22.8	C	0.18	22.8	C
		R		0.26	4.5	A	0.27	4.6	A	0.27	4.6	A
INTERSECTION			115.9	F		134.8	F		136.1	F		
Park Avenue @ 19 th Street 7:30 AM to 8:30 AM	NB	LTR	1.12	96.2	F	1.22	137.1	F	1.24	144.0	F	
	SB	LTR	1.24	142.1	F	1.33	180.6	F	1.35	190.7	F	
	EB	DefL		0.72	28.5	C	0.77	32.1	C	0.81	36.5	D
		TR		0.35	17.7	B	0.36	17.9	B	0.36	17.9	B
	WB	DefL		0.27	17.4	B	0.29	17.6	B	0.29	17.6	B
		T		0.18	16.3	B	0.19	16.4	B	0.19	16.4	B
		R		0.08	15.6	B	0.09	15.7	B	0.09	15.7	B
INTERSECTION			84.8	F		110.9	F		116.9	F		
JFK Boulevard East @ 495 Marginal Road 7:00 AM to 8:00 AM	NB	L	0.24	0.0	A	0.25	0.1	A	0.26	0.1	A	
		T	0.10	7.5	A	0.11	7.6	A	0.11	7.6	A	
	SB	TR	0.77	28.8	C	0.81	30.7	C	0.81	30.7	C	
	EB	L	0.16	18.8	B	0.17	18.9	B	0.17	18.9	B	
		R	Uncontrolled Movement			Uncontrolled Movement			Uncontrolled Movement			
INTERSECTION			13.6	B		14.3	B		14.2	B		

Source: Transit Link Consultants, 2008.

Note: Shading indicates impacts between the No Build and the Build.

TABLE 3.6-5: CONSTRUCTION TRAFFIC IMPACTS AT HOBOKEN CONSTRUCTION ACCESS SHAFT SITE INTERSECTIONS: BUILD ALTERNATIVE (CONTINUED)

Intersection	Approach	Movt	2007 Existing PM			2012 No Build PM			2012 Build PM			
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	
Willow Avenue @ 19 th Street 7:00 AM to 8:00 AM	NB	LTR	0.90	36.1	D	0.95	43.0	D	0.98	48.8	D	
	SB	LTR	0.56	21.2	C	0.59	22.0	C	0.59	22.0	C	
	EB	LTR	0.30	10.8	B	0.31	10.9	B	0.31	18.9	B	
	WB	L		1.17	146.4	F	1.38	231.4	F	1.38	231.4	F
		T		0.71	19.6	B	0.74	20.5	C	0.74	20.5	C
		R		1.26	171.3	F	1.41	233.7	F	1.41	233.7	F
INTERSECTION			0.71	20.8	C	0.75	22.2	C	0.75	22.2	C	
Park Avenue @ 19 th Street 7:30 AM to 8:30 AM	NB	LTR	0.05	4.8	A	0.05	4.8	A	0.05	4.8	A	
	SB	LTR		43.5	D		56.1	E		57.6	E	
	EB	DefL		0.80	28.9	C	0.85	32.2	C	0.85	32.3	C
		TR		0.77	23.2	C	0.83	26.6	C	0.84	27.2	C
	WB	DefL		0.63	24.5	C	0.69	27.6	C	0.75	32.2	C
		T		0.28	17.1	B	0.29	17.2	B	0.30	17.3	B
		R		0.38	18.5	B	0.41	18.8	B	0.41	18.8	B
INTERSECTION			0.40	18.2	B	0.42	18.4	B	0.42	18.4	B	
JFK Boulevard East @ 495 Marginal Road 7:00 AM to 8:00 AM	NB	L	0.17	16.3	B	0.17	16.3	B	0.17	16.3	B	
		T		22.6	C		24.7	C		25.3	C	
	SB	TR	0.21	0.0	A	0.22	0.0	A	0.23	0.0	A	
	EB	L	0.22	8.1	A	0.23	8.2	A	0.23	8.2	A	
		R	Uncontrolled Movement			Uncontrolled Movement			Uncontrolled Movement			
	INTERSECTION				12.7	B		13.0	B		12.8	B

Source: Transit Link Consultants, 2008.

Note: Shading indicates impacts between the No Build and the Build.

TABLE 3.6-6: CONSTRUCTION TRAFFIC IMPACTS AT KEARNY RAIL YARD SITE INTERSECTION: BUILD ALTERNATIVE

Intersection	Approach	Movt	2007 Existing AM			2012 No Build AM			2012 Build AM		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
Newark & Jersey City Turnpike @ Postal Service Driveway	NB	L	1.52	300.2	F	1.60	333.8	F	1.60	333.8	F
		R	1.20	173.2	F	1.26	195.5	F	1.26	195.5	F
	EB	TR	0.84	18.6	B	0.89	21.3	C	0.91	23.0	C
	WB	L	0.37	16.5	B	0.38	20.0	C	0.38	21.3	C
		T	0.74	14.7	B	0.78	15.8	B	0.80	16.7	B
	INTERSECTION			57.8	E		64.6	E		64.7	E

Intersection	Approach	Movt	2007 Existing PM			2012 No Build PM			2012 Build PM		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
Newark & Jersey City Turnpike @ Postal Service Driveway	NB	L	0.23	43.9	D	0.24	44.1	D	0.24	44.1	D
		R	0.58	49.6	D	0.27	44.2	D	0.27	44.2	D
	EB	TR	0.88	20.8	C	0.93	25.1	C	0.95	27.9	C
	WB	L	0.46	21.0	C	0.48	24.2	C	0.48	25.3	C
		T	0.67	12.9	B	0.70	13.6	B	0.72	14.1	B
	INTERSECTION			18.9	B		20.7	C		22.4	C

Source: Transit Link Consultants, 2008.

Note: Shading indicates impacts between the No Build and the Build.

TABLE 3.6-7: MITIGATED LEVEL OF SERVICE – TONNELLE AVENUE @ ROUTE 3 RAMP INTERSECTION

Approach	Movements	2012 Build Alternative Mitigated AM		
		V/C	Delay	LOS
Tonnelle Ave NB	T	1.22	133.1	F
Rt. 3 EB	T	0.73	37.3	D
Tonnelle Ave SB	T	1.14	99.7	F
INTERSECTION			102.6	F

Source: Transit Link Consultants, 2008.

TABLE 3.6-8: MITIGATED LEVEL OF SERVICE – PARK AVENUE @ 19TH STREET INTERSECTION

Approach	Movements	2012 Build Alternative Mitigated AM		
		V/C	Delay	LOS
Park Avenue NB	LTR	1.19	122.9	F
Park Avenue SB	LTR	1.32	173.2	F
19 th Street EB	DefL	0.83	40.0	D
INTERSECTION			104.9	F

Source: Transit Link Consultants, 2008.

Aside from Build Alternative construction-related traffic, a second construction-related impact to roadways would be the periodic and sequential lane closures of Tonnelle Avenue in the vicinity of the proposed access shaft due to cut-and-cover tunnel construction as part of the Palisades Tunnels alignment. As cut-and-cover construction would advance west to east across Tonnelle Avenue, open cut areas would be plated over to enable uninterrupted traffic circulation on this important roadway. Based on this sequential plating process, a maximum of one lane in each direction would be closed at any one time.

HUDSON RIVER

No roadway construction would take place in this portion of the project area. However, excavated tunnel materials from the Twelfth Avenue, Dyer Avenue, West 33rd Street, and West 35th Street Construction Access Shafts would be hauled by truck through the Lincoln Tunnel for use primarily at the proposed Kearny Rail Yard and the embankment of the trackways along the NEC and the Secaucus Connection track. For purposes of traffic impact analysis, it was assumed that these sites would be active concurrently. In addition, construction material would be conveyed to work sites in Manhattan through the Lincoln Tunnel. A total of between 11 and 22 haul truck trips per hour would occur, equivalent to between 22 and 44 car trips. In the PM peak hour, approximately 5,500 vehicles travel through the Lincoln Tunnel. These haul truck trips would be less than a one percent increase, and would not adversely impact tunnel traffic operations beyond those experienced under No Build conditions. Therefore, no mitigation would be required.

NEW YORK

TRAFFIC IMPACTS

Construction activities related to the various Manhattan components of the Build Alternative, anticipated to peak in 2012, would cause temporary lane closures at specific sites, and generate construction traffic that would, for the duration of construction, add to No Build traffic volumes. At their peak, construction activities would generate between 42 and 64 truck trips (21 to 32 inbound and 21 to 32 outbound) each hour, including during AM, Midday and PM peak hours on any given day. These projections include both haul trucks (11 to 22) and delivery trucks (10) at all Manhattan construction sites.

In addition, project construction activities would generate approximately 50 auto trips during the AM and PM peak traffic hours (inbound during the AM peak hour, and outbound during the PM peak hour). These autos would be destined to Manhattan construction shafts/fan plants as follows: approximately 20 to the Twelfth Avenue Fan Plant, and approximately 10 each to the Dyer Avenue, 33rd Street and 35th Street Fan Plants. Off-street parking would not be provided for these vehicles, and they are projected to park in public off-street parking facilities in the project area. MPT plans prepared during Build Alternative design and implemented during construction would include lane closures and specified routes of excavated material hauling, developed in concert with city and state agencies and the communities in which these actions would occur. Discussions regarding location of staging areas, to and from which trucks would traverse, have been initiated with NYC Departments of City Planning and Transportation, and would be finalized during final design.

Lane Closures in the Vicinity of Project Construction Sites

Temporary closure of traffic lanes and sidewalks, and loss of parking spaces and curb loading zones would occur at several locations adjacent to project construction sites, primarily on West 34th Street between Sixth and Eighth Avenues, along West 33rd Street between Sixth and Seventh Avenues, along West 35th Street between Eighth and Ninth Avenues, along West 29th Street between Eleventh and Twelfth Avenues, and at the Dyer Avenue ramps. Potentially affected streets are identified on

Figure 3.6-1. These locations are listed in **Table 3.6-9** arranged by construction activity, along with the respective expected duration of construction and resultant effects on street utilization. These sites would support construction activities associated with the excavation of shafts for the Manhattan tunnels, and NYPSE cavern, and construction of permanent station entrances and fan plants. Each of the above areas would experience excavation and introduction of construction equipment and trucks associated with delivery and erection of structural materials, and installation of equipment for entrances to NYPSE.

The Build Alternative also considers lane closures associated with various HYDC projects, because the Build Alternative peak construction year of 2012 would coincide with construction of Hudson Yards projects and the extension of the No. 7 subway line. Lane closures associated with these projects are indicated on **Figure 3.6-1** and in **Table 3.6-1**, and are considered part of the No Build condition.

Since some of the lane closures would be in place for three years or more, traffic impacts of selected closures have been assessed as if the closures were permanent, in accordance with the *CEQR Technical Manual*. Results of this assessment are shown in Appendix 3.6 and impacts are summarized in **Table 3.6-11**.

Brief Duration Lane Closures Necessary to Install Decking

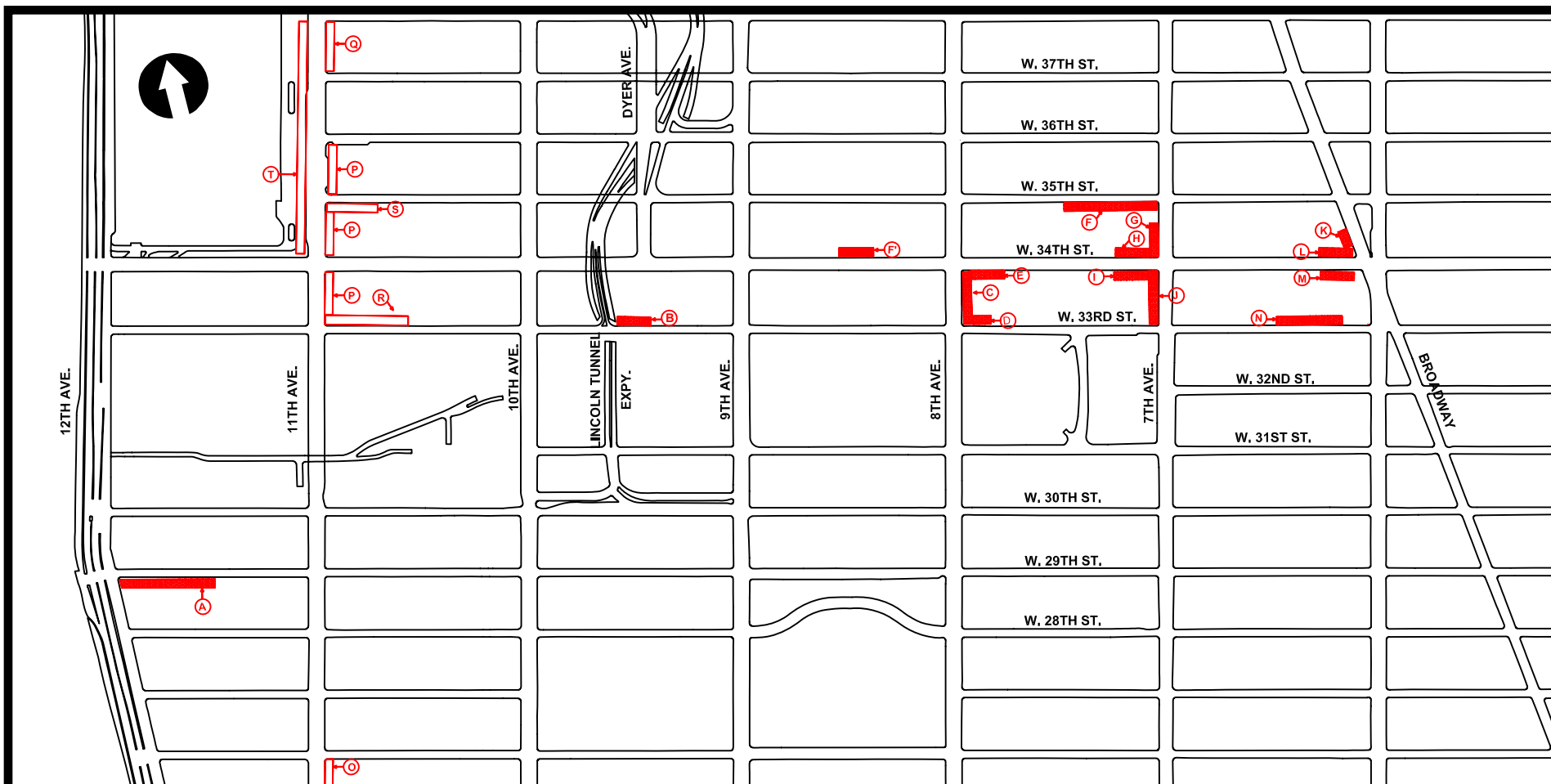
New station entrances on the south side of West 34th Street east of Eighth Avenue, at the west side of the intersection of Seventh Avenue and West 34th Street, and at the west side of the intersection of Sixth/Broadway and West 34th Street would entail cut-and-cover construction. Full lane closures would be required on West 34th Street during off-peak hours. These excavations would be covered during peak periods so that all travel lanes may be maintained. At no time would excavations on both sides of West 34th Street be open. An off-peak lane closure could be in place on either the north or south side of West 34th Street, but not both simultaneously.

Construction Traffic Generation and Routing

Truck trips and construction worker auto trips would be generated at the Twelfth Avenue, Dyer Avenue, 33rd Street, and 35th Street Construction Access Shafts. The Twelfth Avenue Construction Access Shaft and construction staging area would be located on the north side of West 28th Street at Twelfth Avenue. The Dyer Avenue Construction Access Shaft would be located on the north side of West 33rd Street just east of Dyer Avenue. The 33rd Street Construction Access Shaft would be located on the north side of West 33rd Street between Sixth and Seventh Avenues. The 35th Street Construction Access Shaft would be located on the south side of West 35th Street between Seventh and Eighth Avenues.

Excavated tunnels material from these four sites would be hauled by truck through the Lincoln Tunnel for use primarily at the proposed Kearny Rail Yard and the embankment of the trackways along the NEC and the Secaucus Connection track. Similarly, trucks hauling construction materials would also enter and leave Manhattan via the Lincoln Tunnel. For the purposes of the traffic impact analysis, it was assumed that these sites would be active concurrently. Construction activities are assumed to occur for a 24-hour period.

The anticipated activities and truck routes are as follows and are illustrated on **Figures 3.6-E and 3.6-F in Appendix 3.6:**



Legend

- A → Lane Segment (See Table 3.6-1)
- ARC Temporary Sidewalk and Lane Closures
- Hudson Yards Temporary Sidewalk and Lane Closures

Not to Scale

Source: Transit Link Consultants, 2008



Access to the Region's Core
Final Environmental Impact Statement

Figure 3.6-1
ARC 2012 Temporary Travel Lane/Sidewalk Closures
(New York)



TABLE 3.6-9: TEMPORARY LANE CLOSURES DURING CONSTRUCTION: BUILD ALTERNATIVE (NEW YORK)

Construction Activity	Street Segment			Duration (Months)	Effects			
	Location Key (see Fig. 3.6-1)	On	Between		Loss of Travel Lane in Peak Period	Loss of Parking Spaces	Loss of Loading Zone Spaces	Sidewalk
Twelfth Avenue Fan Plant	A	South side of West 29 th Street (350 feet)	Eleventh and Twelfth Avenues	82	NO	0	8	Closed
Dyer Avenue Fan Plant	B	North side of West 33 rd Street (250 feet from Dyer Avenue)	Ninth and Tenth Avenues	15	NO	8	0	Reduced to 6'
Eighth Avenue Southeast Entrance	C	East side of Eighth Avenue (entire block stretch)	West 33 rd and West 34 th Streets	29	NO	10	0	Reduced to 10'
	D	North side of West 33 rd Street (100 feet from Eighth Avenue)	Seventh and Eighth Avenues	-	NO	0	Bus Stop	Reduced to 7'
	E	South side of West 34 th Street (300 feet from Eighth Avenue)	Seventh and Eighth Avenues	29	NO	0	Bus Stop	Reduced to 12'
35 th Street Fan Plant	F	South side of West 35 th Street (400 feet from Seventh Avenue)	Seventh and Eighth Avenues	44	NO	7	0	Closed
ADA Access/Emergency Personnel Access Elevator Entrance (Employee Only)	F'	North side of West 34 th Street (210 feet from Eighth Avenue)	Eighth and Ninth Avenues	<u>24</u>	NO	7	0	<u>Reduced to 14'</u>
Seventh Avenue Northwest Entrance	G	West side of Seventh Avenue (150 feet from West 34 th Street)	West 34 th and West 35 th Streets	27	NO	0	4	Reduced to 10'
	H	North side of West 34 th Street (300 feet from Seventh Avenue) – Alternates with I	Seventh and Eighth Avenues	27	NO	0	Bus stop	Reduced to 12'
Seventh Avenue Southwest Entrance	I	South side of West 34 th Street extending 100 feet from Seventh Avenue – Alternates with H	Seventh and Eighth Avenues	15	NO	0	Bus stop	Reduced to 12'
	J	West side of Seventh Avenue (entire block stretch)	West 33 rd and West 34 th Streets	27	NO	0	Bus stop	Reduced to 10'
Broadway Northwest	K	Westside of Broadway (50 feet from West 34 th Street)	West 34 th and West 35 th Streets	48	NO	0	0 (Drop-offs only)	Reduced to 10'
	L	North side of West 34 th Street (150 feet from Broadway) – Alternates with M	Broadway and Seventh Avenue	48	NO	0	Bus Stop	Reduced to 12'
Broadway Southwest	M	South side of West 34 th Street (150 feet from Broadway) – Alternates with L	Broadway and Seventh Avenue	48	NO	0	Bus Stop	Reduced to 12'
33 rd Street Fan Plant	N	North Side of West 33 rd Street (400 feet west from fan plant to Sixth Avenue)	Sixth and Seventh Avenues	44	NO	0	8	Closed

Source: Transit Link Consultants, 2008

TABLE 3.6-9: TEMPORARY LANE CLOSURES DURING CONSTRUCTION: BUILD ALTERNATIVE (NEW YORK) (CONTINUED)

Construction Activity	Street Segment			Duration (Months)	Effects			
	Location Key (see Fig. 3.6-1)	On	Between		Loss of Travel Lane in Peak Period	Loss of Parking Spaces	Loss of Loading Zone Spaces	Sidewalk
HUDSON YARDS DEVELOPMENT LANE CLOSURES								
No. 7 Extension	O	East side of Eleventh Avenue	West 25 th and West 26 th Streets	48	YES	NO	NO	Closed
No. 7 Extension	P	East side of Eleventh Avenue	West 33 rd and West 36 th Streets	36	YES	6	NO	Closed
HY Site 10	Q	East side of Eleventh Avenue	West 37 th and West 38 th Streets	36	NO	0	0	Closed
Terminal Subway Station	R	North Side of West 33 rd Street	Proposed Mid-block Boulevard to Eleventh Avenue	36	NO	25	18	Closed
Terminal Subway Station	S	South side of West 35 th Street	Proposed Mid-block Boulevard to Eleventh Avenue	36	NO	10	18	Closed
Convention Center	T	West side of Eleventh Avenue	West 34 th and West 40 th Streets	72	YES	0	0	Closed

Source: Transit Link Consultants, 2008

- **Twelfth Avenue Shaft** – Excavated tunnels material would be removed by truck via Twelfth Avenue through the Lincoln Tunnel to New Jersey. Based on the quantity of material to be excavated each day, removal of excavated material would require 5 – 10 tandem-axle truck loads per hour. An additional three trucks per hour delivering construction materials would be expected each day. The trucks would enter the street system at Dyer Avenue and West 35th Street; then west along West 35th Street to Eleventh Avenue; then south along Eleventh Avenue to West 29th Street to the site. The trucks would return to the tunnel via Twelfth Avenue; then east along West 40th Street to the tunnel entrance.
- **Dyer Avenue Shaft** – Trucks hauling excavation and construction materials to and from the Dyer Avenue shaft location would exit the Lincoln Tunnel at West 40th Street, then travel south along Ninth Avenue to West 33rd Street, then west to the site. The trucks would return to the Lincoln Tunnel by continuing west along West 33rd Street to Twelfth Avenue, then north to West 40th Street and the tunnel entrance. Truck activity at this location would be relatively light (2 – 4 trucks per hour). By the peak construction year of 2012, all excavated material removal from the Dyer Avenue shaft would have been completed, and only construction material deliveries would occur. It is anticipated that these deliveries would require one truck each hour during the work day.
- **33rd Street Shaft** – Trucks destined for this location would enter the Manhattan street system at either of two locations: the Lincoln Tunnel Expressway and West 30th Street; or the tunnel exit to West 40th Street, then south along Ninth Avenue to West 30th Street. They would travel east along West 30th Street to Sixth Avenue; then travel north along Sixth Avenue to West 33rd Street; then turn west onto West 33rd Street to the site. The trucks would return to the tunnel by continuing west along West 33rd Street to Twelfth Avenue, then north to West 40th Street and the tunnel entrance. This site would generate 2 to 4 excavation trucks each hour, and another three material trucks each hour.
- **35th Street Shaft** – Trucks destined for this location would enter the Manhattan street system at the tunnel exit onto West 40th Street eastward to Ninth Avenue. They would then travel south on Ninth Avenue to West 36th Street; then travel east along West 36th Street to Seventh Avenue; then south on Seventh Avenue to West 35th Street and the site. On leaving, the trucks would travel west along West 35th Street to Eleventh Avenue, then north to the Lincoln Tunnel entrance at West 40th Street. Two to four excavation trucks and three material trucks would be generated each hour by construction operations at this site.

Following discussions with Community Board 4, alternative haul routes were developed for the Twelfth Avenue and 35th Street shaft sites, and are shown on **Figure 3.6-G in Appendix 3.6**. These alternate routes continue from the Lincoln Tunnel along Dyer Avenue to West 34th Street. Haul trucks destined for Twelfth Avenue would turn right onto West 34th Street, while trucks destined to the 35th Street fan plant site would turn left onto West 34th Street. These trucks would then turn left at Eighth Avenue. These routes are intended to maximize use of West 34th Street, a designated truck route. Alternative haul routes for the 33rd Street and Dyer Avenue shaft sites also were developed. For the 33rd Street shaft, trucks would return to the Lincoln Tunnel via Twelfth Avenue during all time periods, as opposed to via Tenth Avenue in the AM and Midday peaks. For the Dyer Avenue shaft, the trucks would exit the tunnel via the Dyer Avenue intersection at West 36th Street. Traffic impacts were estimated for intersections impacted by these alternative routes and are described below.

Construction would utilize approximately 250 to 325 workers per shift on 8-hour shifts around the clock. Although worker trips would occur either before or after the peak hour analyzed, it has been assumed that a total of 50 workers would arrive at Manhattan sites by auto in the AM peak traffic hour, while a similar number would depart during the PM peak hour. Construction worker auto trips would have origins/destinations distributed throughout the region, and would use the principal north-south avenues and crosstown streets, in accordance with the worker trip distribution used in the FGEIS for the No. 7

Subway Extension-Hudson Yards Rezoning and Redevelopment Program. The No. 7 Subway Extension-Hudson Yards Rezoning and Redevelopment Program Mitigated Build condition was used as the No Build condition.

Conservative estimates of traffic generated by the HYDC development program obtained from the No. 7 Subway Extension – Hudson Yards Rezoning and Development Program FGEIS, as well as associated HYDC lane closures indicated on Figure 3.6-1 and in Table 3.6-9, were included in the Build Alternative traffic impact assessment.

Table 3.6-10 provides a summary of construction trip generation, by construction site.

TABLE 3.6-10: PROJECTED CONSTRUCTION VEHICLE TRIPS DURING AM AND PM PEAK TRAFFIC HOURS: BUILD ALTERNATIVE (NEW YORK)

Construction Site	Hauling Trucks	Material Trucks	Worker Autos
Twelfth Avenue Construction	5 – 10 inbound	3 inbound	20 inbound in AM
Access Shaft	5 – 10 outbound	3 outbound	20 outbound in PM
Dyer Avenue Construction	2 – 4 inbound	1 inbound	10 inbound in AM
Access Shaft	2 – 4 outbound	1 outbound	10 outbound in PM
33 rd Street Construction	2 – 4 inbound	3 inbound	10 inbound in AM
Access Shaft	2 – 4 outbound	3 outbound	10 outbound in PM
35 th Street Construction	2 – 4 inbound	3 inbound	10 inbound in AM
Access Shaft	2 – 4 outbound	3 outbound	10 outbound in PM
TOTAL	11 – 22 inbound 11 – 22 outbound	10 inbound 10 outbound	50 inbound in AM 50 outbound in PM

Source: NJ TRANSIT, 2007

Build Alternative Use of Block 675

Block 675 is located one block north of the existing Con Edison facility on Twelfth Avenue between West 28th and West 29th Streets (Block 674). It is currently used to store rental vehicles and other materials, among other uses. To augment proposed Build Alternative construction staging space on Con Edison’s facility on Block 674, and minimize potential disruptions to Con Edison’s current operations, a plan has been developed to use a portion of Block 675 for the relocation of non-critical Con Edison equipment storage and vehicles, and create supplemental Build Alternative construction staging space. This plan would not require the relocation of Con Edison critical infrastructure, including a flush pit and fueling facility.

Specifically, the Build Alternative would require the relocation of Con Edison’s cable yard (i.e., reels of cable, cable trucks, shed and structures) and elements of Con Edison’s casting area (e.g., lay-down area, storage and sand pit) to Block 675 across West 29th Street from their current location. The cable yard area is used for storage of primary (13 kV) and secondary cable on large reels, as well as parking for about 28 cable trucks. The cable is delivered from Astoria to the site twice weekly on the overnight shift by tractor-trailer trucks with 42-foot flatbed trailers. The cable trucks generally exit the facility before the AM peak hour, and return before the PM peak hour.

It is assumed that the current rental vehicle and material storage activities on Block 675 would be relocated to a new site outside the project area. Given the proximity of the proposed Con Edison relocation area on Block 675 to its existing location on Block 674, the common access routes for the two sites, and the limited number of peak hour Con Edison vehicle operations associated with the cable yard and casting area, traffic impacts associated with this relocation would be insignificant. Between five and

10 ARC haul trucks per hour would use West 29th Street to access the Twelfth Avenue Fan Plant/ Construction Access Shaft. Approximately three materials trucks per hour, inbound and outbound, would utilize the ARC construction staging area.

Impact Assessment

The combined impacts of lane closures and construction-generated traffic were assessed for the AM, Midday and PM peak traffic hours, and are shown in **Appendix 3.6**. A summary of only those intersections experiencing an impact is shown in **Table 3.6-11**.

TABLE 3.6-11: CEQR INTERSECTION IMPACTS: BUILD ALTERNATIVE (NEW YORK)

Intersection	Approach	Movement	Impact
AM Peak Hour			
12 th Ave. @ 30 th St.	SB	L	Deterioration of LOS F
12 th Ave. @ 29 th St.	WB	R	Deterioration of LOS F
11 th Ave. @ 34 th St.	EB	LTR	Deterioration of LOS F
	WB	DefL	Deterioration of LOS F
11 th Ave. @ 33 rd St.	WB	LT	Deterioration of LOS F
8 th Ave. @ 34 th St.	EB	LT	Deterioration of LOS F
Broadway/6 th Ave. @ 34 th St.	EB	T	LOS D to F
Additional Impacts: Alternative Haul Routes			
Dyer Ave. @ 34 th St.	SB	L	Deterioration of LOS E
	SB	R	LOS D to E
Midday Peak Hour			
12 th Ave. @ 39 th St.	NB	TR	Deterioration of LOS E
12 th Ave. @ 29 th St.	WB	R	Deterioration of LOS F
11 th Ave. @ 33 rd St.	WB	LT	Deterioration of LOS F
Broadway/6 th Ave. @ 34 th St.	EB	T	LOS C to F
Additional Impacts: Alternative Haul Routes			
Dyer Ave. @ 34 th St.	SB	R	LOS E to F
8 th Ave. @ 34 th St.	EB	DefL	Deterioration of LOS F
10 th Ave. @ 34 th St.	WB	TR	Deterioration of LOS F
11 th Ave. @ 34 th St.	WB	TR	Deterioration of LOS F
PM Peak Hour			
12 th Ave. @ 39 th St.	NB	TR	Deterioration of LOS F
12 th Ave. @ 34 th St.	WB	R	Deterioration of LOS F
12 th Ave. @ 29 th St.	WB	R	Deterioration of LOS F
12 th Ave. @ 24 th St.	SB	TR	Deterioration of LOS F
11 th Ave. @ 34 th St.	WB	TR	Deterioration of LOS F
11 th Ave. @ 33 rd St.	WB	LT	Deterioration of LOS F
9 th Ave. @ 35 th St.	WB	LT	LOS E to F
9 th Ave. @ 34 th St.	EB	TR	Deterioration of LOS F
8 th Ave. @ 36 th St.	EB	LT	Deterioration of LOS F
8 th Ave. @ 35 th St.	WB	TR	Deterioration of LOS F
7 th Ave. @ 34 th St.	EB	TR	LOS C to E
Broadway/6 th Ave. @ 34 th St.	EB	T	Deterioration of LOS F
Dyer Ave. @ 35 th St.	WB	LTR	Deterioration of LOS E
Additional Impacts: Alternative Haul Routes			
Dyer Ave. @ 34 th St.	SB	R	Deterioration of LOS F

Source: Transit Link Consultants, 2008

Traffic generated from Build Alternative construction activities at the four shaft sites (incremental vehicles and lane closures) using the original haul routes (as discussed above) would cause impacts (as defined by CEQR) at six intersections in the AM peak hour (8:00 to 9:00 AM). These intersections are:

- Sixth Avenue/Broadway at West 34th Street (Herald Square)
- Eighth Avenue at West 34th Street
- Eleventh Avenue at West 33rd Street
- Eleventh Avenue at West 34th Street
- Twelfth Avenue at West 29th Street
- Twelfth Avenue at West 30th Street

The following additional impact would occur during the AM peak hour using the alternative haul routes developed for the Twelfth Avenue and 35th Street shafts:

- Dyer Avenue at West 34th Street

Midday (Noon to 1:00 PM) traffic impacts due to construction activities at the four shaft sites would occur at four intersections using the original haul routes:

- Sixth Avenue/Broadway at West 34th Street (Herald Square)
- Eleventh Avenue at West 33rd Street
- Twelfth Avenue at West 29th Street
- Twelfth Avenue at West 39th Street

The following additional impacts would occur using the alternative haul routes developed for the Twelfth Avenue and 35th Street shafts:

- Dyer Avenue at West 34th Street
- Eighth Avenue at West 34th Street
- Tenth Avenue at West 34th Street
- Eleventh Avenue at West 34th Street

PM (5:00 to 6:00 PM) traffic impacts due to construction activities at the four shaft sites would occur at 13 locations using the original haul routes:

- Sixth Avenue/Broadway at West 34th Street (Herald Square)
- Dyer Avenue at West 35th Street
- Seventh Avenue at West 34th Street
- Eighth Avenue at West 35th Street
- Eighth Avenue at West 36th Street
- Ninth Avenue at West 34th Street
- Ninth Avenue at West 35th Street
- Eleventh Avenue at West 33rd Street
- Eleventh Avenue at West 34th Street
- Twelfth Avenue at West 24th Street
- Twelfth Avenue at West 29th Street
- Twelfth Avenue at West 34th Street
- Twelfth Avenue at West 39th Street

The following additional impact would occur using the alternative haul routes developed for the Twelfth Avenue and 35th Street shafts:

- Dyer Avenue at West 34th Street

One impact would be eliminated:

- Eleventh Avenue at West 34th Street

MITIGATION

- NJ TRANSIT will work NJDOT, Hudson County, and local municipalities to develop an MPT plan to implement the following mitigation:
 - Traffic impacts to the intersection of Tonnelle Avenue and the Route 3 ramps in North Bergen will be mitigated by signal timing changes, as indicated in Table 3.6-7.
 - Traffic impacts to the intersection of Park Avenue at 19th Street in Weehawken will be mitigated through traffic signal timing changes, as indicated in Table 3.6-8.
 - For cut-and-cover construction impacts at Tonnelle Avenue in North Bergen, open cut areas will be plated over to enable uninterrupted traffic circulation. Based on this sequential plating process, a maximum of one lane in each direction will be closed at any one time.
- Traffic impacts to the intersection of Willow Avenue at 19th Street in Weehawken cannot be fully mitigated through signal timing changes, and roadway widening is not practical. These impacts will remain unmitigated and the intersection would be subject to intermittent congestion during construction.
- NJ TRANSIT will develop and implement an MPT plan, in coordination with NYCDOT, to mitigate traffic impacts and maintain traffic access and circulation during construction. The MPT plan, already discussed with New York City agencies, may include: additional signal timing changes; detouring of traffic to streets on which construction would not be occurring; and adjusting existing travel lane configurations and utilization. These traffic mitigation measures have been approved by NYCDOT based on current conditions. NJ TRANSIT will work with NYCDOT to monitor future traffic conditions and make necessary adjustments to the proposed mitigation measures. (A concurrence letter from NYCDOT is included in Appendix 3.3.) Absent implementation of these mitigation measures, the Build Alternative would result in additional unmitigated significant adverse traffic impacts. The results of this mitigation are shown in Tables 3.6-E through 3.6-G in Appendix 3.6.
- With the exception of the intersections of Sixth Avenue/Broadway at West 34th Street (Herald Square), Twelfth Avenue at West 24th Street, and Twelfth Avenue at West 29th Street, intersection impacts will be mitigated by adjusting traffic signal timing. That is, traffic signals will be retimed to more effectively allocate green time to each intersection approach. In this way intersection approach capacity will be adjusted to better match traffic demand.
 - The Sixth Avenue/Broadway at West 34th Street intersection (Herald Square) cannot be mitigated through the application of practical mitigation measures during the AM, Midday, and PM peak periods because of significant traffic demands on all approaches.
 - The intersection of Twelfth Avenue at West 24th Street cannot be mitigated through the application of practical mitigation measures during the PM peak period because of significant traffic demands on all approaches.
 - Mitigation of the PM peak period impact at the Twelfth Avenue at West 29th Street intersection will include the reassignment of westbound lanes to exclusive left- and right-turn lanes. Signal modifications will be implemented by NYCDOT to control this new lane configuration. Full mitigation will be achieved by modifying the phasing to permit westbound right turns to be overlapped with an exclusive southbound through phase. These strategies will also fully mitigate the AM and Midday peak period impacts at this intersection.
- Street lane closures will be limited primarily to nighttime periods and weekends, when vehicular volumes would be lower. In cases where construction equipment would be placed in a curb lane continuously, the MPT plan will minimize impacts to traffic flow and levels of traffic service by detouring auto trips onto parallel streets, moving bus stops, and/or retiming traffic signals. Conversion of parking lanes to a travel lane will not occur.

E. PEDESTRIANS

NEW JERSEY

Construction in this portion of the project area would cause temporary minor reconfiguration/detouring of sidewalks in proposed construction areas in North Bergen and Hoboken.

HUDSON RIVER

Pedestrian circulation is not relevant in this portion of the project area.

NEW YORK

While the majority of Build Alternative construction would occur underground, and surface work would occur mainly within building lines off-street, work on new station entrances, fan plants/construction access shafts, and other elements would encroach on area sidewalks.

A CEQR analysis was performed to quantify construction-related impacts to pedestrians. A CEQR impact would occur when, in the Manhattan central business district: 1) pedestrian flows would increase by more than one pedestrian per foot per minute (PFM) when existing/future No Build conditions are 13–15 PFM; or 2) pedestrian flows would increase by more than two PFM when existing/future No Build conditions are more than 15 PFM.

Construction activities such as excavation, equipment or material storage, truck loading and unloading, and protective site fencing/walls, would encroach on sidewalks at 14 locations in Manhattan, as shown on **Figure 3.6-1** and in **Table 3.6-9**. (More details regarding construction of these Build Alternative elements appear in Section 5.1.) Of those encroachments, it is anticipated that segments of three sidewalks would be closed temporarily: on the south side of West 35th Street between Eighth and Seventh Avenues, on the north side of West 33rd Street between Seventh and Sixth Avenues, and on the south side of West 29th Street between Twelfth and Eleventh Avenues. In each of those cases, pedestrians would be diverted to the opposite sidewalk, adding to the volumes on those three sidewalks.

Table 3.6-13 presents future No Build conditions on the 18 sidewalks that would be affected by construction. Existing pedestrian volumes have been increased by 0.5 percent per year to year 2012 for this analysis. Of particular note are the following sidewalk segments, which currently exhibit relatively high pedestrian volumes:

- North and south sides of West 33rd Street between Seventh and Sixth Avenues
- North side of West 34th Street between Seventh and Eighth Avenues, just west of Seventh Avenue
- South side of West 34th Street between Seventh and Eighth Avenues, both just east of Eighth Avenue and just west of Seventh Avenue
- North and south sides of West 34th Street between Seventh Avenue and Broadway, just west of Broadway
- West side of Seventh Avenue between West 34th and West 35th Streets
- West side of Broadway between West 34th and West 35th Streets

TABLE 3.6-13: FUTURE NO BUILD CONDITIONS ON SIDEWALKS

Midblock Location	Side of Street	Peak 15-Minute Volume (peds.)	Overall Sidewalk Width (ft)	Effective Sidewalk Width (ft)	Average Flow Rate (ped/min/ft)	Platoon Flow Rate (ped/min/ft)	Platoon Level of Service
AM Peak Hour							
29 th St / 11 th and 12 th Aves	North	5	12.5	7.5	0.0	4.0	A
	South	9	13.0	9.0	0.1	4.1	A
33 rd St / 6 th and 7 th Aves	North	549	12.3	8.3	4.4	8.4	C
	South	645	12.3	8.3	5.2	9.2	C
33 rd St / 7 th and 8 th Aves	North	120	18.1	13.1	0.6	4.6	A
33 rd St / 9 th and 10 th Aves	North	268	7.1	5.2	3.4	7.4	C
34 th St / 7 th and 8 th Aves	North	637	23.3	5.5	7.7	11.7	D
34 th St / 7 th and 8 th Aves (East)	South	490	23.5	11.5	2.8	6.8	B
34 th St / 7 th and 8 th Aves (West)	South	492	23.5	11.5	2.8	6.8	B
34 th St / Bway and 7 th	North	1,431	23.6	6.5	14.7	18.7	E
	South	2,449	23.5	10.5	15.5	19.5	E
35 th St / 7 th and 8 th Aves	North	342	14.4	9.0	2.5	6.5	B
	South	446	15.4	6.0	5.0	9.0	C
12 th Ave / 28 th and 29 th Sts	East	10	17.0	12.0	0.1	4.1	A
8 th Ave / 33 rd and 34 th Sts	East	669	21.3	12.5	3.6	7.6	C
7 th Ave / 33 rd and 34 th Sts	West	837	20.4	15.5	3.6	7.6	C
7 th Ave / 34 th and 35 th Sts	West	2,165	19.9	12.6	11.5	15.5	E
Bway / 34 th and 35 th Sts	West	930	19.9	11.5	5.4	9.4	C
PM Peak Hour							
29 th St / 11 th and 12 th Aves	North	5	12.5	7.5	0.0	4.0	A
	South	9	13.0	9.0	0.1	4.1	A
33 rd St / 6 th and 7 th Aves	North	702	12.3	8.3	5.6	9.6	C
	South	906	12.3	8.3	7.3	11.3	D
33 rd St / 7 th and 8 th Aves	North	89	18.1	13.1	0.5	4.5	A
33 rd St / 9 th and 10 th Aves	North	434	7.1	5.2	5.6	9.6	C
34 th St / 7 th and 8 th Aves	North	1,290	23.3	5.5	15.6	19.6	E
34 th St / 7 th and 8 th Aves (East)	South	966	23.5	11.5	5.6	9.6	C
34 th St / 7 th and 8 th Aves (West)	South	971	23.5	11.5	5.4	9.4	C
34 th St / Bway and 7 th	North	1,266	23.6	6.5	13.0	17.0	E
	South	2,083	23.5	10.5	13.2	17.2	E
35 th St / 7 th and 8 th Aves	North	479	14.4	9.0	3.6	7.6	C
	South	456	15.4	6.0	5.1	9.1	C
12 th Ave / 28 th and 29 th Sts	East	11	17.0	12.0	0.1	4.1	A
8 th Ave / 33 rd and 34 th Sts	East	830	21.3	12.5	4.4	8.4	C
7 th Ave / 33 rd and 34 th Sts	West	1,771	20.4	15.5	7.6	11.6	D
7 th Ave / 34 th and 35 th Sts	West	3,295	19.9	12.6	17.5	21.5	E
Bway / 34 th and 35 th Sts	West	1,526	19.9	11.5	8.8	12.8	D

Source: Transit Link Consultants, 2008.

On each of the above affected sidewalk segments, part or all of the sidewalk would be partitioned off with barriers for specific periods of time during construction. The impact of the specific work at each of these locations on pedestrian circulation would depend on the width of sidewalk occupied by construction, the remaining width of sidewalk available for pedestrians, the availability of a curbside parking lane for use as a temporary walkway, and the expected pedestrian volumes along the sidewalk. Details of the space required for construction would be more fully developed as Build Alternative design progresses and dialogue with New York City agencies continues.

For example, a nominal width (7 to 8 feet) pedestrian walkway on a sidewalk or in a curbside parking lane would usually suffice to carry pedestrian volumes. On narrow cross-streets, temporarily closing the sidewalk on one side of a street and directing pedestrians to use the opposite walkway is also generally acceptable to New York City agencies. In areas east of Eighth Avenue, where pedestrian volumes are higher, the nominal walkway clear width of 7 to 8 feet would adequately carry peak pedestrian volumes on some sidewalks; however, others, with pedestrian volumes in excess of about 800 pedestrians during any 15-minute period, would require maintenance of a wider walkway.

In some areas, construction would involve enlarging subway connections or placing other installations below street level, and would likely entail disruption of sidewalk, crosswalk, and roadway areas. This situation would affect sidewalks and crosswalks on the east side of the intersection of Eighth Avenue and West 34th Street, the west side of the intersection of Seventh Avenue and West 34th Street, and the west side of the intersection of Broadway and West 34th Street.

The 14 sidewalk segments on which encroachments would occur were analyzed for CEQR impacts. Table 3.6-14 presents an analysis of pedestrian conditions during the AM and PM peak 15-minute periods during construction at each location. For the three segments that would be closed, the opposite segment was analyzed for the additional diverted volumes. Four sidewalks would experience impacts according to CEQR criteria:

- South side of West 33rd Street between Sixth and Seventh Avenues – PM peak period impact from diversion of pedestrians from the north (closed) sidewalk
- West side of Seventh Avenue between West 33rd and West 34th Streets – PM peak period impact from reduction in width to 10 feet
- West side of Seventh Avenue between West 34th and West 35th Streets – AM and PM peak period impacts from reduction in width to 10 feet
- West side of Broadway between West 34th and West 35th Streets – PM peak period impact from reduction in width to 10 feet

MITIGATION

- NJ TRANSIT will work with NJDOT, Hudson County, and local municipalities to develop and implement an MPT plan, including protected sidewalk shifts into curbside lanes or sidewalk reconfiguration, to mitigate pedestrian impacts and maintain pedestrian access and circulation in areas adjacent to proposed construction sites.
- NJ TRANSIT will develop and implement an MPT plan, coordinated with NYCDOT and NYPD, and approved by NYCDOT to maintain adequate pedestrian access and circulation during construction. Construction will be scheduled during off-peak hours to the extent possible, and temporary surfaces placed to allow pedestrians to pass during construction. The MPT plan will be prepared in accordance with New York City regulations during final design of the project, and an ongoing program of review of pedestrian circulation with NYCDOT will occur during construction.

TABLE 3.6-14: SIDEWALKS AFFECTED BY CONSTRUCTION: BUILD ALTERNATIVE

Midblock Location	Side of Street	Peak 15-Minute Volume (peds.)	Overall Sidewalk Width (ft)	Effective Sidewalk Width (ft)	Average Flow Rate (ped/min/ft)	Platoon Flow Rate (ped/min/ft)	Platoon Level of Service	CEQR Impact
AM Peak Hour								
29 th St / 11 th and 12 th Aves	North	14	12.5	7.5	0.1	4.1	A	No
	South	0	13.0	0.0	-	-	-	Closed
33 rd St / 6 th and 7 th Aves	North	0	12.3	0.0	-	-	-	Closed
	South	1,194	12.3	8.3	9.6	13.6	D	No
33 rd St / 7 th and 8 th Aves	North	120	18.1	5.0	1.6	5.6	B	No
33 rd St / 9 th and 10 th Aves	North	268	7.1	4.0	4.5	8.5	C	No
34 th St / 7 th and 8 th Aves	North	637	23.3	10.0	4.2	8.2	C	No
34 th St / 7 th and 8 th Aves (East)	South	490	23.5	10.0	3.3	7.3	C	No
34 th St / 7 th and 8 th Aves (West)	South	492	23.5	10.0	3.3	7.3	C	No
34 th St / Bway and 7 th	North	1,431	23.6	10.0	9.5	13.5	D	No
	South	2,449	23.5	10.0	16.3	20.3	E	No
35 th St / 7 th and 8 th Aves	North	788	14.4	9.0	5.8	9.8	C	No
	South	0	15.4	0.0	-	-	-	Closed
12 th Ave / 28 th and 29 th Sts	East	10	17.0	4.0	0.2	4.2	A	No
8 th Ave / 33 rd and 34 th Sts	East	669	21.3	6.0	7.4	11.4	D	No
7 th Ave / 33 rd and 34 th Sts	West	837	20.4	8.0	7.0	11.0	D	No
7 th Ave / 34 th and 35 th Sts	West	2,165	19.9	8.0	18.0	22.0	E	Impact
Bway / 34 th and 35 th Sts	West	930	19.9	8.0	7.7	11.7	D	No
PM Peak Hour								
29 th St / 11 th and 12 th Aves	North	10	12.5	7.5	0.1	4.1	A	No
	South	0	13.0	0.0	-	-	-	Closed
33 rd St / 6 th and 7 th Aves	North	0	12.3	0.0	-	-	-	Closed
	South	1,608	12.3	8.3	12.9	16.9	E	Impact
33 rd St / 7 th and 8 th Aves	North	89	18.1	5.0	1.2	5.2	B	No
33 rd St / 9 th and 10 th Aves	North	434	7.1	4.0	7.2	11.2	D	No
34 th St / 7 th and 8 th Aves	North	1,290	23.3	10.0	8.6	12.6	D	No
34 th St / 7 th and 8 th Aves (East)	South	966	23.5	10.0	6.4	10.4	D	No
34 th St / 7 th and 8 th Aves (West)	South	971	23.5	10.0	6.5	10.5	D	No
34 th St / Bway and 7 th	North	1,266	23.6	10.0	8.4	12.4	D	No
	South	2,083	23.5	10.0	13.9	17.9	E	No
35 th St / 7 th and 8 th Aves	North	935	14.4	9.0	6.9	10.9	D	No
	South	0	15.4	0.0	-	-	-	Closed
12 th Ave / 28 th and 29 th Sts	East	11	17.0	4.0	0.2	4.2	A	No
8 th Ave / 33 rd and 34 th Sts	East	830	21.3	6.0	9.2	13.2	D	No
7 th Ave / 33 rd and 34 th Sts	West	1,771	20.4	8.0	14.8	18.8	E	Impact
7 th Ave / 34 th and 35 th Sts	West	3,295	19.9	8.0	27.5	31.5	F	Impact
Bway / 34 th and 35 th Sts	West	1,526	19.9	8.0	12.7	16.7	E	Impact

Source: Transit Link Consultants, 2008.

- Mitigation for the four impacted Build Alternative sidewalk segments follow:
 - South side of West 33rd Street between Sixth and Seventh Avenues – a walkway will be maintained on the north (closed) side or the effective width of the south sidewalk will be increased from 8.3 to 10 feet by maintaining a clear width of about 12 feet
 - West side of Seventh Avenue between West 33rd and West 34th Streets – an effective width of 11 feet by will be maintained by retaining a clear width of about 13 feet
 - West side of Seventh Avenue between West 34th and West 35th Streets – an effective width of 12 feet will be maintained by retaining a clear width of about 14 feet
 - West side of Broadway between West 34th and West 35th Streets – an effective width of 10 feet will be maintained by retaining a clear width of about 12 feet

F. FREIGHT MOVEMENTS

NEW JERSEY

The existing CSAO portion of Northern Branch/River Line freight railroad tracks (CSAO track is shared by CSX and Norfolk Southern) are aligned below the proposed Build Alternative tunnels alignment in North Bergen. Two freight tracks are in an open, depressed “boat section” structure to provide clearance for double-stack rail cars under Amtrak and the NEC. Sheet piles have been constructed along both sides of the easterly tracks. A third track, owned by NYS&W Railroad, runs parallel to and west of these tracks. The Build Alternative two-track alignment would be carried on an elevated structure over the NYS&W and Conrail tracks and enter the tunnels portal on the east side of Tonnelle Avenue. Minor off-peak construction-related impacts to these freight operations could occur.

HUDSON RIVER

No impacts are anticipated in this portion of the project area.

NEW YORK

No impacts are anticipated in this portion of the project area.

MITIGATION

- NJ TRANSIT will coordinate with NYS&W and Conrail through project final design and construction to mitigate impacts to freight operations. Required outages of NYS&W and Conrail freight tracks will be limited to one track at a time. The outages will be coordinated with freight operators and will be sensitive to primary freight rail movement on the affected rail line.