6. Economic Conditions

6.1 INTRODUCTION

This chapter assesses the potential effects of implementing the CBD Tolling Alternative on economic conditions within the affected environment at both the regional and neighborhood levels.

6.2 METHODOLOGY

6.2.1 Framework for Economic Conditions Analysis

An assessment of economic conditions includes consideration of a project's effects on productivity, employment, and business activity. It also considers potential economic changes that could lead to the loss of critical goods and services and/or neighborhood investment.

Economic conditions may be affected by projects in three ways:

- Direct displacement, which occurs when residents or businesses must move from a site or sites as a direct result of a project. Examples include the redevelopment of an already occupied site for new uses or structures, or an easement or right-of-way that would take a portion of that occupied site or property, rendering it unfit for its current use.
- Indirect displacement (also known as secondary displacement), which occurs when a project alters one or more of the underlying forces that shape real estate market conditions in an area, resulting in conditions that cause the displacement of residents, businesses, or employees. Examples include lower-income residents forced out due to rising rents caused by a new concentration of higher income housing introduced by a project; a similar turnover of industrial to higher-paying commercial tenants spurred by the introduction of a successful office project in the area, or the introduction of a new use, such as residential; or increased retail vacancy resulting from business closure when a large new retailer saturates the market for particular categories of goods. Specific to the CBD Tolling Alternative, as noted in Chapter 18, "Agency Coordination and Public Outreach," during early public outreach conducted in the fall of 2021, members of the public raised concerns that the additional cost of a toll could "price out" residents, visitors, and businesses from the Manhattan CBD, forcing residents to leave and businesses to close.
- Change in the economic and operational conditions of an industry, within or outside a directly affected area, that results in a loss or substantial diminishment of a particularly important product or service. For example, changes in operational conditions of the taxi and FHV industries could create adverse socioeconomic effects if a substantial number of residents or workers who depend on taxis or FHVs would no longer be served, thereby affecting their access to transportation. As noted in Chapter 18,

"Agency Coordination and Public Outreach," during early public outreach conducted in the fall of 2021, taxi/FHV vehicle drivers raised concerns about economic hardship specific to the industry.

This Project would not result in any direct displacements, because the tolling infrastructure and tolling system equipment would not require the taking of any privately owned property. Thus, the analysis in this chapter focuses on potential indirect displacement effects and potential changes in the operations of certain industries, with analysis conducted at a regional level (**Section 6.3**) and at a localized, neighborhood level (**Section 6.4**). The assessments of potential economic benefits and adverse effects utilize guidance from the National Cooperative Highway Research Program's *Guidebook for Assessing the Social and Economic Effects of Transportation Projects*[1] and Chapter 5, "Socioeconomic Conditions," of the City of New York's 2021 *City Environmental Quality Review (CEQR) Technical Manual*.[2]

6.2.2 Study Areas

The study areas for this economic assessment are the geographic areas where the Project could alter economic conditions (either positively or negatively) to an extent that potential indirect displacement or adverse effects on specific industries could occur. The analysis assesses separate study areas for consideration of potential regional and local effects on economic conditions as set forth in **Section 6.3 and Section 6.4**, respectively.

6.2.3 Data and Information Sources

The following data sources were used in this analysis:

- Best Practice Model (BPM) results (see **Subchapter 4A, "Transportation: Regional Transportation Effects and Modeling"**)
- U.S. Census Bureau, 2015–2019 American Community Survey (ACS)[3]
- 2012–2016 ACS from the Census Transportation Planning Package (CTPP) data product[4]
- 2006–2010 and 2012–2016 ACS Journey to Work[5]
- U.S. Census Bureau Longitudinal Employer-Household Dynamics data, available through OnTheMap[6]
- U.S. Department of Labor, Bureau of Labor Statistics[7]
- Esri Business Analyst (private data provider, for retail sales estimates by geography)[8]

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1 https://www.ebp-us.com/en/projects/guidebook-assessing-social-economic-effects-transportation-projects.
2 https://www1.nyc.gov/assets/oec/technical-manual/05_Socioeconomic_Conditions_2021.pdf.
3 https://www.census.gov/programs-surveys/acs/data.html.
4 https://ctpp.transportation.org/2012-2016-5-year-ctpp/. The CTPP data product is based on the 2012–2016 ACS 5-Year Estimates and is produced by the American Association of State Highway and Transportation Officials (AASHTO). The CTPP provides custom tables describing residence, workplace, and trip from home to work. AASHTO has not updated the CTPP to reflect more recent ACS data.
5 https://www.census.gov/topics/employment/commuting.html.
6 https://onthemap.ces.census.gov/.
7 https://www.bls.gov/.
8 https://www.esri.com/en-us/arcgis/products/arcgis-business-analyst/overview.

- New York City Department of City Planning Neighborhood Tabulation Areas data, based on U.S. Census Bureau, 2013–2017 ACS[9]
- New York City Department of Consumer Affairs data related to off-street parking facilities, obtained from the New York City Department of Information Technology & Telecommunications NYCityMap program[10]
- U.S. Census Bureau, ZIP Code Business Patterns by Employment Size Class, 2018
- Various industry literature (specific sources cited by footnote throughout)

These data sources were developed prior to the onset of the COVID-19 pandemic, and therefore do not reflect workforce and employment changes resulting from the pandemic, including the substantial increase in work-from-home rates. At this time, it would be speculative to estimate long-term (post-pandemic) employment levels and work-from-home rates for the region. In addition, the use of more recent data would not be appropriate given the unusual circumstances that the pandemic created.

6.3 REGIONAL ASSESSMENT

6.3.1 Regional Study Area

Both regional and local market forces influence the potential for indirect residential or business displacement; therefore, both study areas are considered as part of the neighborhood-level assessment. At the regional level, the economic conditions assessment considers whether the Project could alter the economic and operational conditions of certain types of businesses or processes by changing the movement of workers, goods and services, and consumers into, out of, and through the Manhattan CBD. The 28-county region is the study area for this analysis. This regional study area is defined in **Chapter 3, "Environmental Analysis Framework,"** and illustrated in **Figure 3-1** of that chapter.

6.3.2 Affected Environment

This section describes current conditions with respect to the movement of workers, goods and services, and consumers in the regional study area. The region includes portions of three states—New York, New Jersey, and Connecticut—and is home to approximately 22.2 million residents. It is the largest metropolitan economy in the United States, accounting for nearly 10 percent of the U.S. economy.[11] New York City serves as the social and economic core of the region, and its 8.4 million residents represent about 37 percent of the regional study area's population.

9 https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-nynta.page.
10 http://maps.nyc.gov/doitt/nycitymap/.
11 New York City Department of City Planning. July 2018. "The Geography of Jobs NYC Metro Region Economic Snapshot." https://www1.nyc.gov/assets/planning/download/pdf/planning-level/housing-economy/nyc-geography-jobs-0718.pdf.

6.3.2.1 Employed Labor Force and Jobs

Approximately 11.0 million working labor force participants—those who identify as working members of the labor force regardless of where they work—live within the region (Table 6-1). Of that regional working labor force, approximately 4.1 million workers (about 37 percent) reside in New York City. Within New York City, the largest number of workers reside in Kings County (Brooklyn), followed closely by Queens County, and then New York County (Manhattan). The estimated 372,091 workers who live within the Manhattan CBD represent only about 3 percent of the region's employed labor force; Manhattan resident-workers living outside the Manhattan CBD account for approximately 5 percent of the region's employed labor force.

Table 6-1. Employed Labor Force and Jobs in the Regional Study Area

GEOGRAPHIC AREAS	EMPLOYED LABOR FORCE	EMPLOYED LABOR FORCE AS PERCENTAGE OF REGION	JOBS	JOBS AS PERCENTAGE OF REGION
New York City	**4,083,215**	**37.2%**	**4,579,070**	**43.1%**
Bronx County	601,341	5.5%	376,455	3.5%
Kings County (Brooklyn)	1,227,030	11.2%	855,115	8.0%
New York County (Manhattan)	905,475	8.3%	2,495,355	23.5%
Inside Manhattan CBD	372,091	3.4%	1,554,368	14.6%
Outside Manhattan CBD	533,384	4.9%	940,987	8.8%
Queens County	1,134,877	10.3%	721,775	6.8%
Richmond County (Staten Island)	214,492	2.0%	130,370	1.2%
Long Island Counties[1]	**1,439,914**	**13.1%**	**1,210,050**	**11.4%**
New York Counties North of New York City[2]	**1,003,701**	**9.1%**	**817,665**	**8.1%**
New Jersey Counties[3]	**3,539,762**	**32.3%**	**3,162,905**	**29.8%**
Connecticut Counties[4]	**907,235**	**8.3%**	**859,675**	**8.1%**
TOTAL	**10,973,827**	**100.0%**	**10,629,365**	**100.0%**

Source: ACS 2012–2016 5-Year Estimates, special tabulation—Census Transportation Planning Products.
Note: Region totals are the sums of the first five rows; percentages may not sum to 100 percent due to rounding. Numbers from different tables in the CTPP (e.g., total commuters to the Manhattan CBD) may not be identical due to rounding and different methods of estimating inherent in the CTPP.

1 Long Island counties include Nassau and Suffolk.
2 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
3 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
4 Connecticut counties include Fairfield and New Haven.

Approximately 6.9 million workers (about 63 percent of the region's employed labor force) reside outside of New York City in surrounding regional counties in Long Island, New York counties north of New York City, New Jersey, and Connecticut. Approximately 1.4 million workers (about 13 percent of the region's employed labor force) reside in Long Island counties, while just over 1.0 million workers (about 9 percent) reside in the region's New York counties north of New York City. Approximately 3.5 million workers (about 32 percent) reside in the region's New Jersey counties, while roughly 900,000 workers (about 8 percent) reside in the region's Connecticut counties. Over 90 percent of the region's workforce living outside New York City

commute to jobs located outside the Manhattan CBD, while approximately 75 percent of New York City residents commute to jobs outside the Manhattan CBD.

The region's employed labor force participants do not necessarily work near their places of residence and may not even work in the region (though most do).[12] **Table 6-1** also presents the numbers of jobs located within the various geographic areas that comprise the regional study area. In total, approximately 10.7 million jobs are within the region. Of those jobs, nearly 4.6 million (about 43 percent) are within New York City. More than half of the jobs within New York City are in Manhattan, and about one-third of all New York City jobs are within the Manhattan CBD. Not surprisingly, there is a very high concentration of total regional employment within the Manhattan CBD (nearly 15 percent of all regional jobs) relative to the percentage of the region's labor force who reside in the Manhattan CBD (approximately 3 percent). New Jersey counties and Long Island counties also have substantial concentrations of jobs, with 3.2 million (30 percent) and 1.2 million (11 percent) jobs, respectively. The New York counties north of New York City and the Connecticut counties have relatively fewer jobs, with both areas hosting fewer than 1 million (approximately 8 percent) of the region's jobs.

Figure 6-1 presents a spatial representation of the region's employment densities (jobs per square mile). As shown in the figure, the region's jobs are most heavily concentrated within the Manhattan CBD. **Figure 6-2** illustrates the distribution of the regional labor force's employment types by industry category (i.e., jobs held by the region's residents), as classified by the North American Industry Classification System (NAICS).[13] (**Appendix 6A, "Economic Conditions: Information on Industry Sectors of Regional Labor Force and Employment,"** provides detailed tabular data for this figure.) Relative to the regional study area as a whole, New York City's employed labor force holds notable proportions of the regional jobs in the following NAICS industry categories of Arts, Entertainment, and Recreation (with 45 percent of the regional employment held by New York City residents); Information (45 percent); Transportation and Warehousing, and Utilities (41 percent); and Other Services (41 percent). The two categories for which New York City residents comprise the lowest proportion of the region's employment are the Agriculture, Forestry, and Fishing industry category (approximately 18 percent) and the Manufacturing industry category (approximately 20 percent).

Long Island has a higher percentage of its working labor force employed within the Agriculture, Forestry, Fishing and Hunting, and Mining industry category (17 percent) relative to these counties' total percentage of regional labor force (13 percent).The working labor force from the New York counties north of New York City also contribute a disproportionately large percentage of employees to the Agriculture, Forestry, Fishing and Hunting, and Mining industry category (19 percent of the region's employees) relative to their overall contribution to the regional working labor force (9 percent). Otherwise, this geography's employment by industry category is generally distributed within a percentage point of its 9 percent contribution to overall employment in the region.

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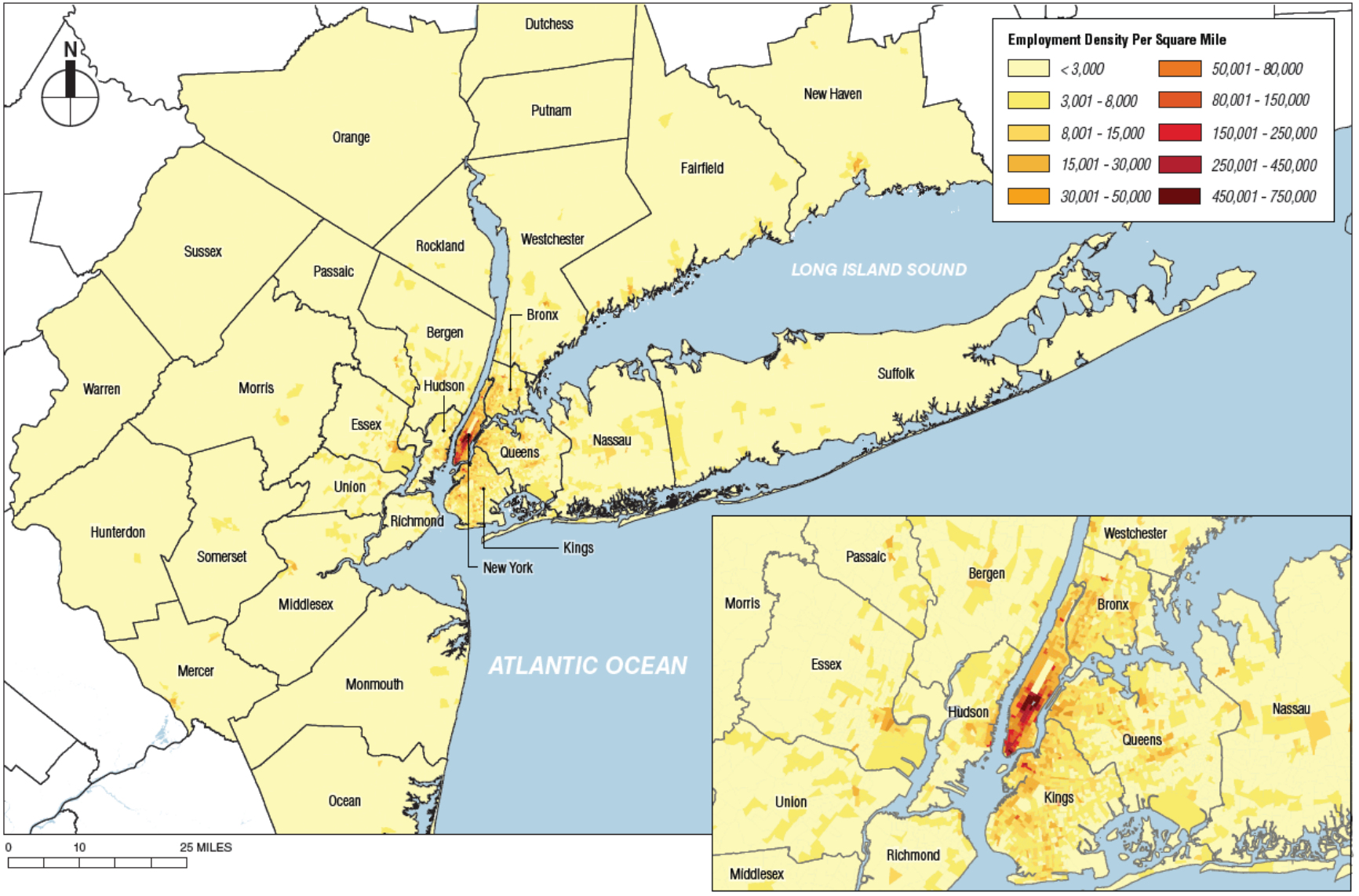
[12] Based on U.S. Census Bureau Longitudinal Employer-Household Dynamics data available through OnTheMap, approximately 93 percent of jobs in the region are held by regional labor force participants; the remaining approximately 7 percent of jobs are held by labor force members from outside the regional study area. Conversely, approximately 95 percent of the employed region's labor force work inside of the region; the remaining 5 percent work outside the region.

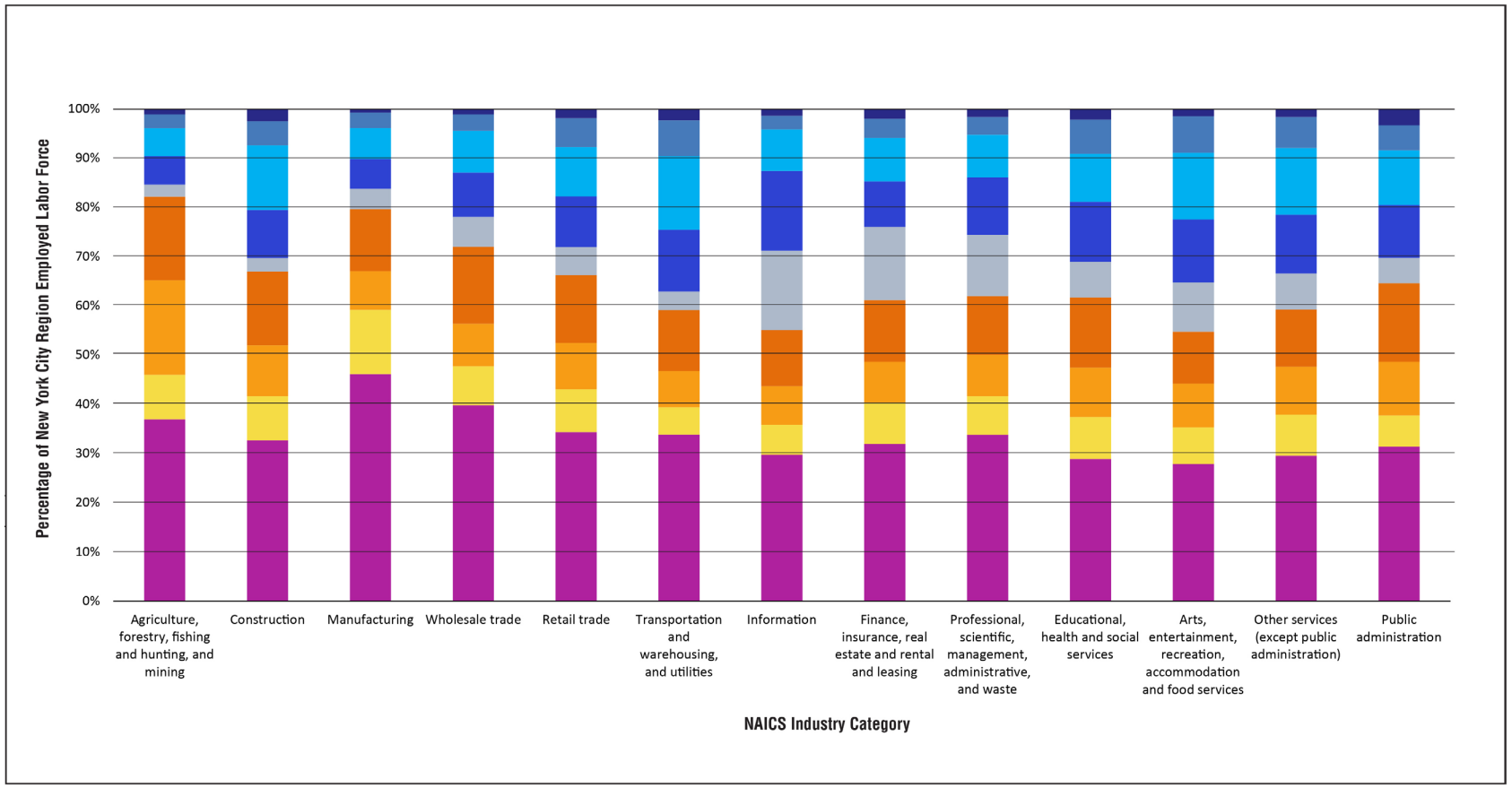
[13] The standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy; https://www.census.gov/eos/www/naics/.

Figure 6-1. Employment Density in the Regional Study Area



Source: U.S. Census Bureau, CTPP, 2012–2016.

Figure 6-2. Regional Study Area Employed Labor Force by North American Industry Classification System Industry Category



Source: U.S. Census Bureau, ACS, 2015–2019 5-Year Estimates.

The New Jersey labor force has notable concentrations of employment in the Manufacturing and Wholesale Trade industry categories, constituting approximately 46 percent and 40 percent, respectively, of the region's employed labor force for these categories.

Jobs by Industry and Occupation

Figure 6-3 shows the types of jobs located within the region by NAICS industry category; **Appendix 6A, "Economic Conditions: Information on Industry Sectors of Regional Labor Force and Employment,"** provides detailed tabular data for this figure. Manhattan has the largest share of the regional study area's jobs in the Information category (44 percent of regional jobs); Finance, Insurance, Real Estate, and Rental and Leasing (41 percent); and Professional, Scientific, Management, Administrative, and Waste Management Services industry categories (33 percent). In contrast, only approximately 13 percent to 16 percent of the Manhattan labor force is employed in each of these three industry categories, indicating that Manhattan attracts workers from throughout the region to these jobs. The largest shares of jobs in the Manufacturing and Wholesale Trade categories are in New Jersey, with 46 percent and 39 percent, respectively, of the region's jobs in those categories.

Manhattan CBD Workers

On an average weekday, over 1.5 million people work within the Manhattan CBD (referred to in this chapter as Manhattan CBD workers).[14] **Table 6-2** shows the distribution of these workers' jobs by NAICS industry category.[15] The industry category employing the largest number of workers in the Manhattan CBD is Professional, Scientific, and Management, and Administrative and Waste Management Services; this industry category employs nearly one-quarter of all workers in the Manhattan CBD. Other prominent industry categories are Finance and Insurance, and Real Estate and Rental and Leasing (about 20 percent of Manhattan CBD workers), and Educational Services, and Health Care and Social Assistance (together, 12 percent of Manhattan CBD workers).

In addition to industry type, employment in the Manhattan CBD can also be assessed by occupation, using categories developed by the Bureau of Labor Statistics in its Standard Occupational Classification (SOC) System.[16] **Table 6-3** presents the same Manhattan CBD workers as **Table 6-2**, but with their job types distributed by SOC category. Of the 24 occupational categories, four categories employ over half of all Manhattan CBD workers: Management (nearly 18 percent); Office and Administrative Support (12 percent); Business and Financial (12 percent); and Sales and Retail (11 percent).

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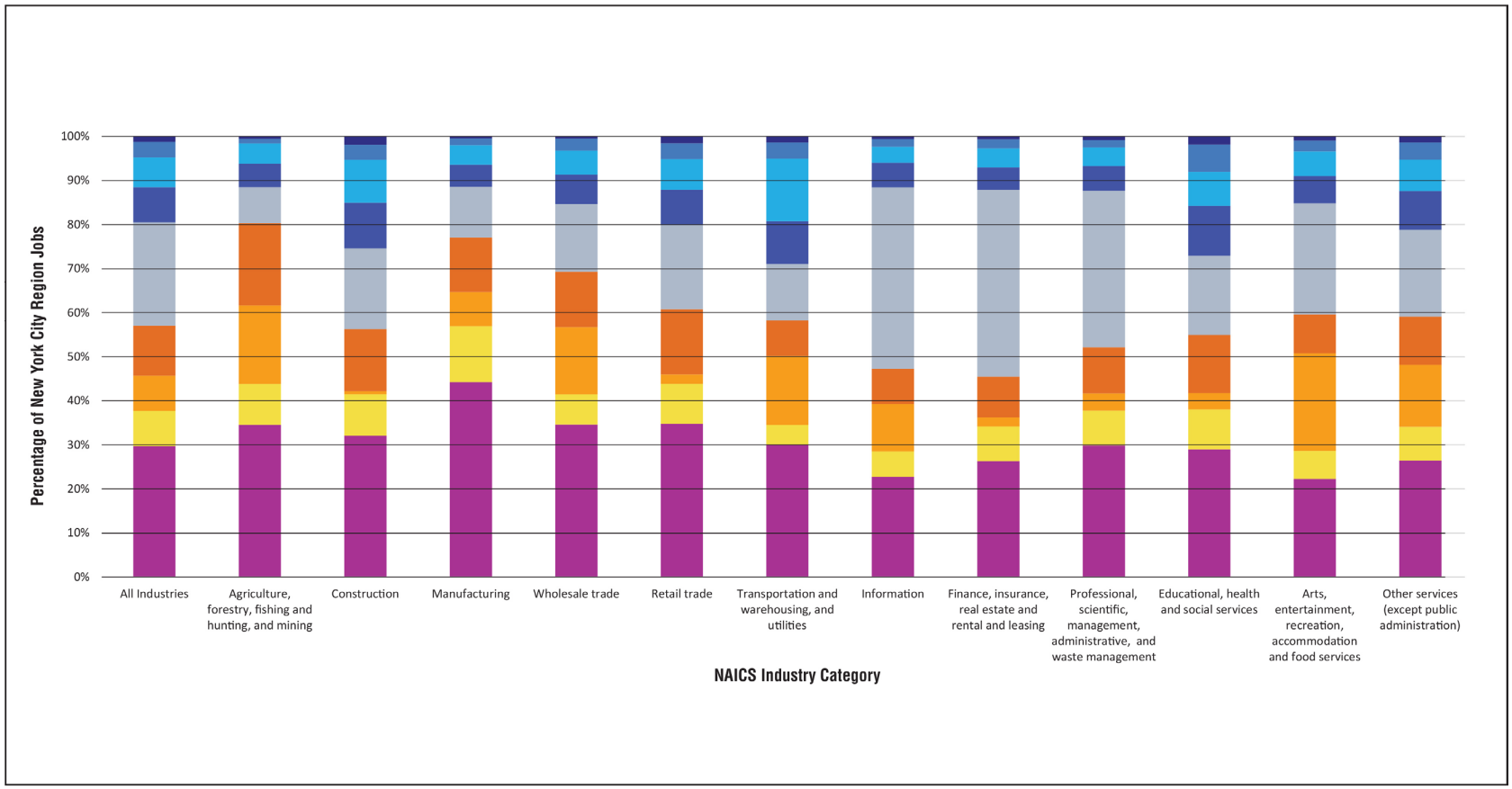
14 U.S. Census Bureau, CTPP, 2012–2016, Part 2.

15 The U.S. Census Bureau aggregates certain two-digit industry sectors into industry groupings, or categories, in order to provide statistically reliable estimates for census tract-level geographies. Specifically: Sector 11 – Agriculture, forestry, fishing and hunting is grouped with Sector 21 – Mining, Quarrying, and Oil and Gas Extraction; Sector 52 – Finance and insurance is grouped with Sector 53 – Real estate and rental and leasing; Sector 54 – Professional, scientific, and technical services is grouped with Sector 55 – Management of companies and enterprises as well as Sector 56 – Administrative support and waste management and remediation services; Sector 61 – Educational services is grouped with Sector 62 – Health care and social assistance; and Sector 71 – Arts, entertainment and recreation is grouped with Sector 72 – Accommodation and food services.

16 The SOC system is a Federal statistical standard used by Federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. https://www.bls.gov/soc/.

Figure 6-3. Regional Study Area Jobs by North American Industry Classification System Industry Category



Source: U.S. Census Bureau, ACS, 2015–2019 5-Year Estimates.

Table 6-2. North American Industry Classification System Industry Categories of Manhattan CBD Workers

NAICS CODES	INDUSTRY CATEGORIES	ALL MANHATTAN CBD WORKERS	PERCENTAGE OF ALL MANHATTAN CBD WORKERS
11, 21	Agriculture, forestry, fishing and hunting, and mining	1,087	0.1%
23	Construction	42,467	2.7%
31–33	Manufacturing	55,013	3.5%
42	Wholesale trade	39,271	2.5%
44–45	Retail trade	117,904	7.6%
48–49, 22	Transportation and warehousing, and utilities	41,420	2.7%
51	Information	120,408	7.8%
52–53	Finance and insurance, and real estate and rental and leasing	306,288	19.7%
54–56	Professional, scientific, and management, and administrative and waste management services	365,795	23.5%
61–62	Educational services, and health care and social assistance	192,030	12.4%
71–72	Arts, entertainment, and recreation, and accommodation and food services	150,708	9.7%
81	Other services (except public administration)	53,608	3.5%
92	Public administration	67,836	4.4%
928110	Armed forces	533	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Part 2.

Table 6-3. Standard Occupational Classification Categories of Manhattan CBD Workers

SOC GROUPS	OCCUPATIONAL CATEGORIES	MANHATTAN CBD WORKERS	PERCENTAGE OF ALL MANHATTAN CBD WORKERS
11-0000	Management occupations	273,591	17.6%
13-0000	Business and financial operations specialists	188,380	12.1%
15-0000	Computer and mathematical occupations	87,008	5.6%
17-0000	Architecture and engineering occupations	24,906	1.6%
19-0000	Life, physical, and social science occupations	12,939	0.8%
21-0000	Community and social service occupations	18,904	1.2%
23-0000	Legal occupations	70,961	4.6%
25-0000	Education, training, and library occupations	47,128	3.0%
27-0000	Arts, design, entertainment, sports, and media occupations	116,405	7.5%
29-0000	Healthcare practitioners and technicians occupations	39,678	2.6%
31-0000	Healthcare support occupations	21,419	1.4%
33-0000	Protective service occupations	38,222	2.5%
35-0000	Food preparation and serving related occupations	65,648	4.2%
37-0000	Building and grounds cleaning and maintenance occupations	43,580	2.8%
39-0000	Personal care and service occupations	33,540	2.2%
41-0000	Sales and related occupations	171,705	11.0%
43-0000	Office and administrative support occupations	190,963	12.3%
45-0000	Farming, fishing, and forestry occupations	494	<0.1%
47-0000	Construction and extraction occupations	32,933	2.1%
49-0000	Installation, maintenance, and repair occupations	15,390	1.0%
51-0000	Production occupations	27,508	1.8%
53-0000	Transportation and material moving occupations	32,794	2.1%
55-0000	Armed forces	244	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Part 2.

Overall, the industry and occupation data show that relative to the region, the Manhattan CBD has high concentrations of office-based jobs such as business management, finance, and real estate, as well as service-based sectors like education and health care, retail, and arts and entertainment.

Small Businesses within the Manhattan CBD

In New York State, a small business is defined as one that has fewer than 100 employees and is independently owned and operated, as defined in Section 131 of the New York State's Economic Development Law. Small businesses with fewer than 20 employees, sometimes referred to as "Micro-businesses,"[17] would likely be more sensitive to goods delivery cost increases caused by the toll increases proposed under the CBD Tolling Alternative.

As shown in Table 6-4, there are approximately 77,121 businesses in the Manhattan CBD. Most of these businesses (approximately 91.0 percent) are small businesses, and a large majority of them (78.0 percent) are also considered micro-businesses. The distribution of small businesses (and micro-businesses) among industry types within the Manhattan CBD is similar to that of businesses of all sizes. The majority of businesses in the Manhattan CBD (approximately 68.9 percent) fall within one of five industry groupings including: Professional, Scientific, and Technical Services/Management/Administrative and Waste Management Services, which is the largest category (25.0 percent); followed by Finance and Insurance, and Real Estate and Rental and Leasing (15.7 percent); Accommodation and Food Services (10.1 percent); Retail Trade (9.5 percent); and Wholesale Trade (8.5 percent).

[17] Empire State Development (ESD) Annual Report on the State of Small Businesses, 2021.

Table 6-4. Small Businesses in the Manhattan CBD by Industry Category

NAICS CODES	INDUSTRY CATEGORIES	BUSINESSES IN THE MANHATTAN CBD (ALL SIZES)	PERCENTAGE OF ALL BUSINESSES IN THE MANHATTAN CBD	SMALL BUSINESSES (<100 EMPLOYEES)		MICRO-BUSINESSES (<20 EMPLOYEES)	
				TOTAL	PERCENTAGE OF BUSINESSES IN INDUSTRY CATEGORY	TOTAL	PERCENTAGE OF BUSINESSES IN INDUSTRY CATEGORY
23	Construction	1,541	2.0%	1,427	92.6%	1,202	78.0%
31–33	Manufacturing	1,499	1.9%	1,448	96.6%	1,307	87.2%
42	Wholesale trade	6,579	8.5%	6,407	97.4%	5,832	88.6%
44–45	Retail trade	7,309	9.5%	7,104	97.2%	6,331	86.6%
48–49, 21, 22	Transportation and warehousing; Utilities; Mining, quarrying and oil and gas extraction	557	0.7%	462	82.9%	393	70.6%
51	Information	3,648	4.7%	3,304	90.6%	2,762	75.7%
52–53	Finance and insurance, and real estate and rental and leasing	12,129	15.7%	11,520	95.0%	10,283	84.8%
54–56	Professional, scientific, and management, and administrative and waste management services	19,266	25.0%	14,930	77.5%	13,242	68.7%
61–62	Educational services, and health care and social assistance	5,948	7.7%	5,616	94.4%	4,908	82.5%
71–72	Arts, entertainment, and recreation,	3,621	4.7%	3,491	96.4%	3,134	86.6%
72	Accommodation and food services	7,818	10.1%	7,452	95.3%	5,007	64.0%
81	Other services (except public administration)	7,080	9.2%	6,922	97.8%	6,302	89.0%
99	Industries not classified	126	0.2%	122	96.8%	122	96.8%
	Total[1]	**77,121***		**70,205**	**91.0%**	**60,825**	**78.9%**

Source: U.S. Census, ZIP Code Business Patterns by Employment Size Class for 5-digit ZIP Code level (2018).
Note: Data on sectors with fewer than three establishments are withheld to avoid disclosing the operations of an individual employer, but those firms are included in the total count.

6.3.2.2 Means of Transportation to Work

The regional study area is well-served by public transit, with rail, buses, subways, and ferries providing commuters with public transportation options to the region's employment centers.[18] Table 6-5 presents the means of commuting to work within the region by geographic area of origin (i.e., from where workers live). In total, approximately 29 percent of workers in the region commute by public transportation,[19] with the highest rates of public transportation utilization by workers commuting from Brooklyn (61 percent), the Bronx (60 percent), Manhattan (59 percent), and Queens (51 percent). Within Manhattan, the rate at which workforce members commute by public transit is higher for residents living outside the Manhattan CBD as compared to those living within the Manhattan CBD (65 percent and 50 percent, respectively); however, the workforce living inside the Manhattan CBD has a much higher rate of walking to work—30 percent—as compared to 13 percent for Manhattan residents living outside the Manhattan CBD.

Table 6-5. Means of Transportation to Work for Regional Study Area's Workforce

GEOGRAPHIC AREA OF ORIGIN	CAR, TRUCK, OR VAN (Drove Alone)	CAR, TRUCK, OR VAN (Carpooled)	PUBLIC TRANSPORTATION (Excluding Taxi)	WALKED	TAXICAB, MOTORCYCLE, BICYCLE, OR OTHER MEANS[1]	WORKED AT HOME
New York City	**22.3%**	**4.5%**	**56.0%**	**10.0%**	**3.0%**	**4.3%**
Bronx County	23.5%	4.4%	59.8%	7.4%	2.0%	3.0%
Kings County (Brooklyn)	18.4%	4.1%	61.2%	8.7%	3.0%	4.6%
New York County (Manhattan)	6.0%	1.9%	58.8%	20.4%	5.7%	7.2%
Inside Manhattan CBD	4.6%	1.4%	49.7%	30.2%	7.0%	7.1%
Outside Manhattan CBD	7.0%	2.2%	65.3%	13.4%	4.9%	7.3%
Queens County	32.4%	6.3%	51.2%	5.8%	1.6%	2.7%
Richmond County (Staten Island)	56.3%	7.7%	29.7%	2.6%	1.1%	2.7%
Long Island Counties[2]	**74.2%**	**7.4%**	**11.5%**	**1.8%**	**1.1%**	**4.0%**
New York Counties North of New York City[3]	**66.2%**	**8.3%**	**14.3%**	**4.1%**	**1.6%**	**5.5%**
New Jersey Counties[4]	**68.9%**	**7.9%**	**13.5%**	**3.1%**	**1.9%**	**4.7%**
Connecticut Counties[5]	**75.1%**	**8.3%**	**7.1%**	**2.9%**	**1.3%**	**5.4%**
TOTAL	**52.6%**	**6.6%**	**28.5%**	**5.5%**	**2.1%**	**4.6%**

Source: U.S. Census Bureau, ACS 2015–2019 5-Year Estimates.
Note: Percentages may not sum to 100 percent due to rounding.

1. The source ACS survey does not include an FHV category, only "car, truck, or van" and "taxicab." Those commuting by FHV may select taxi or car, truck, or van, depending on how they interpret the survey question.
2. Long Island counties include Nassau and Suffolk.
3. Counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
4. New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
5. Connecticut counties include Fairfield and New Haven.

[18] Unless otherwise noted, the terms "public transportation" and "transit" are used interchangeably throughout this chapter.
[19] In 2019 the regional study area's rate of commutation by public transportation was higher than the rate for the 10 largest metropolitan areas in the United States, with the exception of the District of Columbia, where 35.7 percent of the workforce commuted by public transportation (Source: U.S. Census Bureau, ACS, 2015–2019 5-Year Estimates).

The region's workforce living outside New York City has a lower rate of commutation by public transportation compared to New York City's resident-workers. The workforce living in Fairfield and New Haven Counties in Connecticut has the lowest rate of commutation by public transportation in the region at about 7 percent, followed by Long Island counties (12 percent) and the region's New Jersey counties and counties north of New York City (both 14 percent). The primary reasons for these lower rates are threefold:

- A higher percentage of the workforce living outside New York City does not commute to the Manhattan CBD, but rather, they commute to less transit-accessible locations outside New York City. Over 90 percent of the region's workforce living outside New York City, and 75 percent of New York City residents commute to jobs located outside of the Manhattan CBD.
- The region's public transportation system is not as readily accessible outside New York City. For example, east–west travel by transit in Westchester County often requires circuitous routes via Metro-North Railroad into Manhattan (125th Street or Grand Central Station) to switch lines or by limited east–west bus routes.
- Workforce members living outside of New York City are more likely to live in households with an available vehicle, leading to a higher propensity to drive to work irrespective of public transportation options. Outside of New York City within the region, approximately 94 percent of the workforce live in households that have access to at least one vehicle; within New York City, approximately 55 percent of the workforce live in households with access to at least one vehicle.[20]

Given the breadth of public transportation options to, from, and within the Manhattan CBD, workers commuting to the Manhattan CBD have a much lower rate of auto commuting relative to the broader regional and New York City workforce. As shown in **Table 6-6**, approximately 53 percent of all regional workforce members drive to work alone. For New York City residents in the workforce, approximately 22 percent drive to work alone, while only 9 percent of Manhattan CBD jobs are held by workers who drive to work alone.

Table 6-6. Means of Transportation to Work for the Regional Study Area and New York City Workforce vs. Commuters to the Manhattan CBD

WORKER TYPE	CAR, TRUCK, OR VAN (Drove Alone)	CAR, TRUCK, OR VAN (Carpooled)	PUBLIC TRANSPORTATION (Excluding Taxi)	WALKED	TAXICAB, MOTORCYCLE, BICYCLE, OR OTHER MEANS[1]	WORKED AT HOME
Regional Workforce	52.6%	6.6%	28.5%	5.5%	2.1%	4.6%
New York City Workforce	22.3%	4.5%	56.0%	10.0%	3.0%	4.3%
Commuters to the Manhattan CBD	9.0%	2.3%	85.7%	1.2%	1.8%	N/A

Sources: Regional and New York City workforce data from U.S. Census Bureau, ACS 2015–2019 5-Year Estimates; Manhattan CBD data from U.S. Census Bureau, CTPP, 2012–2016.

Note: Percentages may not sum to 100 percent due to rounding.

[1] The source ACS survey does not include a FHV category, only "car, truck, or van" and "taxicab." Those commuting by FHV may select taxicab or car, truck, or van, depending on how they interpret the survey question.

[20] U.S. Census Bureau, ACS, 2015–2019 5-Year Estimates, Table B08014. **Subchapter 5A, "Social Conditions: Population Characteristics and Community Cohesion,"** provides additional information on vehicle ownership within the region.

6.3.2.3 Means of Transportation to Work for Different Industry Categories

Table 6-7 presents how the region's workforce commutes to work based on the type of industry in which they are employed. Those NAICS industry categories with the lowest rates of commutation by public transportation—Armed Forces (12 percent) and Agriculture, Forestry, Fishing and Hunting, and Mining (13 percent)—have notably higher rates of working from home (both about 11 percent, compared to under 5 percent for the region).[21] Armed forces workers also have the highest rate of walking to work, likely because many workers live at a military base. Other NAICS industry categories with relatively low rates of commutation by public transit include Manufacturing (17 percent); Wholesale Trade (20 percent); Transportation and Warehousing, and Utilities (21 percent); and Construction (24 percent). These industries are not concentrated in the Manhattan CBD, which is highly accessible via public transportation. Many industries within these categories require facilities with large footprints, which are less likely to be within dense urban areas that are highly transit-accessible. Conversely, those industry categories with the highest rates of commutation by public transportation—including Information (42 percent); Finance and Insurance, and Real Estate and Rental and Leasing (39 percent); and Arts, Entertainment, and Recreation, and Accommodation and Food Services (36 percent)—are all industries with a high concentration of jobs in Manhattan, which is highly accessible via public transportation.

[21] U.S. Census Bureau, ACS 5-Year Estimates 2015–2019, Means of Transportation to Work, Workers 16 years and over. The 2019 ACS estimates are from prior to the onset of the COVID-19 pandemic, and therefore do not reflect the substantial increase in work-from-home rates since the onset of the pandemic. Now that residents may again travel freely and many businesses have resumed operations, activity levels have been increasing. At this time, it would be speculative to estimate long-term (post-pandemic) work-from-home rates for the region.

Table 6-7. Means of Transportation to Work for Regional Study Area Employed Workforce by NAICS Industry Category

NAICS CODES	INDUSTRY CATEGORIES	CAR, TRUCK, OR VAN (Drove Alone)	CAR, TRUCK, OR VAN (Carpooled)	PUBLIC TRANSPORTATION (Excluding Taxi)	WALKED	TAXICAB, MOTORCYCLE, BICYCLE, OR OTHER MEANS[1]	WORKED AT HOME
11, 21	Agriculture, forestry, fishing and hunting, and mining	59.2%	8.4%	12.5%	6.3%	2.2%	11.3%
23	Construction	56.4%	11.7%	23.8%	2.6%	2.0%	3.5%
31–33	Manufacturing	64.7%	9.2%	16.9%	3.4%	1.9%	4.0%
42	Wholesale trade	61.3%	7.5%	20.2%	3.3%	1.7%	6.1%
44–45	Retail trade	54.5%	7.2%	26.2%	7.1%	2.1%	2.9%
48–49, 22	Transportation and warehousing, and utilities	64.3%	6.4%	21.3%	2.9%	2.8%	2.4%
51	Information	38.7%	3.8%	42.3%	5.1%	2.5%	7.6%
52–53	Finance and insurance, and real estate and rental and leasing	42.3%	4.0%	39.4%	5.7%	2.2%	6.4%
54–56	Professional, scientific, and management, and administrative and waste management services	42.5%	5.5%	35.0%	4.9%	2.3%	9.8%
61–62	Educational services, and health care and social assistance	57.7%	6.3%	25.1%	6.3%	1.7%	2.9%
71–72	Arts, entertainment, and recreation, and accommodation and food services	41.6%	7.3%	35.8%	8.3%	3.4%	3.6%
81	Other services (except public administration)	48.9%	7.8%	28.4%	7.7%	2.2%	5.0%
92	Public administration	64.7%	5.5%	24.5%	2.8%	1.0%	1.5%
928110	Armed forces	56.7%	4.5%	11.8%	13.4%	2.9%	10.7%
	TOTAL	**52.6%**	**6.6%**	**28.5%**	**5.5%**	**2.1%**	**4.6%**

Source: U.S. Census Bureau, ACS, 2015–2019 5-Year Estimates.
Notes: Industry category percentages may not sum to 100 percent due to rounding.
[1] The source ACS does not include a FHV category, only "car, truck, or van" and "taxicab." Those commuting by FHV may select taxicab or car, truck, or van, depending on how they interpret the survey question.

6.3.2.4 Commuting Into, Out of, and Within the Manhattan CBD

Given that the Project would directly affect workers who drive into, out of, and within the Manhattan CBD, this section evaluates auto commuters who are concentrated in any specific regional industries, with particular focus on jobs within the Manhattan CBD. The most recent ACS provides limited data describing the workplace industry and occupational categories of workers commuting via automobile (not including taxis); estimates for the Manhattan CBD alone are not available. The most detailed estimates describe only those working in Manhattan as a whole, but these data reveal a correlation between commute mode and employment categories. As shown in Table 6-8, the rate of workers driving to Manhattan jobs is highest in industry categories representing small fractions of all Manhattan jobs (see Figure 6-3). This is especially true for Manhattan workers holding jobs in the Transportation, Warehousing, and Utilities category. Fewer than 4 percent of Manhattan workers hold jobs within these industries, but nearly 35 percent of those workers drive to work.

Table 6-8. Manhattan Workers Who Commute by Auto by NAICS Industry Category

NAICS CODES	INDUSTRY CATEGORIES	MANHATTAN WORKERS	PERCENTAGE OF ALL MANHATTAN WORKERS	PERCENTAGE OF WORKERS IN INDUSTRY COMMUTING BY AUTO
11, 21	Agriculture, forestry, fishing and hunting, and mining	1,914	0.1%	22.2%
23	Construction	101,647	4.1%	25.5%
31–33	Manufacturing	77,446	3.1%	11.8%
42	Wholesale trade	51,839	2.1%	14.0%
44–45	Retail trade	197,906	7.9%	8.3%
48–49, 22	Transportation and warehousing, and utilities	85,112	3.4%	33.7%
51	Information	153,225	6.1%	9.0%
52–53	Finance and insurance, and real estate and rental and leasing	400,242	16.0%	9.6%
54–56	Professional, scientific, and management, and administrative and waste management services	486,114	19.5%	8.0%
61–62	Educational services, and health care and social assistance	458,573	18.4%	13.7%
71–72	Arts, entertainment, and recreation, and accommodation and food services	279,446	11.2%	8.1%
81	Other services (except public administration)	108,712	4.4%	11.8%
92	Public administration	93,187	3.7%	28.4%
928110	Armed forces	806	<0.1%	21.0%
	TOTAL	**2,496,169**	**100.0%**	**12.2%**

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.
Note: Percentage of all Manhattan workers may not sum to 100 percent due to rounding.

Within SOC grouped occupational categories, approximately 12 percent of all Manhattan workers drive to their jobs, but within certain occupational groupings, nearly 30 percent drive (Table 6-9). These SOC occupational groups (Military Specific occupations; Natural Resources, Construction, and Maintenance occupations; and Production, Transportation, and Material Moving occupations) include many different job classifications but together account for fewer than 10 percent of the jobs held by Manhattan workers.

Table 6-9. Standard Occupational Classification Categories for Manhattan Workers Who Commute by Auto

SOC GROUPS	OCCUPATIONAL CATEGORIES	MANHATTAN WORKERS	PERCENTAGE OF ALL MANHATTAN WORKERS	PERCENTAGE OF MANHATTAN WORKERS IN OCCUPATION COMMUTING BY AUTO
11–29	Management, business, science, and arts	1,274,070	51.0%	10.4%
31–39	Service occupations	433,439	17.4%	12.2%
41–43	Sales and office occupations	546,553	21.9%	9.6%
45–49	Natural resources, construction, and maintenance occupations	116,716	4.7%	27.0%
51–53	Production, transportation, and material moving occupations	124,986	5.0%	27.5%
55	Military specific occupations	405	<0.1%	29.1%
	TOTAL	**2,496,169**	**100.0%**	**12.2%**

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.
Note: SOC data is not available at the level of detail provided in **Table 6-3** due to cross-tabulation by mode of transportation to work. The percentage of all Manhattan workers may not sum to 100 percent due to rounding.

Commuters to the Manhattan CBD

The following analysis provides insight on modal trends and identifies whether specific industries and occupations could be adversely affected by the CBD Tolling Alternative.[22] The data presented in **Table 6-2 and Table 6-3** describe jobs held by all Manhattan CBD workers. Commuters to the Manhattan CBD can be divided in two categories:

- Those commuting from residences outside the Manhattan CBD (Manhattan CBD commuters)
- Those commuting from residences within the Manhattan CBD (Manhattan CBD resident-workers)

Nearly 1.3 million workers (approximately 83 percent) are Manhattan CBD commuters, traveling to jobs within the Manhattan CBD from residences across the 28-county region.[23] The remaining, approximately

[22] For estimates specific to those workers commuting from outside the Manhattan CBD (and within the 28-county region) to jobs within the Manhattan CBD, the CTPP provides data products describing the employed labor force's commuting patterns, mode of travel to work, and industry/occupation sector distribution. Data tables are published at various geographic levels down to the census tract. The most recent estimates are based on the ACS 2012–2016 5-Year Estimates and reported in three parts: Part 1, by worker residence of origin; Part 2, by worker job location destination; and Part 3, paired by worker origin and destination. The availability and provided detail of the estimates are dependent on the CTPP part, geographic-level of detail, and number of variables cross-tabulated. The most detailed estimates of industry, occupation, and commuting mode of New York City workers are available only for Part 1 and Part 2 at the county level. The Part 1 and Part 2 estimates also provide detailed industry and occupation information for all workers residing in the 28-county region or those working within the Manhattan CBD. However, only CTPP Part 3 provides estimates specifically describing workers who commute to inside the Manhattan CBD from residences within the 28-county region. Isolated estimates of detailed industry/occupation by mode for Manhattan CBD workers commuting from outside the Manhattan CBD are not provided by the CTPP. However, the CTPP does provide detailed estimates of these variables without cross-tabulation.

[23] U.S. Census Bureau, CTPP, 2012–2016, Part 3.

one-fifth, of Manhattan CBD workers live within the Manhattan CBD and therefore are Manhattan CBD resident-workers.

Within the NAICS industry category groupings, all Manhattan CBD workers and Manhattan CBD commuters are distributed among industries at nearly the same rates (Table 6-10).

Table 6-10. Industry Categories for Manhattan CBD Workers and Manhattan CBD Commuters

NAICS CODES	INDUSTRY CATEGORIES	MANHATTAN CBD WORKERS	PERCENTAGE OF MANHATTAN CBD WORKERS BY INDUSTRY	COMMUTERS TO THE MANHATTAN CBD FROM ELSEHWERE	PERCENTAGE OF COMMUTERS TO MANHATTAN CBD BY INDUSTRY
11, 21, 23, 928110	Agriculture, forestry, fishing and hunting, and mining; + construction; + armed forces	44,087	2.8%	39,830	3.1%
31–33	Manufacturing	55,013	3.5%	45,848	3.6%
42, 44–45, 48–49, 22	Wholesale trade; + retail trade; + transportation and warehousing, and utilities	198,595	12.8%	168,195	13.3%
51, 52–53, 54–56	Information; + finance, insurance, real estate and rental and leasing; + professional, scientific, management, administrative, and waste management services	792,491	51.0%	619,984	48.9%
61–62	Educational, health and social services	192,030	12.4%	162,356	12.8%
71–72	Arts, entertainment, recreation, accommodation and food services	150,708	9.7%	127,069	10.0%
81, 92	Other services (except public administration); + public administration	121,444	7.8%	105,212	8.3%

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.
Notes: Percentages may not sum to 100 percent due to rounding.

Approximately 99 percent of Manhattan CBD workers—and approximately 99 percent of the subset who commute from outside the Manhattan CBD—have jobs that are within one-half mile or about a 15-minute walk of a subway station or Select Bus Service (SBS) stop within the Manhattan CBD.[24] All of these jobs are within one-half mile of local bus service and/or ferry service. Based on FHWA Pedestrian Safety Guide for Transit Agencies, most people are willing to walk for 5 to 10 minutes, or approximately one-quarter to one-half mile to a transit stop, and people may be willing to walk considerably longer distances when accessing heavy rail services.[25] A 15-minute walk is considered reasonable for most trip purposes.[26] Subchapter 4C, "Transportation: Transit," describes the regional transit network. The estimated 8,470 Manhattan CBD

[24] Express bus service from specific destinations outside the Manhattan CBD, such as bus routes from Staten Island and Queens, also serves the Manhattan CBD. Since these routes are from specific destinations and not available for other commuters within the Manhattan CBD, express bus stops within the Manhattan CBD are not included in this discussion.

[25] https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/ch4.cfm#a.

[26] Yong Yang, PhD and Ana V. Diez-Roux, PhD, MD. "Walking Distance by Trip Purpose and Population Subgroups." *American Journal of Preventative Medicine*. March 2012. https://www.ajpmonline.org/article/S0749-3797(12)00240-1/fulltext.

employees who work greater distances from a subway station or SBS stop have a relatively high rate of auto commuting (1,770, or almost 15 percent, drive to work) but represent small fractions of all Manhattan CBD workers within any specific industry and occupational category (Table 6-11). When compared to the Manhattan CBD as a whole, workers traveling to Manhattan CBD locations farther from public transportation disproportionately hold jobs in the Information industry. An estimated 2,595 workers employed in Census Tract 135 in West Midtown (bounded by West 58th Street to the north, Tenth Avenue to the east, West 50th Street to the south, and the Hudson River to the west; Figure 6-4) are employed in the Information industry and represent 2.2 percent of all workers in the Manhattan CBD in the same industry. Census Tract 135 is home to several broadcasting studios.[27] Collectively the 8,470 workers account for less than 1 percent of Manhattan CBD employment across all industry and occupational categories.

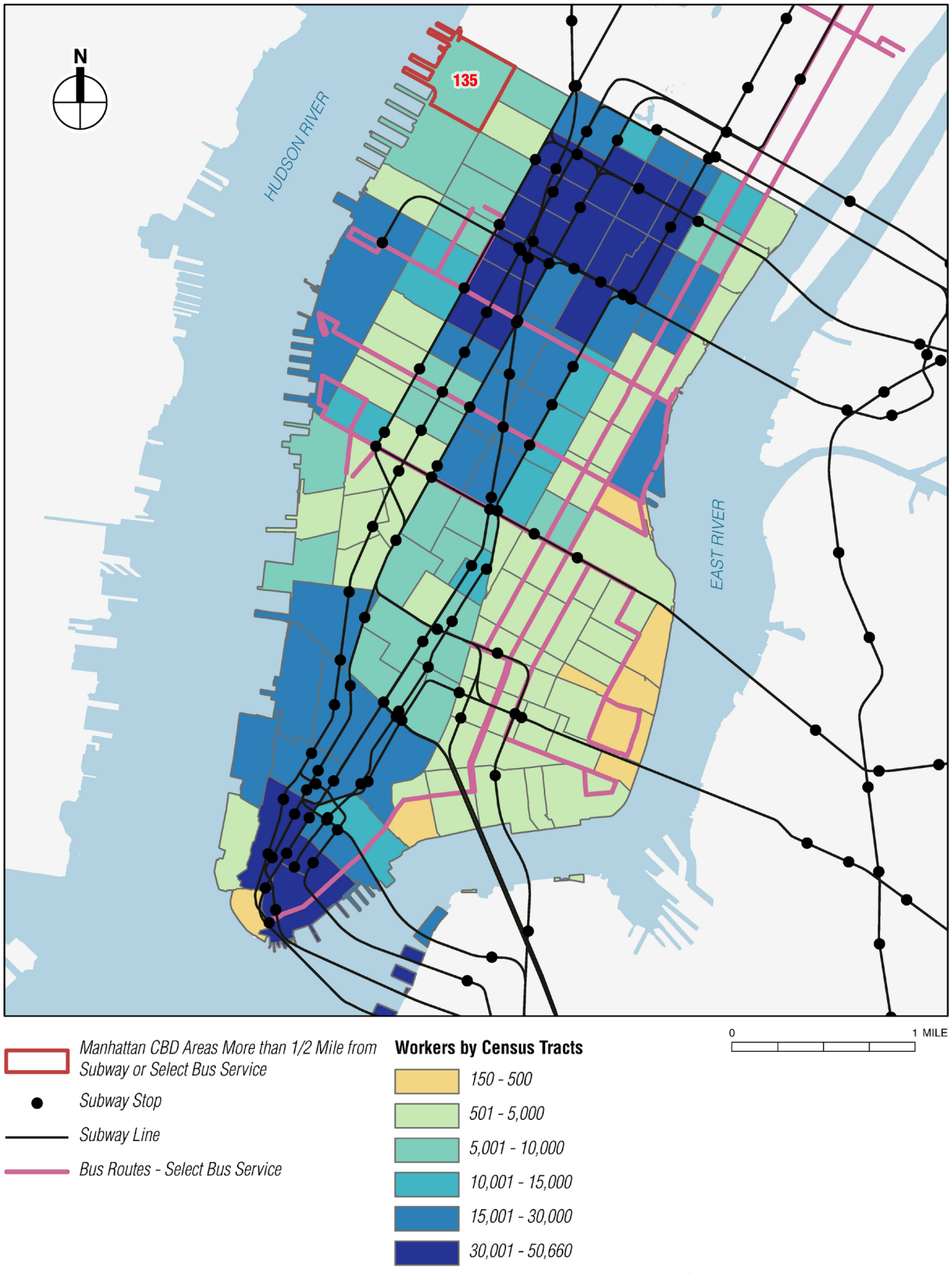
Table 6-11. Industry Categories for Manhattan CBD Jobs in Census Tracts More than One-Half Mile from a Subway or Select Bus Service Bus Stop

NAICS CODES	INDUSTRY CATEGORIES	JOBS WITHIN MANHATTAN CBD MORE THAN ONE-HALF MILE FROM SUBWAY STATION OR SBS BUS STOP	JOBS AS A PERCENTAGE OF ALL MANHATTAN CBD JOBS WITHIN INDUSTRY CATEGORY
11, 21	Agriculture, forestry, fishing and hunting, and mining	10	0.9%
23	Construction	310	0.8%
31–33	Manufacturing	365	0.7%
42	Wholesale trade	140	0.4%
44–45	Retail trade	1,080	1.0%
48–49, 22	Transportation and warehousing, and utilities	220	0.6%
51	Information	2,595	2.2%
52–53	Finance, insurance, real estate and rental and leasing	410	0.1%
54–56	Professional, scientific, management, administrative, and waste management services	1,065	0.3%
61–62	Educational, health and social services	1,415	0.7%
71–72	Arts, entertainment, recreation, accommodation and food services	565	0.3%
81	Other services (except public administration)	230	0.5%
92	Public administration	65	0.1%
928110	Armed forces	0	0.0%
	AREA ESTIMATE*	**8,470**	**0.5%**

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.
Note: CTPP estimates for industry and occupational categories are derived separately from CTPP estimates of all workers within the same geographic area; therefore, the sum total of industry-level estimates may not equal the estimate for all workers.

[27] Broadcasting and telecommunications industries are subsets of the Information NAICS industry category.

Figure 6-4. Number of Manhattan Workers in Manhattan CBD Areas and Proximity to Subway Stops and Select Bus Service Routes



Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.

Car Commuters to the Manhattan CBD

As established in **Chapter 1, "Introduction,"** approximately 142,500 workers commute to the Manhattan CBD from around the region by car. Of these, more than one-third (approximately 57,000) drive from residences in New York City that are within one-half mile of a rail (commuter rail, subway, or Staten Island Railway) station, express bus stop, or SBS bus stop. Most of these workers have a relatively close option of using public transportation to reach the Manhattan CBD. The remaining car commuters to the Manhattan CBD originate from areas of New York City that are farther from public transportation, and from all other municipalities within the 28-county region (irrespective of proximity to public transportation).

Manhattan CBD Locations with the Largest Numbers of Car Commuters

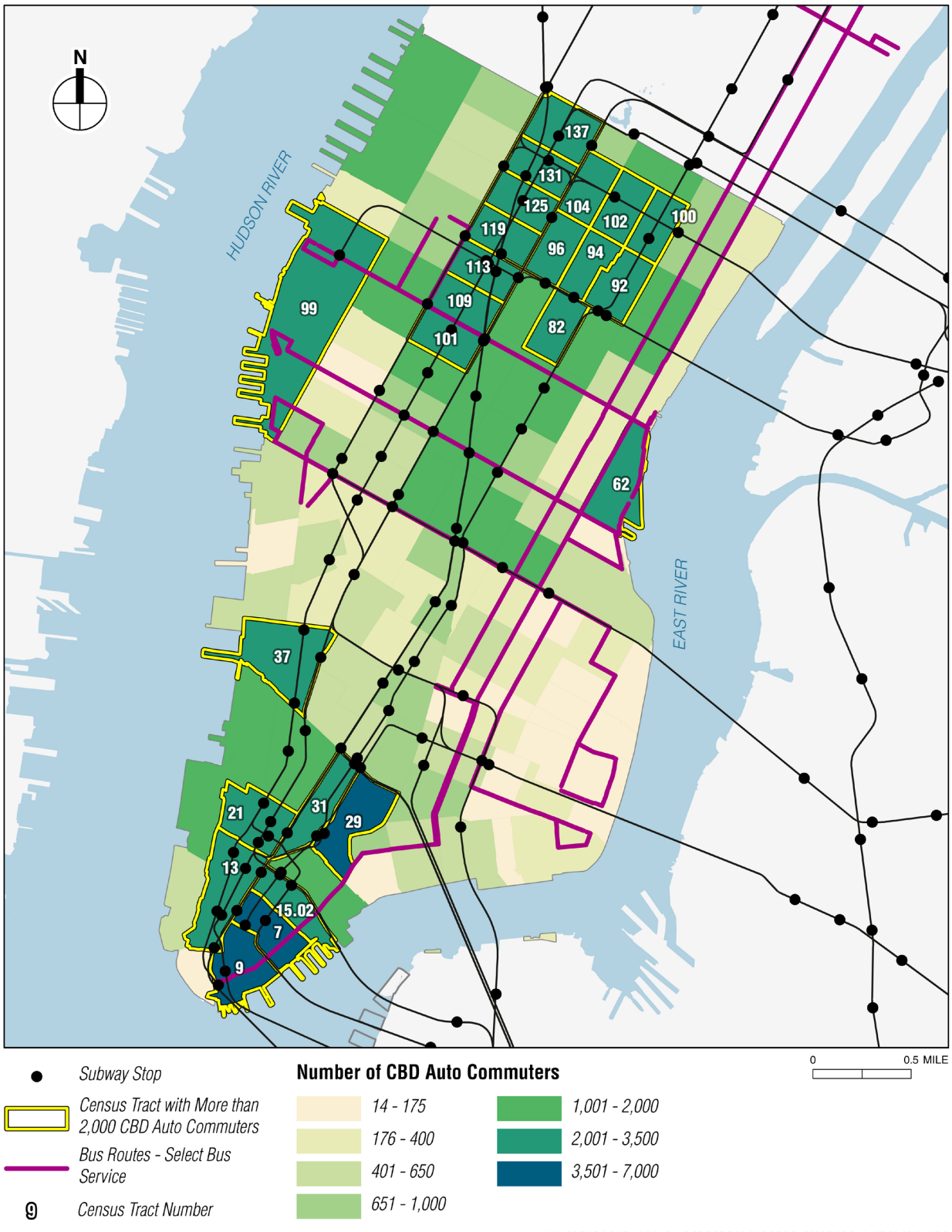
In terms of absolute numbers, car commuters to the Manhattan CBD generally drive to jobs in neighborhoods with high employment density, including central Midtown and Lower Manhattan (**Figure 6-5**). While the Manhattan CBD has 125 census tracts and covers approximately 9 square miles, approximately one-half (50.7 percent) of car commuters to the Manhattan CBD drive to jobs inside one of just 23 census tracts in the Manhattan CBD that occupy an area one-quarter the size of the entire Manhattan CBD. These census tracts are also the destination for over half (52.7 percent) of all Manhattan CBD workers, not including those working from home. Within the 23 census tracts with the largest numbers of car commuters, jobs are distributed among industries and occupations at rates similar to industry and occupational distribution across the entire Manhattan CBD (**Table 6-12**), suggesting that no industry or occupational categories are within this area for which commuters have a greater propensity or need to commute by auto.[28] It also suggests that the disproportionately high rate of Information industry workers in Census Tract 135 (on the far West Side and more distant from faster modes of public transportation) are not dependent upon the ability to commute by auto for industry-specific needs.

One notable exception (see **Table 6-12**) is the NAICS Finance, Insurance, Real Estate and Rental and Leasing industry category, which employs one-quarter of the workers in those 23 census tracts while this industry category accounts for one-fifth of the employment within the Manhattan CBD as a whole. Given the large number of employees within the census tracts, it is difficult to draw conclusions as to whether workers within this industry category have a higher rate of auto commuting.

As shown in **Table 6-13**, within the same 23 census tracts that have the highest number of car commuters, jobs are divided among occupations at percentages similar to the Manhattan CBD as a whole. However, the SOC Business and Financial Operations Specialists occupational category and the Legal occupational category have a slightly higher percentage of the jobs in the 23 census tracts than in the Manhattan CBD overall.

[28] Origin-destination estimates by industry are not available by mode for this unique geography, limiting the ability to draw more definitive conclusions from this data with respect to a correlation between industry types and auto commuting within the Manhattan CBD.

Figure 6-5. Number of Commuters Who Drive to Locations in the Manhattan CBD



Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.

Table 6-12. Industry Categories for Jobs in 23 Manhattan CBD Census Tracts with the Largest Numbers of Car Commuters

NAICS CODES	INDUSTRY CATEGORIES	WORKERS IN 23 CENSUS TRACTS[1]	PERCENTAGE OF WORKERS IN 23 CENSUS TRACTS	COMPARISON: PERCENTAGE OF WORKERS IN INDUSTRY CATEGORY, ALL MANHATTAN CBD WORKERS
11, 21	Agriculture, forestry, fishing and hunting, and mining	535	<0.1%	0.1%
23	Construction	20,450	2.6%	2.7%
31-33	Manufacturing	23,760	3.0%	3.5%
42	Wholesale trade	16,375	2.1%	2.5%
44-45	Retail trade	46,195	5.8%	7.6%
48-49, 22	Transportation and warehousing, and utilities	18,860	2.4%	2.7%
51	Information	63,925	8.0%	7.8%
52-53	Finance, insurance, real estate and rental and leasing	201,760	25.3%	19.7%
54-56	Professional, scientific, management, administrative, and waste management services	202,405	25.4%	23.5%
61-62	Educational, health and social services	71,485	9.0%	12.4%
71-72	Arts, entertainment, recreation, accommodation and food services	64,765	8.1%	9.7%
81	Other services (except public administration)	21,400	2.7%	3.5%
92	Public administration	45,150	5.7%	4.4%
928110	Armed forces	142	<0.1%	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.

[1] **Figure 6-5** identifies the 23 census tracts for which data is presented.

Table 6-13. Standard Occupational Classification Categories of Jobs in the 23 Manhattan CBD Census Tracts with the Largest Numbers of Car Commuters

SOC GROUPS	OCCUPATIONAL CATEGORIES	WORKERS IN 23 CENSUS TRACTS[1]	PERCENTAGE OF ALL WORKERS IN 23 CENSUS TRACTS	PERCENTAGE OF ALL MANHATTAN CBD WORKERS
11-0000	Management occupations	146,770	18.4%	17.6%
13-0000	Farmers and farm managers	55	<0.1%	<0.1%
15-0000	Business and financial operations specialists	116,260	14.6%	12.1%
17-0000	Computer and mathematical occupations	48,225	6.0%	5.6%
19-0000	Architecture and engineering occupations	12,590	1.6%	1.6%
21-0000	Life, physical, and social science occupations	5,735	0.7%	0.8%
23-0000	Community and social service occupations	7,840	1.0%	1.2%
25-0000	Legal occupations	48,845	6.1%	4.6%
27-0000	Education, training, and library occupations	14,845	1.9%	3.0%
29-0000	Arts, design, entertainment, sports, and media occupations	50,320	6.3%	7.5%
31-0000	Healthcare practitioners and technicians occupations	18,415	2.3%	2.6%
33-0000	Healthcare support occupations	8,795	1.1%	1.4%
35-0000	Protective service occupations	23,100	2.9%	2.5%
37-0000	Food preparation and serving related occupations	25,765	3.2%	4.2%
39-0000	Building and grounds cleaning and maintenance occupations	21,060	2.6%	2.8%
41-0000	Personal care and service occupations	12,340	1.5%	2.2%
43-0000	Sales and related occupations	84,920	10.7%	11.0%
45-0000	Office and administrative support occupations	100,205	12.6%	12.3%
47-0000	Farming, fishing, and forestry occupations	184	<0.1%	<0.1%
49-0000	Construction and extraction occupations	15,815	2.0%	2.1%
51-0000	Installation, maintenance, and repair occupations	7,660	1.0%	1.0%
53-0000	Production occupations	12,820	1.6%	1.8%
55-0000	Transportation and material moving occupations	14,605	1.8%	2.1%
	Armed forces	77	<0.1%	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Part 2.

[1] **Figure 6-5** identifies the 23 census tracts for which data is presented.

By far, the greatest number of car commuters to the Manhattan CBD drive to jobs in Census Tract 29 in Lower Manhattan (see **Figure 6-5**). Census Tract 29 is north of the Brooklyn Bridge approach ramps and extends north to Canal Street. The tract includes parts of Chinatown and several large municipal buildings including 1 Centre Street, the Jacob Javits Federal Building, and the New York City Police Department (NYPD) headquarters. Of the estimated 16,453 workers commuting to jobs in Census Tract 29 from outside the Manhattan CBD, an estimated 6,832 workers (over 40 percent) drive to work. Approximately 50 percent more car commuters to the Manhattan CBD work in Census Tract 29 than in either Census Tracts 7 or 9, which have the second- and third-highest number of car commuters to the Manhattan CBD (4,561 and 4,345, respectively). Roughly 40 percent of those working in Census Tract 29 are employed in protective service occupations, a category including NYPD officers. Over the entire Manhattan CBD, only 2.5 percent of jobs are in this occupational category.

Manhattan CBD Locations with the Highest Percentages of Car Commuters

The previous section considered total volumes of car commuters; this section considers areas with the highest proportions of car commuters, irrespective of volume. Across different neighborhoods of the Manhattan CBD, the percentage of commuters originating from outside the Manhattan CBD who drive to work varies. Considering the locations where higher percentages of commuters drive to work could reveal whether specific industry types are correlated with the larger driving share for commuters.

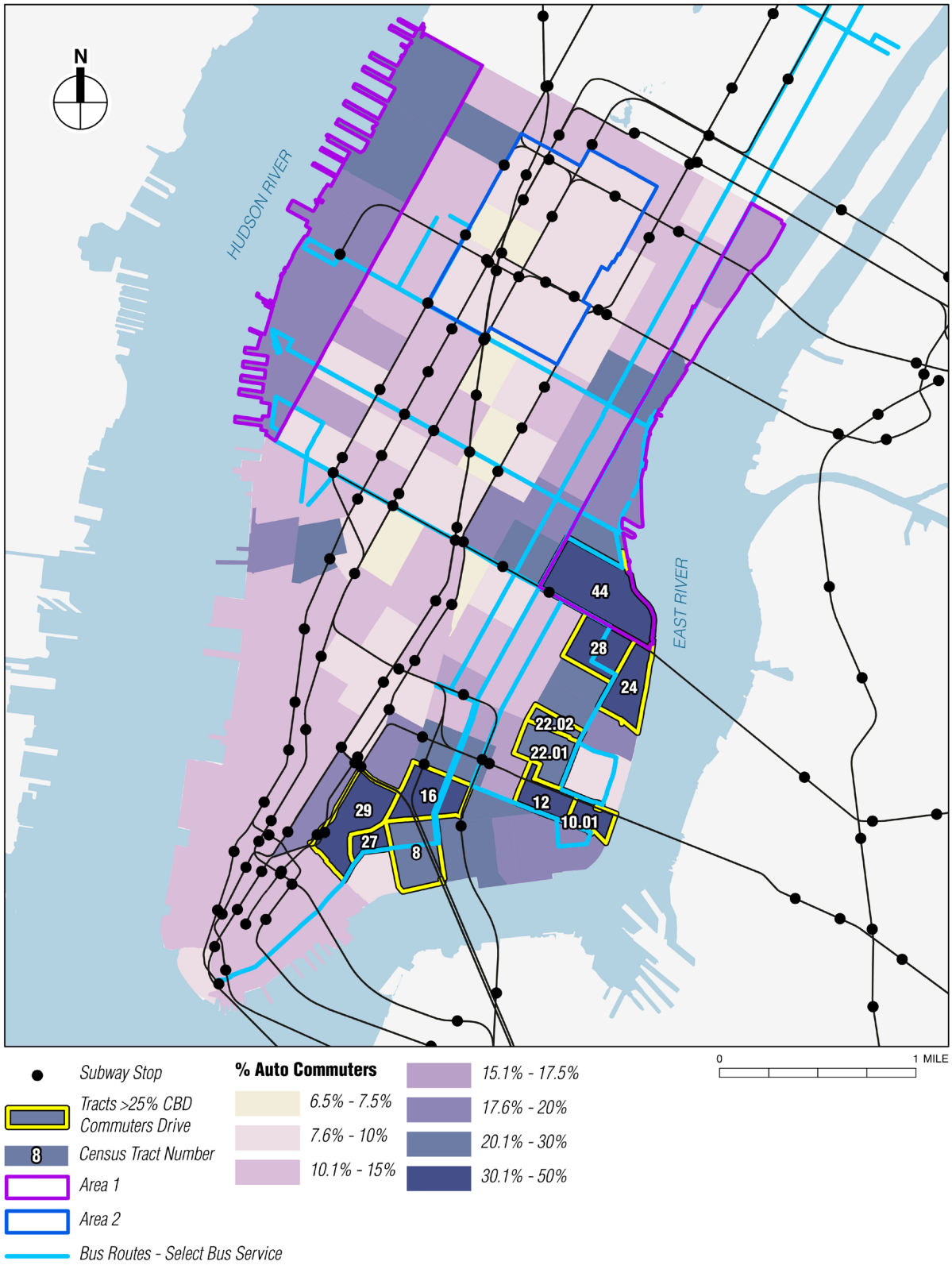
As shown in Figure 6-6, CTPP data indicate that in general, the percentage of Manhattan CBD commuters driving to work correlates roughly with the distance of their job location from major transit hubs. This trend is particularly apparent in the areas of Midtown Manhattan north of 14th Street that are near the East River and the Hudson River, where more commuters drive to work than in the Midtown core. In the areas of the Manhattan CBD farther from major transit hubs and closer to the East River and the Hudson River (Figure 6-6, Area 1), 63,036 workers commute from outside the Manhattan CBD and approximately 19 percent of them drive to work. In the area between Third Avenue and Eighth Avenue (Figure 6-6, Area 2), approximately 8 percent of commuters coming from outside the Manhattan CBD drive to work.

The area of the Manhattan CBD with the highest rate of commuters by auto from locations outside the Manhattan CBD is an area of 11 census tracts in Manhattan's East Village and Lower East Side neighborhoods, including a portion of Chinatown (Figure 6-6). In each of these 11 census tracts, at least one-quarter of workers commuting from outside the Manhattan CBD drive to their jobs. Approximately 26,000 total workers commute to jobs in these 11 census tracts from outside the Manhattan CBD, which is just over 2 percent of all workers commuting into the Manhattan CBD from outside the Manhattan CBD. Of those, an estimated 10,416 workers (about 40 percent) drive to work from outside the Manhattan CBD.

Within the 11 census tracts with the highest rates of drivers, nearly half of all workers are employed in the public administration industry, while only 4 percent of all Manhattan CBD workers are employed in this industry (Table 6-14). Within NAICS occupational categories, over one-quarter of workers in the 11 census tracts are employed in protective service occupations, compared to under 3 percent across the Manhattan CBD (Table 6-15). The higher rate of auto commuting to these census tracts, and the high volume of auto commuting to Census Tract 29, are likely due to the availability of free parking and/or parking placards for some public administration employees.[29] The number of workers employed in Management, Business and Financial Operations Specialists, and Sales occupations are notably lower in these census tracts than in the Manhattan CBD overall.

[29] Those who work for a government agency, the New York City Department of Education, clergy, non-profit organizations, or individuals with severe disabilities may be eligible to apply for a New York City parking permit (or "placard"). About 150,000 City of New York-issued parking permits are in circulation. Various permits are available, depending on the needs and occupation of the driver. Parking permits are generally rectangular placards that drivers place on their car's dashboard. Displaying these permits allows drivers to forgo certain parking restrictions. Some may also allow drivers to park in certain "No Parking" zones or "Authorized Vehicle Only" zones. Depending on the permit, drivers can park for a specified amount of the time without getting a parking ticket. This may include hours designated for alternate-side parking. The permits also allow drivers to park in spaces specifically designated for certain occupations. This may include drivers who are part of the press, non-profit organizations, physicians, and government workers. Usually "Authorized Parking Only" signs will specify the type of permit holder allowed to use the space. (Source: https://parkingtickets.org/ny-new-york/nyc-parking-permit.)

Figure 6-6. Percentage of Commuters Who Drive to Locations in the Manhattan CBD



Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.

Table 6-14. Industry Categories of Jobs in the 11 Manhattan CBD Census Tracts with the Highest Percentage of Car Commuters

NAICS CODES	INDUSTRY CATEGORIES	WORKERS IN 11 CENSUS TRACTS[1]	PERCENTAGE OF WORKERS IN 11 CENSUS TRACTS	COMPARISON: PERCENTAGE OF WORKERS IN INDUSTRY CATEGORY, ALL MANHATTAN CBD WORKERS
11, 21	Agriculture, forestry, fishing and hunting, and mining	35	0.1%	0.1%
23	Construction	613	1.9%	2.7%
31–33	Manufacturing	659	2.0%	3.5%
42	Wholesale trade	363	1.1%	2.5%
44–45	Retail trade	1,645	5.0%	7.6%
48–49, 22	Transportation and warehousing, and utilities	1,074	3.3%	2.7%
51	Information	254	0.8%	7.8%
52–53	Finance, insurance, real estate and rental and leasing	2,164	6.6%	19.7%
54–56	Professional, scientific, management, administrative, and waste management services	3,255	10.0%	23.5%
61–62	Educational, health and social services	4,755	14.6%	12.4%
71–72	Arts, entertainment, recreation, accommodation and food services	2,260	6.9%	9.7%
81	Other services (except public administration)	899	2.8%	3.5%
92	Public administration	14,690	45.0%	4.4%
928110	Armed forces	4	<0.1%	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Parts 2 and 3.

[1] **Figure 6-6** identifies the 11 census tracts for which data is presented.

Table 6-15. Standard Occupational Classification Categories of Jobs in the 11 Manhattan CBD Census Tracts with the Highest Proportions of Car Commuters

SOC GROUPS	OCCUPATIONAL CATEGORIES	WORKERS IN 11 CENSUS TRACTS[1]	PERCENTAGE OF WORKERS IN 11 CENSUS TRACTS	PERCENTAGE OF ALL MANHATTAN CBD WORKERS
11-0000	Management occupations	2,659	8.1%	17.6%
13-0000	Farmers and farm managers	0	0.0%	<0.1%
15-0000	Business and financial operations specialists	965	3.0%	12.1%
17-0000	Computer and mathematical occupations	844	2.6%	5.6%
19-0000	Architecture and engineering occupations	224	0.7%	1.6%
21-0000	Life, physical, and social science occupations	205	0.6%	0.8%
23-0000	Community and social service occupations	715	2.2%	1.2%
25-0000	Legal occupations	2,035	6.2%	4.6%
27-0000	Education, training, and library occupations	1,654	5.1%	3.0%
29-0000	Arts, design, entertainment, sports, and media occupations	1,035	3.2%	7.5%
31-0000	Healthcare practitioners and technicians occupations	734	2.2%	2.6%
33-0000	Healthcare support occupations	799	2.4%	1.4%
35-0000	Protective service occupations	9,055	27.7%	2.5%
37-0000	Food preparation and serving related occupations	1,490	4.6%	4.2%
39-0000	Building and grounds cleaning and maintenance occupations	870	2.7%	2.8%
41-0000	Personal care and service occupations	765	2.3%	2.2%
43-0000	Sales and related occupations	2,050	6.3%	11.0%
45-0000	Office and administrative support occupations	4,089	12.5%	12.3%
47-0000	Farming, fishing, and forestry occupations	25	<0.1%	<0.1%
49-0000	Construction and extraction occupations	509	1.6%	2.1%
51-0000	Installation, maintenance, and repair occupations	460	1.4%	1.0%
53-0000	Production occupations	639	2.0%	1.8%
55-0000	Transportation and material moving occupations	855	2.6%	2.1%
	Armed forces	4	<0.1%	<0.1%

Source: U.S. Census Bureau, CTPP, 2012–2016, Part 2.

[1] **Figure 6-6** identifies the 11 census tracts for which data is presented.

Two of the census tracts in this area—Census Tracts 24 and 44 encompassing Stuyvesant Town, Jacob Riis Houses, and the Con Edison East River Generating Station (**Figure 6-6**)—have a particularly high percentage of commuters who drive. In these two census tracts, employees drive to work at nearly four times the average rate of the Manhattan CBD.[30] Despite this large percentage, these census tracts represent a small number of total car commuters to the Manhattan CBD (1,090 workers). More than 25 percent of jobs within these census tracts are in the Transportation, Warehousing and Utilities industry category, which includes jobs at the Con Edison Generating Station (the area's largest employer), as well as a New York City Department of Environmental Protection pumping station. Both facilities include large employee parking

[30] This information reflects conditions prior to implementation of an SBS route on the Lower East Side and the ferry stop along the East River serving Stuyvesant Town.

lots, suggesting that the availability of free employee parking could be encouraging workers to travel by car to their jobs. This area also has more available, free on-street parking relative to most locations within the Manhattan CBD because of its distance from the denser commercial areas. Based on CTPP 2012–2016 data, nearly 75 percent of car commuters to this area arrive at work before 8:00 a.m., which would allow them to avoid peak rush-hour conditions and more easily secure free on-street parking; however, atypical arrival times are not consistently found across census tracts with high auto-commutation rates.

Manhattan CBD Reverse Commuters

Based on CTPP 2012–2016 data, an estimated 114,591 Manhattan CBD residents commute to work at jobs outside the Manhattan CBD, with a majority working in other areas of New York City that are within close proximity to faster modes of public transportation. An estimated 16,663 (approximately 14.5 percent) of these Manhattan CBD reverse commuters drive to their jobs. None of these drivers are estimated to originate from locations in the Manhattan CBD that are distant from faster modes of public transportation. Approximately 1,200 Manhattan CBD reverse commuters commute by car out of the Manhattan CBD to work at other locations in Manhattan that are within one-half mile of a subway station. Approximately 4,000 additional Manhattan CBD residents drive to work outside Manhattan to one of the four remaining New York City boroughs. Approximately 90 percent travel to jobs within areas of New York City that are within one-half mile of a faster public transportation (subway, railroad, or express or SBS bus stop) and 540 drive to jobs in New York City that are more distant from public transportation. The majority of these 540 drivers go to jobs in Brooklyn and Queens, where they represent about 2 percent of employment in each community district.[31]

About 6,700 Manhattan CBD reverse commuters drive to work in New Jersey, representing a tiny fraction of New Jersey's employment.[32] The majority of these drivers commute to jobs in Bergen, Essex, or Hudson Counties, where they make up less than 1 percent of employment in each county. There are five New Jersey municipalities where car commuters from the Manhattan CBD account for between 1 and 2 percent of all employees.

6.3.2.5 Non-Work-Related Journeys

In addition to work-related journeys[33] discussed in the previous sections, consumer spending associated with non-work-related activities (e.g., dining, retail, entertainment, and health care spending) plays a large role in the regional economy. Many industries—including most notably Retail Trade, Arts, Entertainment and Recreation, and Accommodation and Food Services—are heavily dependent upon non-work-related consumer expenditures. According to Esri Business Analyst estimates, residents within the regional study area spend more than $342 billion annually on retail goods (including food and drink). In addition to the region's resident spending, visitors to New York City spent $44.2 billion in 2018. It is therefore important

[31] U.S. Census Bureau, CTPP, 2012–2016, Part 3.

[32] This analysis focuses on the effect of changes to commuter patterns on economic conditions related to employment; therefore, this section discusses overall employment that could be affected.

[33] As described in **Subchapter 4A, "Transportation: Regional Transportation Effects and Modeling,"** a journey is defined as round-trip travel between principal and anchor locations such as home, work, school, retail, and entertainment.

to consider whether the Project could alter non-work-related journeys within the region in a manner that could reduce spending and jeopardize the viability of any industry sectors.

6.3.2.6 Vehicle-Dependent Industries

While all industries are to a degree dependent on vehicle movement—for supplying workers, goods and services, and/or customers—the following sections discuss industries that have operations that inherently depend on the movement of vehicles into, out of, and through the Manhattan CBD. Because the Project would toll vehicles entering or remaining in the Manhattan CBD, the Project has the greatest potential to affect changes in consumer demand and/or operational conditions within these industries.[34] As noted in the *CEQR Technical Manual*, an assessment is appropriate if a project is expected to affect conditions within a specific industry; for example, a citywide regulatory change would adversely affect the economic and operational conditions of certain types of businesses or process may affect socioeconomic conditions in a neighborhood if (1) if a substantial number of residents or workers depend on the goods or services provided by the affected businesses; or (2) if it would result in the loss or substantial diminishment of a particularly important product or service within the city.[35]

Taxi and For-Hire Vehicle Industry

The following section describes the variety of taxis and FHVs:

- Yellow cabs: The New York City Taxi and Limousine Commission (TLC) has issued 13,587 medallions to allow drivers to operate yellow cabs throughout New York City. Fares for yellow cabs are metered based on rates set by the TLC. Some yellow cabs are owned and operated as part of a fleet and others are owned and operated independently. Some drivers may lease the medallion and the vehicle, others lease the medallion and own their vehicle, while other yellow cabs drivers own and operate their own medallion and vehicle. Passengers can arrange for service through street hails and through "e-hails" arranged through a mobile application by a TLC-approved company.
- Green cabs: The TLC created a program of street-hail livery cabs, also referred to as green cabs or borough taxis, in August 2013 to increase the availability of street-hail taxi service (rather than service available by calling in advance) outside of the core service area of Manhattan.[36] Street-hail livery cabs can accept trips in Manhattan north of East 96th Street and West 110th Street, and in any location in the boroughs outside of Manhattan. Green cabs can also pick up passengers at airports if the ride is pre-arranged through a dispatcher. Fares for street-hail trips are metered based on rates set by the TLC. Green cab drivers must use approved vehicles that meet specific requirements of the TLC but medallions are not required.

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[34] As detailed in **Chapter 2, "Project Alternatives,"** with the CBD Tolling Alternative, TBTA would toll vehicles entering or remaining in the Manhattan CBD via a cashless tolling system. At this time, the Project Sponsors consider vehicles that remain in the Manhattan CBD to be those that were not detected entering but must have been remaining in the Manhattan CBD since they were detected leaving.

[35] Chapter 5, Section 200 of the 2021 *CEQR Technical Manual*. As noted in Chapter 5, Section 430 of the 2021 *CEQR Technical Manual*, an impact of a project that would substantially impair the ability of certain specific industries or categories or business to continue operating within New York City may be considered significant and adverse.

[36] Prior to 2013, private livery cabs were offering non-metered and often informal and inconsistent ride services to residents and workers outside the core service area of Manhattan, raising equity and public safety concerns in these communities.

- **FHVs**: FHVs, also licensed by the TLC, include black cars, liveries, and limousines that provide pre-arranged service. FHVs cannot accept street hails and must operate through a dispatching base. Rides are typically pre-arranged through a smartphone app, website, or phone reservation (by individuals or, often, through contracts held by businesses). Customers can ride individually or set up shared rides with other customers making a similar trip. FHVs must be licensed by the TLC and can operate throughout New York City. FHV drivers either independently own or lease their own personal vehicles or lease a vehicle from a fleet. Some FHVs are licensed as "high-volume" FHVs, because they operate from bases that dispatch more than 10,000 trips a day. Lyft and Uber are examples of high-volume FHVs.[37]

According to the TLC's 2020 Fact Book, in 2019 there were 13,587 yellow cabs, 2,895 green cabs, and 101,663 FHVs licensed by the TLC.[38] In 2019 the TLC licenses more than 118,000 vehicles and nearly 185,000 drivers in total. In April 2022, there were 7,053 yellow cabs, 1,027 green cabs, and 70,281 FHVs that made at least one trip. As detailed in **Chapter 17, "Environmental Justice,"** approximately 96 percent of yellow and green cab drivers and 91 percent of FHV drivers were born in countries other than the United States. Before the COVID-19 pandemic, the number of licensed yellow cabs was steady between 2015 and 2019, limited by the number of total medallions available from the TLC. In contrast, the number of licensed green cabs decreased by 62 percent between 2015 and 2019 as the emerging FHV technology gained popularity and the number of licensed FHVs increased by over 50 percent between 2015 and 2019.[39]

The TLC provides data for both licensed vehicles and drivers (those that are currently in good standing with TLC's licensing division) and active vehicles and drivers (those that provided at least one trip in a given time period). The number of active vehicles differs from the number of licensed vehicles, because not every licensed vehicle is actively in use during a given time period. In 2018, during peak activity periods, as many as 12,610 active yellow cabs, 4,026 green cabs, and 90,284 active FHVs were providing trips in New York City.[40] **Figure 6-7** illustrates the average number of active vehicles per month between 2015 and 2019 (distinguishing FHVs by traditional livery cars/black cars and high-volume FHVs available through ride hailing apps). As shown in the figure, there were reductions in the number of active livery cars, yellow cabs, and green cabs beginning in 2015 as the popularity of high-volume FHV ride hailing services grew. Between January 2016 and January 2019, the numbers of active yellow cabs, green cabs, and traditional livery/black cars decreased by 11.1 percent, 45.0 percent, and 55.4 percent, respectively.

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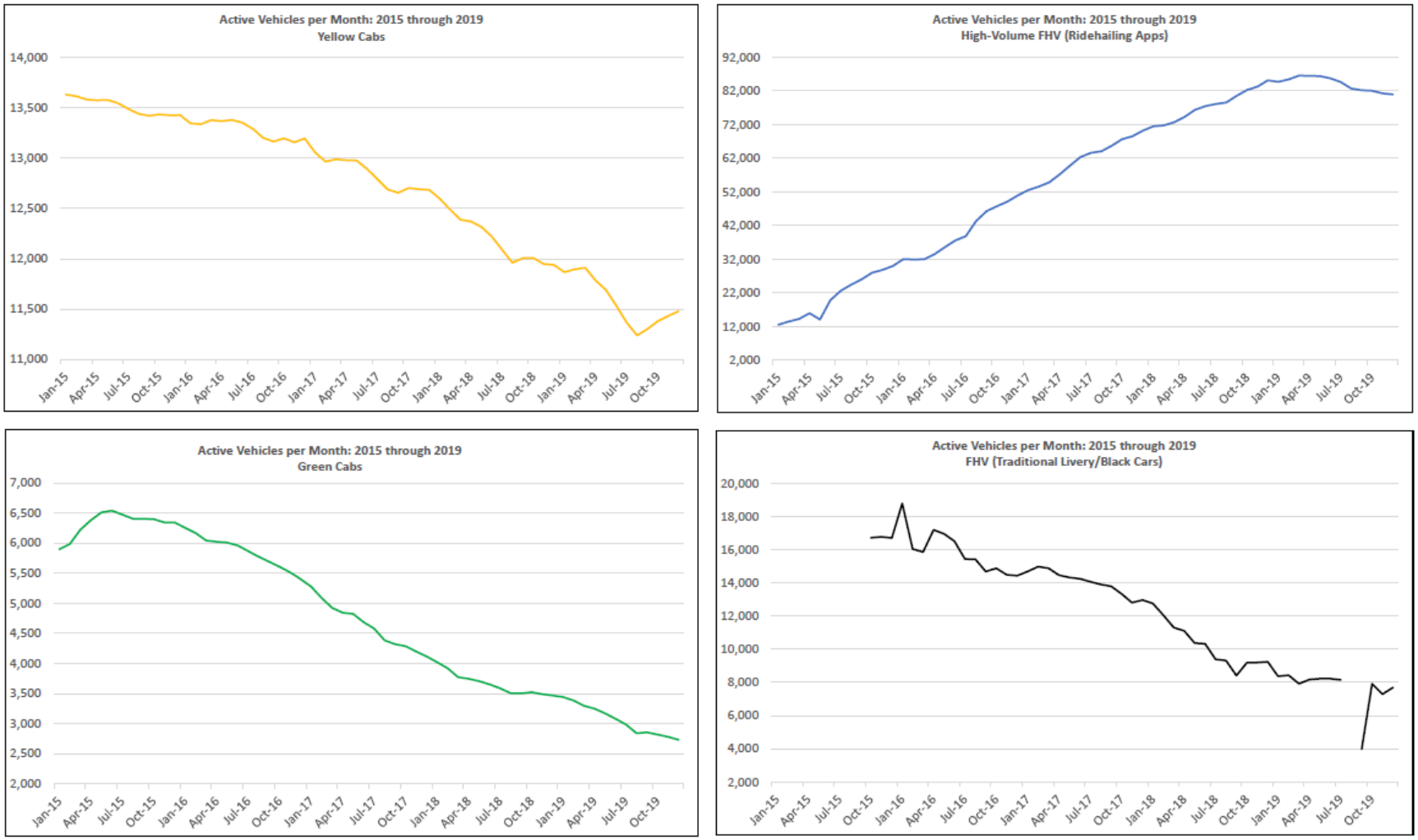
37 New York City TLC. 2020 Fact Book. https://www1.nyc.gov/assets/tlc/downloads/pdf/2020-tlc-factbook.pdf.

38 The New York City TLC's 2020 Fact Book defines paratransit vehicles as vehicles that provide pre-arranged service for medical-related purposes. Trips are usually to or from healthcare facilities and vehicles must be dispatched by a paratransit base. These do not include ADA-accessible yellow cabs.

39 New York City TLC. 2020 Fact Book and 2016 Fact Book. https://www1.nyc.gov/assets/tlc/downloads/pdf/2020-tlc-factbook.pdf.

40 The New York City TLC's 2018 Fact Book presents an annual number for licensed yellow cab, green cab, and FHVs, while data on the number of active vehicles is reported on a monthly basis. In the case of green cabs, the highest monthly statistic for active vehicles (4,026 in January 2018) was greater than the number of reported average annual licensed vehicles (3,579 vehicles in 2018); this is likely due to a downward trend in licensed green cab vehicles over 2018. For this reason, the numbers of licensed and active vehicles should not be used to estimate the percentage of licensed vehicles that are active. This level of data is not provided in the 2020 Fact Book.

Figure 6-7. Active Taxi and For-Hire Vehicles per Month (2015 through 2019)



Source: NYC Taxi & Limousine Commission's Monthly Indicators and FHV Base Aggregate reports. https://toddwschneider.com/dashboards/nyc-taxi-ridehailing-uber-lyft-data/.

A key contributor to rising congestion in the pre-COVID-19 pandemic period was the explosive growth of high-volume (application-based) FHVs. While the number of yellow taxicabs is capped at 13,587 vehicles, prior to 2018, there was no cap on the number of FHVs.[41] Between 2010 and 2019, companies such as Uber and Lyft dramatically expanded their operations, and the number of registered FHVs, licensed drivers, and trips doubled.[42] By fall 2019, there were more than 100,000 FHVs on the road, and taxis and FHVs made up 48 percent of all vehicles circulating in the Manhattan CBD.[43] The business model of the taxi and FHV industries requires drivers to cruise without passengers, increasing vehicle-miles traveled (VMT) in the Manhattan CBD. A large proportion of VMT for both taxi and high-volume FHVs is associated with cruising without passengers. In the fourth quarter of 2019 (prior to the COVID-19 pandemic), approximately 45 percent of yellow cabs' VMT within the Manhattan CBD were associated with cruising, while approximately 30 percent of high-volume FHVs' VMT within the Manhattan CBD were associated with cruising (including empty travel to a ride hail's pickup location).[44] Frequent double-parking by these vehicles further contributes to congestion.

TLC-licensed vehicles completed more than 1,000,000 trips per day on average by the end of 2019.[45] Most trips in yellow cabs originate in Manhattan (97 percent), while other TLC-based services distribute trips more evenly across the boroughs. In terms of distances traveled, the average yellow cab trip in 2018 was 3.7 miles and the average green cab trip was 2.8 miles, although more than one-half of all yellow cab and green cab trips were less than two miles.[46] The average fare for a yellow cab trip was $13.61 and the average fare for a green cab trip was $12.78.[47] Average distance and fare for FHV trips was not available. Drivers must use an E-ZPass when taking a toll bridge or tunnel. For a yellow or green cab, the discounted E-ZPass toll is added to the passenger fare at the end of the trip. For an FHV, the toll is part of the estimated trip cost included in the reservation for the FHV or the adjusted charge at the end of the trip. Passengers must also pay the tolls to and from a destination for the following trips: Westchester and Nassau Counties; trips over the Cross Bay Veterans and Marine Parkway-Gil Hodges Memorial Bridges; and Newark Airport.[48]

The pandemic resulted in dramatic reductions in demand for taxi and FHV services. Historically concentrated in the Manhattan CBD and airports, citywide demand for yellow taxi services fell to near zero in spring 2020 and only recovered to 25 percent of pre-pandemic levels by the fall peak of 2020 (**Figure 6-8**). High-volume FHV services, including Uber and Lyft, also dropped substantially but recovered more quickly,

41 New York City TLC.
42 New York City TLC 2020 TLC Factbook.
43 NYCDOT analysis.
44 *Ibid.*
45 In addition to taxis and FHVs, this includes trips made by 792 TLC-licensed commuter vans and 161 TLC-licensed paratransit vehicles.
46 According to the New York City TLC's 2018 Fact Book, 92.2 percent of yellow cab trips occur entirely within Manhattan, while 5.1 percent of yellow cab trips are to and from New York City airports. While yellow cab trips to airports constitute a small percentage of overall trips, the length of those trips contributes to the higher average yellow cab trip distance relative to the median trip distance. Unlike yellow cabs, green cabs may not pick up passengers from New York City airports unless trips are pre-arranged through a base. Therefore, most green cabs are used within the boroughs, excluding Staten Island.
47 This 2018 data does not account for the New York State Congestion Surcharge, which went into effect January 2019 ($2.75 for each for-hire vehicle transportation trip in a non-yellow cab or pool vehicle, $2.50 per trip by yellow cab, and $0.75 per pool trip; fares apply to all trips that begin, end, or pass through Manhattan south of 96th Street).
48 NYC Taxi & Limousine Commission. https://www1.nyc.gov/site/tlc/passengers/taxi-fare.page#.

with business at approximately two-thirds of pre-COVID-19 levels by the fall of 2020. Recovery of citywide trip levels continued in 2021, with fall trip levels at 46 percent and 83 percent for yellow taxi and high-volume FHV services, respectively, compared to the fall peak of 2019. In terms of citywide VMT, yellow taxis mileage accumulation in fall 2021 was approximately half of that in fall 2019, while high-volume FHV VMT mileage was three-quarters. Prior to the pandemic, taxi and FHV VMT in the Manhattan CBD represented approximately 15 percent to 20 percent of taxi and FHV VMT citywide. That fell to below 10 percent during the height of the pandemic and has since risen to approximately 15 percent. Yellow cab VMT in the Manhattan CBD represented about 35 percent to 40 percent of yellow cab VMT citywide pre-pandemic, falling to below 20 percent during the height of the pandemic, and has since risen to 30 percent. High-volume FHV VMT in the Manhattan CBD represented about 15 percent of high-volume VMT citywide pre-pandemic, falling to about 8 percent during the height of the pandemic, and has since risen to just under 15 percent.[49]

The number of TLC-licensed drivers actively performing trips reached a peak in October 2021 but was still just 69 percent of the number in October 2019 and was still recovering from significant loss of ridership due to the Omicron variant at the start of 2022. Many medallion owners stored their medallions with the NYC TLC rather than continue to pay fees for their use, and FHV drivers allowed their licenses to lapse in greater numbers. As of early 2022, the taxi industry remained dependent on the Manhattan core, with 75 percent of taxi trips starting or ending in the Manhattan CBD. By comparison, the FHV industry operated more widely in New York City, with 38 percent of high-volume FHV trips starting or ending in the Manhattan CBD[50].

Paratransit Vehicles

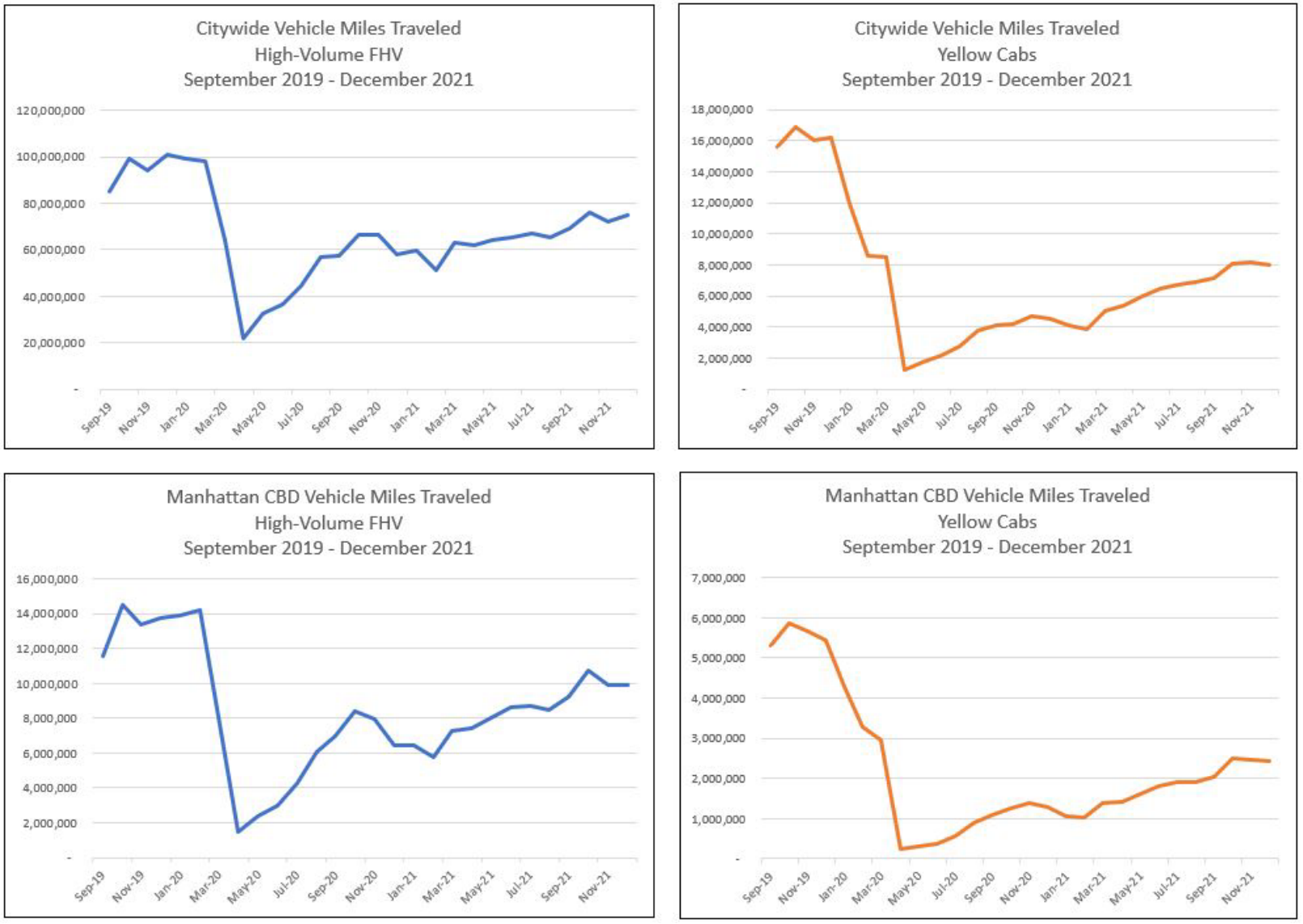
Paratransit is the term used for a "demand-response" service in which an eligible customer reserves a trip in advance to a destination within the service area covered by public buses and subways. The Americans with Disabilities Act (ADA) requires the provision of paratransit for individuals with disabilities who are unable to use accessible mass transit for some or all of their trips. In New York City, paratransit vehicles provide wheelchair-accessible rides through the Access-A-Ride program administered by MTA. The Access-A-Ride program provides shared-ride, door-to-door trips for New Yorkers utilizing various vehicle types. According to the TLC's 2020 Fact Book, in 2019 there were 161 paratransit vehicles licensed by the TLC.[51] The most commonly recognized blue and white vans are not licensed by the TLC, but TLC-licensed vehicles also provide trips for the Access-A-Ride program. As of May 2018, Access-A-Ride trips by TLC-licensed vehicles accounted for about one-half of all Access-A-Ride trips, and the share has been growing considerably since this option was first available in October 2016. As of 2019, the number of monthly Access-A-Ride trips in TLC-licensed vehicles exceeded 250,000.

49 NYCDOT.

50 New York City TLC.

51 The New York City TLC's 2020 Fact Book defines paratransit vehicles as vehicles that provide pre-arranged service for medical-related purposes. Trips are usually to or from healthcare facilities and vehicles must be dispatched by a paratransit base. These do not include ADA-accessible yellow cabs.

Figure 6-8. High-Volume For-Hire Vehicle and Yellow Cab Vehicle Miles Traveled (September 2019 through December 2021)



Source: NYCDOT.

Buses

The following section describes the wide variety of bus types, organized by the type of service provided:

- **Public transit:** Public transit buses include New York City Transit/Manhattan and Bronx Surface Transit Operating Authority and MTA Bus Company buses that are subsidized services carrying primarily New York City residents and operated by a public agency; other non-subsidized franchise buses carrying primarily New York City residents operated by private companies; subsidized buses operated by a public agency servicing primarily New York State and New Jersey residents (e.g., NJ Transit Corporation, Bee Line); and subsidized private buses that carry primarily suburban (New York State and New Jersey) residents (e.g., Academy, Rockland Coach).
- **Public transportation (commuter vans):** New York's commuter vans—also known as shuttle buses, minibuses, dollar vans, or jitneys—carry approximately 120,000 passengers each day.[52] Most commuter vans provide service in areas that are less well-served by subway service or other public transportation options. Some commuter vans, such as the Chinatown-Flushing-Sunset Park commuter van, operate under privately owned Commuter Van Authorities licensed by the TLC to provide rides, though they do not operate on published schedules or routes. The commuter van drivers operate motor vehicles with seating capacity of 9 to 20 passengers. According to the TLC's 2020 Fact Book, in 2019 there were 792 commuter vans licensed by the TLC.[53] In addition, privately operated jitney buses provide transportation between New Jersey and Midtown Manhattan. The New Jersey jitneys provide a reliable, low-cost transit option to communities where conventional, direct public bus service is limited or unavailable. Jitneys that travel interstate are under the purview of the Federal government, are not licensed by the TLC, and pay tolls at the Port Authority of New York and New Jersey crossings.
- **Private use:** Private use buses include sightseeing buses operated by private companies to provide hop-on, hop-off tourist services within New York City as a for-profit enterprise, as well as charter buses operated by private companies to provide charter services as a for-profit enterprise.
- **Privately operated longer-haul public transportation**: These include buses operated by private companies (e.g., Greyhound) that provide long-distance, scheduled intercity services into and out of New York City as a for-profit enterprise, generally without public subsidy.
- **Access to education**: School buses provide subsidized bus service carrying students to both public and private schools located in the region.
- **Various other uses**: Other buses not identified above include those used by religious institutions, the New York City Department of Corrections, the NYPD, and TBTA.

[52] King, D.A.; E. Goldwyn. September 2014. "Why do regulated jitney services often fail? Evidence from the New York City group ride vehicle project." *Transportation Policy 2014*, 35, 186 to 192.

[53] The New York City TLC's 2020 Fact Book defines paratransit vehicles as vehicles that provide pre-arranged service for medical-related purposes. Trips are usually to or from healthcare facilities and vehicles must be dispatched by a paratransit base. These do not include ADA-accessible yellow cabs.

Movement of Goods and Services, including Freight Transport

Every day, trucks and commercial vehicles deliver goods to millions of New York City residents and workers. Of the approximately 365 million tons of cargo that enter, leave, or pass through New York City each year, approximately 89 percent is carried by truck.[54] Trucks also deliver goods to homes or stores within New York City, commonly known as "last-mile" distribution. Trucks comprise a small but meaningful portion of the overall traffic stream in New York City, ranging from 8 percent to 12 percent of all traffic. Approximately 125,600 trucks cross into Manhattan per day, and approximately 73,600 trucks cross into Brooklyn each day from all points of access. Within Midtown Manhattan (in the Manhattan CBD), 80 percent of the commercial activity conducted by trucks occurs during daylight hours between 7:00 a.m. and 7:00 p.m. Congestion within Midtown impedes truck mobility during the day, with truck speeds dropping to 7 miles per hour, which is 50 percent slower than off-peak periods (between 7:00 p.m. and 7:00 a.m.).[55]

Though not always adhered to, truck traffic in New York City is required to use designated truck routes, which include local truck routes and through truck routes. Local truck routes are for use by trucks traveling to or from their origin and destination within a borough. Through truck routes consist of major urban arterials and highways and serve trucks along their journeys that have neither an origin nor destination within the borough.

Industry research on the trucking industry shows that in 2020, tolls were approximately 3 percent of motor carriers' average marginal cost per mile in the Northeast U.S. ($0.055 per mile, with a total average marginal cost of $1.835 per mile). The area covered by this research includes the 28-county regional study area for this EA, although toll costs for localized trip-making in and out of the Manhattan CBD could be higher than the regional average based on the density of tolled roadways and bridges. [56] From 2015 to 2020, the average marginal cost per mile of tolls across the trucking industry nationally increased by approximately 85 percent.[57] Many drivers and motor carriers plan their routes to avoid or minimize tolls, because tolls are typically considered a fixed cost that is not added directly to customer shipping invoices, and carriers or drivers absorb the cost of the toll expense.[58] Economic

Types of Costs

- **Marginal costs**: Costs associated with producing an additional unit of output (i.e., an additional mile of travel)
- **Fixed costs:** Costs that are constant and occur regularly (such as rent and salaries)
- **Variable costs:** Costs that change with the level of production, such as purchase of raw materials

54 New York City Department of Transportation. April 2019. *Improving the Efficiency of Truck Deliveries in NYC*. https://www1.nyc.gov/html/dot/downloads/pdf/truck-deliveries-ll189.pdf.

55 Ibid.

56 American Transportation Research Institute. *An Analysis of the Operational Costs of Trucking: 2021 Update*. November 2021. https://truckingresearch.org/wp-content/uploads/2021/11/ATRI-Operational-Cost-of-Trucking-2021-FINAL.pdf. Motor carrier marginal costs include vehicle-based costs (fuel, truck/trailer lease or purchase payments, repair and maintenance, truck insurance premiums, permits and licenses, tires, and tolls) and driver-based costs (driver wages and benefits). The marginal cost of tolls in the Northeast U.S. is heavily influenced by long-haul trucking costs and is not reflective of cost associated with "last-mile" distribution to and within the Manhattan CBD, for which tolls could comprise a higher percentage of cost depending upon the routes, time, and distance traveled.

57 Ibid. This statistic includes the cost of all tolling, accounting for both new tolls and toll increases.

58 Hooper, Alan, and Dan Murray. 2018. *An Analysis of the Operational Costs of Trucking: 2018 Update*. American Transportation Research Institute. https://truckingresearch.org/wp-content/uploads/2018/10/ATRI-Operational-Costs-of-Trucking-2018.pdf.

research on urban freight delivery in the region finds that it is a highly competitive market with delivery rates equal to marginal costs. Since toll costs are a fixed cost—as they do not depend on a singular unit of production (i.e., delivery to an individual receiver)—the toll cost cannot be passed along to most receivers. The exceptions are certain market segments—including carriers of stone/concrete, wood/lumber, food, electronics, and beverages—with market power such that they could pass along toll costs.[59] Despite these research findings, it is recognized that shippers will pass the cost along to receivers if the competitive market will support doing so, and therefore tolls costs may be passed along to receivers more broadly than suggested by this research. To the extent toll costs are passed along to receivers, those costs are diluted among the various receivers on a journey (within New York City, averaging 5.5 stops per journey[60]). Those receivers in turn pass incremental costs along to customers, with the cost further diluted across the inventory of shipped goods.

Examples of Truck Toll Costs

- **A 2-axle box truck shipping bananas from the Hunts Point Market to the Manhattan CBD:** The truck would pay a toll for the RFK Bridge crossing into Manhattan (ranging from $11.84 to $20.35) or use the Willis Avenue Bridge to avoid a toll.
- **A 3-axle truck shipping retail goods from a fulfillment center on Staten Island to Manhattan CBD:** The truck would pay a toll for the Verrazzano-Narrows Bridge (ranging from $19.40 to $33.51) to cross into Brooklyn, travel along the Belt Parkway (I-287), and then pay a toll to enter Manhattan through the Hugh L. Carey Tunnel (also ranging from $19.40 to $33.51) or use one of the untolled East River bridges to avoid a toll.

In the region, trucks must pay tolls on a number of facilities.[61] Toll rates vary, depending on which crossing is used, the direction of travel, time of day, the number of axles on the truck, and whether the toll is paid by E-ZPass, cash, or Tolls by Mail.[62] Appendix 6B, "Economic Conditions: Existing Truck Toll Rates," presents existing truck toll rates at crossings in and near New York City. The cost of tolls associated with deliveries varies widely depending on the route, truck type, availability of E-ZPass, and the time and frequency of toll crossings. As shown in Appendix 6B, truck rates for individual Hudson River crossings near Manhattan range from $30 to $132, depending on the size of the vehicle, time of day, and availability of E-ZPass. Similarly, toll costs as a percentage of total delivery cost vary widely depending upon the routes, times, and distances traveled.[63] Delivery companies typically

59 Holguin-Veras, Jose, et al. September 2010. *Integrative Freight Demand Management in the New York City Metropolitan Area*. http://www.nyc.gov/html/dot/downloads/pdf/ohd-final-report.pdf.

60 Ibid.

61 Trucks must pay tolls at six bridges and two tunnels connecting the New York City boroughs (Bronx-Whitestone, Throgs Neck, Robert F. Kennedy, Verrazzano-Narrows, Cross Bay, and Marine Parkway Bridges; Hugh L. Carey and Queens-Midtown Tunnels); two tunnels and four bridges connecting New York City and New Jersey (Lincoln and Holland Tunnels, and George Washington, Bayonne, Goethals, and Outerbridge Crossing Bridges); and on several roadways and bridges outside New York City, including the New Jersey Turnpike (I-95), the Garden State Parkway south of Exit 105, the New York State Thruway (I-87), the Connecticut Turnpike (I-95), the Mario M. Cuomo Bridge (I-287), the Newburgh-Beacon Bridge (I-84), the Bear Mountain Bridge, the Mid-Hudson Bridge, and the Kingston-Rhinecliff Bridge.

62 Specific New York State Thruway toll rates can be identified using the toll calculator at https://wwwapps.thruway.ny.gov/tollcalculator/permit.aspx.
Port Authority of New York and New Jersey toll rates are at https://www.panynj.gov/bridges-tunnels/en/tolls.html.
TBTA toll rates are at https://new.mta.info/fares-and-tolls/bridges-and-tunnels/tolls-by-vehicles.

63 Pre-pandemic shipping data suggests that an average cost of a journey for a large truck between Maspeth, Queens and Manhattan (inclusive of tolls and driver and vehicle costs) was approximately $700 per journey, based on Chainalytics Inc. transportation service price benchmarking data purchased under the USDOT Freight Fluidity Program.

incorporate the toll costs into their overall delivery costs rather than add a special surcharge or line item for tolls.

6.3.3 Environmental Consequences

This section describes the effects of the No Action Alternative and CBD Tolling Alternative on forecasted economic conditions in the region by the 2023 analysis year, using results of the BPM. While the U.S. Census Bureau-based data sources are part of the development of the BPM, U.S. Census Bureau-based data is not directly comparable to the results of the BPM runs for the 2023 No Action Alternative so this chapter does not present a comparison of existing conditions to No Action Alternative conditions.[64] Like all transportation-related analyses, this section assesses incremental change between the 2023 No Action Alternative and the CBD Tolling Alternative and therefore largely relies on the results of the BPM.

6.3.3.1 No Action Alternative

Under the No Action Alternative, a vehicular tolling program to reduce traffic congestion in the Manhattan CBD would not be implemented. The movement of workers, goods and services, and consumers into, out of, and through the Manhattan CBD influence economic conditions at the regional level. The following sections address each of these influences for the No Action Alternative.

Movement of Workforce

The Project Sponsors conducted transportation modeling for the Project using the BPM originally developed by the New York Metropolitan Transportation Council, as described in **Subchapter 4A, "Transportation: Regional Transportation Effects and Modeling."** The BPM uses census data and other economic forecasts to establish forecasts of travel characteristics. Therefore, the BPM results affirm the mode choice and travel patterns developed and described previously through census data but are not directly comparable to census data. The BPM baseline was used to model the incremental changes resulting from the CBD Tolling Alternative. The BPM results show that in the No Action Alternative, of the approximately 1.56 million workers who would commute into or within the Manhattan CBD, close to 80 percent (about 1.22 million workers) would use public transportation as their primary mode of transportation to work (**Table 6-16**). Approximately 17 percent of workers would commute into or within the Manhattan CBD by auto (including drive alone, carpool, or taxi/FHV). Under the No Action Alternative, nearly 5 percent of workers are estimated to commute by walking or biking.

[64] The BPM uses census data and other economic forecasts to establish forecasts of travel characteristics. Therefore, the BPM results affirm the mode choice and travel patterns developed and described previously through census data but are not directly comparable to census data.

Table 6-16. Regional Workforce Commuting To and Within the Manhattan CBD: No Action Alternative

GEOGRAPHIC AREA OF ORIGIN	COMMUTE BY PUBLIC TRANSPORTATION	COMMUTE BY AUTO (Including Taxi/FHV)	COMMUTE BY WALK/BIKE[1]	PERCENTAGE OF WORKERS COMMUTING BY AUTO
New York City	**765,424**	**173,374**	**69,671**	**17.2%**
Bronx County	78,107	19,411	0	19.9%
Kings County (Brooklyn)	231,152	50,789	498	18.0%
New York County (Manhattan)	232,162	39,672	68,856	11.6%
Inside Manhattan CBD	94,328	14,748	55,738	8.9%
Outside Manhattan CBD	137,834	24,924	13,118	14.2%
Queens County	202,032	58,095	317	22.3%
Richmond County (Staten Island)	21,971	5,407	0	19.7%
Long Island Counties[2]	**112,408**	**16,394**	**0**	**12.7%**
New York Counties North of New York City[3]	**74,409**	**27,336**	**0**	**26.9%**
New Jersey Counties[4]	**222,044**	**42,368**	**0**	**16.0%**
Connecticut Counties[5]	**46,932**	**10,707**	**0**	**18.6%**
TOTAL	**1,221,217**	**270,179**	**69,671**	**17.3%**

Source: BPM, WSP 2021.

1 When the BPM was developed in 2005, insufficient data was available to reliably estimate bike journeys; based on 2012–2016 CTPP data, the BPM results tend to underreport walk/bike journeys.

2. Long Island counties include Nassau and Suffolk.

3. New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.

4. New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.

5. Connecticut counties include Fairfield and New Haven.

New York City's five boroughs would continue to provide the largest absolute numbers of commuters into the Manhattan CBD (1.01 million workers, including those residing within the Manhattan CBD), with the largest percentage of those commuters traveling from Manhattan and Brooklyn. The workforce within New York City would have a lower rate of auto commuting to the Manhattan CBD (about 17 percent) as compared to New York counties north of New York City (27 percent) and Connecticut counties (19 percent), a slightly higher auto-commuting rate from New Jersey (16 percent), and a higher rate than Long Island (13 percent). The lowest rate of auto commuting would be from Manhattan CBD residents who work within the Manhattan CBD (9 percent), with over one-third of these workers walking or biking to work.

Table 6-17 presents BPM projections for the primary mode of transportation of regional workforce participants who commute from within the Manhattan CBD to regional destinations outside the Manhattan CBD. In the No Action Alternative, of the projected 37,457 workers who commute from within to outside of the Manhattan CBD, approximately 64 percent (23,881 workers) would use public transportation as their primary mode of transportation to work. Approximately 33 percent of workers would commute from the Manhattan CBD to non-CBD destinations by auto (including taxi/FHV), and about 3 percent of workers would commute by other modes (e.g., walk or bicycle).

Table 6-17. Regional Workforce Commuting from Within the Manhattan CBD to Regional Destinations Outside the Manhattan CBD: No Action Alternative

GEOGRAPHIC AREA OF DESTINATION	COMMUTE BY PUBLIC TRANSPORTATION	COMMUTE BY AUTO (Including Taxi/FHV)	COMMUTE BY WALK/BIKE[1]	PERCENTAGE OF WORKERS COMMUTING BY AUTO
New York City	**18,991**	**3,010**	**1,041**	**13.1%**
Bronx County	693	316	0	31.3%
Kings County (Brooklyn)	3,820	1,161	388	21.6%
New York County (Manhattan) outside Manhattan CBD	13,563	1,238	638	8.0%
Queens County	905	285	15	23.7%
Richmond County (Staten Island)	10	10	0	50.0%
Long Island Counties[2]	**1,057**	**1,694**	**0**	**61.6%**
New York Counties North of New York City[3]	**134**	**431**	**0**	**76.3%**
New Jersey Counties[4]	**3,054**	**6,702**	**0**	**68.7%**
Connecticut Counties[5]	**645**	**698**	**0**	**52.0%**
TOTAL	**23,881**	**12,535**	**1,041**	**33.5%**

Source: BPM, WSP 2021.

1 When the BPM was developed in 2005 there was insufficient data available to reliably estimate bike journeys; based on 2012–2016 CTPP data the BPM results tend to underreport walk/bike journeys.

2 Long Island counties include Nassau and Suffolk.

3 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.

4 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.

5 Connecticut counties include Fairfield and New Haven.

Of workers who live in, but work outside, the Manhattan CBD approximately 41 percent (an estimated 15,439 workers) would work at locations elsewhere in Manhattan; of those commuters, approximately 8 percent (1,238 workers) would commute to their jobs by personal auto or taxi/FHV. The next-largest destinations for residents of the Manhattan CBD who work elsewhere would be New Jersey counties (9,756 workers), followed by Brooklyn (5,369 workers) and Long Island (2,751 workers). Counties north of New York City would see the largest percentage of Manhattan CBD residents who work elsewhere and use personal auto or taxi/FHV as the primary means of travel, at approximately 76 percent (431 of 565 workers), followed by New Jersey counties, at 69 percent (6,702 of 9,756 workers).

Regional Non-Work-Related Journeys To, From, and Within the Manhattan CBD

Table 6-18 presents the projected numbers of regional non-work journeys to and within the Manhattan CBD under the No Action Alternative. These include journeys for activities such as health care visits, retail and grocery purchases, dining, and entertainment. Overall, approximately 14 percent of such journeys would be made by auto, which would be a lower rate than work journeys to the Manhattan CBD (17 percent) and substantially less in terms of the overall volume (117,950 non-work journeys by auto, as compared to 270,179 drive journeys for work). The highest rates of auto-based, non-work journeys would originate in New York counties north of New York City (approximately 48 percent). Connecticut counties and Long Island also have relatively high rates of auto-based journeys (approximately 42 and 38 percent, respectively), followed by New Jersey counties with 22 percent of non-work journeys by auto. However, the auto-based, non-work journeys to the Manhattan CBD originating from outside of New York City would

represent only about 5 percent of the total auto-based journeys to the Manhattan CBD from the regional study area; New York City residents would contribute the remaining 95 percent. Approximately 86 percent of the region's non-work journeys made by public transportation into and within the Manhattan CBD would originate within New York City.

Table 6-18. Daily Regional Non-Work-Related Journeys To and Within the Manhattan CBD: No Action Alternative

GEOGRAPHIC AREA OF ORIGIN	JOURNEYS BY ALL MODES	JOURNEYS BY AUTO (Including Taxi/FHV)	PERCENTAGE OF JOURNEYS BY AUTO
New York City	**796,263**	**97,212**	**12.2%**
Bronx County	41,511	9,427	22.7%
Kings County (Brooklyn)	80,405	17,327	21.5%
New York County (Manhattan)	601,900	53,265	8.8%
Inside Manhattan CBD[1]	513,511	35,250	6.9%
Outside Manhattan CBD	88,389	18,015	20.4%
Queens County	61,828	14,972	24.2%
Richmond County (Staten Island)	10,619	2,221	20.9%
Long Island Counties[2]	**16,566**	**6,300**	**38.0%**
New York Counties North of New York City[3]	**7,640**	**3,680**	**48.2%**
New Jersey Counties[4]	**46,807**	**10,121**	**21.6%**
Connecticut Counties[5]	**1,514**	**637**	**42.1%**
TOTAL	**868,790**	**117,950**	**13.6%**

Source: BPM, WSP 2021.

1 Journeys originating in the Manhattan CBD are internal journeys within the Manhattan CBD.

2 Long Island counties includes Nassau and Suffolk.

3 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.

4 Connecticut counties include Fairfield and New Haven.

5 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.

Table 6-19 presents the projected numbers of non-work journeys originating within the Manhattan CBD and destined for non-CBD locations. Overall, under the No Action Alternative approximately 11 percent of such journeys would be made by auto, which would be a lower rate than work journeys from the Manhattan CBD (34 percent) but a substantially higher overall volume (70,630 non-work journeys by auto, as compared to 12,535 drive journeys for work). The highest rates of auto-based, non-work journeys would be destined for Long Island (95 percent) and Connecticut counties (94 percent), followed by New York counties north of New York City with 89 percent of all non-work journeys to those counties from the Manhattan CBD arriving by auto. However, the auto-based, non-work journeys from the Manhattan CBD destined for regional locations outside New York City would represent about 14 percent of the total auto-based journeys from the Manhattan CBD; New York City destinations would contribute the remaining 86 percent. With respect to public transportation, about 99 percent of those journeys would be destined for locations within New York City.

Table 6-19. Daily Non-Work-Related Journeys From the Manhattan CBD: No Action Alternative

GEOGRAPHIC AREA OF DESTINATION	JOURNEYS BY PUBLIC TRANSPORTATION	JOURNEYS BY AUTO (Including Taxi/FHV)	JOURNEYS BY WALK/BIKE[1]	PERCENTAGE OF JOURNEYS BY AUTO
New York City	**182,684**	**60,848**	**411,230**	**9.3%**
Bronx County	2,903	5,262	0	64.4%
Kings County (Brooklyn)	7,663	8,620	4,203	42.1%
New York County (Manhattan)	169,103	43,472	406,551	7.0%
Inside Manhattan CBD	126,589	35,250	383,588	6.5%
Outside Manhattan CBD	42,514	8,222	22,963	11.2%
Queens County	3,001	3,481	476	50.0%
Richmond County (Staten Island)	14	13	0	48.1%
Long Island Counties[2]	**241**	**4,194**	**0**	**94.6%**
New York Counties North of New York City[2]	**281**	**2,245**	**0**	**88.9%**
New Jersey Counties[4]	**976**	**3,231**	**0**	**76.8%**
Connecticut Counties[5]	**7**	**112**	**0**	**94.1%**
TOTAL	**184,189**	**70,630**	**411,230**	**10.6%**

Source: BPM, WSP 2021.

1 When the BPM was developed in 2005 there was insufficient data available to reliably estimate bike journeys; based on 2012–2016 CTPP data the BPM results tend to underreport walk/bike journeys.

2 Long Island counties includes Nassau and Suffolk.

3 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.

4 Connecticut counties include Fairfield and New Haven.

5 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.

Taxi and For-Hire Vehicle Industry

Table 6-20 presents projections of daily VMT by taxi/FHV within the region under the No Action Alternative.[65] In total, taxis/FHVs would travel approximately 4.3 million VMT on a daily basis. Over one-half (approximately 58 percent) of all taxi/FHV VMT would occur within New York City, with nearly one-half (approximately 43 percent) of those VMT occurring within Queens, and approximately 29 percent of New York City VMT occurring within Manhattan. Outside New York City, New Jersey counties would have the highest VMT for the region (approximately 1.2 million VMT daily).

Table 6-20. Daily Vehicle-Miles Traveled for Taxis/For-Hire Vehicles in the Regional Study Area: No Action Alternative

GEOGRAPHIC AREA	VEHICLE-MILES TRAVELED[1]
New York City	**2,503,176**
Bronx County	272,450
Kings County (Brooklyn)	373,255
New York County (Manhattan)	715,505
Inside Manhattan CBD	323,998
Outside Manhattan CBD	391,507
Queens County	1,085,040
Richmond County (Staten Island)	56,926
Long Island Counties[2]	**291,624**
New York Counties North of New York City[3]	**222,684**
New Jersey Counties[4]	**1,181,690**
Connecticut Counties[5]	**116,356**
TOTAL	**4,315,530**

Source: BPM, WSP 2021.
Note: Numbers may not total due to rounding.
1 Projections include vehicle-miles-traveled only during fares and do not include cruising without passenger(s).
2 Long Island counties includes Nassau and Suffolk.
3 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
4 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
5 Connecticut counties include Fairfield and New Haven.

Movement of Goods and Services, Including Freight Transport

Table 6-21 presents the projected daily vehicle trips within and to the Manhattan CBD in the No Action Alternative for different types of commercial vehicles (trucks). It is important to note that total number of daily trips for vehicle types associated with the movement of goods and services should not be confused with a total number of individual vehicles. Rather, it represents vehicles that will make a series or chain of trips within the Manhattan CBD boundary to fulfill deliveries or other services. Each trip identified in Table 6-21 represents a modeled estimate of each individual leg of the multiple-stop trip. The 18,965 medium truck trips and 6,043 heavy truck trips to the Manhattan CBD shown in the table also include multiple crossings to and from the Manhattan CBD over the course of a day. An example would be the

65 Taxis and FHVs are a single mode in the BPM and therefore cannot be presented separately.

U.S. Postal Service, where delivery vehicles leave the main distribution center and make a series of stops (each one considered an individual trip in **Table 6-21**) throughout the day.

Table 6-21. Daily Vehicle Trips Within and To the Manhattan CBD by Type: No Action Alternative

VEHICLE TYPE	DAILY VEHICLE TRIPS WITHIN MANHATTAN CBD	DAILY VEHICLE TRIPS CROSSING INTO MANHATTAN CBD
Commercial Van	122,098	23,203
Medium Truck	63,079	18,965
Heavy Truck	39,631	6,043
TOTAL	**224,808**	**48,211**

Source: BPM, WSP 2021.
Notes: Numbers may not total due to rounding.
Daily vehicle trips account for multiple stops by the same vehicle. Trips do not include through truck trips (i.e., truck trips passing through the Manhattan CBD without a stop in the Manhattan CBD.

6.3.3.2 CBD Tolling Alternative

This section describes the potential effects of the CBD Tolling Alternative on regional economic conditions, when compared with the No Action Alternative, beginning with a description of the potential regional economic benefits of the CBD Tolling Alternative. It then considers whether the projected changes in the flows of workers, goods and services, or consumers could alter regional market conditions in a manner that could jeopardize the viability of specific industries.

Potential Economic Benefits

A study conducted for Partnership for New York City found that traffic congestion in the New York metropolitan area has a $20 billion annual cost, including more than $9 billion in travel-time costs and nearly $6 billion in industry revenue losses.[66] Through congestion relief, the CBD Tolling Alternative would provide an economic benefit to the Manhattan CBD, and thus to the region and nation as a whole. As discussed earlier, the Manhattan CBD is a critical economic core of the region and a center of national and global economic activity. As the largest business district in the nation as well as the most visited city in the United States for business, cultural, and tourism travel, its transportation network is essential to supporting the high density that underpins New York City.

More specifically, transportation users in the region would benefit economically from the CBD Tolling Alternative through travel-time savings, improved or stabilized travel-time reliability, reduced vehicle operating costs, and improved safety that are described in **Chapter 5A, "Population Characteristics and Community Cohesion."** These changes would also positively affect productivity as described below:

- **Travel-Time Savings:** Travel-time savings associated with both work and non-work journeys are an economic benefit because they increase a person's productivity and overall utility by reducing time spent on less productive activities (i.e., traveling to a destination). Reduced congestion would facilitate the more efficient and cost-effective distribution of goods and services by truck and other deliveries in

[66] The study defined the New York metropolitan area as including New York City, Westchester, Putnam, and Rockland Counties, and northern New Jersey. https://pfnyc.org/wp-content/uploads/2020/01/2018-01-Congestion-Pricing.pdf.

the Manhattan CBD. Part of the economic benefit realized by travel-time savings benefits would be offset by the increased transportation cost for those journeys under the CBD Tolling Alternative in the form of a toll. These benefits would occur in all tolling scenarios.

- Vehicle Operating Cost Savings: The CBD Tolling Alternative would decrease regional VMT relative to the No Action Alternative, which could lead to vehicle operating cost savings for drivers and businesses, which is an economic benefit.
- Reliability Benefits: When transportation systems are improved in terms of capacity or reliability, they can have an economic benefit such as increased opportunities and higher quality of life. Improving travel-time reliability also reduces logistics and scheduling costs beyond just the travel-time savings. Reliability of travel time refers to the level of travel-time uncertainty. When travel times are unpredictable, travelers typically allow more time for their journey to account for possible delays. By reducing congestion in the Manhattan CBD, the CBD Tolling Alternative would reduce the current uncertainty associated with travel in the Manhattan CBD and potentially allow travelers to reduce the buffer time set aside for their journeys.
- Safety Benefits: Enhanced safety reduces medical costs and time spent injured/healing, both of which improve economic productivity.
- Accessibility Benefits: From an economic perspective, accessibility refers to the number of opportunities available for a given cost, either in terms of time or money. As the cost for movement between any two places changes, either in terms of time or money, accessibility changes. Accessibility can also be understood as the attractiveness of a place of origin (how easy it is to get from there to all other destinations) or of a destination (how easy it is to get to there from all other origins and destinations). For residents, accessibility includes access to employment, education, health care, and recreation. For businesses, it refers to access to labor, clients, support services, vendors, business partners, and deliveries. The CBD Tolling Alternative would improve accessibility for users throughout the region by decreasing congestion. In the long term, improved access to larger consumer markets and larger labor pools as well as more efficient access to resources could positively affect productivity, provide economies of scale, and lead to new economic growth. For some travelers, the introduction of a toll would decrease accessibility by disincentivizing an auto-based mode choice but given the small proportion of commuters who drive to work and the wide range of travel options other than driving available to the great majority of travelers, the effect of the CBD Tolling Alternative overall on accessibility would be positive.

Potential Adverse Economic Effects

At a regional level, the CBD Tolling Alternative would not substantively alter one or more of the underlying forces that shape real estate market conditions, and therefore would not be likely to result in the involuntary displacement of residents, businesses, or employees. (Section 6.4 addresses the potential for indirect, or secondary, displacement at the neighborhood level.) While there would be potential social, economic, and environmental benefits from the CBD Tolling Alternative—some of which are discussed in the previous section—these factors would not be substantial enough to markedly influence residential or commercial rents within or outside of the Manhattan CBD. The study area and the Manhattan CBD have

well-established residential and commercial markets that are heavily influenced by locational attributes (e.g., close proximity to job centers, cultural institutions and amenities, public transportation) that far outweigh the potential influence of quality-of-life benefits generated by the CBD Tolling Alternative. This section therefore focuses on potential changes in workforce and the operations of certain industries.

Movement of Workers

With the CBD Tolling Alternative, there would be an incremental cost to workers associated with commuting by auto if they enter or remain in the Manhattan CBD.[67] For these directly affected subsets of workers who would commute by auto—in total, approximately 19 percent of all workers commuting to or from the Manhattan CBD—the CBD Tolling Alternative would require one of the following decisions:

- **Continue to commute to work by auto and incur the toll cost.** The frequency and feasibility of this option for individuals would depend on several factors, such as the cost of the toll, their wages and salary, and the availability of non-vehicular commute options near their places of work and residence. As shown in **Table 6-22**, the BPM projects that there would be decreases in auto-commuting rates into, out of, and within the Manhattan CBD under the various tolling scenarios as compared to the No Action Alternative, but that many commuters would continue to travel by auto. The aggregate change in share of auto commuters into and within the Manhattan CBD would range from a decrease of 0.8 percentage points under Tolling Scenarios A and B (from 17.3 percent to 16.5 percent) to a 2.3 percentage point decrease under Tolling Scenario E (from 17.3 percent to 15.0 percent). Similarly, the aggregate change in share of auto commuters from within the Manhattan CBD to regional workplace locations outside the Manhattan CBD would range from a decrease of 0.8 percentage points under Tolling Scenario B (from 33.5 percent to 32.7 percent) to a 2.0 percentage point decrease under Tolling Scenario D (from 33.5 percent to 31.5 percent).

  Table 6-23 presents absolute differences in the numbers and the percentage changes of journeys by auto. The absolute change in auto commuters into and within the Manhattan CBD would range from a decrease of 11,790 journeys under Scenario B to a decrease of 27,221 journeys under Tolling Scenario E.

[67] BPM traffic modeling considers a toll only for entering a zone, although legislation allows for tolling those remaining in the zone. As detailed in **Chapter 2, "Project Alternatives,"** at this time, the Project Sponsors consider vehicles that remain in the Manhattan CBD to be those that were not detected entering but must have been remaining in the Manhattan CBD since they were detected leaving.

Table 6-22. Percentage of Worker Journeys by Auto To, Within, and From the Manhattan CBD

GEOGRAPHY	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Workers Commuting by Auto **To and Within** the Manhattan CBD	17.3%	16.5%	16.6%	16.2%	15.8%	15.0%	15.8%	16.5%
Workers Commuting by Auto **From** the Manhattan CBD	33.5%	32.4%	32.7%	32.1%	31.5%	31.7%	32.2%	32.3%

Source: BPM, WSP 2021.

Table 6-23. Change in Numbers of Worker Journeys by Auto To, Within, and From the Manhattan CBD

GEOGRAPHY	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Workers Commuting by Auto **To and Within** the Manhattan CBD	270,179	-12,552 (-4.6%)	-11,790 (-4.4%)	-17,271 (-6.4%)	-23,877 (-8.8%)	-27,221 (-10.1%)	-24,230 (-9.0%)	-13,264 (-4.9%)
Workers Commuting by Auto **From** the Manhattan CBD	12,535	-482 (-3.8%)	-328 (-2.6%)	-661 (-5.3%)	-961 (-7.7%)	-916 (-7.3%)	-621 (-5.0%)	-550 (-4.4%)

Source: BPM, WSP 2021.

- **Switch modes of commute to non-vehicular option(s) to avoid the toll.** The feasibility and frequency of selecting this option would depend in part on the availability of non-vehicular commute options near the commuter's place of work and/or residence. Some commuters could choose to continue to drive toward the Manhattan CBD, but park outside of the Manhattan CBD and walk or transition to public transportation for final leg of their commute to avoid the toll. The likelihood of commuters choosing to do this would depend on the availability and cost of parking near transit stations outside the Manhattan CBD coupled with the cost of that transit journey, in comparison to the cost of the new toll as well as the total time duration of such a trip. The BPM results indicate that a small number of commuters would choose this option (for more information, see **Subchapter 4D, "Transportation: Parking"**). As shown in **Table 6-24 and Table 6-25**, with the CBD Tolling Alternative, there would be increases in the share of commuters using public transportation and walking/biking to, from, and within the Manhattan CBD, except for Manhattan CBD residents who work in the Manhattan CBD, who would generally continue to use public transportation, walk, and bike at the same rate as in the No Action Alternative. Overall, under Tolling Scenario E there would be the highest percentage of workers electing to commute by public transportation (82.7 percent, compared to 80.7 percent in the No Action Alternative). Under Tolling Scenario B, there would be a slight decrease in public transportation usage from this subset of Manhattan CBD commuters, likely due to the relatively inelastic price sensitivity of

auto commuters combined with the scenario's easing congestion, which in turn would marginally increase the attractiveness of commuting by auto (e.g., taxi/FHV) within the Manhattan CBD. This phenomenon would be counterbalanced by reduced congestion in the Manhattan CBD, making some bus routes run faster and more reliable.

- Telecommute, or telecommute more often, to eliminate or reduce the frequency of incurring the toll. Though not a viable option for all types of work, telecommuting is growing (and will continue to grow with or without CBD Tolling Alternative) based on continual improvements in technologies, restructuring of office space, and other factors, including but not limited to the influence of the COVID-19 pandemic, cost savings, and benefit and lifestyle offerings. The degree to which the CBD Tolling Alternative would also incentivize this behavior would depend on the specific cost increase for a given worker, which would be based not only on the cost of the toll but also any potential crossing credits and/or exemptions, as well as the employee's specific work environment and workplace policies.
- Commute earlier or later to avoid incurring the toll. Though not a viable option for many workers, those who can adjust their work hours could elect to commute during off-peak and/or overnight hours to reduce the cost of a toll associated with auto commuting. Tolling Scenarios E and F would have the greatest potential to incentivize this behavior because they would have the largest cost differential between peak and non-peak toll rates.
- Seek new employment opportunities (or other workplace locations with the same employer) at location(s) that would not involve incurring the toll. Some commuters to the Manhattan CBD might decide to relocate or switch jobs to locations outside the Manhattan CBD. The CBD Tolling Alternative could also result in new workplace decision-making for those who would not incur a toll based on their existing commute; members of the labor force could find new job opportunities because other toll-affected workers could elect to vacate their positions to avoid tolling. In some instances, there could be a societal cost associated with decision-making that is a benefit to individuals. For example, a member of the labor force currently residing in the Bronx and who commutes by subway into the Manhattan CBD could instead choose to commute by auto to a job closer to home in the Bronx or upper Manhattan. Overall, Tolling Scenarios E and F (with the highest toll rates) would be the tolling scenarios most likely to incentivize this behavior, while Tolling Scenario A (with the lowest toll rates) would be the least likely tolling scenario to incentivize this behavior.

  The feasibility and frequency of such options would largely depend on the availability of similar employment opportunities at locations that would avoid the toll and that otherwise would be a more desirable commuting option. Since the BPM is a regional transportation model used to predict changes in mode and route that would result from modifications to the transportation system—using adopted regional population, labor force, and employment forecasts—it does not (and cannot) predict changes to the numbers of residents, workers, or jobs in the region. The BPM projections are predictive of changes in mode choice, but because they must hold the number of jobs steady, the projections assume that any vacated positions within the region would be filled by other labor force participants. This analysis therefore does not rely on BPM results for determining potential effects on labor supply within the region; rather, it considers the potential industry effects by conservatively assuming that positions currently occupied by auto commuters could be vacated and potentially not be filled by other labor force participants.

Table 6-24. Percentage of Worker Journeys by Non-Auto To and From the Manhattan CBD

GEOGRAPHY AND MODE	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Workers Commuting from Outside the Manhattan CBD to the Manhattan CBD								
Percentage by Transit	80.7%	81.6%	81.7%	81.9%	82.4%	82.7%	82.5%	81.8%
Percentage by Walk/Bike	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Workers Commuting from Within the Manhattan CBD to the Manhattan CBD								
Percentage by Transit	57.2%	57.3%	56.5%	57.2%	57.4%	57.2%	57.2%	56.6%
Percentage by Walk/Bike	33.8%	33.8%	33.9%	33.7%	33.6%	33.7%	33.7%	33.7%
Workers Commuting from Within the Manhattan CBD to Outside the Manhattan CBD								
Percentage by Transit	63.8%	64.7%	64.4%	65.0%	65.6%	65.4%	65.0%	65.0%
Percentage by Walk/Bike	2.8%	2.9%	2.9%	2.9%	2.9%	2.9%	2.8%	2.8%

Source: BPM, WSP 2021.

Note: When the BPM was developed in 2005, there was insufficient data available to reliably estimate bike journeys; based on 2012–2016 CTPP data the BPM results tend to underreport walk/bike journeys. In addition, the BPM is best suited for predicting travel by automobile and transit; the internal calculations in the model related to routes available to automobiles result in the prediction of negligible reductions in the number of walk/bike journeys in some tolling scenarios.

Table 6-25. Change in Number of Worker Journeys by Non-Auto To and From the Manhattan CBD

GEOGRAPHY AND MODE	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Workers Commuting from Outside the Manhattan CBD to the Manhattan CBD								
Number by Transit	1,126,889	+12,280 (+1.1%)	+13,082 (+1.2%)	+16,877 (+1.5%)	+23,482 (+2.1%)	+26,717 (+2.4%)	+24,083 (+2.1%)	+14,351 (+1.3%)
Number by Walk/Bike	13,933	-28 (-0.2%)	-331 (-2.4%)	+67 (0.5%)	-158 (-1.1%)	-67 (-0.5%)	-133 (-1.0%)	-102 (-0.7%)
Workers Commuting from Within the Manhattan CBD to the Manhattan CBD								
Number by Transit	94,328	+263 (+0.3%)	-1,157 (-1.2%)	+308 (+0.3%)	+595 (+0.6%)	+485 (+0.5%)	+268 (+0.3%)	-851 (-0.9%)
Number by Walk/Bike	55,738	0 (0.0%)	+144 (+0.3%)	+45 (+0.1%)	-69 (-0.1%)	+100 (+0.2%)	+4 (0.0%)	-184 (-0.3%)
Workers Commuting from Within the Manhattan CBD to Outside the Manhattan CBD								
Number by Transit	23,881	+181 (+0.8%)	+187 (+0.8%)	+147 (+0.6%)	+271 (+1.1%)	+56 (+0.2%)	+164 (+0.7%)	+280 (+1.2%)
Number by Walk/Bike	1,041	+19 (+1.8%)	+61 (+5.9%)	+24 (+2.3%)	+24 (+2.3%)	+25 (+2.4%)	-18 (-1.7%)	-9 (-0.9%)

Source: BPM, WSP 2021.

Note: When the BPM was developed in 2005, there was insufficient data available to reliably estimate bike journeys; based on 2012–2016 CTPP data the BPM results tend to underreport walk/bike journeys. In addition, the BPM is best suited for predicting travel by automobile and transit; the internal calculations in the model related to routes available to automobiles result in the prediction of negligible reductions in the number of walk/bike journeys in some tolling scenarios.

- **Relocate their place of residence to a location within the Manhattan CBD.** Existing or new workers with jobs in the Manhattan CBD could elect to move to a residence within the Manhattan CBD and walk/bike to work or commute by transit to avoid a toll associated with auto commuting. Tolling Scenarios E and F would have the greatest potential to incentivize this behavior because they would have the highest toll rates; Tolling Scenario E would also have the greatest potential to reduce congestion and improve other quality-of-life factors within the Manhattan CBD. However, the CBD Tolling Alternative would have a marginal influence on residential location decision-making because potential cost savings associated with eliminating a toll would be far outweighed by other cost-of-living and quality-of-life factors. Given the relatively high rents and home prices within the Manhattan CBD compared with other locations within the study area, those considering a move because of the cost of tolling would be more likely to locate in areas outside the Manhattan CBD near transit to avoid the toll. In addition, those moving into the Manhattan CBD with a personal auto would incur new tolling costs for non-commute trips, thereby diminishing the cost savings.
- **Relocate their place of residence to a location closer to transit outside the Manhattan CBD.** Existing or new workers with jobs in the Manhattan CBD could elect to move to a residence closer to transit and park-and-ride commute to avoid a toll associated with auto commuting. Tolling Scenarios E and F would have the greatest potential to incentivize this behavior because they would have the greatest cost differential between peak and non-peak toll fees.

  Pass-through commuters who drive through the Manhattan CBD would either continue to drive through and pay the Manhattan CBD toll or select an alternative route that avoids the toll. The frequency and feasibility of this option is dependent on the length of time associated with re-routing as well as the continuous improvement of live traffic and wayfinding information to avoid the toll.

  As noted above, the BPM projections assume that in the aggregate, there would be no change in the total employment or overall workforce commutes into and within the region as a result of the CBD Tolling Alternative (Table 6-26). However, it is possible that jobs in certain industries could be affected at a greater rate than suggested by the net results of the BPM if those industries and occupations had a higher percentage of workers who commute by auto, or if certain locations within the Manhattan CBD were highly dependent on auto commuting. For the following reasons, this is not expected to occur as a result of the CBD Tolling Alternative:

Table 6-26. Daily Worker Journeys To and Within the Manhattan CBD (All Modes of Transportation)

GEOGRAPHIC AREA OF ORIGIN	NO ACTION TOTAL JOURNEYS	NET CHANGE IN DAILY WORKER JOURNEYS BY TOLLING SCENARIO AS COMPARED TO THE NO ACTION ALTERNATIVE						
		A	B	C	D	E	F	G
New York City	**1,008,469**	**-4,288**	**-4,990**	**-5,698**	**-7,058**	**-7,718**	**-7,223**	**-5,869**
Bronx County	97,518	-607	-697	-920	-1,159	-1,346	-777	-1,109
Kings County (Brooklyn)	282,439	-1,776	-1,844	-2,533	-2,755	-3,274	-2,242	-1,976
New York County (Manhattan)	340,690	-908	-658	-816	-654	-289	-1,231	-1,390
Inside Manhattan CBD	164,814	282	80	490	666	835	475	279
Outside Manhattan CBD	175,876	-1,190	-738	-1,306	-1,320	-1,124	-1,706	-1,669
Queens County	260,444	-1,688	-2,448	-2,448	-3,109	-3,547	-3,820	-2,077
Richmond County (Staten Island)	27,378	691	657	1,019	619	738	847	683
Long Island Counties[1]	**128,802**	**2,610**	**3,191**	**2,451**	**2,470**	**2,975**	**1,834**	**3,400**
New York Counties North of New York City[2]	**101,745**	**-1,757**	**-1,334**	**-1,003**	**-1,473**	**-1,731**	**-1,498**	**-1,398**
New Jersey Counties[3]	**264,412**	**3,763**	**3,326**	**4,612**	**6,588**	**7,622**	**7,001**	**4,891**
Connecticut Counties[4]	**57,639**	**-365**	**-245**	**-336**	**-554**	**-1,134**	**-122**	**-1,074**
TOTAL	**1,561,067**	**-37**	**-52**	**26**	**-27**	**14**	**-8**	**-50**

Source: BPM, WSP 2021.

[1] Long Island counties includes Nassau and Suffolk.

[2] Counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.

[3] New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.

[4] Connecticut counties include Fairfield and New Haven.

- CTPP data suggest that the propensity to commute by auto is related more to distance from public transit and the availability of free parking, which can correlate with certain types of work, rather than to needs for commuting by auto inherently related to a worker's industry or occupational category. Therefore, the increased cost for those who commute by car would not disproportionately affect the operations of a specific industry, although it may incentivize workers currently incentivized to drive by the availability of free parking to switch to a transit mode (promoting the goals of the Program).[68] The highest rate of auto commuting in the Manhattan CBD occurs in Census Tract 21 in Lower Manhattan (Figure 6-5), an area that includes part of Chinatown and several large municipal buildings. The availability of parking placards and/or free parking for some municipal employees likely contributes to the higher numbers of workers commuting by auto to Census Tract 21, rather than a business-specific need for personal automobiles. Within two East Village/Lower East Side census tracts that also have very high rates of auto commuting in the Manhattan CBD, over 25 percent of the jobs are associated with facilities that provide free parking.

[68] As detailed in Section 6.2.2, the NAICS Finance, Insurance, Real Estate and Rental and Leasing industry category and the SOC Business and Financial Operations Specialists and Legal occupational categories had only slightly higher representation within the highest auto commute locations of the Manhattan CBD. Salaries within these occupations are relatively high, suggesting that workers would be less price-sensitive to the incremental cost associated with tolling, particularly when factoring for the value of shorter commute times due to reduced congestion.

- **Manhattan CBD locations with the highest auto-commuting mode share have relatively low concentrations of total commuters.** Within the area of the Manhattan CBD with the highest rate of people who commute by auto from locations outside the Manhattan CBD—in the East Village and Lower East Side neighborhoods—relatively few total workers from outside the Manhattan CBD commute to this area, representing just over 2 percent of all workers commuting from outside the Manhattan CBD into the Manhattan CBD. The disincentive to drive created by the Project would not adversely affect economic conditions within or outside of the Manhattan CBD.
- **The potentially affected workforce who work outside of the Manhattan CBD is small.** The BPM estimates that 12,535 Manhattan CBD residents commute by auto to work at jobs outside the Manhattan CBD represent approximately 0.01 percent of the regional labor force. Of those who drive to work in other locations in New York City, only 540 are driving to jobs located farther than one-half mile of a rail (subway or Staten Island Railway) station, express bus stop, or express stop. Those workers who drive to New Jersey collectively comprise less than 2 percent of the employment within any New Jersey municipality.
- **Most of the potentially affected workforce who work inside the Manhattan CBD live and/or work near transit:**
  - **Approximately 99 percent of auto commuters to the Manhattan CBD have jobs that are close to transit.**[69] The ease of transit access within the Manhattan CBD allows the subset of car commuters to the Manhattan CBD who would be discouraged by toll costs and do not have transit access near their homes, to instead drive to a transit station and complete their commute by transit. The estimated 8,470 employees who work at locations more than one-half mile from a subway station or SBS stop in the Manhattan CBD represent small fractions of all Manhattan CBD workers in any specific industry and occupational category.
  - **Of the estimated 142,506 people who currently commute into the Manhattan CBD by car, more than one-third drive from residences in New York City that are close to transit.** Most workers living in these parts of New York City have a relatively easy option of riding a subway or train to the Manhattan CBD.
- **For some auto commuters, the underlying benefits of driving would remain in place with or without a Manhattan CBD toll.** With a toll, many drivers would continue to drive, because the additional cost of the toll may be offset by the value of a shorter commute time due to reduced congestion, and in some cases, the value of free parking available to them by an employer.

With respect to Manhattan CBD reverse commuters, the BPM projections indicate that in the aggregate, there would be minimal overall change in the number of workers who commute from the Manhattan CBD to other regional locations because of the CBD Tolling Alternative (**Table 6-27**). As compared to the No Action Alternative, the differences range from a 0.8 percent work-journey decrease (80 workers) under Tolling Scenario B to a 2.2 percent decrease (835 workers) under Tolling Scenario E. Under Tolling Scenario B, there would be a slight increase in Manhattan CBD resident-workers commuting to jobs in Long Island counties and in Manhattan outside the Manhattan CBD. Under Tolling Scenario E, the decrease in

[69] It is noted that proximity to transit does not necessarily make it accessible to some disabled individuals.

Manhattan CBD resident-workers commuting to jobs outside of the Manhattan CBD could be due to those workers taking jobs vacated by non-CBD residents who were working in the Manhattan CBD, but who took jobs outside of the Manhattan CBD to avoid the toll. These levels of change in workforce commuting would not disrupt employment in any industry at the regional level. Even if all of the estimated 12,535 Manhattan CBD reverse commuters who drive to their jobs elected to change positions in order to avoid tolling, they represent less than 5 percent of the labor force living within the Manhattan CBD, and approximately 0.1 percent of the labor force in the region. As a result, the CBD Tolling Alternative would not be likely to adversely affect any particular industry because of its potential to affect reverse commuters from the Manhattan CBD.

Table 6-27. Daily Worker Journeys from the Manhattan CBD (All Modes of Transportation)

GEOGRAPHIC AREA OF DESTINATION	NO ACTION TOTAL JOURNEYS	NET CHANGE IN DAILY WORKER JOURNEYS BY TOLLING SCENARIO AS COMPARED TO THE NO ACTION ALTERNATIVE						
		A	B	C	D	E	F	G
New York City (not including Manhattan CBD)	**23,042**	**-107**	**55**	**-154**	**-313**	**-326**	**-206**	**-176**
Bronx County	1,009	19	30	33	-2	12	5	1
Kings County (Brooklyn)	5,369	-28	-36	-88	-183	-153	-123	-67
New York County (Manhattan) Outside Manhattan CBD	15,439	-118	120	-50	-112	-178	-79	-79
Queens County	1,205	16	-54	-42	-6	-2	-5	-21
Richmond County (Staten Island)	20	4	-5	-7	-10	-5	-4	-10
Long Island Counties[1]	**2,751**	**-165**	**8**	**-170**	**-242**	**-205**	**-218**	**-97**
New York Counties North of New York City[2]	**565**	**-28**	**-38**	**-23**	**-55**	**-58**	**-32**	**-67**
New Jersey Counties[3]	**9,756**	**97**	**-7**	**-69**	**23**	**-110**	**77**	**128**
Connecticut Counties[4]	**1,343**	**-79**	**-98**	**-74**	**-79**	**-136**	**-96**	**-67**
TOTAL	**37,457**	**-282**	**-80**	**-490**	**-666**	**-835**	**-475**	**-279**

Source: BPM, WSP 2021.

1. Long Island counites include Nassau and Suffolk.
2. New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
3. New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
4. Connecticut counties include Fairfield and New Haven.

Non-Work-Related Journeys

For non-work-related journeys, the BPM assumes that the total number of these discretionary journeys remains steady regionwide, but the destination of a non-work-related journey (e.g., a journey for shopping or entertainment) could change because of a change to the transportation network. Table 6-28 presents the BPM results related to changes in non-work-related journeys (all modes) to the Manhattan CBD with the CBD Tolling Alternative as compared to the No Action Alternative. Under all tolling scenarios, the total number of these journeys would remain essentially the same between tolling scenarios (the small differences in total journeys are equivalent to rounding errors in the model results), but the destination of the non-work-related journeys would vary. The largest contributing factor in terms of reductions under all tolling scenarios would be forgone journeys to the Manhattan CBD from areas of Manhattan north of 60th Street. Table 6-28 also shows marginal increases in non-work Manhattan CBD journeys originating within

the Manhattan CBD, likely due to reductions in congestion, which would encourage additional non-work journeys within the Manhattan CBD.

Table 6-29 provides additional detail on how the CBD Tolling Alternative would alter discretionary journey-making decisions; Tolling Scenario D is used in this example because it would result in the greatest reduction in non-work-journeys to the Manhattan CBD. The reductions in non-work-related journeys would be related to reductions in journeys by auto and offset by increases in journeys by public transit. Notable decreases in auto journeys would occur for Manhattan north of the Manhattan CBD, Brooklyn, and Queens.

Table 6-28. Net Change in Non-Work-Related Journeys To and Within the Manhattan CBD vs. No Action Alternative (All Modes of Transportation)

GEOGRAPHIC AREA OF ORIGIN	NO ACTION TOTAL	TOLLING SCENARIO –NET CHANGE						
		A	B	C	D	E	F	G
New York City	**796,263**	**-3,105**	**-1,213**	**-3,033**	**-6,027**	**-5,347**	**-2,795**	**-4,116**
Bronx County	41,511	-1,272	-540	-1,159	-1,804	-1,820	-1,197	-1,110
Kings County (Brooklyn)	80,405	-1,212	-407	-1,187	-2,323	-2,032	-1,015	-1,762
New York County (Manhattan)	601,900	-151	-538	-1,008	-1,036	-704	-769	-594
Inside Manhattan CBD	513,511	1,954	1,102	1,468	2,753	2,914	1,995	1,869
Outside Manhattan CBD	88,389	-2,105	-1,640	-2,476	-3,789	-3,618	-2,764	-2,463
Queens County	61,828	-1,190	-592	-1,183	-1,759	-1,405	-699	-1,415
Richmond County (Staten Island)	10,619	720	864	1,504	895	614	885	765
Long Island Counties[1]	**16,566**	**622**	**748**	**109**	**2**	**223**	**158**	**816**
New York Counties North of New York City[2]	**7,640**	**-478**	**-458**	**-450**	**-888**	**-891**	**-678**	**-574**
New Jersey Counties[3]	**46,807**	**2,186**	**2,775**	**3,380**	**2,894**	**3,149**	**3,498**	**3,256**
Connecticut Counties[4]	**1,514**	**-28**	**272**	**358**	**293**	**206**	**387**	**250**
TOTAL	**868,790**	**-803**	**2,124**	**364**	**-3,726**	**-2,660**	**570**	**-368**

Source: BPM, WSP 2021.

1. Long Island counties includes Nassau and Suffolk.
2. New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
3. New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
4. Connecticut counties include Fairfield and New Haven.

Table 6-29. Change in Regional Non-Work-Related Journeys To and Within the Manhattan CBD: Tolling Scenario D versus No Action Alternative

GEOGRAPHIC AREA OF ORIGIN	TOTAL NON-WORK RELATED JOURNEYS NO ACTION	TOTAL NON-WORK RELATED JOURNEYS SCENARIO D	CHANGE IN JOURNEYS	PERCENTAGE CHANGE IN JOURNEYS
New York City	**796,263**	**790,236**	**-6,027**	**-0.8%**
Bronx County	41,511	39,707	-1,804	-4.3%
Kings County (Brooklyn)	80,405	78,082	-2,323	-2.9%
New York County (Manhattan)	601,900	600,864	-1,036	-0.2%
Inside Manhattan CBD	513,511	516,264	2,753	0.5%
Outside Manhattan CBD	88,389	84,600	-3,789	-4.3%
Queens County	61,828	60,069	-1,759	-2.8%
Richmond County (Staten Island)	10,619	11,514	895	8.4%
Long Island Counties[1]	**16,566**	**16,568**	**2**	**0.0%**
New York Counties North of New York City[2]	**7,640**	**6,752**	**-888**	**-11.6%**
New Jersey Counties[3]	**46,807**	**49,701**	**2,894**	**6.2%**
Connecticut Counties[4]	**1,514**	**1,807**	**293**	**19.4%**
TOTAL	**868,790**	**865,064**	**-3,726**	**-0.4%**

Source: BPM, WSP 2021.

1. Long Island counties includes Nassau and Suffolk.
2. New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
3. New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
4. Connecticut counties include Fairfield and New Haven.

The BPM assumes that the total number of non-work-related journeys in the region would remain the same in the No Action and CBD Tolling Alternatives. This is a reasonable assumption given the size of the regional study area; non-work-related journeys that may no longer occur within the Manhattan CBD are expected to be captured within the broader study area. Reductions in journeys to the Manhattan CBD would likely be captured in other areas of Manhattan outside the Manhattan CBD, in New York City, or in the region. There would not be a loss of consumer spending on a regional basis, except for spending that would be forgone by consumers traveling by car to the Manhattan CBD, who could instead use a portion of their discretionary spending money for the toll. The toll would effectively reduce the overall expenditure potential for people traveling by car into the Manhattan CBD; this would reduce expenditure potential for individuals and the potential revenue that businesses would have captured but that would now be spent on the toll. As noted in Chapter 18, "Agency Coordination and Public Outreach," during early public outreach for the Project in fall 2021, members of the public raised concern about potential effects of losses in consumer spending at businesses, cultural and sporting events, and tourist areas like Chinatown and Broadway. However, given that a vast majority of non-work-related journeys to the Manhattan CBD are not conducted by auto, that some auto journeys would transition to public transit, and that some auto journeys would continue (with potential reductions in some discretionary expenditures to compensate for the toll cost), a reduction in non-work journeys to the Manhattan CBD would not be expected to substantively alter

expenditures within any particular industry.[70] At the regional level, any forgone non-work-related journeys to the Manhattan CBD and associated expenditure would be captured elsewhere. The CBD Tolling Alternative would also provide regional benefits by establishing a reliable, recurring local source of funding for MTA capital projects, which would allow MTA to reinvest in and improve its transportation network. This would be expected to facilitate growth in non-work-related journeys to the Manhattan CBD.

Taxi and For-Hire Vehicle Industry

Under some tolling scenarios there could be an increase in taxi and FHV fares that could reduce demand and industry revenues for taxis and/or FHVs.[71] As detailed in **Subchapter 4A, "Transportation: Regional Transportation Effects and Modeling,"** the tolling scenarios and additional analyses assess a variety of tolling policies for taxis and FHVs ranging from unlimited tolling for taxis and FHVs each day to a complete exemption from paying the Manhattan CBD toll.

The TLC requires that passengers reimburse the taxi driver for any toll costs during the trip; when no passengers are in the vehicle, drivers pay the toll today as part of the cost of doing business. TLC rules for high-volume FHVs (i.e., Uber and Lyft) and require that FHV services collect and remit to the TLC information on the itemized fare for the trips charged to the passengers, including the fare, toll, taxes and gratuities.

Any charge implemented by the CBD Tolling Program would likely follow the existing framework. Thus, when present, the customer would be responsible for paying the tolls and the receipt would be itemized to show this. If no customer is present, the vehicle would be charged, unless exempted or capped.

Table 6-30 shows the projected reductions in daily VMT for each of the various tolling scenarios without

New York City's Commitment to Supporting Taxi and FHV Drivers

In 2019, New York City became the first city in the world to implement a trip-based, guaranteed minimum pay standard for high-volume FHV drivers, whether they drive their own vehicle or lease an FHV. The TLC also modified rules for yellow and green taxis to increase driver income protections, including reducing the daily maximum credit card surcharge and increasing accessible dispatch fees.

In 2021, the City implemented a medallion relief program and loan guaranty program to provide relief for owners with five or fewer medallions. Both programs provide financial assistance and free legal representation to help negotiate with lenders to reduce loan balances and lower monthly payments.

[70] Literature research of congestion-based pricing programs in London, England, and Stockholm, Sweden, found that these programs had not adversely affected retail markets. Retail businesses in the central London charging zone have outperformed retail businesses in inner and outer London in terms of sales, profitability, and employment growth. Overall, five years after the event there is no measurable evidence of any differential impact of the central London congestion charging scheme on business and economic activity, at the aggregate level, based on analysis and surveys conducted (https://content.tfl.gov.uk/central-london-congestion-charging-impacts-monitoring-sixth-annual-report.pdf). In Stockholm, studies of retail markets did not reveal adverse effects resulting from congestion charges. A durables survey within shopping centers, malls, and department stores conducted during the Stockholm program's trial period found that these entities developed at the same rate as the rest of the country; the same was true for other retail sectors (https://www.itf-oecd.org/sites/default/files/docs/swedish-congestion-charges.pdf).

[71] Paratransit vehicles, although part of the taxi/FHV industry, are not addressed in this section because the CBD Tolling Alternative would not impose a new toll on paratransit vehicles. With the CBD Tolling Alternative, paratransit vehicles would benefit from reduced congestion on some roadways within the Manhattan CBD.

modifications.[72] The VMT estimates shown in the table do not include cruising miles without a customer, and only reflect daily VMT for travel when the taxi/FHV has a customer. As shown in the table, the CBD Tolling Alternative would reduce the overall VMT for taxis and FHVs regionwide by 1 to 3 percent. These reductions would be greatest in New York City, ranging from 5 to 9 percent in tolling scenarios that do not include a cap or exemption for tolls on taxis and FHVs (Tolling Scenarios A, D, and G) and 1 to 5 percent in those that do have caps and/or exemptions (Tolling Scenarios B, C, E, and F).

The CBD Tolling Alternative would result in larger reductions in taxi/FHV VMT within the Manhattan CBD, which is the core service area for yellow taxis, as well as in Manhattan overall. As shown in Table 6-30, under Tolling Scenarios A, D, and G, which would have uncapped tolls for both taxis and FHVs, reductions in taxi/FHV VMT in the Manhattan CBD would range from almost 7 percent for Tolling Scenario A to close to 17 percent for Tolling Scenario D. In Manhattan overall, VMT reductions would range from 11 to 17 percent. If a tolling scenario with tolls of more than once per day is implemented for taxis and/or FHVs, the Project Sponsors will work with the appropriate city and state agencies so that passengers pay the toll, rather than the driver. Under Tolling Scenarios C and F, which would exempt taxis but would toll FHVs up to three times a day, VMT reductions would range from 3.5 percent to 7.9 percent in the Manhattan CBD and 7 to 10 percent for Manhattan overall. Given that taxis would not be tolled under Tolling Scenarios C and E, it is likely that taxis would experience increases in VMT while FHVs would experience greater VMT reductions.

In the Tolling Scenarios B and F, in which taxis and FHVs would be tolled a maximum of once per day, the reduction in taxi/FHV VMT within the Manhattan CBD and Manhattan overall would be lower and in Tolling Scenario F, taxi/FHV VMT within the Manhattan CBD is predicted to increase slightly because of the combination of the larger toll cost, which would make taxi/FHV a more attractive mode, and the reduction in congestion, which would increase the utility of commuting by taxi/FHV within the Manhattan CBD).

In addition, in response to concerns expressed during the public outreach process with respect to the anticipated effects of the Project on taxi and FHV drivers, the Project Sponsors considered modified several modified tolling scenarios with caps and/or exemptions for taxis and FHVs to understand the effects of such a modification. This included modifications of Tolling Scenarios A and D with a cap on tolls of once per day for taxis and FHVs (like Tolling Scenarios B and F), a modified Tolling Scenario D with both taxis and FHVs exempt from the toll, and a variation of Tolling Scenario G (referred to as Tolling Scenario G1) with a cap on tolls of once per day for taxis and FHVs. The analysis conducted demonstrated that with these modifications, these tolling scenarios would have substantially less reduction in taxi/FHV VMT in the Manhattan CBD. For more information, see Subchapter 4A, "Transportation: Regional Transportation Effects and Modeling." Overall, the more exemptions and caps provided, the higher tolls need to be to meet the Project's congestion and revenue objectives. However, if taxis and FHVs are charged for each trip, the demand for their service would decline, as would the number of trips they make.

[72] Taxis and FHVs are a single mode in the BPM and therefore cannot be presented separately.

Table 6-30. Net Change in Taxi/For-Hire Vehicle Daily Vehicle-Miles Traveled vs. No Action Alternative

GEOGRAPHIC AREA	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
New York City	**2,503,176**	**-128,847 (-5.1%)**	**-29,731 (-1.2%)**	**-84,406 (-3.4%)**	**-219,068 (-8.8%)**	**-130,412 (-5.2%)**	**-25,521 (-1.0%)**	**-147,687 (-5.9%)**
Bronx County	272,450	-8,392 (-3.1%)	-5,717 (-2.1%)	-6,426 (-2.4%)	-9,346 (-3.4%)	-3,991 (-1.5%)	-1,959 (-0.7%)	-7,831 (-2.9%)
Kings County (Brooklyn)	373,255	-33,855 (-9.1%)	-20,648 (-5.5%)	-10,247 (-2.7%)	-37,923 (-10.2%)	-27,854 (-7.5%)	-7,095 (-1.9%)	-39,183 (-10.5%)
New York County (Manhattan)	715,505	-77,843 (-10.9%)	-19,553 (-2.7%)	-51,989 (-7.3%)	-119,349 (-16.7%)	-73,223 (-10.2%)	-17,076 (-2.4%)	-87,944 (-12.3%)
Inside Manhattan CBD	323,998	-21,498 (-6.6%)	+15,020 (+4.6%)	-11,371 (-3.5%)	-54,476 (-16.8%)	-25,621 (-7.9%)	+4,962 (+1.5%)	-27,757 (-8.6%)
Outside Manhattan CBD	391,507	-56,345 (-14.4%)	-34,573 (-8.8%)	-40,618 (-10.4%)	-64,873 (-16.6%)	-47,602 (-12.2%)	-22,038 (-5.6%)	-60,187 (-15.4%)
Queens County	1,085,040	-3,873 (-0.4%)	+21,258 (+2.0%)	-10,804 (-1.0%)	-47,911 (-4.4%)	-19,342 (-1.8%)	+4,979 (+0.5%)	-7,812 (-0.7%)
Richmond County (Staten Island)	56,926	-4,884 (-8.6%)	-5,071 (-8.9%)	-4,940 (-8.7%)	-4,539 (-8.0%)	-6,002 (-10.5%)	-4,370 (-7.7%)	-4,917 (-8.6%)
Long Island Counties[1]	**291,624**	**-1,050 (-0.4%)**	**+2,836 (+1.0%)**	**+6,816 (+2.3%)**	**-3,159 (-1.1%)**	**+3,846 (+1.3%)**	**+9,153 (+3.1%)**	**-2,775 (-1.0%)**
New York Counties North of New York City[2]	**222,684**	**-3,316 (-1.5%)**	**+1,047 (+0.5%)**	**-206 (-0.1%)**	**-4,694 (-2.1%)**	**-2,547 (-1.1%)**	**-1,118 (-0.5%)**	**-2,905 (-1.3%)**
New Jersey Counties[3]	**1,181,690**	**+9,142 (+0.8%)**	**+13,582 (+1.1%)**	**+8,656 (+0.7%)**	**+12,899 (+1.1%)**	**+17,283 (+1.5%)**	**+15,094 (+1.3%)**	**+17,455 (+1.5%)**
Connecticut Counties[4]	**116,356**	**-2,922 (-2.5%)**	**-1,762 (-1.5%)**	**-4,273 (-3.7%)**	**-3,455 (-3.0%)**	**-4,235 (-3.6%)**	**-2,496 (-2.1%)**	**-1,903 (-1.6%)**
TOTAL	**4,315,530**	**-126,993**	**-14,028**	**-73,413**	**-217,477**	**-116,065**	**-4,888**	**-137,815**
PERCENTAGE CHANGE		**-2.9%**	**-0.3%**	**-1.7%**	**-5.0%**	**-2.7%**	**-0.1%**	**-3.2%**

Source: BPM, WSP 2021.
Note: Projections include vehicle-miles traveled only during fares and do not include cruising without passenger(s).
1. Long Island counties includes Nassau and Suffolk.
2 New York counties north of New York City include Dutchess, Orange, Putnam, Rockland, and Westchester.
3 New Jersey counties include Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren.
4 Connecticut counties include Fairfield and New Haven.

Under tolling scenarios that would toll taxis and/or FHVs more than once a day, customers could choose to avoid the toll by switching to transit, walking, or biking to their destination in the Manhattan CBD, thereby reducing the frequency of taxi/FHV utilization. A reduction in congestion in the Manhattan CBD would improve drive-times and reduce passenger costs. However, the potential decrease in overall demand for taxis and FHVs could reduce employment in the taxi and FHV industries. The predicted change in overall taxi/FHV travel characteristics indicates that there could be some shift in business practices within the industry, particularly for yellow cabs operating in Manhattan. The projected reductions in VMT indicate potential economic costs within an industry in flux where journeys have already been shifting from taxis to FHVs and could correlate to lost revenues for both taxis and FHVs operating in New York City. Since driver income is directly related to the miles they travel with paying customers, these reductions could result in reductions in taxi and FHV employment. Chapter 17, "Environmental Justice," evaluates this potential adverse effect on taxi and FHV drivers in more detail.

In terms of economic impacts on businesses and industries, the change in taxi and FHV operations and business practices, while adverse for taxi and FHV drivers, would not result in an adverse economic impact on the industry overall.[73] The potential reductions in revenue and employment would not be of an amount that could jeopardize the overall viability of the taxi/FHV industry within the region. Based on historic data from the TLC's Fact Book for 2018, the industry has experienced substantial fluctuations year to year in key metrics such as active drivers and daily average trips; the industry adjusts to remain viable as an industry and meet demand. For example, there were reductions in the number of active livery cars, yellow cabs, and green cabs beginning in 2015 with the introduction of high-volume FHV ride-hailing services (Figure 6-7). Between January 2016 and January 2019, the numbers of active yellow cabs, green cabs, and livery cars decreased by 11.1 percent, 45.0 percent, and 55.4 percent, respectively. There were also precipitous decreases in demand for taxi/FHV services during the height of the COVID-19 pandemic (Figure 6-8). Nevertheless, under both circumstances that industry has continued to provide service. With the CBD Tolling Alternative consumer demand for taxi/FHV service would continue to be met, and those consumers who are willing to pay the toll would be driven to locations within the Manhattan CBD. The taxi/FHV industry would continue to operate throughout the region and would continue to be able to meet the needs of its consumer base.

Chapter 17, "Environmental Justice," provides additional analysis of the potential for job losses in the taxi and FHV industry, where the majority of drivers identify as minority populations.

Paratransit Vehicles

With the CBD Tolling Alternative, qualifying vehicles transporting persons with disabilities would be exempt from the toll.[74] This includes Access-A-Ride paratransit service, which provides public transportation for customers with disabilities or certain qualifying health conditions. The CBD Tolling Alternative would

[73] As noted in Chapter 5, Section 430 of the 2021 *CEQR Technical Manual*, an impact of a project that would substantially impair the ability of certain specific industries or categories or business to continue operating within New York City may be considered significant and adverse.

[74] As currently designed, qualifying vehicles transporting a person with disabilities include vehicles with government-issued disability license plates and fleet vehicles owned or operated by organizations and used exclusively to provide transportation to people with disabilities.

provide benefits to improve paratransit services, such as reduced roadway congestion resulting in travel-time and reliability improvements.

Buses

Given the Project goal of reducing congestion in the Manhattan CBD, while also creating a new recurring funding source to support the MTA's Capital Program for funding public transportation capital projects, the various tolling scenarios consider crossing credits, discounts, and/or exemptions for buses because those transporting passengers presumably reduce vehicle congestion. The standard bus tolling rate can be set at a value distinct from other classes. A discounted rate may represent a lower rate for buses as compared to the truck rate (non-franchise buses are currently charged truck rates at TBTA facilities) or may be a discounted rate against the bus rate for certain types of buses (e.g., public transit buses). As detailed in Chapter 2, "Project Alternatives," the tolling scenarios present a range of potential charging options for buses.

To the extent buses are charged full or discounted tolls under the tolling scenarios, the cost of the toll would be expected to be absorbed into overall operating costs. For subsidized public transit, these costs could result in additional subsidy requirements and a portion could ultimately be passed along to passengers in terms of ticket prices for carriers with variable ticket pricing or could be a component in periodic fare adjustments for fixed fare transit systems. Given the high passenger volumes of most bus services, the small incremental cost borne by any given passenger is not expected to be an amount that would deter ridership for a vast majority of passengers, and reduced ridership would not be expected to jeopardize the viability of bus service operations.

For non-subsidized service, increased operating costs would be expected to be passed on to the passenger or could result in reduced services. Smaller volume services such as commuter vans and jitney buses may experience a greater proportion of reduced ridership; however, if some price-sensitive commuter van and jitney riders switch to transit, they could benefit from the transit improvements facilitated by the CBD Tolling Alternative. For tour and charter buses, costs would be lower since the frequency of crossing in and out of the Manhattan CBD is much lower than public buses, and the cost of the toll would be passed on to a larger number of passengers.

Movement of Goods and Services, Including Freight Transport

As noted in Chapter 18, "Agency Coordination and Public Outreach," during early public outreach for the Project in fall 2021 members of the public expressed concerns about the potential for increases in fees and other services such as deliveries within the Manhattan CBD. With the CBD Tolling Alternative, the volumes of truck journeys into and within the Manhattan CBD are expected to remain similar to today because the need to deliver goods would remain the same; deliveries would still need to be made to restaurants, businesses, and residents regardless of the Manhattan CBD tolling implementation. As a result, the BPM assumes that journey origins and destinations of trucks and other commercial vehicles would remain constant between the No Action Alternative and all the tolling scenarios. In some cases, shipments could be consolidated to maximize the amount of product delivered if the route would incur the toll.

With the CBD Tolling Alternative, delivery trucks would incur an additional cost from a toll. Table 6-31 identifies the toll rates for various truck types under each of the tolling scenarios. As shown in Table 6-31, the actual amount paid by an individual truck per day would vary based on the toll rate, whether there is a cap on the number of tolls per day, and the number of times a truck is detected entering or remaining in the Manhattan CBD. Depending on the number of trips a truck makes, the total cost might be less in a tolling scenario with a cap on the number of tolls per day or a tolling scenario with a lower toll rate but no cap.

The CBD Tolling Alternative would also reduce costs for truck deliveries related to the time spent making the delivery and costs associated with parking tickets. Specifically, with a reduction in congestion in the Manhattan CBD, truckers could make their deliveries more quickly, reducing labor costs associated with the delivery. In addition, with fewer automobiles entering the Manhattan CBD each day, the demand for parking would be reduced, which would free up legal curbside parking for delivery vehicles. Delivery trucks may be able to find legal parking more readily in the Manhattan CBD, thereby reducing the incidence of ticketing (fines for which frequently exceed $1,000 per truck per month[75]). The extent of delivery cost savings would vary depending on the toll cost, the delivery route, timing of delivery, and the level of reduced congestion along the route that would be realized under the tolling scenarios.

Businesses in the Manhattan CBD that would be more likely to be adversely affected by increased delivery costs associated by tolling increases are small businesses that have a high rate of deliveries. In general, micro-businesses, which are small businesses with fewer than 20 employees, would be most sensitive to delivery cost increases. The types of businesses in the Manhattan CBD that would most likely be affected would be small businesses in the Retail Trade industry since they are dependent on frequent deliveries of smaller loads, and the cost of delivery of goods constitutes a higher portion of their operating costs. These include grocery stores, restaurants, and small "bodega" market convenience stores. As shown in Table 6-4, approximately 10 percent of businesses in the Manhattan CBD are classified as Retail Trade. Although bodegas and other small independent grocery/convenience stores are not uniquely identified in Table 6-4, they would most likely be represented by micro-businesses in the Supermarkets and Other Grocery Except Convenience Stores (NAICS Code 445110) and Convenience Stores (NAICS Code 445120) industry sub-categories. There are approximately 600 such businesses within the Manhattan CBD, representing slightly less than 1 percent (0.7 percent) of all businesses within the Manhattan CBD. As described below, any cost increase associated with the tolling increases from the CBD Tolling Alternative that would be passed along to receiving businesses would be distributed among several customers per toll charge (since trucks make multiple deliveries) especially for businesses, including small businesses and micro-businesses, receiving smaller deliveries, thereby minimizing the effect of the toll increases on any individual business.

[75] Holguin-Veras, Jose, et al. September 2010. *Integrative Freight Demand Management in the New York City Metropolitan Area*. http://www.nyc.gov/html/dot/downloads/pdf/ohd-final-report.pdf.

Table 6-31. Truck Treatment by Tolling Scenario

PARAMETER[1]	SCENARIO A Base Plan	SCENARIO B Base Plan with Caps and Exemptions	SCENARIO C Low Crossing Credits for Vehicles Using Tunnels to Access the CBD, with Some Caps and Exemptions	SCENARIO D High Crossing Credits for Vehicles Using Tunnels to Access the CBD	SCENARIO E High Crossing Credits for Vehicles Using Tunnels to Access the CBD, with Some Caps and Exemptions	SCENARIO F High Crossing Credits for Vehicles Using Manhattan Bridges and Tunnels to Access the CBD, with Some Caps and Exemptions	SCENARIO G Base Plan with Same Tolls for All Vehicle Classes
Potential Crossing Credits							
Credit Toward the CBD Toll for Tolls Paid at the Queens-Midtown, Hugh L. Carey, Lincoln, Holland Tunnels	No	No	Yes	Yes	Yes	Yes	No
Credit Toward the CBD Toll for Tolls Paid at the Robert F. Kennedy, Henry Hudson, George Washington Bridges	No	No	No	No	No	Yes	No
Potential Exemptions and Limits (Caps) on Number of Tolls per Day							
Small and large trucks	No cap	Twice per day	No cap	No cap	No cap	Once per day	No cap
Approximate Toll Rate (Small Truck / Large Truck) [2, 3]							
Peak [4]	$18 / $28	$20 / $30	$28 / $42	$38 / $57	$46 / $69	$65 / $82	$12 / $12
Off Peak [5]	$14 / $21	$15 / $23	$21 / $32	$29 / $43	$35 / $52	$49 / $62	$9 / $9
Overnight [6]	$9 / $14	$10 / $15	$14 / $21	$19 / $29	$23 / $35	$33 / $41	$7 / $7

1 The information in this table was used for modeling purposes to evaluate the range of effects resulting from implementation of the CBD Tolling Alternative. Actual toll rates, potential crossing credits/exemptions and/or other discounts, and the time of day when toll rates would apply would be determined by the TBTA Board after recommendation by the Traffic Mobility Review Board. **Appendix 2E, "Project Alternatives: Definition of Tolling Scenarios,"** provides more detailed information on the rates, potential crossing credits/exemptions, and/or other discounts assumed for each tolling scenario.

2 Tolls would be higher during peak periods when traffic is greatest. These would be defined by TBTA in the final toll schedule. All tolling scenarios also include a higher toll on designated "Gridlock Alert" days, although the modeling conducted for the Project did not reflect this higher toll since it considers typical days rather than days with unusually high traffic levels.

3 Toll rates are using E-ZPass and are rounded. For all tolling scenarios, different rates would apply for vehicles not using E-ZPass.

4 Peak is 6:00 a.m. to 8:00 p.m. on weekdays except for Scenario F, where it is 6:00 a.m. to 10:00 a.m. and 4:00 p.m. to 8:00 p.m., and on weekends when peak is 10:00 a.m. to 10:00 p.m.

5 Off peak is 8:00 p.m. to 10:00 p.m. on weekdays except for Scenario F, where it is 10:00 a.m. to 4:00 p.m.

6 Overnight is 10:00 p.m. to 6:00 a.m. on weekdays except for Scenario F, where it is 8:00 p.m. to 6:00 a.m., and on weekends when overnight is 10:00 p.m. to 10:00 a.m.

Incremental toll costs that are passed along to receiving businesses would be passed in a diluted fashion because shippers would allocate the toll costs among the multiple receivers on a journey (within New York City, averaging 5.5 stops per journey).[76] Shippers to small retail stores like bodegas typically make many stops and consequently would share the toll cost among those multiple receivers. An incremental cost to any one retail store would be passed along as an incremental cost to consumers but would represent a very small component of the retail price charged to the consumer.

As incremental toll costs would be diluted among receivers, the receivers would retain a role as decision-maker for delivery hours, and a vast majority of receivers prefer regular-hour deliveries because they typically have more staff on hand, as opposed to off-hour deliveries that could require additional staff, security, lighting, and other costs.[77] Therefore, tolling, as well as tolling with peak- and off-peak rate variation, would not likely substantially alter urban freight delivery. Separate research from Stockholm, Sweden about congestion pricing indicates that commercial-vehicle traffic, such as truck traffic, has a higher willingness to pay for decreased travel time and is relatively insensitive to changes in price compared with private passenger-trips.[78] However, the toll rates in Stockholm generally fall well below the toll rates contemplated under the tolling scenarios[79], and therefore with the CBD Tolling Alternative the lower off-peak rates may have a stronger influence on receiver decision-making if a business is incurring additional costs during peak delivery times.

With the CBD Tolling Alternative, some trucks with origins and destinations outside the Manhattan CBD that currently pass through the Manhattan CBD enroute to their destinations in the No Action Alternative could choose a different route to avoid the toll with the CBD Tolling Alternative. This routing decision would be based on consideration of the cost of the toll versus the cost of the alternative routing, which could be longer or more time-consuming. These trucks would still reach their destination, using a different route than they do today. The BPM projects a reduction in truck trips passing through the Manhattan CBD ranging from approximately 1,700 truck trips in Tolling Scenario G[80] to nearly 6,800 truck trips in Tolling Scenario F compared to the No Action Alternative. Tolling Scenario F would have the highest tolls for trucks (Table 6-32). While in the No Action Alternative, 25 percent of the trucks entering the Manhattan CBD would not have destinations in the Manhattan CBD and would be passing through. In Tolling Scenario F, with the highest tolls, the share would drop to 6 percent.

[76] Holguin-Veras, Jose, et al. September 2010. *Integrative Freight Demand Management in the New York City Metropolitan Area*. http://www.nyc.gov/html/dot/downloads/pdf/ohd-final-report.pdf.

[77] Ibid.

[78] Börjesson, Maria. 2018. *Long-Term Effects of the Swedish Congestion Charges*. International Transport Forum. https://www.itf-oecd.org/sites/default/files/docs/swedish-congestion-charges.pdf.

[79] Charges for a single entry in Stockholm range from 11 to 45 Swedish Krona (SEK) (approximately $1.14 to $4.66 USD) during peak seasons, and 11 to 35 SEK ($1.14-$3.62 USD) in off-peak seasons. Vehicles are charged for every entry with a maximum toll per day for any vehicle of 135 SEK, or $13.98 USD (during off-peak season, the maximum toll is 105 SEK, or $10.87 USD). All vehicles are subject to the same fee schedule.

[80] Tolling Scenario G is similar to the Stockholm, Sweden program in that all vehicles are subject to the same fee schedule, resulting in relatively low toll rates for trucks and a greater willingness to absorb (rather than avoid) the cost of tolls.

Table 6-32. Change in Daily Through Truck Trips via the Manhattan CBD, No Action Alternative vs. Tolling Scenarios

PARAMETER	NO ACTION	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Truck Trips Through Manhattan CBD	8,392	3,746	3,424	3,139	2,705	1,788	1,607	6,657
Difference from No Action Alternative	—	-4,645	-4,967	-5,253	-5,687	-6,604	-6,784	-1,734

Source: BPM, WSP 2021.

6.4 NEIGHBORHOOD-LEVEL ASSESSMENT

In addition to the regional effects of the Project discussed in Section 6.3, the changes in regional travel patterns resulting from the CBD Tolling Alternative also have the potential to affect localized community and neighborhood economic conditions if travel patterns at transportation hubs (where travelers shift modes) or near the 60th Street Manhattan CBD boundary change in a way that could lead to changes in economic conditions. This section of the chapter evaluates the potential for the Project to result in this type of localized change and whether such a change could lead to indirect displacement effects and changes in the operations of certain industries.

6.4.1 Study Areas

This section considers whether and where the CBD Tolling Alternative could substantively influence economic conditions at a local level, and thus warrant a neighborhood-level assessment. As detailed below, the identified study areas are locations where the CBD Tolling Alternative could indirectly alter land use and economic patterns within a neighborhood or neighborhoods. This section considers the effects of the CBD Tolling Alternative on transportation hubs, neighborhoods where vehicular traffic would increase or decrease, and the area close to the 60th Street Manhattan CBD boundary in Manhattan.

6.4.1.1 Transportation Hubs

With the CBD Tolling Alternative, certain public transportation hubs would experience an increase in transit ridership as more travelers to and from the Manhattan CBD select to take public transportation rather than personal transportation or taxis/FHVs in order to avoid the toll. The economic consideration at these transportation hubs is whether the increased consumer demand generated by the additional riders could substantively alter market forces in the immediate area of the transportation hubs, leading to a change of uses and neighborhood character. For example, this theoretically could occur if increased spending from new consumers in retail corridors near these public transportation hubs then led to increased property values, which in turn led to increased rents. To the extent that existing businesses would experience an increase in foot traffic or demand such that property values would be meaningfully affected, the resultant increase in rents could be offset by increased sales revenues. However, non-retail uses—or retail uses that

do not cater to the new demand—may not benefit from increased sales, which in theory could lead to turnover of businesses.[81]

As detailed in **Subchapter 4C, "Transportation: Transit,"** the shift of some portion of journeys to and from the Manhattan CBD from automobile to transit would result in a relatively small overall change in regional transit ridership of 1 to 3 percent across all transit service types in the region. Outside the key Manhattan CBD transit hubs, where the increase in transit riders would be the most concentrated, the distribution of ridership changes is not expected to introduce additional consumer expenditure potential that could substantively alter real estate market conditions or change retail sales in and around any given transit station in the region. Therefore, the CBD Tolling Alternative does not have the potential to substantively alter market conditions in neighborhoods surrounding transportation hubs, and no further analysis of this concern is warranted.

6.4.1.2 Neighborhood Streets Experiencing Increases or Decreases in Traffic

The CBD Tolling Alternative would result in an overall net reduction in auto journeys to and from the Manhattan CBD. Depending on the tolling scenario and the specific crossing credits included for other tolls paid at bridges and tunnels, certain local streets are projected to experience increases in vehicle traffic from route diversions. **Subchapter 4B, "Transportation: Highways and Local Intersections,"** provides detail on these locations and presents the results of intersection-level traffic impact analysis. The predicted changes in traffic volumes would be small compared to the overall volume of traffic on city streets during the day. As a result, there would be no anticipated change to the overall operation or character of local streets and no effect on economic conditions.

Increases and decreases in vehicle traffic along road segments resulting from the CBD Tolling Alternative would not substantively alter local market conditions for the following reasons:

- **These locations already experience traffic at levels that influence market conditions.** Areas where traffic volumes would increase already experience high levels of vehicle traffic, and in any case, local market conditions are more heavily influenced by existing pedestrian traffic. Therefore, such changes in traffic would not be expected to alter economic conditions at the neighborhood level. Outside the Manhattan CBD, few roadway segments would experience increases in vehicle traffic exceeding 20 percent over the No Action Alternative under any tolling scenario, and these segments would be primarily on highways such as the Long Island Expressway.
- **Car journeys to commercial businesses represent a small percentage of all consumer journeys in and immediately surrounding the Manhattan CBD.** Based on CTPP data, in general fewer than 10 percent of all journeys made to local businesses in the Manhattan CBD are made by auto. Given that the BPM predicts that the CBD Tolling Alternative would reduce non-work auto journeys to the Manhattan CBD by no more than 13 percent (the highest reduction, under Tolling Scenario D), the reduction in non-

[81] In addition to this economic effect on businesses, an increase in property values could also affect residences. This type of indirect displacement is discussed in **Subchapter 5A, "Social Conditions: Population Characteristics and Community Cohesion,"** which concludes that the CBD Tolling Alternative would not result in adverse effects related to indirect residential displacement.

work journeys to the Manhattan CBD would be no more than approximately 1.3 percent (i.e., a 13 percent reduction of 10 percent of consumer base). Because some of those auto-based trips would transition to transit, the loss of consumer base is expected to be even less than 1.3 percent.

- **Areas receiving incremental traffic (e.g., roadways near the Queens-Midtown Tunnel and the Hugh L. Carey Tunnel) are largely "pass-through" locations.** A vast majority of automobile travelers are not stopping at these locations and therefore would not add consumer spending to these local areas. The Project-generated shifts in traffic would not be attributed to attractions to/from businesses along routes, but rather they would be in response to the imposed tolling program, resulting in different route choices. Therefore, they would have little or no effect on consumer journeys to any particular business, except for perhaps parking facilities (addressed later in this subchapter).

Based on the above, detailed assessment of potential economic effects along neighborhood streets is not warranted and no adverse effect on economic conditions is anticipated.

6.4.1.3 Neighborhoods Near the 60th Street Manhattan CBD Boundary

The northern boundary of the Manhattan CBD, as defined in the MTA Reform and Traffic Mobility Act, is 60th Street. This assessment considers whether the introduction of tolling for vehicles would result in changes in economic conditions in neighborhoods on either side of the Manhattan CBD boundary because of changes in traffic volumes close to 60th Street.

Neighborhoods immediately north and south of the Manhattan CBD boundary regularly experience high volumes of vehicular and pedestrian traffic such that the incremental volumes generated by the CBD Tolling Alternative would not alter local market conditions in a manner that could adversely affect neighborhood character (see **Subchapter 5B, "Social Conditions: Neighborhood Character,"** for additional discussion). This analysis considers the effects of the CBD Tolling Alternative on the local demand for off-street parking, which is a prominent land use in the vicinity of 60th Street across Manhattan, and whether a change in demand could in turn result in a change in the character of the area.[82] Fewer people may seek parking in the areas just inside the Manhattan CBD, while north of the boundary, there could be new demand for off-street parking, and new parkers could become new consumers as they walk to their destinations south of the Manhattan CBD boundary.

[82] The Project's effects on parking are evaluated in **Subchapter 4D, "Transportation: Parking."** The assessment in this chapter considers the possible changes in land use and local economic conditions related to changes in parking demand. Industrywide, the potential reduction in overall auto journeys to the Manhattan CBD is not predicted to be large enough to result in regional impacts to the off-street parking industry or off-street parking facilities within the Manhattan CBD south of 55th Street, because the reduction of auto trips and associated parking would be dispersed throughout the Manhattan CBD.

It is predicted that "last-mile" switching from auto to walking trips to avoid the toll cost would not be a rational decision beyond approximately five blocks of the Manhattan CBD boundary.[83] For example, an individual with a 55th Street destination would be far more likely to seek parking just north of the 60th Street Manhattan CBD boundary and walk to their destination compared with an individual who has a destination farther south in the Manhattan CBD. Therefore, to assess the potential economic effects of this change in consumer behavior, a study area encompassing the area from 55th Street to 65th Street for the width of Manhattan was evaluated (**Figure 6-9**).

6.4.2 Affected Environment

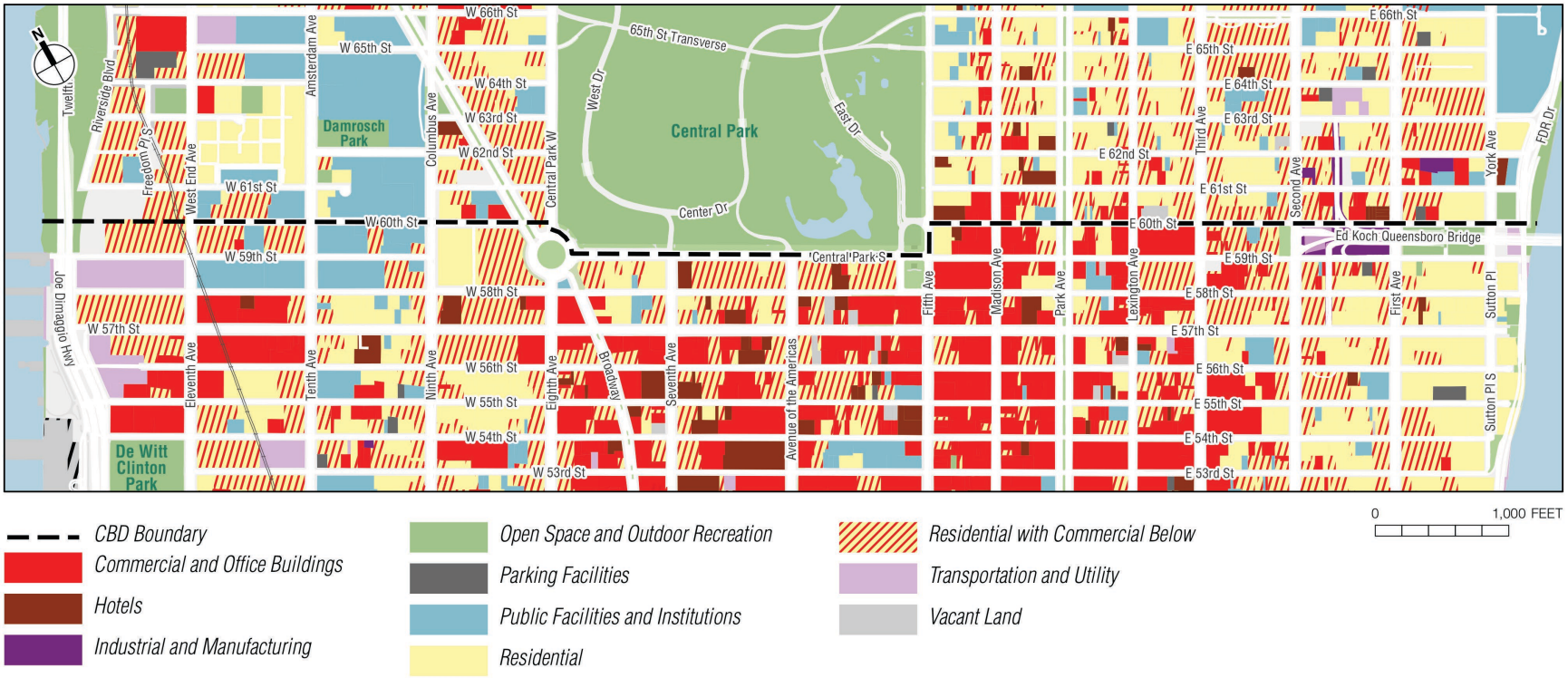
The area of Manhattan between 55th and 65th Streets from the Hudson River to the East River is characterized by densely developed neighborhoods with a wide mix of uses and strong, established land use trends. The Manhattan CBD boundary comprises heavy vehicular and pedestrian traffic, with access to multiple subway and bus routes and high transit usage. There are also numerous parking garages.

North of 60th Street, the areas east of Central Park (part of the Upper East Side) and west of Central Park (part of the Upper West Side) are both high-density neighborhoods characterized by residential uses, including rowhouses, mid- and high-rise apartment buildings, and residential skyscrapers. The economic and employment characters of this area include prominent large institutional uses as well as neighborhood commercial corridors along most north–south avenues. The key characteristics of these areas are the combination of high residential density development, congested vehicular and pedestrian traffic conditions, and a mix of office, residential, retail, institutional, and open space uses.

The area south of 60th Street, part of the Manhattan CBD and the northern part of Midtown Manhattan, is a high-density district characterized by a mix of uses, including commercial and residential skyscrapers, retail districts, and large cultural and institutional facilities (**Figure 6-9**). The areas of Midtown east of Second Avenue and west of Eighth Avenue are much more residential in character, but still very densely developed with rowhouses and mid- and high-rise apartment buildings. There is high pedestrian traffic throughout the day, and heavy vehicular traffic on all north–south roadways, along 57th Street and Central Park South, on the West Side Highway/Route 9A and Franklin D. Roosevelt Drive, and near the entrances and exits to the Ed Koch Queensboro Bridge. The high pedestrian and vehicular traffic and mix of commercial office, residential, and retail uses are key characteristics of the area immediately south of 60th Street.

[83] Rational behavior is the cornerstone of rational choice theory, a theory of economics that assumes that individuals always make decisions that provide them with the highest amount of personal utility. These decisions provide people with the greatest benefit or satisfaction given the choices available. While the value individuals place on their time varies depending on personal socioeconomic factors and circumstance, the value of one hour of personal travel time is usually estimated at 25 to 50 percent of earnings, while the value placed on business travel time can exceed 100 percent of earnings (https://www.transportation.gov/sites/dot.gov/files/docs/2016%20Revised%20Value%20of%20Travel%20Time%20Guidance.pdf). For purposes of this analysis, it is assumed that the toll cost is roughly equivalent to one hour of a person's time. Given this assumption, it would be a rational choice for individuals to park north of the 60th Street Manhattan CBD boundary to avoid the toll if the time spent on this "toll avoidance measure" were less than one hour, which when considering walking times roughly equates to an area from 55th to 65th Streets.

Figure 6-9. Land Use Near the 60th Street Manhattan CBD Boundary



Sources: New York City Department of City Planning, BYTES of the BIG APPLE, https://www1.nyc.gov/site/planning/data-maps/open-data.page.
ArcGIS Online, https://www.arcgis.com/index.html.

As noted above, neighborhoods immediately north and south of the 60th Street Manhattan CBD boundary regularly experience high volumes of vehicular and pedestrian traffic such that the incremental volumes generated by the CBD Tolling Alternative would not alter local market conditions in a manner that could adversely affect neighborhood character. The BPM projections do not suggest that there would be substantial increases in parking demand immediately north of the 60th Street Manhattan CBD boundary from auto users; the number of cars on each of the avenues immediately north of 60th Street is projected to decrease under all tolling scenarios. In addition, literature research of congestion-based pricing programs in London, England, and Stockholm, Sweden, did not identify adverse effects related to increased parking demand immediately outside of tolling cordons. Nevertheless, this assessment considers potential economic effects if the CBD Tolling Alternative were to increase demand for off-street parking at some locations north of 60th Street, even with a decrease in the overall number of cars. Between 60th and 65th Streets (north of the 60th Street Manhattan CBD boundary), there are approximately 7,525 off-street parking spaces in 52 parking facilities (Figure 6-10 and Table 6-33). If the area were to experience an increase in parking demand, it is expected that incremental demand would be satisfied through available capacity,[84] or if there were capacity constraints, through upward adjustments in parking fees. Changes in parking rates could also affect area residents that use off-street parking facilities. Parking fee adjustments north of 60th Street, combined with potential parking fee reductions south of 60th Street due to potential reductions in demand, would offset potential changes in consumer demand behaviors resulting from the CBD Tolling Alternative. Even if such behavior were not fully offset through rate adjustments, there would not be changes in land use patterns; the trend toward lower parking demand combined with high real estate values in this area suggests that new parking garages would not be developed.

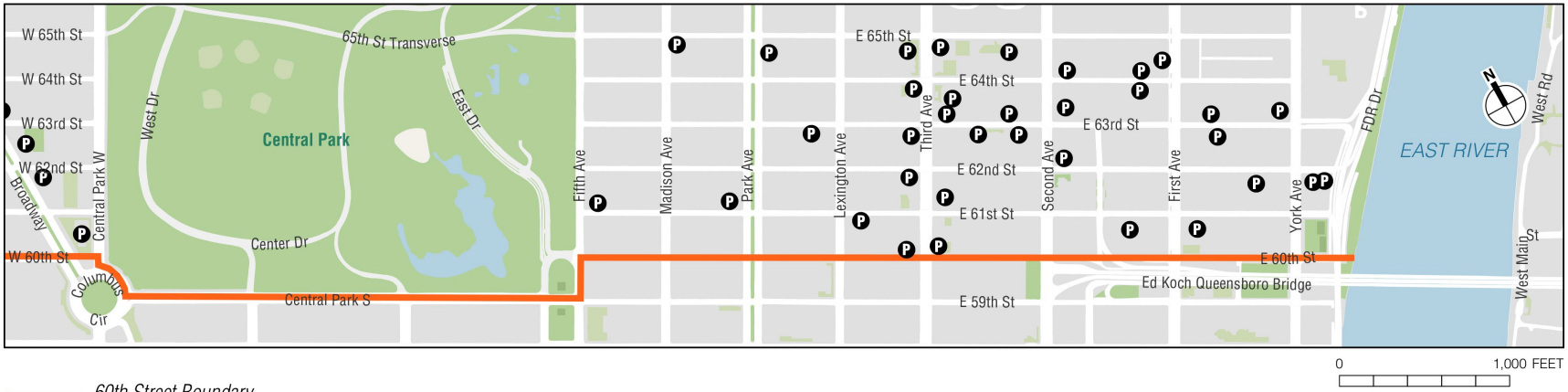
In areas immediately south of 60th Street, the CBD Tolling Alternative could reduce local demand for off-street parking, which is a prominent land use in the area. Between 60th and 55th Streets (south of the 60th Street Manhattan CBD boundary), there are approximately 11,500 off-street parking spaces in 88 parking facilities (Table 6-33 and Figure 6-11). This analysis considers whether parking garages immediately south of 60th Street could experience reduced demand at a level that could lead to displacement of off-street parking facilities, and a resulting change in neighborhood character.

[84] Based on a sampling of parking utilization collected in 2018 and 2019 during typical conditions for environmental review studies, weekday midday off-street parking utilization ranges from approximately 70 to 80 percent of capacity, with lower utilization rates in the AM and PM peak periods. Applying this utilization estimate to the total off-street parking capacity between 60th and 65th Streets (7,525 spaces) equates to between 1,505 and 2,258 available off-street parking spaces.

Figure 6-10. Off-Street Parking Facilities between 60th and 65th Streets North of the 60th Street Manhattan CBD Boundary

Western Portion

Eastern Portion



60th Street Boundary

Off-Street Parking Facility

Source: Parking facility locational data obtained from the New York City Department of Information Technology & Telecommunications NYCityMap program.

Table 6-33. Parking Garages between 55th and 65th Streets

AREA	BOUNDARIES	PARKING GARAGES	PARKING SPACES
Outside the Manhattan CBD: North of 60th Street (60th to 65th Streets)		**52**	**7,525**
Lenox Hill	East 60th Street to East 65th Street/Franklin D. Roosevelt Drive to Third Avenue	23	2,834
Upper East Side	East 60th Street to East 65th Street/Third Avenue to Fifth Avenue	11	1,031
Lincoln Square	West 60th Street to West 65th Street/Central Park West to Twelfth Avenue	18	3,660
Inside the Manhattan CBD: South of 60th Street (60th to 55th Street)		**88**	**11,541**
East Midtown	East 55th Street to East 60th Street/Franklin D. Roosevelt Drive to Park Avenue	31	4,198
Midtown	59th Street to 55th Street/Park Avenue to Eighth Avenue	36	3,202
Clinton	West 60th Street to West 55th Street/Eighth Avenue to Twelfth Avenue	21	4,141
	TOTAL (55th to 65th Streets)	**140**	**19,066**

Sources: New York City Department of Consumer Affairs data obtained from the New York City Department of Information Technology & Telecommunications NYCityMap program; data for areas inside of 60th Street Manhattan CBD boundary field verified by AKRF in October 2019.

6.4.3 Environmental Consequences

6.4.3.1 No Action Alternative

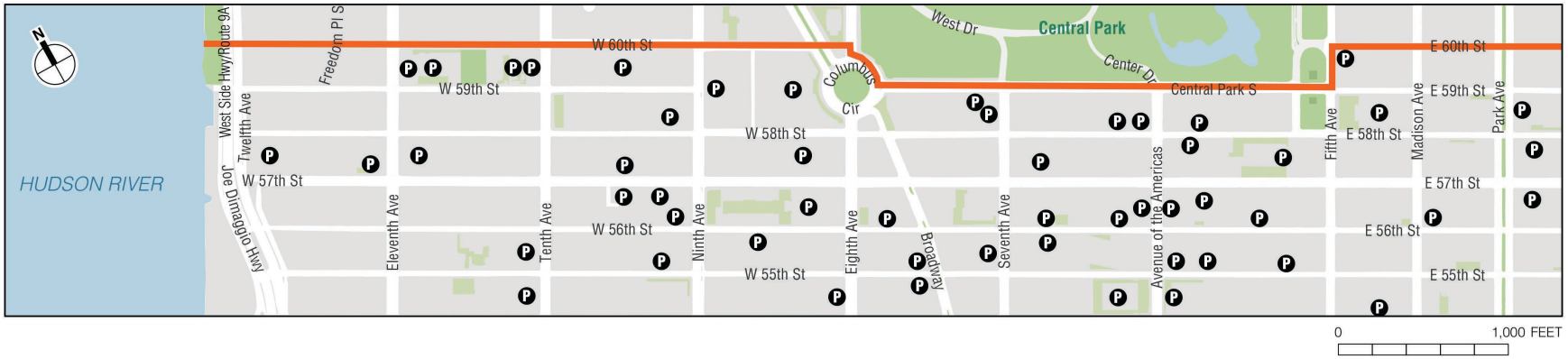
The No Action Alternative would not implement a vehicular tolling program. It would not affect population, travel patterns, access to employment, or neighborhood economic conditions in the 2023 analysis year. Market conditions at the neighborhood level would not markedly change.

6.4.3.2 CBD Tolling Alternative

This section describes the potential effects of the CBD Tolling Alternative on economic conditions at the neighborhood level. The analysis considers whether additional consumers and/or changes in consumer demand could alter underlying real estate market forces at the neighborhood level, specifically focusing on off-street parking uses and demand.

Figure 6-11. Off-Street Parking Facilities between 60th and 55th Streets South of the 60th Street Manhattan CBD Boundary

Western Portion



Eastern Portion

60th Street Boundary

Off-Street Parking Facility

Source: Parking facility locational data obtained from the New York City Department of Information Technology & Telecommunications NYCityMap program.

As shown in Table 6-34, under the various tolling scenarios there could be as much as a 10.5 percent reduction in total auto journeys to the Manhattan CBD as compared to the No Action Alternative, which in absolute terms is an estimated 40,906 autos. This is auto journeys from all locations crossing into the Manhattan CBD (60th Street, Hudson River, Brooklyn, and Queens); only a portion of this reduction would occur in journeys coming from the north. However, a conservative estimate of the reduction in demand for parking immediately south of 60th Street was made using the BPM zonal information. This information indicates about 4.5 percent of auto journeys to the Manhattan CBD are bound for the traffic analysis zones just south of 60th Street. Applying this percentage to the largest reduction shown in Table 6-34 (Tolling Scenario E, with 40,906 fewer vehicles) would reduce potential parking demand in the area immediately south of 60th Street by about 1,840 vehicles per day, which represents approximately 16 percent of the estimated 11,500 parking spaces located across Manhattan between 55th and 60th Streets.[85] Reduction in parking demand of this volume could jeopardize the viability of one or more parking facilities in the area south of 60th Street. However, given property values and consumer volumes at the northern border of the Manhattan CBD in the area south of 60th Street, if one or more parking facilities were to close, these facilities could be redeveloped or repurposed with other uses; the sites would not remain vacant; therefore, their potential displacement would not create a climate of disinvestment that could lead to adverse effects on neighborhood character.

Table 6-34. Change in Auto Journeys to the Manhattan CBD vs. No Action Alternative

CHANGE IN JOURNEYS	SCENARIO A	SCENARIO B	SCENARIO C	SCENARIO D	SCENARIO E	SCENARIO F	SCENARIO G
Absolute Change	-20,742	-16,173	-25,559	-38,744	-40,906	-31,784	-23,056
Percentage Change	-5.3%	-4.2%	-6.6%	-10.0%	-10.5%	-8.2%	-5.9%

Source: BPM, WSP 2021.

Overall, therefore, changes in traffic patterns predicted as a result of the CBD Tolling Alternative would not alter overall economic activity or conditions in any areas that could see a decrease or increase in traffic on local streets.

6.5 CONCLUSION

Through congestion relief, the CBD Tolling Alternative would provide an economic benefit to the Manhattan CBD, and thus to the region and nation. Most transportation users in the region making journeys to or within the Manhattan CBD by auto, FHV/taxi, bus, or truck would benefit from travel-time savings and travel-time reliability improvements, which are economic benefits because they increase a person's productivity and overall utility by reducing time spent on less productive activities (i.e., traveling to a destination). With fewer vehicular trips entering and exiting the Manhattan CBD, the CBD Tolling Alternative would also reduce vehicle-vehicle and vehicle-pedestrian conflicts, leading to an overall benefit to safety. In addition, the CBD Tolling Alternative would decrease regional VMT relative to the No Action

[85] In addition to assuming the largest auto reduction of autos from the tolling scenarios, this analysis conservatively assumes that all auto trips bound for the traffic analysis zones just south of 60th Street are seeking off-street parking, when some of those trips currently secure on-street parking.

Alternative, which could lead to vehicle operating cost savings for drivers and businesses. Overall, economic benefits to sustaining the economic vitality of New York City as well as benefits to drivers and transit riders are anticipated because of the proposed CBD Tolling Alternative, which would provide for congestion relief in the Manhattan CBD as well as secure funding to sustain capital investment in the regional transit system.

The economic analysis also considers the potential for adverse economic effects resulting from increased commuting costs, increased taxi/FHV fares, and increased delivery costs that could result from the CBD Tolling Alternative on businesses and employees in the Manhattan CBD. The analysis finds that increased auto commuting costs under the CBD Tolling Alternative would not adversely affect any particular industry or occupational category in the Manhattan CBD. Given the highly transit-accessible nature of the Manhattan CBD, the Project's toll on auto commuters would directly affect a relatively small percentage of the overall workforce.

Census data indicates that in the aggregate, there are no industry or occupational categories within the Manhattan CBD for which commuters have a greater propensity or need to commute by auto. Approximately 99 percent of Manhattan CBD workers—and approximately 99 percent of the subset who commute from outside the Manhattan CBD—work within one-half mile of a subway station or SBS stop within the Manhattan CBD. While there are higher rates of auto commuting for specific industries and occupations within certain locations in the Manhattan CBD, the total numbers of employees working at those locations do not constitute a substantial percentage of the total workforce for any industry or occupation within the Manhattan CBD or broader regional study area. The tendency for these workers to commute by auto appears related more to distance from transit and/or availability of free parking than to needs of their occupations or industries.

The analysis finds that costs could increase for drivers and delivery costs could increase if delivery companies pass on the toll cost to customers. Taxis would be most affected by CBD tolling, because 75 percent of taxi trips start or end in the Manhattan CBD. FHVs rely less on trips in the Manhattan CBD, because only about 38 percent of "high-volume" FHV trips start or end in the Manhattan CBD. Taxi and FHV fares may increase under tolling scenarios that toll taxis and/or FHVs more than once a day and there could be reductions in demand and corresponding reductions in employment within the industry. The potential reductions in revenue and employment would not be of an amount that could jeopardize the overall viability of the taxi/FHV industry within the region. Overall, these increased costs would not adversely affect the operations of businesses in the Manhattan CBD, its ability to attract employees, and the viability of the taxi and FHV industry. There is already a high cost associated with locating in or travel to the Manhattan CBD, and the toll cost would not meaningfully change the competitiveness or attractiveness of doing business in the Manhattan CBD.

The analysis indicates no adverse changes to commercial traffic providing goods and services to the Manhattan CBD. Because incremental toll costs would not be borne by many customers or would be diluted among many customers, the incremental cost would not be expected to jeopardize the viability of the freight industry or the many industries that rely on freight services.

The neighborhoods near the 60th Street boundary of the Manhattan CBD would experience changes in travel patterns as a result of the CBD Tolling Alternative. This analysis considers whether those changes could substantially affect the economic characteristics of these neighborhoods, and in particular, off-street parking facilities located there. Neighborhoods immediately north and south of the 60th Street Manhattan CBD boundary regularly experience high volumes of vehicular and pedestrian traffic such that the incremental volumes generated by the CBD Tolling Alternative would not alter local market conditions in a manner that could adversely affect neighborhood character. Reduction in parking demand from the CBD Tolling Alternative could jeopardize the viability of one or more parking facilities in the area south of 60th Street. However, given property values and consumer volumes at the northern border of the Manhattan CBD in the area south of 60th Street, if one or more parking facilities were to close, these facilities could be redeveloped or repurposed with other uses; the sites would not remain vacant, and therefore their potential displacement would not create a climate of disinvestment that could lead to adverse effects on neighborhood character. Overall, therefore, changes in traffic patterns predicted as a result of the CBD Tolling Alternative (for all tolling scenarios) would not alter overall economic activity or conditions in any areas that could see a decrease or increase in traffic on local streets.

Table 6-35 provides a summary of the conclusions of this chapter.

Table 6-35. Summary of Effects of the CBD Tolling Alternative on Economic Conditions

TOPIC	SUMMARY OF EFFECTS	EFFECT BY TOLLING SCENARIO							POTENTIAL ADVERSE EFFECT	MITIGATION AND ENHANCEMENTS
		A	B	C	D	E	F	G		
Benefits	Regional economic benefits	Economic benefit through congestion relief in terms of travel-time savings and travel-time reliability improvements, which would increase productivity and utility, as well as safety improvements and reduced vehicle operating costs associated with reductions in congestion.							No	**No mitigation needed**. Beneficial effects
Economic Effects of Toll Costs	Cost of new toll for workers and businesses in the CBD that rely on vehicles	No adverse effects to any particular industry or occupational category in the Manhattan CBD. Given the high level of transit access in the CBD and high percentage of transit share, the toll would affect only a small percentage of the overall workforce. This would not adversely affect operations of businesses in the Manhattan CBD or the viability of any business types, including the taxi/FHV industry.							No	**No mitigation needed.** No adverse effects
Price of Goods	Cost of new toll would not result in changes in the cost of most consumer goods in the Manhattan CBD	Unlikely to result in meaningful change in cost for most consumer goods. Any cost increase associated with the new toll in the CBD Tolling Alternative that would be passed along to receiving businesses would be distributed among several customers per toll charge (since trucks make multiple deliveries) especially for businesses, including small businesses and micro-businesses, receiving smaller deliveries. This would minimize the cost to any individual business. Some commodity sectors (construction materials, electronics, beverages) are more prone to increases due to less competition within delivery market.							No	**No mitigation needed**. No adverse effects
Taxi and FHV Industry	Depending on the tolling scenario, the toll could reduce taxi and FHV revenues. While this could adversely affect individual drivers, the industry would remain viable overall.	Net change in taxi/FHV VMT vs. No Action Alternative							No	**No mitigation needed.** No adverse effects (see **Chapter 17, "Environmental Justice,"** for mitigation related to effects on taxi and FHV drivers)
		-126,993 (-2.9%)	-14,028 (-0.3%)	-73,413 (-1.7%)	-217,477 (-5.0%)	-116,065 (-2.7%)	-4,888 (-1.0%)	-137,815 (-3.2%)		
Local Economic Effects	Changes in parking demand near the 60th Street CBD boundary	Changes in parking demand near the 60th Street Manhattan CBD boundary (including increases just north of 60th Street and decreases just to the south) could jeopardize the viability of one or more parking facilities in the area south of 60th Street but would not create a climate of disinvestment that could lead to adverse effects on neighborhood character.							No	**No mitigation needed**. No adverse effects