Appendix B – Indirect and Cumulative Impacts

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SOUTH STATION
EXPANSION

South Station Expansion Project
Environmental Assessment and
Section 4(f) Determination

Appendix B – Indirect and Cumulative Impacts

September *2017*

massDOT
Massachusetts Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

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1. Introduction

The Council on Environmental Quality (CEQ) regulations at 40 CFR 1500 *et seq* require an assessment of indirect and cumulative impacts for federally assisted projects. This section provides an assessment of the indirect and cumulative impacts of the South Station Expansion project (SSX) and other ongoing and planned projects in the project study area and the surrounding region. This analysis also includes a qualitative assessment of indirect impacts associated with the relocation of the United States Postal Service (USPS) General Mail Facility (GMF).

2. Methodology

The project has the potential to produce indirect impacts and, when combined with past, present, and other reasonably foreseeable future projects, could result in cumulative impacts to certain resources. A qualitative assessment of indirect impacts was based on land use analyses, and information provided by planning departments regarding future development.

The following steps were taken to complete the assessment of indirect and cumulative impacts:

- Reviewed land use and development planning documents related to the project sites;
- Identified approved, ongoing, and proposed developments in the vicinity of the project sites;
- Assessed the impact of the project on ongoing and proposed development; and
- Identified potential mitigation strategies to offset adverse impacts.

3. Indirect Impacts

Indirect impacts are defined as those impacts caused by an action that occur later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other impacts related to changes in the pattern of land use, population density or growth rate, and related effects on traffic, noise, air quality, water quality, and other natural systems.

The following sections review the indirect impacts associated with the SSX project, including reopening Dorchester Avenue to public access, and the layover facility development. However, the primary indirect impact of the SSX project would be the relocation of the USPS facility. As noted in EA Chapter 1, the project would involve acquisition and demolition of the USPS GMF located on Dorchester Avenue adjacent to South Station, which would provide an approximately 14-acre site on which to expand South Station. Although demolition of the USPS facility after it is vacated is part of the project, the relocation of USPS operations is not part of the project. The USPS would determine the future location(s) to which its operations would be relocated, and the relocation would be subject to its own environmental review as required by state and federal regulations as a separate project. For the purposes of this indirect assessment, it is assumed that the USPS GMF could be relocated to a site in South Boston on the Reserved Channel in Boston's Seaport District (Figure 1) that the USPS had previously identified as potentially being appropriate to accommodate a relocated USPS GMF The actual relocation of the USPS GMF would be subject to negotiations between the USPS and MassDOT/the Commonwealth of Massachusetts.

3.1. South Station

3.1.1. Terminal Expansion

South Station is the central transit hub (Amtrak, commuter rail, subway, buses) for commuters to the Financial District and the South Boston Waterfront/Innovation District in Downtown Boston. The South Boston Waterfront/Innovation District is the fastest growing area in Boston, and the South Station improvements would provide increased transit capacity to accommodate growing transportation demands from significant commercial and residential development. The Innovation District has added 200 businesses and 5,000 jobs since it was conceived in 2010.[1] Further discussion of the South Boston Waterfront/Innovation District growth and development is presented in EA Section 3.13.

The urbanized land use and growth patterns are firmly established in the surrounding neighborhoods in the Financial District, Chinatown, the Leather District, and South Boston, and the SSX project is not anticipated to change land use patterns or growth patterns, other than being essential to support the considerable commercial and residential growth occurring in these areas. Positive indirect impacts on social and economic conditions would relate to enhanced accessibility for residents, workers, and tourists within and beyond the Downtown Boston area. By accommodating improved rail service frequency and reliability, the SSX project would support continued economic development and job and population growth.

3.1.2. Opening Dorchester Avenue to Public Access

The portion of Dorchester Avenue between the USPS GMF and the Fort Point Channel is currently closed to the general public. The SSX project would reconstruct the roadway and allow public access for motorists and connect the Harborwalk through the site. The reopening of Dorchester Avenue will provide another key link between South Boston and the Financial District and will relieve traffic congestion along Atlantic Avenue, but is not expected to result in substantial negative indirect impacts, as the area is already urbanized and heavily travelled.

3.2. Layover Facilities

The Widett Circle site area is dominated by industrial uses and rail operations and support facilities, including Amtrak's Front Yard and Southampton Street Yard, the MBTA's South Side Service and Inspection Facility and Cabot Yard, which is the primary MBTA Red Line maintenance facility. The indirect impacts associated with the development of the Widett Circle site as a layover facility involve the potential relocation of the businesses that are currently in operation there. It is anticipated that suitable relocation sites are available within the industrial sites in the immediate South Boston area for the displaced businesses. MassDOT and the City of Boston would coordinate with these businesses to find relocation options in the Boston area. Relocation assistance would be provided to affected owners.

The Readville − Yard 2 site is currently an existing MBTA layover facility, and the proposed expansion is not anticipated to incur substantial indirect impacts.

[1] City of Boston, Boston Redevelopment Authority. *Innovation Boston.* Accessed September 12, 2016. http://www.bostonredevelopmentauthority.org/business-dev/initiatives/innovationboston/overview.

Figure 1 — Potential USPS GMF Relocation Area

3.3. United States Postal Service Relocation

MassDOT and FRA are considering the USPS relocation as an indirect impact in the SSX project NEPA process. For the purposes of this analysis, it is assumed that the USPS GMF could be relocated to a site in South Boston. This analysis qualitatively discusses the potential impacts of the USPS GMF relocation on traffic, the human environment, historic and archaeological resources, historic properties, waterways and wetlands, floodplains, ecology, air quality, noise and vibration, and site contamination and hazardous materials. The eventual relocation of the USPS GMF to any site would be subject to all applicable state and local permitting and environmental review processes should it move forward.

3.3.1. Traffic Assessment

The traffic impacts associated with the potential relocation of the USPS GMF includes estimates of traffic generation, potential traffic shifts, and roadways that would likely experience an increase. For traffic generation, the analysis assumes that the number of USPS employees and the mode of travel would not change with the relocation. For traffic distribution and assignment, the analysis assumes that all USPS employee parking and truck loading/unloading activity would be accommodated on-site, or in the immediate vicinity of the site.

Existing Trip Generation

To help quantify the USPS existing traffic generation, observations were conducted in November 2015 on Dorchester Avenue (at both USPS access gates), along A Street (at the USPS parking lot), and along the West Service Road (at the USPS parking lots). Data were collected between 6:00 a.m. to 7:00 a.m. and 2:00 p.m. to 3:00 p.m. These hours generally coincide with USPS employee shifts and were identified as the peak periods for USPS traffic under a previous traffic assessment.[2] The vehicle data collection included all vehicles arriving and departing USPS facilities and included employees, USPS vehicles, contractors, visitors, vendors, and others. Trips made by public transportation and other modes were not counted since they are assumed to be unchanged in the future.

Table 1 — USPS Trip Generation (Vehicle Trips)

	USPS Trucks (Postal Vehicles & Deliveries)	Other Trucks	Passenger Vehicles (Employees & Others)	Shuttle Buses/ Vans	Visitors	Total
Morning Peak						
Entering	39	13	201	1	27	281
Exiting	57	14	75	3	24	173
Total	**96**	**27**	**276**	**4**	**51**	**454**
Afternoon Peak						
Entering	23	21	102	6	36	188
Exiting	23	25	107	5	41	201
Total	**46**	**46**	**209**	**11**	**77**	**389**

Note: Shuttle bus trips will be excluded from the potential relocation since the assessment assumes that employees park on-site or in the vicinity of the potential site.

[2] *Potential Boston General Mail Facility Level 2 Traffic Impact Assessment*, Boston, Massachusetts, May 2008.

There are very few employees working at the USPS facility during the typical evening commute peak hour from 5:00 p.m. to 6:00 p.m. Therefore, the evening commute peak hour was excluded from this study due to the low traffic generation and afternoon peak volumes were used to establish the existing trip generation for the USPS facility. The existing trip generation is shown in Table 1.

The trip generation results indicate a total of 454 vehicle trips generated by the USPS facility during the morning peak hour (6:00 a.m. to 7:00 a.m.). The afternoon peak hour (2:00 p.m. to 3:00 p.m.) generates a total of 389 vehicle trips. Many of the visitors to the facility were observed at the Dorchester Avenue northern gate visitor parking area, where the average duration for the visiting vehicle was under 30 minutes.

Shuttle buses carrying employees to/from the USPS facility were captured in the counts at the Dorchester Avenue northern gate. In the morning peak hour, four shuttle trips were observed, one entering and three exiting. During the afternoon peak, 11 shuttle trips were observed, six entering and five exiting. In the future, all employee parking is assumed to be provided on-site or in the immediate vicinity of the site so that the shuttle buses will no longer be used, thereby slightly reducing the number of trips generated by the relocated facility.

Trip Distribution

Once the level of traffic generation was estimated, the next step in the assessment involved redistributing traffic to the potential Reserved Channel site. The following traffic-generating uses were assumed to be relocated:

- USPS employees (passenger vehicles)
- USPS mail freight trucks (single unit trucks and tractor trailers)
- USPS parcel post trucks (one- and two-ton trucks)
- Private drop-ship tractor trailers
- Business mail trucks (private passenger vehicles, vans, single unit trucks)
- Couriers (private passenger vehicles, vans, trucks)

These vehicles trips were all captured during the field observations and included in the trip generation estimate in Table 1. In order to redistribute traffic, the following assumptions were made:

- All vehicles would enter and exit via E Street and that a planned connection of E Street to the intersection of Summer Street at Pumphouse Road would be in place;
- The South Boston Bypass Road would be available for general traffic during morning hours; and
- USPS employee home distribution and distribution of other USPS trips (vehicles, drop ship, private entities) from previous assessments would not change substantially.[3]

The resulting distribution of employee vehicles and other USPS-generated vehicles is shown in Figure 2 and Figure 3. The final step in this assessment involved assigning the redistributed trips to the roadway network. Figure 4 and Figure 5 illustrate the shift in trip patterns, comparing existing patterns to proposed patterns.

[3] *Potential Boston General Mail Facility Level 2 Traffic Impact Assessment*, Boston, Massachusetts, May 2008.

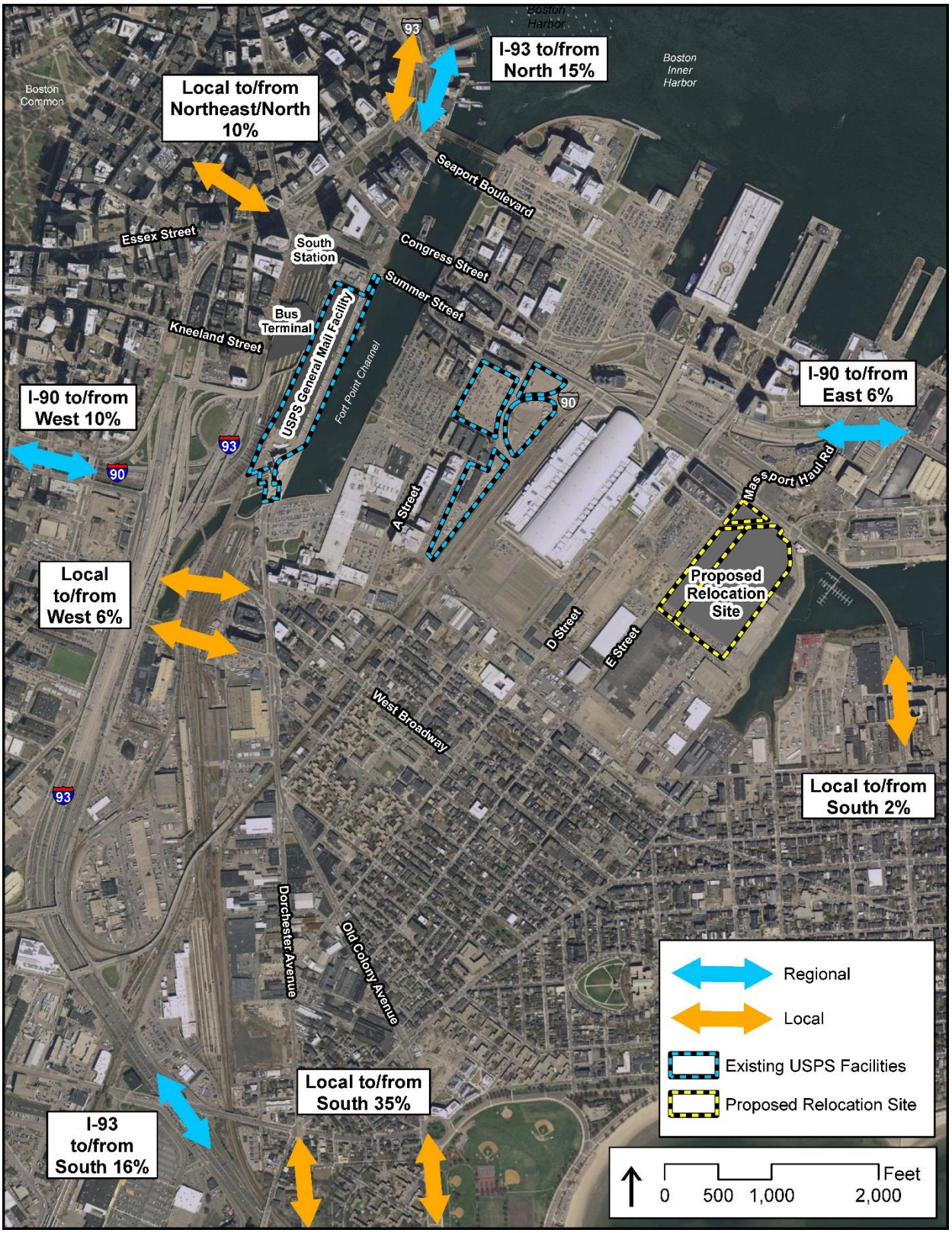

Figure 2 — USPS Employee Traffic Redistribution

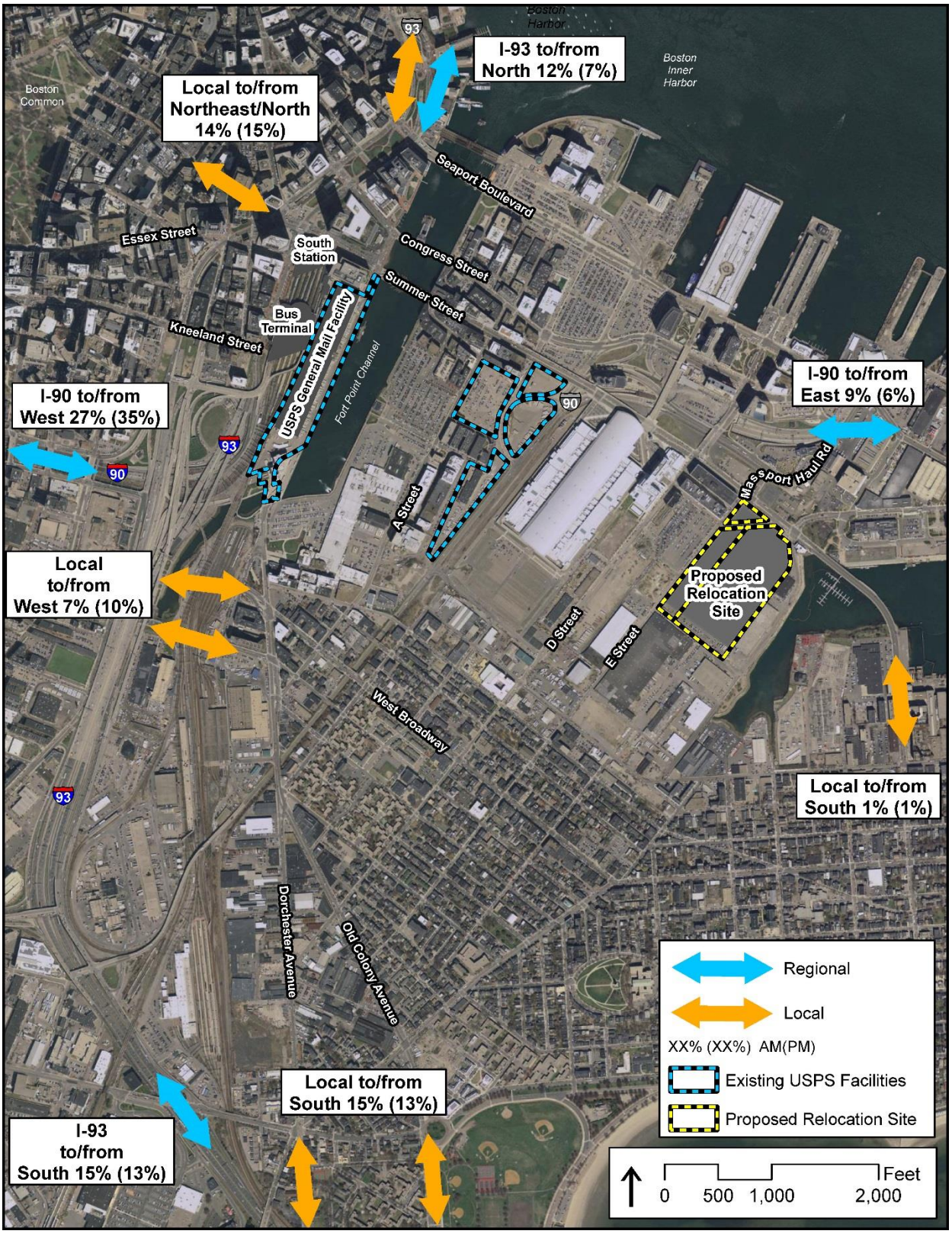

Figure 3 — USPS Truck Traffic Redistribution

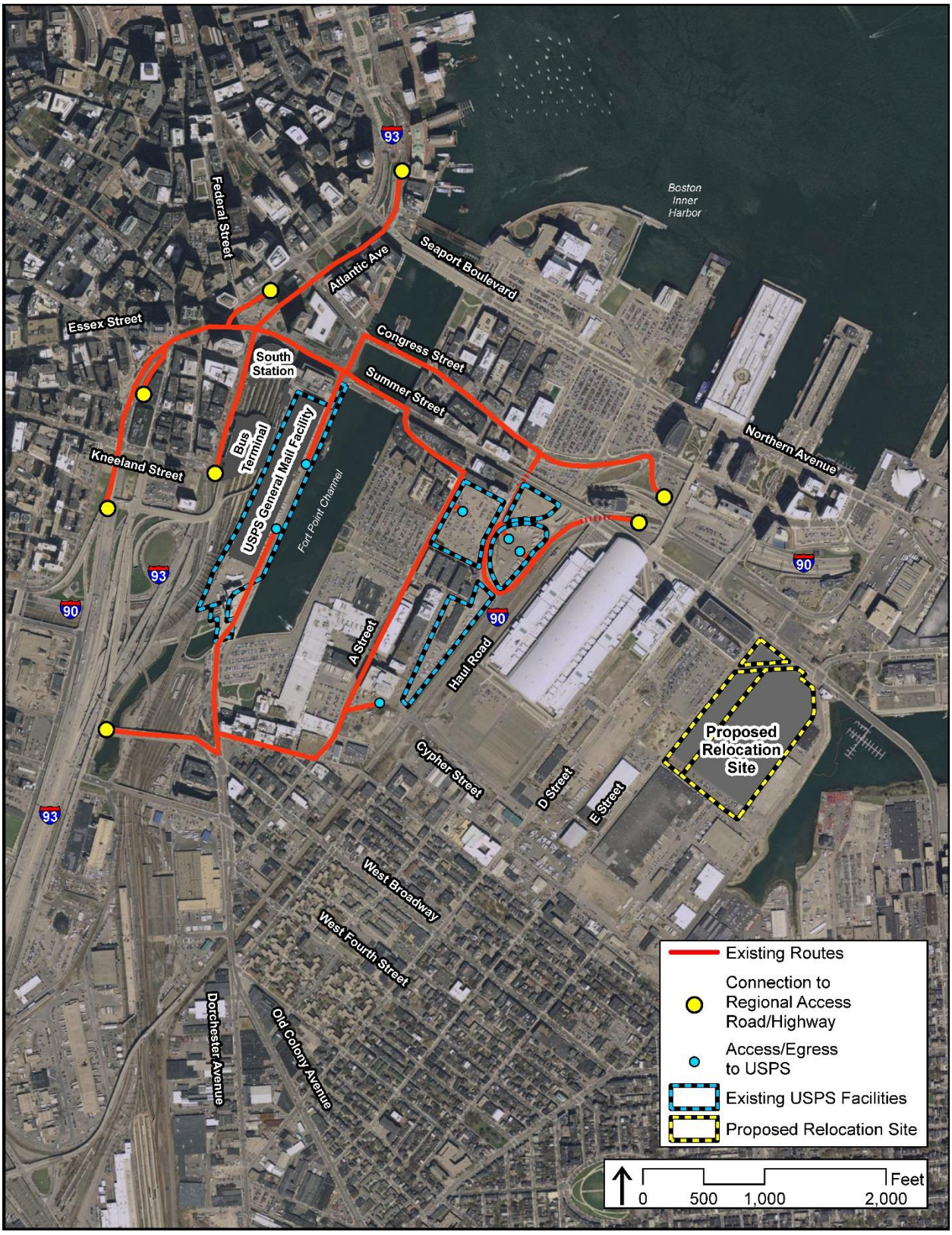

Figure 4 — Primary USPS Routes (Existing Site)

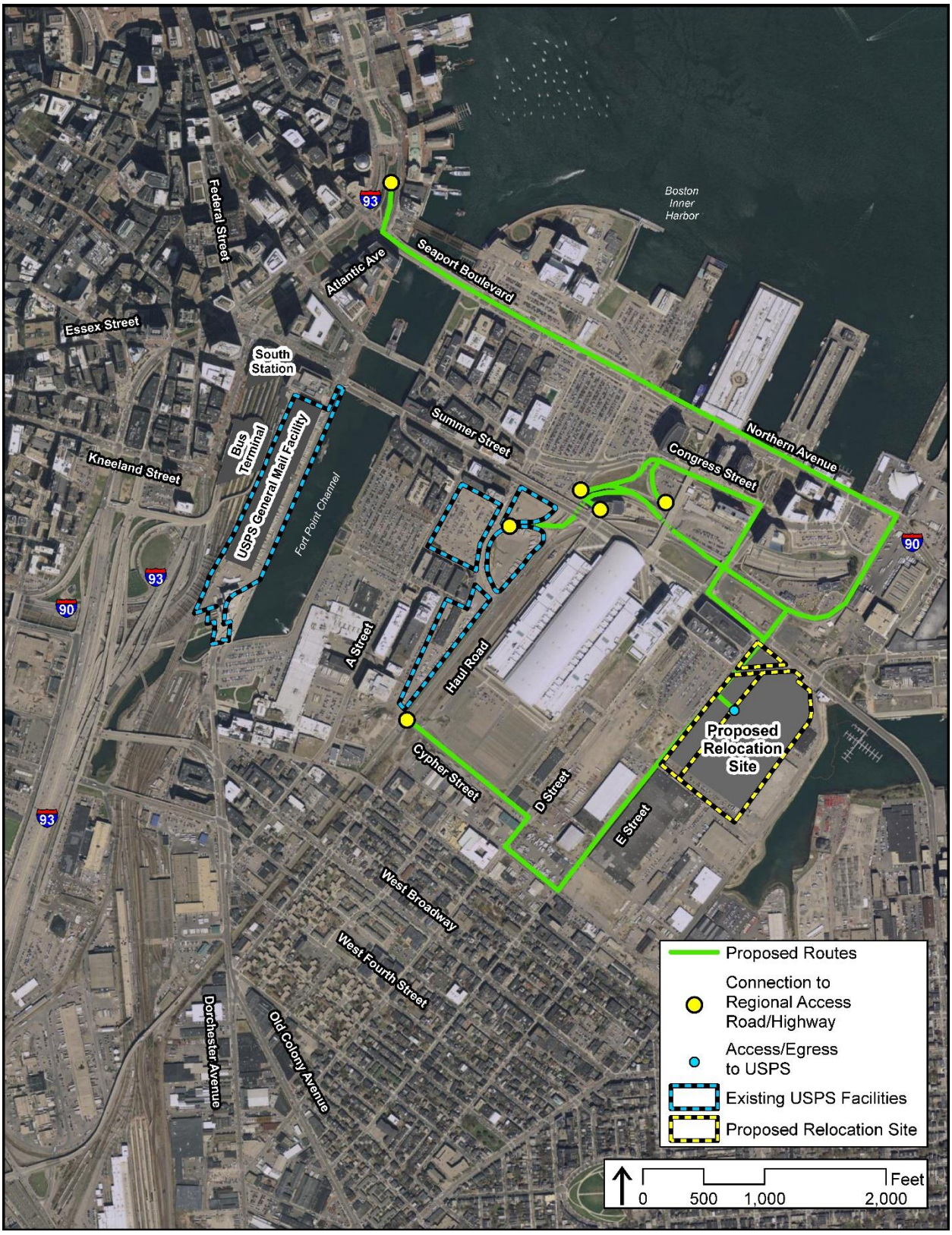

Figure 5 — Primary USPS Routes (Relocated Site)

Assessment of Impacts of USPS Traffic Shifts

Based on this assessment of relocated trip patterns, the relocation of the USPS facility would have a minor impact on the roadway network and would reduce USPS traffic on local streets in the Financial District and through Dewey Square. During the USPS peak traffic demand periods in the early morning and early afternoon, there would be an increase in traffic along the roads and at the intersections surrounding the new site location on E Street and along Seaport Boulevard/Northern Avenue. The relocation to the Reserved Channel site would eliminate or substantially reduce the existing USPS trips that travel through the Financial District and the congested Dewey Square intersection at Atlantic Avenue and Summer Street – a direct result of the more convenient regional highway connections at the potential relocation site.

The potential USPS relocation site allows for more convenient access to the I-90 and I-93 interstate ramps off Congress Street and the South Boston Bypass Road via the Massport Haul Road for trucks. This enhanced regional highway access would reduce the amount of traffic, particularly truck traffic, forced to rely on congested downtown roadways in the Financial District in order to access the interstate system. Overall, the USPS relocation would reduce vehicle miles traveled on local roads due to the more convenient regional highway connections at the potential relocation site.

3.3.2. Human Environment

Land Use

The land use study area is defined as one-half mile surrounding the potential USPS relocation site at the Reserved Channel in the South Boston Waterfront, currently the fastest growing neighborhood in the City of Boston. The potential relocation site for the USPS facility is located in the South Boston neighborhood approximately one mile southeast along Summer Street from the existing USPS GMF facility at the intersection of Summer Street, Fargo Street, E Street, and Pappas Way. The site currently consists of one permanent structure and is almost entirely paved. The existing structure is a one-story aluminum sided warehouse with a small office and five loading bays. Portions of the site are used for surface parking and the remainder of the site is used for vehicle and materials storage. The existing land use description is based on aerial photographs.

Land use in the vicinity of the site includes marine-based and general industrial and commercial uses. The area directly adjacent to the site along E Street and Pappas Way largely consists of surface parking and one-story industrial warehouse structures. Along Summer Street adjacent to the parcel, the structures are older masonry buildings of up to ten stories. The closest residential uses are located approximately 800 feet west of the area along D Street. Recent development in the South Boston Waterfront/Innovation District has focused on mixed uses including residential, light industrial, office, and commercial projects, and the potential relocation of the USPS GMF facility to this area will be compatible with the mixed uses and diverse types of industry in the area.

Zoning

The surrounding area is zoned for light industrial, industrial, waterfront commercial, and waterfront marine uses. The site is primarily regulated by the City of Boston's Zoning Code Article 68, South Boston Neighborhood District. More specifically, the potential relocation site falls within Article 68, Section 68-16, Establishment of Waterfront Subdistricts. There are two subdistricts in this section and they are both applicable to the potential relocation site, the Waterfront Manufacturing Subdistrict and the Waterfront Commercial Subdistrict.

Environmental Justice

The Environmental Justice (EJ) study area for this analysis encompasses a one-half mile radius surrounding the potential USPS location, including areas within walking distance determined to be most likely affected by the construction and operation of the relocated facility. As noted in the Land Use section, the potential relocation site is in an industrial and commercial neighborhood. There are only a small number of residences located within the study area, and of those residences, none include EJ populations.

This section demonstrates that MassDOT and the SSX project are in full compliance with Title VI of the Civil Rights Act of 1964 and the EJ policy of Massachusetts EEA relative to the relocation of the USPS GMF facility to a site in the Seaport area of Boston. More information on the policies and regulations regarding environmental justice can be found in DEIR Section 3.15, *Environmental Justice*.[4]

The potential USPS relocation would not directly displace any EJ populations, as no residential property takings would occur. The acquisition of the USPS facility would result in the relocation of all employees to another site in Boston. The number of employees at the USPS facility meeting EJ criteria is not known. Assuming that the percentage of workers that represent EJ populations is similar to the statistics for the City of Boston, roughly half (or 500) of USPS workers could represent EJ populations. No disproportionately high and adverse human health and environmental effects, including air quality, visual, social, and economic effects, are anticipated to impact EJ populations due to the relocation of the USPS GMF.

Visual

The majority of the site and the area surrounding the site are paved for surface parking and vehicle and materials storage. A relocated USPS GMF facility is a compatible use for the surrounding industrial/commercial area and the structure and related infrastructure will correspond with other buildings in the area. Therefore, no negative visual impacts are anticipated as a result of the USPS GMF relocation.

3.3.3. Historic and Archaeological Resources

The potential USPS relocation site does not contain any archaeological sites that are listed in, or eligible to be listed in, the Massachusetts State Register of Historic Places (SR) or the National Register of Historic Places (NR), and there are none within a one-half mile radius. The potential USPS relocation site is entirely on made land created as a result of various filling episodes in the South Boston flats undertaken by the Commonwealth and the U.S. government from the late nineteenth through mid-twentieth centuries. The entire potential USPS relocation site is classified as containing Urban Land with a wet substratum,[5] which is consistent with the documented late nineteenth- and twentieth-century landmaking projects that resulted in deep fill deposits in the former South Boston flats and the dredged Reserved Channel. There is no potential for significant pre-contact archaeological sites and the potential for significant post-contact resources is low. The northwest portion of the potential USPS relocation site could contain buried remains of the westernmost of the two documented early to mid-twentieth-century coal wharves, but these types of resources are ubiquitous infrastructure that characterized most of the Boston shoreline during that time, and are not considered to have a high historical or archaeological research potential. For these reasons, the potential relocation of the USPS GMF to the Reserved Channel site in South Boston is not expected to have any potential impacts to significant archaeological resources.

[4] South Station Expansion Project. *Draft Environmental Impact Report*. October 2014. http://www.massdot.state.ma.us/southstationexpansion/Documents/DEIR.aspx

[5] U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). *Soil Survey of South Boston, MA,* 2015.

A file-based review of previously designated historic architectural resources within and in the vicinity (within one-quarter mile) of the project site was conducted to identify known historic resources. The Massachusetts Cultural Resource Information System (MACRIS) online database, the National and State Registers of Historic Places, and the Inventory of the Historic and Archaeological Assets of the Commonwealth ("Inventory") maintained by the MHC were reviewed. The file search identified properties listed in the State Register (SR) or National Register (NR), as well as properties that have been inventoried and/or reviewed by the MHC that are part of the Inventory. A site visit was not undertaken to field verify the results of the file-based review or to identify properties that have not been previously surveyed.

The one-quarter-mile radius extends approximately from the Boston Convention and Exhibition Center (C Street area) along West First Street, intersecting with Emerson Street, continuing in a diagonal trajectory to the former Army Supply Base Area and along Seaport Boulevard.

The MHC inventory and/or SR/NR forms were compared to existing conditions using Google Street View and Google Maps aerials. Changes in historic physical integrity including demolition, architectural alteration or other changes that negatively impact integrity were noted. These integrity evaluations are discussed in the following section and table.

Results

Review of MACRIS, the SR/NR, and the Inventory identified no historic properties within the project site. The area in the vicinity of the project site, consisting of a one-quarter-mile radius does not include any properties listed in the National or State Register. The area in the vicinity of the project site does encompass ten individual properties and three areas included in the Inventory. Of the ten inventoried properties, three have been demolished (Boston Beer Company, BOS.6848; South Boston Gas Light Company, BOS.6872; and L Street (Summer Street) Bridge, BOS.9234). Six of the extant individual properties have been significantly altered (e.g., window and door replacement, siding, additions), diminishing their architectural integrity. One property, South Boston Heights Academy (BOS.6761), appears architecturally intact.

The three areas included in the Inventory are the Boston Army Supply Base Area (BOS.RT), the C Street Industrial Area (BOS.RU), and the King Terminal Area (BOS.RV). The C Street Industrial Area has been completely altered since it was surveyed in 1997, due to the construction of the Boston Convention and Exhibition Center, which resulted in the demolition of the majority of the buildings in the area and alteration of the street grid. Prior to demolition and subsequent new construction, the C Street Industrial Area was recommended as eligible for listing in the NR as a historic district. The Boston Army Supply Base Area has been altered with new construction and demolition, though many of the buildings and the street grid remain. When surveyed in 1997, the area was recommended as a potential historic district. The King Terminal Area (BOS.RV), surveyed in 1997, was also recommended as a potential historic district. Since then, the area has experienced some building alteration and demolition.

None of the properties are listed in the State or National Register of Historic Places. There is no formal Determination of Eligibility for any of the properties included in the Inventory. The MHC has rendered eligibility opinions on two of the properties: the South Boston Heights Academy (BOS.6761) and the L Street (Summer Street) Bridge (BOS.9234), concurring with, respectively, the recommendations of the Boston Landmarks Commission and the Massachusetts Department of Public Works that the properties are eligible for listing in the National Register of Historic Places. The L Street Bridge has since been demolished. The only extant property with an MHC eligibility opinion is the South Boston Heights Academy. Table 2 summarizes the results of this file-based review.

Table 2 — Historic Resources in the Vicinity of the USPS GMF South Boston Project Site

MHC #	Name of Area/Property	Address	Designation	Comments
BOS.RT	Boston Army Supply Base	South Boston/Northern Avenue	Inventoried	Some demolition, infill; architectural integrity issues
BOS.RU	C Street Industrial Area	South Boston/ Summer Street	Inventoried	Most of area demolished for Convention Center, street pattern altered
BOS.RU	King Terminal Area	South Boston/ K Street	Inventoried	Some demolitions; building alteration
BOS.6848	Boston Beer Company	249 W Second Street	Inventoried	Demolished
BOS.6756, 6757, 6758, 6759	Bay State Iron Company. Worker Housing.	591, 593, 595, 597 East Second Street	Inventoried	Four remaining from original construction; loss of setting/design
BOS.6761	South Boston Heights Academy	486 East Third Street	Inventoried	Intact
BOS.6762	Ellen M. Wade House	512 East Third Street	Inventoried	Alterations include windows and siding
BOS.6872	South Boston Gas Light Co.	3-5 Dorchester Street	Inventoried	Demolished
BOS.7004	36 I Street	36 I Street	Inventoried	Alterations include windows, doors, and siding
BOS.9234	L Street Bridge	Summer Street over Reserved Channel	Inventoried	Four remaining from original construction; loss of setting/design

3.3.4. Waterways and Wetlands

This section presents a qualitative assessment of the potential indirect waterways and wetlands impacts of the potential relocation of the USPS GMF. Wetlands and surface waters are protected by the Massachusetts Wetlands Protection Act,[6] Section 404 of the Clean Water Act,[7] Section 10 of the Rivers and Harbors Act of 1899,[8] which regulates structures or work in navigable waters of the U.S., and Executive Order 11990, Protection of Wetlands.[9]

A review of the available GIS data, aerial images, and maps revealed that the Reserved Channel is the only surface water feature in the potential USPS relocation site vicinity. It is classified as Estuarine and Marine Deepwater by the National Wetland Inventory. The potential facility site is near, but not directly abutting, the channel. Due to the distance from the potential site, no impacts to the surface waters of the Reserved Channel are anticipated.

The only Wetlands Protection Act (WPA) jurisdictional resource that would be affected at the site of the potential USPS relocation is Land Subject to Coastal Storm Flowage (LSCSF). The entire site includes developed land cover such as pavement, sidewalks, and buildings, and no natural bank or vegetated land areas occupy the floodplain at the potential USPS location. There are no specific performance standards

[6] Massachusetts Wetlands Protection Act Regulations 310 CMR 10.00, June 2009. Accessed October 2012. http://www.mass.gov/dep/water/laws/regulati.htm#wl.

[7] U.S. Clean Water Act/Water Quality Act of 1987, (33 USC 1251-1376) Sections 401 and 404, November 2007. Accessed October 2012. http://epw.senate.gov/water.pdf.

[8] Section 10 of the Rivers and Harbors Act of 1899, (33 U.S.C 403), 1899.

[9] Protection of Wetlands, Executive Order 11990 42 FR 26961, May 24, 1977. Accessed October 2012. http://environment.fhwa.dot.gov/guidebook/vol1/doc14u.pdf.

for land subject to coastal storm flowage in the WPA; therefore, the potential USPS relocation site would meet all performance standards of the WPA.

3.3.5. Floodplains

Floodplains are protected by Federal Executive Order 11988: Floodplain Management.[10] Executive Order 11988 states that federal agencies have the responsibility to evaluate the potential effects of any actions it may take on floodplains and ensure that its programs take into consideration flood hazards and floodplain management. The Federal Emergency Management Agency (FEMA) is responsible for determining and updating flood hazard areas in the U.S. The U.S. Department of Transportation Order 5650.2, Floodplain Management[11] establishes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests.

In Massachusetts, floodplains are protected under Massachusetts Executive Order No. 149[12] and as a regulated resource under the WPA.[13] Massachusetts Executive Order 149 designates the Department of Conservation and Recreation (DCR) as the state coordinating agency to assist in the implementation of the National Flood Insurance Program (NFIP). This Order also requires all state agencies to consider potential flood hazards and to avoid construction of state funded projects in floodplains. Additionally, to the extent possible, the Order directs state-administered grant and loan programs to avoid supporting construction in floodplains.

As presented in the revised FEMA Flood Insurance Rate Maps (FIRMs) for Suffolk County that took effect March 2016,[14] Reserved Channel and much of the surrounding area west and north toward the Boston Inner Harbor main channel contain both 100-year (zone AE) and 500-year (zone X) flood hazard areas. As indicated by FEMA, a 100-year flood would inundate the northern portion of the relocation site via overland flooding from the Boston Inner Harbor main channel. A 500-year flood would further inundate the site via flood waters from the Reserved Channel. Results of the flood risks for Boston from a more detailed evaluation using the Boston Harbor Flood Risk Model (BH-FRM) outputs published by MassDOT-FHWA[15] present a less severe outcome where minimal flood encroachment to portions of the north and northeastern areas of the relocation site would occur for both the 100-year and 500-year flood scenario.

3.3.6. Ecology

The potential USPS relocation site and adjacent terrestrial areas are developed urban land uses consisting of parking lots, buildings, and roadways. The relocation site has very limited vegetation and consists almost entirely of impervious surfaces. The relocation site is not anticipated to be used as habitat other than by opportunistic and potentially nuisance wildlife, and common birds of urban settings. There are no Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife present at the USPS relocation site and no

[10] Floodplain Management Executive Order 11988, May, 1977. Accessed October, 2012. http://www.fema.gov/library/viewRecord.do?id=1395.

[11] U.S. Department of Transportation Order 5650.2, Floodplain Management and Protection, April 23, 1979. Accessed October 2012. http://isddc.dot.gov/OLPFiles/DOT/007652.pdf.

[12] Massachusetts Executive Order No. 149: Federal Emergency Management Agency (FEMA) and Flood Plain Use, 1978. Accessed October 2012. http://www.lawlib.state.ma.us/source/mass/eo/eotext/EO149.txt.

[13] Massachusetts Wetlands Protection Act Regulations 310 CMR 10.00, June 2009, Accessed October, 2012. http://www.mass.gov/dep/water/laws/regulati.htm#wl

[14] FEMA, *Flood Insurance Rate Maps for Suffolk County Massachusetts*, Revised March 16, 2016.

[15] MassDOT-FHWA, *Pilot Project Report: Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery*, June 2015.

federal or state endangered or threatened species are known to be present. No impacts to fisheries or other aquatic resources within the nearby Reserved Channel are anticipated.

3.3.7. Air Quality

The USPS GMF is located on the east side of the South Station complex and is to be demolished in its entirety. The air quality impacts of the demolition of the USPS facility are assessed as direct impacts in Section 3.14 of this EA. In general, there are four types of air pollution emissions, which could be emitted by the USPS facility in its new location:

- Construction of the facility;
- Building emissions – emissions from the building's heating/cooling system;
- Mail delivery vehicles – vehicles used to deliver mail to and pick up mail from the USPS facility; and
- Employee vehicles – vehicles driven by employees and parked at the new location.

Construction of the Facility

Construction-related activities can result in short-term impacts on ambient air quality. These potential impacts can include fugitive dust emissions, direct emissions from construction equipment and truck exhausts, and increased emissions from motor vehicles on local streets due to traffic disruption.

Fugitive Dust Emissions

Fugitive dust emissions can result from movement of construction equipment and transport of materials to and from a construction site. Dust emissions can also occur during site preparation activities such as building demolition, grading, or removal of vegetation to prepare a site for construction. Fugitive dust would generally be a problem during periods of intense construction activity and would be accentuated by windy and/or dry conditions. Construction of the proposed USPS facility must comply with MassDEP Regulation 310 CMR 7.09, which requires that dust impacts be mitigated. Uncovered construction vehicles that transport excavated material on local roadways can also result in fugitive dust emissions. Trucks traveling near residential and other sensitive receptor locations may aggravate these potential impacts.

Direct Emissions from Construction Equipment

Direct emissions from construction equipment and truck exhausts can result in short-term impacts on local air quality levels. Compared with emissions from other motor vehicle sources in the region, emissions from construction equipment and trucks are generally insignificant with respect to compliance with the ambient air quality standards. Requiring "clean diesel" practices for construction equipment such as Tier 4 engines or best available retrofit technology on older engines would help mitigate any temporary impacts. In accordance with EPA's Non-Road Diesel Rule, diesel engines used for construction equipment will be required to use the clean diesel to better enhance emission controls. When the equipment is properly operated and maintained, no adverse impacts on ambient air quality standards are expected.

Traffic Disruption and Congestion

Construction activities can also result in traffic disruption and rerouting. Traffic disruption, such as decreased roadway capacity or detouring, can lead to increased traffic congestion, thereby increasing motor vehicle exhaust emissions on nearby roadways, which could result in elevated localized pollutant

concentrations. Proper traffic management during the construction period can mitigate potential adverse effects.

Operations and Maintenance

In addition to the construction of the new USPS GMF, the operations of the facility will also result in air quality impacts. It is anticipated that the future impacts would be very similar to the operation of the current facility.

Building Emissions

Air pollutant emissions from the building's heating/cooling system will remain about the same as they are for the current USPS facility. This assumes that the size of the proposed building will be about the same square footage as the current building; that the number of employees will be about the same as employed at the current facility; and that the number of truck trips accessing the proposed facility are about the same as at the current facility.

Mail Delivery Vehicles

Mail delivery vehicles are large over the road trucks and other vehicles used to deliver mail to and pick up mail from the USPS facility. Air pollutant emissions from the mail delivery vehicles will vary somewhat, but will remain about the same as they are for the current USPS facility, as described below:

- Trips coming from the North will travel slightly farther along local roads (Summer Street/ Congress Street/ Seaport Boulevard) to get to the potential facility than they do to get to the current USPS location. Currently, these vehicles get off of I-93 and head to E Street to get to the current location. These vehicles will, instead, likely get off of I-93 and head to A Street to get to the potential USPS location. This difference is less than one-quarter mile;

- Trips coming from the East and West (particularly on I-90) will travel less on local roads, with a more direct connection to the new facility; and

- Trips coming from the South (i.e., from I-93) will essentially have the same travel distance to get to the new facility as they now travel to get to the existing USPS facility.

Employee Vehicles

Employee vehicles are vehicles driven by employees of the USPS facility to and from work. These vehicles are assumed to park onsite or very close to the new location. Air pollutant emissions from employee vehicles will vary somewhat, but will remain about the same as they are for the current USPS facility as presented below:

- Employee vehicles coming from the North will travel slightly farther along local roads (Summer Street/ Congress Street/ Seaport Boulevard) to get to the potential facility than they do to get to the current USPS location. Currently, these vehicles get off of I-93 and head to E Street to get to the current location. These vehicles will, instead, likely get off of I-93 and head to A Street to get to the potential USPS location. This difference is less than one-quarter mile;
- Employee vehicles coming from the East and West (particularly on I-90) will travel less on local roads, with a more direct connection to the potential facility; and

- Employee vehicles coming from the South (i.e., from I-93) will essentially have the same travel distance to get to the potential facility as they now travel to get to the existing USPS facility.

Emissions Due To Traffic Congestion

Mail delivery trucks and employee vehicles on their way to or from the potential USPS location would travel on several different surface roadways compared to their travel route to the existing facility. The revised travel routes would remove some traffic volumes from some roadways and increase traffic volumes on some different roadways. These very small changes in traffic volumes on specific roadways are unlikely to cause any changes (increases or decreases) in air pollutant emissions due to the existing traffic volumes currently using all of the roadways in the study area.

Based on the qualitative air quality assessment presented above, it is highly unlikely that emissions from the potential USPS relocation project would create a new violation of any of the National or Massachusetts Ambient Air Quality Standards; would increase the frequency or severity of any existing violations; or would delay the attainment of any National or Massachusetts Ambient Air Quality Standards.

3.3.8. Noise and Vibration

This section presents a qualitative assessment of the potential indirect noise and vibration impacts of the potential relocation of the USPS GMF as part of the NEPA process for the SSX project. The nearest noise sensitive receptors to the potential relocation site are the office buildings on Summer Street and Fargo Street (approximately 200 feet away), the residential apartment buildings on D Street (800 feet), and the Boston Convention and Exhibition Center (1,300 feet). These noise sensitive receptors are all located to the west of the potential USPS site.

As part of the qualitative noise assessment for the USPS relocation, estimated noise levels in the area were compared to the noise levels from mail truck operations at the facility to determine the potential for impact. Typical hourly Leq noise levels in the area are estimated to range from 58-62 dBA primarily due to local street traffic and other industrial noise sources. The estimated noise levels from the mail truck operations at the USPS facility, based on a peak-hour estimate of 20 trucks per hour, would result in an hourly Leq noise level of 65 dBA at a distance of 50 feet. Extrapolating this noise level to the distance of the nearest noise sensitive receptors (using a typical point source noise reduction factor of 6 dB per doubling of distance) would result in an hourly Leq level of 53 dBA at the office buildings on Summer Street and Fargo Street; 41 dBA at the residential apartment buildings on D Street; and 37 dBA at the Boston Convention and Exhibition Center. Since these levels are below the estimated noise levels in the area of 58-62 dBA, no impact is expected from the operations at the new location for the USPS facility. However, a more detailed noise assessment for the potential USPS relocation would need to be performed as part of the environmental documentation for the relocation project.

The operation of mail trucks in the area is not expected to generate vibration impacts. The vibration levels from the mail trucks (rubber tired vehicles) would be below 65 VdB at a distance of 50 feet, which is below the impact criterion of 72 VdB for human annoyance.

3.3.9. Site Contamination and Hazardous Materials

This section addresses the potential for site contamination and/or the presence of hazardous materials at or in the immediate vicinity of the potential USPS relocation site, resulting from current or present uses of the site or adjacent areas. The study area for the evaluation of site contamination, including soil and groundwater contamination, is defined as the site boundary where permanent or temporary construction is likely to take place. Additionally, it identifies federal and state requirements should the USPS GMF

construction and operation impact those materials. Contaminated materials include potentially harmful substances that may be present in soil or groundwater at the site and that may pose a threat to human health or the environment.

Site contamination is regulated through multiple federal and state regulations. MassDEP implements the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, to address releases or threats of releases of Oil and Hazardous Material (OHM) into the environment.[16] The applicable regulations for Asbestos Containing Material (ACM) are the U.S. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP)[17] and the Massachusetts Air Pollution Control Regulations.[18]

MassDOT has conducted an initial investigation for site contamination and/or the presence of hazardous materials at the Reserved Channel site. The initial investigation included a review of selected local, state, and federal regulatory agency databases for listings of the property and for sites within the vicinity (one-quarter mile) of the property.[19]

Initial investigations indicate that there are no federal or state listings located on the potential relocation site for the USPS GMF. A total of 250 listings are located within one-quarter mile of the potential relocation site. Of that total, 91 listings are located less than one-eighth mile from the site.

Summary of Potential Sources of Contaminated Soil or Groundwater Proximate to the USPS Relocation Parcel

In accordance with the MCP, MassDEP assigns Release Tracking Numbers (RTNs)[20] and classifications to releases based upon the permanent and temporary measures taken to eliminate such hazards to the environment.

Based on a database search of MassDEP files, there are no instances of an historic release or threat of release into the environment within the boundaries of the Reserved Channel site. There are 26 sites with an historic release located within one-eighth mile of the relocation site. Four of the RTNs were closed with a Class A-1 Response Action Outcome (RAO), indicating that a Permanent Solution has been achieved.[21] The level of OHM has been reduced to background, and no likely residual contamination exists. Ten of the RTNs were closed with a Class A-2 RAO, indicating that that a Permanent Solution has been achieved; however, the level of OHM has not been reduced to background, and some likely residual contamination exists. Four of the RTNs were closed with an Activity and Use Limitation (AUL) placed on the site, indicating that land use controls were implemented at the site to minimize human or ecological exposure to contamination. At four sites, MassDEP determined that an RAO was not required, no further action was required, or no permit was required for cleanup. At three sites, a Utility Release Abatement Measure (URAM) was implemented.

[16] Per the Massachusetts Contingency Plan (310 CMR 40.0000), a release is defined as any spilling, leaking, pumping, pouring, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, excluding certain emissions or applications of pesticides, fertilizer, or residuals.

[17] Environmental Protection Agency 40 CFR Part 61.

[18] MassDEP Regulation 310 CMR 7.15.

[19] Environmental Data Resources (EDR), Inc., *EDR Summary Radius Map Report, South Station Expansion Project*. Inquiry Number: 3378951.2s, November 30, 2015.

[20] Release Tracking Numbers are the file numbers assigned by MassDEP to a release or threat of release.

[21] A Permanent Solution is defined as a measure or combination of measures which will, when implemented, ensure attainment of a level of control of each identified substance of concern at a disposal site or in the surrounding environment such that no substance of concern will present a significant risk of damage to health, safety, public welfare, or the environment during any foreseeable period of time (No Significant Risk).

Potential Impacts and Mitigation

The results of the database search indicate that potential relocation of the USPS GMF to the Reserved Channel site would not likely result in significant issues associated with the historic releases at the site. Due to the historic industrial use of the Reserved Channel site, however, prior to new facility construction, a Phase I ESA would need to be conducted at the site to identify Recognizable Environmental Conditions (RECs).[22] The Phase I ESA would include limited site reconnaissance to make observations for evidence of a release or threat of release of OHM to the environment. It would also involve a limited review of adjoining properties to identify the potential for use of OHM that could affect the Reserved Channel site. Should RECs be identified at the sites, Phase II subsurface investigations could be required to further evaluate potential subsurface contamination.

4. Cumulative Impacts

Cumulative impact is the effect on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions.

This cumulative impact assessment considered both public transportation improvements and private developments. Public transportation improvements were identified through review of Amtrak Master Plans, including the *Vision for the New England High Speed and Intercity Rail Network*, and the *Massachusetts Department of Transportation Rail Plan* (September 2010) and state transportation plans, including the Boston Metropolitan Planning Organization's (MPO) *Long Range Transportation Plan: Charting Progress to 2040* (July 2015) and the *LRTP Amendment Development—Charting Progress to 2040* (July 7, 2016). Private developments were identified from the Boston Redevelopment Authority's (BRA) lists of reviews under Article 80, and BRA Master Plans were also consulted.

The time horizon evaluated for the purposes of forecasting future SSX travel/transit demand was 2035. The public and private development projects that were assumed to be in place for the regional transportation analysis, and that comprise the basis for this cumulative impact assessment, are described in the following sections.

The study areas vary depending on the parameter evaluated. For instance, the cumulative transportation analysis considers the ridership immediately affected at South Station and the economic impacts are both far-reaching (impacts on the NEC from Boston to Washington) and immediate (South Boston Waterfront). For land-based impacts, the cumulative impact assessment focused on the immediate impacts on the South Boston Waterfront adjoining South Station. The following sections present the projects considered, and review the cumulative impacts of the No Build and Build Alternatives.

4.1. Proposed Projects

4.1.1. Public Transportation Improvements

The public transportation improvements that need to be considered when examining the cumulative impacts of the SSX project include plans for improving Amtrak passenger rail service in the Northeast, as well as MBTA commuter rail and rail/bus transit improvements. The public transportation improvements identified

[22] Recognized Environmental Concern (REC) is a term used to identify environmental liability within the context of a Phase I Environmental Site Assessment, defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

in Amtrak Master Plan documents and state and regional transportation plans, including the Massachusetts Rail Plan (2010), the Boston MPO Long Range Transportation Plan (2015 LRTP), and the Boston MPO *Transportation Improvement Program Federal Fiscal Years 2017-2021*, and State Transportation Improvement Programs for 2016-2020 (Final) and 2017-2021 (Draft) include the following:

- **Northeast Corridor (NEC)** — Massachusetts and the other corridor states are working on the necessary environmental and planning documents to allow significant investment in the corridor for Amtrak and commuter trains. The recently completed *NEC Infrastructure Master Plan*[23] identifies more than $50 billion in rail projects on the corridor whose completion will advance the Northeast Governors' goal of doubling the number of riders on the corridor by 2030. The NEC FUTURE project, one of these ongoing initiatives, consists of a comprehensive planning effort launched by FRA in 2012 to define, evaluate, and prioritize future investments in the NEC. A tiered environmental review process for NEC Future is underway, including preparation of a Tier 1 Environmental Impact Statement (EIS).[24] The Tier 1 Draft EIS was published in November 2015, and the Tier 1 Final EIS was published in December 2016. The selected alternative FRA identified in the Tier 1 Record of Decision for the NEC FUTURE program (www.necfuture.com) will be implemented incrementally and in coordination with the phasing of the SSX project.
- **Northern New England Intercity Rail Initiative** — Massachusetts and Vermont are using FRA planning grants to study development of High Speed and Intercity Passenger service along two routes. The project analyzes the expansion of passenger rail by directly connecting Boston with Springfield, via what is commonly known as the Inland Route. The Inland Route extends from Boston South Station to New Haven via Springfield, and the second route, from Boston to Montreal uses the same route through Springfield. This study will identify a set of improvements necessary to operate high-speed passenger rail service along the route. A tiered environmental review is underway, including preparation of a Tier 1 Environmental Assessment, published in June 2016.
- **South Coast Rail Project —** The South Coast Rail project involves restoring commuter rail service from South Station in Boston to the South Coast of Massachusetts. Since service to this area ended in 1959, the cities of Taunton, Fall River, and New Bedford are the only cities within 50 miles of Boston that are not served by commuter rail. South Coast Rail will reconnect Boston to this long-underserved region, including Fall River and New Bedford – the fourth and fifth largest cities in the Commonwealth, providing access to jobs, spurring economic vitality, and attracting new business and investments. This will result in greater overall mobility for South Coast residents, will reduce congestion on Route 24, and will provide more transportation options in that region of the Commonwealth. Design of the South Coast Rail is included in state appropriations, as identified in the 2015 Long Range Transportation Plan (LRTP). A review of design options is underway.
- **Fairmount Line Improvement Project —** The 9.2 mile Fairmount commuter rail line as originally configured, ran from South Station, serving four stations (Uphams Corner, Morton Street, Fairmount, and Readville) in the communities of Dorchester, Mattapan, and Hyde Park, and terminated in the Readville section of Boston. The Fairmount Line Improvement project includes the completed rehabilitation of the existing Uphams Corner and Morton Street Stations, and construction of four new stations – Newmarket, Four Corners/Geneva, Talbot Avenue, and Blue Hill Avenue, three of which have been completed. The stations and other system upgrades (including new trolley fleet) were proposed to enhance future service, allowing for increased frequency on the line. The 2015 LRTP and the 2040 LRTP Amendment indicate that the remaining cost of the Blue Hill Avenue Station is covered under the plan, with community input to be obtained in the station design.
- **Green Line Extension —** The Green Line Extension project — the purpose of which is to improve

[23] NEC Master Plan Working Group, *NEC Infrastructure Master Plan*. May 2010. https://nec.amtrak.com/content/northeast-corridor-infrastructure-master-plan

[24] About NEC Future: Overview http://necfuture.com/about/

corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development — would extend the MBTA Green Line, originally envisioned in two separate phases. Phase 1 would extend the Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville. Phase 2 would have further extended the Green Line from College Avenue to Mystic Valley Parkway (Route 16) at the Somerville/Medford municipal boundary. The Green Line Extension will provide greater mobility, economic opportunity, and environmental benefits for one of the densest corridors in New England. The Green Line construction is included in 2015 LRTP and the Boston MPO TIP 2016-2020, with a review underway to determine project elements that may be completed.

- **Allston I-90 Interchange/Potential West Station —** Built as part of the Massachusetts Turnpike Extension in 1964-1965, the Allston Interchange is home to a major toll plaza. The configuration of the interchange, which shifts to the north from I-90's east-west orientation, was constructed to avoid Beacon Park Yard. The Allston Viaduct, which is immediately east of the Interchange, dates from 1965 and is nearing the end of its useful design life. MassDOT is currently converting the entire Massachusetts Turnpike to all electronic tolling (AET) which will operate at highway speeds. Under these new conditions, the curving alignment at the Allston Interchange can be reduced. In addition, the Beacon Park Yard loading area will be eliminated and the track reconfigured to accommodate future commuter rail expansion and a station, and to maintain Grand Junction Railroad connections. The Allston Viaduct will also be rebuilt to address its structural deficiencies. MassDOT will continue to advance a Project Development Process to determine how best to realign the interchange while improving transit, walking, and cycling connections on the local roads around the Interchange, particularly Cambridge Street in Allston. MassDOT has been engaging a task force team of local and regional stakeholders to determine the best way to reconfigure the Allston Interchange and improve the roadways around it. Beacon Park Yard was previously identified as a third layover facility alternative for the SSX project and is now subject to MEPA review as part of the I-90 Allston Interchange Improvement project. The decision to separate the Beacon Park Yard layover site from the SSX project and include it in the Allston project was done both to provide a more focused discussion of impacts in the affected community and to acknowledge the Allston project, including the construction of the Beacon Park Yard layover facility, is expected to advance to construction prior to South Station.
- **Silver Line Gateway —** The Silver Line Gateway Project will provide new, dedicated bus rapid transit (BRT) service connecting Chelsea and East Boston with South Station and the Seaport District. The project will extend the existing Silver Line service between Logan Airport, South Boston to the Blue Line and East Boston at Airport Station. The routing will follow the Ted Williams Tunnel and airport service roads to service East Boston. The route will continue into Chelsea where a new dedicated busway will be built in a former railroad right-of-way serving four new stations, terminating at a new, relocated Chelsea Station. Phase 1 includes the new busway construction in Chelsea, the four new BRT stations, and replacement of the Washington Avenue Bridge. Phase 2 includes the construction of the new BRT and relocated commuter rail Chelsea Station adjacent to the Mystic Mall. Construction of Phase 1 commenced in 2015.

4.1.2. Private Development Projects

This section provides an overview of ongoing, proposed, and recently completed developments in the South Station area. Pursuant to Article 80 of the Boston Zoning Code, "Development Review and Approval," the BRA is charged with reviewing the design of real estate developments and their effect on the surrounding community and the City as a whole, and requiring appropriate conditions for approval of such projects. The BRA maintains a database of projects in the City of Boston, which are subject to Article 80 review. Table 3 lists proposed and ongoing BRA Article 80 development projects located in the vicinity of South

Station, current as of September 2012. As shown in Table 3, approximately 23,400,000 sf of development is ongoing, proposed, or recently completed in the vicinity of the South Station site. The projects in the table represent the information that was current when the traffic model was developed and future ridership was projected.

Currently, the biggest growth area in the City of Boston is the South Boston Waterfront/Innovation District. According to a BRA March 2013 report, there were 1,101 units of housing under construction, all of which broke ground in 2012. Emblematic of the resurgence in the area and its growing attractiveness to innovative industries and technology is the relocation of the General Electric headquarters to a location within the Gillette Complex, across from Fort Point Channel. The company plans to relocate approximately 800 employees from its former headquarters in Connecticut to the South Boston Waterfront across the channel from South Station. The SSX ridership projections for future growth did not account for this and other more recent developments.

Table 3 — Development Projects in the South Station Vicinity

Project	Land Use	Size
Millennium Tower and Burnham Building	Mixed-Use (Residential, Office, Retail, Health Club/Spa, Restaurant, Parking)	1,185,000 SF
Millennium Place	Mixed-Use (Residential, Retail, Parking)	265 Residential Units 12,000 SF Retail
Parcel P-7a	Mixed-Use (Residential, Retail)	100,885 SF
45 Stuart Street	Residential	390,000 SF
Kensington Place	Mixed-Use (Residential, Retail/Office)	407,000 SF
120 Kingston Street / 10-12 Oxford Street (Hong Lok House)	Residential	332,370 SF
381 Congress Street	Residential	44 Residential Units 43,700 SF
100 Acres Project (including 49-63 Melcher Street, 319 A Street)	Mixed-Use (Residential, Office, Retail/Entertainment, Cultural/Education, Hotel)	5 Million SF
One Greenway	Mixed-Use (Residential, Retail)	325 Residential Units 5,500 SF Retail, 6,000 SF Community
South Station Air Rights	Mixed-Use (Office, Hotel, R&D)	1.8 Million SF
InkBlock	Mixed-Use (Residential, Retail)	548,900 SF
275 Albany Street	Mixed-Use (Residential, Hotel, Retail)	330,000 SF (Excluding Parking)
Seaport Square	Mixed-Use (Residential, Office, Retail/Entertainment, Cultural/Education, Hotel)	6.5 Million SF
Fan Pier	Mixed-Use (Residential, Office, Hotel, Retail, Cultural/Education)	3.3 Million SF
Pier 4	Mixed-Use (Residential, Hotel, Office, Retail/Restaurant)	1.0 Million SF
368 Congress Street	Hotel, Retail	120 Rooms 6,000 SF Retail
316-322 Summer Street	Office, Retail/Restaurant	140,100 SF
399 Congress Street	Residential, Retail, Extended Stay Hotel	360 Residential Units, 1,700 SF Retail, 28 Rooms
Congress Street Hotel	Hotel and ground floor retail	525,000 SF
49-63 Melcher Street	Office and ground floor retail	221,500 SF
319 A Street Rear	Residential	268,500 SF
Eleven West Broadway	Residential and retail	5,000 SF Retail, 64 Residential Units
Channel Center	Office, Parking, Park	901,430 SF
Convention Center Phase 2	Hotel with ground floor retail	337,300 SF

Source: Boston Redevelopment Authority as of October 2012, as presented in SSX DEIR Appendix 9 (Part 1), Traffic Analysis Technical Report. https://www.massdot.state.ma.us/southstationexpansion/Documents.aspx

4.2. No Build Alternative

The No Build Alternative consists of the existing transportation facilities and services and all future funded transportation improvement projects in the vicinity of South Station. It represents the base condition against which the future Build Alternative is measured. The cumulative effects of the No Build Alternative on the regional economic and transportation conditions are reviewed below. The more specific cumulative ridership and environmental impacts of the No Build Alternative are also addressed in the following sections.

4.2.1. Cumulative Impacts on Regional Transportation and Economic Development

The No Build Alternative will not meet the transit capacity requirements at South Station needed to accommodate both the other planned passenger rail and public transit improvements and private development projects recently built, underway, or planned. Without the additional track and layover facility capacity provided by the SSX project, improvements proposed for the NEC, Inland Route, South Coast Rail, and other projects operating out of South Station will be extremely limited in their ability to add service. The Massachusetts Rail Plan states:

> "*South Station is unable to handle the additional service that is set forward in the recent Northeast Corridor Infrastructure Master Plan (NEC Master Plan). The NEC Master Plan calls for an increase in service of 50 percent in both high-speed express service and cumulative intercity passenger service to Boston.*
>
> *In order to handle the expected service increases by both Amtrak and the MBTA Commuter Rail, it is proposed that South Station be expanded to 20 total tracks. In order to achieve this goal, the current United States Postal Service general mail facility will be relocated to a new location in South Boston. This expansion will help foster the growth in high-speed and other intercity service throughout the Northeast as well as improve service to the southern communities along the MBTA Commuter Rail line. The improvement in South Station would not only benefit Boston but would benefit the entire Northeast.*
>
> *The benefits of an expanded South Station include improvements for on-time performance and additional high-speed intercity service. With the system currently at operating capacity, constraints that influence on-time performance include terminal congestion, approach interlocking and traction power issues. Without the expansion, on-time performance will continue to be an issue.*
>
> *The expansion will also facilitate potential new passenger service along the Boston to New York corridor along the Inland Route. This is a designated HSIPR corridor and would both serve new markets and relieve capacity constraints on the main line between Boston, Providence and New Haven. The proposed Inland Route would service metropolitan areas of Worcester and Springfield, MA and New Haven, CT."*

According to the NEC Commission,[25] the NEC carries more than 700,000 passengers per day, including a workforce that contributes $50 billion annually to the national gross domestic product (GDP). An unexpected loss of all NEC service for one day alone could cost the nation nearly $100 million in added highway congestion, productivity losses, and other transportation impacts. Approximately 20% of the nation's GDP comes from the NEC service area, making operations at South Station, its northern terminus, critical to the nation's economic health.[26]

[25] NEC Commission. *Northeast Corridor Five-year Capital Plan, Fiscal Years 2016-2020*. April 2015.

[26] Federal Railroad Administration, *A Rail Investment Plan for the Northeast Corridor: Tier 1 Draft Environmental Impact Statement*, prepared as part of NEC Future, November 2015.

Other regionally significant rail improvement projects are vital to the economic health of Massachusetts. These passenger and commuter rail improvements would generate significant economic benefits, as well as reducing automotive use and related air quality emissions.

The attractions and venues on the Boston Waterfront (Boston Convention Center, Institute of Contemporary Art, and Cruiseport) attracted more than 3.4 million tourists and visitors in 2013. The Port of Boston, New England's largest seaport, supports roughly 50,000 jobs from 1,600 different companies.[27] 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. Within Boston's Innovation District, 5,000 jobs have been created since 2010 at more than 200 small businesses.

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.[28] In the study area, employment in 2035 is expected to increase, with the largest increases occurring in the South Boston Waterfront/Innovation District, the fastest growing urban area in the state.[29] Between 2000 and 2013, ten million square feet of development occurred in the South Boston Waterfront and added more than 4,100 residents and 7,700 jobs.[30]

The January 2015 *South Boston Waterfront Sustainable Transportation Plan* projects:

> "*Over the next two decades, another 17 million square feet of development is underway or planned, including 5,300 new residences, 6 million square feet of office space, nearly one million square feet of port and maritime-related uses, and more than a doubling of convention and hospitality space…Defined development and redevelopment projects are anticipated to add more than 17 million square feet in the Waterfront by 2035, a 72 percent increase over existing conditions. About another 10 million square feet of development are projected by the full Build-out, more than doubling land use over today. The substantial land use growth projected for the South Boston Waterfront translates to approximately 9,200 new residents and 22,900 new jobs in the Waterfront by 2035.*"

With the rapid growth and development occurring over the past few years in the waterfront, the SSX project becomes even more critical to support the economic growth and development now occurring and projected to continue in future years. The *South Boston Waterfront Sustainable Transportation Plan* indicates that future growth in peak period transit demand from South Station (aggregating anticipated growth in commuter rail and Red Line demand) to the Waterfront will total 50% in 2035, with a.m. peak hour demand anticipated to grow by 73%. All transit system routes are projected to be at or over capacity in 2035 [which the plan notes does not account for the introduction of the Silver Line Gateway improvements]. The *South Boston Waterfront Sustainable Transportation Plan* also notes that traffic growth in the Waterfront is projected at more than twice that of the region as a whole. Based on BRA-reviewed and approved Article 80 projects, the BRA anticipates over 28 million sf of development in the South Station study area.[31]

4.2.2. Ridership Impacts

The No Build Alternative would result in the following transportation ridership impacts. DEIR Appendix 9 (Part 3) - *Ridership Forecasting Technical Report*[32] provides details on the resulting transit system

[27] A Better City, *South Boston Waterfront Sustainable Transportation Plan*, January 2015: https://www.massdot.state.ma.us/Portals/17/docs/Studies/SBostonWaterfrontFullReport_jan2015.pdf.
[28] The Brookings Institution, *The 10 Traits of Globally Fluent Metro Areas: Boston*, 2013.
[29] SSX Improvements Project, Draft EIR Appendix 4 (Part 1)-Socioeconomic Conditions Technical Report.
[30] A Better City, *South Boston Waterfront Sustainable Transportation Plan*, January 2015.
[31] Boston Redevelopment Authority (BRA), "RE: South Station Expansion - BRA Database," E-mail/personal communication October 22, 2012.
[32] South Station Expansion Project. *Draft Environmental Impact Report, Appendix 9, Ridership Forecasting Technical Report*. October 2014. http://www.massdot.state.ma.us/southstationexpansion/Documents/DEIR.aspx

ridership increases, based on the Central Transportation Planning Staff's (CTPS's) travel demand modeling.

Table 4 —South Station Weekday Daily Combined Boardings and Alightings – No Build Alternative summarizes the transit ridership increases at South Station that would occur in the 2025 opening year and 2035 Build year scenarios for the No Build Alternative compared to existing conditions. Projected ridership growth between existing conditions and the No Build Alternative is a result of forecasted growth in population, households, and employment, as well as changes in land use and transit services.

Table 4 —South Station Weekday Daily Combined Boardings and Alightings – No Build Alternative

	Amtrak	Commuter Rail	Amtrak and Commuter Rail Total [a]	Red Line	Silver Line	Local Bus	Intercity/ Commuter Bus	Total [a]
Existing Conditions	4,100	42,000	46,000	54,000	12,700	2,900	12,200	128,000
2025 No Build Alternative	5,200	53,000	58,000	68,000	22,800	3,600	12,700	165,000
2035 No Build Alternative	5,500	56,000	61,000	72,000	25,600	3,800	12,800	175,000

Source: *Final SSX Ridership Results* provided in DEIR Appendix 9 (Part 3) - *Ridership Forecasting Technical Report*.
Note: All results rounded to the nearest 100, except for Commuter Rail, Red Line and Total results, which are rounded to the nearest 1,000.
[a] Total values are calculated using precise/unrounded results. As such, the sum of rounded individual ridership results may not add up to the rounded Total ridership results presented in this table.

In the No Build Alternative, increased frequencies on the Fairmount Line would contribute to the projected growth in commuter rail ridership at South Station. The proposed Silver Line Gateway project, combined with projected land use changes along the various Silver Line corridors, would result in substantial increases to Silver Line ridership at South Station between existing conditions and the No Build Alternative.

Total weekday daily ridership at South Station in the 2025 No Build Alternative is forecasted to be 165,000 combined boardings and alightings, a 29% increase over 2012 existing conditions. The forecasted ridership level in the 2035 No Build Alternative is 175,000 combined boardings and alightings, a 37% increase over 2012 existing conditions.

4.2.3. Air Quality and Greenhouse Gas Emissions

The existing greenhouse gas (GHG) stationary sources remain unchanged in the No Build Alternative. The transportation source emissions would change with time with or without the project. The No Build Alternative would have a total transportation emissions value of 28,159 metric tons of carbon monoxide (the primary GHG) per year without consideration for layover facilities. The layover emissions are assumed unchanged from the existing conditions case.

Large decreases in localized pollutant emissions in the vicinity of South Station between 2012 and 2025 are anticipated due to significant reductions in U.S. EPA-mandated pollutant emission factors. These significant reductions in emission factors would offset the growth of motor vehicle traffic and train volumes in the area around South Station. Small increases in pollutant emissions in the vicinity of South Station between 2025 and 2035 are anticipated, due to relatively small reductions in U.S. EPA pollutant emission factors from 2025 to 2035. These small reductions in emission factors would not completely offset the growth of traffic and train volumes in the area around South Station.

4.2.4. Land-Based Environmental Impacts

The environmental impacts of the No Build Alternative largely relate to adverse regional economic and transportation impacts described above. Under the No Build Alternative, there would be no additional land use or environmental impacts beyond those associated with other currently proposed and planned public and private development projects. If the continuing development within the Seaport District is constrained or capped under the No Build Alternative, as recommended in the city's Master Planning documents, one-third of the proposed build out in South Boston waterfront would not take place. Since most of this development is occurring on either previously developed or vacant developed lands, this would not necessarily result in a substantial reduction in environmental impacts, such as impacts on natural resources. However, this would involve adverse impacts on the growth of the Boston economy, constraining both housing growth and employment gains.

4.3. Build Alternative

See EA Section 2.3 for detailed description of the Build Alternative. The Build Alternative would:

- Acquire and demolish the USPS Facility;
- Reopen Dorchester Avenue and extend the Harborwalk;
- Expand the South Station Terminal; and
- Construct rail layover facilities.

4.3.1. Cumulative Impacts on Regional Transportation and Economic Development

The South Station improvements are needed to address growing Amtrak passenger rail and MBTA transit demands, as well as intercity bus travel. The NEC FUTURE Project Tier 1 Final EIS[33] indicates that growth in non-highway travel outpaced highway travel between 2006 and 2012, with the highest percentage growth in travel in intercity rail. During this time period, total passenger trips on the public transportation network increased approximately 18% from 4.39 billion to 5.17 billion passenger trips. Intercity rail ridership increased throughout the NEC by approximately 24% between 2006 and 2012. The NEC FUTURE Tier 1 Final EIS reported that the historic increase in intercity ridership over this time period at South Station was 46%, increasing from 988,842 trips in 2006 to 1,447,501 trips in 2012. The NEC FUTURE Tier 1 Final EIS also selected a Preferred Alternative. The benefits of the Preferred Alternative include:

[33] FRA released the NEC FUTURE Tier 1 Final EIS in December 2016. http://www.necfuture.com/tier1_eis/feis/

- Maintains and improves service on the existing NEC between Washington, D.C., and Boston;
- Provides a mix of services (Intercity, Intercity-Express and Intercity-Corridor and Regional rail);
- Provides for upgrades to the communication and signaling systems where needed to permit higher-density operations; and
- Modernizes the NEC catenary system to support higher speeds and includes electrification of new segments.

With the SSX project, the proposed Amtrak intercity passenger rail expansions planned as part of the NEC FUTURE could be implemented, along with other south side commuter rail improvements planned by Amtrak/MBTA. The NEC FUTURE Final EIS includes a review of all the of the potential cumulative impacts of the NEC FUTURE project.[34] The implementation of the SSX project would also support the projected total buildout of the South Boston Waterfront/Innovation District planned by the City of Boston. Both of these (NEC improvements and continuing development of the Boston Innovation District) represent substantial economic gains for the greater Northeast region, the city of Boston, and the nation as a whole.

The economic gains associated with the Build Alternative are substantial, with implications for the entire NEC service area (comprising 20% of the nation's gross domestic product) and would obviate the need to cap (by one-third) the full buildout of the South Boston Innovation District.

The SSX project, by itself, is anticipated to create approximately 200 jobs at South Station headhouse and will relocate approximately 1,000 USPS jobs (to the South Boston Waterfront). The layover facility at Widett Circle will directly displace approximately 30 businesses and will result in a local reduction in the tax base. However, this will be more than offset by indirect economic benefits accruing from "permissible" development facilitated in the South Boston Waterfront area.

The effects of the Build Alternative on the transportation and air quality conditions are reviewed below. The more specific ridership and environmental impacts of the Build Alternative are also addressed.

4.3.2. Ridership, Traffic, and Parking Impacts

Much of the transportation analysis for the SSX project was based on the development of existing conditions and 2035 travel demand forecasts provided by CTPS, and assumes that a number of proposed transportation projects (consistent with the currently adopted state Long Range Transportation Plan) will be implemented by the 2035 Build year, as described in the preceding sections. Other proposed transportation projects not included in the currently adopted RTP are not accounted for in the travel demand forecasts. Land use assumptions for the South Station area were approved by the BRA and the MPO for the Boston region, and include a number of development projects that were assumed to occur before the 2035 Build year, as described in Table 3 in the preceding section.

Table 5 summarizes the transit ridership increases at South Station that would occur in the 2025 opening year and 2035 Build year scenarios for the SSX Build Alternative, compared to existing conditions and the No Build Alternative.

[34] The NEC FUTURE Final EIS, Section 7.20, reviews the potential cumulative impacts of the NEC FUTURE project. http://www.necfuture.com/tier1_eis/feis/chapter_07_20.aspx

Table 5 — South Station Weekday Daily Combined Boardings and Alightings – Build Alternative

	Amtrak	Commuter Rail	Amtrak and Commuter Rail Total [a]	Red Line	Silver Line	Local Bus	Intercity/ Commuter Bus	Total [a]
Existing Conditions	4,100	42,000	46,000	54,000	12,700	2,900	12,200	128,000
2025 No Build Alternative	5,200	53,000	58,000	68,000	22,800	3,600	12,700	165,000
2035 No Build Alternative	5,500	56,000	61,000	72,000	25,600	3,800	12,800	175,000
2025 Build Alternative	8,100	65,000	74,000	70,000	23,200	3,600	12,500	183,000
2035 Build Alternative	9,300	72,000	81,000	74,000	26,100	3,800	12,600	198,000

Source: *Final SSX Ridership Results* provided in DEIR Appendix 9 (Part 3) - *Ridership Forecasting Technical Report*.
Note: All results rounded to the nearest 100, except for Commuter Rail, Red Line, and Total results, which are rounded to the nearest 1,000.
[a] Total values are calculated using precise/unrounded results. As such, the sum of rounded individual ridership results may not add up to the rounded Total ridership results presented in this table.

In the 2025 opening year, the Build Alternative would increase daily total Amtrak intercity passenger rail, MBTA commuter rail/transit trips (both boardings and alightings) at South Station by 18,000, an increase of approximately 28%, compared to the No Build Alternative. Compared to existing conditions, the Build Alternative would increase boardings and alightings by 55,000, an increase of 43%.

In the 2035 Build year, the Build Alternative would increase daily total Amtrak intercity passenger rail, MBTA commuter rail/transit trips (both boardings and alightings) at South Station by 23,000, an increase of approximately 33%, compared to the No Build Alternative. Compared to existing conditions, the Build Alternative would increase boardings and alightings by 70,000, an increase of 55%.

The Build Alternative would not provide new or replacement structured parking; as a result, there would be a net decrease of 242 structured parking spaces on the site due to the relocation of the USPS facility.

MassDOT analyzed 21 intersections in the South Station area and two intersections at the layover facilities and identified eight intersections where operations could be improved for traffic flow and pedestrian and bicycle mobility. At all but one intersection (Summer Street at Dorchester Avenue), traffic operations would improve or remain the same, and at this intersection, LOS would be acceptable (LOS D or better).

4.3.3. Air Quality and Greenhouse Gas Emissions

The regional analysis of emissions of the primary transportation-related greenhouse gas, carbon dioxide (CO_2), show a decrease in regionwide CO_2 associated with the transportation improvements of SSX of approximately 46,000 tons/year.[35] The GHG impacts show an approximately 5% net reduction in CO_2 emissions from locomotives in the immediate vicinity of South Station, associated with decreased congestion and idling time on tracks. As a result of compliance with the Massachusetts Stretch Energy Code, project-related stationary source GHG emissions at South Station would be reduced by approximately 8%.[36]

[35] South Station Expansion Project, Draft Environmental Impact Report, Appendix 12 – Greenhouse Gas Emissions Technical Report.
[36] *Ibid.*

The results of the carbon monoxide modeling analysis at the selected traffic intersections in the study area indicate that increases in project-related motor vehicle traffic volumes would not lead to exceedances of the NAAQS or the MAAQS for CO, and no adverse air quality impacts are expected to occur as a result of the project.

Cumulatively, the project is expected to result in positive air quality/greenhouse gas emissions, with the increase in ridership and concomitant reduction in automotive travel.

4.3.4. Land-based Environmental Impacts

The Build Alternative is not anticipated to involve substantial direct land-based alterations or environmental impacts. However, if the SSX project is constructed, it would not impose constraints on full buildout of the South Boston/Innovation District as planned by the City of Boston. The SSX project would support the growth projected by the City of Boston in the immediate vicinity of South Station by converting a large industrial stretch of restricted access waterfront into a public transportation facility with public access to the waterfront and the potential for additional future private development. The expansion of the capacity of South Station will also support the projected commercial and residential growth in the area by providing additional public transportation service for employees and residents.

The Seaport District, across the Fort Point Channel, includes large parking lots and vacant or industrialized lands, and adaptive reuse of industrial buildings is occurring with relatively low hurdles to future development. Most of the development is occurring in already built up upland or filled areas, so this is not anticipated to result in substantial impacts on undeveloped land and the natural environment or protected resources. In those areas with historic buildings, the redevelopment is occurring largely through rehabilitation or reuse of historic buildings. This anticipated ongoing and planned future development is not anticipated to substantially impact or alter cultural resources (aboveground historic and belowground archaeological resources).

Beyond the South Boston Waterfront, the projects with the largest potential cumulative land impacts include the NEC FUTURE and the South Coast Rail projects. The NEC FUTURE is addressing impacts through the tiered environmental review, and includes the recent preparation of the Tier 1 Draft EIS.

A FEIS/FEIR was prepared for South Coast Rail in August 2013. Although expansion of transit service to Fall River and New Bedford, if eventually funded and constructed, may spur development in these underserved areas, MassDOT has undertaken an initiative to protect communities and the natural environment while also finding ways to shape new economic and housing growth. MassDOT and the Executive Office of Housing and Economic Development developed the *South Coast Rail Economic Development and Land Use Corridor Plan* (June 2009) to help guide investments in infrastructure and land protection. The plan includes: 1) station area concept plans for transit-oriented development; 2) a Priority Map, showing what places are priorities for environmental preservation and what areas should be targeted for redevelopment or new development; and 3) state policy commitments to support the implementation of the Priority Map by targeting infrastructure and open space funds.

4.3.5. Summary and Conclusions

The SSX project is critical to regional economic growth, as it supports both the NEC FUTURE initiatives and projected build-out occurring in the South Boston Waterfront, the fastest growing urban area in the Commonwealth. The SSX project will improve Amtrak intercity passenger rail/MBTA commuter rail/transit ridership, reduce greenhouse gas emissions, and will not result in substantial impacts, beyond those associated with supporting the continued economic growth and expansion already occurring on the NEC and in the South Boston/Innovation District.