Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: _____

MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Quincy Bus Maintenance Facility**		
Street Address: **599 Thomas Burgin Parkway**		
Municipality: **Quincy, MA**	Watershed: **Boston Harbor**	
Universal Transverse Mercator Coordinates: **UTM Zone 19**	Latitude: **N 42.235914** Longitude: **W -71.007782**	
Estimated commencement date: **Winter 2022**	Estimated completion date: **Summer 2024**	
Project Type: **Bus Maintenance Facility**	Status of project design: **15%**	
Proponent: **Massachusetts Bay Transportation Authority (MBTA)**		
Street Address: **10 Park Plaza**		
Municipality: **Boston**	State: **MA**	Zip Code: **02116**
Name of Contact Person: **Andrew D. Brennan, Sr. Director of Energy & Environment**		
Firm/Agency: **MBTA**	Street Address: **10 Park Plaza**	
Municipality: **Boston**	State: **MA**	Zip Code: **02116**
Phone: **617-222-3126**	Fax: **617-222-1557**	E-mail: **abrennan@mbta.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐**Yes** ☒**No**

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes ☒**No**
a Special Review Procedure? (see 301CMR 11.09)	☐Yes ☒**No**
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes ☒**No**
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes ☒**No**

(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?
301 CMR 11.03(3)(b)(1)(e): *new fill or structure or expansion of fill or structure in a velocity zone or regulatory floodway.*

Which State Agency Permits will the project require?

- **Massachusetts Water Resources Authority Direct Master Permit - Sewer Connection**

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres**: N.A.**

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	**12.81**	**0.32**	**13.13**
New acres of land altered		**0.04**	**10.54**
Acres of impervious area	**10.13 (Lowe's SEIR)**	**-0.01**	**10.12**
Square feet of new bordering vegetated wetlands alteration		**0**	
Square feet of new other wetland alteration		**Riverfront Area & Bordering Land Subject to Flooding: 820 s.f. undeveloped 25,851 s.f. developed**	
Acres of new non-water dependent use of tidelands or waterways		**N.A.**	
STRUCTURES			
Gross square footage	**120,000**	**231,000**	**351,000**
Number of housing units	**0**	**0**	**0**
Maximum height (feet)	**35**	**22**	**57**
Vehicle trips per day	**3,450 (Lowe's SEIR)**	**-1,092**	**2,358**
Parking spaces	**399 (Lowe's)**	**-164**	**235**
WASTEWATER			
Water Use (Gallons per day)	**8,492 (Former Lowe's SEIR)**	**7,308**	**15,800 bus maintenance and employees**
Water withdrawal (GPD)	**0**	**0**	**0**
Wastewater generation/treatment (GPD)	**7,720 (Former Lowe's SEIR)**	**-920**	**6,800 bus maintenance and employees**
Length of water mains (miles)	**N.A.**	**N.A.**	**N.A.**
Length of sewer mains (miles)	**N.A.**	**N.A.**	**N.A.**

Has this project been filed with MEPA before?
☐ Yes (EEA #_____) ☒**No**

Has any project on this site been filed with MEPA before?
☒ Yes (EEA # 14222) ☐**No**

GENERAL PROJECT INFORMATION – all proponents must fill out this section

Describe the existing conditions and land uses on the project site

The MBTA is proposing to build and operate a new Bus Maintenance Facility (BMF) at 599 Thomas Burgin Parkway in Quincy, Massachusetts (Project). The Project would replace the existing Quincy Bus Maintenance Facility on Hancock Street in Quincy. The Project property is approximately 12.81 acres and is bounded by Burgin Parkway to the east, Columbia Street to the west and north and Penn Street to the south (Figure 1). The Project site currently contains a former Lowe's Home Improvement Store, a steel-framed, one-story building occupying the eastern portion of the site and associated parking and infrastructure. About 2.59 acres of the site are woods and wetland associated with Town Brook located at the southern end of the property. Existing conditions are shown in Attachment B.

Describe the proposed project and its programmatic and physical elements

See Attachment A, Project Narrative, for expanded project description.

The proposed Project is a new two- to three-story bus maintenance and storage facility (BMF), approximately 351,000 s.f. in size. The proposed Project would be built on land previously developed as a Lowe's store and associated paved parking and would occupy a footprint larger than that of the former Lowe's building. A small portion (0.29 acre) of an adjacent parcel at 84 Penn St. would be acquired for the project.

The purpose of the Project is to construct a modern bus storage and maintenance facility to support up to 135 MBTA buses. The proposed BMF would be designed to meet current and future transit demands, future electrification and expansion of the bus fleet, and future deployment of more efficient and cleaner energy technologies. Currently, the MBTA does not have any bus maintenance facilities that can accommodate a fleet of Battery Electric Buses (BEBs). The existing facility on Hancock Street is becoming functionally obsolete and cannot reasonably be upgraded to accommodate a new and modern bus fleet.

The proposed BMF would have an outside bus queuing area off Penn Street adjacent to Burgin Parkway for approximately 30 buses, gated access from Quincy Adams MBTA station for employees and approximately 235 on-site employee surface parking spaces. The facility would be designed for diesel-hybrid buses and would allow for future conversion to a battery electric bus fleet. The proposed BMF would provide interior bus storage, maintenance, offices, as well as fueling, washing, maintenance, support, administrative, and management capabilities required to support a fleet of this size. All transit-vehicle maintenance and storage functions would be performed indoors, minimizing bus idling and protecting buses from the elements. Approximately 75,000 s.f. of the BMF would be dedicated to warehouse and office space. Proposed conditions are shown in Attachment C.

The design of the proposed BMF would be majority industrial with some functionally separate office areas. Materials will be selected for durability, performance, aesthetics and sustainability context such as product transparency and source optimization. The proposed Project design would integrate the building into the urban corridor and neighborhood. The proposed Project would prioritize sustainability and resiliency and would be designed to meet the standards and goals of both the Envision and LEED rating systems. The MBTA's intent is to approach the overall Bus Facility Modernization Program in the most environmentally sustainable manner feasible.

Impacts from bus and employee traffic would be minimal. Buses would access the proposed BMF from Penn Street (60%) and from a proposed signalized intersection at Columbia Street Extension and Burgin Parkway (40%). This new street would be used by buses and adjacent business. Traffic is expected to be less than that of the former Lowe's store and not likely to coincide with the peak a.m. period of background traffic since many MBTA employees arrive before the peak (typically between 4:00 a.m. and 7:00 a.m.). A shared use path would be constructed along the existing retaining wall on the southernmost section of the parking lot, providing a pedestrian and bicycle connection from the neighborhoods west and north of the BMF to Burgin Parkway and the Quincy Adams MBTA Station.

The proposed BMF is not expected to result in significant noise impacts at residences along Burgin Parkway or the Deco Apartments at 1 Penn St. Slight noise impacts are anticipated at these locations from bus and employee vehicle trips. The proposed facility is not expected to be a significant noise source because noisy activities (e.g., bus wash) would be enclosed and set back from noise-sensitive areas. Similarly, noise from the proposed BMF's parking lot would be imperceptible beyond the proposed

Project site. See Noise Technical Memorandum (Attachment G).

The proposed Project site is located within a Zone AE, as shown on the Federal Emergency Management Agency (FEMA) Flood Hazard Map, number 25021C0207E, effective on 07/17/2012. The FEMA map also shows a floodway associated with the open channel portion of Town Brook, which extends northerly onto the developed portion of the site (Figure 4). The City of Quincy also shows the same floodplain and floodway layout on its website. However, when the site was redeveloped in 2008-2009, calculations were done that took into account new flood-control improvements. The improvements resulted in a reduction in flooding on the site and lowered the floodplain elevation by approximately 4.2 feet, as compared to the FEMA mapping. The MBTA is using this same information in calculating floodplain elevations on the Project site.

Construction-period impacts at the proposed BMF would be minimal. The approximately 10-acre Project site is large enough to provide adequate laydown areas on site, parking for construction personnel and construction trailers while maintaining safe pedestrian walkways on the perimeter of the site. Construction activities would be done in accordance with relevant Massachusetts and Quincy regulations and guidelines.

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

The MBTA evaluated nine sites for the proposed BMF. The existing MBTA bus garage at 954 Hancock St. in Quincy occupies a 3.76 acre-site, too small to accommodate the proposed Project and constrained by parkland and wetlands.

Eight alternative locations for the new facility were considered: 599 Burgin Parkway, 1800 Crown Colony Dr. and 465 Centre St. (Quincy); 360 Wood Rd., 10-40 Plain St., 125 Union St., 257 Ivory St., and combined 125 Union St. and 257 Ivory St. (Braintree).

The potential sites were screened using these criteria:

- **Vacant or available for lease or sale,**
- **Parcel size and ability to accommodate the bus fleet,**
- **Deadhead (non-revenue) miles to Quincy Center,**
- **Access to and from the site, including adjacent road network and traffic control,**
- **Internal site circulation,**
- **Potential environmental concerns,**
- **Consistency with land use, and**
- **Site development risk.**

The Crown Colony Drive, Wood Drive and Plain Street sites were hampered by environmental constraints and the net size of the Crown Colony Drive and Wood Drive sites would be too small to accommodate the proposed Project without structured parking or a program reduction. The 125 Union St. and 257 Ivory St. sites, 2.0 acres and 6.3 acres, were too small to accommodate the proposed Project. Sites with active businesses, including 465 Centre St. (The Home Depot) and 257 Ivory St. (Braintree transfer station) are undesirable and impractical for the MBTA to pursue. Additionally, use of the Wood Road and Plain Street locations would result in higher operating costs due to being farther from the Quincy Center busway.

See Attachment A, Project Narrative, Section 1.2 for more information on alternatives. Also see the evaluation matrix in Attachment H.

NOTE*: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.*

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

Impacts from construction and operation of the proposed BMF at 599 Burgin Parkway are expected to be minimal. Traffic and noise impacts are expected to be less than significant; no mitigation is proposed. Impacts to the floodplain would occur when Penn Street is widened to provide safe internal site circulation. The street would be widened west of Deco Apartments into the floodplain and a portion of the existing retaining wall along Penn Street reconstructed. Approximately 410 s.f. of Buffer Zone to Bank, Riverfront Area and Bordering Land Subject to Flooding (BLSF) would require filling below the estimated 100-year floodplain elevation, resulting in approximately 197,525 c.f. of flood storage displacement. The loss of flood storage would be fully mitigated by creating an equal amount of compensatory flood storage in a nearby location in accordance with the Wetlands Protection Act regulations. Construction of the mitigation area will result in an additional 410 s.f. of alteration to Buffer Zone and Riverfront Area.

See Attachment A, Project Narrative, Section 1.3 for expanded mitigation presentation

If the project is proposed to be constructed in phases, please describe each phase:
The proposed BMF would not be built in phases, but the site would first be used for MBTA commuter parking while two parking garages (Quincy Adams and Braintree) are under construction, unrelated to the BMF project. The existing parking lot would be promoted as temporary replacement parking for commuters. Parking fees would not change.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?

☐ Yes (Specify)

☒ **No**

if yes, does the ACEC have an approved Resource Management Plan?
If yes, describe how the project complies with this plan.

_____

Will there be stormwater runoff or discharge to the designated ACEC? ☐ Yes ☒ **No**;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species?
(see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)

☐ Yes (Specify) ☒ **No**

HISTORICAL/ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☒ **Yes** (Specify: QUI 435 – Quincy Water Company Pumping Station, demolished) ☐ No

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐ Yes (Specify) ☒ **No**

The structure has already been demolished.

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site?

☐ Yes ☒ **No**;

if yes, identify the ORW and its location. _____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? ☒ **Yes** ☐ No; if yes, identify the water body and pollutant(s) causing the impairment:

Town Brook (MA74-09) Aquatic Macroinvertebrate and Fecal Coliform.

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ☐ Yes ☒ **No**

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

See Attachment A, Project Narrative, Section 1.4

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? ☒ Yes ☐ No; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):

See Attachment A, Project Narrative, Section 1.5

Is there an Activity and Use Limitation (AUL) on any portion of the project site? ☒ Yes ☐ **No**; if yes, describe which portion of the site and how the project will be consistent with the AUL:

See Attachment A, Project Narrative, Section 1.5

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? ☐ Yes ☒ **No**; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

Solid waste would be generated during demolition of the existing structure, pavement cuttings, construction of new buildings and pavements. MBTA would comply with the standards set in 310 CMR 19.00.

See Attachment A, Project Narrative, Section 1.6.1

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? ☐ Yes ☒ **No**;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Describe anti-idling and other measures to limit emissions from construction equipment:

See Attachment A, Project Narrative, Section 1.6.2

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? ☐ Yes ☒ **No**; if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the “outstandingly remarkable” resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River? ☐ Yes ☐ No; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated “outstandingly remarkable” resources of the Wild and Scenic River or the stated purposes of a Scenic River. ☐ Yes ☐ No; if yes, describe the potential impacts to one or more of the “outstandingly remarkable” resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
   Figure 1 – USGS Locus
   Figure 2 – Aerial Study Area
   Figure 3 – Environmental Constraints
   Attachment A – Project Narrative
   Attachment B – Existing Conditions Plan
   Attachment C – Proposed Conditions
   Attachment D – Traffic and Transportation Study
   Attachment E – Air Quality Analysis
   Attachment F – Historic and Cultural Resources
   Attachment G – Noise Impact Study
   Attachment H – Site Selection Matrix
   Attachment I – ENF Circulation List

2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.
   See Figure 1.

3. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
   See Attachment B.

4. Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.
   See Figure 3.

5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
   See Attachment C.

6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
   See Attachment I.

7. List of municipal and federal permits and reviews required by the project, as applicable.

Agency/Regulatory Authority	Permit/Approval
Federal	
U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities
U.S. Fish and Wildlife Service	Section 7 Consultation – Endangered Species Act
State	
Federal Transit Administration / Massachusetts Historical Commission	National Historic Preservation Act of 1966 M.G.L. Ch. 9, as amended by Ch. 254 (950 CMR 71.00) with review by State Historic Preservation Office
Massachusetts Water Resources Authority	Master Direct Permit - sewer connection permit or amendment
Local	
Quincy Conservation Commission	Wetlands Protection Act - Notice of Intent

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
☐ Yes ☒ **No**; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

B.

	Existing	Change	Total
Footprint of buildings	2.74	2.41	5.15
Internal roadways	0.43	0.18	0.31
Parking and other paved areas	7.05	-2.38	4.67
Other altered areas	NA	0.31	0.31
Undeveloped areas	2.59	-0.02	2.57
Total: Project Site Acreage	**12.81**	**0.32**	**13.13**

B. Has any part of the project site been in active agricultural use in the last five years?
☐ Yes ☒ **No**; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
☐ Yes ☒ **No**; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ☐ Yes ☒ **No**; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction?
☐ Yes ☒ **No**; if yes, does the project involve the release or modification of such restriction?
☐ Yes ☐ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ☐ Yes ☒ **No**; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? ☐ Yes ☒ **No**; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan

B.

Quincy does not currently have a comprehensive plan.

Date**:**

C. Describe the project's consistency with that plan with regard to:
1) economic development
2) adequacy of infrastructure
3) open space impacts
4) compatibility with adjacent land uses

See Attachment A, Project Narrative, Section 2.2.

D. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)

RPA: **Metropolitan Area Planning Council**
Title: **MetroFuture Regional Plan**
Date: **May 2008**

E. Describe the project's consistency with that plan with regard to:
1) economic development
2) adequacy of infrastructure
3) open space impacts

See Attachment A, Project Narrative, Section 2.3.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

See Attachment A, Project Narrative, Section 3.0.

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ☐ Yes ☒ **No**

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ☐ Yes ☒ **No**

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ☐ Yes ☐ **No** If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ☐ Yes ☐ **No**; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ☐ Yes ☐ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ☐ Yes ☐ **No**; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

3. Which rare species are known to occur within the Priority or Estimated Habitat?

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ☐ Yes ☐ **No**

5. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ☐ Yes ☐ **No**; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ☐ Yes ☐ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ☐ Yes ☐ **No**; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ☒ **Yes** ☐ No; if yes, specify, in quantitative terms:

Expansion of existing fill or structure in a velocity zone or regulatory floodway. Relocation of the retaining wall near Town Brook within a mapped velocity zone involving 205 s.f. of new fill.

See Attachment A, Project Narrative, Section 4.1

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? ☒ **Yes** ☐ No; if yes, specify which permit:

Quincy Order of Conditions

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? ☒ **Yes** ☐ No; if yes, has a Notice of Intent been filed? ☐ Yes ☒ **No**; if yes, list the date and MassDEP file number: _____; if yes, has a local Order of Conditions been issued? ☐ Yes ☐ No; Was the Order of Conditions appealed? ☐ Yes ☐ No. Will the project require a Variance from the Wetlands regulations? ☐ Yes ☒ No

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

Relocating the retaining wall near Town Brook would encroach into BLSF and Riverfront Area. Compensatory storage mitigation is proposed adjacent to the fill area. While most of the impact is permanent associated with the fill, construction associated with the retaining wall will include a small area of temporary disturbance that will be restored after construction.

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean		
Designated Port Areas		
Coastal Beaches		
Coastal Dunes		
Barrier Beaches		
Coastal Banks		
Rocky Intertidal Shores		
Salt Marshes		
Land Under Salt Ponds		
Land Containing Shellfish		
Fish Runs		
Land Subject to Coastal Storm Flowage		

Inland Wetlands

Bank (lf)		
Bordering Vegetated Wetlands		
Isolated Vegetated Wetlands		
Land under Water		
Isolated Land Subject to Flooding		
Bordering Land Subject to Flooding	410 s.f.	Permanent: 410 s.f.
Riverfront Area	26,671 s.f.	Permanent: 25,851 s.f. Previously Developed: 787 s.f. Undeveloped Temporary: 328 s.f.

D. Is any part of the project:

1. proposed as a **limited project**? ☐ Yes ☒ No; if yes, what is the area (in sf) Entire
2. the construction or alteration of a **dam**? ☐ Yes ☒ **No**; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? ☒ **Yes** ☐ No
4. dredging or disposal of dredged material? ☐ Yes ☒ **No**; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? ☐ Yes ☒ **No**
6. subject to a wetlands restriction order? ☐ Yes ☒ **No**; if yes, identify the area (in sf):
7. located in buffer zones? ☒ **Yes** ☐ No; if yes, how much (in sf)

The existing Lowe's parking lot and driveway are located, in part, within the buffer zone (approximately 25,052 s.f.). In addition, approximately 820 s.f. of buffer zone will be filled associated with construction of a retaining wall for Penn Street and for creation of compensatory flood storage.

E. Will the project:

1. be subject to a local wetlands ordinance or bylaw? ☐ Yes ☒ **No**

Although Quincy has a local Wetlands Protection Ordinance, the MBTA is not subject to review under local regulations.

2. alter any federally-protected wetlands not regulated under state law? ☐ Yes ☒ **No**; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ☐ Yes ☒ **No**; if yes, is there a current Chapter 91 License or Permit affecting the project site? ☐ Yes ☐ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

See Attachment A, Project Narrative Section 4.2

B. Does the project require a new or modified license or permit under M.G.L.c.91? ☐ Yes ☒ **No**; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current ___ Change ___ Total ___
If yes, how many square feet of solid fill or pile-supported structures (in sf)?

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site: **N.A.**
Area of filled tidelands covered by buildings: **N.A.**
For portions of site on filled tidelands, list ground floor uses and area of each use: **N.A.**

Does the project include new non-water-dependent uses located over flowed tidelands?
☐ Yes ☒ **No**
Height of building on filled tidelands **N.A.**

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ☐ Yes ☒ **No**; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations?
☐ Yes ☒ **No**; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ☐ Yes ☒ **No**;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ☐ Yes ☒ **No**; if yes, answer the following questions:
What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _____
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);
Will dredging impact the following resource areas?
Intertidal ☐ Yes ☐ No; if yes, ___ sq ft
Outstanding Resource Waters ☐ Yes ☐ No; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) ☐Yes☐ No; if yes sq ft
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?
Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.
Sediment Characterization
Existing gradation analysis results? ☐ Yes ☐ No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ☐ Yes ☐ No; if yes, provide results.
Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.
Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse___
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ☐ Yes ☒ **No**; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ☐ Yes ☒ **No**; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ☐ Yes ☒ **No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	_____	_____	_____
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ☐ Yes ☒ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ☐ Yes ☐ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. _____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? Will the project require an increase in that withdrawal? ☐ Yes ☐ No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ☐ Yes ☐ No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_____	_____	_____	_____
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ☐ Yes ☐ No
2. a Watershed Protection Act variance? ☐ Yes ☐ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ☐ Yes ☐ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ☒ **Yes** ☐ No; if yes, specify which permit:

Direct Master Permit or Amendment from the MWRA

See Attachment A, Project Narrative, Section 5.0

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	7,720	-1,920	5,800
Discharge of industrial wastewater	N.A.	1,000	1,000
TOTAL			

	Existing	Change	Total
Discharge to groundwater	0	0	0
Discharge to outstanding resource water	0	0	0
Discharge to surface water	0	0	0
Discharge to municipal or regional wastewater facility	7,720	-920	6,800
TOTAL	7,720	-920	6,800

B. Is the existing collection system at or near its capacity? ☐ Yes ☒ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ☐ Yes ☒ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ☐ Yes ☒ No; if yes, describe as follows:

The existing former Lowe's store has a sewer main connected to the MWRA system that will be evaluated as part of the new building design.

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)				

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the

direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ☐ Yes ☒ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ☐ Yes ☒ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:
The BMF project will adhere to Quincy's Water, Sewer and Drain Division rules and regulations, including design and construction in conformance with current standards and specifications. As required, MBTA will obtain permits for wastewater and storm drainage connections, in accordance with City and MassDEP requirements, and MWRA, as needed.

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ☐ Yes ☐ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ☐ Yes ☒ **No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

See Attachment A, Project Narrative Section 6.0, and Traffic Technical Memorandum (Attachment D)

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ☐ Yes ☐ No; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ☐ Yes ☐ No; if yes, generally describe:

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ☐ Yes ☒ **No**; if yes, specify which permit:

D. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

See Attachment A, Project Narrative Section 6.0, and Traffic Technical Memorandum (Attachment D)

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ☐ Yes ☒ **No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____		_____
Length of fuel line (in miles)	_____		_____
Length of transmission lines (in miles)	_____		_____
Capacity of transmission lines (in kilovolts)	_____		_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ☐ Yes ☐ No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ☐ Yes ☒ **No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

See Attachment A, Project Narrative, Section 7.0, and Air Quality Technical Memorandum (Attachment E)

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ☐ Yes ☐ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

See Attachment A, Project Narrative, Section 7.2, and Noise Assessment Technical Memorandum (Attachment G)

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ☐ Yes ☒ **No**; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ☐ Yes ☒ **No**; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ☐ Yes ☐ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?
☐ Yes ☐ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? ☐ **Yes** ☒ No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ☐ Yes ☒ **No**; if yes, attach correspondence

No inventoried architectural properties are located within the Project's direct area of impact and all proposed activities fall within the footprint of previously disturbed areas associated with existing buildings or paved surfaces. The Project is not expected to have adverse effects on historic architectural properties or archaeological resources. The work area for the proposed relocation of the northeast corner of the existing concrete retaining wall and fence overlaps both the no- and low-sensitivity areas on the site. This area contains areas previously disturbed during the 2010 Lowe's project.

See Attachment A, Project Narrative, Section 8.0, and Historic Resources Technical Memorandum (Attachment F)

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ☐ Yes ☒ **No**; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ☐ Yes ☒ **No**; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ☐ Yes ☒ **No**; if yes, does the project involve the destruction of all or any part of such archaeological site? ☐ Yes ☒ **No**; if yes, please describe:

D. If you answered "No" to <u>all parts of both</u> questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to <u>any part of either</u> question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

The MBTA will consult with MHC if needed.

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   (Name) **The Patriot Ledger** (Sept. 4, 2020)

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

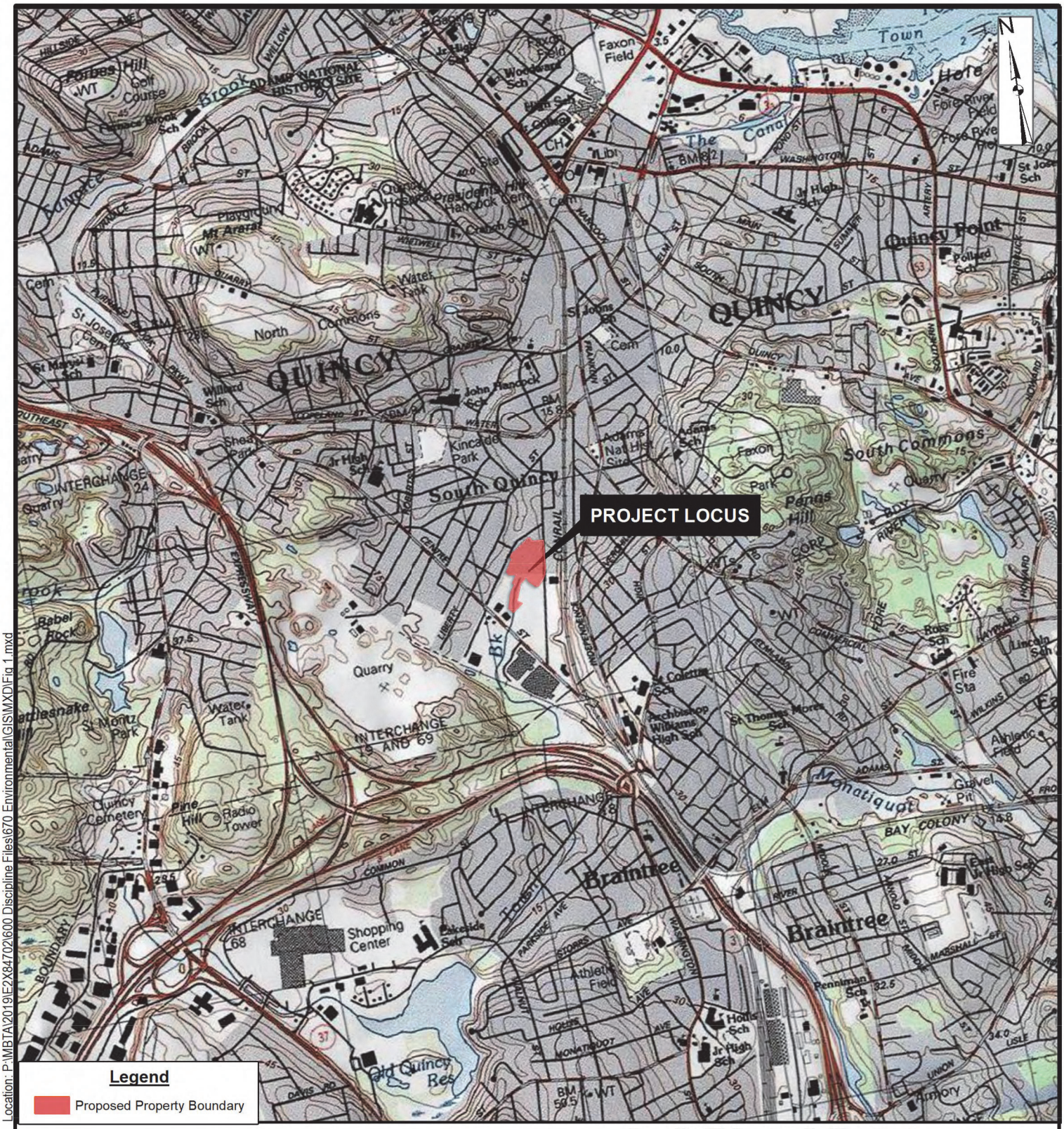
Signatures:

Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
	DocuSigned by: Andrew Brennan 688CBF5D04764B3...	8/27/2020	8/27/2020

Andrew Brennan	Michael Clark for
Name (print or type)	Name (print or type)
MBTA	**Jacobs Engineering Group, Inc.**
Firm/Agency	Firm/Agency
10 Park Plaza	**120 St. James Ave.**
Street	Street
Boston, MA 02116	**Boston, MA 02116**
Municipality/State/Zip	Municipality/State/Zip
617-222-3126	**617-242-9222**
Phone	Phone

Attachments

Figures



Location: P:\MBTA\2019\E2X84702\600 Discipline Files\670 Environmental\GIS\MXD\Fig 1.mxd

Source: MassGIS, Commonwealth of Massachusetts,
Information Technology Division: USGS Blue Hills, MA 7.5 Minute Quadrangle

Prepared for:	Project Locus	Prepared by:	SEP 2020
T	Massachusetts Bay Transportation Authority Quincy Bus Maintenance Facility QUINCY, NORFOLK COUNTY, MASSACHUSETTS	Jacobs	FIGURE 1

Location: P:\MBTA\2019\E2X84702\600 Discipline Files\670 Environmental\GIS\MXD\CE\Figure 2 _ Aerial Locus Map.mxd

Prepared for: T

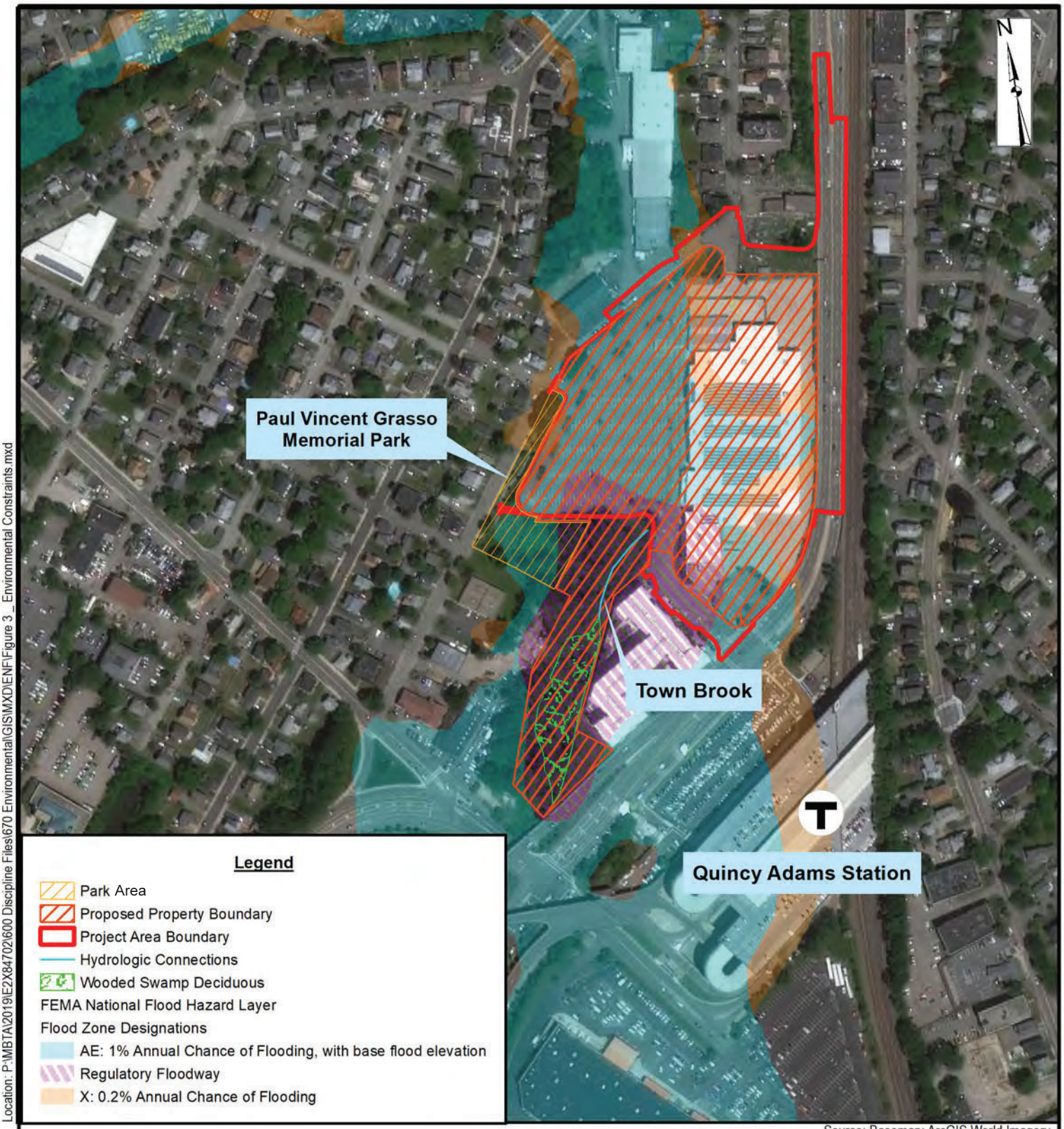
Aerial Map

Massachusetts Bay Transportation Authority
Quincy Bus Maintenance Facility
QUINCY, NORFOLK COUNTY, MASSACHUSETTS

Prepared by: Jacobs

SEP 2020

FIGURE 2



Location: P:\MBTA\2019\E2X84702\600 Discipline Files\670 Environmental\GIS\MXD\ENF\Figure 3 _ Environmental Constraints.mxd

Source: Basemap: ArcGIS World Imagery
Flood map for the selected area is number 25021C0207E, effective on 07/17/2012:
FEMA National Flood Hazard Layer and MassGIS-Bureau of Geographic Information | MassGIS

0 140 280 Feet

Prepared for:

Environmental Constraints

Massachusetts Bay Transportation Authority
Quincy Bus Maintenance Facility
QUINCY, NORFOLK COUNTY, MASSACHUSETTS

Prepared by: Jacobs

SEP 2020

FIGURE 3

Attachment A
Project Narrative

1 GENERAL PROJECT INFORMATION SECTION

1.1 Programmatic and Physical Elements of the Project

1.1.1 Programmatic Elements

In support of the Bus Facility Modernization Program, the Massachusetts Bay Transportation Authority (MBTA) is proposing the construction, renovation, and expansion of bus maintenance and storage facilities throughout the MBTA service area. MBTA has identified the replacement of its Quincy Bus Maintenance Facility (BMF) as an operational priority, due to its age, condition, and inability to effectively support the maintenance and operations of the newer vehicles in the MBTA bus fleet. The purpose of the proposed improvements is to construct a facility that has expanded capacity for newer MBTA buses, including the ability to support battery electric buses, provide a modern workspace and support the MBTA goals for resiliency and sustainability.

The existing Quincy BMF is located at 954 Hancock Street in Quincy and was built in the early 1900s. The existing building is approximately 44,000 square feet, with yard space of approximately 4.1 acres (additional area on the parcel is unusable due to grade and wetlands). The existing facility is functionally obsolete due to height restrictions, is in poor condition, and is too small to efficiently support the current fleet. Attachment B to the Environmental Notification Form (ENF) contains the Existing Conditions Plan.

MBTA currently maintains and stores a fleet of 86 buses at the existing Maintenance Facility. The only vehicles that are able to be maintained at the existing Maintenance Facility are the oldest diesel vehicles in the MBTA fleet, due to critical building height restrictions. These diesel fuel vehicles are 10 feet, 3 inches in height and were procured in 2008. Because the average service life of a bus is 12 to15 years, the Quincy fleet will reach the end of its serviceable life by 2023.The MBTA has procurements to replace the aging fleet in the coming years but will not be able to do so without a facility that can accommodate the height of the new fleet, which is between 10 feet, 8 inches and 11 feet, 1 inch.

The proposed new Quincy BMF would increase reliable service to Quincy residents and help meet growing ridership demand by allowing the MBTA to house newer vehicles, including hybrid vehicles with lower emissions, and expanding capacity to store and maintain up to 135 buses. All storage and maintenance, including fueling, washing, maintenance, support, administrative, and management capabilities would occur inside the proposed new Quincy BMF, improving the working conditions for employees.

The proposed Project is being designed with sustainability and resiliency requirements. MBTA defines sustainability in its 2017 Sustainability Report[1] as "…the ability to be maintained at a certain rate or level; avoidance of the depletion of natural resources in order to maintain an ecological balance." In a jointly produced MBTA, Massachusetts Department of Transportation (MassDOT), and South Coast Rail document titled *Engineering and Architectural Design Guidelines,*[2] resiliency is defined as "a system's ability to recover from an acute extreme weather event (i.e., storm surge or flooding event) or to anticipate and respond to future climate condition scenarios (i.e., increasing temperatures, sea-level rise, or changing precipitation patterns)." The proposed Quincy facility and associated site will be incorporating best practice sustainability and resiliency design measures that address the environmental, social, and economic needs while protecting its efficiency and functionality long-term in the face of changing climatic conditions. MBTA facilities must address regional resiliency threats such

[1] Massachusetts Bay Transportation Authority. 2017. *MBTA Sustainability Report*. Summer 2017. https://cdn.mbta.com/sites/default/files/Sustainability/sustainability-report-092617.pdf.
[2] https://www.mbta.com/engineering/project-specific-standards-and-criteria

as sea-level rise, flooding, increasing intensity and frequency of storms, extreme temperatures, and increased snow and blizzard events to remain operationally efficient and effective.

As the project design continues to advance, the building is being evaluated to address resiliency to extreme weather events (potential flooding, wind and ice, as well as extreme heat and cold). Some of the design elements being evaluated include elevational placement of critical infrastructure, snow handling and storage, ice loading of outdoor project elements as well as the potential for extreme rainfall, snow loads and wind speeds. Specific features either already incorporated into the design or under consideration include the increased structural loading capacity of the roof to support extreme snowfall and consideration of a green roof. The roof itself would be rated for high wind loads as would exterior walls and windows. All critical mechanical infrastructure has been either located on the second floor of the building or at the highest elevation on the site. In addition, subsurface stormwater retention to absorb extreme rainfall, raingardens, deep sumps, and preserving natural habitats are under consideration.

The site's new power substation would be designed with a high level of redundancy to safeguard facility operations in the case of an emergency. The station is designed around two parallel utility feeds. That means if one feed is interrupted, the other kicks in to support full operations. In addition, compared to a typical series of exposed transformers on site, the power substation is a secured, fire rated stand-alone building. In the unlikely event that both substation power feeds are interrupted, the facility would be served by both Emergency Power and Standby Power generators providing an enhanced capacity to support not only life safety but also critical facility operations, and most importantly, bus service to the public.

This facility would be designed to meet the standards and goals of both the Envision and LEED rating systems. The sustainability elements to be incorporated at Quincy can set the bar for sustainability and resiliency at each of MBTA's facilities involved in the Bus Facility Modernization Program; the Quincy location is well suited to guide other projects towards a more sustainable future. For example, the MBTA is currently assessing the roof to determine if the roof should be used as a green roof or solar arrays, is proposing water reclamation, and is evaluating solar arrays in the parking area. These, or some combination thereof, are being evaluated as part of sustainable elements. The MBTA's intent is to use the roof space in the most environmentally sustainable manner feasible. The MBTA will have a significant solar component on the project (on the roof and/or solar canopy in the parking area). As the design advances, the MBTA will develop a plan that best balances the use of the roof for stormwater management and solar generating capacity. The MBTA recognizes that a roof of this size can act as a palate for a number of sustainable design ideas - alone or in combination. The design process will help the MBTA decide how to best balance all those sustainability options.

As the design of the proposed facility advances, it will be led by sustainability and resiliency principles, with decisions guided by both overall environmental and operational impact while prioritizing those outcomes that are the foci within Envision and LEED to capitalize on synergies between the two frameworks and MBTA's own goals. The list of beneficial Project features and their relationship to overall sustainability and resiliency goals is lengthy; the specific aspects captured within this report directly benefit Envision and LEED efforts, and include, but are not limited to, the following:

- Improvement of community quality of life, mobility, and access
- Minimization of noise, vibration, and construction impacts
- Advancement of equity and social justice
- Enhancement of public space and amenities
- Provisions for stakeholder involvement

- Preservation of sites of high ecological value and historic and cultural resources
- Enhancement of functional habitats, wetlands and surface water functions, and stormwater management
- Reduction of air pollutant emissions

1.1.2 Physical Elements

The MBTA is proposing the construction and operation of a new BMF at 599 Thomas Burgin Parkway (Burgin Parkway) in Quincy, Massachusetts (Project). The Project replaces the existing Quincy BMF on Hancock Street in Quincy, located 1.4 miles from the proposed site. The Project property is approximately 12.81 acres and is bounded by Burgin Parkway to the east, Columbia Street to the west and north, and Penn Street to south. Figure 1 shows a site location map, and Figure 2 is an aerial of the Project Area. The Project site currently contains a now vacant Lowe's home improvement store (119,384-square foot [ft^2], steel-framed, two-story building occupying the eastern portion of the site) and associated parking and infrastructure. The proposed work area for the new BMF would be 10.24 acres of the total Project property. The remaining 2.57 acres are open woods and wetlands associated with Town Brook located along the southern extent of the property. In addition to the Project parcel, approximately 0.29 acre area of an adjacent parcel, the W. C. Canniff site, is proposed to be taken, as part of the development of the Columbia Street extension which will server operation needs by providing a secondary means of access for MBTA buses and employees. An approximately 0.02 acre area of the adjacent Deco Apartments is proposed to be taken or an easement obtained in order to support changes to the existing Penn Street and associated retaining wall in association with a shared use path that will provide access for residents of the neighborhood to the west of the site to the MBTA's Quincy Adams Red Line station.

The proposed Project is a new three-story indoor BMF, with a total building size of 351,000 ft^2. As part of constructing the new BMF, a section of sidewalk along Burgin Parkway would be reconstructed connecting the Columbia Street Extension to Penn Street. This work would involve resetting the granite curb and construction of a new Americans with Disabilities Act (ADA)-compliant cement concrete sidewalk. Additionally, as part of constructing the new intersection at the Columbia Street Extension, there would be work along Burgin Parkway to develop turn lanes, add traffic signals, add new pavement markings, relocate an existing overhead directional sign, construct new ADA-compliant curb ramps, and connect to the sidewalk just north of this new intersection.

The proposed BMF would be designed to store and maintain Battery Electric Buses (BEBs). This location will be the first MBTA facility designed to house and maintain BEBs. Currently, none of the MBTA's BMFs meets the requirements needed for BEBs. The facility will be capable of housing hybrid-electric buses upon opening and will later transition to BEBs when these vehicles are integrated into the MBTA's fleet. The construction and operation of the new facility is expected to improve fleet reliability and resiliency by building a new facility that is designed to modern standards and will allow modern vehicles to operate on all Quincy facility bus routes.

The proposed building would occupy 39.1% of the 13.13-acre site and would meet current and future transit demands, future electrification and expansion of the bus fleet, and the deployment of more efficient and cleaner energy technologies. The proposed BMF would accommodate up to 135 buses, with much of the building footprint in the location of the former Lowe's building. The proposed BMF would provide interior bus storage, maintenance, and offices, as well as fueling, washing, maintenance, support, administrative, and management capabilities required to support the fleet. All transit-vehicle maintenance and storage functions would be performed indoors. There would be warehouse and office space within the facility as well, resulting in a 351,000-ft^2 building.

There are several small trees located within the existing parking lot. These trees would be removed, and new trees would be planted at islands and other locations created as part of the new parking lot. There are additional trees around the perimeter of the existing parking lot. New trees and additional landscaping would be included in the proposed Project. For the parking lot, there would be an increase in pervious area between the existing and proposed lot, creating an opportunity for additional landscaping and green infrastructure (e.g. rain garden).

The primary access to the site would be via an existing signalized intersection at Penn Street and Burgin Parkway. The site would include an outside bus queuing area off Penn Street, opposite the Deco Apartments, for approximately 30 buses. In addition, gated access for employees walking from Quincy Adams Station and onsite employee parking are proposed, as some employee shifts begin or end before or after transit service is running. A proposed second access/egress point at the north end of the site would provide access from Burgin Parkway to Penn and Columbia streets, resulting in an extension of Columbia Street through the southern end of the W. C. Canniff property. A short section of Columbia Street connecting to the new Columbia street extension would be reconstructed in order to better align Columbia Street with the Columbia Street Extension. These changes proposed along Columbia Street and Columbia Street Extension will continue to provide access to PV Sullivan. Similarly, associated reconstruction at the intersection of Penn Street and Columbia Street will continue to provide access to W.C. Canniff. as well as the new BMF but would be limited to authorized vehicles only. This reconstruction includes new roadway and sidewalks for Columbia Street, Columbia Street Extension and a short section of Penn Street adjacent to the WC Canniff property. On- and Offsite Project Alternatives

The MBTA searched for available sites that met the following factors chosen to limit impacts to existing bus routes, the environment, and general population:

- Vacant and available for lease or for sale
- Minimum of 10 usable acres
- Proximity to Quincy Center

The MBTA developed selection criteria defined by need factors that include addressing aging infrastructure, accommodating a modernized fleet, and improving system operations (see Attachment H to the ENF).

The potential sites were screened using the following site characteristics and system outcomes to meet the purpose of the project:

- Vacant or available for lease or sale
- Parcel size and ability to accommodate the bus fleet
- Deadhead (non-revenue) miles to Quincy Center
- Access to and from the site, including adjacent road network and traffic control
- Internal site circulation
- Potential environmental concerns
- Consistency with land use
- Site development risk

1.1.3 On-site Alternatives

Alternatives that would use the existing site at 954 Hancock Street were considered. One alternative would demolish the existing building and rebuild on the same parcel. Approximately 3.76 acres, the site is about 0.5 mile from Quincy Center. The new building would be limited to a similar footprint as the existing building since the remaining areas of the parcel are unusable due to grade and/or wetlands. This alternative would address aging infrastructure by addressing structural deficiencies and accommodating a modernized fleet. It could be equipped for the transition to BEBs but would not accommodate proposed growth in the size of the bus fleet or transition to more sustainable operations. Therefore, a new facility at the existing site would not accommodate the project purpose and need and would not improve maintenance capabilities.

In the alternative that would expand 954 Hancock Street, adjacent parcels were evaluated for potential acquisition to enlarge the site. However, the existing site at 954 Hancock Street, combined with the acquisition of approximately 4.5 acres adjacent to the site, also is too small to accommodate the purpose and need of the proposed Project. Ten or more usable acres are needed to accommodate the expanding MBTA fleet, improved maintenance capabilities, and circulation on the site. In addition, the level of construction effort that would be needed to bring the facility into compliance with current building, life safety, and accessibility codes, as well as to install power upgrades to allow for the charging of a large number of BEBs (being unable to accommodate proposed growth in the size of the bus fleet), makes upgrading this facility infeasible.

1.1.4 Off-site Alternatives

Eight alternative locations at which the MBTA could build a new facility were considered. They are: three in Quincy at 599 Burgin Parkway, 465 Centre Street, and 1800 Crown Colony Drive, and six in Braintree at 360 Wood Road, 10-40 Plain Street, 125 Union Street, 257 Ivory Street, and a combination of 125 Union and 257 Ivory streets.

599 Burgin Parkway, Quincy: Approximately 12.81 acres, the site is 1.4 miles from Quincy Center and is bounded by Burgin Parkway to the east, Columbia Street to the west and north, and Penn Street to the south. The site was used as a Lowe's home improvement store until 2019 and is vacant and for sale. Commercial and residential land uses surround the site and vehicular access is via a major arterial. This site is relatively proximate to Quincy Center, with the least deadhead miles of any alternative, and is also proximate to the MBTA station and garage. This alternative would meet the need to address aging infrastructure and accommodate the proposed Project program. Building new would accommodate a modernized fleet, would house taller buses, and would allow the facility to be equipped for the transition to BEBs. Environmental features on the site include a perennial stream, Town Brook, and its associated floodplain and Riverfront Area, which are Massachusetts-regulated wetland resource areas. However, site use would have minimal effect on wetland resource areas, and they do not present site development risk. The site's buildable area, over 10 acres, would facilitate improved maintenance capabilities; has good internal circulation; has adequate space for maintenance, storage, and parking; and, as a result of the Project, would have two access/egress points to help improve systemwide operations. The site topography does not require cut and fill or major earthwork in order to develop the project. This alternative was selected to advance.

1800 Crown Colony Drive, Quincy: Approximately 16.5 acres, the site is 2.3 miles from Quincy Center and is bounded by I-93 to the west and Crown Colony Drive to the east. It is vacant. Offices surround the parcel to the north and south. An existing detention basin on the site would make part of the parcel unusable because it limits the developable site area. Although a new facility on the site would address the aging infrastructure, given the physical limitations of the property, the site could not accommodate the proposed Project program without structured parking or a program reduction. Access

and egress are restricted to one location also used by office park tenants, which could hinder bus movements. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

360 Wood Road, Braintree: Approximately 14.2 acres, the site is 4.7 miles from Quincy Center and is bounded by I-93 to the south and Wood Road to the east. An existing pond on the site would make part of the parcel unusable due to the presence of state and federal wetlands. The site currently contains one large warehouse and is surrounded by other commercial properties that increase the development risk. Although a new facility on the site would address aging infrastructure, the site could not accommodate the proposed Project program without structured parking or a program reduction. This site has a single means of access to and from Wood Road, and there would be congestion on Wood Road during peak hours. This site also has poor internal circulation. This site is among the most distant from Quincy Center, resulting in the greatest deadhead miles on the buses and increased operating costs. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

10-40 Plain Street, Braintree: Approximately 26.6 acres, the site is 4.7 miles from Quincy Center and is bounded by Hancock Street to the west, MBTA commuter rail right-of-way to the north, John Mahar Highway to the east, and Plain Street to the south. Residences on Plain Street abut the existing parking lot. About 10 acres of the parcel are unusable due to the presence of Hollingsworth Pond and the Monatiquot River. The site contains a factory converted into businesses. The site currently contains one large warehouse and is surrounded by other commercial properties that increase the development risk. Although a new facility on the site would address the need to address aging infrastructure and could accommodate the proposed Project program, environmental constraints would hinder bus circulation. In addition, this site would require buses to use Route 3 to access Quincy Center (given congestion on Route 3, particularly in the AM period, adding buses to this corridor is likely to result in schedule delays for the buses.). This site is the greatest distance from Quincy Center along with the 360 Wood Road site, resulting in the greatest deadhead miles on the buses and increased operating costs. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

465 Centre Street, Quincy: Approximately 14.0 acres, the site is 2 miles from Quincy Center and is bounded by Burgin Parkway to the west, MBTA railroad line to the east, MBTA Quincy Adams Station to the north and I-93 ramps to the south. The site is occupied by The Home Depot home improvement store and associated parking. A new facility on the site would address the need to address aging infrastructure and has good internal circulation that could accommodate the proposed Project. However, because the site has an active business, it does not meet the criterion of vacant land or land available for lease or sale, and therefore is undesirable and impractical for the MBTA to pursue. The signalized intersection at Burgin Parkway has a high number of crashes and is a Top 200 Intersection Crash Cluster location for 2014-2016. Environmental features on the site include a perennial stream, Town Brook, floodplain and Riverfront Area, and a Massachusetts-regulated wetland resource area, all of which increase the development risk. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

125 Union Street, Braintree: Approximately 2.0 acres, the site is 4 miles from Quincy Center and is bounded by Ivory Street on the west, Union Street to the north, and I-93 ramps to the east. It is vacant and was occupied by a motel chain until 2018. It is adjacent to a mix of commercial uses. The capped landfill and Braintree Transfer Station are to the south. Existing access and egress at the site are limited to Union Street with right in/right out only. Although a new facility on the site would address the need to address aging infrastructure, the site is too small to accommodate the proposed Project program without structured parking or a program reduction. The distance from Quincy Center would

increase miles on the buses and increase operating costs. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

257 Ivory Street, Braintree: Approximately 6.3 acres, the site is 4.2 miles from Quincy Center and is bounded by Ivory Street on the west, capped landfill and 125 Union Street to the north, and a wooded commercial property to the south. The privately owned site, part of the former landfill, is Braintree's transfer station. It is adjacent to a mix of commercial uses and the MBTA Braintree Station. The capped landfill is east of the site. Existing access and egress at the site are from the Ivory Street/Ivory Plaza road intersection and a signalized intersection at MBTA Braintree Station. Although a new facility on the site would address the need to address aging infrastructure, the site could not accommodate the proposed Project program without structured parking or a program reduction. The irregular parcel shape and site grading would create internal circulation challenges. The distance from Quincy Center would increase miles on the buses and increase operating costs. Further, because the site has an active business, it is undesirable and impractical for the MBTA to pursue. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

125 Union Street and 257 Ivory Street, Braintree: The alternative would combine 125 Union Street and 257 Ivory Street and approximately 1.7 acres of the City-owned landfill site on Ivory Street to create a 10.0-acre site. The site is 4.2 miles from Quincy Center and is bounded by Ivory Street on the west, capped landfill and Union Street to the north, I-93 ramps to the east, and a wooded commercial property to the south. The combined site would have three existing access and egress points, two on Ivory Street and one on Union Street. Although a new facility on the site would address the need to address aging infrastructure and could accommodate the proposed Project program, the irregular parcel shape, site grading, and existing landfill infrastructure would create internal circulation challenges. The distance from Quincy Center would increase miles on the buses and increase operating costs. This alternative would require the taking of a parcel with an active business failing the criteria of vacant land or land available for lease or sale, and therefore is undesirable and impractical for the MBTA to pursue. This alternative did not meet the purpose of and need for the Project and was eliminated from further consideration.

1.2 Mitigation Measures Associated with the Preferred Alternative

During construction, the contractor and MBTA would have control over how demolition and construction waste is managed. Construction activities would be coordinated by MBTA and the contractor with the City of Quincy, utility companies, and other public and private entities as appropriate. As design is advanced, construction-period assessments would include evaluation of potential construction access locations and laydown areas for construction equipment and building materials.

Per MBTA construction best management practices and guidelines, a covered structure for waste and recyclables would be installed onsite. Efforts during construction would include monitoring of the indoor areas via planning and implementation of air quality controls, as well as proper preparation just prior to occupancy to ensure volatile organic compounds and other air contaminants are not present as occupants move into the facility.

The Project proposes to decrease impervious areas by 424 ft^2. The potential for erosion and sedimentation impacts during construction would be minimized through the EPA Construction General Permit and development and implementation of a Stormwater Pollution Prevention Plan.

In general, the measures are designed to minimize impacts by:

- Working with cities and applicable emergency personnel to ensure appropriate safety measures are incorporated throughout construction.

- Minimizing air quality impacts by following existing MassDEP's Solid Waste and Air Quality Control regulations and MBTA retrofit procedures for construction equipment to reduce emissions. Complying with MassDEP's idling restrictions. Posting idling restriction signage on project construction sites.
- Establishing community outreach and information programs such as establishing a project construction office, a protocol for reporting community complaints, a project email address, and hotline for public concerns and providing frequent updates to the Project website.
- Developing protocols and controls to limit noise impacts during construction (e.g., locating stationary construction equipment as far away from noise-sensitive receptors to the greatest extent feasible, fitting any air powered equipment with pneumatic silencers, limiting the size of generators and their run times to the greatest extent possible, etc.). Nighttime and weekend construction in residential neighborhoods may only occur with full coordination with the communities and abutting neighborhoods.
- Developing and implementing a Stormwater Pollution Protection Plan in accordance with the National Pollution Discharge Elimination System (NPDES) and MassDEP standards, as well as installing and maintaining erosion and sediment control measures during construction. Additionally, protecting Town Brook by redirecting and reducing velocity of runoff.
- Minimizing the quality and duration of soil exposure during construction, as well as inspecting and maintaining erosion and sediment controls as necessary until final stabilization is achieved and final inspections have been completed.
- Carefully designing and implementing construction controls to avoid the archaeological and ecological resources downgradient of the site or on adjoining properties.

Construction-period impacts would be minimal. The approximately 10-acre work area is large enough to provide adequate laydown areas onsite, parking for construction personnel, and construction trailers.

1.3 Stormwater Management

When the Lowe’s store was constructed, the stormwater system was upgraded to meet the Wetlands Protection Act requirements. The eastern portion of the former Lowe’s site enters a water quality separator before entering an underground detention system where the flow rates are attenuated and peaks are moderated prior to entering a culvert discharging to Town Brook.

As necessary, the stormwater management system would be further upgraded to meet the Wetlands Protection Act requirements. Improvements to the existing stormwater system would be made to improve the condition of stormwater quality and quantity management. This would be accomplished by removing the direct discharge of parking lot drainage to Town Brook and re-directing it through a new water quality structure and underground detention system. and limiting the amount of impervious area.

The proposed BMF would not result in an increase in impervious surfaces on the proposed Project site. While the existing stormwater management system should be able to accommodate the proposed Project site, improvements would be made to the stormwater system (e.g., deep sump catch basins and water quality structures), which would improve the conditions and quality of the stormwater discharge to Town Brook. There would be no contributing drainage from the activities (e.g., bus wash, steam bay, or general maintenance) from inside the BMF building since those will be captured and be part of the facility wastewater, not stormwater.

As part of NPDES permitting for industrial activities, federal regulations in 40 *Code of Federal Regulations* 122.26(b)(14)(i-xi) identify 11 categories of stormwater discharges associated with industrial activity required to be covered under NPDES. Category viii under these regulations relates to transportation facilities that have vehicle maintenance, equipment cleaning, or airport de-icing operations. However, since the proposed BMF vehicle maintenance and cleaning activities will be inside and not subject to stormwater (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), this component of the NPDES program is not applicable.

1.4 Massachusetts Contingency Plan (310 CMR 40.0000)

Chapter 21E of the Massachusetts Oil and Hazardous Material Release Prevention and Response Act establishes responsibilities for owners of contaminated land. Due to its industrial past, there have been documented releases of hazardous materials on the former Lowe's parcel at the proposed Project site. These past releases occurred on a number of smaller industrial properties that in 2010 were assembled by the developer of the Lowe's project, to ultimately become one large parcel with an address of 599 Burgin Parkway. This large parcel was redeveloped into the now defunct Lowe's home improvement store. Table 1 summarizes the Release Tracking Numbers (RTNs) associated with these prior addresses (Penn Street) and now proposed Project site.

Table 1. Former Releases at the Site

RTN	Address	Notification Date	Compliance Date	Contaminants	Remedial Action Objective Class
3-0003035	88-106 Penn St.	04/15/1990	01/17/1995	Petroleum hydrocarbons	A2
3-0022158	111 Penn St.	09/30/2002	02/19/2010	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs)	A3-AUL filed 2/17/2010
3-0023583	111 Penn St.	02/2004	04/2004	Light nonaqueous phase liquid	Linked to 3-0022158
3-0028193	103-127 Penn St.	12/2008	05/05/2011	Metals, PAHs, Petroleum hydrocarbons	A2
3-0028196	98-116 Penn St.	12/2008	12/2009	Naphthalene	Linked to 3-0028193
3-0028197	129-155 Penn St. (Deco Apts, offsite) and 410-412 Centre St. (onsite)	12/8/2008	06/19/2014	Metals, Petroleum hydrocarbons, PAHs	A3 (129-155 Penn St., offsite Deco Apts); Permanent Solution with conditions under RTN 3-32208 B2 (410-412 Centre St. onsite)
3-0028198	129-155 Penn St.	12/8/2008	12/2009	Thallium	Linked to 3-0028193
3-0030881	599 Thomas Burgin Parkway	06/14/2012	08/13/2012	Hydraulic Fluid/Hydraulic Oil	A1
3-0035108	599 Thomas Burgin Parkway	08/12/2018	10/15/2018	Hydraulic Fluid/Hydraulic Oil	Permanent Solution with No Conditions

All RTNs have been closed with permanent solutions. Two Activity and Use Limitations (AULs) exist. An AUL associated with RTN 3-0022158 was filed in 2010 and involves a protective cover consisting of a marker layer and a 3-foot or greater layer of crushed building material (consisting of 6-inch or smaller pieces of uncoated concrete with traces of rocks, gravel, sub-base material, bricks, and the like) over remaining petroleum-impacted soils and a restriction of residential, school, or recreational uses;

cultivation of food; and any subsurface activity or excavation other than short-term utility work and/or construction work. The area is currently maintained as a parking area for the former Lowe's home improvement store. As discussed in the Phase 1 report,[3] the AUL will include two requirements:

- Any excavation work within the limits of the AUL area will be performed under a Soil Management Plan prepared by a Licensed Site Professional (LSP).
- The work will be performed under a Health and Safety Plan prepared by a competent professional.

The second AUL, associated with RTN 3-0028197, was filed in 2011, and involves historical fill materials on the south end of the property (south of the Deco Apartments) between Town Brook and the Burgin Parkway overpass for Centre Street. The historical fill materials were identified as containing elevated levels of lead and other metals. The AUL indicates that the parcel may not be used for residential uses, cultivation of food, or activity such as excavation for utility repair for greater than 2 months that disturbs the contaminated soil without a Soil Management Plan and a Health and Safety Plan. No work is proposed in this area.

The proposed Project use, a BMF, is consistent with the AULs and would thereby comply with the AUL restrictions. The proponent may consider ongoing maintenance of the AULs or possible retraction following actions involving soils removal or remediation.

The desktop Phase 1 site assessment[4] has been completed for the W. C. Canniff parcel at the proposed Project site; however, because access to the site has not been granted, a walk-through of the site is pending. Historically, the site has been occupied by various stone/granite cutting and polishing companies since at least 1883. W. C. Canniff & Sons Monument Works has been present on the site since at least 1950.

No environmental data were identified during the desktop Phase 1 assessment for the W.C. Canniff parcel. A review of the MassDEP online resources and the Environmental Data Resources, Inc. report identified no RTNs or AULs associated with the property. Because of potential placement of fill materials of unknown origin on the W. C. Canniff parcel, debris and areas of impacted soils or groundwater may be identified during site redevelopment and may require special management. Because of historical industrial uses identified for the W. C. Canniff parcel, including granite cutting that may have involved use of cutting oils or other materials, sampling of soil and groundwater may be appropriate to evaluate site conditions.

1.5 Solid and Hazardous Waste

1.5.1 Waste

MBTA would follow applicable guidance from DEP on Construction Demolition Debris. Bid documents would specify requirements to maximize recycling of building materials through available outlets. In addition, consideration would be given to onsite processing and reuse of asphalt, brick, and concrete, under a conditional exemption pursuant to 310 CMR 16.03(2)(b)(5) and the Using or Processing ABC Rubble Policy, should additional fill be needed.

[3] Jacobs Engineering Group Inc. 2020. *Phase I Environmental Site Assessment, 599 Burgin Parkway, Quincy, Massachusetts*. Prepared for: Massachusetts Bay Transportation Authority. April.
[4] Jacobs Engineering Group Inc. 2020. *Phase I Environmental Site Assessment, 84 Penn Street Property, Quincy, Massachusetts*. Prepared for: Massachusetts Bay Transportation Authority. April.

1.5.2 Measures to Limit Emissions from Construction Equipment

During construction, MBTA will require contractors to use ultra-low-sulfur diesel in construction equipment and use non-road engines either retrofitted with the best available technology or certified to meet EPA's Tier IV Exhaust Emissions Standards. Retrofitting with the best available technology may include reducing emissions of particulate matter, hydrocarbons, and/or carbon monoxide by using equipment named on either the EPA's Verified Technology List or the California Air Resources Board Verified Technology List, such as diesel particulate filters, diesel oxidation catalysts, or catalyzed wire mesh filters. Construction equipment and other vehicles would idle less than 5 minutes in accordance with Massachusetts General Law (M.G.L.) Ch. 90, 16A. In addition, construction equipment would be properly tuned and operated only as-needed to minimize the combustion emissions from diesel and gasoline engines.

2 LAND SECTION

2.1 Public Lands

As part of the Lowe's development, the Grasso Memorial Park on Columbia Street (approximately 26,000 ft^2 in area) was relocated further south on Columbia Street in a land swap with the City of Quincy. The relocated Grasso Park allowed for the Lowe's site to have a more organized configuration for parking and circulation. As a result, approximately 1.057 acres (46,262 ft^2) of land was transferred to the City of Quincy for parkland mitigation purposes.

This park relocation provided the opportunity to locate it contiguous to the open space (Riverfront Area) adjacent to Town Brook and increase the size of the park by almost 75%. This relocated park area extends into the existing natural woodland between Columbia Street and Town Brook. Grasso Park offers passive recreation with a walking path, memorial, and benches. The park is buffered from the Lowe's site with trees and shrubs and decorative fencing.

The proposed Project includes a new shared-use path along the southern edge of the parking lot. This shared-use path would connect to the path in the existing Grasso Park adjacent to Columbia Street. The proposed Project would enhance the park by adding a safe connection along the site to access Burgin Parkway and the MBTA Quincy Adams Station. This shared-use path and the connection to the park path would be designed to minimize disturbance to the park. This connector path would be an enhancement to the park since it would provide a direct and clear access point to the proposed shared-use path. Because a small amount of parkland may be impacted to connect pedestrian and bicycle access, the MBTA is evaluating whether and how Section 4(f) review may be required; however, the activities would be *de minimis* and would not adversely affect the features, attributes, or activities in the park.

2.2 Consistency With Municipal Plan

While the MBTA is not subject to local zoning ordinances, it will make every effort to develop the Project consistent with local zoning regulations. The proposed Project site is within a Planned Unit Development (PUD) District zone, as defined by Section 8.4 of the City of Quincy Zoning Ordinance. M.G.L. Chapter 40 Section 9 defines a PUD as a mixed-use development on land containing a minimum of the lesser of 60,000 ft^2, or five times the minimum lot size of the zoning district. PUDs are a mixture of residential, open space, commercial, industrial, or other uses and a variety of building types. PUDs are determined to be sufficiently advantageous to allow a departure from the normal requirements of the district to the extent authorized by the ordinance or by-law.

In addition, a portion of the site falls within the 100-Year (or 1% annual chance flood probability) flood designation, and per Section 8.1 of the Zoning Ordinance, it falls within the City's Flood Plain Overlay District (FPOD). The FPOD states: "…no new building or structure shall be erected, constructed, altered, enlarged or moved and no dumping, filling or earth transfer or relocation shall be permitted." Certain uses and activities are permitted, but none apply to the BMF. The MBTA has taken floodplain considerations into account in the design process to ensure safe and reliable operation of the facility. See Section 4.3 for a full discussion of the floodplain on the Project site.

2.3 Consistency With Regional Policy Plan

2.3.1 Regional Policy Plan

The Metropolitan Area Planning Council's MetroFuture Plan[5] (2008) identifies six areas integral to growth and development of the region. Quincy was identified as a "Regional Urban Center," characterized by an urban-scale downtown with multiple blocks of multi-story, mixed-use buildings, moderately dense residential neighborhoods surrounding the core, and some lower-density, single-family residential. The proposed BMF is consistent with aspects of MetroFuture as the MBTA builds its bus program and commits to serving increasing numbers of residents and workers.

The proposed project would support sustainable growth patterns, concentrating these functions and jobs in the urban center and on previously developed land. Second, the proposed project would support providing more transportation choices and would be consistent with mandates for cost-effective uses of transportation funds. Third, the proposed facility would be energy efficient and promote a healthy environment for workers and surrounding neighborhoods. In the future, the proposed BMF would be converted to a BEB fleet, dramatically reducing diesel emissions.

2.3.2 Environmental Justice

Quincy's population continues to grow. Per the U.S. Census, the city's 2018 population was estimated at 94,580. Projections from the University of Massachusetts Donahue Institute estimate that Quincy will grow approximately 26.41% by 2035, far surpassing the growth for the county (14.68%) and statewide (10.55%) for the same period.[6] The City of Quincy has a diverse population with 62% White, 29% Asian, 5% Black, and 3% Latino. Approximately 31% of the population is foreign born. While the median age in Quincy is 39 years, according to the City's Hazard Mitigation Plan,[7] the fastest-growing age group in the City of Quincy is the "Baby Boomer" generation, those born from 1946 to 1964. The median household income from 2013-2017 was $71,808, per capita income was $38,631, and persons in poverty was 10.5%. Several neighborhoods in North Quincy, South Quincy, Quincy Point, and Germantown have environmental justice (EJ) populations. These include minority, low-income, and English-language isolation. Populated areas within the community Study Area are predominately minority, composed largely of Asian persons, Black or African American persons, and Hispanic or Latino persons of any origin. Additionally, most Block Groups within the community Study Area are low-income census geographies. Forty-seven percent of Quincy's land is characterized as an EJ area, and 12% of Quincy's population are children under 18 residing within an EJ area. The Massachusetts

[5] https://www.mapc.org/get-involved/metrofuture-our-regional-plan/

[6] University of Massachusetts Donahue Institute (UMDI). 2015. *Long-term Population Projections for Massachusetts Regions and Municipalities*. Prepared for the Office of the Secretary of the Commonwealth of Massachusetts. March. UMDI_LongTermPopulationProjectionsReport_2015 04 _29.pdf.

[7] Tighe and Bond. 2019. *City of Quincy Massachusetts Multi-Hazard Mitigation Plan*. Five-year Update. Prepared for the City of Quincy. Volume 1 (Report) and Volume 2 (Appendices). Adopted April 2.

Geographic Information System (MassGIS) Environmental Justice Viewer shows 599 Burgin Parkway as located within a minority and low-income EJ area.

Overall, the proposed Quincy BMF is intended to increase reliable bus service locally and allow the MBTA to continue its use of hybrid buses as well as to transition its fleet to BEBs. These improvements would help alleviate the burden future traffic increases would place on the existing transportation network due to the predicted rate of growth in Quincy and surrounding communities. The ability for the MBTA to increase capacity would improve connectivity and create a more resilient transportation network for travel within the Greater Boston region. The proposed Project would enable the MBTA to meet the demand for affordable mobility for those with few other options.

As the community Study Area is primarily an EJ population, the proposed Project would benefit EJ populations by providing better availability to cleaner transit service. The Project would allow the MBTA to increase bus capacity and upgrade existing buses, improving mobility within the community Study Area, changes that would benefit EJ and non-EJ populations alike. Additionally, the proposed Project would not displace any residents or business in EJ areas, and it would not separate any EJ neighborhoods. It would not result in long-term air quality, water quality, noise, or hazardous waste impacts that would affect EJ populations. In consideration of the impacts to both EJ and non-EJ populations as a result of the proposed Project, disproportionately high and adverse impacts to minority or low-income populations would not occur.

Approximately 20.3% of the population in the Study Area U.S. Census Tract encompassing the community Study Area have limited English proficiency, the majority of which speak Chinese, which the MBTA addresses by providing translations for public meetings when requested. As indicated below, meeting notices and announcements are also published in relevant languages. Public involvement events associated with the proposed Project have and will continue to provide meaningful opportunities to all persons for involvement in the environmental review process.

The MBTA will communicate with the public and abutters before and during construction and get public input about potential construction-period impacts to try to mitigate. Measures to minimize construction impacts on the local community will be implemented to the greatest extent practicable, including maintaining access from the neighborhood to the Red Line Station and other surrounding areas during construction, minimizing disruption to the traveling public and local residents, and means of reducing lighting, noise, and dust impacts.

The MBTA's alternatives analysis of the potential for siting locations to have disparate impacts to minority populations and disproportionate burden on low-income populations revealed that none of the potential sites evaluated met thresholds for disparate impacts or disproportionate burdens, and none would result in displacements. The 599 Burgin Parkway site met MBTA's needs for the Project with few impacts.

2.3.3 Public Engagement

The MBTA is committed to early and consistent public involvement to give community leaders and stakeholders the opportunity to learn about any trade-offs involved with the proposed Project. As the proposed Project would be in an area with EJ populations, the MBTA takes proactive steps to provide opportunities for meaningful participation to low-income and minority persons. Under normal circumstances, in-person public engagement would be considered critical to increase awareness of the Quincy Bus Facility Modernization Project. However, as a result of the COVID-19 pandemic, activities will largely be virtual.

Before the COVID-19 pandemic, the MBTA joined a community meeting hosted by the City of Quincy at the Southwest Middle School on January 29, 2020, to discuss relocation of the Quincy BMF from

954 Hancock Street to 599 Burgin Parkway in Quincy. The MBTA Project Team presented the Authority's vision to approximately 70 attendees and accommodated a question/answer period.

The MBTA hosted an online public meeting June 24, 2020. The online meeting was noticed widely in the Quincy area and included a variety of communication tools to notify the public and promote participation. Traditional public notices were supplemented with activities targeting those who often do not participate in public meetings and events. Approximately 89 attended, many of whom had not participated in January.

To both build awareness of the proposed Project and to publicize the June 24 online meeting, the MBTA conducted a number of activities, including the following:

- Emailed meeting announcement to those who attended the January 29 City-hosted meeting.
- Sent meeting announcement by U.S. mail to those without email addresses (English, Cantonese, and Vietnamese).
- Posted meeting announcement advertisement in *The Patriot Ledger* newspaper, and *World Journal* and *Sampan* (Chinese-language newspapers)
- Coordinated interview between MBTA Project Director and local cable news outlet to discuss Project vision and status.
- Sent press release to local media detailing process to participate in virtual GoToWebinar meeting.
- Engaged local newspaper coverage resulting in news article detailing process to participate in virtual GoToWebinar meeting.
- Provided post-meeting newspaper coverage detailing the meeting discussion and topics raised.
- Posted digital advertisements in Red Line stations serving the Quincy area (English, Cantonese, and Vietnamese)
- Created CarCards announcing the meeting and displayed them on buses operating from the existing Quincy garage (English, Cantonese, and Vietnamese).
- Publicized a dedicated email address (QuincyBus@MBTA.com) providing the public access to Project Team for questions and concerns.
- Conducted virtual meeting via GoToWebinar software, providing full accessibility and translation services.
- Dedicated project page on MBTA website outlining project information, meeting announcements, and meeting materials.

The MBTA's public engagement plan is designed to ensure key stakeholders in Quincy—including elected officials, abutters, businesses, and neighborhood groups—are provided up-to-date information about the proposed MBTA Quincy BMF at 599 Burgin Parkway and have timely and meaningful opportunities for input.

The MBTA Project Team continues to work on identifying public engagement initiatives to ensure that EJ populations have an opportunity for meaningful involvement in the Quincy BMF Project. An online meeting will be held in the fall when the design of the project reaches 30%, and the MBTA will encourage participation at the meeting and otherwise by targeting outreach to abutters and neighbors along with project updates.

3 RARE SPECIES SECTION

Based on a desktop review and site visits, the proposed Project Area is composed primarily of already developed urban land adjacent to a perennial stream (Town Brook) and Freshwater Forested/Shrub Wetland (PFO1C) habitat on the southwestern side of the proposed Project Area. According to information provided in MassGIS by the Massachusetts Wildlife's Natural Heritage and Endangered Species Program (February 6, 2020), there are no habitats in the proposed Project Area designated as Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife or Certified or Potential Vernal Pools within or adjacent to the site. There are also no endangered or threatened species that occur in the proposed Project Area. The site does not fall within an Area of Critical Environmental Concern.

The U.S. Fish and Wildlife Service Information for Planning and Consultation website notes that the northern long-eared bat (*Myotis septentrionalis*) (threatened) may occur in the proposed Project Area. Pursuant to the Section 4(d) rule of Endangered Species Act, the Massachusetts Wildlife's Natural Heritage and Endangered Species Program's map was reviewed to identify known locations inhabited by northern long-eared bats (i.e., hibernacula or maternity roost tree). The nearest habitat is located 13.4 miles northwest of the proposed Project Area. No known occupied maternity roost trees were identified on or in the immediate vicinity of the proposed Project Area.

Given that no known occupied maternity roost trees or known occupied hibernacula are located within 0.25 mile of the proposed Project, the construction of the proposed Project complies with required conservation measures prescribed in the northern long-eared bat 4(d) rule. As such, no time-of-year tree-clearing restrictions are proposed to be implemented during the course of proposed Project construction, and any incidental take of the northern long-eared bat would not be prohibited.

4 WETLANDS, WATERWAYS, AND TIDELANDS SECTION

4.1 Wetlands

Wetlands and waterways were field-delineated on the proposed Project site. The proposed Project would result in temporary and permanent impacts to Massachusetts jurisdictional wetland resource areas, specifically Bordering Land Subject to Flooding (the 100-year floodplain) and Riverfront Area (the area within 200 feet of a perennial stream). It is anticipated that the proposed Project would require the filing of a Notice of Intent with the Quincy Conservation Commission.

The Project would not result in direct dredge or fill activities in Waters of the United States. Therefore, a Section 404 permit is not expected to be required, nor would a Section 401 Water Quality Certification be required.

Vegetated wetlands (identified as Bordering Vegetated Wetlands under the MA Wetlands Protection Act) are located on the southern portion of the proposed Project site, associated with Town Brook (Figure 3). Town Brook is identified as an impaired waterway (MA-74-09) and is impaired for aquatic invertebrates and fecal coliform. The bordering vegetated wetlands are not proposed to be impacted by the proposed Project. The brook enters a culvert at approximately the south-central portion of the parcel and flows northerly within the culvert to a point where it discharges at and flows into the Town River, an estuarine river flowing toward the Weymouth Fore River. Table 2 summarizes resource impacts.

Table 2. Summary of Massachusetts Resource Area Impacts

Resource Area	Project location	Impact
Bordering Vegetated Wetlands	South Central along Town Brook	No impact proposed
Land Under Water/Waterways	South Central, associated with Town Brook	No impact proposed
Bank	South Central, associated with Town Brook	No impact proposed
Bordering Land Subject to Flooding	Southern portion of site	410 ft^2 and 197,525 cubic feet
Riverfront Area	South Central	787 ft^2 undeveloped area 25,851 ft^2developed area

4.2 Waterways

There would be no direct impacts to wetlands or waterbodies. Town Brook is not subject to Chapter 91 jurisdiction at this location. Town Brook is not classified as a navigable waterway and is not within the Massachusetts Coastal Zone Management jurisdictional boundary. There are no Outstanding Resource Waters in the vicinity of the site, and Town Brook is not a Wild and Scenic River or a cold-water fishery.

Town Brook does support a migratory run of smelt with adults swimming upstream to spawn and juveniles passing downstream to reach the ocean. This section of Town Brook is freshwater and is not influenced by tides. In the developed portion of the site, Town Brook flows within a 72-inch-diameter culvert and does not represent spawning habitat for smelt.

4.3 Floodplains

The proposed Project site is located within a Zone AE, as shown on the Federal Emergency Management Agency (FEMA) Flood Hazard Map, number 25021C0207E, effective on July 17, 2012. The FEMA map also shows a floodway associated with the open channel portion of Town Brook, which extends northerly onto the developed portion of the site (Figure 3). The City of Quincy also shows the same floodplain and floodway layout on its website.[8]

However, when the site was redeveloped in 2008-2009 by Lowe's, Lowe's conducted calculations to take into account flood-control improvements that had been implemented, including, as represented in the Lowe's 2008 Massachusetts Environmental Protection Act (MEPA) documents,[9] improvements at the Braintree Dam, culvert and channel improvements in Braintree and Quincy, the Town Brook Relief Tunnel, and the Burgin Parkway Diversion Culvert. The improvements, as described in the MEPA documents and as presented in the Notice of Intent filed with the Quincy Conservation Commission, resulted in a reduction in the incidence of flooding on the site and a lowering of the floodplain elevation by approximately 4.2 feet, as compared to the FEMA mapping. The Single Environmental Impact Report states, "It is conservatively estimated that the operative 100-year flood elevation on the site (at the 72-inch culvert entrance and approximate center of the site) is 35.4 feet (City Datum). The *Proposed Lowe's of Quincy, Flood Plain Assessment, Quincy, Massachusetts*[10] is based on the Army Corp of Engineers extensive drainage and flood study (July 1985), which we believe constitutes

[8] https://www.quincyma.gov/govt/depts/pwd/drain/floodplainm/flood_hazard.htm

[9] Tetra Tech Rizzo. 2008. *Single Environmental Impact Report Lowe's of Quincy, Massachusetts EOEEA # 14222 Thomas Burgin Parkway Quincy, Massachusetts*. Submitted to: Executive Office of Energy and Environmental Affairs Massachusetts Environmental Policy Act Office, September 15.

[10] Tetra Tech Rizzo. 2007. *Proposed Lowe's of Quincy, Flood Plain Assessment, Quincy, Massachusetts*. September 25.

the 'credible evidence' required by the MassDEP regulations to demonstrate that the floodplain elevation differs from that published by FEMA."

Tetra Tech Rizzo conducted an assessment of the floodplain associated with Town Brook in the vicinity of the Lowe's site to determine the influence of flood control improvements that have been implemented since 1980, when the U.S. Army Corps of engineers conducted a study of Town Brook. The assessment at that time noted that the FEMA floodplain mapping for the site did not reflect the results of measures implemented as part of the Town Brook Flood Control Project. These measures included: improvements at the Braintree Dam, culvert and channel improvements in Braintree and Quincy, the Town Brook Relief Tunnel, and the Burgin Parkway Diversion Culvert. The latter diverts approximately 80% of peak flood flows in Town Brook around the Lowe's site downstream to the Relief Tunnel.

The Tetra Tech Rizzo assessment identified that the flood improvement measures resulted in a reduction in the incidence of flooding in the site area and a substantial lowering of the floodplain elevation of approximately 4.2 feet as compared to then-current FEMA mapping on the site. The Tetra Tech Rizzo assessment conservatively estimated that the operative 100-year flood elevation on the site (at the 72-inch culvert entrance and approximate center of the Site) is 35.4 feet (City Datum) instead of the FEMA elevation of 33 feet NAVD88 (42 feet City Datum).

A review of the Town's Hazard Mitigation Plan (Mitigation Plan)[11] discusses Town Brook. The original brook system has been altered (channeled, moved, and culverted) over time, commencing in the late 1800s and continuing to the present day. To date, the majority of Town Brook in Quincy is underground and mostly culverted. According to the Mitigation Plan, culverted sections of the brook have been designed to convey the 100-year flood and 500-year flood by the U.S. Army Corps of Engineers. Currently, stormflow is regulated via weirs at the Centre Street junction box and the Town Brook Relief Tunnel inlet constructed by the U.S. Army Corps of Engineers off of Burgin Parkway.

The Mitigation Plan conducted an analysis for current conditions based on Quincy 2017 Assessor's data and the FEMA approved flood insurance rate maps (FIRMs) with 2017 and 2018 map revisions. Future flooding with climate change was evaluated using National Oceanic and Atmospheric Administration sea level rise data for 1, 2 and 4 feet of sea level rise (relative to sea level in 2000), as an approximation of near-, mid -and long-term vulnerability likely to occur based on sea level rise alone and not considering any other storm surge impacts. This flooding scenario would be likely to occur daily at high tide. To compare the results of the exposure assessment for different areas of the city, Quincy was split up into seven different geographic planning areas. The planning areas were determined by evaluating subwatershed areas, the FEMA 100-year flood zone, additional areas of local flooding identified by the City, and locations of FEMA repetitive loss claims. The seven planning area boundaries were then defined using roadways or parcel lines to capture flood sources. The FEMA 100-year flood zone was split into coastal and inland flood areas. The demarcation between the inland and the coastal zone was determined by utilizing the area of coastal inundation from the Quincy Coastal Climate Change Model (Boston Harbor Flood Model). The most landward extent of the model was used as the boundary between coastal and inland flood areas for the purpose of this assessment.

The Proposed Project falls within the inland flood zone area and the 2030 project flooding map does not show changes to Town Brook in the Project location.

The influence of the many tide gates, sea walls, seawall drain check valves, and other flood-control structures such as the Blacks Creek tide gate and Town Brook deep rock tunnel currently in place were

[11] City of Quincy Multi-Hazard Mitigation Plan, 5-Year Update, Adopted April 2019.

not evaluated in this planning-level vulnerability assessment. If these structures were to fail, significant portions of the City would be impacted by flooding.

Based on the Mitigation Plan, the MBTA is aware that some inadequacies in the tunnel were discovered during a 2017 U.S. Army Corps of Engineers inspection and that ongoing drainage improvements are identified as a high priority for Upper Town Brook. The MBTA will work with the City regarding potential flooding concerns as part of the project design and development efforts, to ensure the project does not exacerbate flooding in the community.

An Order of Conditions was issued by MassDEP for the Lowe's home improvement store using the data it collected. The MBTA is using this same information in calculating floodplain elevations on the proposed Project site.

A small portion of the proposed Project site improvements would result in approximately 410 ft^2 of fill below the estimated 100-year floodplain elevation and approximately 197,525 cubic feet of flood storage displacement. This impact is associated with the need to provide safe internal site vehicular circulation. In order to accommodate the turn on Penn Street, coming in from Burgin Parkway, Penn Street would bow out into the floodplain, and a retaining wall would be constructed to minimize grading and impact. The loss of flood storage would be fully mitigated by the creation of an equal amount of compensatory flood storage in compliance with the Massachusetts Wetlands Protection Act.

The MBTA intends to prepare a request for a Letter of Map Revision and to submit data to support a No-Rise Certification for the floodway.

5 WASTEWATER SECTION

The proposed BMF will generate wastewater from a number of sources within the building, such as sanitary wastewater from bathrooms, bus wash water, and water from sinks such as in the lunch/break room or in the maintenance area. The previous Lowe's store had a wastewater interconnection with the Massachusetts Water Resources Authority (MWRA) sewer system. As part of the MBTA's commitment to sustainability and reducing environmental impacts from its operations, the design of the new BMF is incorporating water reuse, to the extent feasible, to minimize the generation of wastewater. Current estimates of the volume of wastewater to be generated are 6,800 gallons per day. It is anticipated that the MBTA will incorporate the Lowe's sewer interconnection into the design for the new BMF and will work with the MWRA regarding a Direct Master Permit.

6 TRANSPORTATION SECTIONS

The proposed BMF is a replacement facility for the existing BMF located at 954 Hancock Street in Quincy. The size of the existing bus fleet operating from this facility is 86 buses. The proposed facility on Burgin Parkway would house up to 135 buses. The new facility would also include warehousing and office space. The surface parking lot would have approximately 235 parking spaces. Based on a Traffic Analysis conducted for this Project (Attachment D of the ENF), traffic impacts are generally expected to be less than those of the former Lowe's store in part because retail trip generation is higher than this proposed bus facility. Table 3 presents a comparison of the vehicle trip generation between the proposed BMF and the former Lowe's home improvement store site.

Table 3. Comparison of Vehicle Trip Generation

Time Period	Direction	Bus Maintenance Facility w/Warehouse & Office (351,000 ft²)[a]	Lowe's Home Improvement Store (120,000 ft²)[b]
Weekday AM	Enter	161	75
	Exit	53	34
	Total	**214**	**109**
Weekday PM	Enter	62	135
	Exit	153	150
	Total	**215**	**285**
Daily	Enter	1,178	1,725
	Exit	1,178	1,725
	Total	**2,356**	**3,450**

[a] MBTA bus trips estimated; ITE Trip Generation Manual for warehouse use (150) and office use (710)
[b] Lowe's 2008, Tetra Tech Rizzo, Table 7.

Additionally, impacts from site-generated vehicular trips would be minimal because the majority of trips (employee and bus pull-out and bus pull-ins) would occur in periods that do not coincide with the peak hours of adjacent traffic. The only change in traffic operations between the 2027 No Build Condition and the 2027 Build Condition occurs at Burgin Parkway-Penn Street/MBTA driveway, and is the result of changes to improve pedestrian safety at the intersection. One of the two northbound left-turn lanes on Burgin Parkway at Penn Street/MBTA driveway is to be eliminated to increase the width of the median to make more room for pedestrians who may be stopped mid-crossing. This change also reduces the crossing distance for people walking. While this change increases intersection delay slightly (overall intersection LOS goes from A to B in both AM and PM peak hours), it improves overall safety. All other intersections are expected to experience no change in Level of Service due to traffic at BMF. This information is presented in Attachment D of the ENF ("Traffic and Transportation Study").

A new access point at the north end of the site for buses and other vehicles would be created by extending Columbia Street to Burgin Parkway. This new intersection of Columbia Street and Burgin Parkway would be signalized with a left-turn pocket to allow northbound traffic to turn safely. It is estimated that 40% of the employee vehicles accessing the site would use this entrance, and 60% will use the Penn Street access. (Buses will primarily use the Burgin Parkway-Penn Street intersection to access the BMF.) This new access point is intended to be restricted to MBTA and adjacent businesses only while aiding with the circulation of vehicles into and out of the new BMF. The pedestrian crossing would include crosswalks and a concurrent pedestrian phase.

Traffic counts were collected for 10 intersections in the Study Area surrounding the proposed site of the proposed BMF for the analysis. To provide a more accurate estimate of the vehicle trips the proposed BMF would generate, data from the existing BMF were factored up to the projected bus and employee trips at the proposed BMF (calculations and assumptions are provided in Attachment D of the ENF). Because most bus operations staff and bus schedules begin before the AM peak-hour and end after the PM peak-hour periods, most vehicle trips related to the BMF would not coincide with peak hours of background traffic, when roadway congestion is highest.

Trips generated by the proposed 30,000 ft² of office and 45,000 ft² of warehousing space separate from bus maintenance and operations for this facility were analyzed using trip-generation rates from the Institute of Transportation Engineers. Traffic generated from the proposed BMF would account for under 200 trips and less than 10% of traffic impacting most intersections. In summary, the Quincy BMF would generate less traffic than the Lowe's that previously occupied the Project site, and therefore would have fewer impacts on traffic operations.

The MBTA would build sidewalks and crossings through and adjacent to the Project site to maintain the connectivity that currently exists between the surrounding neighborhoods and the Quincy Adams Station. A separate shared use path is proposed to be built along the southern perimeter of the BMF parcel, connecting Columbia Street with the existing sidewalk at the Deco Apartments. The proposed Project includes crossing improvements to the Burgin Parkway-Penn Street/MBTA Quincy Adams Station intersection to promote safety for pedestrians.

To meet the Project's sustainability and resiliency goals, the MBTA will seek to incorporate multi-modal elements within the design and construction at the site. The Quincy Adams Station is less than 0.25 mile from the proposed BMF. MBTA will encourage its employees and visitors to walk, cycle, and use public transit to the new BMF through construction of Americans with Disabilities Act-compliant sidewalks connecting the site to the existing sidewalk network on Burgin Parkway, as well as making a connection to the Deco Apartment complex. Additionally, a sidewalk is proposed to be constructed along the existing retaining wall located on the southernmost section of the parking lot, which would make a connection from the western and northern neighborhood including Plain, Taber, and Penn streets. Bike racks are proposed to be located near building entrances. Bicycle infrastructure such as bike storage facilities, bike lanes, or paths connecting the facility to adjacent streets and other bicycle networks would be considered, to the extent practicable. Sidewalks are proposed to be provided from the building entrance to the signalized intersection of Burgin Parkway and Penn Street to provide a link to bus and Red Line services at Quincy Adams Station.

7 AIR QUALITY AND NOISE SECTION

7.1 Air Quality Analysis

In January 1996, the EPA approved redesignation of the Boston Region (including Suffolk County) as attainment for the carbon monoxide National Ambient Air Quality Standards (NAAQS). Section 175A of the Clean Air Act (CAA) requires redesignated areas to prepare 10-year maintenance plans for demonstrating compliance with the NAAQS. The date of the second-year maintenance plan was through 2016. Therefore, since the maintenance period has ended, transportation conformity is no longer required. According to the air quality conformity determination conducted for the 2019–2023 State Transportation Improvement Plan, this ruling is documented in a letter from EPA dated May 12, 2016.

The Quincy BMF is not included in the current Boston Metropolitan Planning Organization Transportation Improvement Plan. The MBTA has not yet determined what the source of funding for the proposed Project could be. Currently, the MBTA is exploring the possibility of using either Federal Transit Administration (FTA) formula funding or FTA discretionary funding. The MBTA may also fund this Project in whole or in part by MBTA revenue bonds or Commonwealth of Massachusetts transportation funding. The MBTA is advancing the design and environmental review of the proposed Project in anticipation of potentially using federal funding. If it is determined that any type of federal funding will be used, the MBTA will work with the Boston Metropolitan Planning Organization to have the proposed Project appropriately included in the Transportation Improvement Plan.

The purpose of this Project is to address aging and obsolete conditions at the existing Quincy BMF on Hancock Street in Quincy by constructing a new BMF that would replace the current facility. This Project, as discussed in the Air Quality Assessment Technical Memorandum in Attachment E of the ENF, has been determined to generate minimal air quality impacts for the 1970 CAA criteria pollutants and has not been linked with any special Mobile Source Air Toxics concerns. As such, the proposed Project would not result in changes in traffic volumes, vehicle mix, basic project location, or any other

factor that would cause a meaningful increase in Mobile Source Air Toxics impacts compared to the No-Build Alternative. See Attachment E for more details.

7.2 Noise

The relocation of a BMF to 599 Burgin Parkway would result in a corresponding noise increase in the community near the proposed Project site. This includes mobile noise sources from bus and employee vehicle trips to and from the proposed facility. The activity at the site would increase ambient noise levels at noise-sensitive locations and result in moderate noise impacts at 17 residences along Burgin Parkway. Noise impacts are discussed further in Attachment G of the ENF.

Noise Impact Assessment, Mobile Sources: Buses accessing the proposed BMF are the dominant mobile noise source associated with the proposed Project. Most buses would travel north on Burgin Parkway toward Quincy Center as 90% of the fleet based in the proposed facility would serve routes north of the Project Area. The increased bus noise exposure north of the proposed Project site from Burgin Parkway, specifically within 91 feet on Marsh Street, within 48 feet near Granite Street, and within 66 feet near Dimmock Street, would result in moderate noise impacts at 17 residential properties (FTA category 2). Noise from employee vehicle trips, 65% of which are predicted to travel from north of the proposed Project site, also contributes to these moderate noise impacts. As described in the Noise Analysis, the total day-night noise exposure at these locations would increase by a maximum of 2 A-weighted decibels (dBA).

Mitigation for mobile-source noise is not recommended for the moderate noise impacts at 17 residences adjacent to Burgin Parkway, most of which are front-door residential access locations. Per FTA noise impact criteria, a 2-dBA day-night noise increase is on the low end of the moderate noise impact range and would be nearly imperceptible at these locations. Since the existing ambient noise environment along Burgin Parkway is dominated by transit and roadway noise, it is anticipated that additional Project-related bus and employee vehicle trips would result in a future cumulative day-night noise environment that is similar to what the community currently experiences. Attachment G of the ENF provides more information and includes maps.

Noise Impact Assessment, Stationary Sources: The proposed maintenance facility is not expected to be a significant noise source as noise generating activities (e.g., bus wash) would be enclosed and sufficiently setback from noise-sensitive areas. Similarly, noise from the proposed parking lot would be imperceptible beyond the proposed Project site. Strict enforcement of the Massachusetts Anti-Idling Law (310 *Code of Massachusetts Regulations* 7.11) would prevent bus queuing noise from impacting the community. The MBTA would include signage reminding bus operators, all of whom have been trained on this issue, of the need to strictly comply with this requirement.

The electrical equipment proposed is typical for most commercial buildings. Previous designs presented to the community included transformers and other equipment on a pad. Upon further review and assessment, the MBTA determined that the preferred approach for electrical equipment is to install an enclosed switching station. The electrical distribution from the switching station will feed step-down transformers within the main building, which will supply the offices, machinery, etc. These transformers will be located within fire-rated electrical rooms and will be dry-type (i.e., containing no oil or other contaminants in the electrical substation). The electric utility interface at the outdoor switching station enclosure will only contain overcurrent protection, likely fuses. All equipment will meet the normal industry standards.

8 HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

According to a 2020 analysis[12] by the Public Archaeology Laboratory (PAL), there are no historic resources within the Project Area that are in the Massachusetts Historical Commission inventory, Massachusetts Cultural Resource Information System, or State and National Register files. The one building in the Project Area—the former Lowe's building and parking lot—was built in 2010 and is therefore less than 50 years old. Attachment F of the ENF is the PAL Report.

Based on the cultural resource desktop study results, the following Project Area of Potential Effects (APE) is recommended in order to assess potential Project impacts to historic aboveground and archaeological properties. The APE for historic aboveground resources at the Project Area is recommended to be a 200-foot radius around the Project Area perimeter, based on similar past MBTA facility ground-level projects and the urban characteristics and level topography of the surrounding area. There are no extant historic resources in the APE boundary.

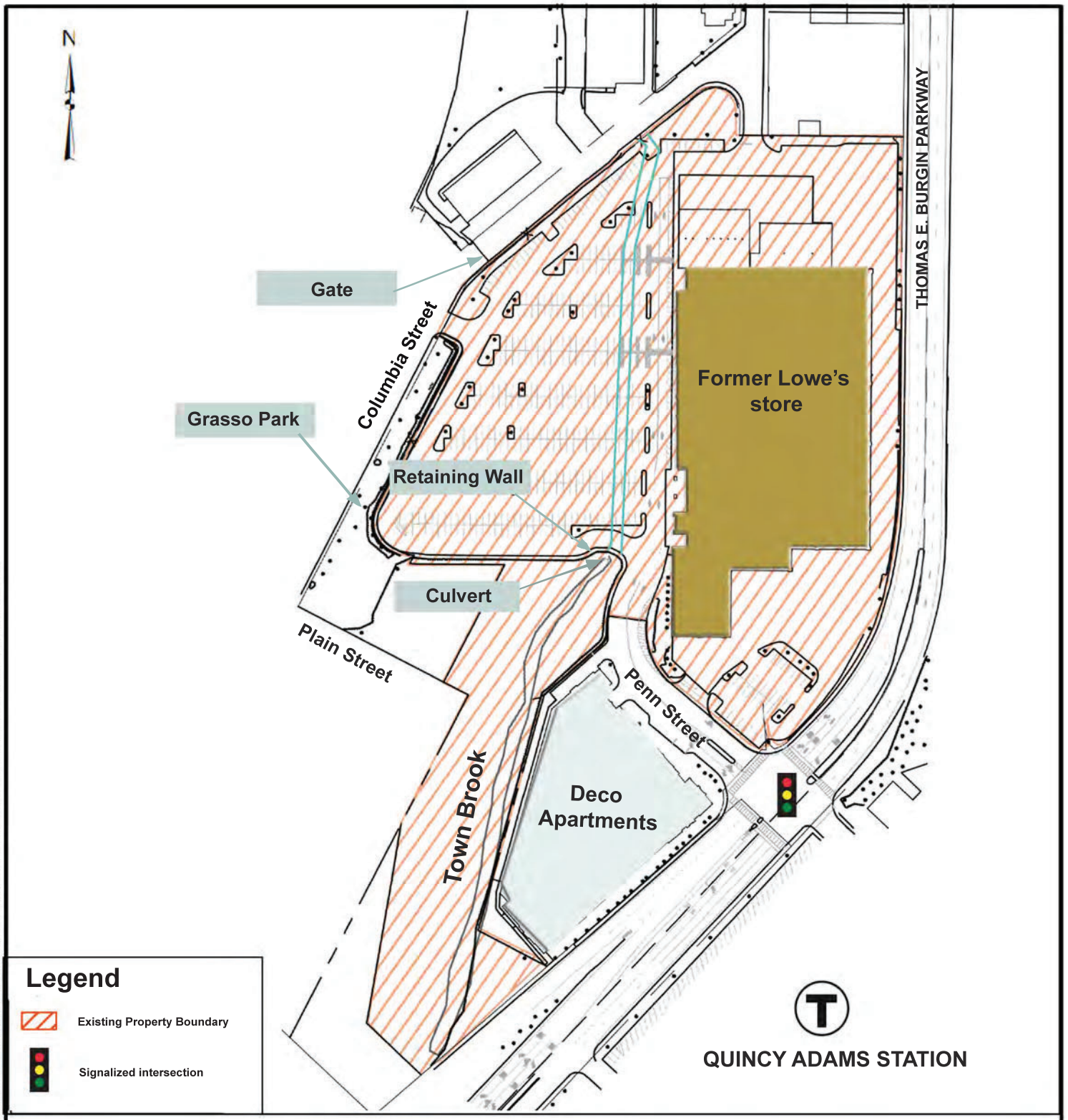
The APE for archaeological resources in the Project Area is recommended to correspond to the direct Project impact area where belowground impacts are planned.

PAL wrote:[12]

> *The Project's "resource area," consisting of the wooded Town Brook channel, wetlands, and adjacent grassy area, in the southwest part of the project area is assigned low archaeological sensitivity. This area contains mapped wetlands along the brook channel and extensive re-contouring associated with the removal of former paved parking lots and riverbank restoration work conducted as part of the 2010 Lowe's redevelopment. The proposed Project work area for the relocation of the northeast corner of the existing concrete retaining wall and fence overlaps both the no and low sensitivity areas. This area contains wetlands associated with Town Brook and previously disturbed areas during the 2010 Lowe's redevelopment project. The proposed Project work area is near the remnant masonry headwall for the Town Brook culvert that extends north under the paved parking lot. The remnant masonry headwall was left unaltered as part of the 2010 Lowe's redevelopment and will not be impacted by the proposed retaining wall relocation work.*
>
> *No further archaeological investigations are recommended for the entire Project Area including the "buildable area" in the northern two-thirds and the "resource area" wooded wetlands and adjacent land areas in the southern portion because of previous construction, demolition, and restoration projects that have occurred from the nineteenth through early twenty-first centuries.*

[12] Public Archeology Laboratory (PAL). 2020. *599 Burgin Parkway Bus Facility, Quincy, Massachusetts. Historic and Archeological Resources Desktop Study*. PAL Report No. 3821. Submitted to Jacobs Engineering Group Inc. 120 St. James Avenue, Suite 500, Boston, Massachusetts 02116. October 25, 2019; updated May 26, 2020.

Attachment B
Existing Conditions Plan



Location: P:\MBTA\2019\E2X84702\600 Discipline Files\670 Environmental\GIS\MXD\AttachmentAENF.mxd

Prepared for:

Existing Conditions Map

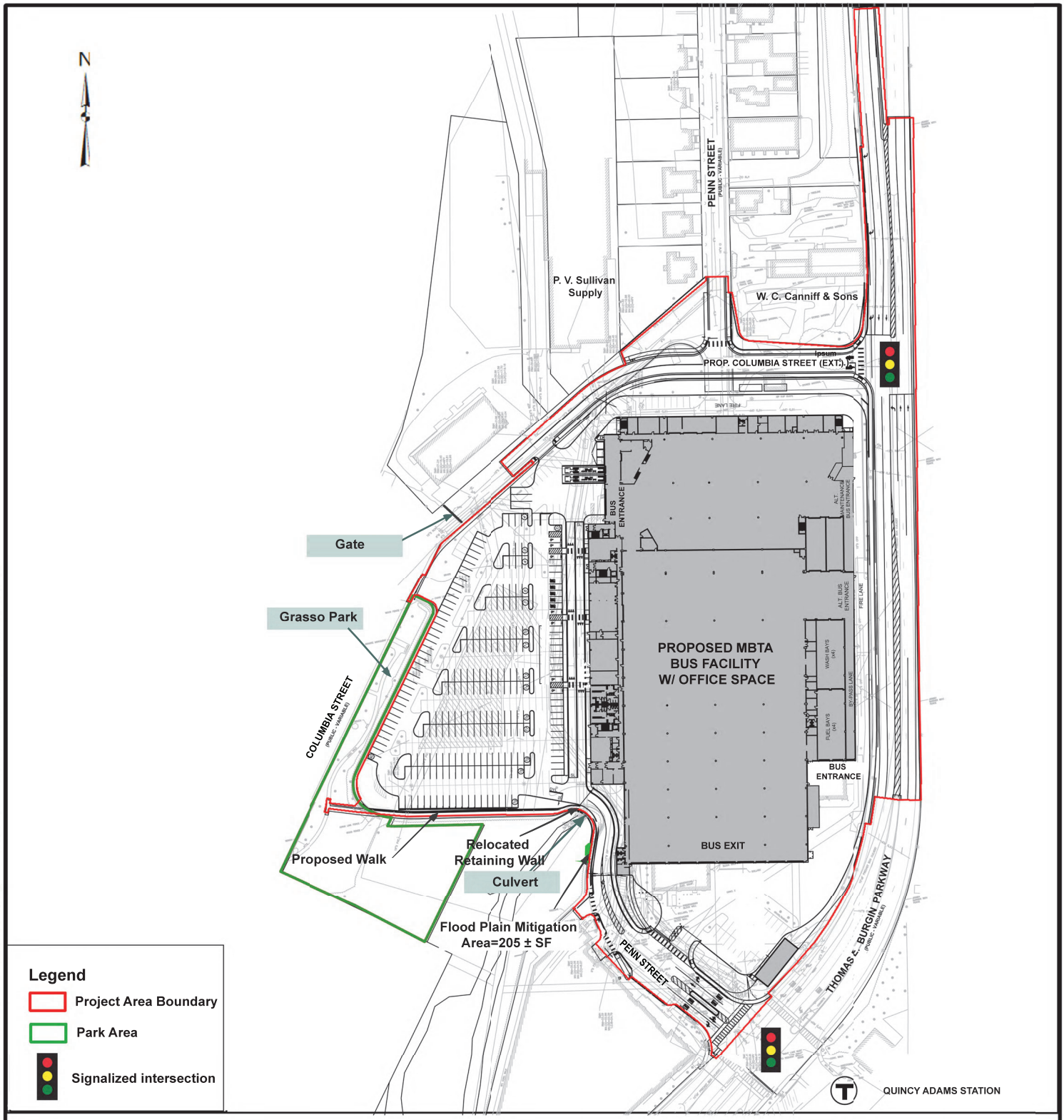
Massachusetts Bay Transportation Authority
Quincy Bus Maintenance Facility
QUINCY, NORFOLK COUNTY, MASSACHUSETTS

Prepared by: Jacobs

SEP 2020

ATTACHMENT B

Attachment C
Proposed Conditions



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Prepared for:

Proposed Conditions Map

Massachusetts Bay Transportation Authority
Quincy Bus Maintenance Facility
QUINCY, NORFOLK COUNTY, MASSACHUSETTS

Prepared by: Jacobs

SEP 2020

ATTACHMENT C

Attachment D
Traffic and Transportation Study

MEMORANDUM

Subject	Quincy Bus Maintenance Facility Relocation and Expansion: Transportation Impacts
MBTA Contract No.	Z94PS09
Attention	Scott Hamwey, and Andrew Brennan/Massachusetts Bay Transportation Authority (MBTA)
From	Jacobs Engineering Group Inc. (Jacobs)
Date	August 14, 2020
Copies to	Marc DeSchamp/Jacobs; Dieckmann Cogill/Jacobs; Scott Aquilina/Jacobs

This technical memorandum describes transportation impacts of the Quincy Bus Maintenance Facility (BMF) relocation and expansion. This includes analysis of vehicular traffic, transit service, walking, bicycling, parking, and freight under the following three alternative scenarios:

- 2020 Existing: current conditions at the site
- 2027 No-Build: future conditions (including background traffic growth and planned development and infrastructure projects) if the Massachusetts Bay Transportation Authority (MBTA) Project is not built
- 2027 Build: future conditions (including background traffic growth and planned development and infrastructure projects) if the MBTA Project is built

Traffic operations (existing and forecasted) were analyzed in accordance with Massachusetts Department of Transportation (MassDOT) *Transportation Impact Assessment Guidelines* (2014).

This memorandum is organized as follows:

1. Project Description
2. Existing Conditions (2020)
3. Future Conditions (2027)
4. Access Management and Circulation
5. Parking
6. Transportation Options
7. Conclusion

1. Project Description

The project proposes to relocate the existing MBTA BMF at 954 Hancock Street (which services a bus fleet of 86 vehicles) to the former Lowe's site at 599 Burgin Parkway in Quincy, across from the MBTA Quincy Adams Station. The relocated facility will be designed to accommodate a maximum of 135 buses. There are 156 people employed at the existing garage; the new garage is expected to employ a total of 450 people; 250 employees for the maintenance and transportation functions and 200 employees in additional office space.

Relevant to transportation, the project will:

- Provide approximately 236 parking spaces, including accessible parking and electric vehicle charging stations.
- Provide a secondary access point to the facility by extending Columbia Street to Burgin Parkway.
- Reconstruct the sidewalk from the new Burgin Parkway-Columbia Street Extension intersection to the Burgin Parkway-Penn Street/Quincy Adams Station intersection.
- Provide Americans with Disabilities Act (ADA)-compliant walkways that will serve employees, including access to Burgin Parkway for those who use transit and the Quincy Adams Station to get to the site.
- Provide a separate ADA-compliant sidewalk or shared use path for residents from the Columbia, Liberty, Plain, Taber, and Penn Streets neighborhoods that presently cut through the site to access Quincy Adams Station.
- Provide adequately designed drive aisles, turn bays, and access for buses, employee vehicles, and delivery vehicles to safely maneuver within the facility.
- Provide adequate lighting for the facility, as well as the walkways and the parking area.
- Provide adequate pavement markings to direct traffic, indicate parking, and control pedestrian crossings.
- Trim any vegetation that obstructs the pedestrian signals.
- At the Burgin Parkway at Penn Street/Quincy Adams Station intersection
  - Eliminate one of the two northbound left-turn lanes on Burgin Parkway to increase the width of the median and make more room for pedestrians stopped mid-crossing.
  - Add a lead pedestrian interval (LPI). This will give pedestrians a head start crossing the intersection
  - Install two Accessible Pedestrian Signal (APS) Push-Buttons on the median on Burgin Parkway
  - Install LED countdown pedestrian signal heads on either side of the MBTA driveway with APS
  - Replace the LED blank-out signs (Yield to Peds on X-Walk) with new LED blank-out signs at the Burgin Parkway at Penn Street/Quincy Adams Station intersection

- Replace the traffic signal controller with a TS2-Type 1 Siemens M60 with a 16-position back panel to accommodate the LPI at the Burgin Parkway at Penn Street/Quincy Adams Station intersection
- Test and replace loop detectors and/or loop detector lead-in cables that do not function at the Burgin Parkway at Penn Street/Quincy Adams Station intersection

The traffic signal improvements at the Burgin Parkway at Penn Street/Quincy Adams Station intersection are not intended to be a complete reconstruction of the intersection but rather a smaller improvement and maintenance investment to increase pedestrian safety and efficiency. The intersection was reconstructed approximately 10 years ago with the construction of the former Lowe's home improvement store. The existing traffic signal controller is not capable of implementing an LPI and the addition of the signalized crossing at the MBTA driveway. Therefore, a 16-position traffic cabinet is required to accommodate the signal phases required. The LPI will give pedestrians a head start crossing Burgin Parkway before the Quincy Adams Station driveway and Penn Street approaches turn green. The proposed traffic signal controller would be a larger "P" size cabinet and would be installed in the same location as the existing traffic signal controller so that all wiring would enter the new controller. The loop detector amplifiers and the emergency pre-emption system would be removed from the existing controller cabinet and installed in the new controller cabinet. The existing LED blank-out signs have several lamps that are burned out, which will be replaced with new LED blank-out signs. The existing traffic signal controller will be turned over to the City of Quincy.

The updates to the traffic signals at the intersection will improve safety for pedestrians. The LPI will provide the pedestrians a head start and make them more visible in the intersection before turning vehicles are given the green light. Additionally, pedestrian push-buttons located in the medians will allow pedestrians who do not make it across to call for the pedestrian phase. Missing pedestrian signals will be added across the Quincy Adams Station driveway. The wider median (made possible by eliminating one of the two northbound left-turn lanes on Burgin Parkway) will provide a refuge for people crossing Burgin Parkway. Lastly, refreshing the crosswalk lines and stop lines will make them more visible to vehicular traffic as it approaches the intersection.

The new facility will have two access points: the existing one at Burgin Parkway-Penn Street/Quincy Adams Station, and a new access from Columbia Street. Columbia Street will be extended through a portion of the existing W. C. Canniff property to create a new signalized intersection with Burgin Parkway. The new intersection will be constructed to accommodate MBTA's need for operational flexibility. Several alternatives were considered for the location of the Columbia Street Extension. The selected option minimizes right-of-way impacts to the W. C. Canniff site.

Initially, safety improvements will be made at the intersection of Burgin Parkway and Penn Street. These improvements will provide benefits to employees and residents who use transit and the Quincy Adams Station to get to the site. Additionally, these improvements will allow for the use of the existing Lowe's parking as overflow parking to help accelerate the reconstruction of the Quincy Adams Station parking garage. Reconstruction of the parking garage is underway, and under the accelerated schedule it is expected to be complete in December 2021. Parking spaces at the former Lowe's site may be used temporarily for MBTA parking. This will require people using the temporary overflow parking to cross Burgin Parkway on foot to get to the Quincy Adams Station. Therefore, the Burgin Parkway/Penn Street-MBTA driveway intersection is to be updated as described in Section 4.1.

1.1 Study Area

The project is located on the west side of Burgin Parkway, bounded by Penn Street to the south and Columbia Street to the west and north, as shown in Figure 1. The Project site is located across the street from the Quincy Adams Station. Properties to the north and east include single/multiple-family residences, and to the west on Penn Street is the 180-unit Deco Apartment complex.

As per the 2014 MassDOT *Transportation Impact Assessment Guidelines*, the Project Study Area was determined by estimating the number of trips to be generated by the Project and distributing them on to the adjacent roadway network. Included in the Project Study Area are intersections where site-generated trips increase the peak-hour traffic volume by (a) 5 percent or more or (b) by more than 100 vehicles per hour. (Trip generation is described in detail in Section 3.5.2.) This includes Burgin Parkway at Quincy Street, and the proposed intersection of Burgin Parkway at the Columbia Street Extension. In addition to these intersections, the Project driveway at Burgin Parkway at Penn Street/Quincy Adams Station and Centre Street at Burgin Parkway are included. (See Figure 1 for location of study intersections.)

Figure 1. Transportation Study Area

1.2 Project Size

This Project consists of approximately 351,000 square feet (ft^2) of building space. Table 1 summarizes the facility areas and provides a brief description of each.

Table 1. Proposed Quincy Bus Maintenance Facility Areas

#	Building Location	Area (square feet)	Description
1	Transportation – Bus Storage	120,622	Bus Barn
2	Transportation – Bus Support	17,010	Office area support – 2 floors
3	Maintenance – Repair	80,430	Work row, repair bays, and support
4	Maintenance – Service	14,432	Bus fueling and wash bays, and support
5	Maintenance – Support	17,400	Office area support - 2 floors
6	Building Infrastructure	26,066	Mechanical, Engineering, and Plumbing at Office and mezzanine areas
7	Facility Storage	45,000	Storage above Bus Maintenance
8	Additional Office Space	30,000	Additional office area above Bus Maintenance
	TOTAL FACILITY AREA	**350,960**	

1.3 Proposed Use

This site had been used as a Lowe's home improvement store until its closure in 2019. The existing Lowe's facility will be razed to make way for the new BMF, which will provide additional capacity to support future service growth, and potential changes related to a transition to battery electric buses. The project will be constructed to store and maintain 135 buses (maximum). The project will contain fueling, washing, maintenance, support, administrative, and management capabilities required to support a fleet of this size. All transit vehicle maintenance and storage functions will be performed indoors.

The project will include an outside bus queuing area off Penn Street for approximately 25 buses, gated access from the Quincy Adams Station for employees using public transit, and approximately 236 onsite parking spaces for employees.

The project architectural work includes the following items:

- Meets all Massachusetts State Building Code requirements and MBTA Standards.
- The project that will eventually accommodate a maximum of 135 buses.
- The bus fueling and bus washing bays of the project, inclusive of fluids distribution, compressor room, fuelers office, and vault room to support the fueling bays; the electrical washroom; fire riser room (a dedicated space for fire protection equipment situated on an outside wall at grade with direct exterior access); water recycling; equipment room; oil/water separator room; and frac/settling room (a room with space for a tank that collects wastewater and allows materials to settle out and be removed) to support the bus wash bays.
- Inspection bay and undercarriage cleaning bay inclusive of equipment, storage room, and interior materials.
- Bus maintenance area including bus work row, repair bays, and adjacent support spaces that will contain a mezzanine component for additional storage and mechanical spaces.

- The loading dock with dock levelers and parts storage with storage racks and a service elevator for supplying and retrieving parts from the second-floor mezzanine storage area.
- A mezzanine area above the bus work rows and Interior cleaning section will contain mechanical equipment.
- A two-story administrative office component on the west side of the project that will house administrative support spaces for bus operations and bus maintenance.
- A ±45,000-ft^2 third-level storage space above the project for storing MBTA parts and equipment.
- A ±30,000-ft^2 third-level office space above the project and adjacent to the storage area.

1.4 Construction Sequence

As previously stated, the MBTA will improve the crossing at the Burgin Parkway at Penn Street/Quincy Adams Station intersection so that the former Lowe's parking lot can be used to offset the parking impacts associated with the reconstruction of the Quincy Adams and Braintree stations' garages (as described above). These improvements will also address some concerns raised by Quincy residents regarding pedestrian safety across Burgin Parkway.

Construction of the BMF project will include:

- Demolition of the existing Lowe's building.
- Reconstruction of the parking lot including islands and lighting.
- Construction of a new stormwater management system for the parking lot and drive aisle.
- Relocation of existing utilities.
- Relocation of the existing retaining wall on the southern edge of the parking lot close to the culvert's headwall to facilitate vehicular turns out of the parking lot. Additionally, portions of the retaining wall will be removed and/or reconstructed to maintain adequate width for a fire lane around the back of the project.
- Extending Columbia Street to Burgin Parkway through the W. C. Canniff site and realigning/reconstructing a portion of Columbia Street at Penn Street.
- Installing a new traffic signal at the new Burgin Parkway at Columbia Street Extension intersection to facilitate turns onto Columbia Street from Burgin Parkway.
- Constructing a new sidewalk along Burgin Parkway to connect the Columbia Street Extension to Penn Street.
- Landscaping unused open space to provide both vegetated cover and screening.

1.5 Site Plan

As noted above, the project will:

- Provide parking, including accessible parking and electric vehicle charging stations.
- Provide a secondary access point for operational flexibility by extending Columbia Street to Burgin Parkway.
- Reconstruct the sidewalk from the Burgin Parkway at Columbia Street Extension intersection to the Burgin Parkway-Penn Street/Quincy Adams Station intersection.

- Provide ADA-compliant walkways that will serve employees, including access to Burgin Parkway for those who use transit and the Quincy Adams Station to get to the site.
- Provide a separate shared use path for residents from the Columbia, Liberty, Plain, Taber, and Penn Streets neighborhood that presently cut through the site to access the Quincy Adams Station.
- Provide adequately designed drive aisles, turn bays, and access for buses, employee vehicles, and delivery vehicles to safely maneuver within the project.
- Provide adequate lighting for the project, as well as the walkways and the parking area.
- Provide adequate pavement markings to direct traffic, indicate parking, and control pedestrian crossings.

Figure 2 indicates the location of the two access points, the new Columbia Street Extension and its intersection with Burgin Parkway, the employee parking area, and walkways and crossing improvements.

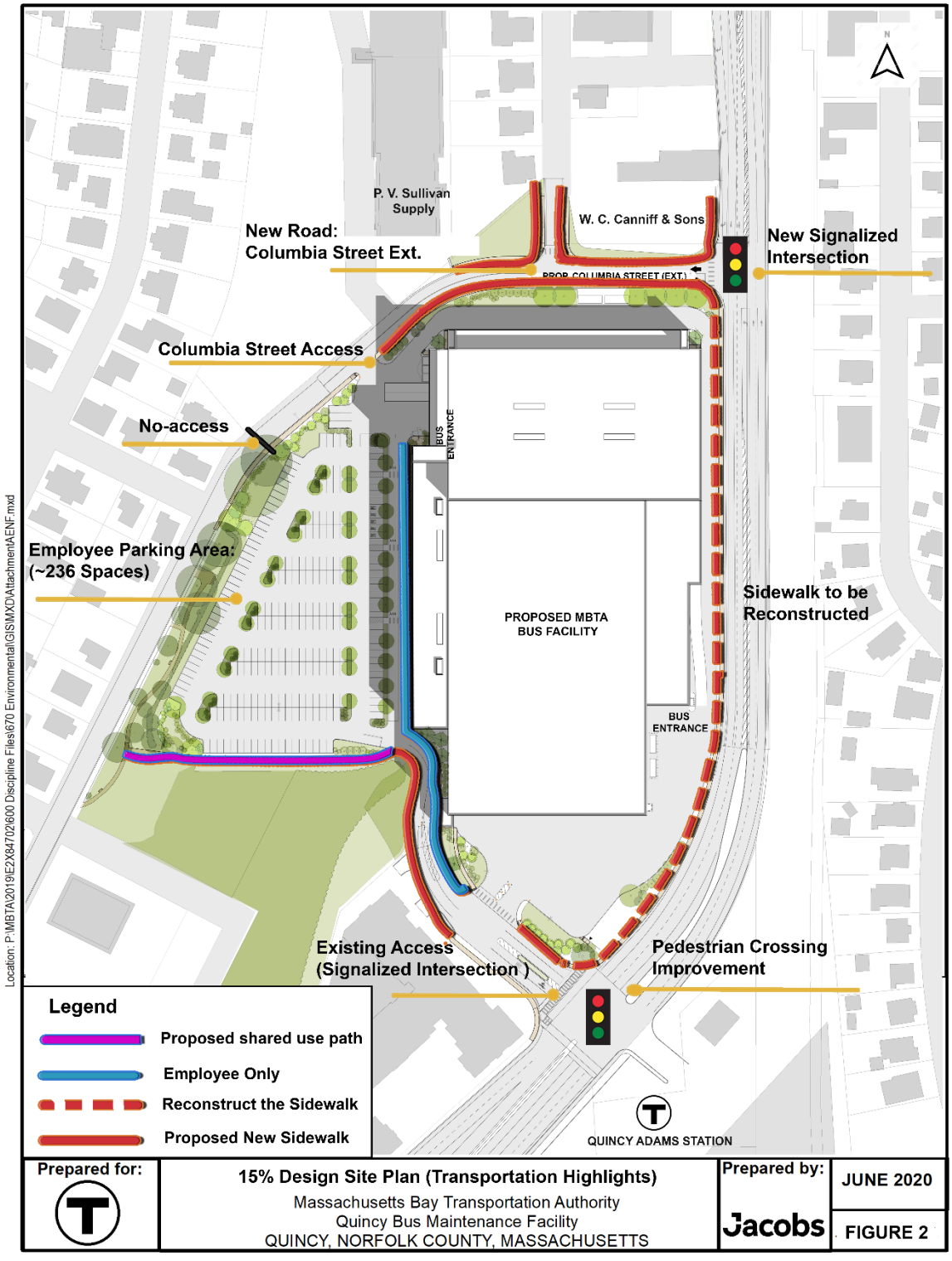

Figure 2. 15% Design Site Plan (Transportation Highlights)

2. Existing Conditions (2020)

2.1 Roadway Network

This section describes the project study area streets and intersections.

- **Burgin Parkway** is a two-way, four-lane roadway located south and east of the Project site. Burgin Parkway is an urban principal arterial under City of Quincy jurisdiction. It runs generally north-south between the Route 3 interchange to the south and Adams Street to the north. There is no on-street parking, and sidewalks are provided on the west side in the Project Study Area. Shoulder widths vary between 4 to 5 feet (which is wide enough to use as bike lanes, except at intersections where turn lanes reduce the available width for shoulders to a few feet). There are no marked bicycle facilities.
- **Quincy Street** is a two-way, two-lane roadway classified as a minor arterial and is under local jurisdiction. It arcs west from Burgin Parkway to Water Street. There is on-street parking and sidewalks on both sides of the roadway. There are no marked bicycle facilities or delineated shoulders.
- **Penn Street** is composed of two disconnected segments: the southern segment runs about 340 feet from Burgin Parkway to the former Lowe's parking lot and the northern segment runs from Columbia Street to Quincy Street. The southern segment serves (and is owned by) Deco Apartments at Burgin Parkway, and the northern (under local jurisdiction) serves residential and small mixed commercial uses. Penn Street was historically a continuous street until the Lowe's development closed it off. Penn Street is currently a two-way, two-lane roadway classified as a local roadway. There is on-street parking and sidewalks. The south segment functions like a driveway to the residential parking with the sidewalk on the south side of the street ending at the Quincy Adams Station parking garage entrance. There is a narrow (4-foot) sidewalk on the north side. There are no marked bicycle facilities on either segment of Penn Street.
- **Columbia Street** is a two-way, two-lane roadway classified as a local street and is under local jurisdiction. There is on-street parking and sidewalks on both sides of the roadway. There are no delineated shoulders or marked bicycle facilities. Columbia Street is composed of three disconnected segments: the first extends northeasterly from Centre Street and ends immediately before Taber Street, where large planters on Columbia Street block vehicles from turning left onto Taber Street. The second segment extends northeasterly from Taber Street approximately 125 feet to a gate that closes the roadway to through-traveling vehicular traffic. The third segment runs northeasterly from this gate to Penn Street, where it effectively becomes the driveway for P.V. Sullivan Supply Co.

There are three intersections in the transportation Project Study Area (Figure 1), as follows:

- **Burgin Parkway at Quincy Street** is a three-way signalized intersection. Burgin Parkway is on the northern and southern approaches of the intersection, and Quincy Street intersects on the western approach. The Burgin Parkway approaches are divided by a raised concrete median. The cycle length is 80 seconds long and divided into three phases. The northbound approach has a left-turn lane and two through lanes. The southbound approach has two through lanes and a channelized right-turn lane. Like the Burgin Parkway approaches, the Quincy Street approach is divided by a concrete median. Eastbound traffic on Quincy Street has a single left-turn lane for traffic heading northbound on Burgin Parkway and a channelized right-turn lane onto southbound Burgin Parkway. This intersection has no infrastructure for pedestrians or bicyclists.

- **Burgin Parkway at Penn Street/Quincy Adams Station driveway** is a four-way signalized intersection. Burgin Parkway is on the northeastern and southwestern approaches of the intersection with Penn Street and the Quincy Adams Station driveway on the northwestern and southeastern approaches, respectively. The cycle length is 140 seconds long and divided into six phases. The pedestrian phase runs concurrently with vehicular traffic at this intersection and does not impact the operation of vehicular traffic. For traffic bound northeast on Burgin Parkway, there are two left-turn lanes, a through lane, and a shared through/right-turn lane. For traffic bound southwest on Burgin Parkway, there is a right-turn lane, two through lanes, and a left-turn lane. Penn Street has one dedicated right-turn lane and one shared left-turn/through lane. The Quincy Adams Station driveway has a left-turn lane and a shared through/right-turn lane. There are crosswalks, pedestrian signal heads, push-buttons, and wheelchair ramps at this intersection. There are no marked bicycle facilities at the intersection.
- **Burgin Parkway at Centre Street** is a four-way signalized intersection. Burgin Parkway is on the northeastern and southwestern approaches of the intersection with Centre Street on the northwestern and southeastern approaches, respectively. The cycle length is 130 seconds long and divided into eight phases. The pedestrian phase runs concurrently with vehicle phases at this intersection and does not impact the operation of vehicular traffic. Traffic headed northeast on Burgin Parkway has two dedicated left-turn lanes, one through-lane, and one through/right-turn lane. Traffic headed southwest on Burgin Parkway has a dedicated right-turn lane, a shared through/right-turn lane, and a left-turn lane. The eastbound approach on Centre Street has a through/right-turn lane and a left-turn lane. The westbound Centre Street approach appears to have a right-turn lane and a through/left-turn lane, but there are no signs or pavement markings to confirm this. There are crosswalks, pedestrian signal heads, push-buttons, and wheelchair ramps on the northeastern Burgin Parkway and the southeastern Centre Street approaches. There are no marked bicycle facilities at the intersection.

2.2 Crash History

2.2.1 Highway Safety Improvement Program

Figure 3 shows Highway Safety Improvement Program (HSIP) clustering. HSIP ranks intersections through a point-based system known as Equivalent Property Damage Only (EPDO). Intersections that have EPDOs within the top 5% of their region are listed as HSIP clusters. All three of the Burgin Parkway intersections are HSIP clusters for the 3-year period from 2015-2017. There are no bicycle, pedestrian, or Top 200 Intersection clusters.

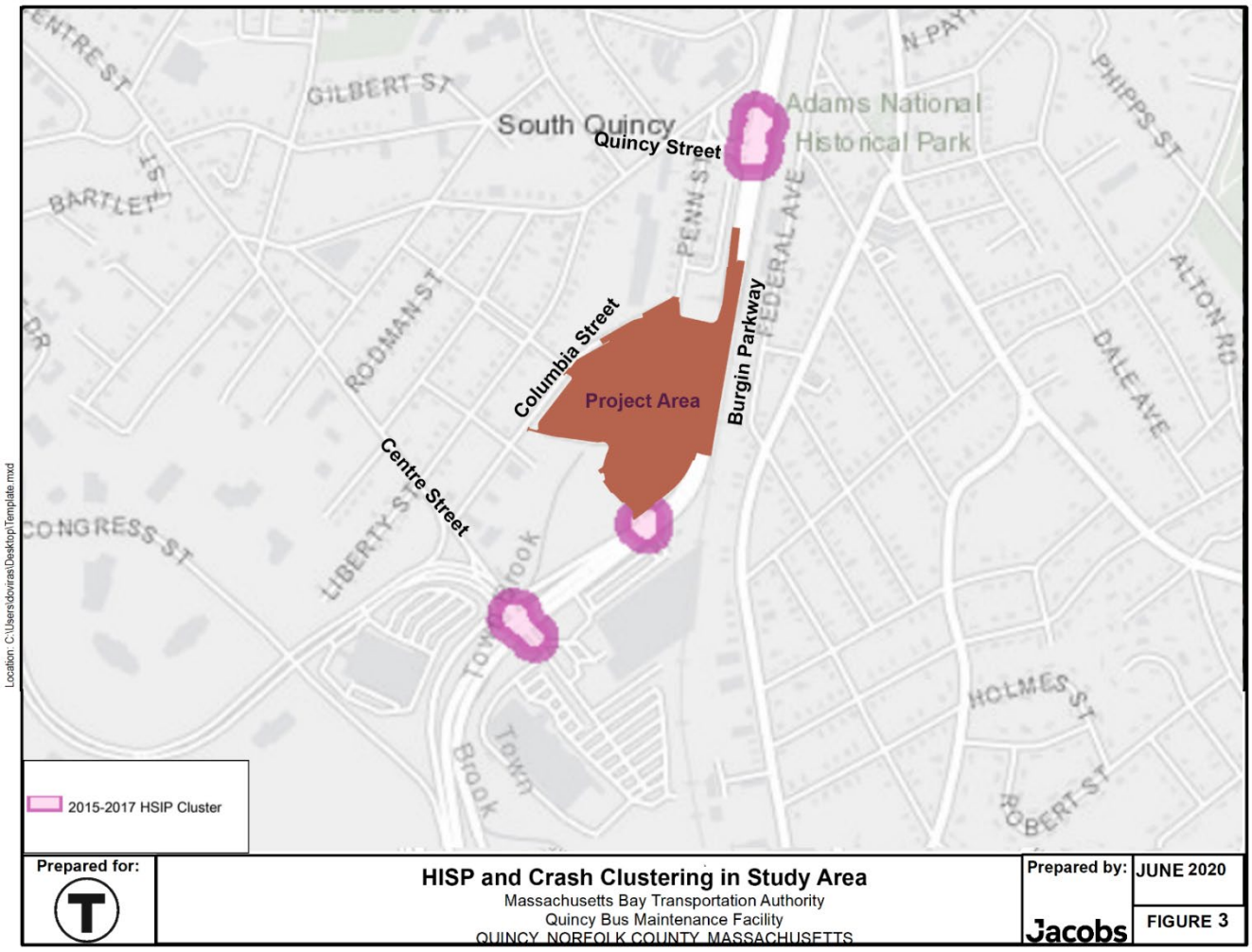

Figure 3. HISP and Crash Clustering in Study Area[1]

2.2.2 Existing Crash Summary

Crash data for the most recent three-year period available (2017-2019) were obtained from the MassDOT Crash Record System. The intersection "crash rate" (measured in crashes per million entering vehicles (MEV)) was determined to relate the number of crashes to the amount of traffic passing through the intersection. It is a more comprehensive measure for identifying potentially hazardous locations compared to simple averages as it considers volume (although crash rates can skew higher due to low volumes). The calculated rates were compared to the MassDOT District-wide averages. Intersections experiencing crash rates greater than the MassDOT District averages are potentially experiencing an unusually high number or higher than expected number of crashes relative to traffic volumes and may warrant further investigation or improvements. MassDOT District 6, which includes the City of Quincy, has an average crash rate of 0.71 crashes per MEV for signalized intersections. Table 3 summarizes the crash data, which show that:

[1] Source: https://gis.massdot.state.ma.us/topcrashlocations/#

- At all the intersections, the crash rate is higher than the MassDOT District 6 average crash rate of 0.71 for signalized intersections. The Burgin Parkway at Centre Street intersection has the highest crash rate: 1.39 crashes per MEV.
- At Burgin Parkway and Quincy Street, approximately 74% crashes were rear end type.
- There was an average of 19 crashes per year at both Burgin Parkway at Penn Street and Burgin Parkway at Centre Street.
- Two pedestrian crashes and one bicycle crash were reported at Burgin Parkway and Centre Street. One pedestrian crash occurred at Burgin Parkway at Penn Street.

Table 2. Summary of Crash Data

Crash Characteristic	Crash Details	Thomas Burgin Parkway at Quincy Street (Signalized)			Thomas Burgin Parkway at Penn Street (Signalized)			Thomas Burgin Parkway at Centre Street (Signalized)		
		2017	2018	2019	2017	2018	2019	2017	2018	2019
Severity	Property Damage	7	16	3	17	16	7	8	17	16
Severity	Injury	3	4	1	4	5	7	6	5	5
Severity	Fatality									
Severity	Not Reported	1			1					
Collision Type	Rear End	9	15	2	17	14	2	4	8	11
Collision Type	Angle	2	1			3	1	8	6	3
Collision Type	Side Swipe, Opposite Direction		2		1	1		1		1
Collision Type	Side Swipe, Same Direction		1	2	3	1		1	6	5
Collision Type	Head On									1
Collision Type	Single Vehicle		1		1	2			2	
Collision Type	Collision with Ped						1		2	
Collision Type	Collision with Bike							1		
Collision Type	Other/Unknown									
Time of Day	6:01 AM – 10:00 AM	1	1	1	1	1	3	3	5	3
Time of Day	10:01 AM – 4:00 PM	6	12	3	11	13	4	5	7	9
Time of Day	4:01 PM – 7:00 PM	3	4		5	6	3	4	5	2
Time of Day	7:01 PM – 6:00 AM	1			5	1	4	2	5	6
Roadway Conditions	Dry	6	17	2	16	16	10	11	16	15
Roadway Conditions	Wet	5			3	4	3	2		5
Roadway Conditions	Slush		2							1
Roadway Conditions	Snow/Ice		1		3	1	1	1	6	
Roadway Conditions	Other/Unknown			2						
Season	Dec-Feb	4	7		6	6	6	5	5	6
Season	Mar-May	1	5		4	4	3	4	5	4
Season	June-Aug	2	5	3	7	4	1	2	7	6
Season	Sept-Nov	4	3	1	5	7	4	3	5	5
Light Conditions	Daylight	8	15	4	15	17	8	9	14	14

Crash Characteristic	Crash Details	Thomas Burgin Parkway at Quincy Street (Signalized)			Thomas Burgin Parkway at Penn Street (Signalized)			Thomas Burgin Parkway at Centre Street (Signalized)		
		2017	2018	2019	2017	2018	2019	2017	2018	2019
Light Conditions	Dawn/Dusk		1			2		1	2	
Light Conditions	Dark (Lit)	3	4		7	2	6	4	6	7
Light Conditions	Unknown									
Totals	Annual Ave. Crashes	12			19			19		
Intersection Crash Rate	MassDOT District 6 Average Crash Rate	0.71			0.71			0.71		

2.3 Walking

Numerous streets within the project study area have sidewalks. Burgin Parkway has a continuous sidewalk on its Western side. The sidewalks enable people to walk from the Project site to both the Quincy Adams and Quincy Center stations. Most major intersections along Burgin Parkway have marked crosswalks, pedestrian signal heads, push-buttons, and wheelchair ramps with detectable warning pads.

The intersection of Burgin Parkway and Quincy Street lacks a marked crosswalk for people traveling east/west across Burgin Parkway. The closest available crossing is approximately 1,800 feet south at the intersection of Burgin Parkway and Penn Street/Quincy Adams Station. This intersection lacks accessible crossings, and the pavement markings are severely faded.

There are 4- to 5-foot-wide sidewalks encircling the existing Lowe's building that connect the surrounding neighborhoods to the intersection of Burgin Parkway and Penn Street/Quincy Adams Station. There is a path that runs within the Paul Grasso Memorial Park adjacent to the Project site along Columbia Street. This park and the accompanying path were constructed by Lowe's as a stipulation of development.

The shared use path located in the Paul Grasso Memorial Park

The surrounding neighborhood is connected by sidewalks on both sides of the street along Columbia Street, Centre Street, Plain Street, Liberty Street, and Penn Street. The crossings in the neighborhood generally lack ADA-compliant ramps and delineated crosswalks.

Pedestrian crossing volumes are provided in Section 2.7.

The City adopted a Complete Streets Policy in June 2018 that commits it to making Complete Streets practices "a routine part of everyday operations" and approaching "every transportation project and program as an opportunity to improve the transportation network and mobility for all users."

2.4 Bicycling

Burgin Parkway is an urban principal arterial with 2 to 6-foot-wide shoulders and no delineated markings for bike travel. High vehicle speeds along Burgin Parkway, paired with the lack of marked bicycle lanes or wide shoulders are not conducive to safe or comfortable bicycle travel. As a result, bicycle volumes in this area are very low, with PM peak-hour volumes totaling four bicycles at the intersection of Burgin Parkway at Penn Street/Quincy Adams Station during the PM period. Burgin Parkway is not included as a bike route in the City's 2014 *Bicycle Network Plan* (MAPC 2014).

None of the streets surrounding the Project site has bicycle facilities. However, MassDOT's "Potential for Everyday Biking" map (Figure 4) indicates that the area immediately south of the Project site has high potential for people "to bike for everyday travel if safe, comfortable, and convenient bikeways are available." [2]

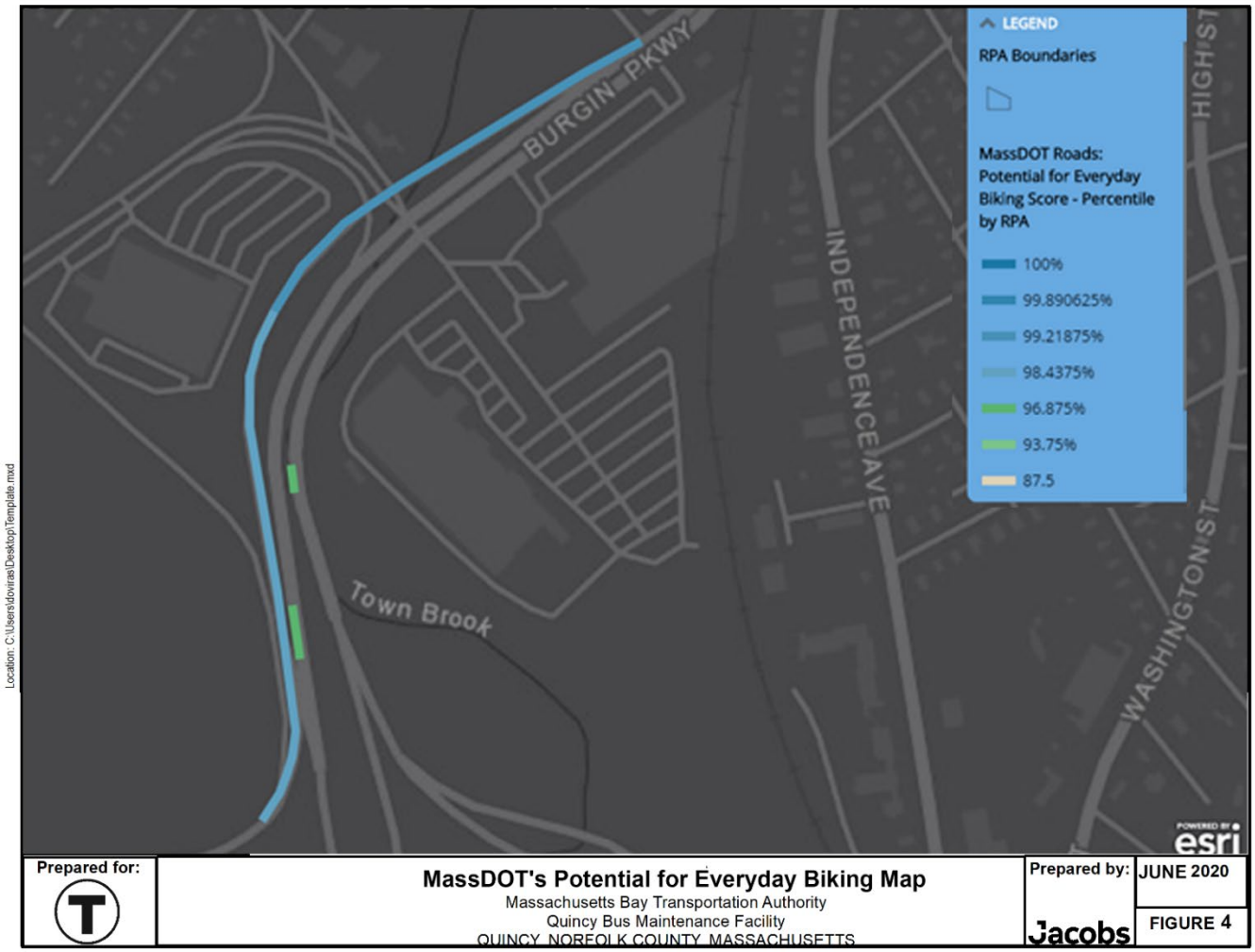

Figure 4. MassDOT's Potential for Everyday Biking Map

[2] https://massdot.maps.arcgis.com/apps/MapJournal/index.html?appid=c80930586c474a3486d391a850007694

There is one bike rack with space for approximately eight bicycles at the former Lowe's site and no public bike racks on the street. Both Quincy Adams and Quincy Center stations have outdoor bicycle racks for commuters to lock their bikes.

As noted above, the City adopted a Complete Streets Policy in June 2018 that commits it to making Complete Streets practices "a routine part of everyday operations" and approaching "every transportation project and program as an opportunity to improve the transportation network and mobility for all users."

2.5 Transit Service

2.5.1 Rail Service

The Project site is located immediately across the street from the Quincy Adams Station. This station is located toward the southern end of the Red Line on the Braintree branch. The station includes facilities such as the following:

- A fully accessible multimodal transit station complex including rail, bus, and parking services.
- A 2,538-capacity parking facility, including a multilevel garage and a surface lot currently under construction with entrances from Burgin Parkway and the adjoining highway Route 3 interchange.
- A drop-off/pick-up lot with access from Centre Street.
- A busway to direct buses to the passenger drop-off/pick-up at the entrance to the Red Line station lobby. Buses enter from Centre Street and exit onto Burgin Parkway. MBTA Bus Route 238 uses this busway to facilitate passenger transfers between the bus and rail services. In addition, several private industry-sponsored shuttle buses are allowed use of the busway.
- Parking for 64 bicycles.
- A power substation building that abuts the rail station complex.

The Red Line currently operates with typical headways of 8 to 9 minutes during AM and PM peak periods and headways reducing to around 14 minutes during non-peak hours. The Red Line typically begins operation around approximately 5:15 AM, with the last trip typically ending around 12:30 AM during normal weekdays.

The nearest commuter rail station is about 1.3 miles north of the Project site at the Quincy Center Station; there is also a commuter rail stop 1.9 miles to the south at the Braintree Station. The commuter rail runs parallel to the Red Line, eventually diverging into the Greenbush, Kingston/Plymouth, and Middleborough/Lakeville lines south of the Quincy Adams Station. Headways along the commuter rail are approximately 1 hour between trains, with operation times varying between lines. The Kingston line typically operates between the hours of 5:30 AM to 10 PM. The Kingston/Plymouth and Middleborough/Lakeville lines both begin around 5:30 AM and end operation around 11 PM.

2.5.2 Bus Service

Figure 5 shows the existing bus service in the vicinity of the Project site. Route 238 along Burgin Parkway runs closest to the Project site. Route 230 runs along Independence Avenue on the east side of the Red Line tracks. Route 215 is within 1,000 feet of the site on Water Street. Several routes are accessible from the Quincy Center Station, just over a mile north of the site.

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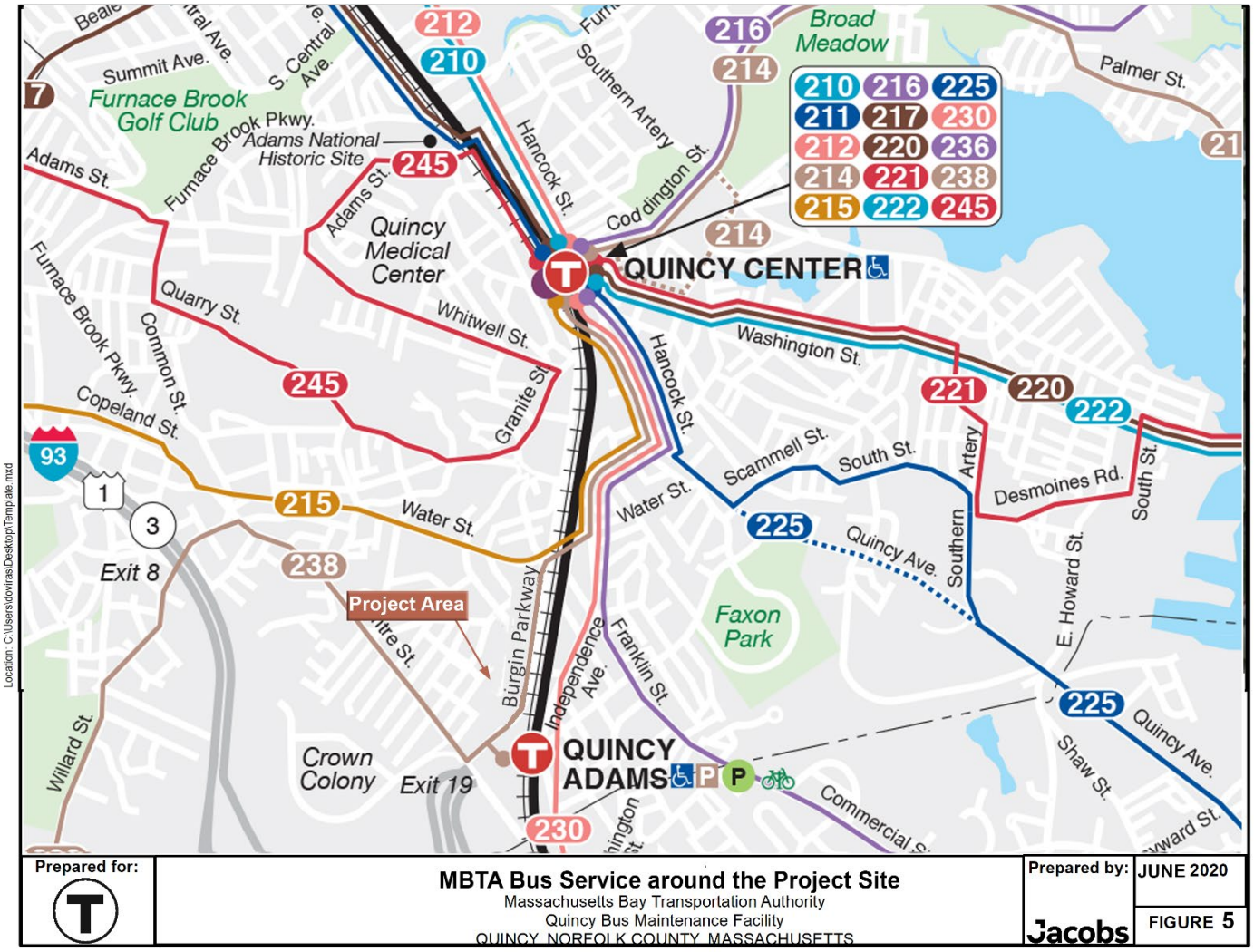


Figure 5. MBTA Bus Service around the Project Site

2.6 Freight

Freight is carried by trucks using Burgin Parkway to access Route 3, I-93, Route 3A and points to the northeast. Traffic counts indicate that trucks account for between 2% and 5% of vehicles on Burgin Parkway.

2.7 Vehicles

Traffic-volume data were collected at Project Study Area intersections on Wednesday, July 31, 2019. Manual turning movement counts and vehicle classification counts were conducted during the weekday morning and evening peak periods (7:00 – 9:00 AM and 4:00 – 6:00 PM). The vehicle classification counts included car, truck, pedestrian, and bicycle movements. Based on the turning movement counts, the peak hours of vehicular traffic in the Project Study Area are 7:45 AM – 8:45 AM and 5:00 PM – 6:00 PM. Also, pedestrian count data were collected at Project Study Area intersections.

These volumes do not include site-generated trips, which when Lowe's was open were estimated to be about 109 AM and 285 PM trips.[3] The site is currently vacant and generates no trips.

A seasonal adjustment factor was calculated from MassDOT count station #691 located on Yankee Division Highway in Quincy. The seasonal adjustment factor calculated for July is 2.6% more than the average month. To provide a conservative analysis, the seasonal adjustment factor was not applied to the traffic volumes. Figure 6 and Figure 7 show the existing weekday morning and evening peak-hour traffic volumes and pedestrian count data respectively.

An annual growth rate of 0.5% was applied to the 2019 traffic counts. This growth rate is based on a review of historic traffic data in the Project Study Area and recommendations from the Boston Region Metropolitan Planning Organization and the Central Transportation Planning Staff (CTPS). CTPS suggested an annual growth rate of 0.36% per year, to be conservative, Jacobs used an increase of 0.5%.

[3] "Lowe's of Quincy Burgin Parkway/Penn Street" by Tetra Tech Rizzo for Lowe's Home Centers, Inc., February 19, 2008.

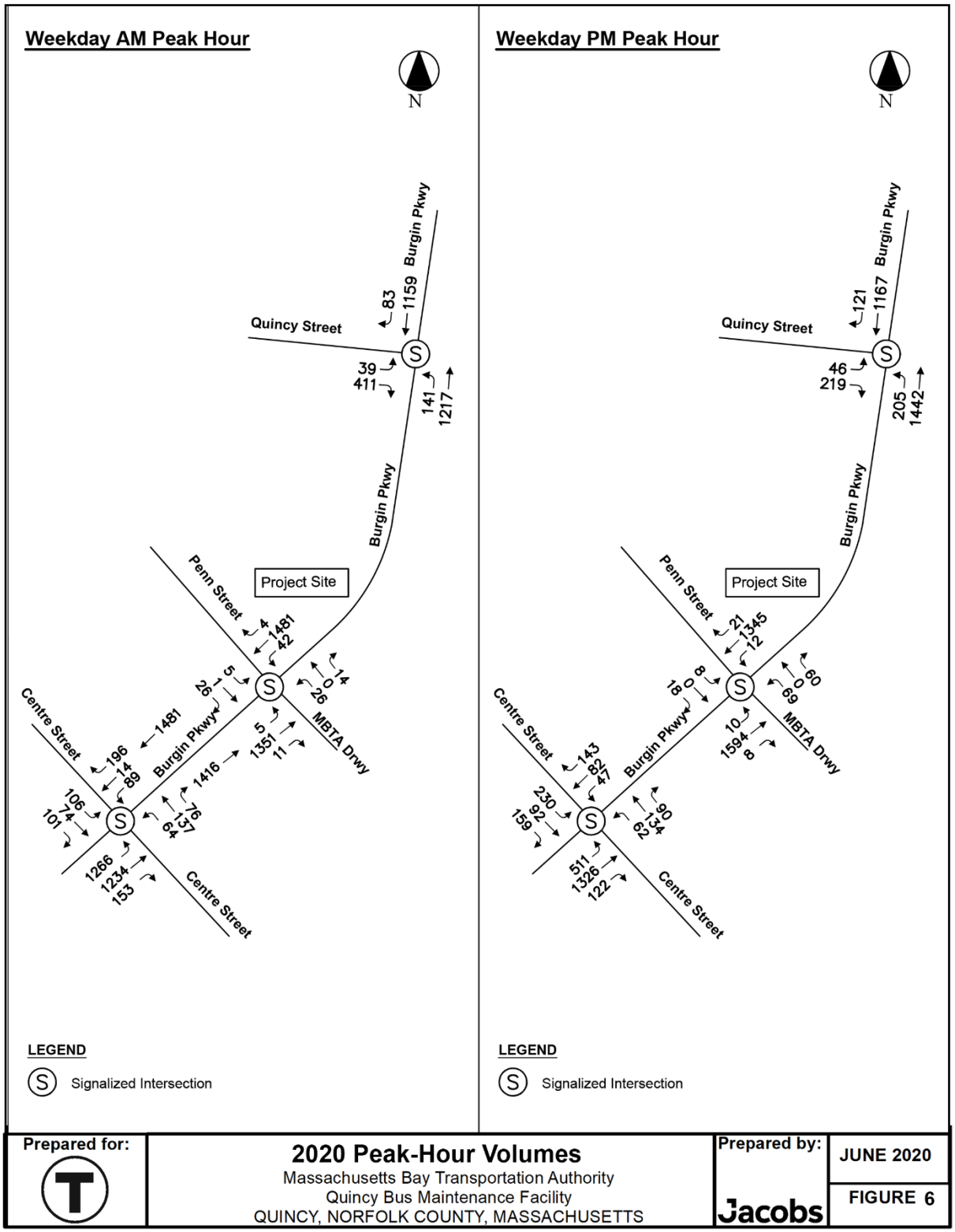


Figure 6. 2020 Peak-Hour Volumes

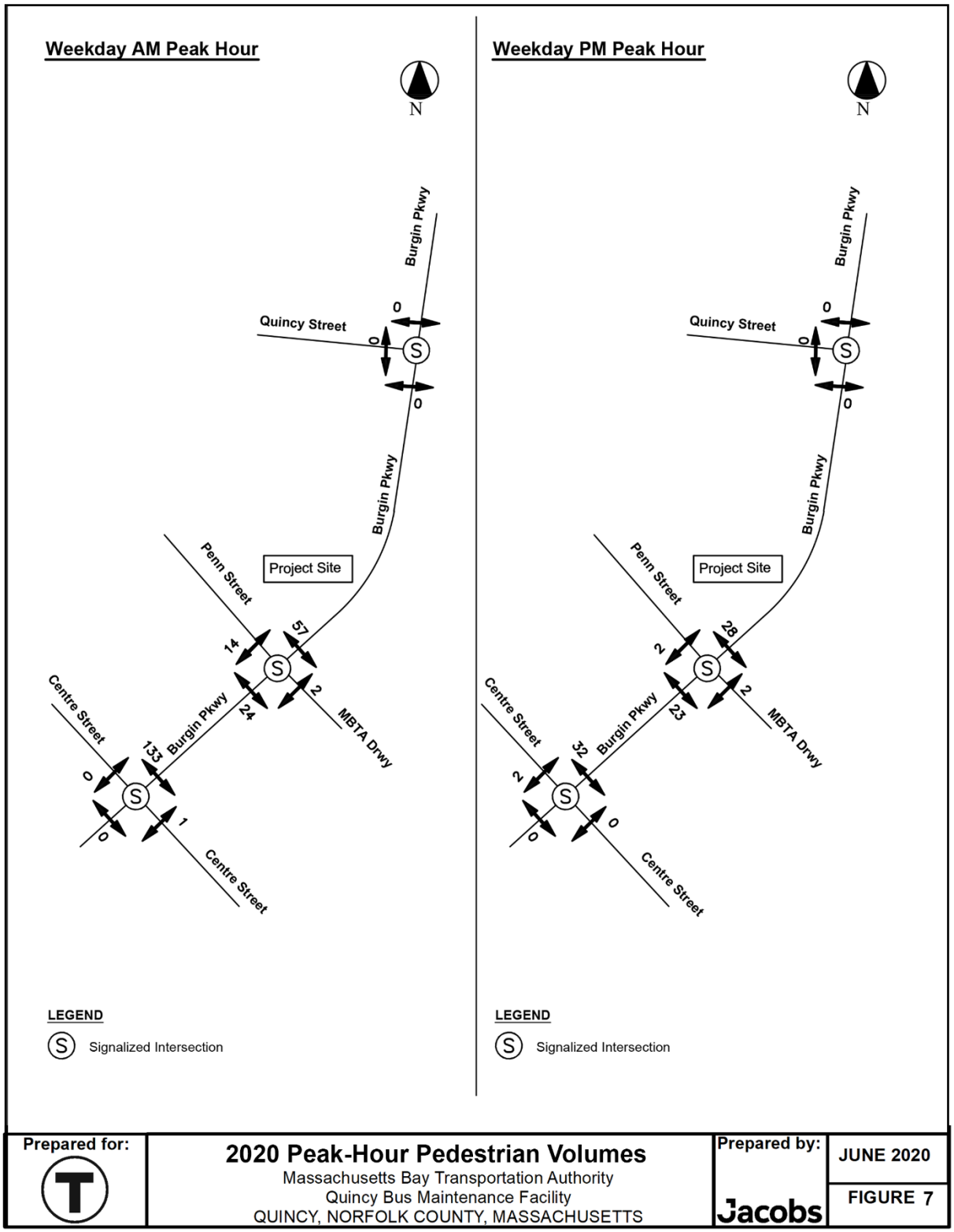


Figure 7: 2020 Peak-Hour Pedestrian Volumes

2.7.1 Intersection Capacity Analysis

The Federal Highway Administration *Highway Capacity Manual* (2010) provides guidance and analysis methodologies that are used to calculate performance levels for freeway sections, ramp junctions, weave sections, and intersections (signalized and unsignalized). Level of Service (LOS) is a term used to denote different operating conditions that occur under various traffic volume loads. It is a qualitative measure of the effect of a number of factors including geometrics, speed, travel delay, freedom to maneuver, and safety. LOS is divided into a range of six letter grades, ranging from A to F, with A being the best and F the worst. LOS E or F is generally considered inadequate for traffic operations in suburban and urban areas.

- LOS A describes conditions with little to no delay to motorists.
- LOS B represents relatively short delay to motorists.
- LOS C describes conditions with average delay to motorists.
- LOS D describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- LOS E represents operating conditions with longer delays. This level is considered by many agencies to be the limit of acceptable delay.
- LOS F indicates long delays that often occur when arrivals exceed the capacity of the intersection.

LOS designation is reported differently for signalized and unsignalized intersections. For signalized intersections, it is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, LOS criteria are quantified in terms of average control delay per vehicle for the peak-hour, which is reported for the entire intersection and by lane or lane group approach.

For unsignalized intersections, the analysis assumes that the traffic on the mainline is not affected by traffic on the side street. The LOS for each movement is calculated by determining the length of gaps that are available in the conflicting traffic stream. Based upon the length of the gaps between vehicles, the capacity of the movement can be calculated. The demand of the movement is then compared to the capacity and utilized to determine the average control delay for the movement. For unsignalized intersections, an overall intersection LOS is not determined. It is generally reported in terms of delay for left-turns on the mainline and all side street movements.

The delay ranges differ slightly between unsignalized and signalized intersections due to driver expectations and behavior for each LOS. Table 3 summarizes the LOS criteria.

Table 3. Level of Service Criteria[4]

LOS	Control Delay (seconds per vehicle) for Signalized Intersections	Control Delay (seconds per vehicle) for Unsignalized Intersections
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

The volume-to-capacity ratio (v/c) measures the amount of traffic compared to the available capacity and is a basic measure of congestion along the approach. As with delay, this measure can be used for either the individual approach or the intersection as a whole. As opposed to delay, there is no standard gauge to provide a specific point of reference for a certain v/c; however, a lower v/c indicates that backups are less likely. As the ratio approaches and exceeds 1.00, backups and poor service have a greater potential to occur. A ratio under 1.00 is generally considered acceptable.

In addition to LOS, the 95th percentile queue lengths are examined. While an intersection may show acceptable LOS, extensive queue lengths may exist that impede operations elsewhere by extending into adjacent intersections or other conflict areas.

Intersection performance measures can be calculated in the form of v/c, average vehicular delay, average and 95th percentile queue lengths, and LOS. Synchro 10 was the primary software used to execute the intersection analysis and is preferred/recommended by MassDOT.

2020 peak-hour traffic operations were analyzed using the adjusted volumes shown in Figure 6. Existing intersection peak-hour factors and truck percentages were included in the analysis. The results are shown in Table 4. LOS designations are based on average delay per vehicle for all vehicles entering an intersection.

[4] FHWA 2010. *Highway Capacity Manual*.

Table 4. 2020 Peak-Hour Volumes Intersection Analysis

Intersection	Approach	Movement	2020 Existing (AM)				2020 Existing (PM)			
			Delay (sec)	95% Queue (ft)	v/c	LOS	Delay (sec)	95% Queue (ft)	v/c	LOS
Burgin Parkway at Quincy Street (Signalized)	Quincy Street	EB L	32.9	45	0.37	**C**	33.2	50	0.41	**C**
		EB R	0.5	0	0.29	**A**	0.2	0	0.15	**A**
	Burgin Parkway	NB L	23.9	112	0.37	**C**	26.1	152	0.49	**C**
		NB T	3.2	145	0.51	**A**	3.5	178	0.54	**A**
		SB T	19.7	364	0.79	**B**	17.4	312	0.71	**B**
		SB R	0.1	0	0.06	**A**	0.1	0	0.08	**A**
	OVERALL		10.3	111	0.71	**B**	10.0	115	0.66	**A**
Burgin Parkway at MBTA & Penn Street (Signalized)	Penn Street	SE T	60.6	19	0.07	**E**	60.0	26	0.09	**E**
		SE R	57.8	36	0.13	**E**	55.9	23	0.02	**E**
	MBTA	NW LT	61.8	27	0.19	**E**	63.0	60	0.41	**E**
		NW R	53.3	0	0.01	**D**	54.9	37	0.03	**D**
	Burgin Parkway	NE L	67.6	3	0.07	**E**	72.7	6	0.12	**E**
		NE TR	3.5	112	0.62	**A**	4.0	87	0.63	**A**
		SW L	67.5	84	0.47	**E**	66.4	35	0.19	**E**
		SW T	8.3	501	0.62	**A**	7.4	381	0.52	**A**
		SW R	3.8	0	0.00	**A**	4.1	0	0.01	**A**
	OVERALL		8.3	87	0.60	**A**	8.8	73	0.59	**A**
Burgin Parkway at Centre Street (Signalized)	Centre Street	SE L	42.0	135	0.47	**D**	64.3	279	0.86	**E**
		SE TR	41.9	175	0.37	**D**	42.3	251	0.48	**D**
		NW T	73.5	195	0.81	**E**	73.6	191	0.81	**E**
	Burgin Parkway	NE L	46.6	710	0.92	**D**	61.1	296	0.78	**E**
		NE TR	37.4	884	0.88	**D**	32.7	805	0.84	**C**
		SW L	74.4	156	0.60	**E**	70.1	93	0.50	**E**
		SW T	47.3	167	0.54	**D**	23.7	93	0.20	**C**
		SW R	46.4	161	0.50	**D**	23.6	85	0.20	**C**
	OVERALL		45.5	323	0.91	**D**	44.5	262	0.93	**D**

Abbreviations:

L = Left
T = Through
R = Right
sec = Seconds
FT = Feet
LOS = Level of Service
v/c = Volume-to-Capacity Ratio

At the Burgin Parkway intersection with Penn Street/Quincy Adams Station, the minor movements experience delays in the range of 60 seconds, but overall, the intersection operates at overall LOS A in the AM and PM. At Burgin Parkway-Centre Street, the overall intersection LOS is D in both the AM and PM, with some movements operating at LOS E. The v/c ratio is 0.91 and 0.93 in the AM and PM peak hours, respectively.

3. Future Conditions (2027)

3.1 Walking

Pedestrian activity through the Lowe's site is quite active as it is a direct route to access the Quincy Adams Station from the Columbia, Plain, Liberty, Taber, and Penn Street neighborhoods.

MBTA will continue to provide access for people walking to the Quincy Adams Station. However, in order to protect and secure its facility, access will need to be placed around the perimeter of the Project site as described below. Safety for pedestrians is of equal concern; therefore, lighting and an ADA-compliant accessible path of travel will be provided.

As shown in Figure 8, there is pedestrian access through the site from Columbia Street to the intersection of Burgin Parkway-Penn Street/Quincy Adams Station. The shared use path starts at Columbia Street and travels from west to east along the southern edge of the property. The proposed sidewalk will meet the existing sidewalk along the southside of Penn Street, which continues to the intersection with Burgin Parkway.

The existing sidewalk along the west side of Burgin Parkway between the future Columbia Street Extension and Penn Street will be reconstructed. This work will involve the resetting on the granite curb and reconstruction of a new ADA-compliant cement concrete sidewalk. There will be a sidewalk on the north side of Penn Street to connect Burgin Parkway to the new building entrance. This sidewalk will be influenced by the way the property is secured and access is granted. There will be a crossing across the bus entrance/exit to ensure continuity of the sidewalk. As the plans for the Project site continue to be developed, this and other options will be evaluated in greater detail.

There will be sidewalks on both sides of the new Columbia Street Extension.

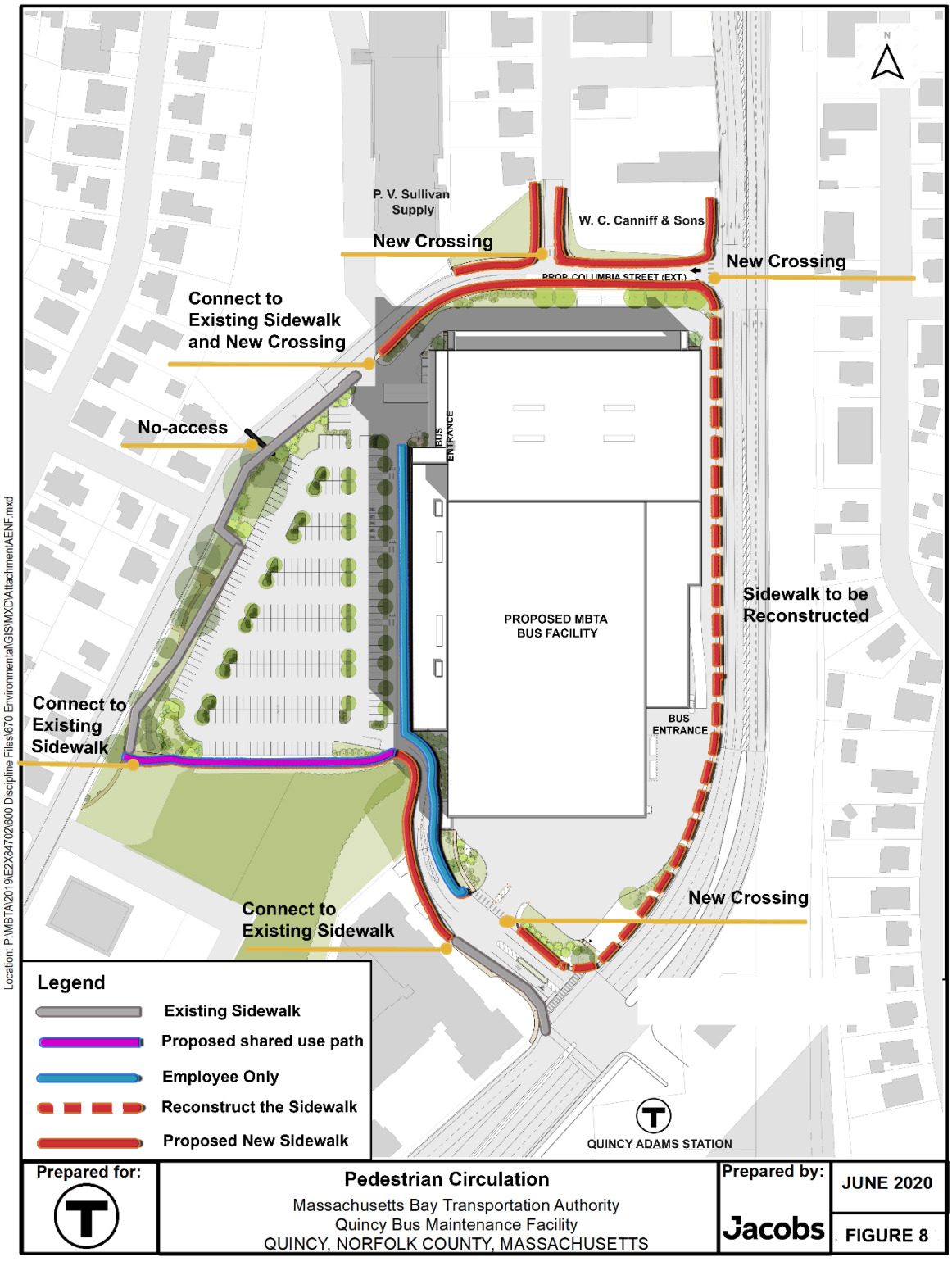


Figure 8. Pedestrian Circulation

The Burgin Parkway at Penn Street/Quincy Adams Station intersection will be improved as follows:

- Eliminate one of the two northbound left-turn lanes on Burgin Parkway to increase the width of the median and make more room for pedestrians stopped mid-crossing.
- Re-stripe the crosswalks and stop lines.
- Trim any vegetation that obstructs the pedestrian signals
- Add an LPI. This will give pedestrians a head start crossing the intersection, however, it will slightly degrade operations.
- Install two APS Push-Buttons on the median on Burgin Parkway.
- Install light-emitting diode (LED) countdown pedestrian signal heads on either side of the MBTA driveway with APS.
- Replace the LED blank-out signs (Yield to Peds on X-Walk) with new LED blank-out signs.
- Replace the traffic signal controller with a TS2-Type 1 Siemens M60 with a 16-position back panel to accommodate the LPI.
- Test and replace loop detectors and/or loop detector lead-in cables that do not function.

3.2 Bicycling

Bicycle infrastructure such as bike lanes or paths connecting the facility to adjacent streets and other bicycle networks will be considered to the extent practicable. The new shared use path will be constructed along the south side of the parking to connect to the existing path in the Paul Vincent Grasso Memorial Park. The new shared use path will connect to the proposed sidewalk along the south side of Penn Street. (See Figure 8). Bike racks will be provided near building entrance(s). This will also support the City of Quincy's Complete Streets Policy.

3.3 Transit Service

No transit service changes are proposed, so the Future Build Alternative does not change existing conditions for transit service.

3.4 Freight

The Future Build Alternative does not change existing conditions for freight.

3.5 Vehicles

This section describes the 2027 projected vehicle volumes under the No-Build and Build alternatives, followed by an analysis of operations.

3.5.1 2027 No-Build Traffic Volume

This section describes future conditions in 2027 with background traffic growth and planned development and infrastructure projects if the MBTA Project is not built. The No-Build condition considers background growth and infrastructure development within the Project Study Area and incorporates associated traffic impacts that may affect travel patterns and conditions.

Background growth is based on a review of historic traffic data in the Project Study Area and recommendations from the Boston Region Metropolitan Planning Organization and the Central Transportation Planning Staff (CTPS), which suggested an annual growth rate of 0.36% per year.

To account for any shifts in traffic patterns or future development, this annual growth rate of 0.36% was conservatively rounded to 0.5% and applied to the 2020 peak-hour volumes to obtain future 2027 volumes. Figure 9. shows the resulting 2027 No-Build peak-hour volumes.

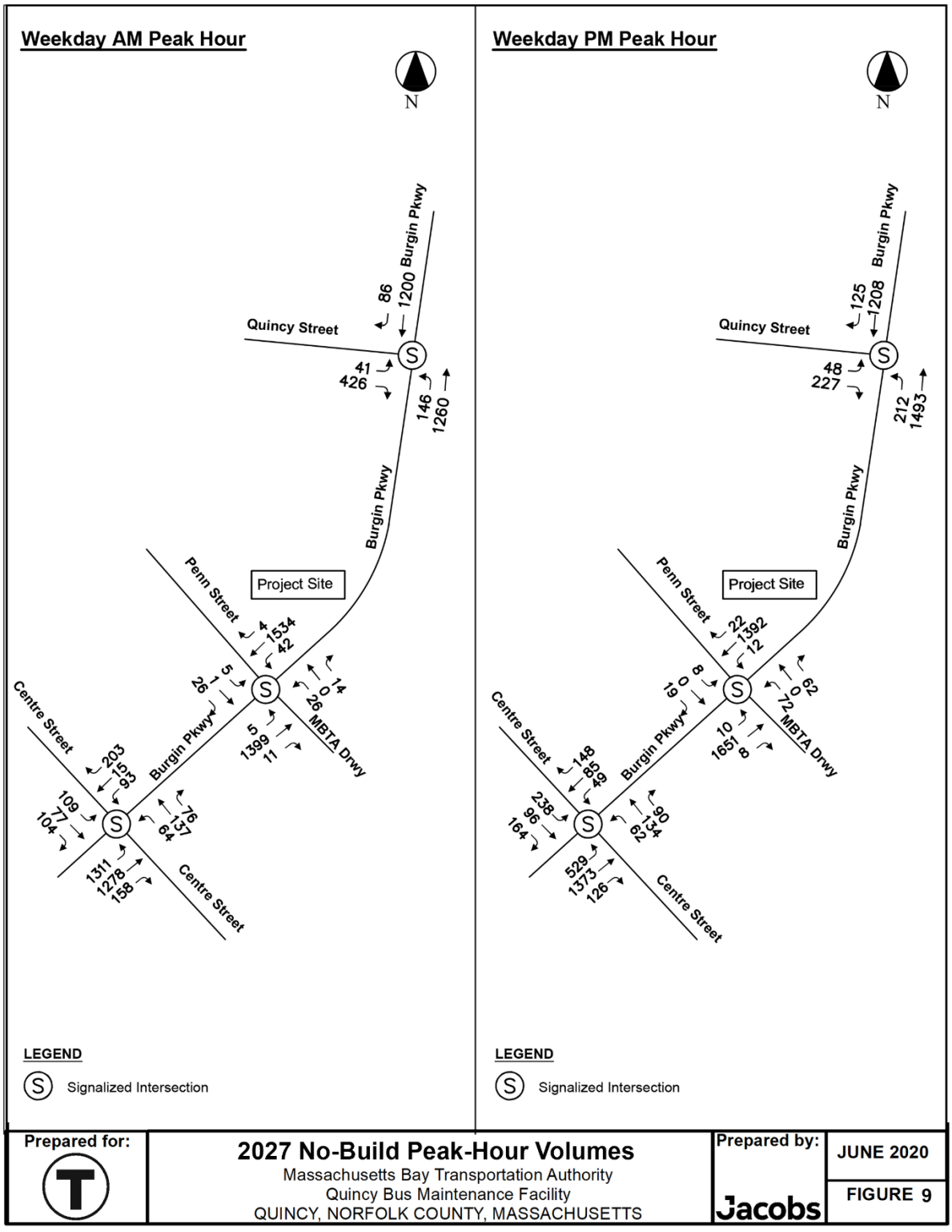


Figure 9. 2027 No-Build Peak-Hour Volumes

3.5.2 2027 Build Traffic Volume

This section describes future 2027 conditions with background traffic growth and planned development and infrastructure projects if the MBTA BMF Project is built.

Future-year volumes for the Build Alternative were developed by adding the number of trips estimated to be generated by the Project to the 2027 No-Build peak-hour volumes. While the facility will serve a fleet of 120 buses, this analysis conservatively estimates conditions for a maximum capacity of 135 buses. The Project-generated trips are shown in Table 5 and reflect (1) the number of trips that the new bus facility and a fleet of 135 buses would generate; (2) the number of trips that would be made by Quincy BMF personnel for the expanded facility (as well as visitors and deliveries); and (3) trips made by staff of the office-space. Attachments D-2 and D-3 describe the trip-generation calculations in more detail. There is a net decrease in the trips generated by the site operating as a BMF compared to when it operated as a Lowe's.

Table 5. Trip Generation for Various Site Uses[5]

Trips	Direction	Bus Maintenance Facility (Appendix F)	General Warehouse (ITE Code #150)	Office Space (ITE Code #710)	Lowes (from 2008 Tetra Tech Rizzo Study, Table 7)
Weekday AM*	Enter	44	24	93	75
Weekday AM*	Exit	39	7	13	34
Weekday AM*	**Total**	**219**			**109**
Weekday PM	Enter	35	9	18	135
Weekday PM	Exit	41	24	88	150
Weekday PM	**Total**	**216**			**285**
Daily	Enter	694	58	426	1725
Daily	Exit	694	58	426	1725
Daily	**Total**	**2358**			**3450**

*Weekday AM volumes for Lowes were not calculated in the 2008 study but are estimated here based on a comparison of AM and PM peak hours from the data in Appendix E of the study.

The trip distribution is illustrated in Figure 10 and the new site-generated trips are shown in Figure 11 for the weekday AM and weekday PM, respectively.

The 2027 Build Alternative includes the new signalized intersection next to the current W. C. Canniff site. All of the bus trips are expected to use Burgin Parkway at Penn Street entrance to pull in or pull out from the facility. The trip distribution for all other vehicles is based on existing traffic patterns and home-work data for the City of Quincy from the Census Transportation Planning Products program (CTPP). The analysis assumes that 60% of the site-generated traffic (not including buses) will use the Penn Street access and 40% will use the Columbia Street Extension access.

The generated trips were added to the 2027 No-Build peak-hour volumes to provide 2027 Build peak-hour volumes (Figure 12). The 2027 Build Alternative includes the new signalized intersection next to the current W. C. Canniff site.

[5] Weekday AM volumes for Lowe's were not calculated in the 2008 study but are estimated here based on a comparison of AM and PM peak hours from the data in Appendix E of the study.

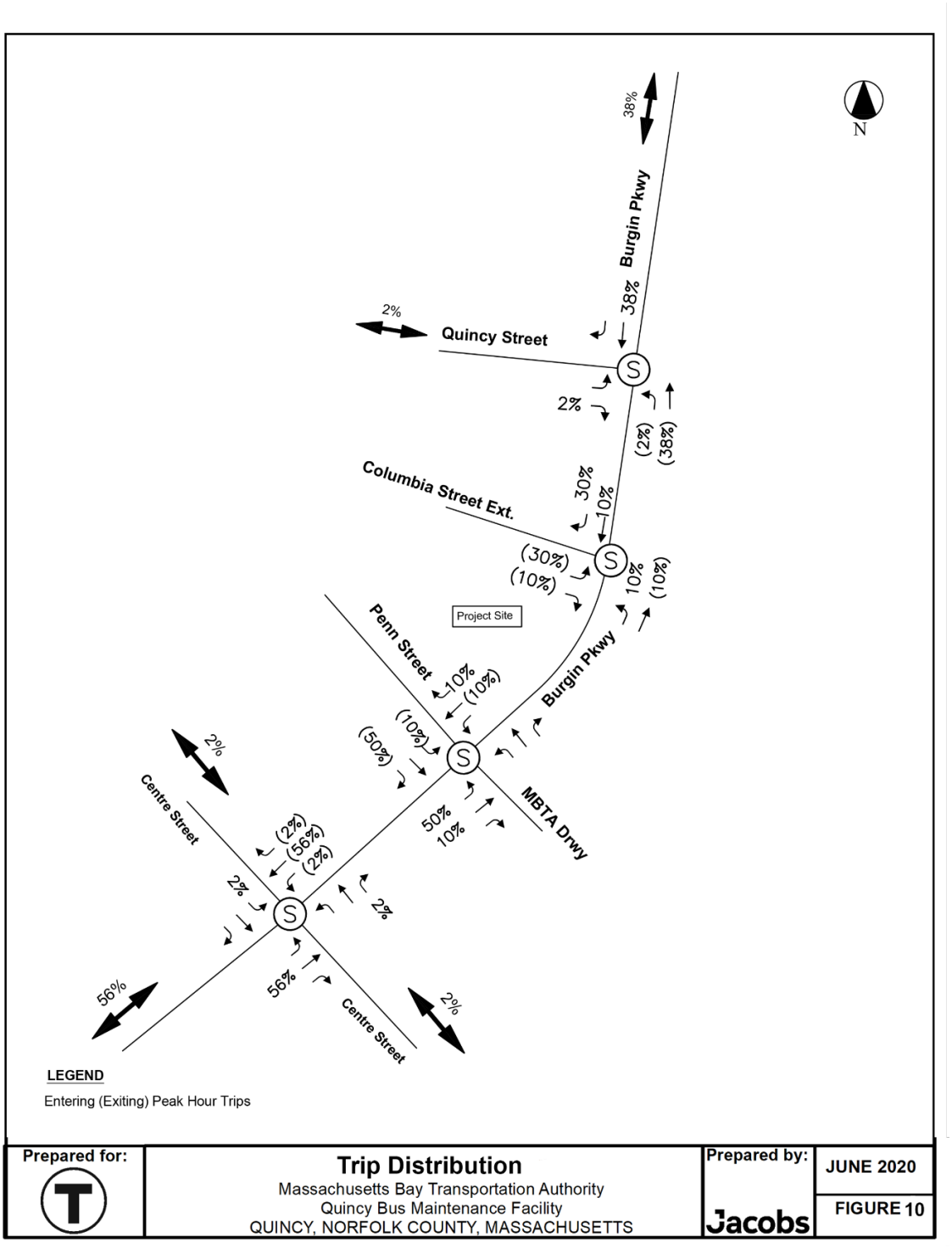


Figure 10: Trip Distribution

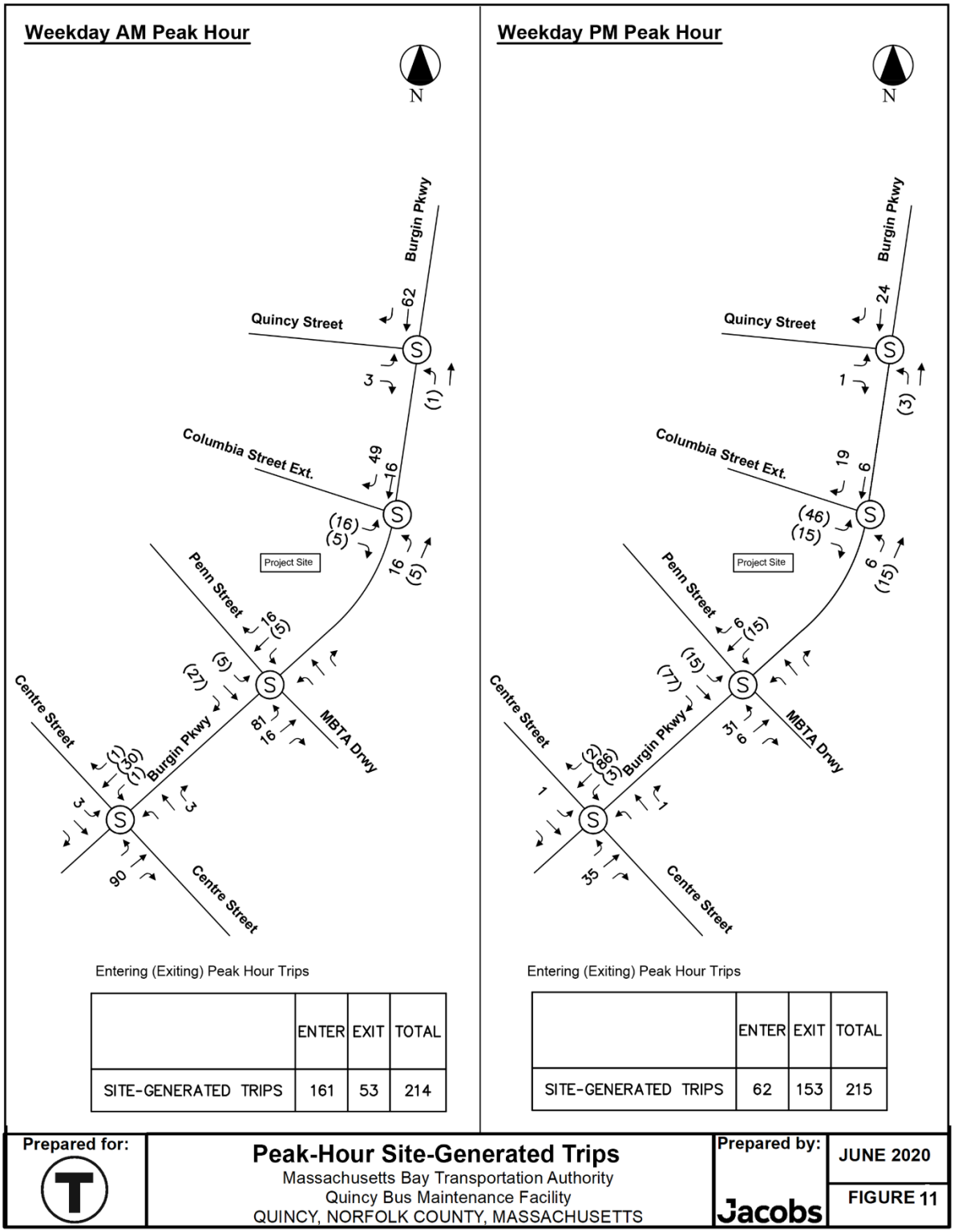


Figure 11: Site-Generated Trips in Peak-Hour

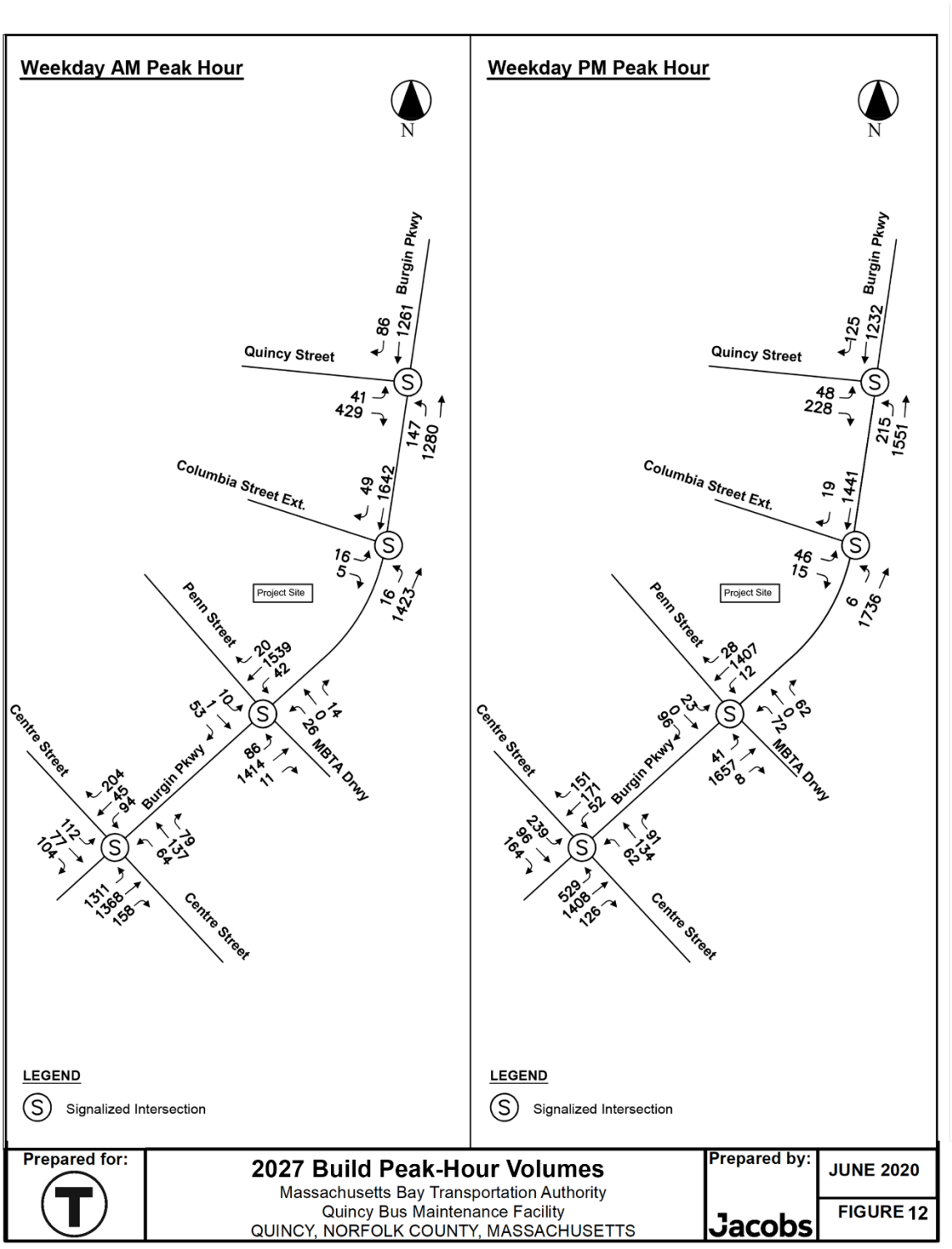


Figure 12. 2027 Build Peak-Hour Volumes

3.5.3 Intersection Capacity Analysis

Table 6 and Table 7 show the results of the 2027 No-Build and Build AM and PM peak-hour operational analyses. LOS designations are based on average delay per vehicle for all vehicles entering an intersection. The 2027 No-Build scenario uses the same signal timing plans in the existing signal timing. The 2027 Build Alternative includes the new signalized intersection at Burgin Parkway and Columbia Street Extension and the elimination of one northbound left-turn lane at Burgin Parkway and Penn Street/Quincy Adams Station. Both 2027 scenarios include the LPI at the Burgin Parkway at Penn Street/Quincy Adams Station.

Table 6. 2027 AM Peak-Hour Intersection Analysis

Intersection	Approach	Movement	2027 No Build				2027 Build			
			Delay (sec)	95% Queue (ft)	v/c	LOS	Delay (sec)	95% Queue (ft)	v/c	LOS
Burgin Parkway at Quincy Street (Signalized)	Quincy Street	EB L	33.1	48	0.39	**C**	33.1	48	0.39	**C**
		EB R	0.5	0	0.30	**A**	0.5	0	0.31	**A**
	Burgin Parkway	NB L	24.3	116	0.39	**C**	24.3	117	0.39	**C**
		NB T	3.4	156	0.52	**A**	3.4	161	0.53	**A**
		SB T	20.8	420	0.82	**C**	22.9	456	0.86	**C**
		SB R	0.1	0	0.06	**A**	0.1	0	0.06	**A**
	OVERALL		10.8	123	0.73	**B**	11.8	130	0.76	**B**
NEW INTERSECTION Burgin Parkway at Columbia Street Extension (Signalized)	Columbia	EB L	-	-	-	-	32.6	26	0.17	**C**
	Burgin Parkway	NB L	-	-	-	-	2.6	11	0.10	**A**
		NB T	-	-	-	-	2.9	274	0.54	**A**
		SB T	-	-	-	-	3.5	360	0.62	**A**
		SB R	-	-	-	-	1.3	10	0.03	**A**
	OVERALL		-	-	-	-	3.4	136.2	0.59	**A**
Burgin Parkway at MBTA & Penn Street (Signalized)	Penn Street	SE T	60.6	19	0.07	**E**	60.8	30	0.14	**E**
		SE R	57.8	36	0.12	**E**	49.8	61	0.20	**D**
	MBTA	NW LT	61.8	27	0.19	**E**	63.7	54	0.35	**E**
		NW R	53.3	0	0.01	**D**	60	0	0.01	**E**
	Burgin Parkway	NE L	69.6	4	0.07	**E**	70.6	113	0.60	**E**
		NE TR	3.5	115	0.64	**A**	3.4	113	0.65	**A**
		SW L	67.5	84	0.47	**E**	67.5	84	0.47	**E**
		SW T	8.6	536	0.64	**A**	14.8	715	0.71	**B**
		SW R	3.8	0	0.00	**A**	6.7	0	0.01	**A**
	OVERALL		8.3	91	0.61	**A**	13.2		0.68	**B**
Burgin Parkway at Centre Street (Signalized)	Centre Street	SE L	42.1	136	0.45	**D**	42.1	140	0.46	**D**
		SE TR	42.1	179	0.36	**D**	41.9	179	0.35	**D**
		NW T	71.5	184	0.79	**E**	71.7	186	0.80	**E**
	Burgin Parkway	NE L	46.6	751	0.92	**D**	46.9	751	0.92	**D**
		NE TR	36.4	906	0.87	**D**	42.4	1006	0.93	**D**
		SW L	73.1	161	0.59	**E**	71.4	149	0.60	**E**
		SW T	46.8	174	0.50	**D**	49.0	193	0.56	**D**
		SW R	46.3	166	0.47	**D**	48.4	178	0.53	**D**
	OVERALL		44.8	332	0.90	**D**	47.3	348	0.92	**D**

Abbreviations:

L = Left
T = Through
R = Right

sec = Seconds
ft = Feet
LOS = Level of Service
v/c = Volume-to-Capacity Ratio

Table 7. 2027 PM Peak-Hour Intersection Analysis[6]

Intersection	Approach	Movement	2027 No Build				2027 Build			
			Delay (sec)	95% Queue (ft)	v/c	LOS	Delay (sec)	95% Queue (ft)	v/c	LOS
Burgin Parkway at Quincy Street (Signalized)	Quincy Street	EB L	33.3	52	0.42	**C**	33.3	52	0.42	**C**
		EB R	0.2	0	0.15	**A**	0.2	0	0.15	**A**
	Burgin Parkway	NB L	26.5	157	0.50	**C**	26.7	159	0.51	**C**
		NB T	3.6	191	0.56	**A**	3.8	205	0.58	**A**
		SB T	18.0	330	0.74	**B**	18.4	340	0.75	**B**
		SB R	0.1	0	0.08	**A**	0.1	0	0.08	**A**
	OVERALL		10.3	122	0.68	**B**	10.5	126	0.70	**B**
NEW INTERSECTION Burgin Parkway at Columbia Street Extension (Signalized)	Columbia	EB L	-	-	-	-	31.0	48	0.33	**C**
	Burgin Parkway	NB L	-	-	-	-	2.1	6	0.03	**A**
		NB T	-	-	-	-	5.0	419	0.68	**A**
		SB T	-	-	-	-	3.9	287	0.57	**A**
		SB R	-	-	-	-	1.7	7	0.01	**A**
	OVERALL		-	-	-	-	5.0	153	0.65	**A**
Burgin Parkway at MBTA & Penn Street (Signalized)	Penn Street	SE T	59.8	26	0.09	**E**	57.8	49	0.18	**E**
		SE R	55.8	25	0.04	**E**	52.4	110	0.36	**D**
	MBTA	NW LT	63.0	62	0.42	**E**	69.3	123	0.63	**E**
		NW R	54.7	38	0.03	**D**	56.8	0	0.05	**E**
	Burgin Parkway	NE L	73.9	6	0.12	**E**	76.8	48	0.38	**E**
		NE TR	3.9	89	0.66	**A**	4.1	89	0.66	**A**
		SW L	66.4	35	0.19	**E**	72.4	35	0.33	**E**
		SW T	7.7	403	0.54	**A**	11.9	497	0.59	**B**
		SW R	4.1	0	0.01	**A**	6.4	0	0.02	**A**
	OVERALL		8.9	76	0.61	**A**	12.6		0.67	**B**
Burgin Parkway at Centre Street (Signalized)	Centre Street	SE L	70.3	298	0.89	**E**	63.5	283	0.86	**E**
		SE TR	42.6	262	0.50	**D**	42.6	262	0.50	**D**
		NW T	74.0	192	0.82	**E**	74.1	192	0.82	**E**
	Burgin Parkway	NE L	60.5	303	0.79	**E**	60.2	303	0.78	**E**
		NE TR	34.9	909	0.88	**C**	36.9	951	0.90	**D**
		SW L	68.2	92	0.50	**E**	69.7	94	0.53	**E**
		SW T	24.7	101	0.21	**C**	26.0	156	0.30	**C**
		SW R	24.7	91	0.21	**C**	25.6	121	0.26	**C**
	OVERALL		46.0	281	0.96	**D**	45.9	295	0.97	**D**

Abbreviations:
L = Left
T = Through
R = Right
v/c= Volume-to-Capacity Ratio
sec = Seconds
ft = Feet
LOS = Level of Service

As under 2020 Existing Conditions, minor movements at the Burgin Parkway intersection with Penn Street/Quincy Adams Station experience delays in the range of 60 seconds. The overall the intersection operates at an overall LOS A/B in the AM and PM peak hours under both the No-Build and Build alternatives. The Burgin Parkway-Centre Street intersection also operates comparably to 2020, with overall LOS D in the AM and PM under both No-Build and Build conditions, and v/c approaching 1.0.

In addition to this analysis, queues for buses departing and arriving during their respective peaks were estimated and the proposed project will accommodate the maximum number of buses queuing.

[6] Yellow cells indicate LOS E.

4. Access Management and Circulation

4.1 Access Points

The new facility will have two access points as shown in Figure 13, the existing access point at Burgin Parkway and Penn Street/Quincy Adams Station and one on Columbia Street. Columbia Street will be extended through the existing W. C. Canniff property to create a new signalized intersection with Burgin Parkway.

The new intersection will be constructed to accommodate MBTA's need for operational flexibility. A secondary benefit to this connection is that it provides access to the P.V. Sullivan and W. C. Canniff properties. The intersection will have signalized approaches that allow for both left and right turns to and from Columbia Street and is intended to be limited to MBTA and authorized vehicles only. These movements will be accommodated by channelized turning pockets on Burgin Parkway to prevent potential conflicts with northbound and southbound traffic along Burgin Parkway. An existing overhead directional sign will be relocated, and new fencing will be installed at the back of layout. Sidewalks and crosswalks will be installed at the intersection with Burgin Parkway. Pedestrians will have a signalized and delineated crosswalk (including new ADA-compliant curb ramps) traversing the new approach of Columbia Street. The sidewalk on the west side of Burgin Parkway north of the Columbia Street Extension will be reconstructed. Several alternatives were considered for the location of the extension of Columbia Street. Ultimately, MBTA selected an option that reduce right-of-way impacts to the W. C. Canniff site.

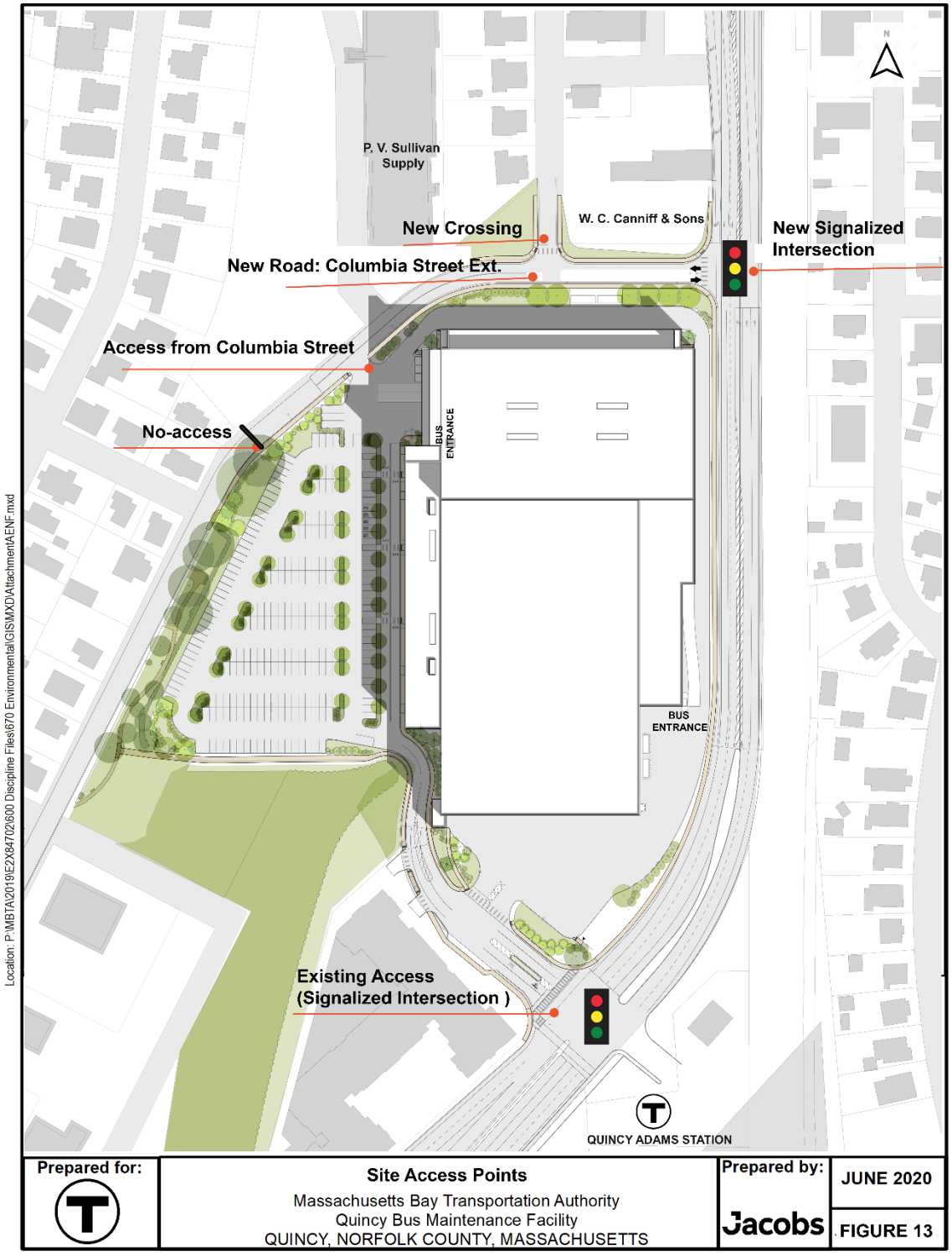


Figure 13. Site Access Points

The Single Environmental Impact Report for the former Lowe's indicated that a driveway in the vicinity of the W.C. Canniff site was also considered in 2008. However, the conceptual designs for the former Lowe's required that Burgin Parkway be widened in such a way that it would impact the MBTA Red Line tracks, and the driveway would have to overcome unfavorable grades. That driveway concept was dismissed for these reasons, as well as the reluctance to "introduce an additional traffic signal to this system."[7] For this project, the conceptual design makes use of the W. C. Canniff property in such a way that there are no grade or widening impacts. Moreover, the new signal is a design requirement to facilitate the left-turn movement of buses crossing two lanes of oncoming traffic.

4.2 Internal Circulation

As shown in Figure 14, there is a counter-clockwise circulation pattern through the site. Buses will primarily enter from Penn Street and enter the fueling and washing bays on the east side of the Project site. They will then either proceed left into the cleaning and storage areas or continue straight and then left for repairs. They will exit the site back onto Penn Street. Alternatively, they can enter/exit via Columbia Street Extension on the northwest part of the site.

Employee parking on the west side of the site will be accessible from the two-way service road. Pedestrian circulation is also shown in Figure 14 and described in detail in Section 3.1 above.

[7] Tetra Tech Rizzo. 2008. *Single Environmental Impact Report Lowe's of Quincy, Massachusetts, EOEEA # 14222 Thomas Burgin Parkway Quincy, Massachusetts*. September 15.

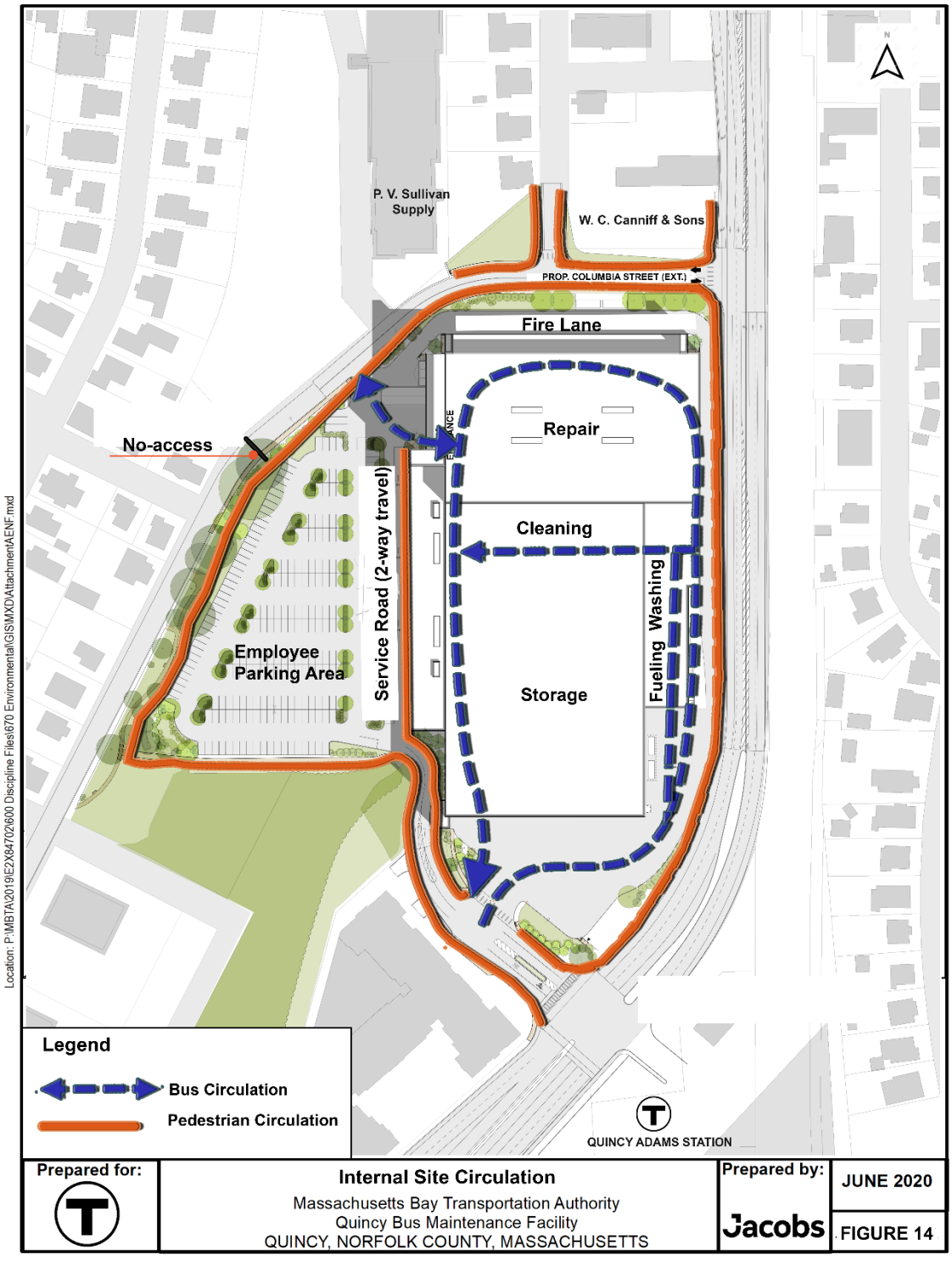


Figure 14. Internal Site Circulation

5. Parking

5.1 Quantity

The project will include approximately 236 surface parking spaces (including 7 ADA-accessible spaces and 5 electric vehicles charging stations) for employees.

5.2 Bicycle Parking

Bike racks and a covered bike cage for employees will be provided near building entrance(s) but information as to type or amount is not available at this time. Installing bike racks near intersections or driveways can also protect sight distance clearances for motorists.

5.3 Parking Management Strategies

MBTA will provide approximately 236 parking spaces for the proposed BMF staff. It is anticipated that there will be 250 MBTA employees at this site, plus up to 200 office-space occupants. Some occupants of the proposed BMF office space will use transit to get to the Project site due to the close proximity of Quincy Adams Station. Additional parking is available at the Quincy Adams Parking Garage across the street.

6. Transportation Options

The proximity of the Red Line at the Quincy Adams Station (across the street from the Project site) provides a useful transportation option to those accessing the site. For bus service, Route 238 along Burgin Parkway runs closest to the Project site. Route 230 runs along Independence Avenue on the east side of the Red Line tracks. Route 215 is within 1,000 feet of the site on Water Street. Additionally, MBTA offers free MBTA passes to its employees as an incentive to use transit.

To meet sustainability and resiliency goals, there are elements that should be incorporated within the Project site. From a multimodal access perspective, bike racks near building entrance(s) and a covered bike cage for employees will be provided. Bicycle infrastructure such as bike lanes or paths connecting the facility to adjacent streets and other bicycle networks will be considered to the extent practicable. Sidewalks will be provided from the building entrance to the signalized intersection of Burgin Parkway-Penn Street to provide a link to bus and Red Line services at Quincy Adams Station.

7. Conclusion

The Project will generate less traffic than the former Lowe's home improvement store that previously occupied the Project site, and as described in Section 3.5, will have no impacts on traffic operations.

The Project will extend Columbia Street to provide a new connection to Burgin Parkway and a new signalized intersection.

Sidewalks and crossings will maintain the connectivity that currently exists between the surrounding neighborhoods and the Quincy Adams Station. The Project includes crossing improvements to the Burgin Parkway-Penn Street/Quincy Adams Station intersection to promote safety for people walking, including widening the median by eliminating one of the two northbound left-turn lanes on Burgin Parkway.

To meet sustainability and resiliency goals, there are elements that should be incorporated within the Project site. From a multimodal access perspective, bike racks near building entrance(s) will be provided along with a covered bike cage for employees. Bicycle infrastructure such as bike

lanes or paths connecting the facility to adjacent streets and other bicycle networks will be considered to the extent practicable. Sidewalks will be provided from the building entrance to the signalized intersection of Burgin Parkway and Penn Street to provide a link to bus and Red Line services at Quincy Adams Station.

Attachments

Attachment D-1: Traffic Counts (available on request)

Attachment D-2: Synchro Worksheets (available on request)

Attachment D-3: ITE Trip Generation Land Use Code Sheets

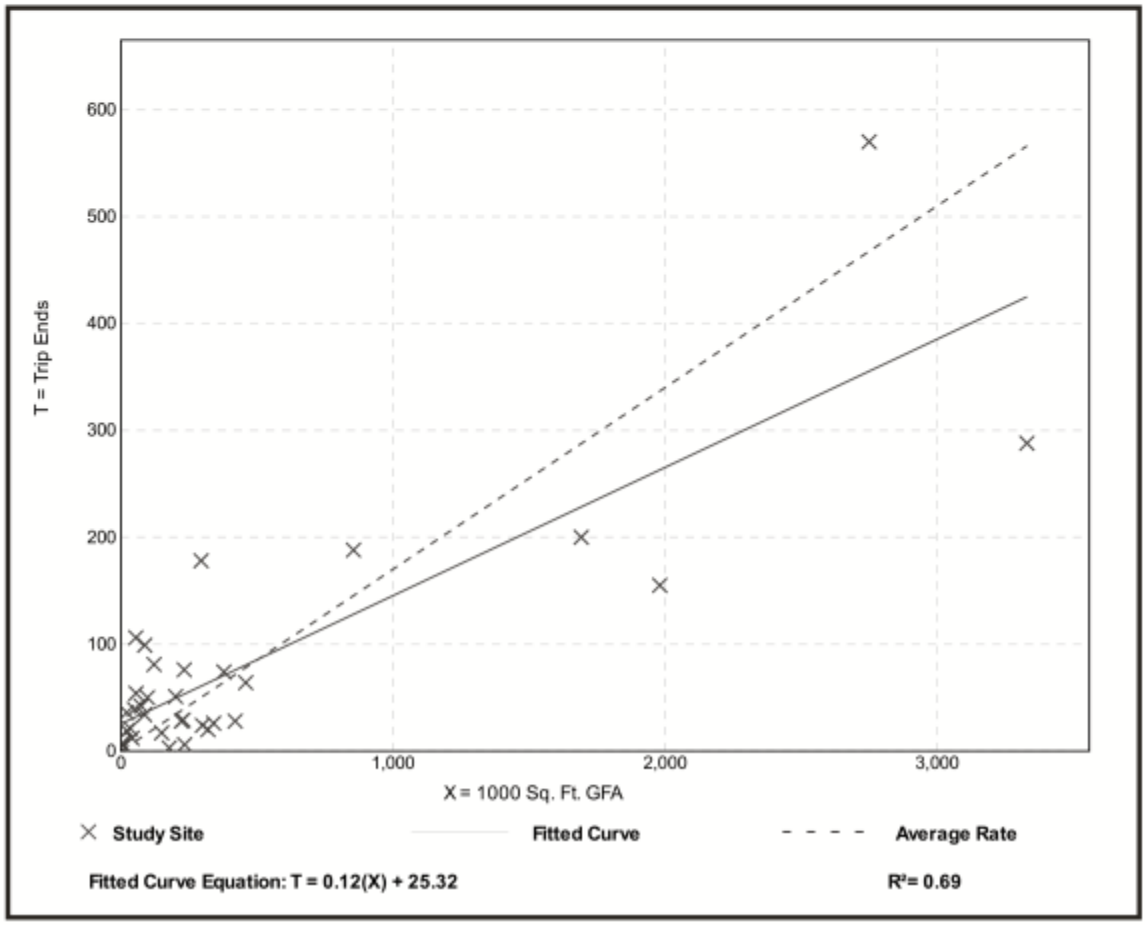
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	34
1000 Sq. Ft. GFA:	451
Directional Distribution:	77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.02 - 1.93	0.20

Data Plot and Equation



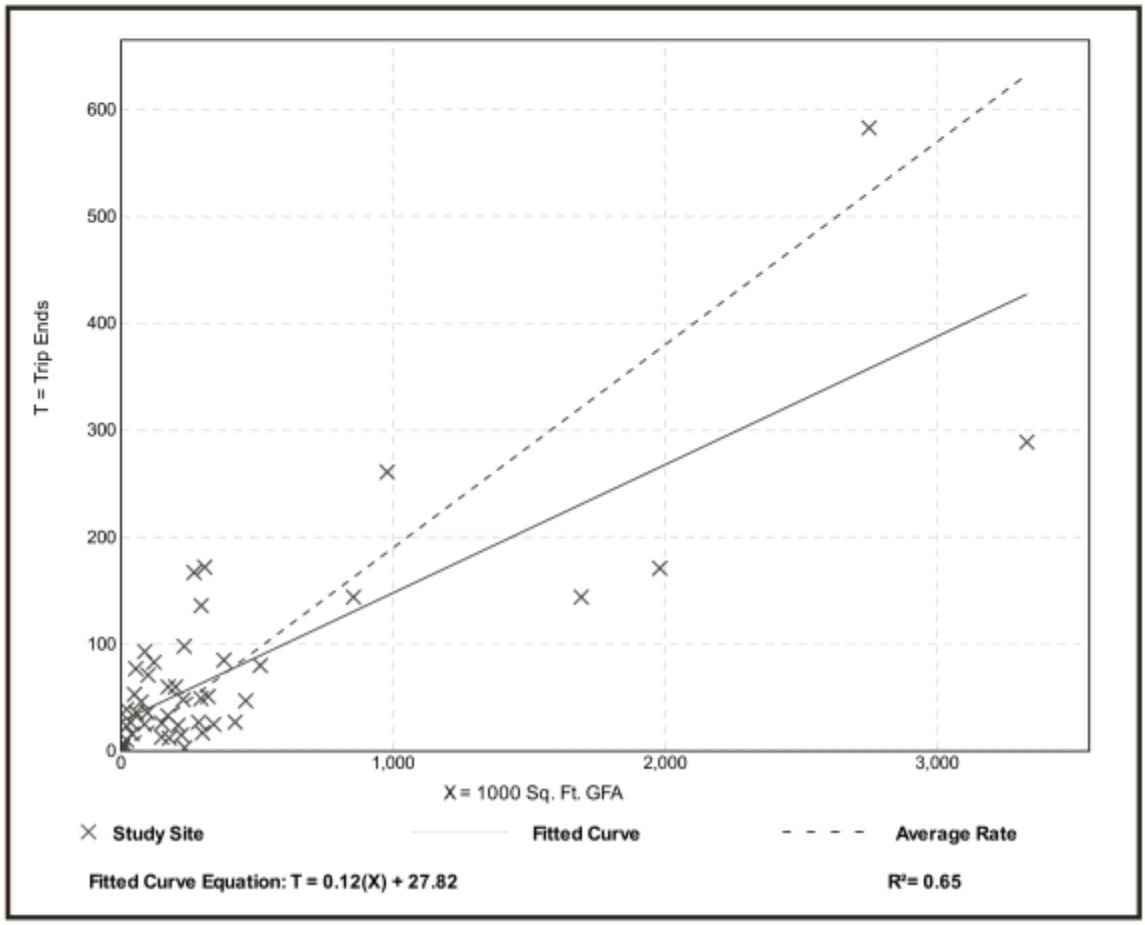
Warehousing
(150)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	47
1000 Sq. Ft. GFA:	400
Directional Distribution:	27% entering, 73% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.19	0.01 - 1.80	0.18

Data Plot and Equation



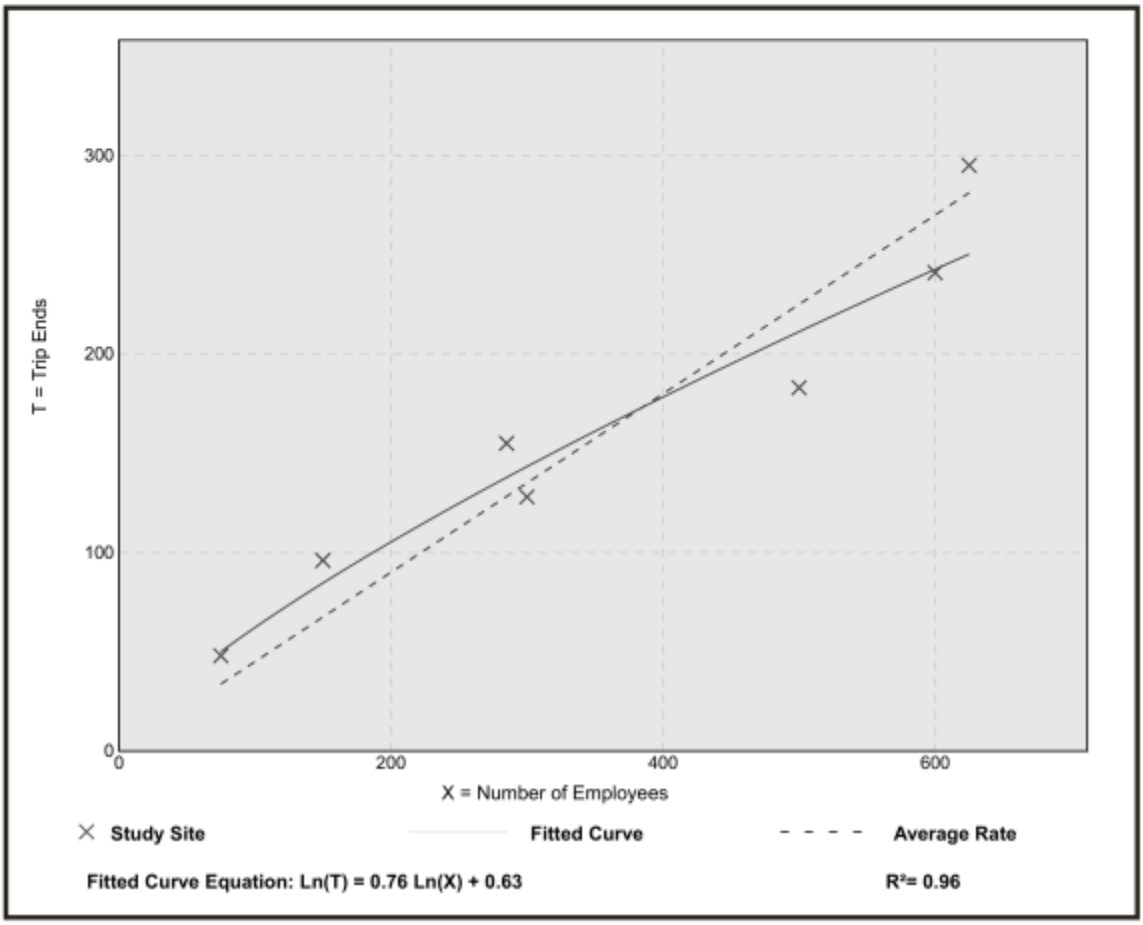
General Office Building
(710)

Person Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Employees: 362
Directional Distribution: 88% entering, 12% exiting

Person Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.45	0.37 - 0.64	0.09

Data Plot and Equation



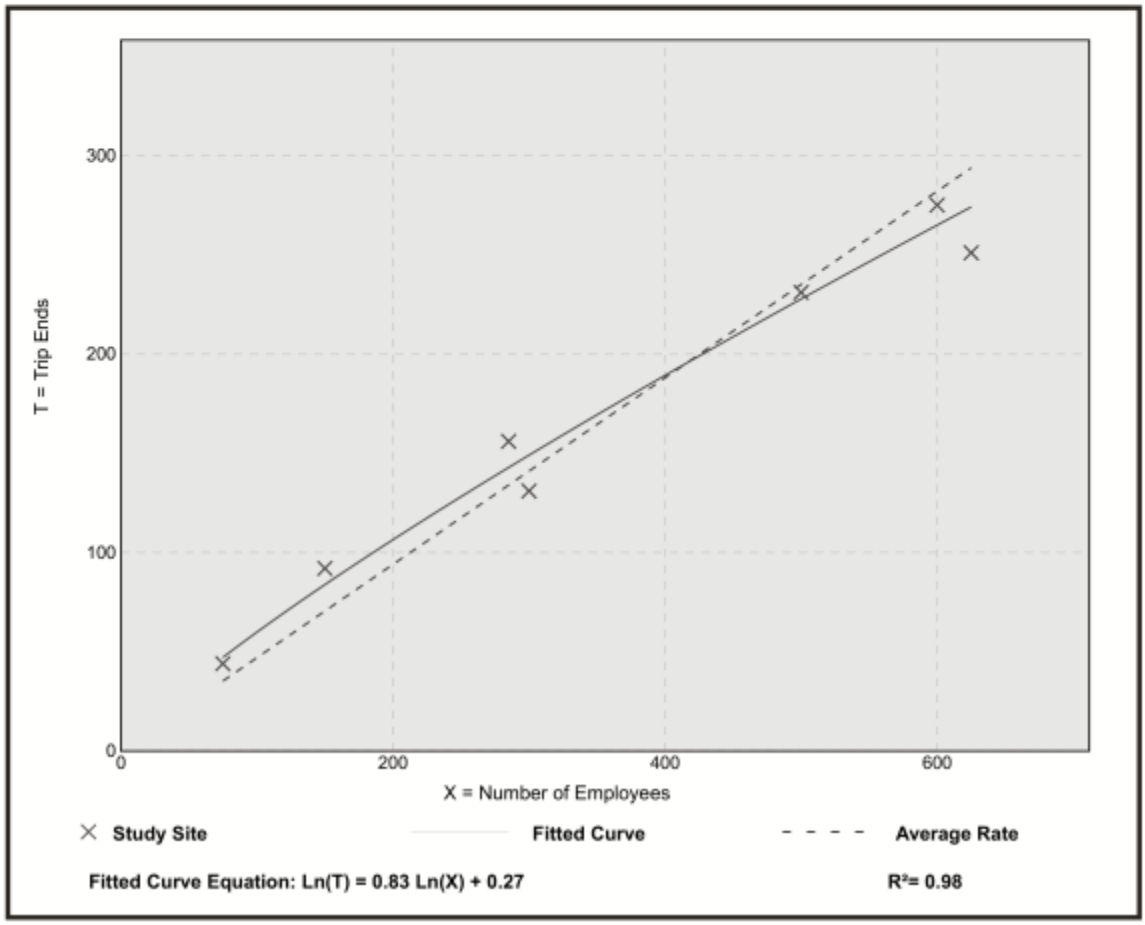
General Office Building
(710)

Person Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Employees: 362
Directional Distribution: 15% entering, 85% exiting

Person Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.47	0.40 - 0.61	0.06

Data Plot and Equation



Attachment D-4: Calculations for Bus Trip Generation

Calculations for Bus Trip Generation

This Technical Memorandum presents an estimate of bus service, personnel, and visitor trips generated under existing (2020) and future (2027) Build (with a maximum fleet size of 135 buses) conditions.

Trip Generation Estimates

Under existing conditions, the MBTA Quincy Garage operates a bus fleet size of 86 buses with a scheduled peak bus requirement of 56 occurring during the AM peak period as shown in Table 1. There are 18 routes served out of the Quincy garage.

Table 1: Quincy Garage - Peak Service Levels by Route (Spring 2019 Timetable)

Route	Terminal	Headway		Bus Count	
		AM Peak	PM Peak	AM Peak	PM Peak
201	Fields Corner Station Loop via Neponset Avenue	30	40	1	1
202	Fields Corner Station Loop via Adams Street	35	30	1	2
210	Quincy Center Station - Fields Corner Station	30	35	3	2
211	Quincy Center Station - Squantum	30	30	3	2
212	Quincy Center Station - North Quincy Station	35	68	1	1
214	Quincy Center Station - Germantown	15	20	3	3
215	Quincy Center Station - Ashmont Station	25	30	3	3
216	Quincy Center Station - Hough's Neck	15	20	4	3
217	Quincy Center Station - Ashmont Station	Limited Service	Limited Service	1	1
220	Quincy Center Station - Hingham Depot	17	16	5	5
221	Quincy Center Station - Fort Point	Limited Service	Limited Service	1	1
222	Quincy Center Station - East Weymouth	14	16	4	4
225	Quincy Center Station - Weymouth Landing or Columbian Square	10	10	7	6
230	Quincy Center Station - Montello Com. Rail Station	20	30	5	4
236	Quincy Center Station - South Shore Plaza	45	30	1	2
238	Quincy Center Station - Holbrook/Randolph Com. Rail Station	24	30	4	5
240	Avon Line or Holbrook/Randolph Com Rail Station - Ashmont Station	15	15	7	7
245	Quincy Center Station - Mattapan Station	30	30	2	3

Route	Terminal	Headway		Bus Count	
		AM Peak	PM Peak	AM Peak	PM Peak
Total		--	--	56	55

The bus fleet requirements are assumed to increase to a maximum fleet size of 135 with a peak bus requirement of 96 buses. The revenue service for the expanded new facility is assumed to increase by approximately 66 percent. This percentage is used to project the traffic generated by the proposed new Quincy Garage. Table 2 provides a summary of estimated weekday vehicle traffic and the net difference between the future and existing scenarios. The resulting value of 548 trips is the assumed estimated increase in vehicles that will be entering or leaving the proposed future garage site over the course of a typical weekday under the future Build scenario and a maximum fleet size of 135 buses.

Table 2: Existing and Future Weekday Trip Generation

Quincy Garage Traffic Movement Estimates	Transportation – Schedule Bus Pull-outs and Pull-ins	Transportation – Auto and Trucks	Maintenance – Auto and Trucks	Total Vehicle Movements
Existing Conditions (80 Bus Fleet Size)	354	388	98	840
Assumed Future Conditions (135 Bus Fleet Size)	588	642	158	1388
Increase (percent)	234 (66%)	254 (65%)	60 (61%)	548 (65%)

Trip Distribution

As listed in Table 1, 18 bus routes serve the Quincy Garage district. A review of the Spring 2019 service schedule for the Quincy bus garage was performed to determine the time-of-day distribution of the bus pull-outs/pull-ins. Summaries of these distributions for the existing services are reported in Table 3 and Table 4 for the pull-outs and pull-ins respectively. Over the course of the day buses are scheduled to pull-out 161 times between 4:35 AM and 10:40 PM. Scheduled pull-ins match the same total of 161 but occurring between the hours of 7:25 AM and 1:59 AM.

According to traffic counts from July 2019, the AM peak hour of adjacent street traffic is 7:45 AM – 8:45 AM and the PM peak hour is 5:00 PM – 6:00 PM. Table 3 and Table 4 show that a small percent of the buses exit or enter this garage during these peak hours. The bus volumes at these times are:

- AM peak hour – No Pull-outs and 13 Pull-ins
- PM peak hour – 10 Pull-outs and 2 Pull-ins

Table 3: Existing Distribution of Scheduled Pull-outs by Time of Day per Quarter Hour Period for MBTA Quincy Garage Future Site – Existing Fleet

Hour	0:00	0:15	0:30	0:45	Total
4:00 AM	-	-	2	4	6
5:00 AM	6	8	4	4	22
6:00 AM	6	7	7	7	27
7:00 AM	-	1	-	-*	1
8:00 AM	-*	-*	-*	-	0
9:00 AM	-	2	2	-	4
10:00 AM	3	4	1	2	10
11:00 AM	3	0	1	1	5
12:00 PM	2	3	1	2	8
1:00 PM	5	2	3	1	11
2:00 PM	3	10	5	3	21
3:00 PM	1	1	5	3	10
4:00 PM	3	3	6	4	16
5:00 PM	3*	3*	3*	1*	10
6:00 PM	-	-	-	-	0
7:00 PM	-	-	-	-	0
8:00 PM	-	1	-	-	1
9:00 PM	2	-	2	-	4
10:00 PM	1	3	1	-	5
11:00 PM	-	-	-	-	0
12:00 PM	-	-	-	-	0
1:00 AM	-	-	-	-	0

Source: Springe 2019 Timetable

Notes:

Total bus pull-outs = 161

Burgin Parkway peak traffic hours denoted by shading and *

Table 4: Existing Distribution of Scheduled Pull-ins by Time of Day per Quarter Hour Period for MBTA Quincy Garage Future Site – Existing Fleet

Hour	0:00	0:15	0:30	0:45	Total
4:00 AM	-	-	-	-	0
5:00 AM	-	-	-	-	0
6:00 AM	-	-	-	-	0
7:00 AM	-	1	-	1*	2
8:00 AM	2*	5*	5*	4	16
9:00 AM	6	4	2	4	16
10:00 AM	5	2	2	4	13
11:00 AM	1	2	2	1	6
12:00 PM	2	2	1	4	9
1:00 PM	3	-	3	2	8
2:00 PM	-	-	-	1	1
3:00 PM	7	4	3	1	15
4:00 PM	3	1	2	4	10
5:00 PM	1*	-*	-*	1*	2
6:00 PM	2	4	5	5	16
7:00 PM	6	4	5	4	19
8:00 PM	1	4	1	2	8
9:00 PM	2	1	2	2	7
10:00 PM	1	2	-	-	3
11:00 PM	1	-	-	3	4
12:00 PM	1	-	-	1	2
1:00 AM	-	1	2	1	4

Notes:

Total bus pull-ins = 161

Burgin Parkway peak traffic hours denoted by shading and *

Under future Build conditions, the distributions would be as shown in Table 5 and Table 6. For the future Build scenario, the bus volumes would be:

- AM peak hour – 0 Pull-outs and 22 Pull-ins
- PM peak hour – 17 Pull-outs and 4 Pull-ins

Table 5: Estimated Distribution of Scheduled Pull-outs by Time of Day per Quarter Hour Period for MBTA Quincy Garage Future Site – 135 Bus Fleet

Hour	0:00	0:15	0:30	0:45	Total
4:00 AM	-	-	3	7	10
5:00 AM	10	14	7	7	38
6:00 AM	10	11	12	12	45
7:00 AM	-	2	-	-	2
8:00 AM	-	-	-	-*	0
9:00 AM	-*	3*	3*	-	6
10:00 AM	5	5	3	4	15
11:00 AM	5	-	2	2	9
12:00 PM	3	5	2	2	13
1:00 PM	8	3	5	2	18
2:00 PM	6	14	8	5	34
3:00 PM	2	2	8	5	17
4:00 PM	5	5	10	7	27
5:00 PM	5*	5*	5*	2*	17
6:00 PM	-	-	-	-	0
7:00 PM	-	-	-	-	0
8:00 PM	-	2	-	-	2
9:00 PM	3	-	3	-	6
10:00 PM	2	4	2	-	8
11:00 PM	-	-	-	-	0
12:00 PM	-	-	-	-	0
1:00 AM	-	-	-	-	0

Notes:

Total bus pull-ins = 267

Burgin Parkway peak traffic hours denoted by shading and *

Table 6: Estimated Distribution of Scheduled Pull-ins by Time of Day per Quarter Hour Period for MBTA Quincy Garage Future Site – 135 Bus Fleet

Hour	0:00	0:15	0:30	0:45	Total
4:00 AM	-	-	-	-	0
5:00 AM	-	-	-	-	0
6:00 AM	-	-	-	-	0
7:00 AM	-	2	-	2*	4
8:00 AM	3*	9*	8*	7	27
9:00 AM	8	7	3	7	25
10:00 AM	9	3	3	7	22
11:00 AM	2	3	3	2	10
12:00 PM	3	3	2	6	14
1:00 PM	5	-	5	3	13
2:00 PM	-	-	-	2	2
3:00 PM	9	7	4	2	23
4:00 PM	5	2	3	6	16
5:00 PM	2*	-*	-*	2*	4
6:00 PM	3	7	9	8	27
7:00 PM	10	7	9	7	33
8:00 PM	2	7	2	3	33
9:00 PM	3	2	3	3	11
10:00 PM	2	3	-	-	5
11:00 PM	2	-	-	4	6
12:00 PM	2	-	-	2	4
1:00 AM	-	2	3	2	7

Notes:

Total bus pull-ins = 267

Burgin Parkway peak traffic hours denoted by shading and *

Other scheduled and unscheduled vehicle movements include a mix of buses, MBTA trucks and autos, and private employee vehicles. Under existing conditions, these trips likely range between 19 and 25 in each direction for both the AM and PM peak hours as summarized in Table 7. Approximately 60 percent of these vehicles approach or leave the garage from the Quincy Center direction (approaching from or leaving in a northerly direction) with the remainder heading to or coming from State Highway Route 3.

Table 7: Estimated Existing Peak Hour Vehicle Movements from the Quincy Garage (Spring 2019 Timetable

Division	Quincy Garage Traffic Movement Estimates	AM Peak Hour Exit	AM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Enter
Transportation	Scheduled Buses	0	13	10	2
Transportation	Employee Vehicles	7	0	1	5
Transportation	MBTA Vehicles	4	4	4	4
Transportation	Visitor Vehicles	4	4	4	4
Maintenance	Employee Vehicles	0	0	0	0
Maintenance	MBTA Vehicles	2	2	2	2
Maintenance	Visitor Vehicles	2	2	2	2
Total Vehicular Movements		19	25	23	19

For the future Build scenario, there will be between 32 and 44 of these trips in each direction for both the AM and PM peak hours as summarized in Table 8. As above, traffic direction generated by the garage is split approximately 60%-40%.

Table 8: Estimated Future Peak Hour Vehicle Movements from the Quincy Garage

Division	Quincy Garage Traffic Movement Estimates	AM Peak Hour Exit	AM Peak Hour Enter	PM Peak Hour Exit	PM Peak Hour Enter
Transportation	Scheduled Buses	0	22	17	4
Transportation	Employee Vehicles	11	0	2	9
Transportation	MBTA Vehicles	7	7	7	7
Transportation	Visitor Vehicles	7	7	7	7
Maintenance	Employee Vehicles	0	0	0	0
Maintenance	MBTA Vehicles	4	4	4	4
Maintenance	Visitor Vehicles	4	4	4	4
Total Vehicular Movements		33	44	41	35

The distribution of the bus pull-outs and pull-ins in Table 3 through Table 6 demonstrates that buses predominately leave the garage before the peak hours to be in place to service commuter demand. Buses do not begin to return to the garage until after the peak hours.

Table 2, as mentioned previously, provides a summary of the vehicle trips generated by the Quincy Garage personnel and operations for typical weekday. Given the typical service requirement of transit operations very few of these trips will occur during the general traffic peak hours. As a result, garage personnel report to work before the peak travel periods and leave work afterwards as summarized by the following statements:

- Transportation Division – Bus operator and other personnel begin to report to work in the hours leading up to the peak hour to be assigned to buses so that they are in place at their appointed transit

terminals to service commuters during peak periods. The end of work for these employees then generally, occur after the extended peak travel hours.

- Maintenance Division – Maintenance and other support personnel typically work shifts between 7:00 AM and 3:00 PM and 3:00 PM and 11:00 PM. A limited work force is required to work an overnight shift to have buses ready to pull-out for service in the early morning hours.
- The above narrative presents details of the vehicular trips generated by the existing garage operations. As noted in Table 2, total vehicular travel generated is expected to increase by approximately 65 percent (548 trips) with the proposed new expanded Quincy Garage. However, the trip generation distribution profile over the course of a weekday will remain constant, that being very few vehicles will leave or enter the garage site during the peak period.

Assumptions—Existing Conditions

Bus Fleet

Fleet size 86 buses http://www.transithistory.org/roster/
AM peak 56 buses (MBTA Spring 2019 Schedule)
Spare buses = 24 (30%)

Quincy Garage Workforce – Budgeted average per season

Transportation (Operations FY19 Budget – 7-day)

Full Time	81
Part Time	33
Inspectors	9
Supervisor	1

Maintenance (Operations FY19 Budget – 7-day)

Automotive Foreman	5
Machinist Foreman	1
Auto Machinist	1
Machinist	22
Fueler	2
Supervisor	1

Quincy Garage Traffic Movements Estimates - Weekday

Transportation – Scheduled Bus Pull-outs/Pull-ins

Category	Weekday Runs	Daily Pull-out	Daily Pull-in	Total Moves
FTO	53	106	106	212
PTO	26	52	52	104
Trippers	3	3	3	6
Total Scheduled	82	161	161	322
Misc. Moves (10%)		16	16	32
Grand Total Bus pulls		177	177	354

Transportation – Auto & Trucks (Weekday Typ.)

Category (# weekday)	Enter Site	Leave Site	Total
FTO – short meal break (22)	22	22	44
FTO – long meal break (31)	62	62	124
PTO (26)	52	52	104
FTO Cover (10)	10	10	20
PTO Cover (7)	7	7	14
Inspectors (7)	7	7	14
Supervisor (1)	2	2	4
Sub Total (104)	162	162	324
MBTA Vehicles (10%)	16	16	32
Misc. 'Visitors' (10%)	16	16	32
Total	194	194	388

Maintenance – Auto & Trucks (Weekday Typ.)

Category (# weekday)	Enter Site	Leave Site	Total
Automotive Foreman (4)	6	6	12
Machinist Foreman (1)	2	2	4
Auto Machinist (1)	2	2	4
Machinist (18)	27	27	54
Fueler (2)	2	2	4
Supervisor (1)	2	2	4
Sub Total (27)	41	41	82
MBTA Vehicles (10%)	4	4	8
Misc. 'Visitors' (10%)	4	4	8
Total	49	49	98

Assumptions—Future Quincy Garage - Estimated Weekday Vehicle Traffic

Bus Fleet

Fleet size 135 buses (assumption)

AM peak 95 buses (assume 70% of fleet size- same as existing)
Spare buses = 40 (30%)

Quincy Garage Workforce – assume existing service profile with 66% service increase
Transportation (Operations – 7-day)

Full Time	130
Part Time	53
Inspectors	15
Supervisor	1

Maintenance (Operations – 7-day)

Automotive Foreman	8
Machinist Foreman	2
Auto Machinist	2
Machinist	34 (4 buses per machinist)
Fueler	4
Supervisor	1

Quincy Garage Traffic Movements Estimates - Weekday
Transportation – Scheduled Bus Pull-outs/Pull-ins

Category	Weekday Runs	Daily Pull-out	Daily Pull-in	Total Moves
FTO	88	176	176	352
PTO	43	86	86	172
Trippers	5	5	5	10
Total Scheduled	136	267	267	534
Misc. Moves (10%)		27	27	54
Grand Total Bus pulls		294	294	588

Transportation – Auto & trucks (Weekday Typical)

Category (# weekday)	Enter Site	Leave Site	Total
FTO – short meal break (36)	36	36	72
FTO – long meal break (52)	104	104	208
PTO (43)	86	86	172
FTO Cover (17)	17	17	34
PTO Cover (10)	10	10	20
Inspectors (12)	12	12	24
Supervisor (1)	2	2	4
Sub Total (171)	267	267	534
MBTA Vehicles (10%)	27	27	54
Misc. 'Visitors' (10%)	27	27	54
Total	321	321	642

Maintenance – Auto & Trucks (Weekday Typical)

Category (# weekday)	Enter Site	Leave Site	Total
Automotive Foreman (6)	10	10	20
Machinist Foreman (2)	4	4	8
Auto Machinist (2)	4	4	8
Machinist (28)	42	42	84
Fueler (3)	3	3	6
Supervisor (1)	2	2	4
Sub Total (42)	65	65	130
MBTA Vehicles (10%)	7	7	14
Misc. 'Visitors' (10%)	7	7	14
Total	79	79	158

Attachment E
Air Quality Analysis

Jacobs

Memorandum

9191 South Jamaica Street
Englewood, Colorado 80112
United States
T +1.303.771.0900

www.jacobs.com

Subject	**Air Quality Assessment**	**Project Name**	MBTA - Quincy Bus Maintenance Facility
Attention			
From	Dana Ragusa		
Date	April 6, 2020		
Copies to	<Name>		

1. Introduction

The Massachusetts Bay Transportation Authority (MBTA), in cooperation with the Federal Transit Administration (FTA), is proposing to address the aging and obsolete conditions of the existing Quincy Bus Maintenance Facility on Hancock Street in Quincy, Massachusetts.

This Air Quality Assessment Report is being prepared in support of the Environmental Assessment (EA) and provides regulatory context, methodology, existing conditions, environmental consequences, and mitigation, as necessary.

2. Project Description

This section describes the two alternatives examined in the EA and this air quality assessment.

2.1 No Build Alternative

The No Build alternative would make only minor improvements to the existing facility on Hancock Street. This would include minor restoration to fix any structural problems and include minor maintenance and upkeep.

2.2 Build Alternative

The Build alternative would close and replace the existing building on Hancock Street with a new facility at 599 Burgin Parkway in Quincy across from the Quincy Adams MBTA station. The proposed site is approximately 1.4 miles from the existing Quincy facility. The proposed site is approximately 12.8 acres and is bounded by Burgin Parkway to the east, Columbia Street to the west and north, and Penn Street to the south (see Figure 1). This site had been used as a Lowe's home improvement store until its closure in 2019.

This alternative would include a new two-story bus maintenance and storage facility, approximately 351,000 sq. ft. in size. The proposed building would occupy 39.1 percent of the 13.13-acre site. The facility would be designed to initially support diesel hybrid buses but would allow for future conversion to a battery electric bus fleet. No passengers would be dropped off or picked up at the facility.

The proposed bus facility would accommodate up to 135 buses and would occupy a footprint similar to that of the former Lowe's building. The proposed bus facility would provide interior bus storage, maintenance, and offices and fueling, washing, maintenance, support, administrative, and management capabilities required to support a fleet of this size. All transit vehicle maintenance and storage functions will be performed indoors. The elements of the proposed Quincy bus facility include:

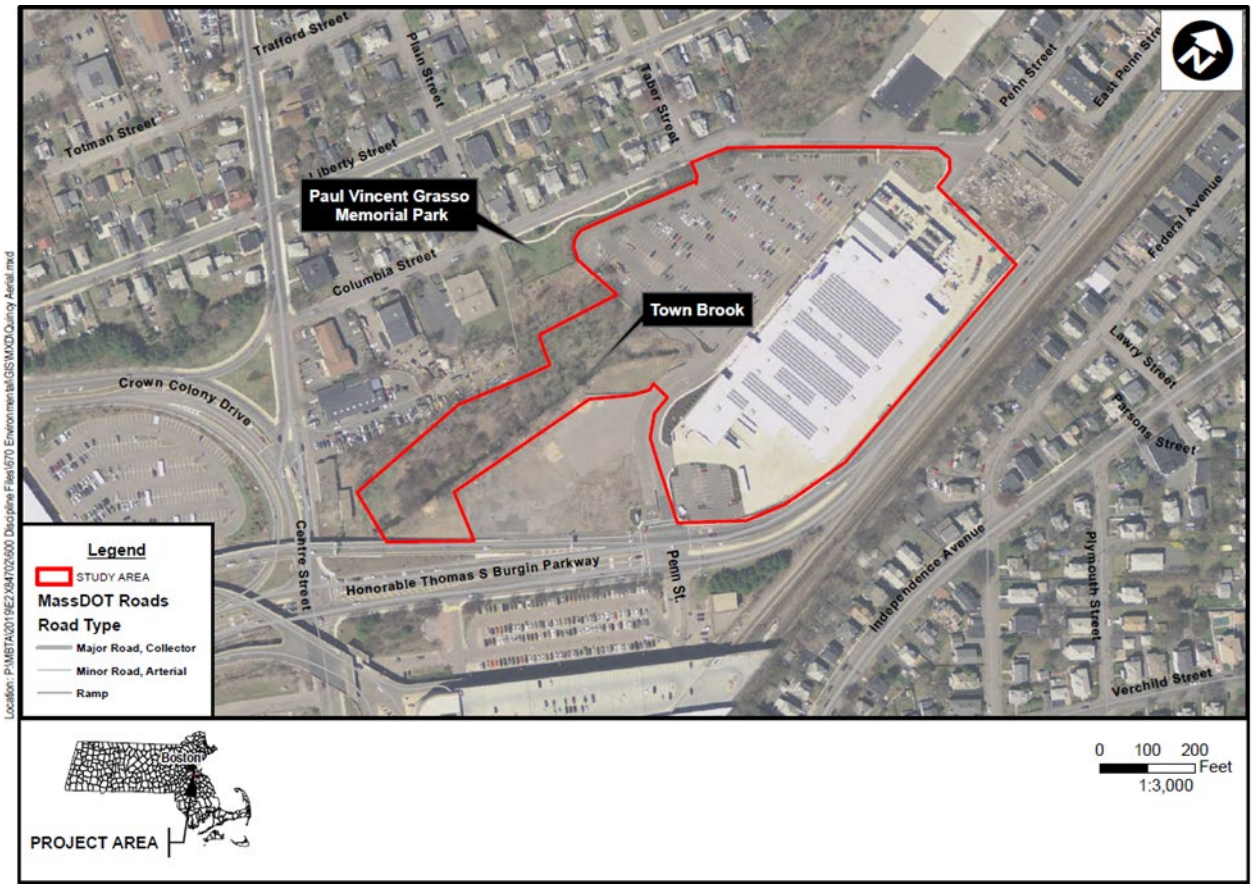
- Bus storage barn
- Bus fueling and bus wash
- Bus inspection and bus steam bays
- Bus maintenance, inclusive of the work row, repair bays and supporting shops.
- Loading dock and parts storage
- Mechanical mezzanine
- MBTA office area
- Facility storage
- Tenant fit-out office space

Approximately 230 employee parking spaces would be provided in a surface lot.

As the design of the proposed bus facility advances it will be guided by Leadership and Environmental Energy Design (LEED) standards and the Envision Rating System for sustainability. The functional capacity and life span of the facility will be designed to a 75-year life-cycle capacity. Opportunities to improve building performance and promote a variety of environmental benefits will be identified during preliminary design. The building design is now only at the conceptual stage, but opportunities for green building design, construction, operation and maintenance identified already include possible reuse of bus washwater, solar photovoltaic roof array, passive design strategies, parking lot landscaping to reduce heat island effects, and use of low-emitting interior materials.

Access to the site would be provided via a signalized intersection at Penn Street and Burgin Parkway. The facility will include an outside bus queuing area off Penn Street, on the east side of the building, adjacent to Burgin Parkway for approximately 30 buses, gated access from Quincy Adams station for employees using public transit and on-site employee parking. A second access/egress point at the north end of the site would provide access from Burgin Parkway to Penn Street/Columbia Street. This new street would extend Columbia Street through the southern end of the W.F. Canniff property, providing more direct access to businesses and residences.

Figure 1: Proposed Quincy Garage Study Area



3. Regulatory Context

3.1 Clean Air Act and National Ambient Air Quality Standards

Federally funded mass transit projects must meet the requirements of the 1970 Federal Clean Air Act (CAA) (42 U.S.C. § 7401), which governs air quality in the United States. The United States Environmental Protection Agency (EPA) is responsible for enforcing the CAA. The EPA has established nationwide air quality standards to protect public health and welfare with an adequate margin of safety. These federal standards, known as the National Ambient Air Quality Standards (NAAQS), are required under the 1977 CAA and subsequent amendments (see Table 1). Under the CAA, NAAQS have been established for seven common pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), and sulfur dioxide (SO_2). The NAAQS represent safe levels of each pollutant to avoid specific adverse effects to human health and the environment.

The federal CAA requires EPA to classify areas in the country as attainment or nonattainment with respect to each criteria pollutant, depending on whether the areas meet the applicable NAAQS. If the air quality in a geographic region meets or measures less than the standards, it is called an attainment area; areas that

do not meet or exceed the standards are called non-attainment areas. Once a non-attainment area meets the standards and additional re-designation requirements in the CAA (Section 107(d)(3)(E)), EPA will designate the area as a "maintenance area."

In Massachusetts, the Department of Environmental Protection (MassDEP) enforces its own ambient air quality standards to protect health and welfare from the adverse effects of specific air pollutants. These standards are published in the Code of Massachusetts Regulations (CMR) (310 CMR 6.00) and are consistent with the NAAQS as shown in Table 1.

Table 1: National Ambient Air Quality Standards

Pollutant	Averaging Time	National Ambient Air Quality Standards	
		Primary	Secondary
Carbon dioxide (CO)	8-hour	9 ppm	--
	1-hour	35 ppm	--
Lead (pB)	Rolling 3 month average(1)	0.15 µg/m3	0.15 µg/m3
Nitrogen dioxide (NO2)	Annual average(2)	53 ppb	53 ppb
	1-hour	100 ppb	--
Ozone (O3)	8-hour(3)	0.070 ppm	0.070 ppm
Particulate Matter (PM10)	24-hour	150 µg/m3	150 µg/m3
PM2.5	Annual arithmetic mean	12 µg/m3	15 µg/m3
	24-hour	35 µg/m3	35 µg/m3
Sulfur dioxide (SO2)	1-hour(4)	75 ppb	--
	3-hour	--	0.5 ppm

Sources: USEPA, 2019.

Notes:

ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter; -- = not applicable

1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 $\mu g/m^3$ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

3.2 Attainment Status and State Implementation Plan Requirements

The CAA defines non-attainment areas as geographic regions that have been designated as not meeting one or more of the NAAQS, and defines maintenance areas as former non-attainment areas that subsequently demonstrated compliance with the standards. According to EPA, Suffolk County is in attainment for all criteria pollutants under the current air quality standards.

The CAA requires each state to develop and maintain a State Implementation Plan (SIP)[1] for each criteria pollutant that violates the applicable NAAQS. The SIP serves as a tool to avoid and minimize emissions of pollutants that would exceed ambient threshold criteria and to achieve compliance with the NAAQS. The MassDEP is responsible for developing implementation plans outlining how all areas of the state will meet and maintain the federal standards for criteria air pollutants.

3.3 Transportation Conformity

The process for determining compliance with a SIP is known as "transportation conformity." The conformity requirement is based on the federal CAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the applicable SIP for attaining the NAAQS.

Transportation conformity applies to transit projects and takes place on two levels: the regional—or planning and programming—level, and the project level. A transportation project must conform at both levels to be approved. Regional conformity is demonstrated when a project is included in a financially constrained conforming Transportation Improvement Program (TIP) and Long-Range Transportation Plan. At project level, a project must not cause a new local violation of the NAAQS or exacerbate an existing violation of the federal standards for CO, PM_{10}, and $PM_{2.5}$.

Conformity requirements apply only in nonattainment and maintenance areas for the NAAQS, and only for the specific NAAQS that are or were violated. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

In January 1996, the EPA approved redesignation of the Boston Region (including Suffolk county) as attainment for the CO NAAQS. Section 175A of the CAA requires redesignated areas to prepare 10-year maintenance plans for demonstrating compliance with the NAAQS. The date of the second-year maintenance plan was through 2016. Therefore, since the maintenance period has ended, transportation conformity is no longer required. According to the air quality conformity determination conducted for the 2019 – 2023 State Transportation Improvement Plan (STIP), this ruling is documented in a letter from EPA dated May 12, 2016.

[1] https://www.mass.gov/lists/massachusetts-state-implementation-plans-sips

3.4 Mobile Source Air Toxics

In addition to the NAAQS, the CAA requires USEPA to regulate mobile source air toxics (MSATs). MSATs are a subset of air toxics, which include nine compounds emitted from highway vehicles, trucks, buses, and nonroad equipment. Diesel particulate matter remains the dominant MSAT of concern for highway and other transportation projects. No federal or state ambient standards exist for MSATs.

3.5 Greenhouse Gases

Human activity is changing the earth's climate by causing the buildup of heat-trapping greenhouse gas (GHG) emissions through the burning of fossil fuels and other human activities. Carbon dioxide (CO_2) from transportation sources is the largest component of human produced emissions in the U.S.; other prominent emissions include methane (CH_4), nitrous oxide (N_2O) and hydrofluorocarbons (HFCs) (EPA 2019c). These emissions are different from criteria air pollutants since their effects in the atmosphere are global rather than local, and also since they remain in the atmosphere for decades to centuries, depending on the substance.

The Global Warming Solutions Act (GWSA) of 2008 made Massachusetts one of the first states in the nation to develop a comprehensive regulatory program to address climate change. Per the GWSA, Massachusetts must achieve a 25% reduction in GHG emissions statewide below the 1990 levels by 2020 and at least 80% reduction below the 1990 levels by 2050.

In June 2010, Massachusetts issued the GreenDOT policy directive, a sustainability initiative, intended to fulfill the requirements of several state laws, regulations, executive orders, and MassDOT policies.

In January 2015, MassDEP issued the following regulations to assist the Commonwealth in achieving the GHG emissions reduction goals:

- *310 CMR 60.05 – Global Warming Solutions Act Requirements for Transportation* – requires MassDOT to meet limits on CO_2 emissions from the combustion of fuels and heating fuels in equipment owned by MassDOT and the Massachusetts Bay Transit Authority (MBTA).

In September 2016, Executive Order 569: *Establishing an Integrated Climate Change Strategy for the Commonwealth*, was issued directing executive agencies to develop and implement a statewide Climate Adaptation Plan and to build a framework for each state agency and municipality in Massachusetts to assess their vulnerability to climate change.

4. Methodology

4.1 Mobile Source Air Toxics

FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1. *No analysis for projects with no potential for meaningful MSAT effects*

Projects of this level are those qualifying as a categorical exclusion under 23 CFR 777.117 (c), or exempt under the Clean Air Act conformity rule under 40 CFR 93.126, or with no meaningful impact on traffic volumes or vehicle mix.

2. *Qualitative analysis for projects with low potential MSAT effects*

Projects at this level include those that serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.

3. *Quantitative analysis to differentiate alternatives for projects with higher potential MSAT Effects*

Projects at this level are those with the potential for meaningful differences among project alternatives. To fall under this category, the project must create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, or create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the annual average daily traffic Annual Average Daily Traffic (AADT) is projected to be in the range of 140,000 to 150,000 or greater, by design year.

The purpose of this project is to address aging and obsolete conditions at the Quincy Bus Maintenance Facility by constructing a new bus maintenance facility that would replace the current facility. This project has been determined to generate minimal air quality impacts for CAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the No Build alternative. Therefore, no additional analysis is required.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emissions rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 45 percent (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

4.2 Greenhouse Gases

The National Environmental Policy Act (NEPA) requires federal agencies to disclose and analyze environmental effects of their proposed actions. The proposed project is located in an attainment area where the air quality is generally good. Therefore, consistent with the methods for other pollutants, a qualitative discussion of GHGs was conducted.

4.3 Construction

Construction activities would be temporary and are anticipated to last approximately 30 months. Therefore, a qualitative assessment of potential temporary construction impacts would be conducted and

include any control measures that can be implemented during construction to reduce temporary emission impacts.

5. Existing Conditions

The existing facility at 954 Hancock St. in Quincy was built in 1930. The existing building is approximately 44,000 sq. ft., with yard space of approximately 179,000 sq. ft. MBTA currently maintains and stores a fleet of 86 buses at the Quincy Bus Maintenance Facility. The facility provides inspections, repairs, refueling, and servicing for the buses.

The proposed site is approximately 13.13 acres and is bounded by Burgin Parkway to the east, Columbia Street to the west and north, and Penn Street to the south. Properties to the east include a memorial park; to the southwest is a 180-unit Deco apartment building on Penn Street; and a residential neighborhood of one- and two-family houses is to the west and north. The sole existing structure on the site parcels is the former Lowe's home improvement center building. Land use in the area consists mostly of residential development missed with industrial and transit uses.

5.1 Air Quality Monitoring Results

The MassDEP operates a network of 21 ambient air quality monitoring stations within the state of Massachusetts and is responsible for reporting results to the EPA. Monitoring data was downloaded from the EPA Interactive Map of Air Quality Monitors. Table 2 details the maximum CO, $PM_{2.5}$, PM_{10}, NO_2, and O_3, concentrations measured from 2015 to 2019 at nearby monitoring stations and displays the NAAQS for comparison.

Table 2: Maximum Pollutant Concentrations at Nearby Monitoring Stations

Pollutant	Monitoring Stations	Averaging Time	NAAQS	2015	2016	2017	2018	2019
Carbon Monoxide (ppm)	Boston – Von Hillern at 19 Von Hillern Street	1-hour (2nd max) 8-hour (2nd max)	35 9	1.681 1.1	1.298 1.0	1.624 1.1	1.62 0.9	0.681 0.5
Carbon Monoxide (ppm)	Boston – Dudley Square Roxbury at Harrison Avenue	1-hour (2nd max) 8-hour (2nd max)	35 9	1.362 0.9	2.409 1.8	1.32 1.1	1.105 0.8	1.118 0.7
Carbon Monoxide (ppm)	Boston – Boston Kenmore Square at Kenmore Square	1-hour (2nd max) 8-hour (2nd max)	35 9	0.4 0.3	n/a n/a	n/a n/a	n/a n/a	n/a n/a
Particulate Matter less than 2.5 microns ($\mu g/m^3$)	Boston – Von Hillern at 19 Von Hillern Street	24-hour (2nd max)	35	16.5	16.4	12.7	14.9	7.7

Pollutant	Monitoring Stations	Averaging Time	NAAQS	2015	2016	2017	2018	2019
Particulate Matter less than 2.5 microns ($\mu g/m^3$)	Boston – Dudley Square Roxbury at Harrison Avenue	24-hour (2^{nd} max)	35	15.6	14	12.2	14.3	7.2
Particulate Matter less than 2.5 microns ($\mu g/m^3$)	Boston – Boston Kenmore Square at Kenmore Square	24-hour (2^{nd} max)	35	15.6	14.8	13.1	14.4	8.5
Particulate Matter less than 10 microns ($\mu g/m^3$)	Boston – Dudley Square Roxbury at Harrison Avenue	24-hour (2^{nd} max)	150	28	29	27	23	n/a
Particulate Matter less than 10 microns ($\mu g/m^3$)	Boston – Boston Kenmore Square at Kenmore Square	24-hour (2^{nd} max)	150	30	30	n/a	n/a	n/a
Nitrogen Dioxide (ppb)	Boston – Von Hillern at 19 Von Hillern Street	1-hour (2^{nd} max)	100	57	54	54	62	53
Nitrogen Dioxide (ppb)	Boston – Dudley Square Roxbury at Harrison Avenue	1-hour (2^{nd} max)	100	57	66	48	53	55
Nitrogen Dioxide (ppb)	Boston – Boston Kenmore Square at Kenmore Square	1-hour (2^{nd} max)	100	60	52	56	53	48
Ozone (ppm)	Boston – Dudley Square Roxbury at Harrison Avenue	8-hour (4^{th} max)	0.070	0.056	0.058	0.069	0.067	0.047

Source: USEPA, 2019.

$\mu g/m^3$ = micrograms per cubic meter, max. = maximum, n/a = not available, ppm = parts per million, ppb = parts per billion.

5.2 Greenhouse Gases

GHG emissions have accumulated rapidly as the world has industrialized, with concentration of atmospheric CO_2 increasing from roughly 300 parts per million (ppm) in 1900 to over 400 ppm today. Over this timeframe, global average temperatures have increased by roughly 1.5 degrees Fahrenheit (1 degree Celsius), and the most rapid increases have occurred over the past 50 years. Scientists have warned that significant and potentially dangerous shifts in climate and weather are possible without substantial reductions in GHG emissions. They commonly have cited 2 degrees Celsius (1 degree Celsius beyond warming that has already occurred) as the total amount of warming the earth can tolerate without serious and potentially irreversible climate effects (IPCC 2014). For warming to be below 2 degrees Celsius, atmospheric concentrations of CO_2 would need to stabilize at a maximum of 450 ppm, requiring annual global emissions to be reduced 40 to 70 percent below 2010 levels by 2050 (IPCC, 2014).

According to the MassDEP, GHG emissions within Massachusetts have decreased by 22 million metric tons of carbon dioxide equivalents ($MMTCO_2e$), or approximately 24 percent, between 1990 and 2012 from a reduction in fuel combustion emissions.

6. Environmental Consequences

6.1 No Build Alternative

There are no proposed improvements under the No Build Alternative. However, traffic volumes would increase under the No Build Alternative, as population would increase, resulting in an associated increase in air emissions. In addition, the existing facility at Hancock Street would continue to operate with a diesel bus fleet and would exceed capacity of the facility.

6.2 Build Alternative

No passengers would be dropped off or picked up at the proposed bus facility which would reduce the amount of traffic at the proposed facility. Approximately 230 employee parking spaces would be provided in a surface lot. The proposed bus maintenance facility would be constructed on a site previously operated by a Lowe's store. Weekday operations at the Lowes facility were almost double compared to the estimated operations for the proposed bus maintenance facility. Therefore, emissions are anticipated to be less compared to previous operations in this area.

The proposed bus maintenance facility would be constructed to replace the current facility within the study area increasing approximately 60 percent from a bus fleet of 86 to a fleet of 135. The purpose of these improvements is to provide improved maintenance capabilities to help improve systemwide operations, not to add capacity. These improvements would reduce the amount of idling from queues forming to access the maintenance facility. In addition, there would be no significant change to existing bus routes except a slightly different route to access the new facility, approximately 1.4 miles south of the existing facility.

The proposed bus facility would be larger and add approximately 548 daily vehicle trips. However, this increase is approximately less than 2.5% of the approximate average daily traffic volume of 22,000 vehicles along the section of Burgin Parkway in the vicinity of the proposed future Quincy garage Site. In addition, distributing the generated trips from the proposed bus maintenance facility across the study intersections would result in very few new peak hour trips.

Therefore, similar to MSAT emissions, this project would not result in significant changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in overall air quality impacts of the project from that of the No Build alternative. In addition, the proposed bus fleet would be diesel hybrid which would have lesser impact on air quality. To further reduce air quality impacts, the proposed project would allow for future conversion to a zero-emission battery electric bus fleet.

6.3 Greenhouse Gases

Greenhouse gas emissions are closely related to energy/fuel consumption. According to the Massachusetts Clean Energy and Climate Plan for 2020, passenger vehicles are the dominant source of

emissions from the transportation sector. Emissions from fuel combustion are determined by the efficiency and usage of vehicles (as measured in "vehicle miles traveled", or "VMT"), and characteristic of fuels (Executive Office of Energy and Environmental Affairs, 2015).

As mentioned above, future traffic volumes and VMT would increase as population increases. In addition, for reasons discussed above, this project would not result in significant changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in VMT or GHG emissions.

A major factor in mitigating increases in VMT is U.S. Environmental Protection Agency GHG emissions standards, implemented in concert with national fuel economy standards. The U.S. Energy Information Administration (EIA) projects that vehicle energy efficiency (and thus, GHG emissions) on a per-mile basis will improve by approximately 55 percent by 2050 (EIA 2020). This improvement in vehicle emissions rates is more than sufficient to offset the increase in VMT.

The proposed project would meet the following goals of the GreenDOT Policy:

- **Reduce greenhouse gas emissions**
  - The proposed project would improve systemwide operations for MBTA and would help to reduce the number of vehicles traveling to and from Quincy and other parts of the metropolitan area connected to MBTA systems.
  - In addition, Massachusetts has initiated several programs towards achieving the goals of reducing GHG emissions such as offering rebates to consumers who purchase fuel-efficient models, clean vehicle grant program for medium and heavy-duty alternative fuel vehicles, and funding to communities and institutions of higher education to purchase plug-in electric vehicles and install charging stations.
- **Promote healthy transportation modes**
  - Bicycle and pedestrian improvements to encourage passengers to commute using other options
- **Support smart growth development**
  - The proposed project would provide needed infrastructure for public transit in future years and decades ahead as shown by the purpose and need of the project:
    - Address aging garage and bus maintenance infrastructure on the South Shore
    - Provide up-to-date facilities to accommodate a modernized fleet of buses
    - Provide improved maintenance capabilities to help improve systemwide operations
    - Provide additional bus storage capacity to meet ridership demand
  - As the design of the proposed bus facility advances it will be guided by Leadership and Environmental Energy Design (LEED) standards and the Envision Rating System for sustainability. The functional capacity and life span of the facility will be designed to a 75-year life-cycle capacity. Opportunities to improve building performance and promote a variety of environmental benefits will be identified during preliminary design.

6.4 Construction

Construction activities are a source of dust and exhaust emissions resulting from earth moving and use of heavy equipment, as well as land clearing, ground excavation, and site preparation. Emissions can vary substantially day to day, depending on the level of activity, the specific operations, and the prevailing weather. The proposed project may be subject to an Air Plan Approval and will be determined as the project advances to final design.

Per DEP regulation 310 CMR 7.09 and local ordinances, preparation of a control plan would be required to specify best practical methods that would be used to control the generation of fugitive dust, such as watering of construction areas, covering dust-producing materials during transport, maintaining equipment, minimize idle time, etc. The contractor would also need to comply with the MassDEP Diesel Retrofit Program (DRP) to control emissions from construction equipment by promoting the use of engine emission controls. Lastly, all construction equipment would be subject to 310 CMR 7.11(1)(b) which requires that engines idle for no more than five minutes.

7. Mitigation

Air quality emissions in the study area would not result in any exceedance of the NAAQS; therefore, no direct project air quality mitigation is necessary.

Construction air quality impacts (fugitive road dust and engine exhaust emissions) will be controlled by implementing the measures discussed in Section 6.4.

Attachment F
Historic and Cultural Resources

Technical Memorandum
MBTA Bus Facility, 599 Burgin Parkway
Quincy, MA

Historic and Archaeological Resources Summary for Categorical Exclusion

Updated May 26, 2020
PAL No. 3821.01

Submitted to:

Jacobs Engineering Group, Inc.
120 St. James Ave., Suite 500
Boston, MA 02116

The Massachusetts Bay Transportation Authority (MBTA) site for a proposed Bus Facility at 599 Burgin Parkway in Quincy (Project) contains a vacant former Lowe's Home Improvement store (Lowe's) and parking lot and a wooded area along side Town Brook. The *MBTA 599 Burgin Parkway Bus Facility, Quincy, Massachusetts, Historic and Archaeological Resources Desktop Study Report* was completed of the irregularly shaped, 12.81-acre parcel in October 2019 by The Public Archaeology Laboratory, Inc. (PAL). The study included a records search with location and mapping of known cultural resources, synopsis of the site's history, and development of a recommended Area of Potential Effects (APE) for the Project. The report presents the history and prehistory contexts of the project area, as defined by MBTA and used by PAL in October 2019, which encompasses the Lowe's building and parking lot and the Town Brook area. The report includes the results of the cultural resource site file data collection for identified resources within 0.5-mile study area around the project area for historic resources, and a 1-mile study area around the project area for archaeological resources. A summary of the results and recommendations follows. Recommendations have been updated based on additional information about the Project available since October 2019. Refer to the PAL October 2019, updated May 2020 report for further information.

Results

Historic Resources

There are no historic resources within the project area that are in the Massachusetts Historical Commission (MHC) Inventory, MACRIS, or State and National Register files. The one building in the project area, the former Lowe's store and associated parking lot and sitework, was built in 2010 and is less than 50 years old. Within the half-mile cultural resources study area around the project area, file review shows there are 120 historic resources within the study area recorded in the MHC Inventory in both Quincy and Braintree: 10 survey areas, and 110 aboveground properties. The Archbishop Williams High School Area (BRA.P) and Cedar Street Area (BRA.M) in Braintree are southeast of the project area and are partially within the study area. The historic aboveground properties consist of 59 single-family houses; 21 multi-family houses; 12 commercial properties; 5

community buildings; 4 former and/or current industrial or military resources; 4 schools; 3 churches, and 2 service stations.

The extant State- and National Register-listed historic properties in the cultural resources study area consist of one historic district and nine individual listings. The Adams National Historic Site Complex (QUI.AE, NRDIS 10/15/1966, NRIS #66000051) is northeast of the project area. The John Adams Birthplace, 133 Franklin Street (1681, QUI.333, NRIND 10/15/1966, NRIS #66000129) and John Quincy Adams Birthplace, 141 Franklin Street (1663, QUI.335, NRIND 10/15/1966, NRIS #66000128) are within the Adams National Historic Site Complex (QUI.AE). The Adams Birthplace (Local) Historic District (QUI.M) encompasses these two properties. The individually listed properties within the study area consist of two properties within the Adams National Historic Site Complex (QUI.AE), noted above, and seven other unrelated properties: South Junior High School, 444 Granite St (1927, QUI.401, NRIND 9/20/1989, NRIS #89001343) Thomas Curtis House, 279 Franklin Street (1851, QUI.345, NRIS #89001334); Edwin W. Marsh House, 17 Marsh Street (1851, QUI.414, NRIS #89001378); Edward J. Lennon House, 53 Taber Street (1888, QUI.431, NRIS #89001378); Nightengale House, 24 Quincy Street (1855 QUI.421, NRIS #89001370); Solomon Nightengale House, 429 Granite Street (1820, QUI.400, NRIS #89001342); and Noah Curtis House, 313 Franklin Street (1795, QUI.346, NRIS #64000289). Two properties within or adjacent to the project area that were listed in the National Register as part of the Quincy Multiple Resource Area are no longer extant: Quincy Water Company Pumping Station (1883, demolished before 1995, QUI.435, NRIND 9/20/1989, NRIS# 89001361) and S. H. Barnicoat Monuments, 114 Columbia Street/366 Centre Street (ca. 1890, demolished, QUI.404, NRIND 9/20/1989, NRIS #89001325).

Archaeological Resources

There are no recorded archaeological sites within the project area, but there are two post-contact sites within 0.5 mile to the north and south: Fort Square Mill Site (QUI-HA-38) on Pleasant Street at Fort Square and Area 6 Stone Wall (QUI-HA-42). While no pre-contact Native American archaeological sites are recorded within the 1-mile study area, there are numerous pre-contact sites to the west in the Blue Hills Reservation along the headwaters of both Furnace and Town brooks, and to the north of Quincy Center along Furnace Brook and its confluence with Black's Creek.

The project area contains open, channelized and buried, and culverted portions of the Town Brook drainage. No archaeological sensitivity is assigned to the project's "Buildable Area" currently covered by the former Lowe's building and associated paved parking lot and drives because of documented late nineteenth- and twentieth-century commercial land uses and terra-forming including the artificial culverting and relocation of the original Town Brook drainage. Late twentieth- and early twentieth-first-century commercial developments related to the construction of the Lowe' shopping complex also would have severely compromised any belowground remains associated with the documented late nineteenth-century ice house complex, municipal water works, and rail-served businesses.

The Project's "Resource Area" containing the wooded Town Brook channel and associated wetlands in the southwest part of the project area is assigned low archaeological sensitivity. This area contains mapped wetlands along the brook channel and extensive recontouring associated with the removal of former paved parking lots and riverbank restoration work conducted as part of the 2010 Lowe's development.

The proposed work area for the relocation of the northeast corner of the existing concrete retaining wall and fence overlaps the "Buildable Area" and "Resource Area" portions of the project area. This area contains wetlands associated with the brook and previously disturbed areas during the 2010 Lowe's redevelopment project. The proposed work area is near the remnant masonry headwall for the Town Brook culvert that extends north under the paved parking lot. The remnant masonry headwall was left unaltered as part of the 2010 Lowe's redevelopment and will not be impacted by the proposed retaining wall relocation work.

Area of Potential Effects and Recommendations

The APE for historic aboveground resources at the project area is recommended to be 200 feet around the project area perimeter. This recommended APE is based on similar past MBTA facility ground-level projects and the urban characteristics and level topography of the surrounding area. There are no extant historic resources in the project area or the recommended APE. Therefore, no effects are anticipated to historic aboveground properties. Within the project area, the only building is the Lowe's building constructed in 2010, which is not an historic resource; the existing retaining wall between Town Brook and the parking lot was constructed in 2010 as part of the Lowe's development. Therefore, any modification of the wall is not expected to impact historic resources.

The APE for archaeological resources in the project area is recommended to correspond to areas of proposed direct impacts. No further archaeological investigations are recommended for the entire project area including the "Buildable Area" in the northern two-thirds and the "Resource Area" wooded wetlands and adjacent land areas in the southern portion because of previous construction, demolition, and restoration projects that have occurred from the nineteenth through early twenty-first centuries including the 2010 Lowe's development.

Attachment G
Noise Impact Study

Noise Assessment Report
Quincy Bus Maintenance Facility
Boston, Massachusetts
MBTA Contract Z94PS09

May 2020

Prepared for

Massachusetts Bay Transportation Authority

Prepared by

Jacobs

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved

Distribution of copies

Revision	Issue approved	Date issued	Issued to	Comments

CONTENTS

1 INTRODUCTION

The Massachusetts Bay Transportation Authority (MBTA), in cooperation with the Federal Transit Administration (FTA), is proposing to address the aging and obsolete conditions of the existing Quincy Bus Maintenance Facility (BMF) on Hancock Street in Quincy, Massachusetts.

This Noise Assessment Report is being prepared in support of the Environmental Notification Form for the Massachusetts Environmental Policy Act and the Categorical Exclusion for the National Environmental Policy Act environmental documentation and provides regulatory context, methodology, existing conditions, environmental consequences, and mitigation, as necessary.

1.1 No-Build Alternative

The No-Build Alternative would make only minor improvements to the existing MBTA BMF on Hancock Street in Quincy, Massachusetts. Improvements would include minor restoration to fix any structural problems and include minor maintenance and upkeep.

1.2 Build Alternative

The Build Alternative would close and replace the existing building on Hancock Street with a new facility at 599 Burgin Parkway in Quincy across from the Quincy Adams MBTA Station. The proposed BMF site is approximately 1.4 miles from the existing Quincy BMF facility. The proposed BMF property is approximately 12.8 acres, and the proposed Project site on the property is approximately 10.24 acres and is bounded by Burgin Parkway to the east, Columbia Street to the west and north, and Penn Street to the south. This site had been used as a Lowe's home improvement store until its closure in 2019.

2 REGULATORY CONTEXT

Noise and vibration have been assessed in accordance with guidelines specified in the FTA's *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018a). The FTA guidance manual is the primary source for the noise assessment methodology.

2.1 Noise

Noise is any disagreeable or undesired sound. Transit noise can come from transit vehicles in motion, stationary transit vehicles, and fixed-transit facilities. Noise is commonly measured in decibels and is expressed as "dB." Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dBA." On the dBA scale, a change in noise levels perceived as a 3-dBA change is barely perceptible, a 5-dBA change is readily perceptible, and a 10-dBA change is perceived as a doubling or halving of noise.

Average hourly noise level (L_{eq}) and day-night noise level (L_{dn}) are two noise descriptors typically used to represent the average noise level over a given period of time. L_{eq} is the average noise level over one hour for daytime uses, such as parks and schools (refer to Figure 1 for typical L_{eq} noise levels). For areas where nighttime noise is a concern, such as places where people sleep, the day-night noise level L_{dn} metric is used. Refer to Figure 2 for typical L_{dn} noise levels. L_{dn} logarithmically averages the noise levels over a 24-hour period and includes a 10-dBA penalty to nighttime noise levels between the

hours of 10:00 PM and 7:00 AM to account for the increased noise sensitivity of people during nighttime hours. The effect of this penalty is that one train pass-by during the nighttime hours is equivalent to 10 pass-bys during the daytime hours.

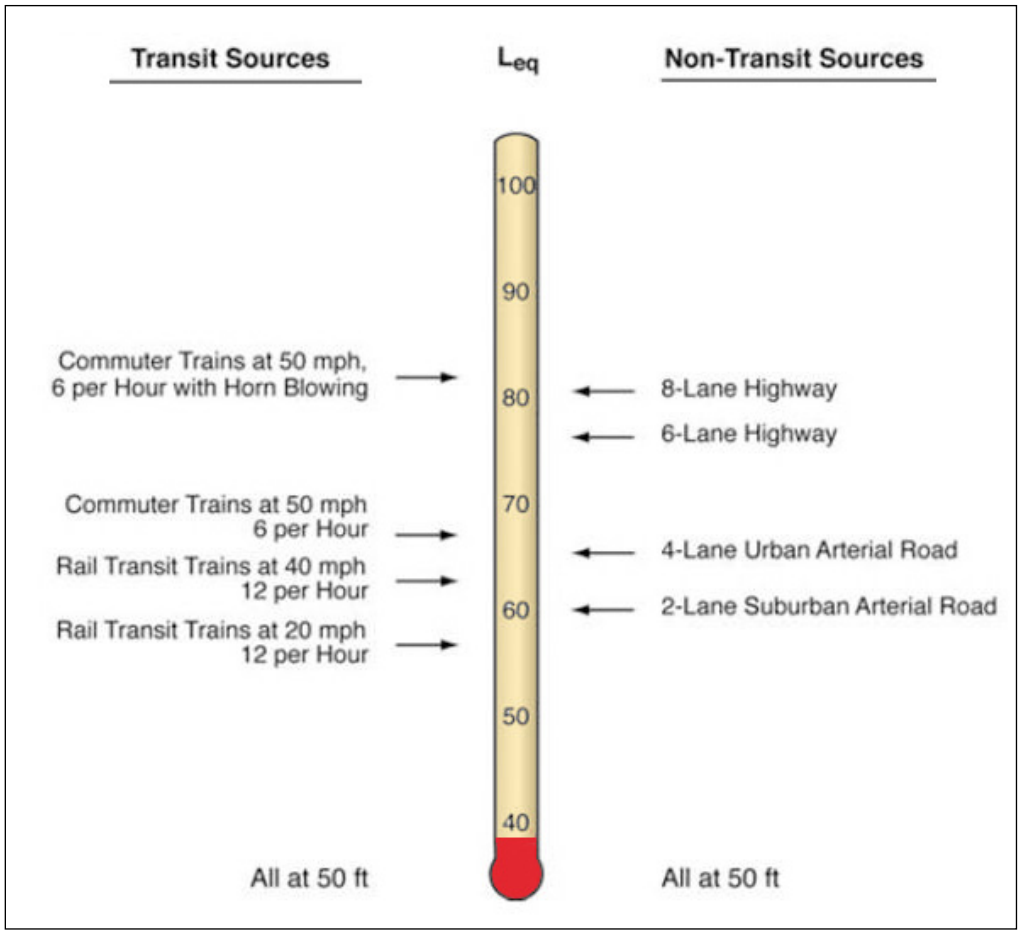


Figure 1. Typical L_{eq} Level

Source: FTA Noise and Vibration Impact Assessment, September 2018, Figure B-9.

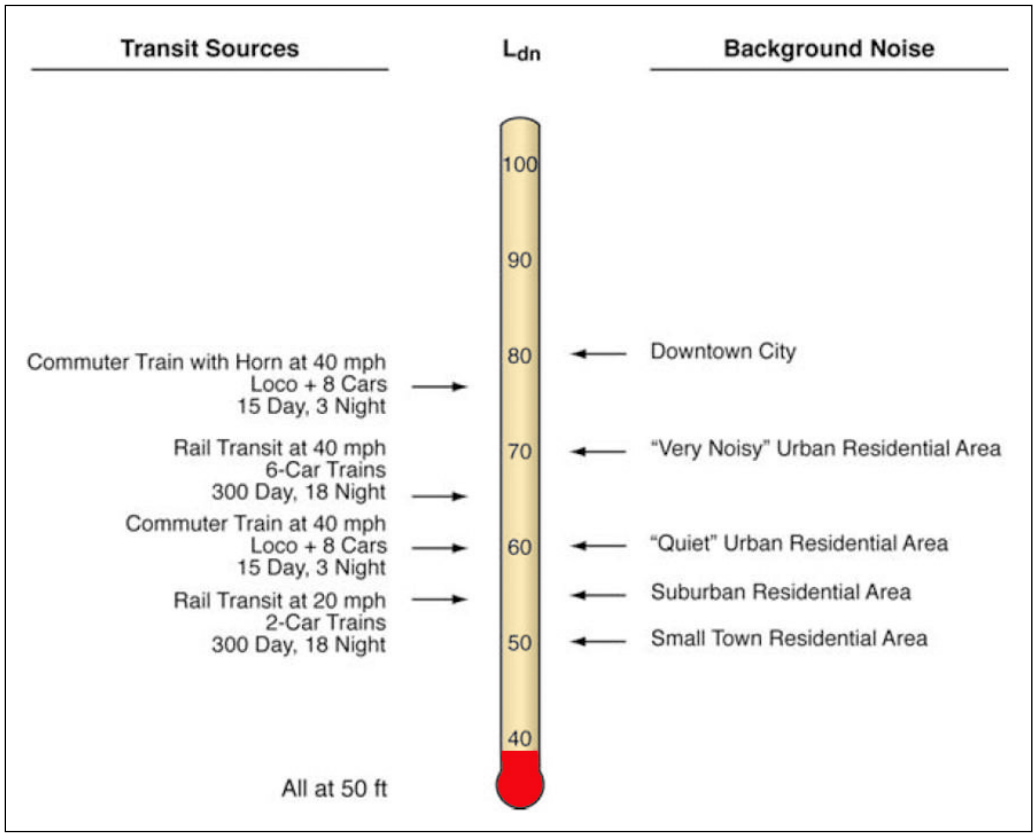


Figure 2. Typical L_{dn} Levels
Source: FTA 2018a, Figure B-11.

2.2 Vibration

Ground-borne vibration can be caused by the vibration of a transit structure, creating vibration waves that propagate through the soil and rock to the foundations of nearby buildings. The vibration of floors and walls may be perceptible and cause rattling of items, or damage to buildings in extreme cases. In contrast to airborne noise, ground-borne vibration is not an everyday experience for most people. Vibration is described in terms of velocity (L_v) and is measured in decibels (V_{dB}).

Per the FTA vibration-screening process, an impact analysis is not required for the proposed Project because rubber-tire vehicles and bus maintenance facilities would only have the potential to impact buildings with highly vibration-sensitive activities (for example, recording studios, lithographic equipment, electron microscopes), which are not present in the proposed Project Study Area. As such, vibration concerns are not anticipated, and an impact analysis is not required for the proposed Project.

2.3 Construction Noise and Vibration

Noise generated by Project-related construction activities can vary depending on the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, the proximity of nearby sensitive land uses, and the presence or lack of shielding at these sensitive land uses. Construction noise would primarily result from the operation of heavy construction equipment and the arrival and departure of heavy-duty trucks. Construction noise would be temporary and intermittent and would be conducted during daytime hours when occasional loud noises are more tolerable. In addition, construction

activities would be conducted in accordance with the City of Quincy ordinances. Construction details (as discussed above), as well as any control measures that could be implemented during construction, will be provided in the future when the construction plans are defined in greater detail during the engineering phase. Therefore, no further construction assessment was conducted. The need for a qualitative or quantitative assessment will be determined and conducted once the plans are more defined.

Ground vibrations from construction activities generally do not reach the level that could damage structures. However, special consideration must be given to fragile buildings such as historic buildings and sensitive manufacturing facilities. There are no sensitive or fragile structures near the proposed Project site where construction activities would take place. Therefore, it is assumed that a construction vibration assessment will not be conducted in the future. As mentioned above, construction plans will be defined in greater detail during the engineering phase, and the need for a construction vibration assessment will be determined at that time.

3 METHODOLOGY

Per the FTA *Transit Noise and Vibration Impact Assessment* guidance manual (September 2018a), the FTA approach categorizes the noise sensitivity of receptors by the types of land uses and their sensitivity to noise. As discussed above, the noise metric that is used to describe the noise level is different depending upon whether the land use is sensitive to nighttime noise. For land uses involving primarily daytime activities (Categories 1 and 3), the L_{eq} is the noise descriptor used. For land uses where nighttime sensitivity is a factor (Category 2), the L_{dn} is the noise descriptor used. Table 1 describes the types of land uses included in each category.

Table 1. Land Use Categories

Land Use Category	Land Use Type	Noise Metric dB(A)	Description of Land Use Category
1	High Sensitivity	Outdoor $L_{eq(1hr)}$*	Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
2	Residential	Outdoor L_{dn}	This category is applicable to all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Institutional	Outdoor $L_{eq(1hr)}$*	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category.

* $L_{eq(1hr)}$ for the loudest hour of Project-related activity during hours of noise sensitivity.

Source: FTA 2018a.

The FTA impact criteria compare the total Project-related noise exposure to the existing ambient noise environment in the community between the Existing Year and Build Year to determine impact. The Project noise exposure is composed of all elements of the proposed Project that generate noise as quantified through acoustical modeling. The determination of impact and the severity of the impact is

characterized by two curves (refer to Figure 3) that restrict the increase in allowable Project noise exposure where there are higher levels of existing ambient noise exposure, up to a threshold level beyond which future Project noise exposure would result in an impact.

Noise-level increases above the top curve are considered to cause *Severe Impact* resulting in a substantial percentage of people living in the area to be highly annoyed by the new noise source. Noise-level increases in the range between the two curves are deemed to be *Moderate Impacts* resulting in the noise being noticeable to most people. Levels below the bottom curve are deemed to cause *No Impact*. Table 2 displays the same information as Figure 3 in tabular form.

The standard FTA Noise Impact Assessment Spreadsheet (FTA 2018b) was used to conservatively quantify future Project noise exposure associated with the operation of the proposed BMF throughout the noise study area, which includes all Project-related roadways and intersections analyzed in the traffic study area (Jacobs 2019).

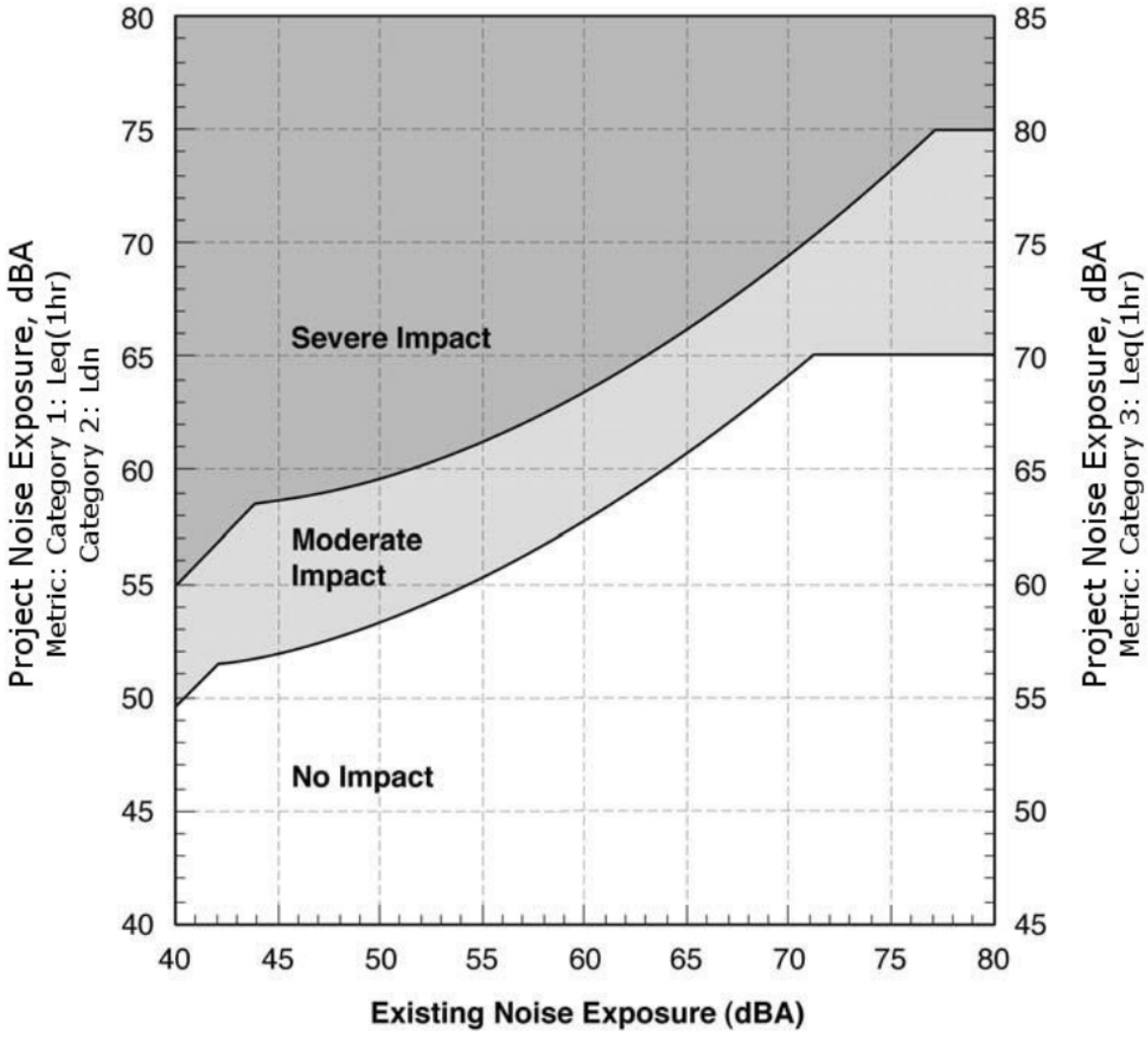


Figure 3. Noise Impact Criteria

Source: FTA 2018a, Figure 4-2

Table 2. FTA Noise Impact Criteria (dBA)

Leq(1hr) or Ldn	Category 1 (Leq(1hr)) or 2 (Ldn) Sites			Category 3 Sites (Leq(1hr))		
	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
<43	< Ambient +10	Ambient +10 to 15	> Ambient +15	< Ambient +15	Ambient +15 to 20	> Ambient +20
43	<52	52-58	>58	<57	57-63	>63
44	<52	52-58	>58	<57	57-63	>63
45	<52	52-58	>58	<57	57-63	>63
46	<53	53-59	>59	<58	58-64	>64
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54	<55	55-61	>61	<60	60-66	>66
55	<56	56-61	>61	<61	61-66	>66
56	<56	56-62	>62	<61	61-67	>67
57	<57	57-62	>62	<62	62-67	>67
58	<57	57-62	>62	<62	62-67	>67
59	<58	58-63	>63	<63	63-68	>68
60	<58	58-63	>63	<63	63-68	>68
61	<59	59-64	>64	<64	64-69	>69
62	<59	59-64	>64	<64	64-69	>69
63	<60	60-65	>65	<65	65-70	>70
64	<61	61-65	>65	<66	66-70	>70
65	<61	61-66	>66	<66	66-71	>71
66	<62	62-67	>67	<67	67-72	>72
67	<63	63-67	>67	<68	68-72	>72
68	<63	63-68	>68	<68	68-73	>73
69	<64	64-69	>69	<69	69-74	>74
70	<65	65-69	>69	<70	70-74	74
71	<66	66-70	>70	<71	71-75	>75
72	<66	66-71	>71	<71	71-76	>76
73	<66	66-71	>71	<71	71-76	>76
74	<66	66-72	>72	<71	71-77	>77
75	<66	66-73	>73	<71	71-78	>78
76	<66	66-74	>74	<71	71-79	>79
77	<66	66-74	>74	<71	71-79	>79
>77	<66	66-75	>75	<71	71-80	>80

Source: FTA 2018a, Table 4-5

4 EXISTING CONDITIONS

The existing land use maps for the traffic Study Area were reviewed, followed up by site visits and field surveys, to identify noise-sensitive receptors. Eight 1-hour and one 24-hour noise measurements were taken between July 28 and August 1, 2019, at representative noise-sensitive locations to determine existing ambient noise exposure in the community. Each monitoring location was selected to represent distinct ambient noise environments, or zones throughout the community that include all Project-related roadways and intersections in the traffic Study Area (Jacobs 2019). As shown in Table 3 and Figure 4, monitoring zones in Quincy are in a suburban area where roadway and railroad activity are the dominant noise sources. Sites M1, M3, M4, and M5 are located along Thomas E. Burgin Parkway where the roadway and nearby railroad are the main contributors to ambient noise. Site M2 is located west of the proposed BMF location in a residential area with less traffic and railroad noise. See Appendix A for field observations and documentation for each monitoring site.

Table 3. Monitoring Sites

Monitoring Site	Land Use Category	Location	Existing Ambient Noise Levels		
			L_{eq} (dBA)	Time	L_{dn} (dBA)
M1	2 and 3	599 Thomas E. Burgin Pkwy	-	24-hour measurement	66
M2	2	41 Columbia St	54	7:08 PM	57
M3	2 and 3	18 Federal Ave	65	4:02 PM peak hour	63
			64	2:26 PM mid-day	
			56	12:21 AM late-night	
M4	3	19-65 Parking Way	65	7:01 PM	68
M5	2 and 3	74-2 Thomas E. Burgin Pkwy	65	4:21 PM peak hour	65
			64	1:12 PM mid-day	
			59	12:00 AM late-night	

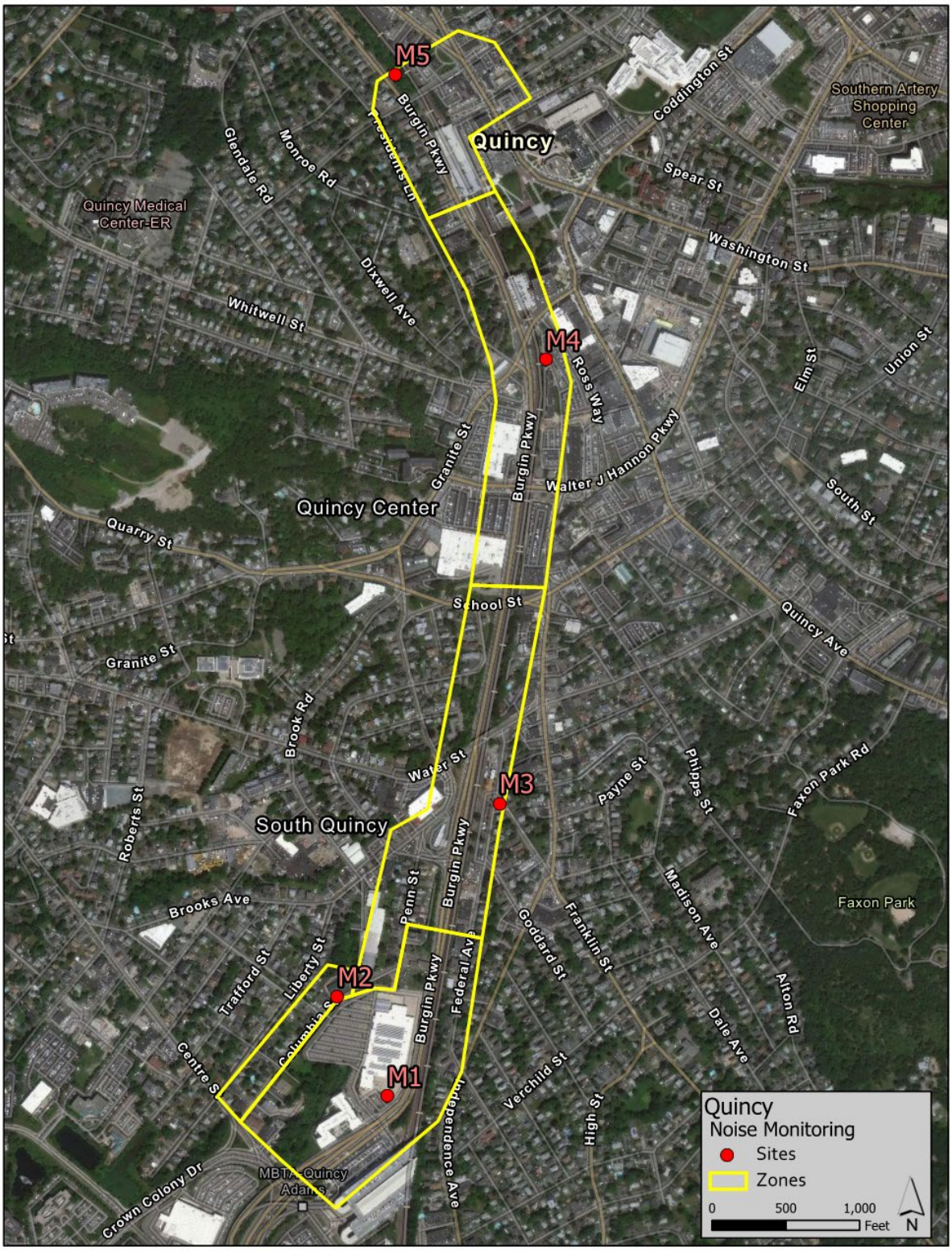

Figure 4. Noise Monitoring Program

For monitoring sites with 1-hour measurements, the FTA conversion method for Category 2 sites was used to convert the 1-hour metric (L_{eq}) to the day-night metric (L_{dn}), which involves subtracting 2 dBA from the L_{eq} for measurements taken between 7:00 AM and 7:00 PM, adding 3 dBA for measurements between 7 PM and 10 PM, and adding 8 dBA for measurements between 10 PM and 7 AM.

For monitoring sites with three measurements for the peak hour, mid-day, and late-night time periods, the following FTA equation was used to calculate L_{dn}:

$$L_{dn} \approx 10\log(3 \times 10^{\frac{L_{eq.peakhour}\cdot -2}{10}} + 12 \times 10^{\frac{L_{eq.midday} -2}{10}} + 9 \times 10^{\frac{L_{eq.latenight} +8}{10}}) - 13.8$$

Casella 490, Casella 630, and Quest SoundPro DL-1 sound-level meters were used for data collection. All devices were equipped with a windscreen to eliminate noise associated with wind blowing across the microphone. Each monitor was calibrated before and after each measurement.

5 ENVIRONMENTAL CONSEQUENCES

5.1 No-Build Alternative

Under the No-Build Alternative, the existing ambient noise environment would not be affected because the BMF would remain at its current Hancock Street location and continue to operate at full capacity.

5.2 Build Alternative

The Build Alternative would relocate noise sources from the existing BMF on Hancock Street to 599 Burgin Parkway. While this would improve the ambient noise environment on Hancock Street, the relocation would result in a corresponding noise increase in the community near the proposed Project site. This includes mobile noise sources from bus and employee vehicle trips to and from the proposed BMF, as well as stationary noise sources associated with the proposed BMF. Table 4 lists the operational assumptions and noise impact determinations for all Project noise sources, while Figures 5 through 8 show the locations and noise impact extents of each noise source. The Build Alternative would increase ambient noise levels at noise-sensitive locations and result in moderate noise impacts to 17 residences along Burgin Parkway.

Table 4. Project Noise Sources and Impact Determination

Noise Sources		Operational Assumptions[a,b]	Noise Impact
Mobile	Buses	• Diesel-powered • 36 to 40 mph on Burgin Parkway • 27 daytime trips/hour • 14 nighttime trips/hour • 90% travel to/from north of the facility • Facility access limited to Penn Street and proposed Columbia Street extension via Burgin Parkway	Moderate impact to 17 residences (2-dBA increase)
	Employee Vehicles	• MBTA office, warehouse, and bus maintenance staff • 36 to 40 mph on Burgin Parkway • 134 daytime trips/hour • 37 nighttime trips/hour • 65% travel to/from north of the facility • Facility access limited to Penn Street and proposed Columbia Street extension via Burgin Parkway	
Stationary	Maintenance Facility	• FTA noise reference for bus operating facility (114 dBA) • Enclosed electrical equipment, bus wash and maintenance facilities • All inbound buses will be washed	None
	Bus Queue	• FTA noise reference for idling buses (111 dBA) • Limit of 5 minutes idling for all inbound buses[c]	None
	Parking Lot	• Acoustical shielding from perimeter fence • FTA noise screening for parking garage with peak capacity of less than 1,000 cars	None

[a] Trips consist of movement both inbound to and outbound from the facility.

[b] Per FTA guidance, daytime hours are 7 AM to 10 PM, nighttime hours are 10 PM to 7 AM.

[c] Limit set by Massachusetts Anti-Idling Law (310 Code of Massachusetts Regulations 7.11).

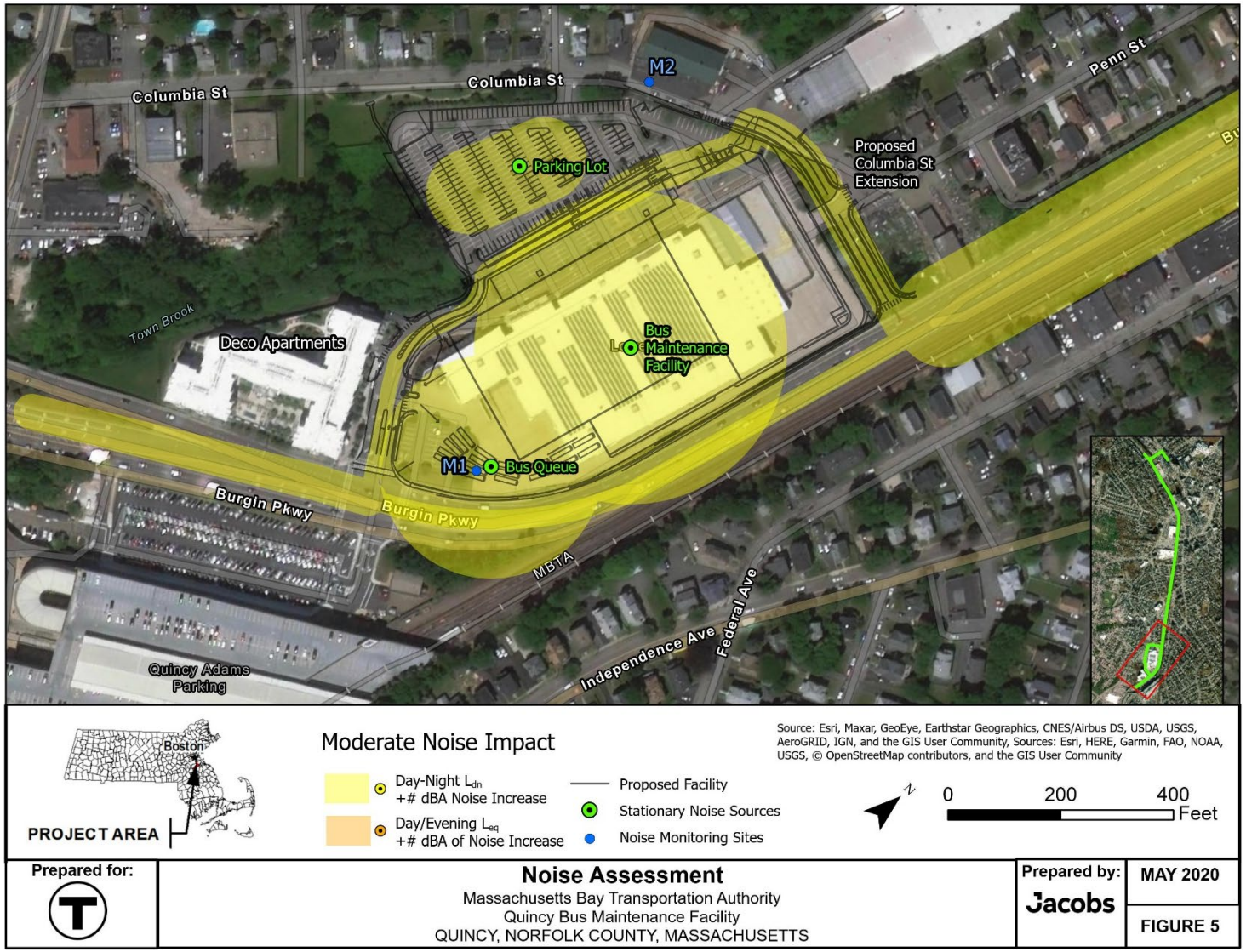

Figure 5. Noise Impact Assessment (map 1 of 4)

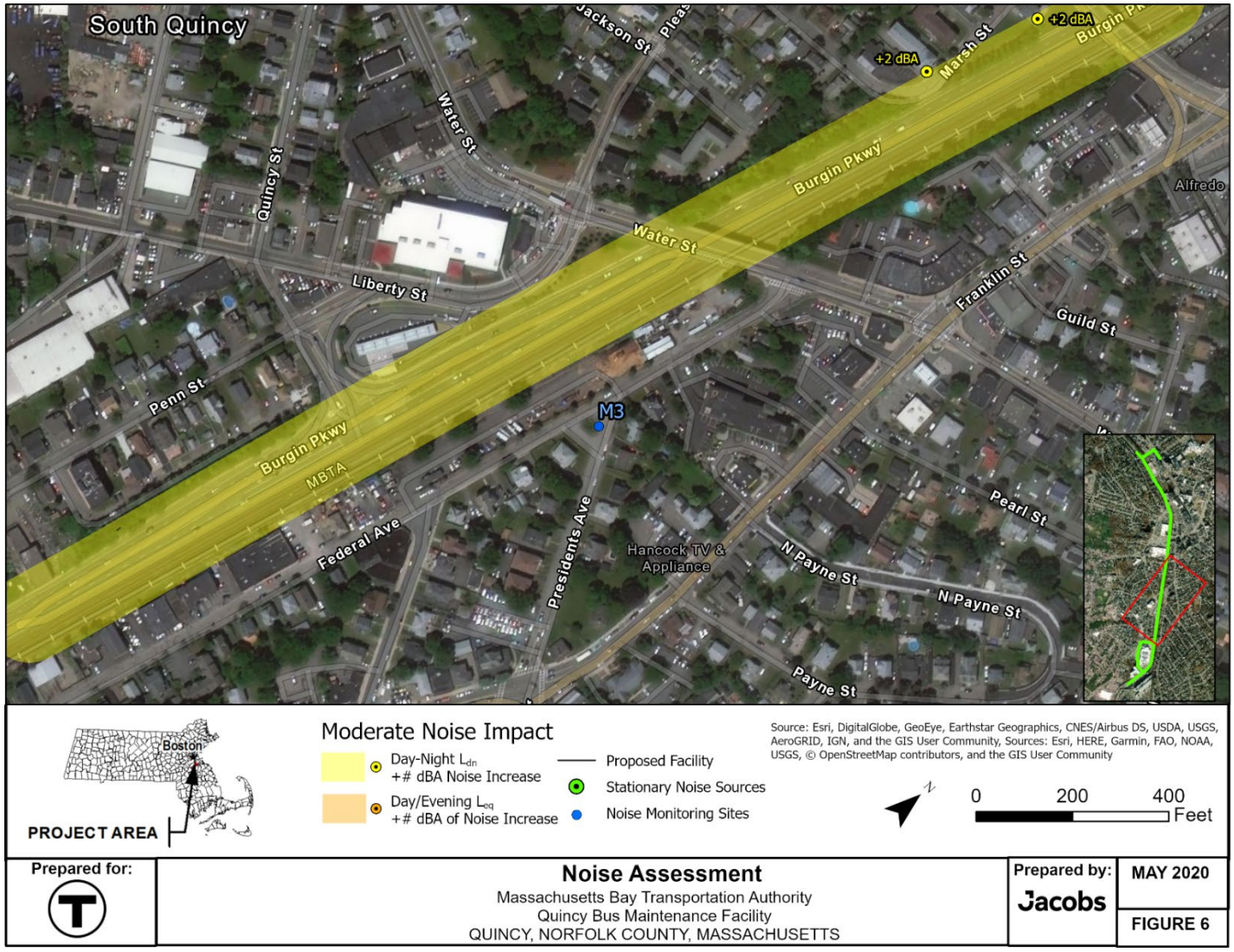

Figure 6. Noise Impact Assessment (map 2 of 4)

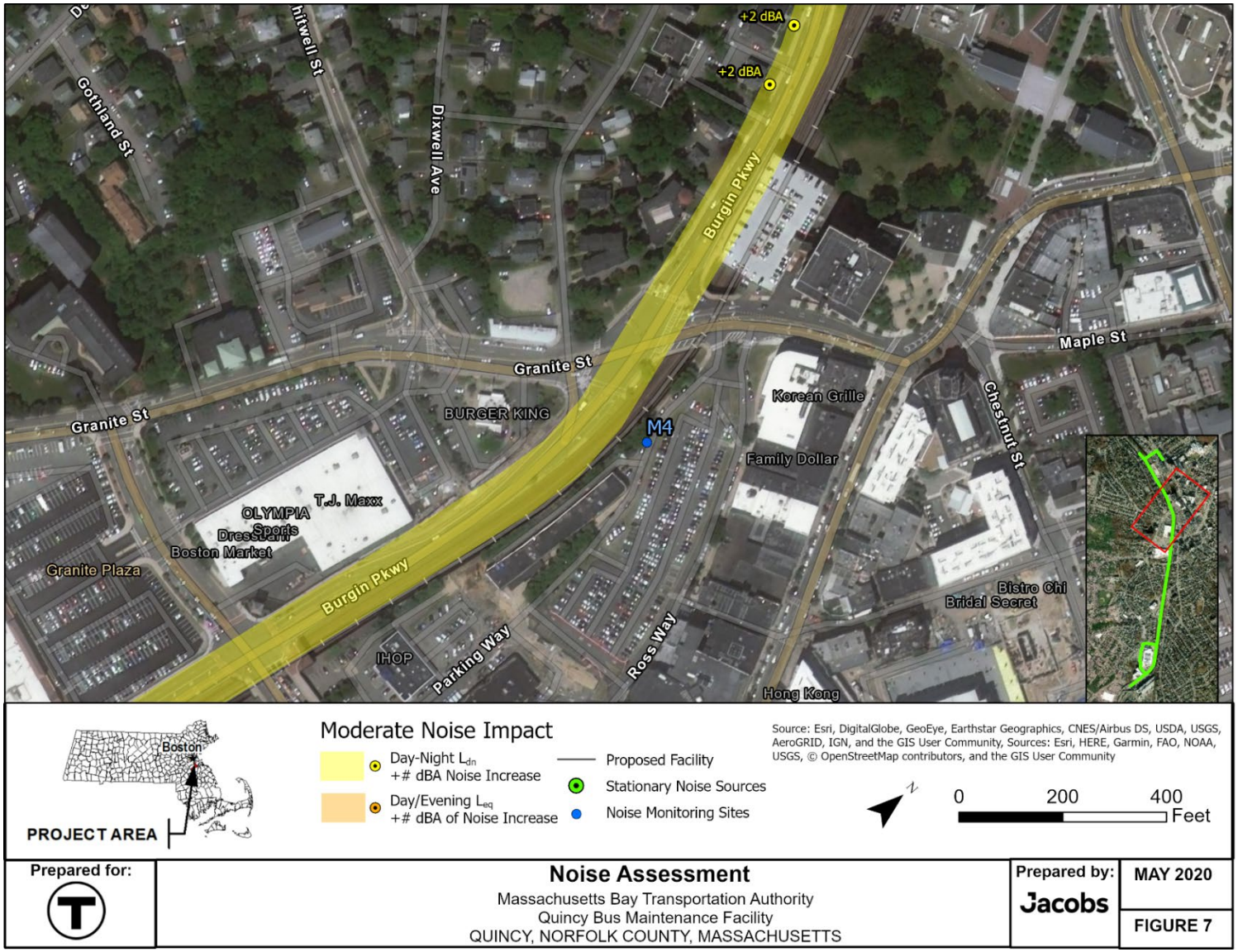

Figure 7. Noise Impact Assessment (map 3 of 4)

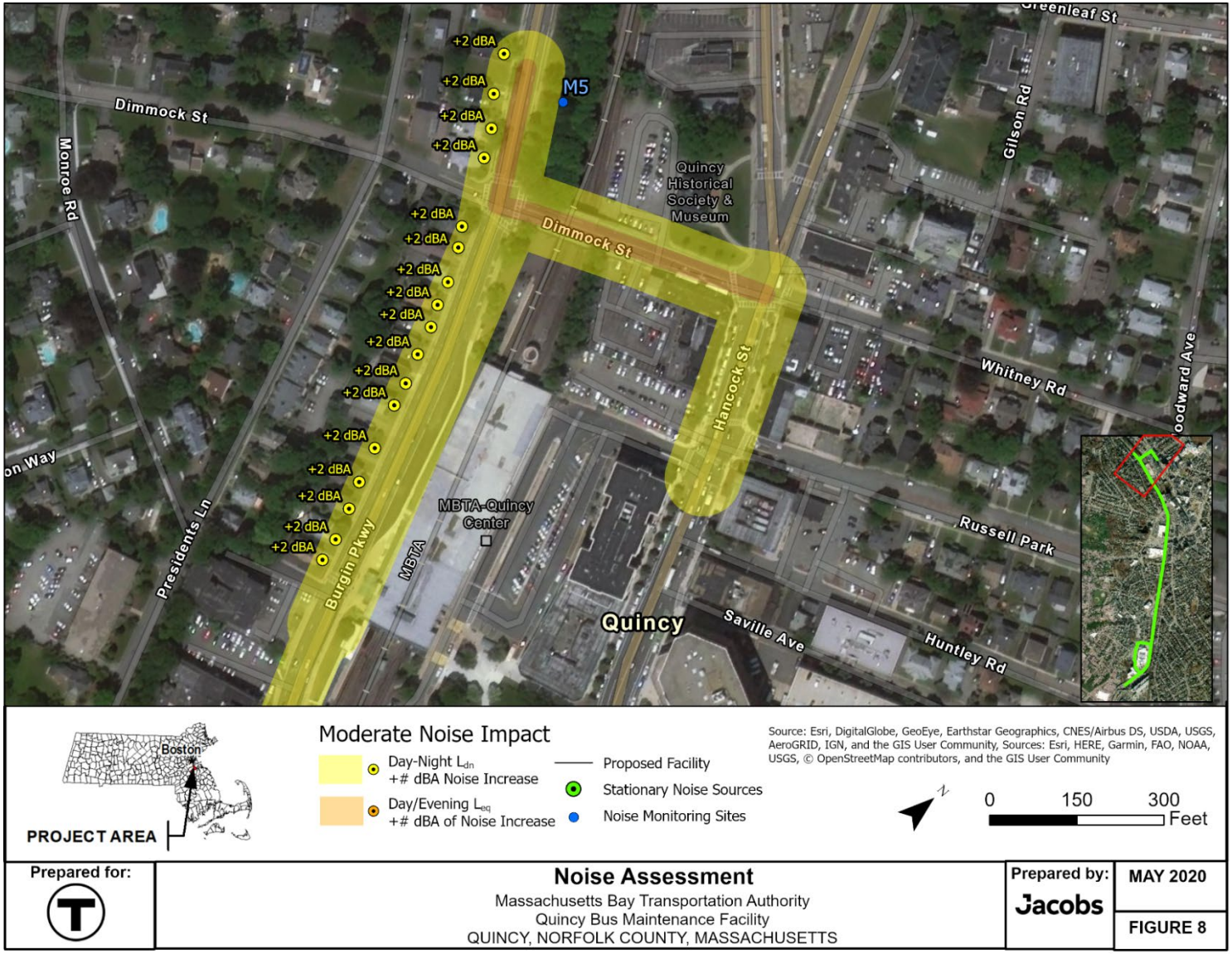

Figure 8. Noise Impact Assessment (map 4 of 4)

5.2.1 Noise Impact Assessment

Mobile Sources

Buses accessing the proposed BMF is the dominant mobile noise source associated with the Project. Most buses would travel north on Burgin Parkway toward Quincy Center as 90 percent of the fleet based in the proposed BMF would serve routes north of the proposed Project area. This would result in 17 moderate noise impacts at residential properties (FTA Category 2) due to increased bus noise exposure north of the proposed Project site from Burgin Parkway within 91 feet on Marsh Street, 48 feet near Granite Street, and 66 feet near Dimmock Street. Noise from employee vehicle trips, 65 percent of which are predicted to travel from north of the proposed Project site, also contributes to these moderate noise impacts. The total day-night noise exposure at these locations (see Figures 5 through 8) would increase by a maximum of 2 dBA.

Stationary Sources

The proposed BMF is not expected to be a significant noise source because all noisy activities (e.g., bus wash) would be enclosed and sufficiently setback from noise-sensitive areas (see Figures 5 through 8). Similarly, noise from the proposed BMF's parking lot would be imperceptible beyond the proposed Project site. All electrical equipment and substations for powering the proposed BMF would be located inside and would not be audible outside the building structure. Utility power would be distributed to the proposed BMF via a power switching station proposed on Burgin Parkway at the corner of Penn Street. With exception of small-scale ventilation fans that would be an insignificant source of noise, all noise generating equipment associated with the switching station would be fully enclosed and imperceptible beyond the proposed Project site. Strict enforcement of the Massachusetts Anti-Idling Law (310 *Code of Massachusetts Regulations* 7.11) would prevent bus queuing noise from impacting the community. The MBTA will include signage reminding bus operators, all of whom have been trained on this issue, of the need to strictly comply with this requirement. Mitigation

Mitigation for mobile-source noise is not recommended for the moderate noise impacts at 17 residences adjacent to Burgin Parkway, most of which are front-door residential access locations. Per FTA noise impact criteria, a 2-dBA day-night noise increase is on the low end of the moderate noise impact range and would be nearly imperceptible at these locations. Since the existing ambient noise environment along Burgin Parkway is dominated by transit and roadway noise, it is anticipated that additional Project-related bus and employee vehicle trips would result in a future cumulative day-night noise environment that is similar to what the community currently experiences.

6 REFERENCES

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APPENDIX A
FIELD DOCUMENTATION

MBTA Noise Study

Session #	1	**Date**	7/31/2019
Site #	M1	**Time**	9:55 PM
Technician:	MC & SM		

Description : Parking lot near parkway and MBTA Transit Station

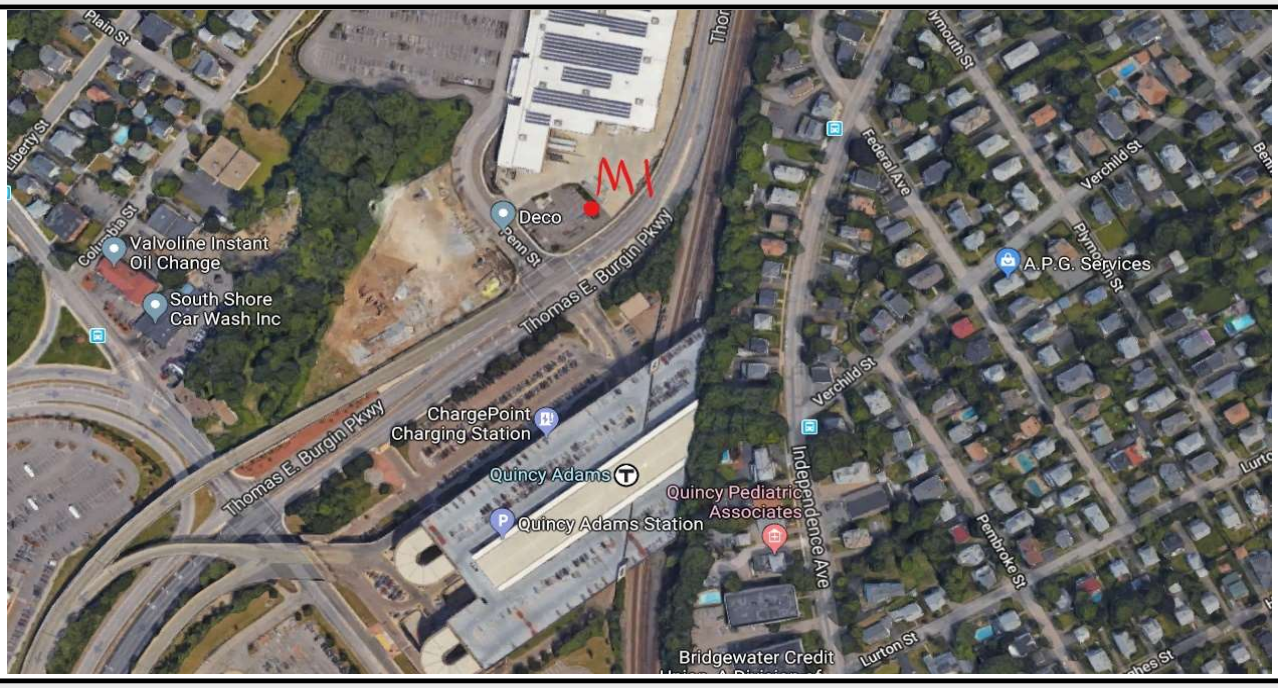
Meter Session #	12
Ldn	**66 dBA**
Notes:	74 F 82% humidity at start of recording

88 F high 35% humidity on 8/1, 80 F 40% humidty at end of recording

24 hour noise monitoring session

Noise from traffic and rail from nearby parkway and mass transit terminal across the street

Wind Conditions **< 5 MPH**



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MBTA Noise Study

Session #	**1**	**Date**	**7/29/2019**
Site #	M2	**Time**	**7:08 PM**
Technician:	MC & SM		

Meter Session #	1		
Leq Avg.	**54 dBA**	**Ldn**	**57 dBA**
Notes:	88 F 51% humidity		

Traffic and rail drone is distant

Pedestrian activity from rail/bus station to neighborhood

Recreational activity along park

Wind Conditions **< 5 MPH**

Description : Residential area adjacent to proposed facility

Jacobs Engineering Group, Inc.

MBTA Noise Study

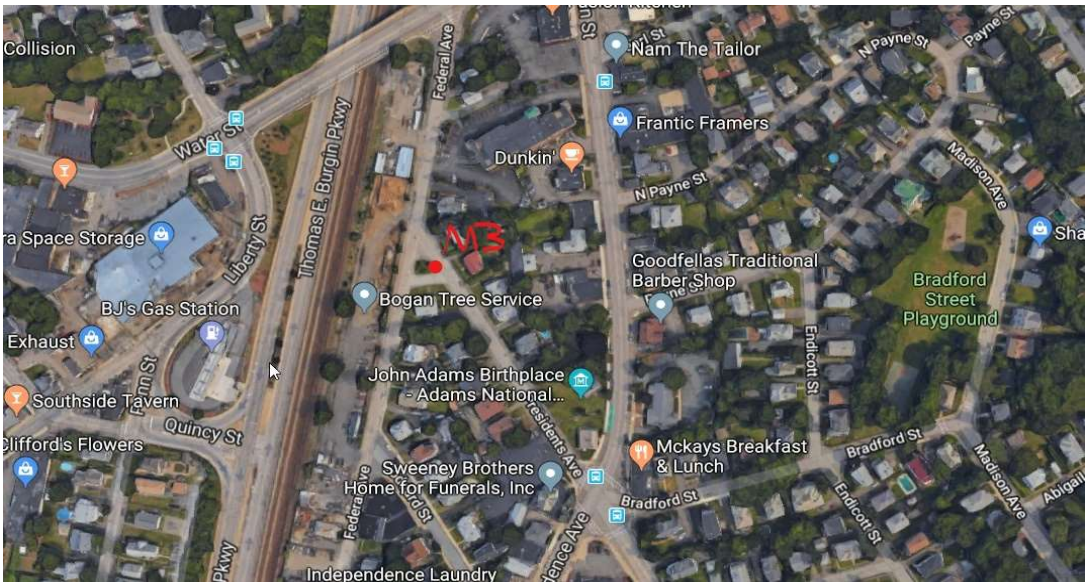
Session #	**1**	**Date**	**7/29/2019**
Site #	**M3**	**Time**	**12:21 AM**
Technician:	MC & SM		

Meter Session #	2
Leq Avg.	**56 dBA**
Notes:	
Notes:	80 F 71% humidity

Next to train tracks, seems to be quieter trains
at this hour
Traffic triangle, some car pass-bys
Minor maintenance vehicles activity, street cleaning
Traffic drone in distance
Intermittant loud insect noise in bush in near meter

Wind Conditions **< 5 MPH**

Description : Residential Area near highway and train tracks



Jacobs Engineering Group, Inc.

MBTA Noise Study

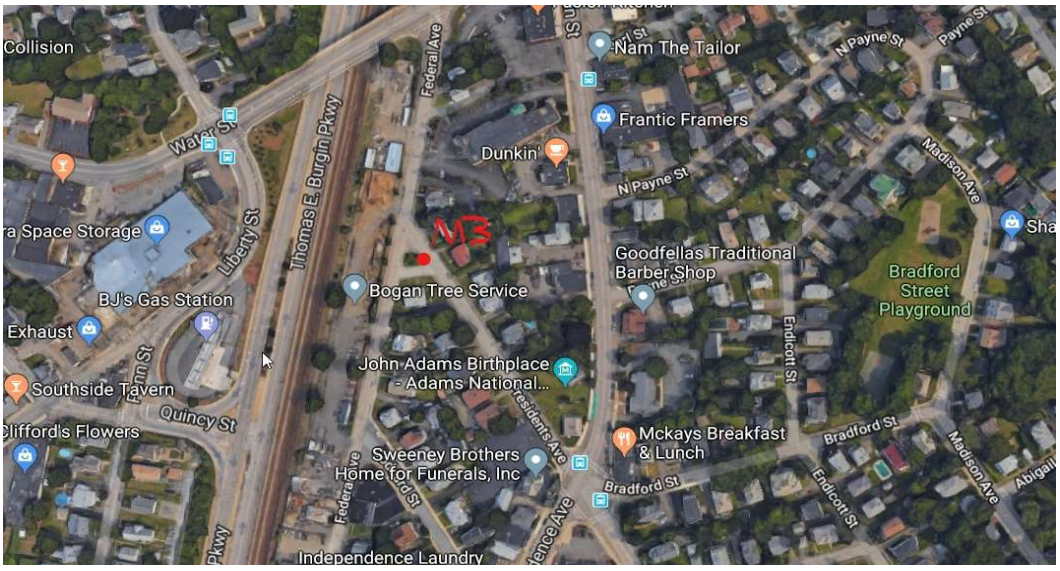
Session #	**2**	**Date**	**8/1/2019**
Site #	**M3**	**Time**	**2:26 PM**
Technician:	**MC & SM**		

Description : Residential Area near highway and train tracks

Meter Session #	9
Leq Avg.	**64 dBA**
Notes:	84 F 52% humidity

Moderate traffic noise, nearby railroad causes audio spike

Wind Conditions **< 5 MPH**



MBTA Noise Study

Session #	**3**	**Date**	**8/1/2019**
Site #	**M3**	**Time**	**4:02 PM**
Technician:	**SM**		

Meter Session # 10

Leq Avg. **65 dBA**

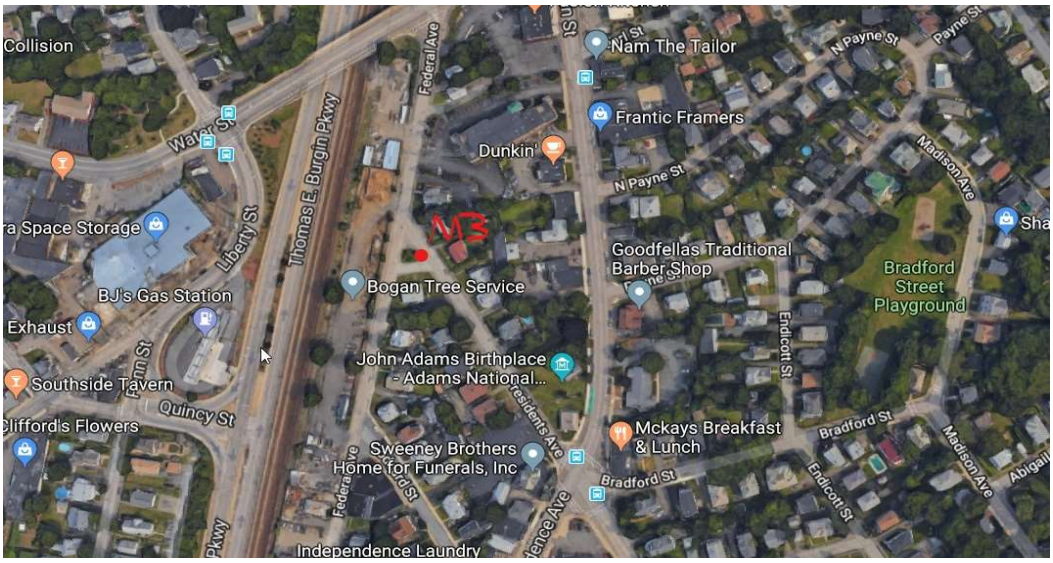
Notes:

75 F 76 % humidity

Peak traffic hour, lot of local traffic noise

Wind Conditions **< 5 MPH**

Description : Residential Area near highway and train tracks



MBTA Noise Study

Session #	**1**	**Date**	**7/31/2019**
Site #	**M4**	**Time**	**7:01 PM**
Technician:	MC & SM		

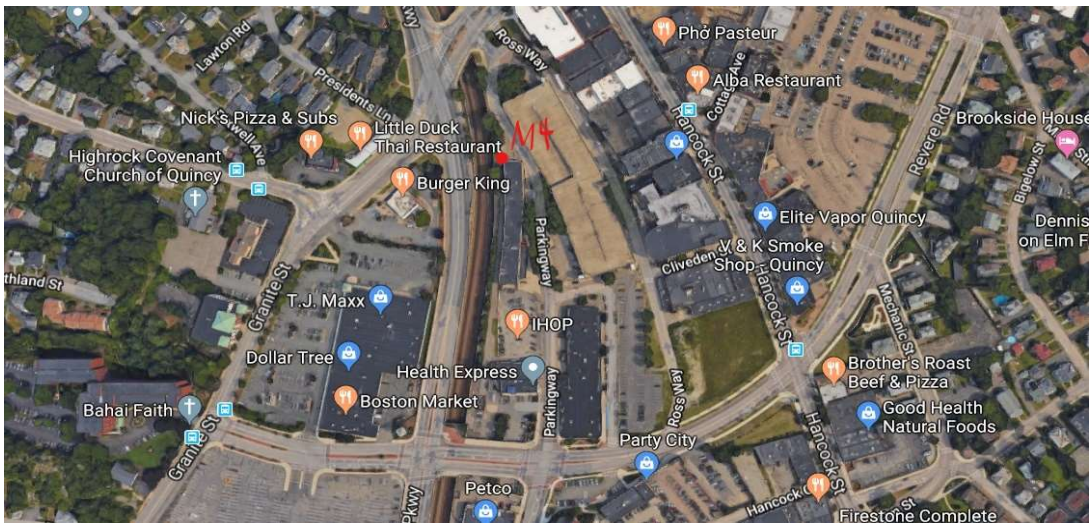
Meter Session #	**7**		
Leq Avg.	**65 dBA**	**Ldn**	**68 dBA**

Notes:

74 F 82% humidity
Parking lot traffic passing by
Southbound train is very loud, north bound trains stop at nearby station then accelerate away
Drone from nearby intersection, 150 feet
Cross street 200 feet away, minimal noise contribution
Very quiet when no train because line of sight with traffic broken broken by rail structure walls
Trains are by far the main source of noise
Seagulls around, some cawing noise

Wind Conditions **< 5 MPH**

Description : Commercial area along highway and railroad



Jacobs Engineering Group, Inc.

MBTA Noise Study

Session #	**3**	**Date**	**8/1/2019**
Site #	**M5**	**Time**	**4:21 PM**
Technician:	**MC**		

Meter Session #	11
Leq Avg.	**65 dBA**
Notes:	

84 F 28% humidity

Peak traffic, though not too loud

Wind Conditions **< 5 MPH**

Description : Park near residential area, nearby train tracks and road

Jacobs Engineering Group, Inc.

MBTA Noise Study

Session #	**1**	**Date**	**7/31/2019**
Site #	**M5**	**Time**	**12:00 AM**
Technician:	MC & SM		

Meter Session # **6**

Leq Avg. **59 dBA**

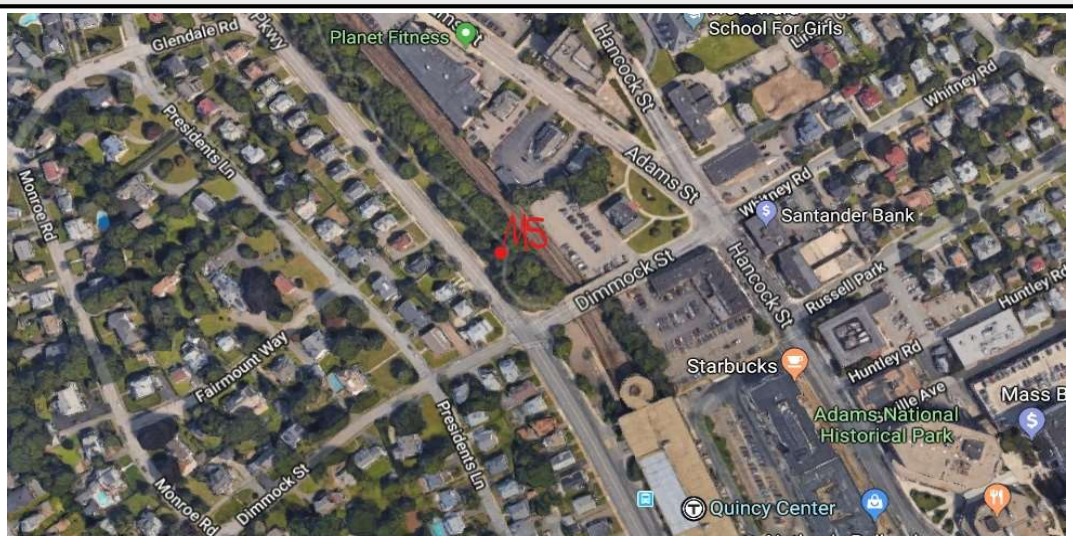
Notes: 83 F 53% humidity

Mostly quiet, little traffic and no pedestrians

A train passes by every few minutes, noisy

Wind Conditions **< 5 MPH**

Description : Park near residential area, nearby train tracks and road



Jacobs Engineering Group, Inc.

MBTA Noise Study

Session #	**2**	**Date**	**8/1/2019**
Site #	**M5**	**Time**	**1:12 PM**
Technician:	MC & SM		

Meter Session #	**8**
Leq Avg.	**65 dBA**
Notes:	85 F 38% humidity

Moderate traffic noise, occasional trains passing nearby

Noise from powertool use from nearby home

Description : Park near residential area, nearby train tracks and road

Wind Conditions **< 5 MPH**

Jacobs Engineering Group, Inc.

Attachment H
Site Selection Matrix

Quincy Bus Maintenance Facility
Site Selection Memo Updated with additional sites
2/3/2020

Criteria	Existing	Options Identified during MBTA Site Selection Process				Options identified by public			
	Existing – 954 Hancock Street, Quincy	**Option 1 – 599 Burgin Parkway, Quincy**	**Option 2- 1800 Crown Colony, Quincy**	**Option 3- 360 Wood Road, Braintree**	**Option 4 – 10-40 Plain Street, Braintree**	**Option 5 – 465 Centre Street, Quincy**	**Option 6- 125 Union Street, Braintree**	**Option 7 – 257 Ivory Street, Braintree**	**Option 8 – combination of Options 6 and 7**
Parcel outline and aerial									
Active Use	Existing Quincy Garage	Vacant (site was a Lowe's Home Improvement store until 2019 and is now vacant.)	Vacant	Property was for sale or lease at the time	Property was for sale or lease at the time	Active Use (site is occupied by The Home Depot home improvement store and associated parking.)	Vacant (vacant and was occupied by a motel chain until 2018.)	Active use (recycling drop-off center and parking area)	Refer to options 6 and 7
Parcel Size (Buildable Area)	Inadequate to accommodate bus program	Appears to accommodate bus program	Does not appear to accommodate bus program without structured parking and/or program reduction	Does not appear to accommodate bus program without structured parking and/or program reduction	Appears to accommodate bus program	Appears to accommodate bus program	Will not accommodate bus program	Does not appear to accommodate bus program without structured parking and/or program reduction.	This option is combination of option 5 (125 Union St.) and option 7 (257 Ivory St.) in Braintree. Need to acquire 3 parcels and need high level of design to evaluate ability to accommodate program due to the shape and grading.
Deadhead (DH) Miles – Distance From Quincy Center * (Estimate)	0.5 Miles Weekday Daily DH Miles 596 Weekday Daily DH Hours 46.7	1.7 Miles Weekday Daily DH Miles 933 Weekday Daily DH Hours 60.5	2.7 Miles Weekday Daily DH Miles ~1200* Weekday Daily DH Hours ~70*	5.0 Miles Weekday Daily DH Miles ~1800* Weekday Daily DH Hours ~105*	5.1 Miles Weekday Daily DH Miles ~1820* Weekday Daily DH Hours ~90*	2 Miles Weekday Daily DH Miles ~1200* Weekday Daily DH Hours ~70*	4 Miles Weekday Daily DH Miles ~1508* Weekday Daily DH Hours ~81*	4.2 Miles Weekday Daily DH Miles ~1580* Weekday Daily DH Hours ~85*	4.2 Miles Weekday Daily DH Miles ~1580* Weekday Daily DH Hours ~85*
Access to and from the site – Road network/traffic control	Hancock Street is congested	Traffic signal access to and from the site onto Burgin Parkway. Potential for signal priority. Minimum 2 access points out of the site	Single access to and from the site during peak hours. There is congestion on roadways accessing the site. Crown Colony drive is an ascent from Burgin Parkway that is not ideal for bus travel.	Single access to the parcel at the end of a cul de sac. Route to Quincy Center would require traveling on Route 128 at the Braintree split – often congested	Access to the Site would require routing onto Route 3 to access the access Quincy Center bus terminal point, which is often congested.	Signalized intersection access to and from the site onto Thomas Burgin Parkway and then onto the Centre Street. Burgin Parkway at Centre Street is one of the Top 200 Intersection Crash Cluster locations in 2014-2016.	Single access to and from the site onto Union Street. Right in/right out only; often congested. AADT 20,431 (veh/day). Roadway separated by median.	Two access points to and from the site at Ivory Plaza intersection and signalized intersection at Braintree Station with dedicated left turn into the site. Roadway separated by median.	Three access point to and from the site at Ivory Plaza intersection and signalized intersection at Braintree Station with dedicated left turn and Union Street into the site.
Internal site circulation	Poor	Good internal circulation	Most likely too small to accommodate parking, storage and the maintenance	Most likely too small to accommodate parking, storage and the maintenance	River and pond on site pose circulation constraints.	Good internal circulation	Site is too small to accommodate parking, storage and the maintenance	Internal circulation challenges due to the irregular parcel shape and grading of the site.	Internal circulation challenges due to the irregular parcel shape and grading of the site
Potential environmental concerns	Wetlands surrounding site	Town brook located on site. Possibly within a flood plain.	Detention basin located on site	Pond located on site	Pond and river located on site.	Town Brook located on the site. Within a flood plain. Within riverfront area. Extension from 200 ft from top of the bank. Within 100 ft BVW	Within a flood plain.	Small part of the site are located in 0.2% annual chance of flooding.	Within a flood plain.
Land Use - Consistency with existing site and surrounding area	Surrounded by residential and park	Consistent with existing use. Adjacent to residential.	Surrounded by office.	Surrounded by commercial/industrial uses	Consistent with previous use. Adjacent to residential	Adjacent to the Quincy Adams Station.	Adjacent to the Braintree Station. Surrounded by commercial/open space uses		
Site development risk		Moderate. Demo of existing structure required. Site recently developed for commercial use.	Moderate. No Demo required low potential for Geotech and site clean up due to recent development.	Moderate. Demo required.	Potentially higher site development costs due to existing buildings on site and other potential for clean up	Moderate. Demo of existing structure required. AUL (No: 3-0000872)	Moderate. Demo required.	Potentially higher site development costs due to grading and potential for clean up. The site is located on a capped landfill. Part of the site has been graded. There are retaining wall , fence and guardrail features on the	Potentially higher site development costs due to existing buildings on site, grading other potential for clean up. The site is located on a capped landfill. Part of the site has been graded. There are retaining wall , fence and guardrail features on the south side of the site.
Current zoning	Residential D	Planned Unit Development	Heavy Industrial	Highway Business District	Commercial	Industrial D	Highway Business District	Commercial	Commercial/Highway Business District
Minority Populations within 0.5 miles	39.30%	33.30%	38.40%	36.85%	18.85%	33.60%	20.26%	20.26%	20.26%
Low Income**	No	No	No	No	No	No	Yes	Yes	Yes
Environmental Justice	No	Yes (Minority)	Yes (Minority)	No	No	Yes (Minority)	No	No	No

* Deadheads miles and hours have been extrapolated from the deadhead analysis that was conducted for the 599 Burgin Parkway site.

** Median income is lower than US median income

Attachment I
ENF Circulation List

Attachment I – ENF Circulation List

Agency	E-mail Address	Address
Department of Environmental Protection, Boston Office	helena.boccadoro@mass.gov	Commissioner's Office One Winter Street Boston, MA 02108
Department of Environmental Protection, Appropriate Regional Office and to each program from which a permit will be sought	george.zoto@mass.gov jonathan.hobill@mass.gov	DEP/Southeastern Regional Office Attn: MEPA Coordinator 20 Riverside Drive Lakeville, MA 02347
Massachusetts Department of Transportation	lionel.lucien@dot.state.ma.us	Public/Private Development Unit 10 Park Plaza, Suite #4150 Boston, MA 02116
Applicable Massachusetts DOT District Office	amitai.lipton@dot.state.ma.us	District #6 Attn: MEPA Coordinator 185 Kneeland Street Boston, MA 02111
Massachusetts Historical Commission	mhc@sec.state.ma.us	The Massachusetts Archives Building 220 Morrissey Boulevard Boston, MA 02125
Applicable Regional Planning Agency	mpillsbury@mapc.org	Metropolitan Area Planning Council 60 Temple Place/6th floor Boston, MA 02111
Quincy officials and officials	cwalker@quincyma.gov	Mayor Thomas Koch Attn: Chief of Staff Chris Walker 1305 Hancock Street Quincy, MA 02169
	FTramontozzi@quincyma.gov	City of Quincy Mayor's Office Frank Tramontozzi, P.E. 1305 Hancock Street Quincy, MA 02169
		Quincy City Council 1305 Hancock St. Quincy, MA 02169
	NLiang@quincyma.gov	Nina X. Liang Quincy City Council President 2 Williams Street Quincy, MA 02171
	BPalmucci@quincyma.gov	City Councilor Brian Palmucci 1305 Hancock Street Quincy, MA 02169
	AMahoney@quincyma.gov	City Councilor Anne Mahoney 12 Ferriter Street Quincy, MA 02169
	DMcCarthy@quincyma.gov	City Councilor David F. McCarthy 1305 Hancock Street Quincy, MA 02169

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Agency	E-mail Address	Address
	BCroall@quincyma.gov	City Councilor Brad Croall 1305 Hancock Street Quincy, MA 02169
	ICain@quincyma.gov	City Councilor Ian C. Cain 1305 Hancock Street Quincy, MA 02169
	CPhelan@quincyma.gov	City Councilor Ian C. Cain 1305 Hancock Street Quincy, MA 02169
	WHarris@quincyma.gov	City Councilor William P. Harris 1305 Hancock Street Quincy, MA 02169
	NDibona@quincyma.gov	City Councilor Noel DiBona 1305 Hancock Street Quincy, MA 02169
	rstevens@quincyma.gov	Quincy Planning Board 34 Coddington Street, 3d fl. Quincy, MA 02169
	jfatseas@quincyma.gov	James J. Fatseas Planning Director Coddington Hall 34 Coddington Street, 3d fl. Quincy, MA 02169
	Rconlon@quincyma.gov	Rob Conlon Quincy Conservation Commission 1305 Hancock Street Quincy, MA 02169
	rjones@quincyma.gov	Quincy Health Department 1305 Hancock Street Quincy, MA 02169
State Elected Officials	Ronald.Mariano@mahouse.gov	State Representative Ron Mariano State House, Rm. 343 Boston, MA 02133
	John.Keenan@masenate.gov	State Representative John Keenan State House, Rm. 413-F Boston, MA 02133
	Bruce.Ayers@mahouse.gov	State Representative Bruce J. Ayers State House, Room 167 Boston, MA 02133
	Tackey.Chan@mahouse.gov	State Representative Tackey Chan State House, Room 42 Boston, MA 02133
	Daniel.Hunt@mahouse.gov	State Representative Dan Hunt State House, Room 166 Boston, MA, 02133

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Agency	E-mail Address	Address
If the project is in a Coastal Zone Community	robert.boeri@mass.gov patrice.bordonaro@mass.gov	Coastal Zone Management Attn: Project Review Coordinator 251 Causeway Street, Suite 800 Boston, MA 02114
	DMF.EnvReview-North@mass.gov	DMF – North Shore Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930
If the Project implicates public health impacts	DPH Toxicology@State.MA.US	Department of Public Health (DPH) Director of Environmental Health 250 Washington Street Boston, MA 02115
If the Project is subject to Greenhouse Gas Emissions Policy or to review by Energy Facilities Siting Board	paul.ormond@mass.gov brendan.place@mass.gov	Department of Energy Resources Attn: MEPA Coordinator 100 Cambridge Street, 10th floor Boston, MA 02114
If the Project is in a municipality served by the Massachusetts Water Resources Authority (MWRA)	katherine.ronan@mwra.com	Massachusetts Water Resource Authority Attn: MEPA Coordinator 100 First Avenue Charlestown Navy Yard Boston, MA 02129
If the Project affects Massachusetts Bay Transportation Authority (MBTA) facilities or properties	MEPA coordinator@mbta.com	Massachusetts Bay Transportation Authority Attn: MEPA Coordinator 10 Park Plaza, 6th Fl. Boston, MA 02116-3966
Interested Parties	info@quincyasianresources.org	Quincy Asian Resources 1509 Hancock Street Quincy, MA 02169
	info@QuincyCAN.org	Quincy Climate Action Network