SOUTH STATION
EXPANSION

South Station Expansion Project

Appendix 4 (Part 1) - Socioeconomic Conditions Technical Report

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massDOT
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Table of Contents

List of Figures

List of Tables

1. Introduction

The Massachusetts Department of Transportation (MassDOT), the Massachusetts Bay Transportation Authority (MBTA), and the National Railroad Passenger Corporation (Amtrak) have for decades identified the expansion of rail capacity at Boston South Station as a crucial transportation need, one that has been articulated in multiple local, regional, state, and Northeast Corridor (NEC)-wide planning documents.[1] In cooperation with the Federal Railroad Administration (FRA), Amtrak, and the MBTA, MassDOT is now pursuing the expansion of South Station to support existing NEC and commuter rail services and to provide for future Amtrak and MBTA service expansions. The current track capacity, layout, and operations of South Station limit the ability to accommodate projected future expanded services. In addition to expanding South Station terminal facilities, the South Station Expansion (SSX) project will also identify a solution to address existing and future intercity and commuter rail service layover needs. The SSX project includes planning, environmental reviews, and preliminary engineering for the five primary elements of the project:

1. **Expand the South Station terminal facilities**, including the addition of up to seven tracks and four platforms and construction of a new passenger concourse and other amenities.
2. **Acquire and demolish the U.S. Postal Service (USPS) General Mail Facility** located on Dorchester Avenue adjacent to South Station, which would provide an approximate 14-acre site on which to expand South Station. (Note that the relocation of the USPS facility will be the subject of a separate environmental review process by others.) Dorchester Avenue would be restored for public and station access.
3. **Create an extension of the Harborwalk along reopened Dorchester Avenue.**
4. **Provide for the possibility of future joint public/private development** adjacent to and over an expanded South Station.
5. **Provide adequate rail vehicle layover space** to address existing and future intercity and commuter rail service needs.

This Socioeconomic Conditions Technical Report has been prepared in support of the Draft Environmental Impact Report (Draft EIR) and Environmental Assessment (EA) for the SSX project, in accordance with the Certificate of the Secretary of the Office of Energy and Environmental Affairs (EEA) on the Environmental Notification Form (ENF) for the SSX project (April 19, 2013), the Massachusetts Environmental Policy Act (MEPA) regulations, 301 CMR 11.00 (revised, May 10, 2013), and FRA's Procedures for Considering Environmental Impacts, 64 Federal Register (FR) 101 (26 May 1999), pp. 28545-28556.

2. Summary of Findings

The purpose of the Socioeconomic Conditions Technical Report is to:

- Present an overview of existing population and employment conditions in the vicinity of the project sites;

[1] Documents citing the need for an expanded South Station include: *The Northeast Corridor Infrastructure Master Plan* (2010); Amtrak's *A Vision for High-Speed Rail in the Northeast Corridor* (2010), *The Amtrak Vision for the Northeast Corridor – 2012 Update* (2012), the *Massachusetts State Rail Plan* (2010), the *Massachusetts Freight Plan* (2010), and the two most recent long range transportation plans of the Boston Region Metropolitan Planning Organization (2007, 2011).

- Identify potential direct impacts and changes to employment resulting from the SSX project at SSX project sites, and
- Assess the potential economic impact of the SSX project on the Boston region.

Socioeconomic impacts of the project were assessed for each of the proposed Build Alternatives: Alternative 1 - Transportation Improvements Only; Alternative 2 - Joint/Private Development Minimum Build; and Alternative 3 – Joint/Private Development Maximum Build.[2] Each alternative includes development of the proposed layover facility sites. Therefore, the impacts that would result from the development of the layover facility sites would be the same in each of the Build Alternatives.

The Central Transportation Planning Staff (CTPS), staff to the Boston Region Metropolitan Planning Organization (MPO), provided existing, No Build, and Build conditions estimates of population and employment for the South Station study area. CTPS also used an economic modeling tool to estimate the economic impacts of the SSX project upon the Boston MPO region.

The socioeconomic impacts of the SSX project alternatives would include the following:

- Direct Project Impacts:
  - The SSX project would displace approximately 1,000 United States Postal Service (USPS) jobs at the South Station site. It is anticipated that these jobs would be relocated in the area, and no net long-term loss of employment would occur.
  - Development of layover facilities at the Widett Circle site would displace approximately 30 businesses. It is anticipated that these businesses would be relocated in the area, and no net long-term loss of employment would occur.
  - Expansion of layover facilities at the Readville – Yard 2 site would result in a partial land taking of approximately 0.7 acres. It is anticipated that no long-term loss of employment would occur.
- Changes in Employment:
  - In all Build Alternatives, the project is anticipated to result in an increase in rail employment of approximately 30%. Of the current 900 MBTA and Amtrak rail operations staff necessary to support South Station operations, at least 20% are housed at South Station. A new station could also roughly double the retail and building management staff, an increase of roughly 200 employees based at South Station.
  - Anticipated changes in employment described for Alternative 1 also would apply in Alternative 2. Additionally, Alternative 2 would result in an increase in employment at the South Station site related to the future joint/private development. It is anticipated that the future private development would add a total of 1,020 service jobs and 255 retail jobs, for a total of 1,275 jobs. It is assumed that 280 units of residential housing would be developed in Alternative 2, accommodating 620 residents.
  - Anticipated changes in employment at the South Station site described for Alternative 1 also would apply in Alternative 3. Additionally, Alternative 3 would result in an increase in employment at the South Station site related to the future joint/private development. It is anticipated that the future development in Alternative 3 would add a total of 3,000 service jobs and 750 retail jobs, for a total of 3,750 jobs. It is assumed that 830 units of residential housing would be developed in Alternative 3, accommodating 1,830 residents.

[2] Descriptions of the SSX project Build alternatives are provided in Section 6.

- Economic Benefits:
  - The project would support continued economic growth and expansion of the Downtown Financial District and South Boston Waterfront/Innovation District. Increased transit capacity at South Station is needed to support projected build out occurring in Boston's fastest growing neighborhood, the South Boston Waterfront/Innovation District.
  - Based upon CTPS modeling estimates, permanent employment and household migration to South Station would result in economic benefits to the area. Gross regional product could increase between $83 million and $1.578 billion, depending on the Alternative.

3. Regulatory Context

The FRA's *Procedures for Considering Environmental Impacts* require consideration of the potential impacts of the project on the socioeconomic environment, including the number and kinds of available jobs, the potential for demographic shifts, impacts on commerce, including existing business districts, metropolitan areas, and the immediate area of the alternative.

The MEPA regulations require the description and analysis of the conditions of the project site, including but not limited to the economic and social conditions.

4. Methodology

This report presents existing profiles of the four SSX project site study areas, the City of Boston, and the greater metropolitan area. The site study areas used for this analysis include one half mile surrounding the South Station headhouse and the three layover facilities respectively. Socioeconomic conditions for the City of Boston and the greater metropolitan area were characterized based on review of available data including the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, the Massachusetts Executive Office of Labor and Workforce Development, and the Boston Redevelopment Authority (BRA).

CTPS provided population and employment estimates of the South Station area. Employment and population estimates and projections for travel demand forecasting correlate to the five transportation analysis zones (TAZs)[3] around South Station. CTPS compiled population and employment estimates for the 2009 and the 2035 No Build and Build conditions. The five TAZs roughly correspond to the boundary of the one-half-mile South Station study area. While the boundaries of the TAZs differ slightly from the one-half-mile study area (see Figure 1), the population and employment estimates for the TAZs approximate socioeconomic conditions within the South Station study area, and are consistent with the Boston Region MPO Long Range Transportation Plan.

The CTPS employment estimates for 2000 were taken from a single, unified regional employment database based on employment data from the Massachusetts Department of Labor and Workforce Development and on extensive research by CTPS. Aggregate employment data for the year 2009 were used to update this database for use for the base-year analysis in the regional model version used for this study. For population and households, estimates for the 2009 base year were calculated through interpolation of the 2000 estimates and 2010 forecasts.

To supplement the South Station TAZ data, profiles of residents within the one-half-mile SSX project study areas and surrounding neighborhoods were defined based on 2010 decennial census data or other

[3] A traffic analysis zones (TAZ) is an aggregation of census geography based on demographic information and the number of trips produced, and attracted within, its borders.

available census data (refer to Attachment B). Socioeconomic profiles include summaries of population, housing, household income, and employment of area residents. The socioeconomic profiles of the SSX project study areas were compiled using data from the 2000 and 2010 U.S. decennial census, 2006-2010 American Community Survey (ACS), and the BRA. The U.S. decennial census reports population and housing data to the census block level, the smallest U.S. Census Bureau reporting area.[4] The 2006-2010 ACS reports economic data to the census tract or census block group level.[5]

The SSX project study area profiles present socioeconomic characteristics for BRA-designated neighborhoods for comparison. Socioeconomic characteristics defined to the census block level (population and housing) within the one-half-mile study area surrounding South Station were compared to that of the neighborhoods that it overlaps: Chinatown, Leather District, Downtown, and the South Boston Waterfront. For ACS data reported only at the census tract and census block group, Downtown was defined to include Chinatown and Leather District. For the layover facility sites, the profiles compared statistics for the one-half-mile study areas and the surrounding community.

Changes to socioeconomic conditions that could occur as a result of the SSX project were identified. The description of the projected economic effects of the SSX project includes a discussion of potential business and employment impacts associated with the station expansion and air-rights development, as well as a discussion of potential impacts associated with new and/or expanded layover facilities on the three layover facility study areas.

CTPS used the Transportation Economic Development Impact System (TREDIS) software model to estimate the economic impacts on the Boston MPO region associated with each joint/private development alternative, including additional household spending resulting from new residents living in the private development and employees of the new development. TREDIS is a predictive impact model that uses information about future travel patterns, market access, and construction spending to estimate how changes in household spending patterns and business costs flow through the economy. Using TREDIS, CTPS estimated increases in business sales, gross regional product, jobs, and wage income due to the SSX project. Additionally, using an estimation of SSX project construction cost, CTPS estimated the economic impacts of construction.

5. Existing Conditions

Section 5 presents existing socioeconomic data for the South Station and layover facility site study areas, an overview of the Boston economy, and demographic trends. Additional information on the study areas is provided in Attachment B.

5.1. South Station Study Site

Table 1 shows the 2009 estimated population, housing, and employment for the TAZs around South Station. The 2009 estimated population for this area totaled 13,190 people. Although the TAZs roughly correlate to the one-half-mile study area, the boundaries differ slightly, as shown in Figure 1. The 2010 population of the census blocks within one half mile of South Station totaled 12,659 persons in the decennial census, as described in Attachment B.

[4] The U.S. Census defines census blocks as statistical areas bounded by visible features, such as streets, roads, streams, and railroad tracks, and by nonvisible boundaries, such as selected property lines and city, township, school district, and county limits and short line-of-sight extensions of streets and roads. Generally, census blocks are small in area; for example, a block in a city bounded on all sides by streets.

[5] The U.S. Census defines census tracts as small, relatively permanent statistical subdivisions of a county or equivalent entity. Census block groups are statistical divisions of census tracts and are generally defined to contain between 600 and 3,000 people. A block group usually covers a contiguous area and consists of clusters of blocks within the same census tract that have the same first digit of their four-digit census block number

Table 1—2009 South Station Study Area Demographic Data

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	589	495	0	5,014	168	1,393	6,576
North TAZ	238	92	37	34,962	993	3,109	39,064
South TAZ	4,264	1,929	119	8,695	337	1,266	10,298
East TAZ	5,519	2,341	1	9,470	252	5,285	15,007
West TAZ	2,580	1,172	170	17,700	1,138	1,627	20,465
Subtotal	13,190	6,029	327	75,841	2,888	12,680	91,410

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

Table 1 shows the breakout of 2009 population and employment for the TAZs. The South Station TAZ includes the block surrounding the project site. The North TAZ includes the adjoining portion of the Downtown Financial District; the East TAZ includes the South Boston Waterfront/Innovation District; the West TAZ includes the Leather District and the north portion of Chinatown; and the South TAZ includes the south portion of Chinatown and part of the South End.

Table 1 shows that employment in 2009 in the TAZs totaled 91,410 workers. The employment is predominantly in the service sector (75,841), with 12,680 basic jobs, and 2,888 retail jobs. Employment is highest in the North TAZ, with 39,064 jobs in the Downtown, followed by the West TAZ (20,465 jobs) in the Leather District/Chinatown, and the East TAZ (15,007 jobs).

The population within the one-half-mile South Station study area and adjoining neighborhoods (Chinatown, Leather District, Downtown, and South Boston Waterfront) increased at higher percentages from 2000 to 2010 than the city, county, and state as a whole (as presented in Attachment B). Population increased by 55% within the entire study area, by 25% for Chinatown, and by 53% for Downtown. The highest growth rates were in the Leather District (192%) and South Boston waterfront (271%), which also had the lowest overall populations (639 and 1,889 persons in 2010). These population growth rates for the study area and surrounding neighborhoods far exceeded the growth rates of the city (4.8%), county (4.6%), and state (3.1%) as a whole.

The one-half-mile study area experienced even higher corresponding increases in housing, increasing by 67% between 2000 and 2010 (as described in Attachment B). The vacancy rate for the study area was roughly 16% in 2010. Between 2000 and 2010, Chinatown and Downtown increased housing stock by 55% and 63%, respectively, and the Leather District and South Boston Waterfront/Innovation District had the highest increases in housing stock (140% and 350%, respectively), but the fewest number of housing units. Vacancy rates in 2010 were lowest in the Leather District (4%) and Chinatown (6%).

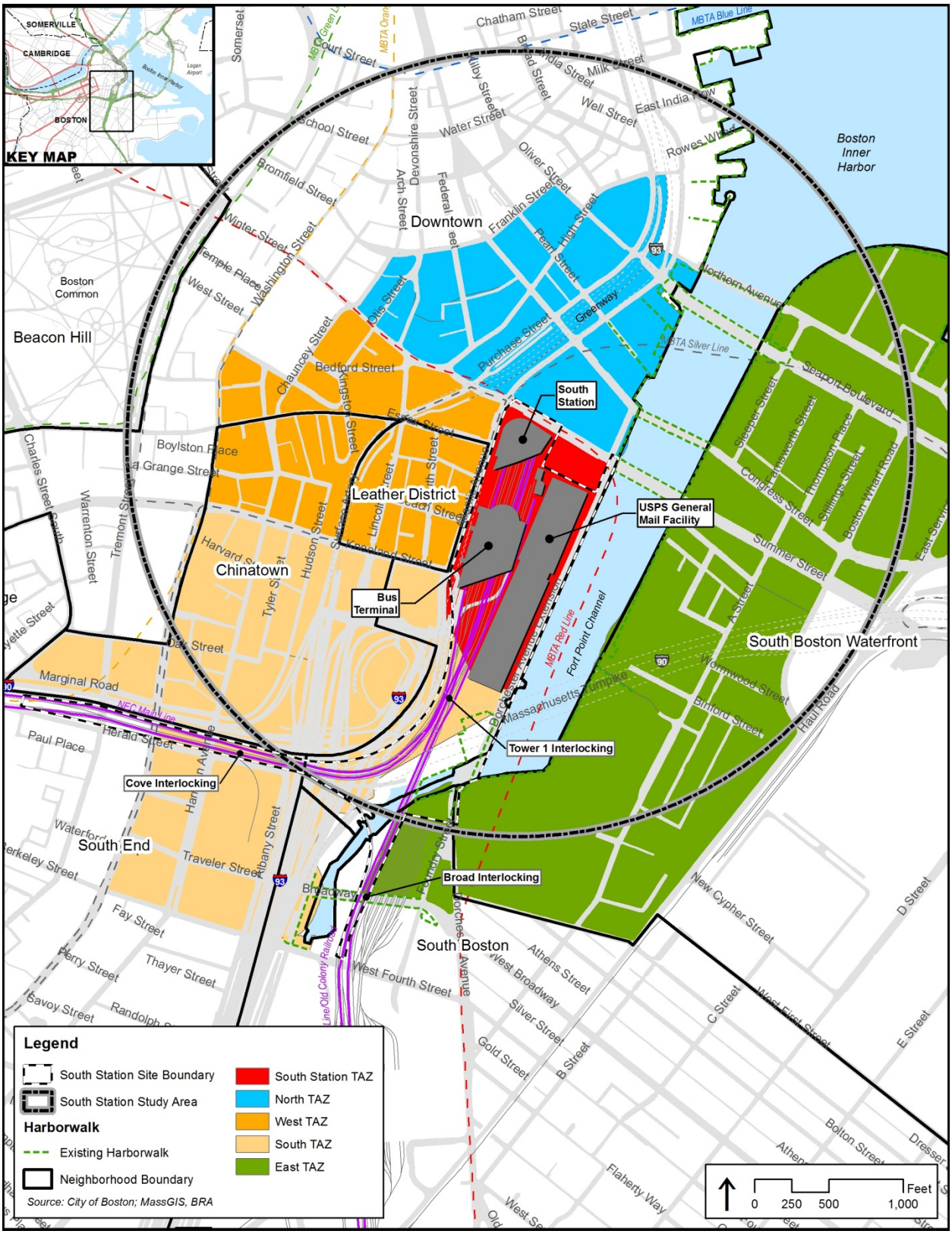

Figure 1—South Station Area Transportation Analysis Zones

5.2. Layover Facility Site Study Areas

All of the layover facility sites are located within existing industrial areas. The population of the one-half-mile Widett Circle study area generally is concentrated west of the facility in the South End neighborhood and to a lesser extent to the east in South Boston. The population of the one-half-mile Beacon Park Yard study area primarily is located south and west of the layover facility site in the Allston neighborhood. Readville - Yard 2 is located in the Hyde Park neighborhood, with the one-half-mile study area population located primarily south and northwest of the layover facility site.

Table 2 presents population trends for the three one-half-mile layover facility study areas in comparison to their neighborhoods, the City of Boston, Suffolk County, and Massachusetts. Attachment B provides additional information, including housing and employment data.

Table 2—Population Trends, Layover Facility Study Areas, 2000-2010

Area	Population 2000	Population 2010	% Change 2000 to 2010
Widett Circle Study Area[a]	7,405	11,299	52.6
South Boston	31,005	33,311	7.4
South End	21,911	24,577	12.2
Beacon Park Yard Study Area	16,948	19,232	13.5
Allston	25,623	29,196	13.9
Readville – Yard 2 Study Area	5,615	5,111	-9.0
Hyde Park	30,076	30,637	1.9
City of Boston	589,141	617,594	4.8
Suffolk County	689,807	722,023	4.6
Massachusetts	6,349,097	6,547,629	3.1

Sources: 2010 Census, Summary File 1, Boston Redevelopment Authority Research Division Analysis; 2010 Census
a The Widett Circle study area includes the Suffolk County House of Correction, which had 1,512 residents in 2010.

The Widett Circle study area grew substantially more than any other layover study area or neighborhood. Population trends within the Beacon Park Yard study area closely resembled that of the Allston neighborhood in which it is located, growing by almost 14% between 2000 and 2010. With the exception of the Readville – Yard 2 study area, which lost population from 2000 to 2010, the growth rate of the layover study area populations exceeded the city, county, and state growth rates over the same time period.

5.3. Boston's Economy

According to the BRA, Boston has one of the largest concentrations of population and employment, as well as income, in the nation.[6] Total jobs in Boston numbered approximately 680,000 in 2011. Boston has more jobs than residents and far more jobs than resident workers (City of Boston residents working in the city).[7] Table 1 shows that within the TAZs in the Downtown area, jobs outnumber residents by roughly 7 to 1. Commuters from outside the city fill 62% of the city's jobs. In the metropolitan area, 29% of the jobs are within three miles of the center of the city. Those workers commuting to the central city comprise the vast majority (82%) of the Boston-Cambridge-Quincy, MA-NH Metropolitan Statistical

[6] Boston Redevelopment Authority, *Boston's People and Economy*, accessed July 1, 2014, https://www.cityofboston.gov/images_documents/10%20Boston's%20People%20and%20Economy_tcm1-3161_tcm3-37641.pdf
[7] Boston Redevelopment Authority, *Boston by the Numbers: Economy and Jobs*, March 2011, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/946803b2-6f1c-40b2-8b6b-c01c8c4bced1/

Area (MSA)[8] rail commuters.[9] A key to Boston's economic health is the ability to transport residents, workers, and visitors to destinations in and outside the city.

Although the total number of jobs has fluctuated with expansions and recessions, the trend is for economic expansion, particularly in recent years. The job losses of the 2009-2010 recession had rebounded by the end of 2012, with the number of jobs approaching 690,000 in 2012,[10] as shown in Table 3. This represents an increase of roughly 20,000 jobs from 2001 and the recession of 2008-2009, and an increase of 56,000 jobs from 2004, the low point of the city's employment cycle over the previous decade.

The city's resident workforce has also expanded, from 285,859 in 2000 to 318,250 in 2010. The city's total labor force grew by 18% between 2000 and 2010, from 308,107 to 365,182, which includes those workers that were unemployed.[11] Assessment of employment sectors indicates a trend toward fewer labor-intensive jobs and a higher percentage of technical/scientific/professional jobs, with a better educated and more highly skilled workforce. Employment characteristics for resident workers within the one-half-mile study area for South Station and the three layover facility sites are addressed in more detail in Attachment B.

According to the U.S. Census Bureau, Boston was the 22nd largest city in the U.S. with 617,592 residents in 2010.[12] According to BRA statistics, the city alone generated $87 billion in Gross Domestic Product (GDP) in 2008, accounting for approximately one quarter of the Massachusetts economy. Boston is the center of the Boston-Cambridge-Quincy MA-NH MSA, which includes Essex, Middlesex, Norfolk, Plymouth, and Suffolk counties in Massachusetts, and Rockingham and Strafford counties in New Hampshire. This MSA, the tenth largest metropolitan area in the U.S., had 4.5 million people and 3.1 million jobs in 2010. The Boston MSA had the ninth largest economy (as measured by gross domestic product) nationally and the 42nd largest such city economy in the world, generating $336.2 billion dollars in 2012. This MSA comprised 78% of the Massachusetts economy and 33% of the New Hampshire economy in 2012.[13] Boston is also the center of the seventh largest Combined Statistical Area (CSA) in the U.S., the Boston-Worcester-Providence, MA-RI-NH-CT CSA.[14]

Boston is a hub for finance, higher education, medicine, a broad range of professional services and government activities at all levels. Boston has evolved into more of a knowledge and information-based economy. According to the Brookings Institution, since 2002 the City of Boston has ranked first in the world in science and technology. In 2011, Boston was ranked the most innovative city in the world.[15] The largest growth sectors in recent years have been in healthcare and education, which increased by

[8] The U.S. Census Bureau defines MSAs as geographic entities delineated by the Metropolitan and micropolitan statistical areas (metro and micro areas) are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. The term "Core Based Statistical Area" (CBSA) is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.
[9] Northeast Corridor Infrastructure and Operations Advisory Commission, *The Northeast Corridor and the American Economy*, April 2014, accessed June 16, 2014, http://www.nec-commission.com/wp-content/uploads/2014/02/NEC_american_economy_report.pdf
[10] Boston Redevelopment Authority, *Boston's Economy*, December 2013, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/22ced7fb-3c0d-47ee-aad8-2dc0a666857f/.
[11] Boston Redevelopment Authority, *Demographic and Socio-economic Trends in Boston: What we've learned from the latest Census data*, November 29, 2011, accessed June 15, 2014, http://www.bostonredevelopmentauthority.org/getattachment/83972a7a-c454-4aac-b3eb-02e1fddd71e3/.
[12] Ibid.
[13] The United States Conference of Mayors and the Council on Metro Economies and the New American City, *U.S. Metro Economies: Outlook-Gross Metropolitan Project, with Metro Employment Projections*, November 2013, accessed July 1, 2014, http://www.usmayors.org/metroeconomies/2013/201311-report.pdf
[14] The Boston-Worcester-Providence, MA-RI-NH-CT CSA combines seven MSAs extending from New Hampshire to Rhode Island.
[15] The Brookings Institution, *The 10 Traits of Globally Fluent Metro Areas: Boston*, 2013, accessed July 23, 2014, http://www.brookings.edu/~/media/Multimedia/Interactives/2013/tentraits/Boston.pdf

almost one-third and one-quarter respectively, between 2001 and 2012. By 2012, 27% of all Boston jobs were in either healthcare or education. Healthcare comprises the largest sector of the Boston economy, followed by professional/scientific/technical services, finance/insurance, and government.

Boston is also an important tourist destination with numerous historical and cultural attractions. With 1.3 million visitors in 2011, Boston is the ninth most visited city in the U.S.[16] Suffolk County, anchored by Boston, accounted for $6.4 billion of tourist spending, or almost half of all tourism spending in the state in 2007.

Table 3—Boston's Employment by Industrial Sectors: 2012

Industry	2012	2012 %
Healthcare and Social Assistance	127,120	18.5%
Professional, Scientific, and Technical Services	81,814	11.9%
Finance and Insurance	77,665	11.3%
Government	77,303	11.3%
Accommodation and Food Services	56,653	8.3%
Educational Services	54,653	8.0%
Admin. and Support and Waste Management and Remediation Ser.	33,896	4.9%
Retail Trade (excludes food service)	31,393	4.6%
Other Services (except public administration)	30,745	4.5%
Real Estate and Rental and Leasing	23,405	3.4%
Transportation and Warehousing	19,269	2.8%
Information	15,704	2.3%
Arts, Entertainment, and Recreation	14,990	2.2%
Construction	14,906	2.2%
Wholesale Trade	8,999	1.3%
Manufacturing	8,915	1.3%
Management of Companies and Enterprises	7,153	1.0%
Utilities	1,446	0.2%
Agriculture/Fishing/Mining	206	0.0%
TOTAL	686,239	100%

Source: Boston Redevelopment Authority, *Boston's Economy*, December 2013, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/22ced7fb-3c0d-47ee-aad8-2dc0a666857f/, based on Bureau of Economic Analysis and Massachusetts Executive Office of Labor and Workforce Development.

Among Boston's largest private employers, the most predominant industries are healthcare and social assistance, finance and insurance, and educational services. These three industries account for 144,070 jobs across 61 companies, representing 73% of all employment among Boston's largest employers and 24% of all private employment in the city.[17]

Large employers in the city within the study area (defined by the BRA as private employers employing over 500 persons) include:

- Fidelity (5,500), Tufts Medical Center (3,692), Suffolk University (1,528), and Gillette (1,385), the city's largest industrial/manufacturing employer, near South Station.
- Boston Medical Center (4,217) near the Widett Circle layover facility.
- Boston University (9,783) near the Beacon Park Yard layover facility.

[16] Ibid.
[17] Boston Redevelopment Authority, *Largest Employers in the* , November 2013, accessed June 16, 2014, http://www.bostonredevelopmentauthority.org/getattachment/7ced9a9e-cb5c-4d6b-a840-2a0042f68ce5/

Wages have increased along with the shift to knowledge and information-based economy, outpacing Massachusetts and national wages. Boston has more productive and high-paying jobs, and lower unemployment rates than the state and the nation as a whole. Boston's gross product per worker was 48% and 59% above the state and U.S. averages, while its average payroll wages were 35% and 67% above state and U.S. averages, respectively.[18]

Unemployment rates have typically been 1% lower than the national average. Although the average unemployment rate in 2013 (not seasonally adjusted) was 6.8% in Boston, in May 2014, Boston had an average unemployment rate of 5.1%, compared to the 6.3% national average.[19]

Boston's economy and employment has steadily expanded since 2010, and this growth is projected to continue in the future. Since 2009, Boston's economy has grown at a rate of 4.8%, the highest among all major U.S. metropolitan areas.[20] In the study area, employment in 2035 is expected to increase, as discussed in the preceding section, with the largest increases occurring in the South Boston Waterfront/Innovation District. This district encompasses most of the city's maritime uses and also houses general industrial uses. Located southeast of South Station across the Fort Point Channel is the site of the manufacturing operation of the Gillette Company, which occupies over one million square feet.

In 2010, the City of Boston designated a portion of the South Boston Waterfront as the Innovation District, comprising 1,000 acres directly east of South Station across Fort Point Channel. Efforts to attract and grow life science companies, technology, and business services start-ups center around the City's Innovation District, an initiative to revitalize this land by creating a new community that attracts and supports innovative and entrepreneurial companies. The neighborhood is characterized by large, ornamental brick warehouses constructed in the 19th and early 20th century and adaptively reused for small business, residences, artists/innovators lofts, light manufacturing, and offices. Within Boston's Innovation District, 5,000 jobs have been created since 2010 at more than 200 small businesses, largely in the fields of technology, creative industries (design and advertising), life sciences, and green energy.[21,22] The initiatives include developing a 24-hour neighborhood, with innovative workspaces, housing (smaller lofts providing live-work spaces for innovators to collaborate), and restaurants. The world's first public innovation center, District Hall, is located in the district, [23] as well as the first development(s)/area in the city where special zoning permits development of lofts smaller than 500 square feet. Key to the success, appeal, and future expansion of the district is proximity to public transportation, notably South Station.

5.4. Boston's Demographics, Population, and Housing Trends

This section describes Boston's population and housing characteristics for the city as a whole, and detailed socioeconomic, demographic, and housing profiles for the areas within the one-half-mile study areas for South Station and the layover facilities are provided in Attachment B. Boston has one of the most highly educated populations among major American cities. According to the 2010 ACS, 44% of Boston's adult population has at least a bachelor's degree. This places Boston fourth among the 25 largest cities in the nation.[24]

[18] Boston Redevelopment Authority, *Boston by the Numbers: Economy and Jobs*, March 2011, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/946803b2-6f1c-40b2-8b6b-c01c8c4bced1/
[19] Massachusetts Executive Office of Labor and Workforce Development, *Labor Force and Unemployment Data, Boston, Most Recent 13 months Not Seasonally Adjusted*, accessed July 2, 2014, http://lmi2.detma.org/lmi/lmi_lur_a.asp#3.
[20] The Brookings Institution, *The 10 Traits of Globally Fluent Metro Areas: Boston*, 2013.
[21] *The Northeast Corridor and the American Economy*, April 2014.
[22] Boston's Innovation District. *About the Innovation District*, accessed July 16, 2014, http://www.innovationdistrict.org/about-2/.
[23] Ibid.
[24] BRA, *Demographic and Socioeconomic Trends in Boston*, December 2013, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/62cd2954-8a64-4dae-b714-c61beef7c2a7/.

Boston is also a comparatively young city; in 2010 it had the highest concentration (35%) of young adults (ages 20 to 34) among the 25 largest cities in the U.S. This is due in large part to the large number of college students living in the city, as well as the presence of recent college graduates.

Boston has been growing in recent decades, and its growth compares favorably to other cities, such as New York and San Francisco. Boston's population growth rate since 2000 was higher than the rates for both of those cities. The 2010 Census marked the first time since 1970 that Boston's population has been over 600,000.[25] Over a two-year span culminating in July 2012, Boston grew 3.1% from the 2010 census to 636,479 people, at a rate faster than the suburbs and any urban area northeast of New Jersey.[26]

Boston's housing stock has grown consistently over the last 40 years, expanding by 8.2% since 2000. Growth over the past decade (2000 to 2010) was the strongest over the last six decades for both total and occupied units. Boston added nearly 21,000 units of housing between 2000 and 2010, which compares to 30,000 units added between 1950 and 2000. The highest gains were in Boston's Central and South Boston Planning Districts, with 3,671 and 2,592 units added, respectively.[27]

Approximately one-third of Boston's households are owner occupied and more than 20% of Boston's housing units are condominiums. Boston has the highest concentration of "affordable" subsidized housing among major U.S. cities. Approximately 20% of the city's housing is dedicated to low- and moderate-income families.

Boston is diverse, as discussed in DEIR Section 4.16, Environmental Justice, with more than half of the city comprised of non-white in the 2010 census. Boston also ranks seventh of 25 largest American cities in the proportion of foreign-born population.

5.5. Businesses within the Project Sites

South Station Site

South Station, located in the Financial District, is surrounded by a number of businesses and large employers. In addition, the South Station headhouse itself houses a number of businesses, including 15 eateries, 6 retail stores/kiosks, and 9 services kiosks geared towards rail patrons on the ground floor. The headhouse includes newly opened retail space (CVS/Pharmacy) on the second level, and office space housed on the upper floors (second through fifth floors). The upper floors house Amtrak, the Massachusetts Department of Public Utilities, and a few other offices for private companies. The bus terminal also houses three eateries and two retail stores/kiosks and one service kiosk.

Layover Facility Sites

Large employers within the one-half-mile layover facility study areas include the Boston Medical Center (4,217 employees), near the Widett Circle site; and Boston University (9,783 employees), near the Beacon Park Yard site.

The Widett Circle site includes a complex of food-related storage and processing businesses, including businesses related to the beef and seafood industries, located within the 29-acre proposed project footprint. The 30-acre Beacon Park Yard proposed project footprint currently is occupied by railroad and

[25] Ibid.
[26] Boston Globe, *Boston's Population Boom Speeds Up*, June 16, 2013, accessed July 23, 2014, http://www.bostonglobe.com/ideas/2013/06/16/boston-population-boom-speeds/WUb5OlqaNWj9gKDhtqXIkI/story.html?s_campaign=sm_tw.
[27] BRA, *Boston by the Numbers: Housing*, November 2013, accessed July 1, 2014, http://www.bostonredevelopmentauthority.org/getattachment/76bd9781-55ee-4545-928c-706d571523a3/.

rail-related uses. A privately-owned demolition and debris management company is located adjacent to the existing Readville - Yard 2.

6. Potential Impacts

Potential socioeconomic impacts of the project include population and employment changes as a result of proposed property relocations and proposed new development, as well as regional economic benefits from station expansion/future joint development and project construction. This section describes the socioeconomic impacts of each of the Build Alternatives.

CTPS estimated the economic impacts of permanent household and employment gains for the Build Alternatives using estimates of additional household spending expected to occur within the analysis area (defined as 20 zip codes within Boston and Cambridge, described and illustrated in Attachment C). Changes in associated business output, value added, and wage income were totaled over a 13-year period, from 2023, estimated project opening, through 2035, the project horizon year. Economic impacts of construction were assessed for the entire Boston MPO regional travel demand model area, which includes 164 municipalities located in Eastern Massachusetts, centered on the Boston Region MPO area. Changes in associated business output, value added, jobs, and wage income were projected using construction cost estimates and an estimated construction period. Reflecting the increasing complexity of the alternatives, a six-year construction period is estimated for Alternative 1, from 2018 to 2023; a 12-year construction period is estimated for Alternative 2, from 2018 through 2029; and a 14-year construction period is estimated for Alternative 3, from 2018 through 2031. Traveler cost savings were estimated from multiple variables, including applying changes in vehicle miles and vehicle hours traveled to calculate changes in travel time (and associated passenger time cost savings), vehicle operating costs, and other expenses. Variables calculated in determining traveler cost savings included passenger expenditures, freight costs, vehicle operating costs, crew costs, reliability costs, toll costs, safety costs, and environmental costs. Traveler cost savings were estimated for the horizon year of 2035.

CTPS estimated the economic benefits of the SSX project Build Alternatives upon the city of Boston and the surrounding region using the TREDIS model, data from the CTPS regional travel demand model, projected demographic data, and other inputs as detailed in Attachment C. The results of the TREDIS-generated economic assessment, which predicts economic impacts of permanent household population gains and permanent employment gains, economic impacts of project construction, and traveler cost savings resulting from the SSX project are also detailed in Attachment C. The results of the three Build Alternatives were compared to the No Build Alternative.[28]

6.1. No Build Alternative

Summary of Alternative

The No Build Alternative represents a future baseline condition against which the Build Alternatives are compared. With the No Build Alternative, South Station, including the headhouse and track operations, and the USPS General Mail Facility, would remain as they currently exist. The majority of Dorchester Avenue at the site would remain in private use by the USPS in support of USPS operations.

With the No Build Alternative, there would be no private development associated with South Station beyond the development previously approved by the Massachusetts EEA: the South Station Air Rights

[28] As noted in Attachment C, the TREDIS model results for economic impacts of household population and employment gains in Alternative 2 and Alternative 3 were compared to Alternative 1. All other results are presented in comparison to the No Build Alternative.

(SSAR) project.[29] The SSAR project also includes a horizontally expanded bus terminal of approximately 70,000 square feet, pedestrian connections from the train station concourse and platforms to the expanded bus terminal, and a 3-level parking garage with 775 spaces located above the bus terminal.

Population and Employment Changes

Table 4 shows the No Build Alternative forecasts projected for 2035 for the South Station area TAZs, shown in Figure 1.

Table 4—2035 South Station Study Area Demographic Projections

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	1,793	1,451	0	7,405	192	1,421	9,018
North TAZ	712	344	37	37,185	1,027	3,090	41,302
South TAZ	9,269	4,301	119	10,835	702	1,255	12,792
East TAZ	17,230	6,809	4	18,704	2,101	5,260	26,065
West TAZ	5,255	2,456	170	17,553	1,194	1,614	20,361
Subtotal	34,259	15,361	330	91,682	5,216	12,640	109,538

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

In 2035, population within these TAZs is anticipated to increase by 21,069, or 160% from 2009, increasing to 34,259 persons, as shown in Table 4 and Table 5. The largest increases would occur within the South Boston Waterfront/Innovation District, where population is anticipated to increase by 11,711, or 212%, to 17,230 persons. The second most populous area in 2035 would be the South TAZ in Chinatown/South End (5,255 persons), where population is projected to increase by 117% from 2009 totals.

In 2035, employment within the transportation study area is estimated to increase to 109,538, an increase of 18,128 jobs, or 20% from 2009 (as shown in Table 4). Employment would be highest in the North TAZ, with 41,302 jobs in the Downtown area, an increase of 6%. The East TAZ would experience the highest increase (74%) or 11,058 jobs, for a total of 26,065 jobs in the rapidly expanding South Boston Waterfront/Innovation District. The West TAZ in the Leather District/Chinatown would not experience an increase in jobs, but would still have the third largest labor market, with 20,361 jobs.

[29] The SSAR project was approved by the Secretary of EEA in 2006 (EEA No. 3205/9131) as an approximate 1.8 million sf mixed-use development to be located directly above the railroad tracks at the South Station headhouse.

Table 5—South Station Study Area Demographic Changes, 2009 - 2035, Total and Percent

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	1,204 (204%)	956 (193%)	0	2,391 (48%)	24 (14%)	28 (2%)	2,442 (37%)
North TAZ	474 (199%)	252 (274%)	0	2,223 (6%)	34 (3%)	-19 (-0.6%)	2,238 (6%)
South TAZ	5,005 (117%)	2,372 (123%)	0	2,140 (25%)	365 (108%)	-11 (-0.9)	2,494 (24%)
East TAZ	11,711 (212%)	4,468 (191%)	3 (300%)	9,234 (98%)	1,849 (734%)	-25 (-0.5%)	11,058 (74%)
West TAZ	2,675 (104%)	1,284 (110%)	0	-147 (-0.8%)	56 (5%)	-13 (-0.8%)	-104 (-0.5)
Subtotal	21,069 (160%)	9,332 (155%)	3 (1%)	15,841 (21%)	2,328 (81%)	-40 (-0.3)	18,128 (20%)

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

6.2. Alternative 1 – Transportation Improvements Only

Summary of Alternative

In Alternative 1, South Station would be expanded onto the adjacent 14-acre USPS property. MassDOT would acquire and demolish the USPS General Mail Facility. The existing South Station Terminal, totaling approximately 210,000 square feet (sf), would be expanded by approximately 400,000 sf, consisting of passenger platform and concourse levels with passenger support services. Capacity improvements would include construction of seven new tracks and four new platforms. Tower 1 and four approach interlockings would be reconfigured. Alternative 1 would not provide for potential private development at the South Station site.

Population and Employment Changes and Business Impacts

Table 6 presents the 2035 demographics projected for TAZs in and around South Station for Alternative 1 - Transportation Improvements Only.

South Station Site

Projected population and households in the South Station TAZs in 2035 are not anticipated to change in Alternative 1, in comparison to the No Build Alternative (shown in Table 3). In Alternative 1, the station expansion onto the site of the existing USPS facility site would displace approximately 1,000 USPS jobs, although it is anticipated that these jobs would be relocated within South Boston. It is not anticipated that there would be a net loss of USPS employment within the Boston area.

Table 6—2035 Alternative 1 - Transportation Improvements Only Demographic Data

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	1,793	1,451	0	7,421	296	562	8,279
North TAZ	712	344	37	37,185	1,027	3,330	41,542
South TAZ	9,269	4,301	119	10,835	702	1,255	12,792
East TAZ	17,230	6,809	4	18,704	2,101	5,260	26,065
West TAZ	5,255	2,456	170	17,553	1,194	1,614	20,361
Subtotal	34,259	15,361	330	91,698	5,320	12,021	109,039

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

Currently, total employment within the South Station headhouse, excluding bus terminal employees, is approximately 640, including employees for railroad operations of Amtrak and the MBTA. Existing retail staff within the station headhouse totals approximately 70 employees, and other services within the station (including building management and cleaning staff) employ 29 persons. The office space on the upper floors houses a total of 543 persons, including rail-related staff. The office space at South Station headhouse (excluding rail-related staff) currently houses 360 persons.

The station expansion is anticipated to result in an increase in rail-related employment. It is anticipated that increases in staff for railroad operations could be approximately 30%. The staff to support current railroad operations at South Station (both on-site and off-site) between Amtrak and the MBTA is approximately 900, of which at least 20% are housed at South Station.

A station expansion in Alternative 1 is anticipated to more than double the retail and building management/cleaning staff within the headhouse (an increase of 99 employees) for a total of approximately 140 retail employees and 58 building management and cleaning staff. Assuming that the rail staff housed within South Station expands, this could yield a total of approximately 844 employees based at the South Station headhouse, an increase of roughly 202 employees.

Beyond the direct employment changes in the South Station study area associated with Alternative 1, the project would support continued economic growth and expansion of the Downtown Financial District and adjoining South Boston Waterfront/Innovation District. Jobs in Boston have a public transit mode share of 35%. Given the importance of Boston as an employment center reliant on a commuter workforce, the proposed station improvements are important to support the city's continued growth and economic health.

Layover Facility Sites

Other than relocation of the USPS General Mail Facility, direct business impacts required for the project would occur at the Widett Circle site and the Readville – Yard 2 site.

The proposed site for the Widett Circle layover facility includes a complex of food storage and processing facilities, including companies in the seafood and beef industry, on Widett Circle and Foodmart Road. The use of this site for layover would displace approximately 30 businesses, and the employees of these businesses would be affected. The majority of the businesses lease or are located within two parcels on Widett Circle that are tax exempt under Massachusetts General Laws Chapter 121A (Urban Redevelopment Corporation). The Cold Storage property is not included in the tax-exempt 121A parcels.

The tax revenues on the Cold Storage property in 2011 totaled $351,534. It is assumed that these affected businesses would be relocated within the immediate project vicinity in the Boston area, and that no long-term loss of employment would occur.

At the Readville – Yard 2 layover facility site, approximately 0.7 acres of land currently owned by a privately-owned demolition and debris management company would be required, which would represent a partial taking. The company is located proximate to a larger industrial district in the Hyde Park area and it is anticipated that this partial land taking would not result in a long-term loss of employment.

Economic Impacts

Using the TREDIS model, data from the CTPS regional travel demand model, and other inputs as detailed in Attachment C, CTPS estimated the economic impacts of Alternative 1. Alternative 1 is estimated to take six years for construction, with an estimated project opening year of 2023.

At the peak of construction, anticipated in year 2020, Alternative 1 is estimated to add approximately 3,500 new construction-related jobs to the region. CTPS projects that the economic impacts of the construction associated with Alternative 1 would total $1.824 billion in business sales, $1.038 billion in gross regional product, and $865 million in wage income in comparison to the No Build Alternative.

CTPS estimated that over a 13-year time period of SSX project operation, from 2023 through 2035, the permanent employment migration to South Station in Alternative 1 would result in economic benefits to the analysis area (defined as 20 zip codes within Boston and Cambridge, described and illustrated in Attachment C). In Alternative 1, additional business sales in the analysis area would total up to approximately $280 million, additional gross regional product would total up to approximately $83 million, and additional wage income would total up to approximately $162 million in comparison to the No Build Alternative.[30]

In the 2035 horizon year, CTPS estimated that Alternative 1 would result in a total of approximately $283 million in traveler cost savings to the region as compared to the No Build Alternative. Traveler cost savings were determined from multiple variables, including passenger costs (expenditures of $41 million), freight cost savings ($142 million), and vehicle operating cost savings ($51 million).[31]

6.3. Alternative 2 – Joint/Private Development Minimum Build

Summary of Alternative

Alternative 2 would include all of the transportation improvements provided in Alternative 1, as well as provisions for future private development at the South Station site. In Alternative 2, future private development could include approximately 660,000 sf of mixed uses consisting of residential; office; and commercial uses, including retail and hotel, located in six separate buildings with open space and plazas.

Population and Employment Changes and Business Impacts

Table 7 presents the 2035 demographics projected for TAZs in and around South Station for Alternative 2. The changes in employment described in Alternative 1 also would apply in Alternative 2, with

[30] A significant portion of the employment gains associated with Alternative 1 could be redistributed from locations within the bounds of the analysis area, and therefore might not represent a net increase within the analysis area. As a result, the economic benefits described in this section and presented in Attachment C represent the maximum possible benefits anticipated for the analysis area.

[31] Other costs calculated in determining traveler cost savings, which are enumerated in Attachment C, include crew costs, reliability costs, toll costs, safety costs, and environmental costs.

additional employment related to the future private development. It is anticipated that the future private development in Alternative 2 would add 1,020 service employees and 255 retail employees, for a total of 1,275 employees. It is assumed that 280 units of residential housing developed in Alternative 2 would accommodate 620 residents.

Table 7—2035 Alternative 2 – Joint/Private Development Minimum Build Demographic Data

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	2,993	1,731	0	8,441	551	562	9,554
North TAZ	712	344	37	37,185	1,027	3,330	41,542
South TAZ	9,269	4,301	119	10,835	702	1,255	12,792
East TAZ	17,230	6,809	4	18,704	2,101	5,260	26,065
West TAZ	5,255	2,456	170	17,553	1,194	1,614	20,361
Subtotal	35,459	15,641	330	92,718	5,575	12,021	110,314

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

The potential impacts to businesses at the Widett Circle and Readville – Yard 2 layover facility sites that would occur in Alternative 1 also would occur in Alternative 2.

Economic Impacts

Using the TREDIS model, data from the CTPS regional travel demand model, and other inputs as detailed in Attachment C, CTPS estimated the economic impacts of Alternative 2. Alternative 2 is estimated to take 12 years for construction, with an estimated project opening year of 2030.

At the peak of construction, anticipated in year 2021, Alternative 2 is estimated to add approximately 4,300 new construction-related jobs to the region. CTPS projects that the economic impacts of construction associated with Alternative 2 would total $3.777 billion in business sales, $2.197 billion in gross regional product and $1.835 billion in wage income.

CTPS estimated that the 280 new households anticipated as part of future private development at the South Station site in Alternative 2 would generate $26.153 million in new household spending. CTPS estimated that over a six-year time period of SSX private development operation, from 2030 through 2035, the permanent household and employment migration to the South Station site in Alternative 2 would result in economic benefits to the analysis area (defined as 20 zip codes within Boston and Cambridge, described and illustrated in Attachment C). Alternative 2 would result in increases of up to approximately $1.043 billion in business sales, $776 million in gross regional product, and $551 million in wage income within the analysis area, in addition to gains resulting from Alternative 1.[32] As compared to the No Build Alternative, over a 13-year time period from 2023 through 2035, Alternative 2 would result in business sales of up to approximately $1.323 billion, gross regional product of up to approximately $859 million, and wage income of up to approximately $713 million in the analysis area.

[32] A significant portion of the employment and household gains associated with Alternative 2 could be redistributed from locations within the bounds of the analysis area, and therefore might not represent a net increase within the analysis area. As a result, the economic benefits described in this section and presented in Attachment C represent the maximum possible benefits anticipated for the analysis area.

In the 2035 horizon year, CTPS estimated that Alternative 2 would result in a total of approximately $256 million in traveler cost savings to the region. Traveler cost savings were determined from multiple variables, including passenger costs (expenditures of $66 million), freight cost savings ($142 million), and vehicle operating cost savings ($50 million).[33]

6.4. Alternative 3 – Joint Private Development Maximum Build

Summary of Alternative

Alternative 3 would include all of the transportation improvement provided in Alternative 1, as well as provisions for future private development at the South Station site. Future private development could include approximately 2,000,000 sf of mixed uses consisting of residential; office; and commercial uses, including retail and hotel uses, located in six separate buildings with open space and plazas.

Population and Employment Changes and Business ImpactsTable 8 presents the 2035 demographics projected for the TAZs in and around South Station for Alternative 3. The changes in employment described for Alternative 1 would also apply in Alternative 3, with additional employment related to the future joint development. It is anticipated that the future development in Alternative 3 would add 3,000 service employees and 750 retail employees, for a total of 3,750 employees. It is assumed that 830 units of residential housing developed in Alternative 3 would accommodate 1,830 residents.

Table 8—2035 Alternative 3 – Joint/Private Development Maximum Build Demographic Data

Transportation Analysis Zone (TAZ)	Population Data			Employment Data			
	Population	Households	Group Quarters[a]	Service Jobs	Retail Jobs	Basic Jobs[b]	Total Jobs
South Station TAZ	3,593	2,281	0	10,421	1,046	562	12,029
North TAZ	712	344	37	37,185	1,027	3,330	41,542
South TAZ	9,269	4,301	119	10,835	702	1,255	12,792
East TAZ	17,230	6,809	4	18,704	2,101	5,260	26,065
West TAZ	5,255	2,456	170	17,553	1,194	1,614	20,361
Subtotal	36,059	16,191	330	94,698	6,070	12,021	112,789

Source: CTPS

a Group quarters are places where people live or stay in a group living arrangement, and include such places college residence halls, residential treatment centers, skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

b Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

The potential impacts to businesses at the Widett Circle and Readville – Yard 2 layover facility sites that would occur in Alternative 1 also would occur in Alternative 3.

Economic Benefits

Using the TREDIS model, data from the CTPS regional travel demand model, and other inputs as detailed in Attachment C, CTPS estimated the economic impacts of Alternative 3. Alternative 3 is estimated to take 14 years for construction, with an estimated project opening year of 2032.

At the peak of construction, anticipated in 2022, Alternative 3 is estimated to add approximately 6,100 new construction-related jobs to the region. CTPS projects that the economic impacts of construction

[33] Other costs calculated in determining traveler cost savings, which are enumerated in Attachment C, include crew costs, reliability costs, toll costs, safety costs, and environmental costs.

associated with Alternative 3 would total $6.187 billion in business sales, $3.650 billion in gross regional product, and $3.060 billion in wage income.

CTPS estimated that the 830 new households anticipated as part of future private development at the South Station site in Alternative 3 would generate $77.526 million in new household spending. CTPS estimated that over a four-year time period of SSX private development operation, from 2032 through 2035, the permanent household and employment migration to the South Station site in Alternative 3 would result in economic benefits to the analysis area (defined as 20 zip codes within Boston and Cambridge, described and illustrated in Attachment C). Alternative 3 would result in increases of up to approximately $2.099 billion in business sales, $1.495 billion in gross regional product, and $1.115 billion in wage income within the analysis area, in addition to gains resulting from Alternative 1.[34] As compared to the No Build Alternative, over a 13-year time period from 2023 through 2035, Alternative 3 would result in business sales of up to approximately $2.379 billion, gross regional product of up to approximately $1.578 billion, and wage income of up to approximately $1.277 billion in the analysis area.

In the 2035 horizon year, CTPS estimated that Alternative 3 would result in a total of approximately $233 million in traveler cost savings to the region. Traveler cost savings were determined from multiple variables, including passenger costs (expenditures of $80 million), freight cost savings ($142 million), and vehicle operating cost savings ($43 million).[35]

6.5. Summary Comparison

South Station Area Population and Employment

Table 9 presents a comparison of 2035 South Station demographic data for the South Station TAZs according to the three joint/private development build alternatives.

Table 9—Comparison of 2035 South Station Demographic Data

Joint/Private Development Alternative	Population	Households	Service Jobs	Retail Jobs	Basic Jobs[a]	Total Jobs
No Build	34,259	15,361	91,682	5,216	12,640	109,538
Alternative 1	34,259	15,361	91,698	5,320	12,021	109,039
Alternative 2	35,459	15,641	92,718	5,575	12,021	110,314
Alternative 3	36,059	16,191	94,698	6,070	12,021	112,789

Source: CTPS

a Basic jobs include utilities/telecommunications, transportation/trucking, mining, manufacturing, agriculture, fishing, warehousing, wholesale trade, and forestry.

As shown in Table 9, population and household numbers for the South Station TAZs are not expected to change from the No Build Alternative to Alternative 1, but would increase in Alternatives 2 and 3 due to the joint/private development. A drop in total employment is anticipated in Alternative 1 from the No Build conditions; the relocation of 1,000 USPS jobs from the site would be partially offset by the increase in rail-related and retail jobs associated with the South Station terminal expansion. Employment is expected to increase in Alternatives 2 and 3 due to the joint/private development. Alternative 3 – Joint/Private Development Maximum Build would result in an increase in population and households of approximately 5% over the No Build Alternative; and an increase in employment of approximately 3%

[34] A significant portion of the employment and household gains associated with Alternative 3 could be redistributed from locations within the bounds of the analysis area, and therefore might not represent a net increase within the analysis area. As a result, the economic benefits described in this section and presented in Attachment C represent the maximum possible benefits anticipated for the analysis area.

[35] Other costs calculated in determining traveler cost savings, which are enumerated in Attachment C, include crew costs, reliability costs, toll costs, safety costs, and environmental costs.

and 3.4% over the No Build Alternative and Alternative 1 conditions, respectively.

Economic Benefits

Table 10 presents a comparison of the projected impacts of construction associated with the three joint/private development Build Alternatives as compared to the No Build Alternative. Economic impacts of construction were assessed for the entire Boston MPO regional travel demand model area, which includes 164 municipalities located in Eastern Massachusetts, centered on the Boston Region MPO area.

Table 10—Comparison of SSX Project Economic Impacts of Construction

Joint/Private Development Alternative	Impacts of Construction ($ million)		
	Business Sales	Gross Regional Product	Wage Income
Alternative 1	$1,824.37	$1,038.39	$864.71
Alternative 2	$3,777.30	$2,196.87	$1,834.58
Alternative 3	$6,187.40	$3,650.09	$3,059.79

Source: CTPS

Alternatives 2 and 3 would result in substantially higher economic impacts associated with the SSX project construction period than would Alternative 1. In addition to the construction-related economic benefits of Alternative 1, Alternative 2 would generate approximately $1.953 billion in business sales, approximately $1.158 billion in gross regional product, and approximately $970 million in wage income. With a construction period of 14 years, Alternative 3 is estimated to result in approximately $4.363 billion in business sales, $2.612 billion in gross regional product, and $2.195 billion in wage income beyond construction-related economic impacts of Alternative 1.

Table 11 presents a comparison of the projected impacts of permanent employment and household migration to South Station and the future joint/private development associated with the Build Alternatives. The results represent a maximum gain as a portion of the employment and household gains associated with the Build Alternatives could be redistributed from areas within the bounds of the analysis area, and therefore might not represent a net increase within the analysis area. The economic impacts of Alternatives 2 and 3 shown in Table 11 would be additive, representing projected impacts in addition to those expected in Alternative 1.

Table 11—Comparison of SSX Project Economic Impacts of Permanent Household and Employment Gains

Joint/Private Development Alternative	Impacts of Permanent Household & Employment Gains ($ million)		
	Business Sales	Gross Regional Product	Wage Income
Alternative 1	≤ $280.43	≤ $83.02	≤ $161.75
Alternative 2	≤ $1,042.64	≤ $775.86	≤ $550.84
Alternative 3	≤ $2,098.60	≤ $1,495.06	≤ $1,115.06

Source: CTPS

In addition to the economic impacts of permanent gains expected in Alternative 1, CTPS estimated that the following economic benefits would occur in the two joint/private development alternatives:

- **Alternative 2**: CTPS estimated that over a six-year time period, from 2030 (estimated opening of Alternative 2 joint/private development) through 2035, the economic impacts of permanent household and employment gains in Alternative 2 would result in additional business sales of up to $1.043 billion, gross regional product of up to $776 million, and wage income of up to $551 million. In sum, over a 13-year time period (2023, estimated opening of Alternative 1, through 2035) Alternatives 1 and 2 would result in business sales of up to approximately $1.323 billion, gross regional product of up to approximately $859 million, and wage income of up to approximately $713 million in comparison to the No Build Alternative.
- **Alternative 3**: CTPS estimated that over a four-year time period, from 2032 (estimated opening of Alternative 3 joint/private development) through 2035, the economic impacts of permanent household and employment gains in Alternative 3 would result in additional business sales of up to $2.099 billion, gross regional product of up to $1.495 billion, and wage income of up to $1.115 billion, in comparison to Alternative 1. In sum, Alternatives 1 and 3 would result in business sales of up to approximately $2.379 billion, gross regional product of up to approximately $1.578 billion, and wage income of up to approximately $1.277 billion in comparison to the No Build Alternative.

Table 12 presents a comparison of traveler cost savings associated with the three joint/private development Build Alternatives in comparison to the No Build Alternative. Traveler cost savings were assessed for the entire Boston MPO regional travel demand model area.

Table 12—Comparison of SSX Project Traveler Cost Savings

Joint/Private Development Alternative	Traveler Cost Savings ($ million)
Alternative 1	$282.97
Alternative 2	$256.23
Alternative 3	$233.25

Source: CTPS

Primarily due to the progressively higher passenger expenditures anticipated for Alternatives 2 and 3, overall traveler cost savings in Alternatives 2 and 3 would be lower than estimated traveler cost savings projected for Alternative 1.

7. Mitigation

It is MassDOT's intent to replicate the retail functions of the USPS facility in the terminal expansion to compensate for relocating the retail functions located in the USPS General Mail Facility.

MassDOT would provide relocation assistance for affected property owners at Widett Circle in accordance with the procedures outlined in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The Act provides benefits and protection for persons or businesses whose real property is acquired or who are displaced by federally funded projects and requires just compensation. Suitable replacement properties would be provided to affected owners. It is anticipated that suitable relocation sites are available within the industrial sites in the immediate Boston area.

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