of said sea-wall has been filled.

This license is granted subject to the laws of the United States in respect to harbor lines.

Material used for filling may be taken from Charles River under the direction of this Board.

The Plan of said work is on file in the office of said Board, numbered 2262, and a duplicate of said plan accompanies this License, and is to be referred to as a part hereof.

The amount of tide-water displaced and excluded by the work hereby authorized, shall be ascertained by said Board, and compensation therefor shall be made by the said City of Cambridge its ~~heirs,~~ successors and assigns, by paying into the treasury of the Commonwealth Ten (10) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston. In assessing compensation, however, deduction shall be made, yard for yard, for material, when taken from Charles River under the direction of this Board and used for filling as aforesaid.

~~This License is also granted in consideration of the payment into the treasury of the Commonwealth~~ by the said .....

or the rights and privileges hereby granted in land of said Commonwealth, of the further sum of .....

.....

~~being the amount determined by the Governor and Council to be just and equitable therefor.~~

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same, and the accompanying plan, are recorded, within one year from the date hereof, in the Registry of Deeds for the South District of the County of Middlesex.

In Witness Whereof, ... said Board of Harbor and Land Commissioners have hereunto set their hands this Nineteenth day of July in the year eighteen hundred and ninety-nine.

Woodward Emery
Clinton White
Harbor and Land Commissioners.

A true Copy.
Attest:

Frederick N. Walsh.
Clerk of Board.

COMMONWEALTH OF MASSACHUSETTS.

BOSTON, July 26, 1899.

Approved by the Governor and Council.

E. F. Hamlin
Executive Secretary.

CITY OF CAMBRIDGE PARK DEPT.

PROPOSED SOLID FILLING ON CHARLES RIVER BETWEEN RIVER AND BROOKLINE STS.

JUNE 16, 1899.

Scale 1" = 100'

L. W. Hastings
City Engineer.

No. 2262.
Approved by Harbor and Land Com'rs.
July 19, 1899.
Nathaniel Emery
Chester W. Chapin

BROOKLINE ST.

PEARL ST.

MAGAZINE ST.

RIVER PARKWAY

CHARLES RIVER

proposed extension

River path

high water line

pier and bulkhead line

Area proposed to be filled

Now in practically completed

CHARLES RIVER

PROPOSED SECTION A-TO-B
Scale 1" = 20'

proposed filling

PROPOSED SECTION B-TO-C
Scale 1" = 20
section on line d-e

No 409.

Whereas, the City of Boston, through its Engineer, Henry M. Wightman, has given written notice to this Board of its intention to rebuild the southerly Draw pier of Cambridge Street Bridge, over Charles River and has submitted plans of the same,

Now, therefore, the said City of Boston is hereby authorized to proceed and rebuild said Draw pier as aforesaid in conformity to a plan filed in this office and numbered 409, and in the following manner, namely:-

The present Draw pier shall be lengthened for a distance of thirty (30) feet, as shown by red lines on the plan.

The piles to be driven in rebuilding said Draw pier are shown by circles shaded red, while those to be drawn are shown by circles shaded blue on said plan.

The work herein authorized shall be done in a thorough and workmanlike manner as shown in detail on the plan.

This license is void unless recorded with the accompanying plan in the Registry of Deeds for the County of Suffolk, within one year from the date of these presents.

Compensation for tide water displaced by the above described structure shall be paid by said City of Boston, the amount to be assessed hereafter by this Board.

In witness whereof, a majority of the Board of Harbor Commissioners have hereto affixed their signatures this sixth day of March

333

A. D. 1878.

F. W. Lincoln
F. A. Nye.
Albert Mason.

A true copy, attest.
F. W. Lincoln
Chairman.

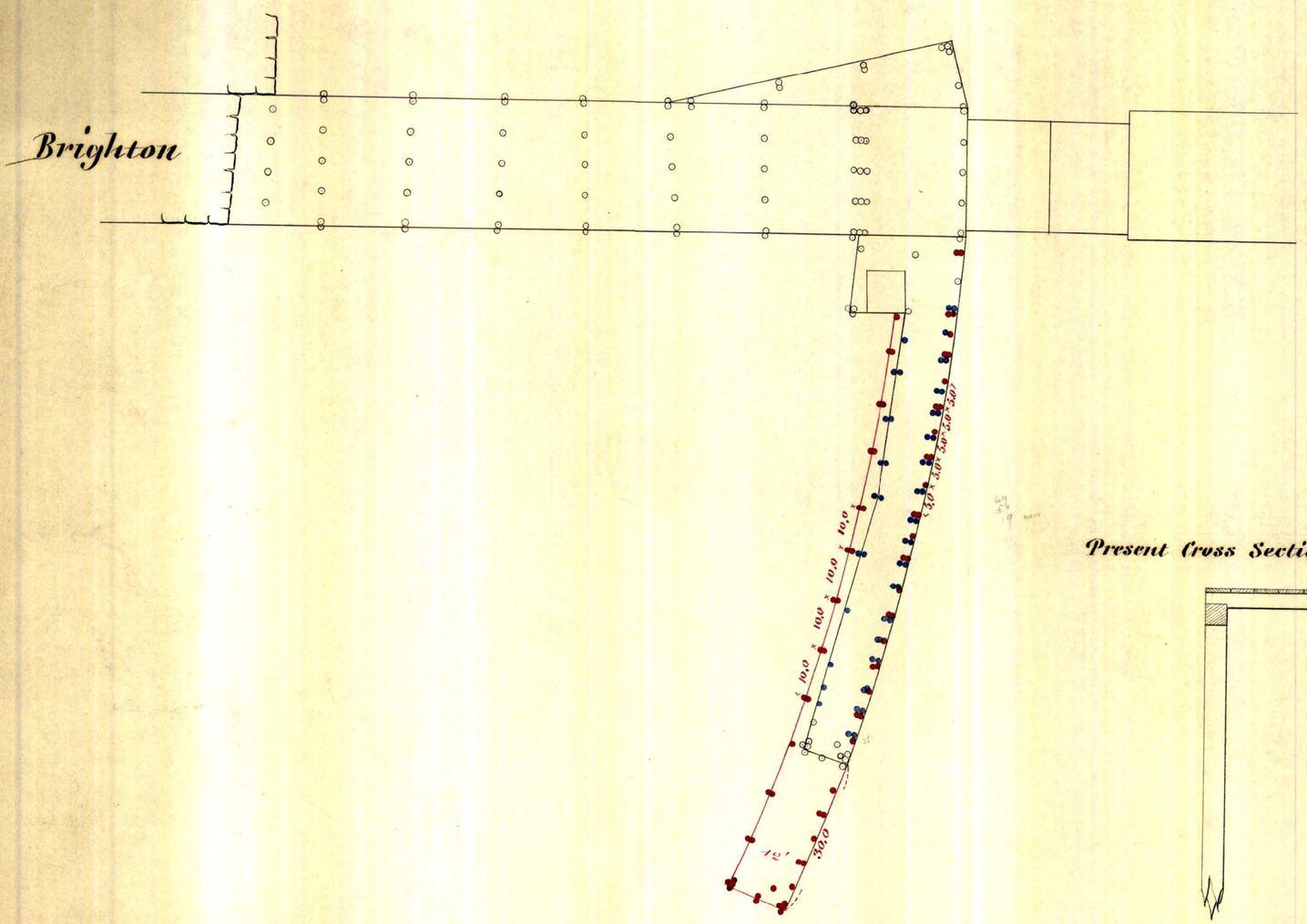
Cambridge St. Bridge.

Brighton to Cambridge.

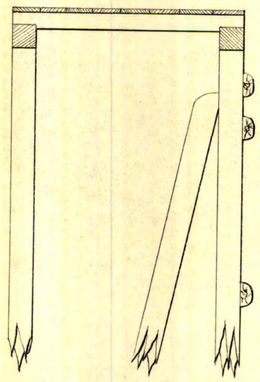
Scale of Sections 4 feet = 1 inch.
" " Plan 16 " = 1 "

Feb. 1878.

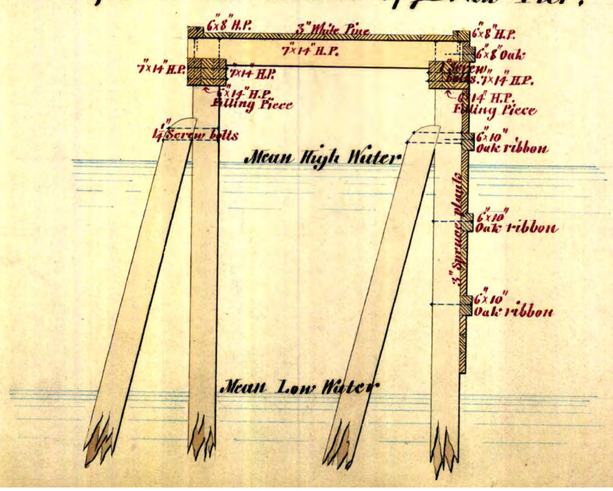
Note. { Red circles show new oak piles to be driven.
Blue " " spruce " " " pulled up.



Present Cross Section of Draw Pier.



Proposed Cross Section of Draw Pier.



No. 409
Approved by Harbor Commissioners
March 6th 1878
F. W. Thurston
F. A. Joyce
Albert Mason

409

409

Commonwealth of Massachusetts.

No. 133

Whereas, The City of Boston

of ——————, in the County of Suffolk and Commonwealth aforesaid, has applied to the Board of Harbor and Land Commissioners for license to rebuild and widen the part of Cambridge Street Bridge in and over the tidewaters of Charles River, Brighton District and has submitted plans of the same, and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Mayor and Aldermen of the City of Boston;

Now, said Board, having heard all parties desiring to be heard, and having fully considered said application, do hereby, ~~subject to the approval of the Governor and Council,~~ authorize said City of Boston subject to the provisions of the nineteenth chapter of the Public Statutes, and of all laws which are or may be in force applicable thereto, to ~~construct~~ rebuild and widen said Cambridge Street Bridge in conformity with the accompanying plan, which shows the number and positions of the new piles to be driven and the old piles to be drawn, and the manner of construction in detail.

The Plan for the construction of said rebuilding and widening is on file in the office of said Board, numbered 833 and a duplicate of said plan accompanies this license.

This License shall be void unless the same, and the accompanying plan, are recorded, within one year from the date hereof, in the Registry of Deeds for the County of Suffolk

Nothing in this license shall be so construed as to impair the legal rights of any person.

The amount of tide-water displaced by the structure hereby authorized, shall be ascertained by said Board of Harbor and Land Commissioners, and compensation therefor shall be made by said City of Boston by paying into the treasury of the Commonwealth thirty seven ½ (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston.

~~This License is granted in consideration of the payment into the Treasury of the Commonwealth by said~~ for the rights and privileges hereby granted in land of ~~said~~ Commonwealth, of the sum of ~~being the amount determined by the Governor and Council to be just and equitable therefor.~~

In Witness Whereof, a majority of said Board of Harbor and Land Commissioners have hereto set their hands this fourth day of September in the year eighteen hundred and eighty-four.

John T. Baker.
J. K. Baker.

Harbor and Land Commissioners.

~~COMMONWEALTH OF MASSACHUSETTS.~~

BOSTON, 18

~~Approved by the Governor and Council.~~

~~Secretary of the Commonwealth.~~

A true Copy,
Attest, J. Frank Sawyer
Chairman

Cambridge Street Bridge.

Plan showing proposed rebuilding & widening.

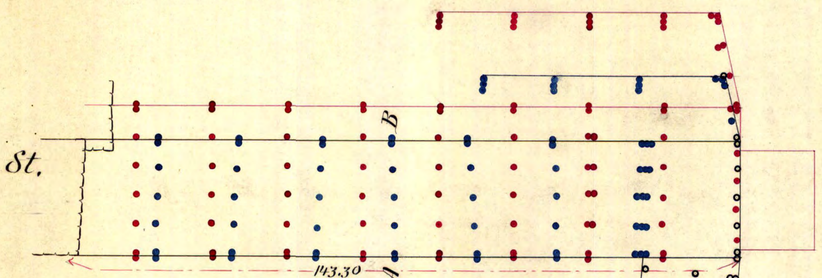
Scale of Sections 4 feet = 1 inch.

" " Plan 16 " " " "

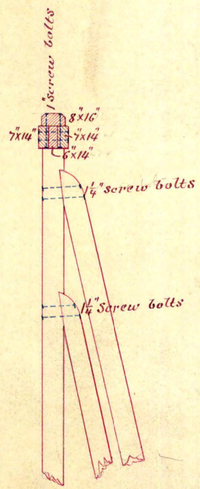
Piles to be driven shown thus •
" " " drawn up " " •
" " remain " " ○

Aug. 20, 1884.

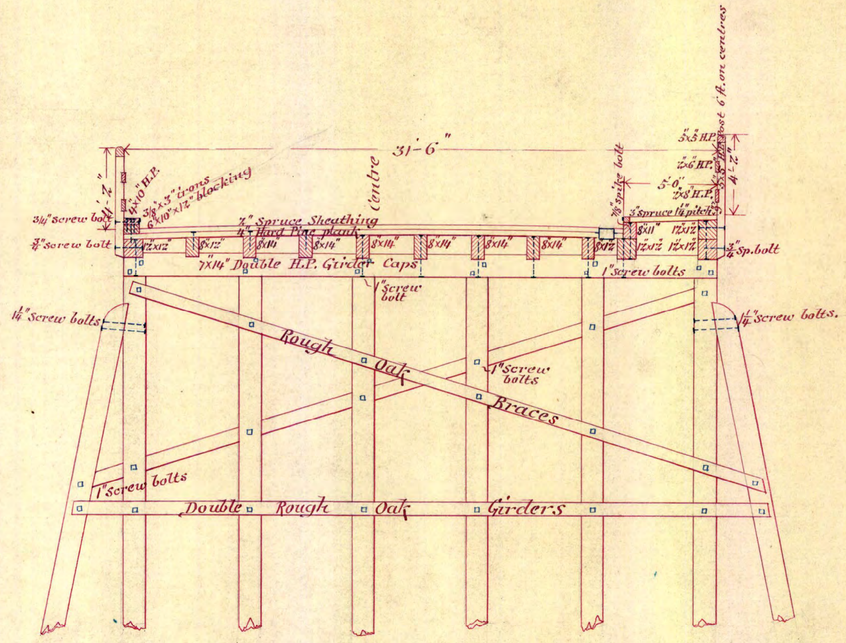
Cambridge St. Brighton.



Plan.

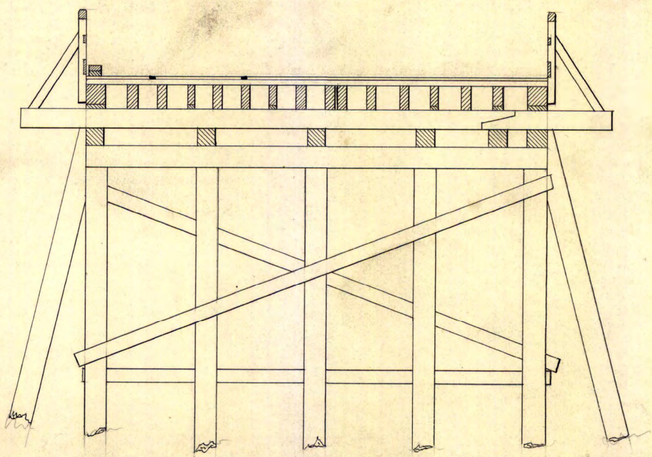


Proposed Cross Section of Fender Guard.



Proposed General Cross Section.

No. 833
Approved by Harbor and Land Com.
September 4. 1884.
John S. Baker.
J. K. Baker



Present Cross Section at AB.

Commonwealth of Massachusetts.

No. 1283

Whereas, the city of Cambridge, by the city Engineer of said city, in the County of Middlesex, and Commonwealth aforesaid, has applied to the Board of Harbor and Land Commissioners for license to rebuild and widen its portion of River Street Bridge over Charles River between Cambridge and Boston, Brighton District and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given as required by law to the Mayor and Aldermen of the City of Cambridge;

Now said Board, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor and Council, authorizes said City of Cambridge subject to the provisions of the nineteenth chapter of the Public Statutes, and of all laws which are or may be in force applicable thereto, to rebuild and widen its portion of said bridge in conformity with the accompanying plan No. 1283 which shows by words and figures thereon the old piles which are to be removed and the new piles which are to be driven and the manner in which the bridge is to be built and the work done.

In addition the draw, draw-pier and fender guards are to be relocated, enlarged and extended all as shown on said plan.

All the piles in the above described structures

are to be of oak

Three bridge piles may be driven as shown on said plan to act as fenders for a bath house.

The draw opening in said bridge to have a clear width of 36 feet and 6 inches as shown on said plan the minimum of said draw being required by Chapter 330 of the Acts of 1888.

The Plan for the construction of said bridge is on file in the office of said Board, numbered 1283, and a duplicate of said plan accompanies this License.

The net amount of tide-water displaced by the structure hereby authorized shall be ascertained by said Board of Harbor and Land Commissioners, and compensation therefor shall be made by said City of Cambridge by paying into the treasury of the Commonwealth thirty seven and one half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston.

This License is also granted in consideration of the payment into the treasury of the Commonwealth by said

for the rights and privileges hereby granted in land of said Commonwealth, of the further sum of

being the amount determined by the Governor and Council to be just and equitable therefor.

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plan are recorded, within one year from the date hereof, in the Registry of Deeds for the South District of the County of Middlesex.

In Witness Whereof said Board of Harbor and Land Commissioners have hereunto set their hands this twenty-second day of August in the year eighteen hundred and ~~eighty~~ ninety.

John E. Sanford
John S. Bates
Chas. H. Howland.
} *Harbor and Land Commissioners.*

A true copy.
Attest
Chairman.

COMMONWEALTH OF MASSACHUSETTS.

BOSTON, August 28th 1890.

Approved by the Governor and Council.

Isaac H. Edgell
Deputy *Secretary of the Commonwealth.*

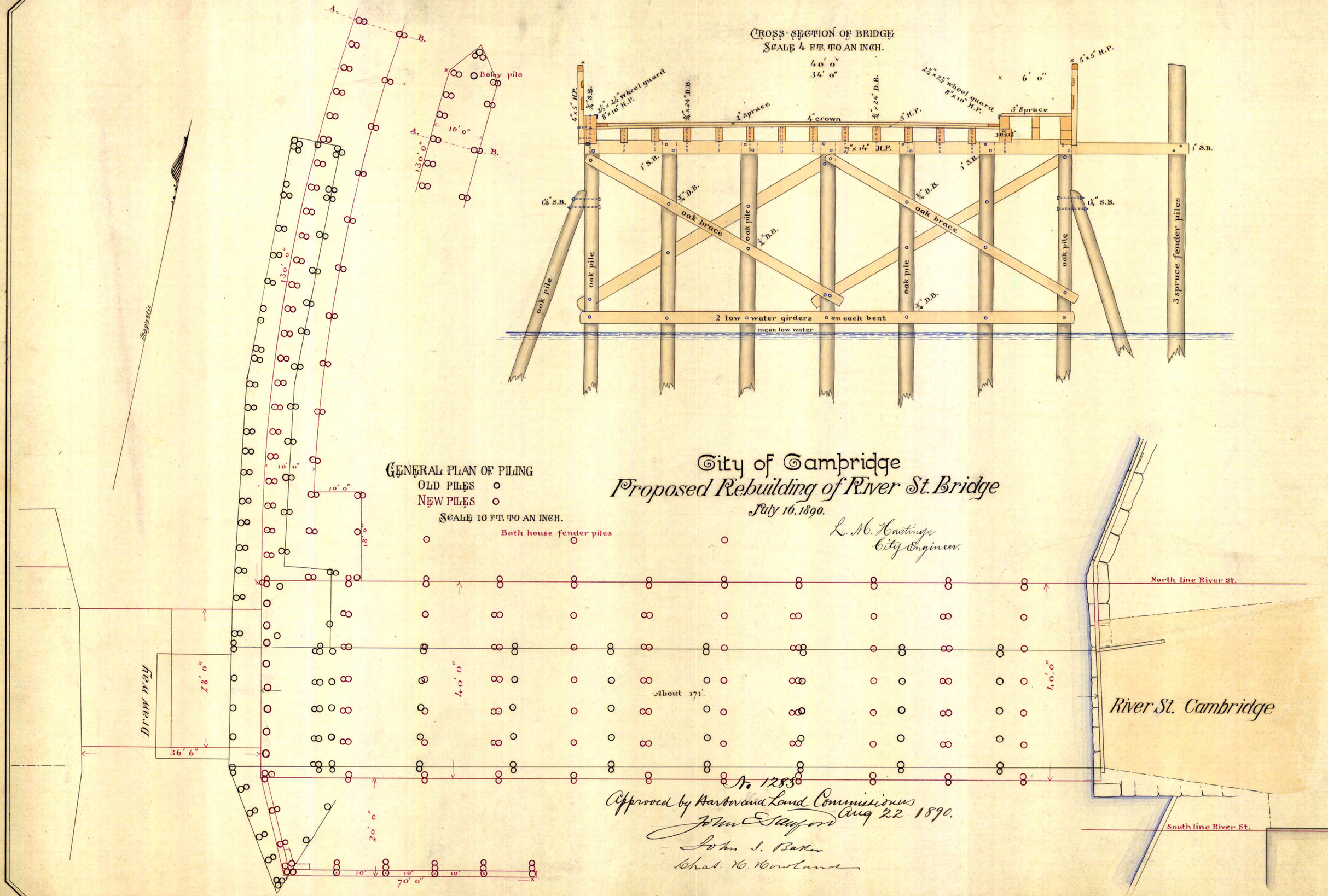
City of Cambridge
Proposed Rebuilding of River St. Bridge

July 16, 1890.

L. M. Hastings
City Engineer.

CROSS-SECTION OF BRIDGE
SCALE 4 FT. TO AN INCH.

GENERAL PLAN OF PILING
OLD PILES ○
NEW PILES ○
SCALE 10 FT. TO AN INCH.



No. 1283

Approved by Harbor and Land Commissioners Aug 22 1890.

John S. Baker

Chas. H. Rowlands

1283

1283

Commonwealth of Massachusetts.

No. 1284

Whereas, the city of Boston, by the city Engineer of said city, in the County of Suffolk, and Commonwealth aforesaid, has applied to the Board of Harbor and Land Commissioners for license to widen its portion of River Street Bridge over Charles River between Cambridge and Boston, Brighton District, and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given as required by law to the Mayor and Aldermen of the City of Boston;

Now said Board, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor and Council, authorizes said City of Boston subject to the provisions of the nineteenth chapter of the Public Statutes, and of all laws which are or may be in force applicable thereto, to widen its portion of said bridge in conformity with the accompanying plan No 1284 which shows by words and characters thereon the old piles which are to remain and the new piles which are to be driven, and the manner in which the bridge is to be widened and the work done.

All the new piles are to be of oak.

The draw opening in said bridge to have a clear width of 36 feet and 6 inches as shown on said plan. In the widening

of said draw being required by Chapter 220 of the Acts of 1888.

The Plan for the ~~construction~~ widening of said bridge is on file in the office of said Board, numbered 1284, and a duplicate of said plan accompanies this License.

The amount of tide-water displaced by the structure hereby authorized shall be ascertained by said Board of Harbor and Land Commissioners, and compensation therefor shall be made by said City of Boston by paying into the treasury of the Commonwealth thirty-seven and one-half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Board, the same to be reserved as a compensation fund for the harbor of Boston.

This License is also granted in consideration of the payment into the treasury of the Commonwealth by said

for the rights and privileges hereby granted in land of said Commonwealth, of the further sum of

~~being~~ the amount determined by the Governor and Council to be just and equitable therefor.

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plan are recorded, within one year from the date hereof, in the Registry of Deeds for the ~~District of the~~ County of Suffolk.

In Witness Whereof said Board of Harbor and Land Commissioners have hereunto set their hands this twenty second day of August in the year eighteen hundred and ~~eighty~~ ninety.

John E. Sanford.
John I. Baker
Chas. H. Howland

Harbor and Land Commissioners.

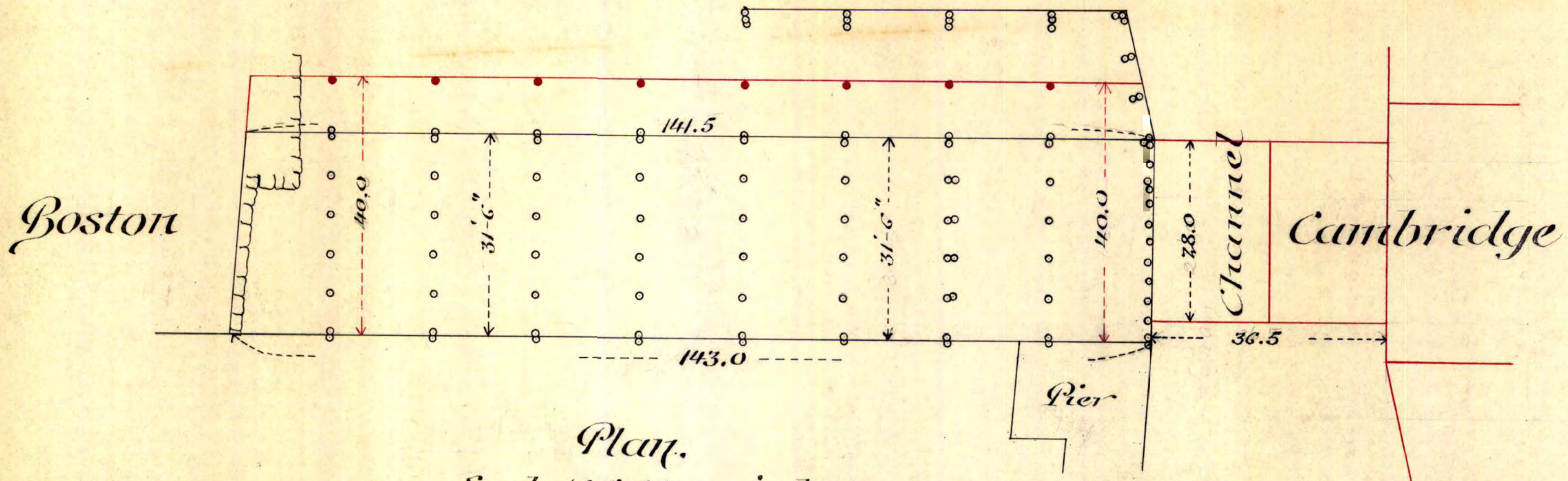
A true copy
Attest:
John E. Sanford
Chairman

COMMONWEALTH OF MASSACHUSETTS.

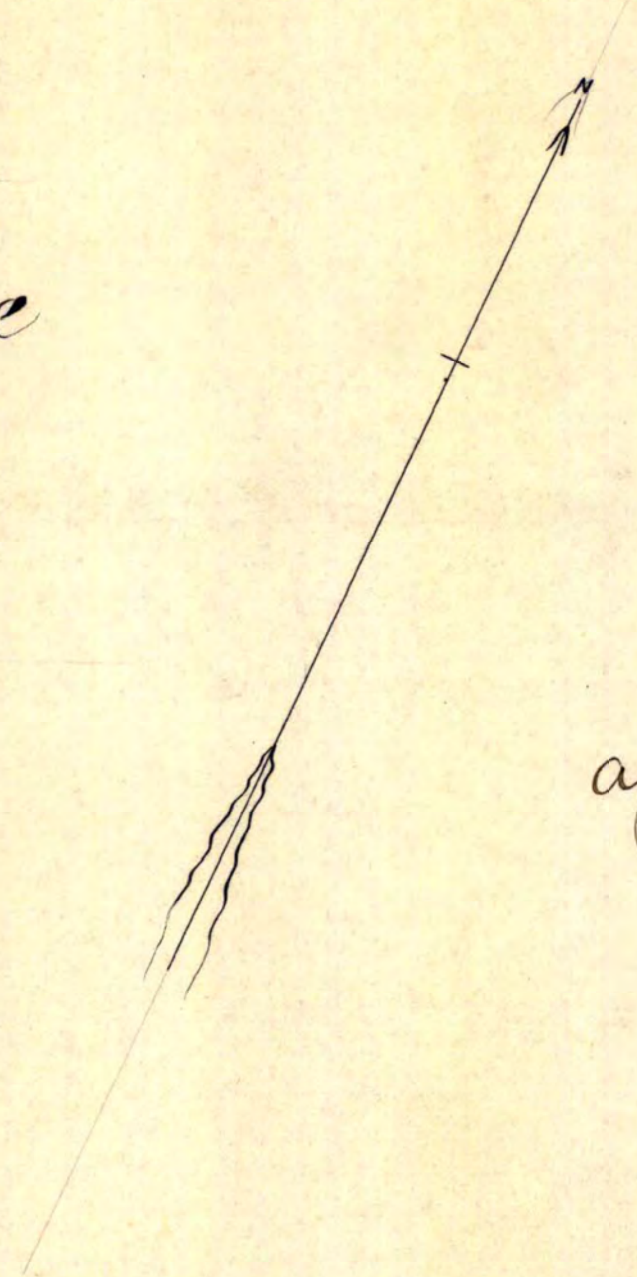
Boston, August 28th 1890.

Approved by the Governor and Council.

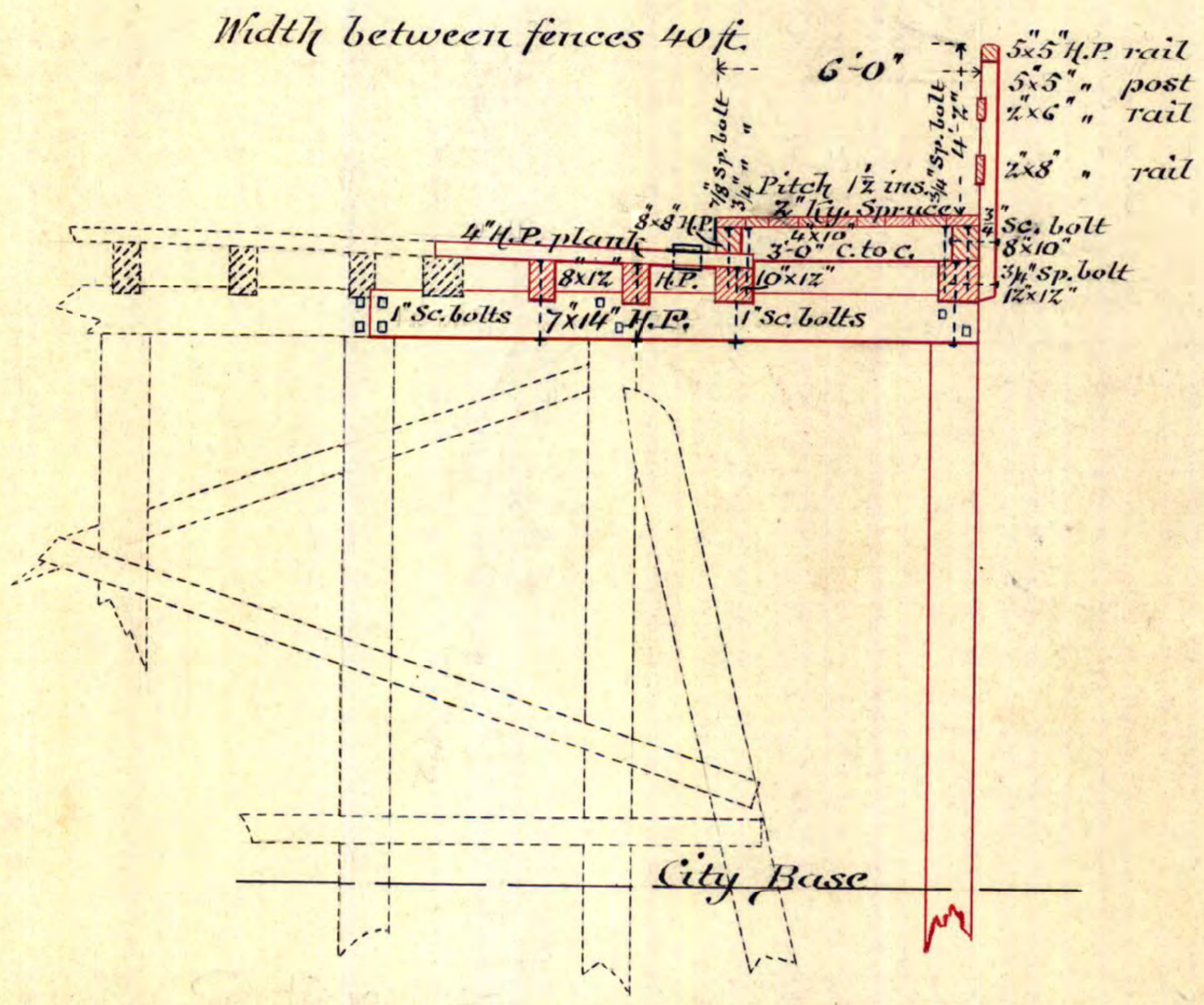
Isaac H. Edgell
Deputy Secretary of the Commonwealth.



Plan.
Scale 16 feet to an inch.



No 1284
approved by Harbor and Land Commrs.
August 22 1890.
John E. Sanford
John I. Baker
Chas. H. Howland



General Section.
Scale 4 feet to an inch.

Rebuilding River Street Bridge.

July 16, 1890.

Piles to remain shown thus — ∘
" " be driven " " — •
New Work " in red.

1284

Legislative Authorizations

position of such fees, — so that the second paragraph will read as follows: — The provisions of law relative to fees for the entry in the superior court of libels for divorce and for the service thereof shall apply in case such libels are brought in a probate court, except that section twenty of chapter two hundred and seventeen shall apply to the disposition of such fees.

Entry fee for divorce libels brought in probate court.

Section 4. This act shall take effect on the first day of December of the current year. *Approved May 21, 1926.*

Effective date.

An Act increasing the powers and purposes of the Florence Crittenton League of Compassion. *Chap.* 364

Be it enacted, etc., as follows:

The Florence Crittenton League of Compassion, a corporation established under chapter one hundred and twenty-five of the Revised Laws, shall have, so far as the same may be additional to its present powers and purposes, the following powers and purposes, to wit: — to conduct a non-sectarian institution in which girls in need may receive guidance and assistance, and be so trained along moral and practical lines, that they may become useful and self-supporting members of society. *Approved May 21, 1926.*

Powers and purposes of Florence Crittenton League of Compassion increased.

An Act authorizing the metropolitan district commission to construct a parkway or boulevard on the southerly side of the Charles River basin from Bay State road to North Harvard street in the city of Boston. *Chap.* 365

Be it enacted, etc., as follows:

Section 1. Subject to appropriation, the metropolitan district commission is hereby authorized to lay out and construct a parkway or boulevard from a point in Bay State road at or near Chilmark street in the city of Boston, thence along the southerly side of the Charles river basin, passing under the Cottage Farm bridge, so-called, and under the Grand Junction branch of the Boston and Albany Railroad Company, to North Harvard street in said city, and for that purpose to exercise all the powers conferred upon it by chapter ninety-two of the General Laws relative to the construction and maintenance of boulevards. In laying out and constructing said parkway or boulevard at or near said Cottage Farm bridge, said commission shall not fill in the waters of the Charles river basin beyond the limits prescribed therefor in the construction of said bridge under section seventeen of chapter four hundred and ninety-seven of the acts of nineteen hundred and twenty-one, inserted by section two of chapter three hundred and twenty-seven of the acts of nineteen hundred and twenty-six.

Metropolitan district commission may construct parkway or boulevard on southerly side of Charles river basin from Bay State road to North Harvard street in city of Boston.

Restrictions as to construction, etc., at or near Cottage Farm bridge.

Section 2. One half of the expenditures made under authority of this act shall be paid by the cities and towns of

Expenditures, payment, etc.

the metropolitan parks district, as part of the cost of maintenance of boulevards under section fifty-six of chapter ninety-two of the General Laws, and the remaining one half shall be paid from the Highway Fund.

Approved May 21, 1926.

Chap. 366 AN ACT AUTHORIZING THE APPOINTMENT OF THIRD ASSISTANT CLERKS IN THE FIRST AND THIRD DISTRICT COURTS OF EASTERN MIDDLESEX.

Be it enacted, etc., as follows:

G. L. 218, § 10, etc., amended.

SECTION 1. Chapter two hundred and eighteen of the General Laws, as amended in section ten by section one of chapter two hundred and eighty-seven of the acts of nineteen hundred and twenty-one, by section one of chapter sixty-three of the acts of nineteen hundred and twenty-two, and by section four of chapter one hundred and sixty-four, section one of chapter three hundred and fourteen and section one of chapter three hundred and seventy-nine, all of the acts of nineteen hundred and twenty-three, and by section one of chapter two hundred and fifty-seven of the acts of nineteen hundred and twenty-five, is hereby further amended by striking out said section ten and inserting in place thereof the following: — *Section 10.* The clerk of a district court may, subject to the approval of the justice, appoint one or more assistant clerks, who shall be removable at his pleasure or at the pleasure of the court, for whose official acts the clerk shall be responsible and who shall be paid by him unless salaries payable by the county are authorized in this section or in section fifty-three. Assistant clerks with salaries payable by the county may be appointed in the central district court of northern Essex, the municipal court of the Charlestown district, the district court of western Hampden, the district court of Newton and in courts the judicial districts of which have, according to the national or state census last preceding, a population of sixty thousand or more. Second assistant clerks with salaries payable by the county may be appointed in the municipal court of the Roxbury district, the East Boston district court, the municipal court of the Charlestown district, the municipal court of the West Roxbury district, and, subject to the approval of the county commissioners, in the first district court of eastern Middlesex, the third district court of eastern Middlesex and the district court of southern Essex. Third assistant clerks with salaries payable by the county may be appointed in the municipal court of the Roxbury district and subject to the approval of the county commissioners, in the first district court of eastern Middlesex and the third district court of eastern Middlesex.

District courts, assistant clerks, appointment, etc.

Second assistant clerks, appointment, etc.

Third assistant clerks in municipal court of Roxbury district and first and third district courts of eastern Middlesex.

G. L. 218, § 79, etc., amended.

SECTION 2. Said chapter two hundred and eighteen, as amended in section seventy-nine by section two of chapter three hundred and seventy-nine of the acts of nineteen hundred and twenty-three, is hereby further amended by

AN ACT PROVIDING FOR THE CONSTRUCTION, MAINTENANCE, REPAIR AND OPERATION OF A SELF-LIQUIDATING EXPRESS HIGHWAY FROM A POINT IN THE VICINITY OF THE CITY OF BOSTON TO A POINT AT OR NEAR THE NEW YORK STATE LINE; CREATING THE MASSACHUSETTS TURNPIKE AUTHORITY AND DEFINING ITS POWERS AND DUTIES; AND PROVIDING FOR THE FINANCING OF SUCH EXPRESS HIGHWAY. *Chap.* 354

Whereas, The deferred operation of this act would unnecessarily delay the construction of the much needed express highway provided for herein and thereby delay the removal of many of the present handicaps and hazards on the congested highways in the commonwealth, therefore this act is hereby declared to be an emergency law, necessary for the immediate preservation of the public safety and convenience.

Be it enacted, etc., as follows:

Section 1. *Massachusetts Turnpike.* — The Massachusetts Turnpike Authority (hereinafter created) is hereby authorized and empowered, subject to the provisions of this act, to construct, maintain, repair and operate at such location as may be approved by the state department of public works a toll express highway, to be known as the "Massachusetts Turnpike", from a point in the vicinity of the city of Boston to a point at or near the boundary line between the Commonwealth and the State of New York or such part or parts thereof as it may determine, and to issue turnpike revenue bonds of the Authority, payable solely from revenues, to finance such turnpike.

Section 2. *Credit of Commonwealth not Pledged.* — Turnpike revenue bonds issued under the provisions of this act shall not constitute a debt of the commonwealth or of any political subdivision thereof or a pledge of the faith and credit of the commonwealth or of any such political subdivision, but such bonds shall be payable solely from the funds herein provided therefor from revenues. All such turnpike revenue bonds shall contain on the face thereof a statement to the effect that neither the commonwealth nor the Authority shall pay the same or the interest thereon except from revenues of the turnpike and that neither the faith and credit nor the taxing power of the commonwealth or of any political subdivision thereof is pledged to the payment of the principal of or the interest on such bonds.

All expenses incurred in carrying out the provisions of this act shall be payable solely from funds provided under the authority of this act and no liability or obligation shall be incurred by the Authority hereunder beyond the extent to which moneys shall have been provided under the provisions of this act.

Section 3. *Massachusetts Turnpike Authority.* — There is hereby created and placed in the state department of public works a body politic and corporate to be known as

the "Massachusetts Turnpike Authority", which shall not be subject to the supervision and regulation of the department of public works or of any other department, commission, board, bureau or agency of the commonwealth except to the extent and in the manner provided in this act. The Authority is hereby constituted a public instrumentality, and the exercise by the Authority of the powers conferred by this act in the construction, operation and maintenance of the turnpike shall be deemed and held to be the performance of an essential governmental function.

The Massachusetts Turnpike Authority shall consist of three members, to be appointed by the governor, by and with the advice and consent of the council, who shall be residents of the commonwealth, not more than two of whom shall be of the same political party. The members of the Authority first appointed shall continue in office for terms expiring on July first, nineteen hundred and fifty-eight, July first, nineteen hundred and fifty-nine and July first, nineteen hundred and sixty, respectively, the term of each such member to be designated by the governor, and until their respective successors shall be duly appointed and qualified. The governor shall designate one of the members as chairman who shall serve as such during his term of office. Upon the expiration of the term of office of such chairman, the governor shall appoint one of the members as his successor as chairman. The successor of each member shall be appointed for a term of eight years, except that any person appointed to fill a vacancy shall serve only for the unexpired term. Any member of the Authority shall be eligible for reappointment. Each member of the Authority before entering upon his duties shall take an oath before the governor to administer the duties of his office faithfully and impartially, and a record of such oaths shall be filed in the office of the secretary of the commonwealth.

The Authority shall elect one of the members as vice chairman thereof and shall also elect a secretary-treasurer who need not be a member of the Authority. Two members of the Authority shall constitute a quorum and the affirmative vote of two members shall be necessary for any action taken by the Authority. No vacancy in the membership of the Authority shall impair the right of a quorum to exercise all the rights and perform all the duties of the Authority.

Before the issuance of any turnpike revenue bonds under the provisions of this act, each member of the Authority shall execute a surety bond in the penal sum of twenty-five thousand dollars, and the secretary-treasurer shall execute a surety bond in the penal sum of fifty thousand dollars, each such surety bond to be conditioned upon the faithful performance of the duties of his office, to be executed by a surety company authorized to transact business in the commonwealth as surety and to be approved by the attorney general and filed in the office of the secretary of the commonwealth. The chairman of the Authority shall receive an

annual salary of twelve thousand dollars and the other members shall each receive an annual salary of ten thousand dollars. Each member shall be reimbursed for his actual expenses necessarily incurred in the performance of his duties. All expenses incurred in carrying out the provisions of this act shall be paid solely from funds provided under the authority of this act and no liability or obligation shall be incurred by the Authority hereunder beyond the extent to which moneys shall have been provided under the authority of this act.

Section 4. *Definitions.* — As used in this act, the following words and terms shall have the following meanings, unless the context shall indicate another or different meaning or intent: —

(*a*) The word "Authority" shall mean the Massachusetts Turnpike Authority, created by section three of this act, or, if said Authority shall be abolished, the board, body or commission succeeding to the principal functions thereof or to whom the powers given by this act to the Authority shall be given by law.

(*b*) The word "turnpike" shall mean the express toll highway or such part or parts thereof as may be constructed under the provisions of this act, together with and including all bridges, tunnels, overpasses, underpasses, interchanges, entrance plazas, approaches, connecting highways, service stations, restaurants and administration, storage and other buildings and facilities which the Authority may deem necessary for the operation of the turnpike, together with all property, rights, easements and interests which may be acquired by the Authority for the construction or the operation of the turnpike.

(*c*) The term "cost of the turnpike" shall embrace the cost of construction, the cost of the acquisition of all land, rights-of-way, property, rights, easements and interests acquired by the Authority for such construction, the cost of demolishing or removing any buildings or structures on land so acquired, including the cost of acquiring any lands to which such buildings or structures may be moved, the cost of all machinery and equipment, financing charges, interest prior to and during construction, and, if deemed advisable by the Authority, for one year after completion of construction, cost of traffic estimates and of engineering and legal expenses, plans, specifications, surveys, estimates of cost and of revenues, other expenses necessary or incident to determining the feasibility or practicability of constructing the turnpike, administrative expenses, and such other expenses as may be necessary or incident to the construction of the turnpike, the financing of such construction and the placing of the turnpike in operation. Any obligation or expense hereafter incurred by the state department of public works with the approval of the Authority for traffic surveys, borings, preparation of plans and specifications, and other engineering services in connection with the construction of the

turnpike shall be regarded as a part of the cost of the turnpike and shall be reimbursed to the commonwealth to the credit of the Highway Fund.

Section 5. *General Grant of Powers.* — The Authority is hereby authorized and empowered —

(*a*) To adopt by-laws for the regulation of its affairs and the conduct of its business;

(*b*) To adopt an official seal and alter the same at pleasure;

(*c*) To maintain an office or offices at such place or places within the commonwealth as it may determine;

(*d*) To sue and be sued in its own name, plead and be impleaded;

(*e*) To construct, reconstruct, maintain, repair and operate the turnpike or any part or parts thereof as it may determine;

(*f*) To acquire sites abutting on the turnpike and to construct or contract for the construction of buildings and appurtenances for gasoline stations, restaurants and other services and to lease the same for the above purposes in such manner and under such terms as it may determine;

(*g*) To issue turnpike revenue bonds of the Authority for any of its corporate purposes, payable solely from the tolls and revenues pledged for their payment, and to refund its bonds, all as provided in this act;

(*h*) To fix and revise from time to time and charge and collect tolls for transit over the turnpike;

(*i*) To establish rules and regulations for the use of the turnpike;

(*j*) To acquire, hold and dispose of real and personal property in the exercise of its powers and the performance of its duties under this act;

(*k*) To acquire in the name of the Authority by purchase or otherwise, on such terms and conditions and in such manner as it may deem proper, or by the exercise of the power of eminent domain in accordance with the provisions of chapter seventy-nine of the General Laws or any alternative method now or hereafter provided by general law, in so far as such provisions may be applicable, such public lands, parks, playgrounds, reservations, cemeteries, highways or parkways, or parts thereof or rights therein, and any fee simple absolute or any lesser interest in such private property as it may deem necessary for carrying out the provisions of this act, including any fee simple absolute in, easements upon, or the benefit of restrictions upon, abutting property to preserve and protect the turnpike; provided, however, that whenever a parcel of private property so taken is used in whole or part for residential purposes, the owner or owners of said parcel may, within thirty days of the date of the Authority's notice to vacate such parcel, appeal to the Authority for a postponement of the date set for vacating, whereupon the Authority shall grant to the owner or owners of the property a postponement of three months from the date of such appeal; provided, however, that the appeal for

such postponement shall be in the form of a written request to the Authority sent by registered mail, return receipt requested; and provided, further, that the Authority shall give security to the state treasurer, in such amount and in such form as may be determined by the state department of public works, for the payment of such damages as may be awarded in accordance with law for such taking, and that the provisions of section forty of said chapter seventy-nine, in so far as the same may be applicable, shall govern the rights of the Authority and of any person whose property shall be so taken;

(*l*) To designate the locations, and establish, limit and control such points of ingress to and egress from the turnpike as may be necessary or desirable in the judgment of the Authority to insure the proper operation and maintenance of the turnpike, and to prohibit entrance to the turnpike from any point or points not so designated;

(*m*) To make and enter into all contracts and agreements necessary or incidental to the performance of its duties and the execution of its powers under this act;

(*n*) To employ consulting engineers, attorneys, accountants, construction and financial experts, superintendents, managers, and such other employees and agents as may be necessary in its judgment, and to fix their compensation;

(*o*) To receive and accept from any federal agency grants for or in aid of the construction of the turnpike, and to receive and accept aid or contributions from any source of either money, property, labor or other things of value, to be held, used and applied only for the purposes for which such grants and contributions may be made; and

(*p*) To do all acts and things necessary or convenient to carry out the powers expressly granted in this act.

Section 6. *State Highways.* — The Authority may, with the approval of the state department of public works, incorporate in the turnpike any existing state highway or part thereof or any partially completed state highway or any bridge which it may deem necessary for a proper alignment of the turnpike, and the actual cost thereof shall be reimbursed to the commonwealth to the credit of the Highway Fund from the proceeds of its turnpike revenue bonds.

Section 7. *Incidental Powers.* — The Authority shall have power to construct grade separations at intersections of the turnpike with public highways and to change and adjust the lines and grades of such highways so as to accommodate the same to the design of such grade separation. The cost of such grade separations and any damage incurred in changing and adjusting the lines and grades of such highways shall be ascertained and paid by the Authority as a part of the cost of the turnpike.

If the Authority shall find it necessary to change the location of any portion of any public highway, it shall reconstruct the same at such location as the Authority shall deem most favorable, with the approval of the state department of

public works, and of substantially the same type and in as good condition as the original highway. The cost of such reconstruction and any damage incurred in changing the location of any such highway shall be ascertained and paid by the Authority as a part of the cost of the turnpike.

Any public highway affected by the construction of the turnpike may be vacated or relocated by the Authority in the manner now provided by law for the vacation or relocation of public roads and any damages awarded on account thereof shall be paid by the Authority as a part of the cost of the turnpike.

In addition to the foregoing powers the Authority and its authorized agents and employees may enter upon any lands, waters and premises in the commonwealth for the purpose of making surveys, soundings, drillings and examinations as they may deem necessary or convenient for the purposes of this act, and such entry shall not be deemed a trespass, nor shall an entry for such purposes be deemed an entry under any condemnation proceedings which may be then pending. The Authority shall make reimbursement for any actual damage resulting to such lands, waters and premises as a result of such activities.

The Authority shall also have power to make reasonable regulations including the authority to grant easements for the installation, construction, maintenance, repair, renewal, relocation and removal of tracks, pipes, pipelines, mains, conduits, cables, wires, towers, poles and other equipment and appliances of any public utility, or of any corporation or person owning or operating pipelines in, on, along, over or under the turnpike. Whenever the Authority shall determine that it is necessary that any such facilities which now are, or hereafter may be located in, on, along, over or under the turnpike should be relocated in the turnpike, or should be removed from the turnpike, the public utility, corporation or person owning or operating such facilities shall relocate or remove the same in accordance with the order of the Authority. In case of any such relocation or removal of facilities, the public utility, corporation or person owning or operating the same, its successors or assigns, may maintain and operate such facilities, with the necessary appurtenances, in the new location or new locations, for as long a period, and upon the same terms and conditions, as it had the right to maintain and operate such facilities in their former location or locations.

The commonwealth hereby consents to the use of all lands owned by it, including lands lying under water, which are deemed by the Authority to be necessary for the construction or operation of the turnpike.

The Authority may sell the buildings or other structures upon any lands taken by it, or may remove the same, and shall sell, if a sale be practicable, or if not, shall lease, if a lease be practicable, any lands or rights or interest in lands or other property taken or purchased for the purposes of this

act, whenever the same shall, in the opinion of the Authority, cease to be needed for such purpose. The proceeds of any such sale or lease shall be applied toward the cost of the turnpike or deposited to the credit of the sinking fund for the turnpike revenue bonds issued under the provisions of this act.

The Authority may place and maintain or may grant permission by easement or otherwise to any corporation or person to place and maintain on or under or within the turnpike ducts, pipes, pipelines, wires or other structures, to be so located as not to interfere with the safe and convenient operation and maintenance of the turnpike, and may contract with any such person or corporation for such permission on such terms and conditions as may be fixed by the Authority. The construction, maintenance and repairs of any such ducts, pipes, pipelines, wires or other structures shall be subject to such directions and regulations as the Authority may impose.

Section 8. *Turnpike Revenue Bonds.* — The Authority is hereby authorized to provide by resolution, at one time or from time to time, for the issuance of turnpike revenue bonds of the Authority for the purpose of paying all or any part of the cost of the turnpike or any part or parts thereof. The principal of and the interest on such bonds shall be payable solely from the funds herein provided for such payment. The bonds shall be dated, shall bear interest at such rate or rates, not exceeding five per centum per annum, shall mature at such time or times not exceeding forty years from their date or dates, all as may be determined by the Authority, and may be made redeemable before maturity, at the option of the Authority, at such price or prices and under such terms and conditions as may be fixed by the Authority prior to the issuance of the bonds. The Authority shall determine the form of the bonds, including any interest coupons to be attached thereto, and shall fix the denomination or denominations of the bonds and the place or places of payment of principal and interest, which may be at any bank or trust company within or without the commonwealth. The bonds shall be signed by the chairman of the Authority or shall bear his facsimile signature, and shall bear a facsimile of the official seal of the Authority, attested by the secretary-treasurer of the Authority, and any coupons attached thereto shall bear the facsimile signature of the chairman of the Authority. In case any officer whose signature or a facsimile of whose signature shall appear on any bonds or coupons shall cease to be such officer before the delivery of such bonds, such signature or such facsimile shall nevertheless be valid and sufficient for all purposes the same as if he had remained in office until such delivery. All bonds issued under the provisions of this act shall have and are hereby declared to have all the qualities and incidents of negotiable instruments under the negotiable instruments law of the commonwealth. The bonds may be issued in coupon or in registered form, or both, as the Authority may determine, and provision may

be made for the registration of any coupon bonds as to principal alone and also as to both principal and interest, for the reconversion into coupon bonds of any bonds registered as to both principal and interest, and for the interchange of registered and coupon bonds. The Authority may sell such bonds in such manner, either at public or at private sale, and for such price, as it may determine to be for the best interests of the Authority, but no such sale shall be made at a price so low as to require the payment of interest on the money received therefor at more than five per centum per annum, computed with relation to the absolute maturity of the bonds in accordance with standard tables of bond values, excluding, however, from such computation the amount of any premium to be paid on redemption of any bonds prior to maturity.

The proceeds of the bonds shall be used solely for the payment of the cost of the turnpike, and shall be disbursed in such manner and under such restrictions, if any, as the Authority may provide in the resolution authorizing the issuance of such bonds or in the trust agreement hereinafter mentioned securing the same. If the proceeds of the bonds initially issued, by error of estimates or otherwise, shall be less than such cost, additional bonds may in like manner be issued to provide the amount of such deficit, and, unless otherwise provided in the resolution authorizing the issuance of such bonds or in the trust agreement securing the same shall be deemed to be of the same issue and shall be entitled to payment from the same fund without preference or priority of the bonds first issued. If the proceeds of the bonds shall exceed such cost, the surplus shall be deposited to the credit of the sinking fund for such bonds.

Prior to the preparation of definitive bonds, the Authority may, under like restrictions, issue interim receipts or temporary bonds, with or without coupons, exchangeable for definitive bonds when such bonds shall have been executed and are available for delivery. The Authority may also provide for the replacement of any bonds which shall become mutilated or shall be destroyed or lost. Bonds may be issued under the provisions of this act without obtaining the consent of any department, division, commission, board, bureau or agency of the commonwealth, and without any other proceedings or the happening of any other conditions or things than those proceedings, conditions or things which are specifically required by this act.

SECTION 9. *Trust Agreement.* — In the discretion of the Authority the bonds issued under the provisions of this act may be secured by a trust agreement by and between the Authority and a corporate trustee, which may be any trust company or bank having the powers of a trust company within or without the commonwealth. Such trust agreement or the resolution providing for the issuance of such bonds may pledge or assign the tolls and other revenues to be received, but shall not convey or mortgage the turnpike or any part thereof. Such trust agreement or resolution providing for

the issuance of such bonds may contain such provisions for protecting and enforcing the rights and remedies of the bondholders as may be reasonable and proper and not in violation of law, including covenants setting forth the duties of the Authority in relation to the acquisition of property and the construction, improvement, maintenance, repair, operation and insurance of the turnpike, the rates of toll to be charged, and the custody, safeguarding and application of all moneys. It shall be lawful for any bank or trust company incorporated under the laws of the commonwealth which may act as depositary of the proceeds of bonds or of revenues to furnish such indemnifying bonds or to pledge such securities as may be required by the Authority. Such trust agreement may set forth the rights and remedies of the bondholders and of the trustee, and may restrict the individual right of action by bondholders. In addition to the foregoing, such trust agreement or resolution may contain such other provisions as the Authority may deem reasonable and proper for the security of the bondholders. All expenses incurred in carrying out the provisions of such trust agreement or resolution may be treated as a part of the cost of the operation of the turnpike.

Section 10. *Revenues.* — The Authority is hereby authorized to fix, revise, charge and collect tolls for the use of the turnpike and the different parts or sections thereof, and to contract with any person, partnership, association or corporation desiring the use of any part thereof, including the right-of-way adjoining the paved portion, for placing thereon telephone, telegraph, electric light or power lines, gas stations, garages and restaurants, or for any other purpose except for tracks for railroad or railway use, and to fix the terms, conditions, rents and rates of charges for such use. Such tolls shall be so fixed and adjusted in respect of the aggregate of tolls from the turnpike as to provide a fund sufficient with other revenues, if any, to pay (*a*) the cost of maintaining, repairing and operating the turnpike and (*b*) the principal of and the interest on such bonds as the same shall become due and payable, and to create reserves for such purposes. Such tolls shall not be subject to supervision or regulation by any department, division, commission, board, bureau or agency of the commonwealth or any political subdivision thereof. The tolls and all other revenues derived from the turnpike, except such part thereof as may be necessary to pay such cost of maintenance, repair and operation and to provide such reserves therefor as may be provided for in the resolution authorizing the issuance of such bonds or in the trust agreement securing the same, shall be set aside at such regular intervals as may be provided in such resolution or such trust agreement in a sinking fund which is hereby pledged to, and charged with, the payment of the principal of and the interest on such bonds as the same shall become due, and the redemption price or the purchase price of bonds retired by call or purchase as therein

provided. Such pledge shall be valid and binding from the time when the pledge is made; the tolls or other revenues or other moneys so pledged and thereafter received by the Authority shall immediately be subject to the lien of such pledge without any physical delivery thereof or further act, and the lien of any such pledge shall be valid and binding as against all parties having claims of any kind in tort, contract or otherwise against the Authority, irrespective of whether such parties have notice thereof. Neither the resolution nor any trust agreement by which a pledge is created need be filed or recorded except in the records of the Authority. The use and disposition of moneys to the credit of such sinking fund shall be subject to the provisions of the resolutions authorizing the issuance of such bonds or of such trust agreement. Except as may otherwise be provided in such resolution or such trust agreement, such sinking fund shall be a fund for all such bonds without distinction or priority of one over another.

SECTION 11. *Trust Funds.* — All moneys received pursuant to the authority of this act, whether as proceeds from the sale of bonds or as revenues, shall be deemed to be trust funds to be held and applied solely as provided in this act. The resolution authorizing the bonds or the trust agreement securing such bonds shall provide that any officer with whom, or any bank or trust company with which, such moneys shall be deposited shall act as trustee of such moneys and shall hold and apply the same for the purposes hereof, subject to such regulations as this act and such resolution or trust agreement may provide.

SECTION 12. *Remedies.* — Any holder of bonds issued under the provisions of this act or any of the coupons appertaining thereto, and the trustee under any trust agreement, except to the extent the rights herein given may be restricted by such trust agreement, may, either at law or in equity, by suit, action, mandamus or other proceeding, protect and enforce any and all rights under the laws of the commonwealth or granted hereunder or under such trust agreement or resolution authorizing the issuance of such bonds, and may enforce and compel the performance of all duties required by this act or by such trust agreement or resolution to be performed by the Authority or by any officer thereof, including the fixing, charging and collecting of tolls.

SECTION 13. *Exemption from Taxation.* — The exercise of the powers granted by this act will be in all respects for the benefit of the people of the commonwealth, for the increase of their commerce and prosperity, and for the improvement of their health and living conditions, and as the operation and maintenance of the turnpike by the Authority will constitute the performance of essential governmental functions, the Authority shall not be required to pay any taxes or assessments upon the turnpike or any property acquired or used by the Authority under the provisions of this act or upon the income therefrom, and the bonds issued

under the provisions of this act, their transfer and the income therefrom (including any profit made on the sale thereof), shall at all times be free from taxation within the commonwealth.

Section 14. *Bonds Eligible for Investment.* — Bonds issued by the Authority under the provisions of this act are hereby made securities in which all public officers and public bodies of the commonwealth and its political subdivisions, all insurance companies, trust companies in their commercial departments and within the limits set by section forty of chapter one hundred and seventy-two of the General Laws, banking associations, investment companies, executors, trustees and other fiduciaries, and all other persons whatsoever who are now or may hereafter be authorized to invest in bonds or other obligations of a similar nature may properly and legally invest funds, including capital in their control or belonging to them, and such bonds are hereby made obligations which may properly and legally be made eligible for the investment of savings deposits and the income thereof in the manner provided by clause 15 (*c*) of section fifty-four of chapter one hundred and sixty-eight of the General Laws. Such bonds are hereby made securities which may properly and legally be deposited with and received by any state or municipal officer or any agency or political subdivision of the commonwealth for any purpose for which the deposit of bonds or other obligations of the commonwealth is now or may hereafter be authorized by law.

Section 15. *Miscellaneous.* — The turnpike when constructed and open to traffic shall be maintained and kept in good condition and repair by the Authority. The turnpike shall also be policed and operated by such force of police, toll-takers and other operating employees as the Authority may in its discretion employ.

All private property damaged or destroyed in carrying out the powers granted by this act shall be restored or repaired and placed in its original condition as nearly as practicable, or adequate compensation made therefor, out of funds provided under the authority of this act.

All counties, cities, towns and other political subdivisions and all public agencies and commissions of the commonwealth, notwithstanding any contrary provision of law, are hereby authorized and empowered to lease, lend, grant or convey to the Authority at its request upon such terms and conditions as the proper authorities of such counties, cities, towns, political subdivisions, agencies or commissions of the commonwealth may deem reasonable and fair and without the necessity for any advertisement, order of court or other action or formality, other than the regular and formal action of the authorities concerned, any real property which may be necessary or convenient to the effectuation of the authorized purposes of the Authority, including public roads and other real property already devoted to public use.

Until the turnpike shall have become a part of the state highway system under the provisions of section seventeen of this act, the Authority shall be liable to any person sustaining bodily injury or damage in his property by reason of a defect or want of repair therein or thereupon to the same extent as though the turnpike were a way within the meaning of sections fifteen, eighteen and nineteen of chapter eighty-four of the General Laws, and shall be liable for the death of any person caused by such defect or want of repair to the same extent as is provided in chapter two hundred and twenty-nine of the General Laws. Any notice of such injury, damage or death required by law shall be given to any member of the Authority or to the secretary-treasurer.

Any person damaged in his property by the exercise of any of the powers granted by this act may recover his damages from the Authority under chapter seventy-nine of the General Laws.

On or before the thirtieth day of January in each year the Authority shall make an annual report of its activities for the preceding calendar year to the governor and to the general court. Each such report shall set forth a complete operating and financial statement covering its operations during the year. The Authority shall cause an audit of its books and accounts to be made at least once in each year by certified public accountants, and the cost thereof may be treated as a part of the cost of construction or operation of the turnpike. Such audits shall be deemed to be public records within the meaning of chapter sixty-six of the General Laws.

SECTION 16. *Turnpike Revenue Refunding Bonds.* — The Authority is hereby authorized to provide by resolution for the issuance of turnpike revenue refunding bonds of the Authority for the purpose of refunding any bonds then outstanding which shall have been issued under the provisions of this act, including the payment of any redemption premium thereon and any interest accrued or to accrue to the date of redemption of such bonds, and, if deemed advisable by the Authority, for the additional purpose of constructing any additional portion or portions of the turnpike or improvements, extensions, or enlargements thereof. The issuance of such bonds, the maturities and other details thereof, the rights of the holders thereof, and the rights, duties and obligations of the Authority in respect of the same, shall be governed by the provisions of this act in so far as the same may be applicable. The issuance of turnpike revenue bonds or turnpike revenue refunding bonds under the provisions of this act need not comply with the requirements of any other law applicable to the issuance of bonds.

SECTION 17. *Transfer to Commonwealth.* — When all bonds issued under the provisions of this act and the interest thereon shall have been paid or a sufficient amount for the payment of all such bonds and the interest thereon to the maturity thereof shall have been set aside in trust for the benefit of the bondholders, the turnpike, if then in good condition and

repair to the satisfaction of the state department of public works, shall become part of the state highway system and shall thereafter be maintained and operated by said department free of tolls as may be provided by law, and thereupon the Authority shall be dissolved and all funds of the Authority not required for the payment of the bonds and of the interest thereon shall be paid into the treasury of the commonwealth for the credit of the Highway Fund and all machinery, equipment, and other property belonging to the Authority shall be vested in the commonwealth and delivered to the state department of public works.

Section 18. *Preliminary Expenses.* — To provide for the preliminary expenses of the Authority in carrying out the provisions of this act the sum of five hundred thousand dollars is hereby appropriated from the Highway Fund, which sum shall be paid to the Authority and, simultaneously with the delivery of the bonds, the sum so paid shall be reimbursed by the Authority to the commonwealth for the credit of the Highway Fund out of the proceeds of any bonds which may be issued by the Authority under the provisions of this act.

The Authority is hereby authorized and directed to make such surveys and studies of the turnpike as may be necessary to effect the financing authorized by this act at the earliest practicable time, and for this purpose to employ such consulting engineers, traffic engineers, legal and financial experts and such other employees and agents as it may deem necessary. To effect the purposes of this act the state department of public works shall make available to the Authority all data in the possession of the department which may be useful to the Authority in making such surveys and studies and the department may furnish such assistance in making investigations and in preparing designs for the turnpike project as may be agreed upon between the department and the Authority, the cost of such surveys and expenses incurred by the department to be paid by the Authority.

Section 19. *Act Liberally Construed.* — This act, being necessary for the welfare of the commonwealth and its inhabitants, shall be liberally construed to effect the purposes thereof.

Section 20. *Constitutional Construction.* — The provisions of this act are severable, and if any of its provisions shall be held unconstitutional by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

Section 21. *Inconsistent Laws Inapplicable.* — All other general or special laws, or parts thereof, inconsistent herewith are hereby declared to be inapplicable to the provisions of this act. *Approved May 23, 1952.*

Attachment G

ENF Circulation List

ATTACHMENT G CIRCULATION LIST

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Attachment H

RMAT Output from Climate Resilience Design Standards Tool

New Substation

RMAT Climate Resilience Design Standards Tool Project Report

Greater Cambridge Energy Project (substation)
Date Created: 10/21/2021 4:01:36 PM

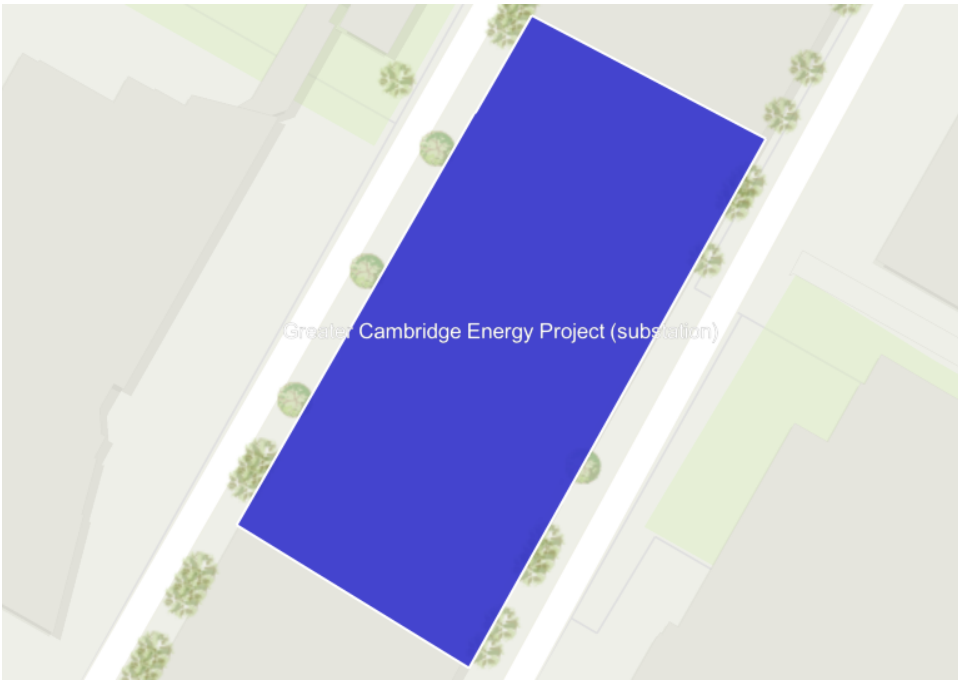
Created By: epsilonassociates

Project Summary

Link to Project

Estimated Construction Cost: $387000000.00
Useful Life: 2070 - 2079

Ecosystem Benefits	Scores
Project Score	Low
Exposure	**Scores**
Sea Level Rise/Storm Surge	Moderate Exposure
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	Not Exposed
Extreme Heat	High Exposure



Asset Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Underground electric transmission substation	High Risk	High Risk	Low Risk	High Risk

Project Outputs

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Underground electric transmission substation	2070	2050		200-yr (0.5%)	Tier 3
Extreme Precipitation					
Underground electric transmission substation	2070			50-yr (2%)	Tier 3
Extreme Heat					
Underground electric transmission substation	2070		90th		Tier 3

Scoring Rationale - Exposure

Sea Level Rise/Storm Surge

This project received a "Moderate Exposure" because of the following:

- Exposed to the 1% annual coastal flood event as early as 2030
- Located within the 0.1% annual coastal flood event within the project's useful life
- Not located within the predicted mean high water shoreline by 2030

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Historic flooding at the project site
- Projected increase in rainfall within project's useful life
- No increase to impervious area

Extreme Precipitation - Riverine Flooding

This project received a "Not Exposed" because of the following:

- No historic riverine flooding at project site
- Not exposed to riverine flooding within the project's useful life

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Not located within 100 ft of existing water body
- No increase to impervious area

Scoring Rationale - Asset Risk Scoring

Asset - Underground electric transmission substation
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Loss/inoperability of the asset would have regional impacts
- The infrastructure is located in an environmental justice community, and/or does provide services to vulnerable populations
- Inoperability of the asset would not be expected to result in injuries
- Cost to replace is greater than $100 million
- Spills and/or releases of hazardous materials would be relatively easy to clean up

Project Design Standards Output

Asset: Underground electric transmission substation — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Tidal Benchmarks: No
Stillwater Elevation: Yes
Design Flood Elevation (DFE): Yes
Wave Heights: No
Duration of Flooding: Yes
Design Flood Velocity: Yes
Wave Forces: No
Scour or Erosion: Yes

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Total Precipitation Depth for 24-hour Design Storms: Yes
Peak Intensity for 24-hour Design Storms: Yes
Riverine Peak Discharge: No
Riverine Peak Flood Elevation: No
Duration of Flooding for Design Storm: Yes
Flood Pathways: No

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Annual/Summer/Winter Average Temperature: Yes
Heat Index: Yes
Days Per Year With Max Temperature > 95°F: Yes
Days Per Year With Max Temperature > 90°F: Yes
Days Per Year With Max Temperature < 32°F: Yes
Number of Heat Waves Per Year: Yes
Average Heat Wave Duration (Days): Yes
Cooling Degree Days (Base = 65°F): No
Heating Degree Days (Base = 65°F): No
Growing Degree Days: No

Project Inputs

Core Project Information

Name:	Greater Cambridge Energy Project (substation)
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2070 - 2079
Location of Project:	Cambridge
Estimated Capital Cost:	$414,000,000
Entity Submitting Project:	Executive Office of Energy and Environmental Affairs / Department of Public Utilities
Is this project being submitted as part of a state grant application?	No
Which grant program?	
Is climate resiliency a core objective of this project?	No
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process?	Yes
Brief Project Description:	New underground electric transmission substation; EFSB/DPU/MEPA reviews

Project Ecosystem Benefits

Provides flood protection through green infrastructure or nature-based solutions	No
Provides storm damage mitigation	No
Provides groundwater recharge	No
Protects public water supply	No
Filters stormwater	No
Improves water quality	No
Promotes decarbonization	Yes
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollination	No
Provides recreation	No
Provides cultural resources/education	No

Project Climate Exposure

Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	Yes
Does the project site have a history of riverine flooding?	No
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	No

Project Assets

Asset: Underground electric transmission substation
Asset Type: Utility Infrastructure
Asset Sub-Type: Energy (electric, gas, petroleum, renewable)
Construction Type: New Construction
Construction Year: 2024
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard without consequences.

Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be regional (more than one municipality and/or surrounding region)
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 10,000 people
Identify if the infrastructure is located within an environmental justice community or provides services to vulnerable populations.
The infrastructure is located in an environmental justice community, and/or provides some services to vulnerable populations (services are not available elsewhere to same population)
Will the infrastructure reduce the risk of flooding?
No
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would not be expected to result in injuries
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
Spills and/or releases of hazardous materials are expected with relatively easy cleanup
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect the ability of other facilities, assets, or buildings to operate
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Greater than or equal to $100 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure is not expected to reduce the ability to maintain government services
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
No Impact

Transmission Lines

RMAT Climate Resilience Design Standards Tool Project Report

Greater Cambridge Energy Project (transmission lines)
Date Created: 11/28/2021 3:01:25 PM

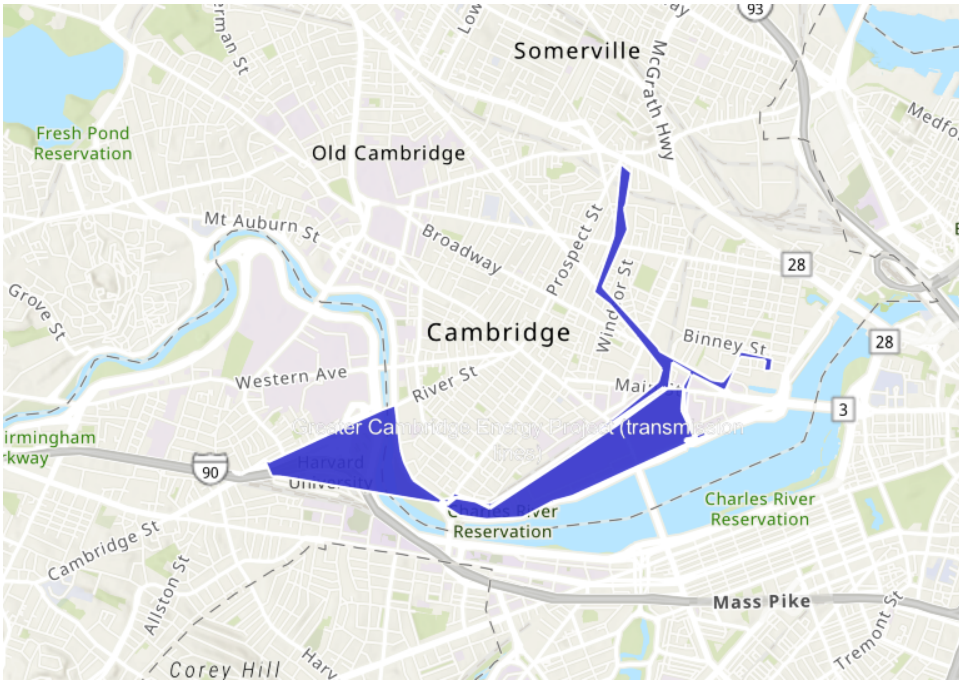
Created By: epsilonassociates

Project Summary

Link to Project

Estimated Construction Cost: $572000000.00
Useful Life: 2070 - 2079

Ecosystem Benefits	Scores
Project Score	Low
Exposure	**Scores**
Sea Level Rise/Storm Surge	Moderate Exposure
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	High Exposure
Extreme Heat	High Exposure



Asset Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
underground transmission lines	Moderate Risk	High Risk	High Risk	High Risk

Project Outputs

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
underground transmission lines	2070	2050		100-yr (1%)	Tier 3
Extreme Precipitation					
underground transmission lines	2070			25-yr (4%)	Tier 3
Extreme Heat					
underground transmission lines	2070		90th		Tier 3

Scoring Rationale - Exposure

Sea Level Rise/Storm Surge

This project received a "Moderate Exposure" because of the following:

- Exposed to the 1% annual coastal flood event as early as 2030
- Located within the 0.1% annual coastal flood event within the project's useful life
- Not located within the predicted mean high water shoreline by 2030

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Historic flooding at the project site
- Projected increase in rainfall within project's useful life
- No increase to impervious area

Extreme Precipitation - Riverine Flooding

This project received a "High Exposure" because of the following:

- Historic riverine flooding at project site
- Exposed to riverine flooding within the project's useful life

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Located within 100 ft of existing water body
- No increase to impervious area

Scoring Rationale - Asset Risk Scoring

Asset - underground transmission lines
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Loss/inoperability of the asset would have regional impacts
- The infrastructure is located in an environmental justice community, and/or does provide services to vulnerable populations
- Inoperability of the asset would not be expected to result in injuries
- Cost to replace is between $30 million and $100 million
- There are no hazardous materials in the asset

Project Design Standards Output

Asset: underground transmission lines — Infrastructure

Sea Level Rise/Storm Surge — Moderate Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 100-yr (1%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Tidal Benchmarks: No
Stillwater Elevation: Yes
Design Flood Elevation (DFE): Yes
Wave Heights: No
Duration of Flooding: Yes
Design Flood Velocity: Yes
Wave Forces: No
Scour or Erosion: Yes

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 25-yr (4%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Total Precipitation Depth for 24-hour Design Storms: Yes
Peak Intensity for 24-hour Design Storms: Yes
Riverine Peak Discharge: Yes
Riverine Peak Flood Elevation: Yes
Duration of Flooding for Design Storm: Yes
Flood Pathways: Yes

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Annual/Summer/Winter Average Temperature: Yes
Heat Index: Yes
Days Per Year With Max Temperature > 95°F: Yes
Days Per Year With Max Temperature > 90°F: Yes
Days Per Year With Max Temperature < 32°F: Yes
Number of Heat Waves Per Year: Yes
Average Heat Wave Duration (Days): Yes
Cooling Degree Days (Base = 65°F): No
Heating Degree Days (Base = 65°F): No
Growing Degree Days: No

Project Inputs

Core Project Information	
Name:	Greater Cambridge Energy Project (transmission lines)
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2070 - 2079
Location of Project:	Cambridge
Estimated Capital Cost:	$572,000,000
Entity Submitting Project:	Executive Office of Energy and Environmental Affairs / Department of Public Utilities
Is this project being submitted as part of a state grant application?	No
Which grant program?	
Is climate resiliency a core objective of this project?	No
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process?	Yes
Brief Project Description:	New underground transmission lines (MEPA, EFSB)
Project Ecosystem Benefits	
Provides flood protection through green infrastructure or nature-based solutions	No
Provides storm damage mitigation	No
Provides groundwater recharge	No
Protects public water supply	No
Filters stormwater	No
Improves water quality	No
Promotes decarbonization	Yes
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollination	No
Provides recreation	No
Provides cultural resources/education	No
Project Climate Exposure	
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	Yes
Does the project site have a history of riverine flooding?	Yes
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	Unsure
Project Assets	

Asset: underground transmission lines
Asset Type: Utility Infrastructure
Asset Sub-Type: Energy (electric, gas, petroleum, renewable)
Construction Type: New Construction
Construction Year: 2024
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.

Impacts would be regional (more than one municipality and/or surrounding region)

Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.

Less than 10,000 people

Identify if the infrastructure is located within an environmental justice community or provides services to vulnerable populations.

The infrastructure is located in an environmental justice community, and/or provides some services to vulnerable populations (services are not available elsewhere to same population)

Will the infrastructure reduce the risk of flooding?

No

If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?

Inoperability of the infrastructure would not be expected to result in injuries

If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?

There are no hazardous materials in the infrastructure

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?

Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect the ability of other facilities, assets, or buildings to operate

If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?

Between $30 million and $100 million

Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.

No

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?

No impact on surrounding natural resources is expected

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?

Loss of infrastructure is not expected to reduce the ability to maintain government services

What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?

No Impact

Attachment I

Historic Resource Summary Tables

Historic Properties Along or Intersected by Preferred Routes and Noticed Alternative Routes

Table 1 Preferred Routes Historic Properties

19-MD-172* **	INV
Athenaeum Press Building 215 First Street CAM.147	NRIND
B&B Chemical Company 780 Memorial Drive CAM.257	NRIND
Baker House 362 Memorial Drive CAM.256	NRIND
Bennett Street Industrial Area* Prospect Street SMV.CC	INV Area
Boston University Boat House 619 Memorial Drive CAM.1327	NRDIS
Boston Woven Hose and Rubber Complex* Broadway CAM.AK	INV Area
Cambridge Armory 120 Massachusetts Avenue CAM.334	NRIND
Charles River Basin Historic District* Along Memorial Drive and Charles River CAM.AJ	NRDIS
Engineering Laboratory MIT Campus Massachusetts Avenue/Memorial Drive CAM.566	NRDIS
Fort Washington Vassar Street CAM.D	LHD
James Barnes House 111 Hampshire Street CAM.271	NRIND
Magazine Beach Bath House Memorial Drive CAM.1319	NRDIS
MDC Chlorination Plant Memorial Drive CAM.1320	NRDIS
Memorial Drive*	NRDIS

CAM.930	
Metropolitan Storage Warehouse 134 Massachusetts Avenue CAM.332	NRIND
MIT Buildings #2 and #8 Memorial Drive CAM.567	NRDIS
MIT Campus* Massachusetts Avenue/Memorial Drive CAM.P	NRDIS
MIT Hayden Library Memorial Drive CAM.575	NRDIS
MIT Pierce Boat House Memorial Drive CAM.1325	NRDIS
MIT President's House Ames Street / Memorial Drive CAM.573	NRDIS
MIT Senior House Ames/Amherst Streets CAM.574	NRDIS
MIT Underpass Memorial Drive CAM.933	NRDIS
MIT Walker Memorial Memorial Drive CAM.572	NRDIS
MIT Wood Sailing Pavilion Memorial Drive CAM.1326	NRDIS
River Street Bridge* River St, CAM.923	INV
Riverbank Court Hotel 305 Memorial Drive CAM.255	NRIND
Rufus Lamson House 72-74 Hampshire Street CAM.168	NRIND
Shell Sign 187 Magazine Street CAM.991	NRIND
Volpe Center* Broadway CAM.BH	INV Area
Volpe Center Auditorium	INV

33 Broadway CAM.1402	
Volpe Center High Rise 2 Potter Street CAM.1401	INV
Volpe Center Laboratory 182 Binney Street CAM.1406	INV
Volpe Center Space Guidance Building 2 Potter Street CAM.1403	INV
William Reid Overpass Memorial Drive CAM.934	NRDIS

*Denotes resource within ROW

**Denotes archaeological site

INV: Included in the Inventory of Historic and Archaeological Assets of the Commonwealth
INV Area: Area Included in the Inventory of Historic and Archaeological Assets of the Commonwealth
SR: Listed in the State Register of Historic Places
NR: Listed in the National Register of Historic Places
LHD: Local Historic District
DIS: Located in a District
IND: Individually

Table 2 Noticed Alternative Routes Historic Properties

157-161 Washington Street SMV.758	INV
163-179 Washington Street SMV.759	INV
19-MD-172* **	INV
19-MD-173* **	INV
29-41 John F Kennedy Street CAM.1112	NRDIS
45 ½ Mt Auburn Street CAM.1156	NRDIS
47-49 Mt Auburn Street CAM.1157	NRDIS
50 John F Kennedy Street CAM.1117	NRDIS
52-54 John F Kennedy Street CAM.1118	NRDIS
56 John F Kennedy Street CAM.1120	NRDIS
63-65 John F Kennedy Street CAM.1122	NRDIS
69 Franklin Street BOS.8159	INV
74-76 Franklin Street BOS.8155	INV
92-96 Mt Auburn Street CAM.1167	NRDIS
Alpha Delta Phi Club 2 Holyoke Place CAM.1100	NRDIS
Andrew Kidder House 198 Washington Street SMV.463	INV
Athenaeum Press Building 215 First Street CAM.147	NRIND
B&B Chemical Company 780 Memorial Drive CAM.257	NRIND
Baker House 362 Memorial Drive CAM.256	NRIND
Barton Building MIT Campus Massachusetts Avenue/Memorial Drive	NRDIS

CAM.571	
Bennett Street Industrial Area Prospect Street SMV.CC	INV Area
Blodgett Pool North Harvard Street BOS.8375	INV
Boston Elevated Railway Garage 228 Washington Street SMV.676	INV
Boston University Boat House 619 Memorial Drive CAM.1327	NRDIS
Boston Woven Hose and Rubber Complex Broadway CAM.AK	INV Area
Cambridge Armory 120 Massachusetts Avenue CAM.334	NRIND
Cambridge Police Headquarters 5 Western Avenue CAM.638	NRDIS
Cambridge Senior Center 800-806 Massachusetts Avenue CAM.651	NRDIS
Carey Cage 65 North Harvard Street BOS.8285	INV
Central Square Building 674 Massachusetts Avenue CAM.583	NRDIS
Central Square Historic District* Centered on Mass. Ave. CAM.BC	NRDIS
Central Square Post Office 770 Massachusetts Avenue CAM.232	NRDIS
Central Square Street Pattern Massachusetts Avenue CAM.949	NRDIS
Charles River Basin Historic District* Along Memorial Drive and Charles River CAM.AJ	NRDIS
Claverly Hall 63 Mt Auburn Street CAM.1158	NRDIS

Drayton Hall 48 John F Kennedy Street CAM.1116	NRDIS
Eliab Metcalf House 46 Dunster Street CAM.1092	NRDIS
Eliot House 967 Memorial Drive CAM.1204	NRDIS
Engineering Laboratory MIT Campus Massachusetts Avenue / Memorial Drive CAM.566	NRDIS
Fox Club 44 Kennedy Street CAM.1115	NRDIS
Franklin Street* BOS.LB	INV Area
Galeria 55-57 John F Kennedy Street CAM.1119	NRDIS
George Close Company Building 243 Broadway CAM.1409	NRIND
George Hill Row House 81 Franklin Street BOS.8164	INV
George Hill Row House 79 Franklin Street BOS.8163	INV
George Hill Row House 77 Franklin Street BOS.8162	INV
George Hill Row House 75 Franklin Street BOS.8161	INV
George Hill Row House 73 Franklin Street BOS.8160	INV
Hamilton Hall Soldiers Field Road BOS.8367	INV
Hannah Allen Building 208-210 Washington Street SMV.1361	INV
Harvard Boat House 971 Memorial Drive	NRDIS

CAM.1324	
Harvard Business School* BOS.JL	INV Area
Harvard Catholic Student Center 20 Arrow Street CAM.1061	NRDIS
Harvard Houses Historic District Memorial Drive CAM.AC	NRDIS
Harvard Lampoon Building 59 Mt Auburn Street CAM.12	NRDIS
Harvard Riverfront CAM.AN	INV Area
Harvard Square Historic District* CAM.AB	NRDIS
Harvard Stadium BOS.8286	NRIND
Harvard University Athletic Facility Fence North Harvard Street BOS.9313	INV
Hiram Sands House 22 Putnam Avenue CAM.288	NRDIS
Holmes Block II 638 Massachusetts Avenue CAM.635	NRDIS
Holmes Realty Building 14 Central Square CAM.636	NRDIS
Holyoke Center 1350 Mass. Ave CAM.237	NRDIS
Iroquois Club 74 Mt Auburn Street CAM.1163	NRDIS
James Kiley Wagon Shop 5-9 Linwood Street SMV.1020	INV
John H. Mead Row House 162-164 Franklin Street BOS.8172	INV
John H. Mead Row House 158-160 Franklin Street BOS.8170	INV
John H. Mead Row House	INV

154-156 Franklin Street BOS.8168	
John H. Mead Row House 150-152 Franklin Street BOS.8166	INV
John Hicks House 64 Boylston Street CAM.14	NRDIS
John Mead Row House 166-168 Franklin Street BOS.8174	INV
Lars Anderson Bridge* John F Kennedy Street CAM.926	NRDIS
Loeb Hall Soldiers Field Road BOS.8373	INV
Lucy Willard House 78 Mt Auburn Street CAM.1165	NRDIS
Magazine Beach Bath House Memorial Drive CAM.1319	NRDIS
Manter Hall School 71-77 Mt Auburn Street CAM.1161	NRDIS
MDC Chlorination Plant Memorial Drive CAM.1320	NRDIS
MDC Swimming Pool Memorial Drive CAM.935	NRDIS
Memorial Drive* CAM.930	NRDIS
Metropolitan Storage Warehouse 134 Massachusetts Avenue CAM.332	NRIND
MIT Buildings #2 and #8 Memorial Drive CAM.567	NRDIS
MIT Campus* Massachusetts Avenue / Memorial Drive CAM.P	NRDIS
MIT Hayden Library Memorial Drive CAM.575	NRDIS
MIT Pierce Boat House	NRDIS

Memorial Drive CAM.1325	
MIT President's House Ames Street / Memorial Drive CAM.573	NRDIS
MIT Senior House Ames / Amherst Streets CAM.574	NRDIS
MIT Underpass Memorial Drive CAM.933	NRDIS
MIT Walker Memorial Memorial Drive CAM.572	NRDIS
MIT Wood Sailing Pavilion Memorial Drive CAM.1326	NRDIS
Modern Manor Apartments 842-864 Massachusetts Avenue CAM.654	NRDIS
Morris Hall Soldiers Field Road BOS.8373	INV
Moses Tucker House 134 Franklin Street BOS.8165	INV
Moses Tucker Worker House 126 Franklin Street BOS.8158	INV
Moses Tucker Worker House 124 Franklin Street BOS.8157	INV
Moses Tucker Worker House 122 Franklin Street BOS.8156	INV
New England Gas and Electric Assoc. Building 45 Prospect Street CAM.582	NRDIS
New England Gas and Electric Assoc. Building II 671-675 Massachusetts Avenue CAM.581	NRDIS
North Packing and Provision Company 35-37 Medford Street SMV.799	INV
North Packing and Provision Company 37R Medford Street SMV.1000	INV

Oren Knapp Building 205 Washington Street SMV.1447	INV
Phoenix Club 72 Mt Auburn Street CAM.1162	NRDIS
Pratt School of Naval Architecture MIT Campus Massachusetts Avenue/Memorial Drive CAM.568	NRDIS
Prospect Congregational Church 99 Prospect Street CAM.286	NRIND
Reversible Collar Company Building 27 Mt Auburn Street CAM.264	NRDIS
Ridgely Hall 65 Mt Auburn Street CAM.1160	NRDIS
River Street Bridge* River Street CAM.923	NRDIS
Riverbank Court Hotel 305 Memorial Drive CAM.255	NRIND
Riverside Boat Club Memorial Drive CAM.1328	NRDIS
Russell Hall 30 Plympton Street CAM.1184	NRDIS
SAE Club 60 John F Kennedy Street CAM.1121	NRDIS
Saint Anthony's Area* BOS.JM	INV Area
Saint Peter's Episcopal Church 834 Massachusetts Avenue CAM.653	NRDIS
Second DU Club 45 Dunster Street CAM.1091	NRDIS
Shadd Gymnasium Soldiers Field Road BOS.8355	INV
Shell Sign 187 Magazine Street	NRIND

CAM.991	
Sherman Hall Soldiers Field Road BOS.8374	INV
Smith Hall 70-78 John F Kennedy Street CAM.1199	NRDIS
Southwick Building I 15-16 Central Square CAM.639	NRDIS
Southwick Building II 17-24 Central Square CAM.640	NRDIS
Speakers Club 43-45 Mt Auburn Street CAM.1155	NRDIS
Spee Club 76 Mt Auburn Street CAM.1164	NRDIS
St Paul's Church 24 Arrow Street CAM.1062	NRDIS
St Paul's Rectory 32 Mt Auburn Street CAM.1154	NRDIS
The Garage 34-42 Kennedy Street CAM.1114	NRDIS
Thomas Dowse House 653-655 Massachusetts Avenue CAM.583	NRDIS
Union Gulf Service Station 231 Washington Street SMV.1448	INV
Union Railway Carbarn 79-83 Mt Auburn Street CAM.1090	NRDIS
Union Square Commercial District* SMV.G	INV Area
Union Square Fire Station 92 Union Square SMV.67	INV
US Post Office 237 Washington Street SMV.10	NRIND
Volpe Center Auditorium 33 Broadway	INV

CAM.1402	
Volpe Center High Rise 2 Potter Street CAM.1401	INV
Volpe Center Laboratory 182 Binney Street CAM.1405	INV
Volpe Center -Shipping and Receiving 182 Binney Street CAM.1406	INV
Volpe Center Space Guidance Building 2 Potter Street CAM.1403	INV
Volpe Center Space Optics Building 2 Potter Street CAM.1404	INV
Volpe Center* Broadway CAM.BH	INV Area
White Tower Restaurant 25 Central Square CAM.641	NRDIS
William Reid Overpass Memorial Drive CAM.934	NRDIS
William Walker House 215 Washington Street SMV.238	INV
Winthrop Square Park John F Kennedy Street CM.950	NRDIS
YMCA 820-830 Massachusetts Avenue CAM.652	NRDIS

*Denotes resource within ROW

**Denotes archaeological site

INV: Included in the Inventory of Historic and Archaeological Assets of the Commonwealth
INV Area: Area Included in the Inventory of Historic and Archaeological Assets of the Commonwealth
SR: Listed in the State Register of Historic Places
NR: Listed in the National Register of Historic Places
LHD: Local Historic District
DIS: Located in a District
IND: Individually

Attachment J

Summary of Public Participation and Outreach Activities

SUN	MON	TUE	WED	THU	FRI	SAT
SEPT / OCT	27	28 Whole Foods, **Cambridge** (11am-2pm) Magazine Beach Park, **Cambridge** (130 - 330pm)	29 Union Square, **Somerville** (9am – 2pm) Honan Library, **Allston-Brighton** (3 – 6pm)	30 Galaxy Park, **Cambridge** (9am – 2pm) Lincoln Park, **Somerville** (3-630pm)	1	2 Bow Street, **Somerville** (9am – 1pm) Charles River Farmer's Market, **Cambridge** (10am – 2pm)
3	4 Virtual Open House, **Cambridge** (7-9pm)	5 Virtual Open House, **Somerville** (7-9pm)	6 Allston Health Collaborative Farmer's Market, **Allston-Brighton** (2 – 630pm)	7 Virtual Open House, **Allston-Brighton** (7-9pm)	8 Trader Joe's, **Allston-Brighton** (11am – 2pm)	9
10	11 *Indigenous Peoples Day*	12 Virtual Open House, **Allston-Brighton** (noon – 2pm)	13 Virtual Open House, **Cambridge** (noon – 2pm) ECPT stakeholder meeting (630-8pm)	14 Virtual Open House, **Somerville** (noon – 2pm)	15	16
17	18	19	20	21	22 *Head of the Charles* Cambridgeport stakeholder meeting (1230-130pm	23 *Head of the Charles*
24 *Head of the Charles*	25	26	27	28	29	30

Key: Virtual / Zoom Event Pop-Up Event

SUN	MON	TUE	WED	THU	FRI	SAT
NOV / DEC	1	2	3	4	5	6
7	8	9	10	11 *Veterans Day*	12	13
14	15	16	17 Magazine Beach Partners stakeholder meeting (9-10am) EEA Agency meeting (3pm)	18	19	20
21	22	23	24	25 *Thanksgiving*	26	27
28 *First Day of Chanukah*	29	30 Fresh Pond / North Cambridge stakeholder meeting * (tentative)	1	2	3	4

Key: Virtual / Zoom Event Pop-Up Event

Date	Stakeholder	Stakeholder Attendees	Existing Conditions Data &/or Other Plans Provided by Stakeholder?	General Summary of Input from Stakeholder	Meeting Outcomes
			2019		
January 9, 2019	East Cambridge Planning Team	Chuck Hinds; ECPT members		Project Services presented the Fulkerson-version of the project to members of the East Cambridge Planning Team. The feedback from residents was that of a general dissatisfaction with the choice of location for a new substation and what followed were primarily questions and suggestions about where a hypothetical substation could be better sited.	
April 9, 2019	State Delegation Meeting	Sen. Sal DiDomenico and Rep. Mike Connolly		In person meeting where slide deck on Fulkerson was presented to legislative staff in Sen. DiDomenico's office.	
April 24, 2019	East Cambridge Planning Team	40 attendees, including Cambridge City Councilors Quinton Zondervan and Jan Devereux		Conversation centered on finding an alternative site for the substation; general feedback was that neighbors and Councilors were thus far unimpressed with Eversource's strategy for finding a suitable parcel.	
5/7/2019	City of Cambridge	City Manager Staff and Project Services		High level overview for in-street work to support Fulkerson Substation Project. Meeting was productive effort to ensure that any project related in-street construction is coordinated closely with other city projects.	
May 22, 2019	Cambridge Transportation and Public Utility Committee Meeting	Councilors Jan Devereux, Quinton Zondervan, Dennis Carlone, Alanna Mallon, Fred Kelly. Owen O'Riordin from Cambridge Public Works.		Initial committee hearing to review the transmission system, load growth in Cambridge, existing substations serving the area, new infrastructure needs and parcel search. Next steps included commitments to continue engineering analysis and other potential locations for new substation, pursue BZA approval for Putnam project.	
June 21, 2019	City of Cambridge	City Manager and key staff		Brief update on project, solutions, alternate location search. Brief review of upcoming presentation material. General discussion on how best to accommodate electric load growth in Cambridge and electrification goals of the City.	
June 25, 2019	Cambridge Transportation and Public Utility Committee Meeting	Councilors Jan Devereux, Quinton Zondervan, Dennis Carlone, Alanna Mallon, Fred Kelly. Owen O'Riordin from Cambridge Public Works.		Project Services presented the latest iteration of the project on Fulkerson Street and it generated disapproval from members of the committee. Multiple Councilors went on record opposing the project because of the choice of location and in the public comment period, Chuck Hinds of the East Cambridge Planning Team also reiterated that the ECPT was opposed to the project.	
June 27, 2019	Ad-Hoc MIT Group Meeting	Jim Gray, Marija Ilic, Catherine Zusy, Jan Devereux, Kathy Watkins, Nikhil Nadkami		Meeting hosted by Jim Gray in the MIT Language Lab. General discussion on overall need for increased supply and substation. After some discussion, including a lot of input and discussion from Marija Ilic and Bob Andrew, the attendees felt as if the need for additional electric supply and a new substation was justified. Conversations then turned to what creative ways a substation could be successfully integrated into the community. Denny Substation in Seattle was discussed as an interesting way to incorporate a substation into a community. Lot of discussion on what else could be done to incorporate positive aspects of a substation including an educational component of some sorts.	
July 18, 2019	Alexandria Real Estate Equities, Inc. (Alexandria)	Joe Maguire, Michelle Lower		Meeting to discuss potential partnership in developing a site including a potential land swap, other creative parcel ideas. Discussed potential laydown, construction coordination concepts. Review adjacent parcels that might be viable and seek Alexandria help opening doors with those parcel owners to initiate discussions.	
August 21, 2019	Cambridge Transportation and Public Utility Committee Meeting	Councilor Jan Devereux, Councilor Dennis Carlone, Councilor Quinton Zondervan, Councilor Tim Toomey, Councilor Craig Kelley, Councilor Sumbul Siddiqui, Lisa Peterson (City Manager's Office), Owen O'Riordin (Public Works Director), Kathy Watkins, Stephen Kenkaskas, Arthur Goldberg, Chris Attis (Mike Connolly Chief of Staff), Jim Henry (Sen. DiDomenico's office)		Chair Devereux started the meeting on a positive note, saying that Eversource had been regularly meeting with the stakeholders from the city and the developer community since the last meeting and thanked Eversource for their engagement. Councilors requested additional information about the need for a new substation and clarifying comments about grid capacity and shifting peak usage times. Councilor Toomey expressed hope that Eversource had heard loud and clear that a new site was the only viable option for winning city support.	
9/30/2019	New England Development	Sarah Lemke, New England Development; Kurt Sjostedt, NED; Bob Daylor, Tetra Tech / NED		Galleria has 3 "big" service connections, all in vaults, switchgear, transformers, etc. Planned redevelopment of three corner buildings/parcels necessitates relocation of existing electric infrastructure to a central location. Best Buy location is easiest to redevelop first as it is not encumbered with parking or other mall operations. Other buildings (Sears, Macy's) plan to eventually be redeveloped but have more technical challenges to ensure parking, deliveries and mall activities are not impacted. Canal owned by City of Cambridge up to Land Blvd. Land Blvd owned by DCR as is the basin, which is considered DCR parkland.	
10/1/2019	Cambridge DPW	Iram Farooq, City of Cambridge Seth Federspiel, City of Cambridge Owen O'Riordan, City of Cambridge Kathy Watkins, City of Cambridge Suzanne Rasmussen, City of Cambridge Nancy Glowa, City of Cambridge George Olson, Olson Law Office Stephen Wood, ESS Group		Discussion largely centered on the status of finding an alternative site for the project. Attendees also reiterated requests for 10-year load growth trends and their historical accuracy, as well as information regarding efficiency that they could pass on to interested stakeholders and residents that summarizes the need for the project.	
October 2, 2019	Cambridge Transportation and Public Utility Committee Meeting	Councilor Jan Devereux Mayor Marc McGovern Councilor Dennis Carlone Councilor Allana Mallon Councilor Quinton Zondervan Councilor Craig Kelley Councilor Tim Toomey City Manager Louis DePasquale Public Works Director, Owen O'Riordin Nancy Glowa, City Solicitor Chief of Staff to Rep. Connolly, Chris Attis		The Transportation and Public Utilities Committee will meet to discussions on the future electricity needs of the Kendall Square area and progress toward identifying an alternate, viable location for a new substation other than the proposed site on Fulkerson Street. Chair Devereux again started the meeting on a positive note, but also notes the Democratic Socialists of America's "Take Back the Grid Campaign" and said that there has been consistent feedback from the community that the Fulkerson Street location is unacceptable, but also noted that Eversource, City of Cambridge staff and stakeholders from the community have been meeting in between hearings to explore solutions. Chair Devereux also acknowledged growing demand the need for locating the new substation near Kendall Squa**re.** The public comment period generated concern from those in attendance that, despite what was discussed in the meeting, Eversource would push forward at the Fulkerson site. Eversource team members attempted to assuage those fears throughout.	
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1/28/2020	City of Cambridge	City Manager		Jim Hunt of Eversource meetings with City Manager to provide big picture overview of project needs and proposal along with other Cambridge initiatives. Presentation provided and City Manager is understanding of project need.	
3/2/2020	Cambridge City Council	Members of the Cambridge City Council; members of the Cambridge Redevelopment Authority; City Manager Louis DePasquale; Tom Evans; Bob Reardon		Members of the City Council expressed general satisfaction that stakeholders were able to come together to help facilitate a move away from the Fulkerson site. Letter from City Manager is included in Council packet applauding the coordination between Boston Properties, Eversource and the CRA in helping to address the electric reliability problem creatively and for efforts to move the location from Fulkerson Street. The Council, with little debate, approved the Alexandria petition unanimously.	
4/7/2020	East Cambridge Planning Team / Cambridge Redevelopment Authority (CRA)	CRA led meeting supported by Eversource and Boston Properties; Charles Hinds and other ECPT members		The Cambridge Redevelopment Authority facilitated a meeting with the East Cambridge Planning Team that was supported by Eversource and Boston Properties. The general feedback was one in which ECPT members were relieved that Eversource had elected not to pursue siting a new substation at the Fulkerson site. A general, high level discussion followed regarding the scope of the work and the commercial partnership between Eversource and Boston Properties.	
4/15/2020	Cambridge Redevelopment Authority (CRA)	Tom Evans and the Board of CRA; members of the public; Project Services; Boston Properties		Members of the Project Services team and Boston Properties presented an overview of the proposed underground substation and above ground commercial development on Binney St. in East Cambridge. Topics of discussion include safety and resiliency for the new substation, as well as an assurance by Eversource and Boston Properties that the plan would be reviewed by a third party.	
April 21 2020	Linden Park Neighbors	Board of Directors		Virtual meeting to provide an overview of Boston Properties / Eversource proposal and discuss community feedback.	
5/20/2020	Cambridge Redevelopment Authority (CRA)	CRA Board members and staff		Preliminary Zoning Changes. Board was given overview for zoning and ordinance amendments forthcoming related to Boston Properties / Eversource proposal.	
6/17/2020	Cambridge Redevelopment Authority (CRA)	CRA Board members and staff		CRA virtual Board meeting to discuss draft MXD Zoning Petition. Eversource provided SME support to answer any questions on utility infrastructure.	

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6/25/2020	CRA Virtual Open House	Board members and staff from CRA, Staff from Boston Properties, Eversource SME support, Councilor Dennis Carlone.		CRA led virtual open house to answer general, high level questions from members of the general public. Those that attended included Cambridge City Councilor Dennis Carlone, who asked about floor plates for residential and commercial space, as well as the open space park that would sit atop the proposed substation. Eversource SME support provided to answer questions about utility infrastructure	
7/22/2020	East Cambridge Planning Team	Charles Hinds and other ECPT members		Station 8025 (former Fulkerson Street) Project: As part of an awareness campaign to promote the proposed underground station concept more broadly, members of the Project Team presented to the East Cambridge Planning Team (ECPT) on July 22nd. ECPT is a key neighborhood stakeholder that was a vocal opponent to the Fulkerson Street substation location but is generally supportive of the new site and proposed underground station. ECPT members appreciated the overview.	
8/4/2020	East Cambridge Business Association	CRA/BP led with ES support; members of the ECBA.		Presentation was led by representatives from the Cambridge Redevelopment Authority and Boston Properties and delivered an overview of the proposed substation site.	
8/19/2020	Linden Park Neighbors	Matt Connelly; Members of Linden Park Neighbors		A productive meeting was held virtually with the Linden Park Neighborhood Association to present an update on new substation site. The Project Team's subject matter experts were able to address limited questions, and the Neighborhood Association expressed overall support for the project.	
8/5/2020	Cambridge Redevelopment Authority (CRA)	CRA Board and staff		CRA Design Review meeting on MXD rezoning and BxP redevelopment plans	
8/31/2020	Kendall Square Association	KSA Staff		In advance of the regular meeting of the KSA, Project Services representatives presented an overview of the project to staff members of the Kendall Square Association.	
9/2/2020	Kendall Square Association	General membership of the KSA		Members of the Project Services team presented an overview of the project to the general membership of the Kendall Square Association.	
9/3/2020	Kendall Residents Association	CRA/BP led with ES support; members of the KRA.		CRA / BP led outreach to Kendall Residents Association members to discuss MXD rezoning petition. Solicited feedback on their proposed redevelopment. Eversource SME support to answer any questions on utility infrastructure.	
9/16/2020	City of Cambridge Department Heads and City Manager	Rasmussen, Susanne, Watkins, Kathy, Jim Wilcox, Friedman, Jerry, Owen O'Riordan, Farooq, Iram, Federspiel, Seth		Review of non-wires alternatives and broader discussion on energy efficiency efforts in Cambridge, renewable energy and other solutions outside a traditional transmission and distribution project.	
9/16/2020	Cambridge Redevelopment Authority (CRA)	CRA Board; representatives from Linden Park Neighbors		After hearing from the public, including a letter read in support by members of Linden Park Neighbors, the Cambridge Redevelopment Authority voted unanimously in favor of rezoning language that would then be advanced to the Cambridge City Council.	
9/21/2020	City Council	Members of the Cambridge City Council; members of the Cambridge Redevelopment Authority.		Eversource/BP/City Council "Working Session" - City Council voted in favor of the CRA's zoning petition to send he project to the Ordinance Committee and Planning Board.	
10/22/20	Cambridge Fire Department and Inspectional Services Department	Ranjit Singanayagam, Sisia Dagalian, Lt. Chris Towski		High level overview of Kendall Sq. substation and how cables would enter the structures, basic fire protection, NESC standards, etc.	
November 17, 2020	Cambridge Planning Board	Kathy Born, Tom Evans, Jeff Roberts, Mary Flynn, Ted Cohen, Steve Cohen, Hugh Russell, Lou Bacci		Kendall Center MXD Amendment Zoning Petition hearing. Eversource SME support to answer any questions on utility infrastructure.	
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March 30, 2021	CRA	Design Review Committee		Design Review Committee meeting to discuss MXD redevelopment proposal - Parcel 2 of the Kendall Square Urban Redevelopment Plan. Eversource SME support to answer any questions on utility infrastructure.	
April 1, 2021	CRA/BP	Tom Evans, Alexandra Levering		A virtual open house centered on MXD redevelopment plans and rezoning. Eversource SME support to provide answers to any technical questions about utility infrastructure.	
4/8/2021	Somerville Representative Stakeholder Meeting	Kate Byrne, Sarah Dunbar, Mike Katz, Jim McGinnis, Ann Camara, Philip Parsons, Michele Hansen		The purpose of this meeting was to obtain feedback regarding the current top-two Somerville Candidate Routes (Routes S1 and S11C). Eversource provided a project overview, including a general discussion of other Eversource upgrade projects in and around the Somerville Substation area. The stakeholders indicated that they have been significantly burdened with ongoing construction projects in this area of Somerville and asked for improved coordination and cooperation between project proponents, including within Eversource. Eversource described the steps and measures they are taking to improve such communication and coordination. As one example, Eversource explained the close coordination they are undertaking with the developer of the US2 site, MBTA and the City of Somerville to locate a segment of Route S1 across that development site. The stakeholders indicated a general preference from Route S1, indicating that on paper it appeared to be less impactful to businesses in the area. The Washington Street segment of Route S11C has experienced significant construction and traffic related impacts over the past couple of years. Eversource described the route selection process and how different criteria are evaluated and compared to identify a Preferred Route and Noticed Alternative Route. The stakeholders inquired as to how load forecasts are developed, given the incredible amount of development in the Somerville and Cambridge areas. There was also a discussion regarding efforts that could be undertaken by Eversource to beautify the Somerville Substation site (recognizing that it is located in the gateway to the Union Square area), including landscape and hardscape screening and art work. During construction, the stakeholders indicated that the "Union Square Neighborhood Council" would consider hosting a "Monitoring Committee" to monitor the construction process and ensure that Eversource is following through on its commitments.	Eversource to continue comparing and contrasting Route S1 to S11C to identify the Preferred Route and Noticed Alternative Route.
6/8/2021	Cambridge CRA	Tom Evans, Alexandra Levering		The purpose of this meeting was to provide an update on the status of routing along the Grand Junction Railroad Corridor(s) and along Broadway. Regarding the Grand Junction Railroad routes, Eversource noted that the trestle bridge routes would not likely be advanced further due to the complexities of the crossing and coordination issues/uncertainty with the MassDOT Multimodal Project, particularly through the "throat area", as well as ADA challenges and permitting and design challenges. Regarding Route S11C that would follow the Grand Junction Multi-Use Pathway project into Somerville, Eversource continues to advance the design of this route. The CRA staff and DPW previously provided Eversource with the 90% design drawings for the Binney Park portion of the route to coordinate the alignment and sequencing of work. Regarding the Kendall Routes along Broadway, the CRA staff indicated that they would be supportive of the alignment along the Volpe property line particularly if it would facilitate construction of a contiguous 14-foot wide sidewalk in front of the Volpe development site.	Brighton routes involving the trestle bridge crossing of the Charles River not likely to be advance further.
7/13/2021	Magazine Beach Partners	Catherine Zusy, Phil Michael, Ken Carson, Rebecca Bowey, Susan Lee		The purpose of this meeting was to introduce the Project, and specifically work proposed on or near MassDCR's Magazine Beach property to the Magazine Beach Partners stakeholder group (see https://magazinebeach.org/). Eversource described the need for the project, the schedule and steps that have been taken to avoid, minimize and mitigate impacts to the maximum extent practicable including specifically Magazine Beach (Article 97 process, HDD, location of splice vaults and exit pit, avoid trees, avoid athletic and recreational facilities, restoration plans, timing of work to minimize impacts, etc.). In addition to a general discussion about the Project, the Partners posed the following questions to Eversource, which were subsequently discussed during the call: (1) What locations does the new transmission line need to connect, what is its planned voltage (kV), how much capacity (MVA) will it provide immediately, and how much capacity is planned for the future? Will the line bring power into Cambridge, away from Cambridge, or simply provide additional grid resilience? Is this planned as a one-time activity, or should we expect additional transmission lines every few decades? (2) How many underground utility vaults are planned over the distance of the line, and what is the maximum planned distance between these utility vaults? In the event of any problems in the transmission line, how do you locate the problem area and how much digging is required to identify and repair a problem. (3) How will the transmission lines be cooled? And what requirements/restrictions will there be on the land above the lines. (4) Assuming the transmission lines will be cooled with circulating oil, what mitigation plans does Eversource have in the event of a leak or other incident? (5) After this line is established, should we expect follow on activity, or has the lower voltage distribution out of the Putnam substation covered us for the next couple of decades?	Eversource will continue to coordinate closely with the Magazine Beach Partners as the design is advanced for the top Brighton routes. Magazine Beach Partners will also circle back with Eversource as they have follow up questions and comments.
7/27/2021	Allston/Brighton Neighborhood Groups (Allston Civic Association, Harvard Allston Task Force, Friends of Honan Library)	Cindy Marchando, Anthony D'Isidoro, Tom Lally, Paula Alexander, Mary Helen Block, Wayne Yeh, Ed Kotomori		The purpose of this meeting was to present the preliminary top routes within the Brighton Study Area within the City of Boston (Allston/Brighton area) and solicit feedback and input regarding the preferences of the represented neighborhood groups, and to respond to questions about the project. The discussion focused on Route B30 West in and around the Brighton Substation, including challenges of installing a new line down Franklin Street. There was a strong preference for the other routes that avoid coming into the substation from this direction (e.g., B29D West), noting that Route B30 West would be very impactful to residents in this area and would cause significant community disruption (only 2-way street in neighborhood, heavily travelled by cyclists) relative to other routes that follow Cambridge Street into the substation facility. There was also a discussion regarding the feasibility of putting some of the existing overhead distribution lines underground as part of the project, future outreach, how the project increases reliability in the area (without drawing power away from the Allston/Brighton area into Cambridge), how the project addresses existing and future growth, anticipated substation upgrades and opportunities to beautify the area particularly near the existing substation, existing infrastructure constraints, schedule and duration of construction.	Additional stakeholder meetings will be scheduled including upcoming open houses. Eversource will also circle back to provide additional input regarding some the questions asked about need, load growth, list of permits and potential mitigation measures.
8/2/2021	Cambridge Neighborhood Groups (Kendall Square Association, Linwood Park Neighborhood Association, MITMCO, CRA, MIT Campus Planning)	Bob Simha, Matt Connolly, Alex Barbat, Kelley Brown, Tom Evans, Ben Lavery, Jason Stockman, Charles Hinds		The purpose of this meeting was to present the preliminary top routes within each study area and solicit feedback and input regarding the preferences of the represented neighborhood groups, and to respond to questions about the project. The discussion around the top Brighton, Putnam and Kendall Routes focused on the shortest, most direct routes, potential route options in and around Broadway and Third Street (including the Volpe site), existing infrastructure constraints, schedule and duration of construction. A similar discussion occurred for the Somerville Routes S1 and S11C, along with questions about soil and groundwater management during construction, coordination with the future multi-use pathway project (including limits of work associated with each project), and duration of construction near residences along the pathway segment of Route S11C. Some of the stakeholders on the call whom abut Route S11C indicated a preference for Route S1.	Additional stakeholder meetings will be scheduled including upcoming open houses
8/4/2021	CRA	Tom Evans, Alexandra Levering		The purpose of this meeting was to simply provide an overview of the top routes within each study area to CRA staff.	N/A
9/28/2021	Joint Planning Board / CRA Board meeting	Catherine Preston Connolly, Planning Board Chair; Kathleen Born, CRA Board Chair, members and staff of both organizations		Hearing on amendment to the Infill Development Concept Plan (IDCP) by Boston Properties. Eversource SME support provided on some of the constraints redevelopment faced to provide space for utility infrastructure.	

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9/28/2021	Cambridge Pop-Up event - Whole Foods	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		A resident of the Putnam Avenue area expressed that she was used to construction in the area and that she believed that, given the exponential growth and development across the region, projects like the GCEP are warranted. The resident was given the fact sheet and information about upcoming open houses; A resident stopped for a brief conversation and asked for an overview of the project. The resident did not provide a strong opinion regarding the project but expressed an interest in attending the upcoming open houses; A resident was given a detailed overview of the project, including potential routes. The resident was previously aware of the project during the Fulkerson phase but did not know of the current iteration of the project. The resident did not express a strong opinion on the project; he was given the fact sheet and information about upcoming open houses; A Somerville resident expressed that the amount of construction across the region had become severely inconvenient and frustrating. He expressed that there were instances in which information provided to him regarding area construction was either untrue or late to arrive. He acknowledged the need for the project on the heels of ample regional growth and development but expressed a desire for transparent and frequent communication between the project team and residents once construction commences.; A resident stopped briefly to ask if the hypothetical underground transmission lines would be installed on Franklin Street, where she lives. It was explained that, as of now, Franklin Street would not host new transmission lines and she was given the project fact sheet and information about upcoming open houses; A resident was given a detailed explanation of the scope of the project. He expressed that he has lived in the area for over 20 years and has seen the high levels of development up close, including in Kendall Square. With that in mind, he expressed a desire for the project to move forward, acknowledging the need. The resident was given a project fact sheet and information about upcoming open houses.	
9/28/2021	Cambridge Pop-Up event - Magazine Beach	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Adverse weather conditions impacted the overall ability to make contact with the general public. A resident was given an overview of the project, including the dual need for an underground substation and new underground transmission lines. The resident as given a project fact sheet and information about upcoming open houses.	
9/29/2021	Somerville Pop-Up event- Union Square	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		A local cyclist stopped to receive information regarding the project. She lived in the area but did not express a strong opinion on the project but did express gratitude that our team was out briefing the community. She was given a project fact sheet and information regarding virtual open houses; A Haitian-Creole speaking resident was given a briefing of the project by members of the Project Services team through our on-site Haitian language interpreter. The resident asked high-level questions and was given an overview of the need and scope of the project. The resident was also given Haitian Creole fact sheets and information regarding virtual open houses; A local resident was given an overview of the need and scope of the project; he expressed that he understood the need for increased infrastructure in the area. He was given a project fact sheet and information regarding virtual open houses; Two Spanish-speaking residents stopped to ask if the Project Services team was in the area offering promotional vouchers for residential services. Through our on-site Spanish-language interpreter, it was explained that Project Services was seeking feedback regarding the GCEP; an overview of the project was given, and Spanish-language informational materials was given to the residents; An employee of an energy firm with an office local to Union Square approached the Project Services team for a briefing on the project. He himself was a resident of Brookline but nevertheless expressed an interest in the project as someone in the industry and as someone who commutes around the area that would potentially be impacted by work associated with the GCEP. He expressed approval that the project could potentially open the door to the use of renewables and – of interest especially to him because of his employment – battery storage technology. He was given a project fact sheet and information on virtual open houses in the hopes that he would join to lend his thoughts to the proceedings; A resident of Somerville was given an overview of the scope of the project and expressed general approval and acknowledged the need for additional grid capacity. He subsequently followed-up with a question regarding renewable energy and what Eversource was doing to increase the use of renewable energy in their services; the Project Services team explained that projects like the GCEP will contribute to the use of renewable sources of energy as a source of transmission for said energy. He was given a project fact sheet and information regarding virtual open houses; A resident who has lived in Somerville for decades was given an overview of the project. She acknowledged that there has been substantial growth and development in the area and broad acceptance and approval for the project. She was given a project fact sheet and information regarding virtual open houses; A Union Square resident stopped to receive information regarding the project. She is a long-time resident of the area and is close with community leaders like Mike Katz – organizer of the Fluff Festival, member of Union Square Main Streets, and participant in a community focus group regarding the GCEP – and thus likes to be kept in the loop on developments in the area. She was given a project fact sheet and information regarding virtual open houses and expressed that she will follow along with developments; A Spanish-speaking family stopped to inquire about our presence in the area, initially looking for information regarding the then-concluded Fluff Festival that was held in the same area the week prior. Our on-site Spanish-language interpreter provided information regarding the project and was sure to pass along the Spanish-language fact sheet and open house invitation; Members of the Project Services team and the on-site Mandarin-language interpreter visited an area Chinese food restaurant to provide information regarding the project. The team did not receive substantial feedback, but the operators were grateful for the information and took Mandarin-language informational materials; Members of the Project Services team and the on-site Spanish and Portuguese-language interpreter visited the nearby Reliable Market, an ethnic market catering to a primarily Central and South American clientele. Spanish and Portuguese-language materials were given to the operators.	
9/29/2021	Allston-Brighton Pop-Up event - Honan Library	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		An area resident was briefed on the scope of the project and expressed a sense of general fatigue with construction projects in the area, but also a resigned acceptance that exponential growth in the area rendered the GCEP a necessary endeavor. The project timetable was explained – notably that work would not commence in the area until 2024 at the earliest, which eased some of his exasperation. He was given a project fact sheet and information about upcoming virtual open houses; An area resident stopped to receive information about the project before entering the library. Upon hearing the scope of the project, as well as project timetables, the resident expressed his complete support for the GCEP. He was given a project fact sheet and information about upcoming virtual open houses; An area resident exiting the library stopped to receive information about the project, beginning by expressing a sense of construction fatigue. Notably, the resident expressed that she was concerned with Harvard University's increased construction footprint in the Allston-Brighton neighborhood. Following an explanation of the scope of the GCEP, the resident expressed approval, content that the project was less cumbersome than the Harvard multimodal project. She was given a project fact sheet and information regarding upcoming virtual open houses; An employee of the library came out to receive a briefing about the project. The employee was grateful for the update and sarcastically exclaimed that what Allston-Brighton really needs is more construction. She was given a project fact sheet and information regarding virtual open houses; A second library worker, after receiving initial information from the previously mentioned colleague, visited the Project Services team for an update on the project. She remarked that she did not live in the area, but that she commuted into Allston-Brighton and that the proposed work may make that commute more difficult. She understood the need and asked to be kept informed on the latest developments, giving over her contact details to the Project Services team; An area resident was given a briefing on the scope of the project. He asked high-level questions regarding the proposed line routes; the Project Services team explained the system of submitting a preferred route and a noticed alternative. The resident did not express his opinion on the proposed routes but thought he would like to remain informed on the project. He was given a project fact sheet and information regarding virtual open houses; An area resident walking his dog stopped to receive information from the Project Services team. He asked high-level questions about the decision to situate a substation underground before ultimately expressing general support for the GCEP. The resident was given a project fact sheet and information regarding virtual open houses; An area resident and HVAC professional stopped to receive information about the project. In a lengthy and free-flowing conversation with the Project Services team, the resident expressed strong opinions about some aspects of the project, including the proposed transmission line routes: oHe expressed that he thought the Brighton 2 route was a bad idea because there were too many wealthy stakeholders that would be impacted, namely in the Mt. Auburn/Harvard area of Cambridge. He thought this would foster consternation amongst that population and that they would protest the idea. oHe thought the route that traverses Western Ave. and Prospect Street would yield complaints because of an already considerable amount of traffic in the area. He suggested that traffic variables should be included in public materials and factor into route scoring. oHe thought the Somerville 1 route should utilize Somerville Avenue because of the width of the street. He expressed his opinion that route evaluations and scoring should include the width of streets. oHe expressed his opinion that it made more sense to go over a bridge rather than going under the Charles River to link routes from Allston-Brighton to Cambridge. oHe asked whether the Binney Street plant generates electricity – the Project Services team explained that the electricity itself emanates from a variety of different sources before passing through stations.	
9/30/2021	Cambridge Pop-Up event - Galaxy Park	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		A retired MIT academic and his wife stopped to receive a briefing on the project, expressing a general sense of approval for the project, recognizing the need. They continue to live in the area and have seen the exponential growth in Kendall Square that has defined the area in recent years and acknowledge the need for the project. They were given a project fact sheet and information regarding virtual open houses; Two young men approached the Project Services team to inquire if the team was in the area to provide vouchers for residential services. The Project Team took the opportunity to explain why they were in the area, giving an overview of the GCEP. The young men did not express a strong opinion on the project but were nevertheless grateful to have been briefed on the scope of the project. They were given project fact sheets and information about virtual open houses; An area resident stopped to receive information about the project. Upon learning of the scope of the project, the resident expressed that he was broadly in favor of the project, but that area residents might need reassurances about an underground substation in a low-lying area like Kendall Square. He was given a project fact sheet and information regarding virtual open houses; A manager at a local Marriot hotel stopped to receive a briefing on the project. He asked high-level questions about the project scope. He noted he was new to his current hotel but acknowledged the explosive growth in the area and thus the need for the project. He was given a project fact sheet and information regarding virtual open houses.	

Date	Stakeholder	Stakeholder Attendees	Existing Conditions Data &/or Other Plans Provided by Stakeholder?	General Summary of Input from Stakeholder	Meeting Outcomes
9/30/2021	Somerville Pop-Up event - Lincoln Park	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		An area resident at the park with her child stopped to receive information about the project. Members of the Project Services team provided the scope and timetable associated with the GCEP; the resident asked specifics about KV lines and how their installation impacts the community. Given that the installation of the lines will inevitably impact her day-to-day commute, the Community Relations representative on site provided her contact information to the resident as best to pass along key pieces of information regarding the project. Additionally, the resident was given a project fact sheet and information regarding virtual open houses; A local resident at the park with his young daughter received a briefing on the scope of the project, particularly the proposed Somerville line routes. The resident, when asked to offer an opinion on which line would be preferable, noted that either would result in inconveniences to himself and his neighbors. He nevertheless expressed that he understood the need for the project. He was given a project fact sheet and information regarding virtual open houses; A local resident was given information regarding the project. The crux of the conversation pivoted to the nearby Eversource station #402 and the need to, in the opinion of the resident, significantly improve the general aesthetics of the station. The resident expressed hope that Eversource would work with stakeholders to potentially install a mural or other form of improvement at the station. It was explained that ongoing work at that station has prompted discussions about the issue of the station aesthetics and that those conversations were ongoing. The resident gave members of the Project Services team his contact information and was given informational materials; An area resident walking her dogs was given a briefing on the project. She explained that new street work would surely serve to be a disruption to her and her neighbors. She explained that she took Washington Street to work and work associated with the GCEP would inevitably upend that commute. She expressed a sense of construction fatigue and noted that many streets in the area were already under construction, driving up traffic in the area. She was given a fact sheet and information regarding virtual open houses; An area resident that brought his young son to the park was given information about the project. He noted that he lives on Washington Street and would likely be impacted by construction; nevertheless, he also expressed a view that such construction was common in urban environments like theirs. He was given a project fact sheet and information regarding virtual open houses; An area cyclist stopped to receive information regarding the project. Members of the Project Services team engaged the cyclist in a long conversation highlighted by high-level questions about the scope and need of the project. The cyclist expressed a desire to be kept in the loop and assured the Project Services team that he would sign up to receive information via the QR code provided on informational materials. The cyclist thought the project was a good idea and supported the idea of an out-of-sight substation; An area jogger stopped to receive information about the project. She asked if the public space proposed to sit atop the underground substation in Kendall Square would be safe for the general public. It was explained that a similar station in Vancouver, BC, Canada encompassed a large public park after it was determined that it was a completely safe endeavor. She was given a project fact sheet and information regarding virtual open houses; A resident briefly stopped to receive information about the project. The resident asked if there had been a pushback from the public given that the Project Services team was appearing in public. It was explained that the solicitation of public feedback was a part of the EFSB application process and that, in fact, public feedback on the current iteration of the project has been broadly favorable.	
10/2/2021	Somerville Pop-Up Event - Bow Street	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		An area resident that recently relocated from Virginia noted that she received the invite in the mail and that she is in favor of anything that increases electric reliability; An area resident asked about how much if any the Prospect Street Substation would expand as part of the project. Project services explained the GCEP project tie-in as well as preliminary information on the Station 402 additional transformer project; An area resident in route to the farmers market nearby stopped to inquire if the lines would be underground and if so at what depth are they buried. He stated he has no strong option on the proposed routes other than he would not want to see the Grand Junction trail work delayed as a result of the project; A local resident and her son along with her father-in-law from out of state stopped by after visiting the post office and expressed that clean energy is a big priority for them. Project Services and Community Relations discussed the role that transmission plays with clean energy generation sources. Additionally, they were urged to visit the Eversource website to review other initiatives; Two young professionals visited after exiting Union Square Donuts who recently studied in the electric field inquired as to how many kV the proposed lines will be as well as what job opportunities the project may bring; An area resident stated that his opinion is that it would be less disruptive to go down through Brickbottom (S11C) and that it would likely require road closures and detours on Washington Street but he still felt that it would be a better option; An area resident commented that improvements to the intersection area at the Prospect Street substation as well as aesthetic improvements to the substation itself should be a priority. He stated that public open space options should be considered. He noted that he was an architect and that he also has contacts in the artist community. Project Services obtained his contact information to contact for a potential focus group.; An area resident stated no opinion on the proposed line routes but had questions on the average width and depth of the trench and wanted confirmation that in involved digging up the roads.; A resident commented that they would like to see the Prospect Street Substation moved elsewhere to allow the MBTA's green line to go to Porter Square. She commented that as part of the project a substation could be built on another parcel. The feasibility/logistics were discussed with Project Services; The former founder of Union Square Main Streets who lives next to the Union Square Donut Shop stopped by on her way back from the Farmers Market. She commented that she really liked to see that we were out in the community talking to people about what is happening. She said that as a resident of Bow Street and someone that loves living there she appreciates the proactive efforts so that people can be informed. She also commented that she had received the open houses invitation in the mail; A woman who lives in Cambridge at the Pleasant Street Condominiums stopped by as she was in the area running errands. She asked how this project compared to the scale/scope of work at the Putnam Avenue Substation. She also commented that she heard from fellow residents in her condominium that the transformer that was added to the Putnam Substation has allowed for power to be sent to Boston. Project Services helped to clarify the scope of the recently installed distribution line and new transformer at Putnam and gave an overview of the proposed routes, noting that the tie-in for the Putnam Routes does not use Putnam Avenue.	
10/2/2021	Cambridge Pop-Up Event - Charles River Farmers Market	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Two area residents visiting the Farmers' Market with their dogs stopped to receive information about the project. The residents asked about the potential to bury existing above ground electrical poles that are ubiquitous in the area; Project Services explained that such work is extremely cumbersome and expensive. The residents asked if costs related to the GCEP would be passed on to rate payers such as themselves; Project Services explained optimism that any increases associated with any one project would be kept to a minimum and that increased grid capacity also helps keep rates lower. The residents were given project fact sheets and information regarding virtual open houses; A resident in line to purchase groceries from a stall briefly expressed his firm support for the project; A resident in line to purchase groceries from a stall expressed that she wished to be kept informed on the project. She was given a brief overview of the project and was given a project fact sheet and information regarding upcoming virtual open houses; Two area residents stopped to receive information regarding the project. When presented with materials, they expressed initial apprehension at work involving Magazine Beach. Project Services explained that the footprint for work at Magazine Beach would be small and that work could conceivably take place during the winter, as best to not disturb warm-weather recreation at the park. With that in mind, the residents ultimately expressed a preference for the transmission line route that included work in Magazine Beach and noted that they were impressed with the project and Eversource's willingness to solicit public feedback at an event like the Farmers' Market. They were given a project fact sheet and information about virtual open houses; A resident walking his dog near the market stopped to receive information. He asked high-level questions about the project, the potential use of renewables, and the general functionality of the underground substation and transmission lines. When asked to offer an opinion on the potential transmission routes that would impact the abutting area, he expressed a preference for the Magazine Beach route because it could be constructed in the winter. He refused informational materials and was not interested in attending the open houses; A resident of the Putnam Avenue area stopped to receive information on the project. He expressed relief when he found out that the Putnam Avenue area – home to a significant amount of street work in recent times – would not be subjected to additional disruptions in relation to this project. He then noted that he was an employee of Akami, which has an office building that immediately abuts the proposed site of the new underground substation. With that in mind, he wished to be kept informed regarding above-ground developments in the area. He was given a project fact sheet and information regarding virtual open houses; An area dog-walker stopped to receive information regarding the project. As a resident of the Putnam Avenue area, she expressed relief that no additional street work would be required in her neighborhood. She asked if Eversource had a plan to work with the elementary school to ensure that the project would be safe for students and staff; Project Services reassured the resident that the team would work closely with area stakeholders like the school to ensure all information regarding construction was made in a timely fashion and that public safety was our #1 priority. The resident was given a project fact sheet and information regarding virtual open houses.	
10/6/2021	Allston-Brighton Pop-Up event - Allston Farmers Market	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		A resident that spoke Mandarin was given a high-level overview of the project by members of the Project Services team through the on-site Mandarin language interpreter. The resident was satisfied with the explanation of the project without offering strong opinions; she was given a Mandarin-language fact sheet and information in Mandarin regarding virtual open houses; A Haitian-Creole speaking resident was given a high-level overview of the project by members of the Project Services team through the on-site Haitian-Creole language interpreter. The resident was satisfied with the explanation of the project and was happy to accept Haitian-Creole language information in the form of the fact sheet and open house invitation; Anthony D'Isidoro, the president of the Allston Civic Association, visited the Project Services team. He noted that he had sent out information about the project and upcoming open houses through the Civic Association's social media channels. He thought that engagement outside Cambridge might be lower than usual because the project's formal title, the Greater Cambridge Energy Project, might make it less likely to capture the attention of residents in Allston-Brighton and Somerville; A local resident stopped to receive information about the project. She noted that she has lived in the area for many years and thus understands that exponential growth makes the project a necessity. She explained that she had recently had an unpleasant interaction with an Eversource representative that visited her apartment building in an effort to gauge which company was providing electric services to the building. The Project Services team provided the resident with the proper channels to lodge a formal complaint if she wished to do so, which she was grateful for. She was given a project fact sheet and information about virtual open houses.	
10/8/2021	Allston-Brighton Pop-Up Event - Trader Joe's	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		A local resident that lives in the adjacent apartment complex was given an overview of the project scope and timeline. She expressed that she had recently suffered from a variety of health issues and that her mobility has been greatly reduced. With that in mind, she expressed that while she generally supports the project based on the needs of the region, she is hopeful that the outreach team and others will keep in mind the needs of those that have different needs and mobility challenges. She was given a project fact sheet and information regarding virtual open houses; Two local residents were given a detailed project overview, including project scope and timelines. One of the residents lives in the adjacent apartment complex and wondered whether any future work would impact either her day-to-day ability to traverse her neighborhood or her work commute. The Project Team explained the proposed line routes in great detail and the pair ultimately expressed general favorability for the project. They were given project fact sheets and information regarding virtual open houses.	
10/4/2021	Cambridge Virtual Open House #1 - PM	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. A resident asked for clarification regarding transmission line routes and the number that will be built; team members explained that they must submit a preferred option and a noticed alternative for regulatory consideration, but that only one will be constructed. Additional questions about public feedback were asked, such as whether there would be a public vote on the lines - it was stated that open houses and pop-ups serve as the opportunity for folks to voice their preferences or concerns, but that they would also have the opportunity to do so again when Eversource's filing becomes public. Multiple residents expressed a preference for route B-31 from Allston-Brighton because it avoids construction in high traffic areas. A resident asked about EMF concerns and what the strength of EMF emissions would be in Kendall Square - this person had their concern addressed and it was determined that a follow-up explanation would be made. Others asked safety related questions regarding the high water table in Cambridge and how the EFSB reviews safety features - these concerns were addressed by noting that Boston Properties will design the steel casing to house the new substation, just as they do for basement level areas in many of their other properties.	
10/5/2021	Somerville Virtual Open House #1 - PM	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. A resident asked how these routes were chosen for Somerville - it was explained that the siting team examines a significant number of factors to narrow the universe of routes to a preferred and noticed alternative, including existing infrastructure and cost. A resident expressed her preference for route S11C because it would be less impactful to residential areas. A resident noted that the Prospect St. substation has long been considered a neighborhood eyesore and that the project should include efforts to beautify the area - Todd Lanham assured the resident that mitigation discussions were in early stages but considerations like that would be taken on board both for this project and for a parallel project happening at the station.	

Date	Stakeholder	Stakeholder Attendees	Existing Conditions Data &/or Other Plans Provided by Stakeholder?	General Summary of Input from Stakeholder	Meeting Outcomes
10/7/2021	Allston / Brighton Virtual Open House #1 - PM	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. A resident asked for clarification regarding the specific location of the substation in question, as they felt that it was otherwise unclear - they were informed that the station in this case is the one located on Lincoln Street. A resident also asked for a more detailed explanation of the substation aspect of the presentation, which was then given.	
10/12/2021	Allston / Brighton Virtual Open House #2- lunchtime	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. Stephan Kaiser asked a series of questions regarding long-term forecasting by Eversource - it was determined that his questions would need to be answered by members of the planning and forecasting teams, who were not present on the meeting. Eversource vowed to set up a meeting specifically to address his and other questions regarding forecasting and the justification for the GCEP.	
10/13/2021	Cambridge Virtual Open House #2 - lunchtime	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. Stephan Kaiser asked a series of questions regarding long-term forecasting by Eversource - it was determined that his questions would need to be answered by members of the planning and forecasting teams - Mr. Kaiser was again assured that a separate meeting would be convened on those issues. Alex Barbat of the Kendall Square Association asked a series of questions regarding interruptions to access to the Kendall Square area during construction and, as with another resident on the call, asked about the timeline. The broad timeline of 2024 - 2028 was provided to the attendees, with the assurance that it is unlikely that individual line construction would take that long. Ms. Barbat was also assured that the team would work closely with the city of Cambridge and local stakeholders to ensure that work would be as minimally impactful as possible to their homes or businesses.	
10/13/2021	East Cambridge Planning Team	Chuck Hinds, Bob Simha, Ilan Levy, Fabrizio Gentii, James Williamson, Tom Joyce, John Paul		Chuck Hinds, President of the East Cambridge Planning Team, invited Eversource to present to the ECPT membership at a regularly scheduled ECPT meeting in lieu of members attempting to join Eversource open houses. Todd Lanham of Project Services delivered the presentation given to attendees at open houses before Chuck Hinds opened up the meeting to questions. Ilan Levy, a candidate for office in the city of Cambridge, asked about the timing of the project, as well as shifting trends in consumer energy delivery and whether those trends were incorporated into Eversource's planning. In reference to the propose transmission line routes, Fabrizio Gentiili asked which of the lines were being prioritized in terms of scheduling; the team explained that they were all vital to the project and the EFSB-governed procedure of submitting a preferred route and a noticed alternative. James Williamson noted that during previous projects, he and his neighbors felt that Eversource crews/contractors often left roads in very poor condition, in one case for over a year. He also wanted to know if the GCEP was a fait accompli, or if community feedback has a genuine impact on the regulatory process - our team noted in the first instance that we would work closely with each neighborhood, but also with each respective city, to determine ideal timing for work and coordination with other utilities; in the second, the team noted that open houses, pop-up events, and web options designed to generate feedback have been ongoing and that the comments the team have received will inform both the project and the regulatory application. Mr. Levy steered the conversation back to route timing and priority, wondering when each would be built and whether it would be sections at a time or if the team would finish one route before moving to another; members of the team explained that the Allston-Brighton and Somerville routes would, because of length and other factors, be built first and that they would be constructed in a linear fashion. Tom Joyce expressed that it appears the Grand Junction path would be the easier of the two Somerville routes to build, but because the area is less developed, he asked if he thought Eversource would have to return to install additional infrastructure. Team members noted the challenge of siting a line along a railroad corridor while other members noted that the other Somerville route would necessitate the re-location of existing utilities. John Paul had his question about construction phasing by a team member that reminded him that lines will be built in parallel if possible with an eye on traffic impacts. Paul's second question, which was regarding cost sharing for the project, was answered by a team member that explained that information regarding cost would be fully vetted during the filing process. Bob Simha, a co-owner of the Third Square apartment complex on Third Street argued that the Volpe route was preferable because Third Street had been under a considerable amount of construction recently and it would be difficult for residents to accept a new project on the street. He was thanked for his feedback.	
10/14/2021	Somerville Virtual Open House #2 - lunchtime	Members of the general public; Spanish, Portuguese, Haitian-Creole, and Mandarin language interpreters.		Members of the public joined for a presentation given by Todd Lanham and to ask questions of Eversource Subject Matter Experts. Jessica Eshelman of Union Square Main Streets asked about the potential of beautify the associated Prospect Street station as it serves as a gateway into the Union Square neighborhood and has long been thought to be in bad condition. Todd Lanham assured Ms. Eshelman that considerations about beautifying the station were under way on both the GCEP and the associated Station 402 third transformer project.	
10/22/2021	Load Forecasting and Planning Meeting with Interested Stakeholders	Catherine Zusy, Stephen Kaiser, Ed Kotomori, Tony D'Isidoro, Paula Alexander, Phil Michael, Dirk Hentschel	This meeting was convened in response to previously asked questions by stakeholders.	Ed Kotomori began the meeting with a series of questions related to the Allston-Brighton portion of the project, as well as general questions about project infrastructure: "what is the function of a substation;" "why does the new substation need to be connect to the existing station in Allston?;" "Will this project provide additional power for the Allston-Brighton area?;" "Will this project lead to a rise in consumer energy bills?" Team members were able to provide information about the functionality of substations and the logic behind connecting the new station to the Lincoln St. station and let Ed know that some of his other questions will be answered in the public filing. Ed then asked questions about mitigation - notably, the undergrounding of existing poles in the area - and a question about forecasting. The team emphasized that mitigation conversation were just beginning and that there will be a process for navigating the needs of each neighborhood, but that Eversource wants to keep the dialogue open; a team member explained aspects of Eversource's forecasting method, including how it works with "large customer additions." Paula Alexander raised concerns about increased electrification and the cost of electric heat. Dan Ludwig explained that new electric heating is very efficient and cost effective. Stephen Kaiser recalled seeing a slide in a presentation from ~2019 that documented increased electric demand - is forecasting information available in a form that can be shared? Dan Ludwig informed Mr. Kaiser that forecast information will be included in the EFSB petition and that forecasts are not generally otherwise made public. Mr. Kaiser reiterates seeing the slide in a past presentation, which Dan Lugwig acknowledges. Mr. Kaiser thinks that forecasts should include new infrastructure and consumer products, including electric car chargers. Todd Lanham expressed that he thought Mr. Kaiser was asking questions well outside the scope of an individual project and that Mr. Kaiser's questions might be more appropriate for ISO-NE. Mr. Kaiser asks whether forecasts include energy forecasts - they do. Catherine Zusy asked whether Eversource would need to dig streets up again in, for example, 2035 after finishing the GCEP in 2028. She also wants to ensure that safety is prioritized in the project. Betty McKenna and Todd Lanham explained that while new transmission lines are rare, it is tough to gauge whether new work will be needed by other departments. Todd also reiterated the safety of the project, emphasizing that similar infrastructure exists in public areas as popular as Boston Common. Mr. Kaiser asked how large the excavation area on Magazine Beach will be - Todd Lanham said that this information is still being worked out by engineers. Ed Kotomori asks how long the Allston-Brighton line will take - Todd Lanham assures Ed it won't take four years, but the exact timetable is still being determined. Tony D'Isidoro wonders if the project would benefit from the increased engagement that changing the name of it might produce. He feels people in Somerville and Allston-Brighton might, as a result of the GCEP name, think the project does not impact them as much as Cambridge. Todd Lanham thanked Tony for the suggestion and will take it on board.	

BY THE TIME WE FILE:	**2019**	**2020**	**2021**	**MEETING TOTAL**	
Eversource ROUTING Meetings	0	43	50	**93**	
Eversource Project Services OUTREACH MEETINGS (green fill)	13	11	23	**47**	
Boston Properties REDEVELOPMENT Meetings (blue fill)	0	9	2	**11**	
				151	

Attachment K

Routing Analysis and Detailed Route Comparison
(Section 4 and 5 from EFSB Petition)

Section 4.0

Transmission Line Routing and New Substation Site Selection

4.0 TRANSMISSION LINE ROUTING AND NEW SUBSTATION SITE SELECTION

4.1 Introduction

As presented in Section 3, the Company's proposed solution to address the electrical system need and growing demand for electricity in the Project Area described in Section 2 involves the construction of eight new 115- kV underground transmission lines to be housed in a total of five new duct banks ("New Lines"). The proposed transmission line duct banks will connect the proposed New Substation in East Cambridge with existing substation facilities in Somerville, Cambridge, and the Allston/Brighton section of Boston. Connections to the Brighton Substation #329 require the construction of two new 115-kV transmission line duct banks, while only one new transmission line duct bank is required to each of the other three substations: Somerville Substation #402, East Cambridge Substation #875, and Putnam Substation #831. This Section describes the Company's process to identify and evaluate possible transmission line routes that led to the identification of two top routes within four largely distinct study areas, referred to herein as the Brighton, Somerville, Kendall, and Putnam Study Areas. For context, this Section also describes the site selection process for the New Substation facility as it is integral to the routing analysis associated with the new transmission line connections.

4.2 New Substation in East Cambridge

4.2.1 Overview

The New Substation will provide both a new interconnection to the existing 115-kV electric transmission system and a new location at which the high voltage power from the transmission system can be "stepped down" (i.e., the voltage will be decreased) for distribution to Eversource's customers.[60] The New Substation will consist of 22 115-kV circuit breakers in a breaker-and-a-half configuration, three control rooms that will contain protective relay and control equipment, communication equipment and control batteries, three 90-megavolt amps ("MVA") 115/14-kV transformers, six 14-kV, 9.6-MVAR capacitor banks, and sections of distribution switchgear that will interconnect through the new transmission lines and distribution lines. There will be room reserved within the New Substation for an additional future transformer, switchgear, capacitor bank and shunt reactor.

[60] While distribution lines are not jurisdictional to the Siting Board's review under G.L. c. 164, § 69G or § 72, as part of the Project, the Company is including information about its build-out of the electric distribution system through the addition of 36 underground distribution feeders and associated infrastructure in order to better explain how the Project is a comprehensive solution. The purpose of the distribution system is to transport electrical energy from the transmission system to Eversource customers within the Project Area. The proposed distribution lines would be installed predominantly within existing roads using similar open trench construction techniques such as that employed for transmission line construction, albeit within smaller footprints and work areas. A typical distribution line duct bank detail and construction methodology is provided in Section 5.

4.2.2 Site Selection Objectives for New Substation

The primary objectives of the Company's site selection evaluation for the New Substation were to:

1. Identify and assess locations of suitable size in proximity to relevant load centers that can accommodate the infrastructure required to meet the identified transmission and distribution system needs.

2. Evaluate potential substation sites based on a multitude of additional factors, including: (a) ownership status of potential sites; (b) applicable local zoning; (c) community input; (d) engineering and planning design considerations; (e) constructability; (f) environmental impacts; and (g) cost considerations.

4.2.3 Proposed Site of the New Substation

The availability of parcels of land to accommodate a new substation in densely developed urban areas like Cambridge, Boston, and Somerville, is limited. However, given the Project Area's concentrated loads, constructing the New Substation facility in the East Cambridge area was the critical siting criterion.

The Company first identified a need for a reliability solution in East Cambridge in 2014. The Company initially hoped to address the then-identified need through significant expansion of the Prospect Street Substation in Cambridge. That solution ultimately was determined to be infeasible because of community opposition. The Company then identified an approximately 0.85-acre parcel of land at #135 Fulkerson Street in East Cambridge and acquired it in 2017 as a potential site for a reliability solution (see Figure 4-1 below). The parcel is occupied by a single-story concrete block building that would have been demolished to facilitate construction of the identified solution facilities. While this site could accommodate construction of a new substation or other infrastructure, use of this site was strongly opposed by local officials and Cambridge residents because of its location in a residential neighborhood and its proximity to the Kennedy Longfellow School and John A. Ahern playing fields. Based on feedback from local officials and the community, Eversource began to engage local property owners and real estate developers to determine if there was a more desirable site in the Project Area.

After a series of discussions and meetings with several parties, including the Cambridge City Manager, Cambridge City Councilors, Cambridge Redevelopment Authority, private landowners, and community stakeholders, Eversource identified an alternate site on a parcel of land currently owned by BXP. within the Kendall Square Mixed Use ("MXD") Zoning District (the "New Substation Site") (see Figure 4-2 below). In 2019, the Company and BXP entered into an arrangement to reserve rights for a potential reliability solution on that parcel of land in Kendall Square being redeveloped by BXP. The parcel is currently occupied by the six-story Kendall Center Blue Garage at #290 Binney Street in East Cambridge. To accommodate construction of the proposed

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Figure 4-1

135 Fulkerson Street Substation Site

Greater Cambridge Energy Program

EVERSOURCE

Figure 4-2

Proposed New Substation Site

substation, BXP will demolish the existing Blue Garage and replace it with underground parking in roughly the same location. Following demolition of the existing parking garage facility, the New Substation will be constructed predominantly underground. The total footprint of the New Substation facility is approximately 35,000 square feet ("s.f."). The balance of the property is being re-developed by BXP with a mix of residential, commercial, and public open space.[61] The design plans include adequate space within the parcel to install all the Eversource electrical substation infrastructure and associated electric line duct banks and to ensure the ongoing safe operation and maintenance of such equipment.

The Kendall Center Blue Garage site meets the Company's selection criteria for the location of the New Substation as it is located proximate to the load center, meets engineering, constructability and environmental considerations, having been incorporated into the development plans for the site utilizing an innovative design in a highly urbanized environment to address the electricity demand and reliability needs identified, and has received positive input from the municipality and other stakeholders.

Please refer to Section 5 of this Analysis for additional detail describing the substation construction process and construction schedule at the New Substation Site.

4.3 Transmission Line Routing Analysis

4.3.1 Overview

The Company's methodology for siting new electric transmission lines, referred to as a "routing analysis," is an adaptive and iterative approach to identify and evaluate possible routes for the proposed Project. The routing analysis identified the top transmission line routes for the Project as the options that best balance the minimization of environmental impacts (including developed and natural environment impacts, and constructability constraints), reliability and cost.

In initiating the routing analysis, the Company first established routing objectives, which are described in more detail below. The routing analysis methodology presented herein uses previously established approaches for evaluating electric transmission routing options and is a consistent and standard process implemented by the Company and historically approved by the Siting Board.

[61] See https://www.cambridgeredevelopment.org/kendallredevelopmentoverview.

4.3.2 Routing Analysis Objectives

The goal of the Company's routing analysis was to identify a cost-effective and technically feasible design that achieved the required transmission system load growth and reliability improvements by interconnecting the specified substations while meeting certain design objectives. These objectives are to:

- Comply with all applicable federal and state statutory requirements, regulations, and policies.
- Achieve a reliable, operable, and cost-effective solution.
- Maximize the reasonable, practical, and feasible use of existing linear corridors (e.g., roadways, railroad) to the extent possible.
- Minimize/avoid potential impacts to the developed and natural environment.
- Minimize/avoid the need to acquire property rights wherever practicable; and
- Maximize the potential for direct routing options over circuitous routes.

4.3.3 Routing Analysis Methodology

Consistent with the Company's standard methodology, the routing analysis for the Project consisted of the following steps:

- **Identification of Project Study Area:** Focused the routing analysis within the region of the New Substation Site that is located between Broadway and Binney Street at the Kendall Center Blue Garage site in East Cambridge, and existing substation facilities located in the East Somerville neighborhood and the Allston neighborhood of Boston, as well as the Riverside neighborhood of Cambridge. For ease of review and analysis, the overall Project Study Area was then divided into smaller individual Study Areas between specific substation facilities where proposed transmission line interconnections would potentially occur. As described in further detail below, a total of four individual Study Areas were delineated, including: Brighton, Putnam, Kendall, and Somerville.
- **Development of Universe of Routes:** Identified numerous routing options within each individual Study Area between substation facilities including the evaluation of existing linear corridors (e.g., MBTA Grand Junction Railroad, roadways) to develop an initial set of potential routes ("Universe of Routes").
- **Identification of Candidate Routes:** From the Universe of Routes, determined the most viable routes (collectively referred to herein as "Candidate Routes") within each individual Study Area that met the need parameters for the Project and were consistent with the objectives of the Company's routing analysis.

- **Environmental Analysis**: Compared the potential for environmental (developed and natural) impacts and constructability constraints along the Candidate Routes within each Study Area.

- **Cost Analysis:** Compared the estimated costs for the Candidate Routes.

- **Reliability Analysis:** Compared the reliability of the Candidate Routes.

- **Selection of Routes:** Evaluated the results of the above analyses and identified the Company's top routes and potential route variations within each individual Study Area that best balanced reliability, minimization of environmental impacts, constructability constraints, and cost.

4.3.4 Summary of Stakeholder Input

Beginning in early Q1 2019, members of the Project's outreach team engaged with community representatives on broad topics of the proposed Project. The original site on Fulkerson Street in Cambridge received swift community opposition which led the Company to begin a dialogue with the City and other key stakeholders on alternatives to the proposed location. After extensive discussions with private landowners, Cambridge officials and private developers, the Company and BXP agreed in concept to a solution that involved relocating the substation to a parcel currently occupied by a parking garage (known as the "Blue Garage") in Kendall Square. As this location gained solid footing as a viable alternative to the Fulkerson Street site, Company representatives began meeting with federal, State, and municipal officials, residents/business owners, developers, representatives from Harvard University and the Massachusetts Institute of Technology ("MIT"), and other stakeholders to discuss the Universe of Routes under consideration for the new transmission lines. It was explained that these lines would serve to interconnect the proposed New Substation to our existing substations in Allston-Brighton, Cambridge, and Somerville and that the team was interested in obtaining input on the routing options described herein. This process began in Q4 2019 and, as of the date of this filing, has included more numerous meetings with a wide range of stakeholder related to the proposed project. The outreach and stakeholder activities are detailed in Sections 1.7 and 5.8 and summarized in Appendices 1-1 and 4-1. The table provided in Appendix 4-1 summarizes key input provided by the stakeholders and played a significant role in the development and content of the routing analysis. Community feedback and input received from focus group meetings on the proposed routes directly contributed to the Company's process to narrow down routing options and resulting in the selection of the Preferred and the Noticed Alternative Routes. Note that the information in this table is not inclusive of additional meetings, conversations, or other discussions where some of the same routing related topics were discussed and/or conveyed to the Company, but aims to provide a general sense of how this collaborative iterative approach over the last year and a half helped the Company craft what the Company believes is a very well vetted, constructable and community supported selection of line routes.

4.4 Identification of Transmission Line Routing Study Area

Following the establishment of the routing objectives, the Company reviewed the geographic area between the New Substation Site proposed in East Cambridge and certain existing Eversource substation facilities where transmission line interconnections would be made, including Prospect Substation #402 in East Somerville, East Cambridge Substation #875 in the Kendall Square region of Cambridge, Putnam Bulk Substation #381 near the Charles River in the Riverside neighborhood of Cambridge and Brighton Substation #329 on the west side of the Charles River in the Lower Allston neighborhood of Boston. Collectively, these facilities resulted in a geographic "Project Study Area," as depicted in Figure 4-3A, within which to concentrate the investigation of potential transmission line routes.

The Project Study Area encompasses portions of the cities of Boston, Cambridge, and Somerville. The Project Study Area generally consists of densely developed, urban neighborhoods that include residential, commercial and pockets of industrial areas. The primary campuses and athletic facilities of Harvard and MIT are located within the Project Study Area, on both sides of the Charles River. There are several Massachusetts Bay Transit Authority ("MBTA") commuter rail routes (Fitchburg Line, Framingham/Worcester Line), subway routes (Red Line and Green Line), public transportation bus routes and multimodal travel ways (e.g., multiuse pathways and bicycle lanes). Sensitive receptors including schools, daycare facilities, places of worship, and so forth are present throughout the Project Study Area. The Charles River and its associated wetlands, Riverfront Area, and 100-year floodplain are the predominant environmental resource areas located within the Project Study Area, along with filled and flowed tidelands regulated under the Massachusetts Public Waterfront Act ("Chapter 91"). There are areas of protected public open space (land protected by Article 97 of the Massachusetts Constitution) within the Project Study Area, including the Massachusetts's Department of Conservation and Recreation's ("MassDCR") Charles River Reservation, Christian A. Herter Park ("Herter Park"), Magazine Beach, Longfellow (Riverbend) Park, other municipal properties (e.g., Riverside Press Park) and multi-use pathways (Dr. Paul Dudley White Path, Grand Junction Railroad). With few exceptions, most of the Project Study Area contains Environmental Justice ("EJ") Populations, as such term is defined under Massachusetts law. See Section 1.7 and 5.8.1, regarding interactions with these EJ communities.

Within each individual Study Area (Brighton, Putnam, Kendall, and Somerville), the Company looked for existing linear corridors (e.g., existing rail, and roadway corridors) that could potentially facilitate construction of the new underground transmission lines and provide a reasonably direct route between each of the referenced substation facilities, as appropriate. A more detailed description of each individual Study Area is provided below. Note that all the individual Study Areas partially overlap near the New Substation Site in East Cambridge where all the proposed transmission lines connect with the New Substation facility.

G:\Projects2\MA\MA\5711\EFSB\Figures\MXD\4-3A_Project_Study_Area_20211112.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

Project Study Area

Town/City Boundary

Scale 1:18,000
1 inch = 1,500 feet

0 750 1,500 Feet

Basemap: National Geographic Map, Esri

Somerville Substation #402

New Substation Site #8025

East Cambridge Substation #875

Putnam Substation #831

Brighton Substation #329

CAMBRIDGE
WATERTOWN

SOMERVILLE
CAMBRIDGE

BOSTON
SOMERVILLE

CAMBRIDGE
BOSTON

WATERTOWN
BOSTON

BOSTON
BROOKLINE

Cambridge

Allston

Harvard University The Quad

Soldiers Field Athletic Area

Harvard University

Mt Auburn Hospital

Mt Auburn Cemetery

Cambridge Cemetery

Bunker Hill Community College

Massachusetts Institute Of Tech

Boston University

Massachusetts General Hospital

Boston Common

Public Garden

Prudential Center

Copley Place

St Elizabeth's Med Ctr

Stanley A Ringer Playground

North Point Park

Charles River

SUFFOLK

MIDDLESEX

Greater Cambridge Energy Program

EVERSOURCE

Figure 4-3A
Project Study Area

4.4.1 Brighton Study Area

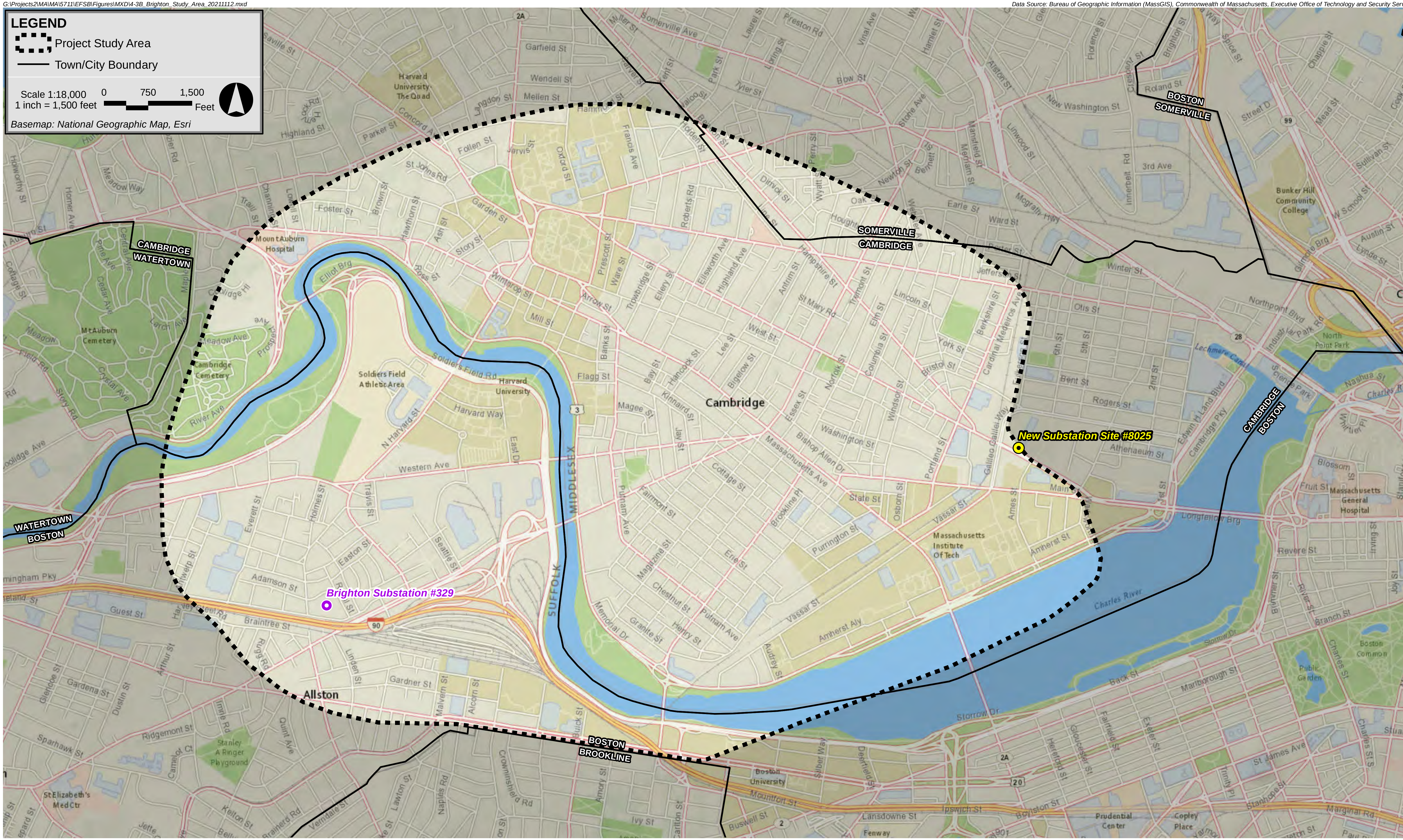
The Brighton Study Area encompasses approximately 4.8 square miles (see Figure 4-3B). It is the largest of the four Study Areas identified by the Company and overlaps portions of the other three Study Areas described below. The Brighton Study Area includes portions of Cambridge and Boston and considers proposed transmission line interconnections between the New Substation in East Cambridge and the existing #329 Brighton Substation located on Lincoln Street in the Allston/Brighton section of Boston. The northern edge of the Brighton Study Area is generally delineated by the Cambridge / Somerville municipal border and Cambridge Street. The eastern perimeter is generally defined by Fulkerson Street and Broadway Avenue in Cambridge. The southern and western edges are generally delineated by the Boston/Watertown and Boston/Brookline municipal borders. The Charles River bisects the Brighton Study Area in an east-west direction. The man-made Charles River Basin is non-tidal, being located upstream of the old and new Charles River Dams and downstream of the Watertown Dam. A potential transmission line route between the New Substation in Cambridge and the Brighton Substation in the Lower Allston area of Boston would require a crossing of the Charles River via horizontal directional drill ("HDD") or other trenchless crossing technique; or via one of the existing bridge crossings (e.g., Western Avenue, River Street, Anderson Memorial Bridge, or Grand Junction Railroad trestle bridge), or potentially on a separate self-supporting utility bridge, if feasible. The Charles River crossing is unique to the Brighton Study Area and adds complexity to the design, construction, and environmental permitting processes, as does utilizing the state-controlled bridges and infrastructure.

East of the Charles River in the City of Cambridge, the Brighton Study Area is characterized by the main campuses of MIT and Harvard University, major public roadways such as Memorial Drive, Massachusetts Avenue, River Street and Western Avenue, densely developed single family and multi-family residential neighborhoods, MassDCR recreational properties (Magazine Beach and other Charles River Reservation facilities), and areas of commercial, office space, hotels, research and development space, laboratory space, and biotechnology companies. A segment of the MBTA's Red Line subway tunnel and several public bus routes are located within the Brighton Study Area, extending through Cambridge and into Somerville.

West of the Charles River in the City of Boston, most of the Brighton Study Area consists of heavily developed commercial and industrial areas with areas of residential neighborhoods (single family and multi-family residential), located generally between North Harvard Street and Franklin Street. Harvard University athletic facilities and sports complexes occupy the northwest corner of the Brighton Study Area up to Soldiers Field Road. MassDCR's Herter Park and the Dr. Paul Dudley White Bike Path are located along the western edge of the Brighton Study Area and represent significant public open space areas within the larger Charles River Reservation. Interstate 90 ("I-90" or the "Mass Pike") passes through the southerly edge of the Brighton Study Area parallel to the MBTA commuter rail tracks (Framingham/Worcester Line). There is also a CSX Transportation

G:\Projects2\MA\MA\5711\EFSB\Figures\MXD\4-3B_Brighton_Study_Area_20211112.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



LEGEND
Project Study Area
Town/City Boundary
Scale 1:18,000
1 inch = 1,500 feet
0
750
1,500
Feet
Basemap: National Geographic Map, Esri
New Substation Site #8025
Brighton Substation #329
Cambridge
Allston
CAMBRIDGE
WATERTOWN
SOMERVILLE
CAMBRIDGE
BOSTON
SOMERVILLE
CAMBRIDGE
BOSTON
WATERTOWN
BOSTON
BOSTON
BROOKLINE
MIDDLESEX
SUFFOLK
Charles River
Harvard University
Soldiers Field Athletic Area
Massachusetts Institute Of Tech
Mount Auburn Hospital
Mt Auburn Cemetery
Cambridge Cemetery
Massachusetts General Hospital
Boston University
Bunker Hill Community College
Prudential Center
Copley Place
Boston Common
Public Garden
Stanley A Ringer Playground
St Elizabeth's Med Ctr
Longfellow Brg
Massachusetts Ave
Memorial Dr
Storrow Dr
Western Ave

Greater Cambridge Energy Program

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Figure 4-3B

Brighton Study Area

rail yard located south of the I-90 interchange and ramp areas approaching the Charles River. This area is scheduled to be redeveloped as part of the Massachusetts Department of Transportation's ("MassDOT") Allston Multimodal Project.[62]

4.4.2 Putnam Study Area

The Putnam Study Area encompasses approximately 1.5 square miles (see Figure 4-3C). The Putnam Study Area is located entirely in Cambridge and considers proposed transmission line interconnections between the New Substation Site in East Cambridge and transmission lines supplying the existing #831 Putnam Bulk Station located on Putnam Avenue. The Putnam Study Area is generally located between the Charles River and Cambridge Street to the east. A significant portion of the Putnam Study Area also falls within the overlapping Brighton Study Area, east of the Charles River as described above. Densely developed residential neighborhoods (single family and multi-family developments) characterize much of the Putnam Study Area including along River Street, Franklin Street, Sidney Street, Allston Street and Colombia Street in Cambridge. There are pockets of sensitive receptors within this Study Area (e.g., places of worship, fire station on River Street, MIT campus, etc.), but fewer in extent when compared to the other Study Areas described herein. The Putnam Study Area does not contain a waterbody crossing, which minimizes the extent of environmental permitting and certain construction challenges. Memorial Drive occupies the southern and western limits of this Study Area. Memorial Drive is under the care and custody of MassDCR and is a component of the Charles River Reservation.

4.4.3 Kendall Study Area

The Kendall Study Area encompasses approximately 0.41 square miles (see Figure 4-3D). The Kendall Study Area is relatively compact, located entirely in Cambridge. The Kendall Study Area considers proposed transmission line interconnections between the New Substation Site in East Cambridge and the existing #875 East Cambridge Substation located on Athenaeum Street to the east. The northern edge of the Kendall Study Area is defined by Charles Street. Memorial Drive and the Charles River generally delineate the eastern and southern perimeters of the Kendall Study Area. Massachusetts Avenue, Vassar Street, Galileo Way and Fulkerson Street generally delineate the western edge. The main campus of MIT occupies a significant portion of this Study Area, between Memorial Drive and Vassar Street. The Kendall Study Area is comprised of mixed-use commercial developments, restaurants, hotels, office space, laboratory, research and development, biotechnology space and several above grade and below grade parking garages. Dense residential neighborhoods border the northern edge of the Kendall Study Area (single and multi-family housing) along Charles Street. There are also residential apartment complexes located in and around Binney Street and Third Street.

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[62] See https://www.mass.gov/allston-multimodal-project.

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

Putnam Study Area

Town/City Boundary

Scale 1:18,000
1 inch = 1,500 feet

0 750 1,500 Feet

Basemap: National Geographic Map, Esri

New Substation Site #8025

East Cambridge Substation #875

Putnam Substation #831

CAMBRIDGE
WATERTOWN

SOMERVILLE
CAMBRIDGE

BOSTON
SOMERVILLE

CAMBRIDGE
BOSTON

WATERTOWN
BOSTON

BOSTON
BROOKLINE

Cambridge

Allston

Harvard University
The Quad

Mt Auburn Cemetery

Cambridge Cemetery

Soldiers Field Athletic Area

Harvard University

Mount Auburn Hospital

Massachusetts Institute Of Tech

Boston University

Bunker Hill Community College

North Point Park

Massachusetts General Hospital

Prudential Center

Copley Place

Boston Common

Public Garden

St Elizabeth's Med Ctr

Stanley A Ringer Playground

Charles River

MIDDLESEX

SUFFOLK

Greater Cambridge Energy Program

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Figure 4-3C
Putnam Study Area

G:\Projects2\MA\MA\5711\EFSB\Figures\MXD\4-3D_Kendall_Study_Area_20211112.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

Kendall Study Area

Town/City Boundary

Scale 1:18,000
1 inch = 1,500 feet

0 750 1,500 Feet

Basemap: National Geographic Map, Esri

New Substation Site #8025

East Cambridge Substation #875

CAMBRIDGE
WATERTOWN

WATERTOWN
BOSTON

SOMERVILLE
CAMBRIDGE

BOSTON
SOMERVILLE

CAMBRIDGE
BOSTON

BOSTON
BROOKLINE

Cambridge

Allston

Harvard University The Quad

Soldiers Field Athletic Area

Harvard University

Mt Auburn Cemetery

Cambridge Cemetery

Mount Auburn Hospital

Massachusetts Institute Of Tech

Boston University

Bunker Hill Community College

Massachusetts General Hospital

St Elizabeth's Med Ctr

Stanley A Ringer Playground

Public Garden

Boston Common

North Point Park

Prudential Center

Copley Place

Fenway

Charles River

Greater Cambridge Energy Program

EVERSOURCE

Figure 4-3D
Kendall Study Area

4.4.4 Somerville Study Area

The Somerville Study Area encompasses approximately 1.2 square miles (see Figure 4-3E). The Somerville Study Area is in Cambridge and Somerville and considers proposed transmission line interconnections between the New Substation Site in East Cambridge and the existing Somerville Substation #402 located on a triangular piece of depressed land between Webster Avenue, Prospect Street and Newton Street in Somerville. The MBTA commuter rail (Fitchburg Line) delineates the southern edge of the Somerville Substation site and bisects the Somerville Study Area in an east-west direction. The MBTA's Green Line Extension Project[63] involves ongoing construction work in Somerville through a portion of the Study Area generally between the existing Lechmere Station to Union Square, northwest of the existing #402 Somerville Substation on Prospect Street. Massachusetts Avenue in Cambridge delineates the southern edge of this Study Area, in Cambridge.

In addition to the public transit facilities described above, the Somerville Study Area is characterized by significant areas of residential development (single family and multi-family housing) and pockets of sensitive receptors (e.g., schools, places of worship, and public parks). Commercial, retail, research and development and bio-technology companies exist towards the center and northern edge of the Somerville Study Area. The Company has a Customer Service Center located in an industrially developed area along Linwood Street, east of the Somerville Substation facility.

4.5 Transmission Line Route Selection

4.5.1 Identification of Universe of Routes

Using the routing objectives identified in Section 4.3.2, the Company reviewed U.S. Geological Survey ("USGS") maps, utility and roadway survey data, Massachusetts Geographic Information System ("MassGIS") data and aerial photography, as well as field reconnaissance to identify a Universe of Routes that could potentially support new underground transmission lines between the New Substation facility and the four aforementioned existing substation facilities, including the utilization of existing linear corridors. Notably, the common gateway for all the proposed transmission line routes begins at the entrance to the New Substation facility on Broadway Avenue in Cambridge, with potential routes heading east or west from the New Substation depending on the locations of existing substation facilities to which the New Lines propose to interconnect. From a routing perspective, bringing five new underground transmission line duct banks to a single interconnection point presents several challenges. For example, during the routing process the Company was mindful of space, design and operational constraints associated with locating a new transmission line duct bank on a particular roadway segment within an

[63] See https://www.mass.gov/green-line-extension-project-glx.

G:\Projects2\MA\MA\5711\EFSB\Figures\MXD\4-3E_Somerville_Study_Area_20211112.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

Somerville Study Area

Town/City Boundary

Scale 1:18,000
1 inch = 1,500 feet

0 750 1,500 Feet

Basemap: National Geographic Map, Esri

Somerville Substation #402

New Substation Site #8025

SOMERVILLE
CAMBRIDGE

BOSTON
SOMERVILLE

CAMBRIDGE
WATERTOWN

WATERTOWN
BOSTON

CAMBRIDGE
BOSTON

BOSTON
BROOKLINE

Cambridge

Allston

Harvard University
The Quad

Mount Auburn Hospital

Mt Auburn Cemetery

Cambridge Cemetery

Soldiers Field Athletic Area

Harvard University

Massachusetts Institute Of Tech

Bunker Hill Community College

Boston University

Massachusetts General Hospital

Boston Common

Public Garden

Prudential Center

Copley Place

Fenway

St Elizabeth's Med Ctr

Stanley A Ringer Playground

Charles River

Greater Cambridge Energy Program

EVERSOURCE

Figure 4-3E
Somerville Study Area

individual Study Area that could also potentially serve as a viable route for another transmission line duct bank located in a separate but overlapping Study Area. This is particularly true in and around the New Substation Site where all the individual Study Areas converge. The Company also considered the presence and concentration of existing underground utility infrastructure (which is extremely dense in most of the Project Study Area and particularly so near the New Substation Site) and ensure there was adequate space for the future distribution lines required to connect to the New Substation to supply Eversource's customers. Moreover, the Brighton Study Area involves construction of two new transmission line duct banks, necessitating a separate evaluation of potential routes that head east or west from the New Substation onto Broadway Avenue to ensure some measure of geographic diversity required by the Siting Board while being mindful of space and constructability constraints to install and operate the new transmission lines. The installation of underground transmission lines, near other transmission lines (or any other heat source) for any appreciable length can potentially impact the performance and design rating of the lines. If the lines are close to each other, mutual heating of the lines could potentially reduce the rated current carrying capability of the transmission facilities (i.e., derating existing lines and/or increasing the size of the conductor for the new line(s) to achieve required ratings). As the separation between transmission lines decreases, the mutual heating and associated negative thermal impacts increase. The Company was also mindful of near term and longer-term development plans such that installation of a new transmission line across private properties would not adversely affect the ability of the landowner(s) to develop the properties in the future (e.g., Harvard, MIT, several other private developers). The amount of development planned within the Project Study Area, and the need for electricity, continues along a rapid growth trajectory.

The Company also conducted a thorough and objective evaluation of undeveloped open space areas such as MassDCR's Magazine Beach and Herter Park, located adjacent to the Charles River within the Brighton Study Area. While the Company strives to avoid/minimize the need to acquire property rights wherever practicable, under certain circumstances these types of public properties and private properties can present opportunities to implement less intrusive routing alternatives or construction techniques, such as HDD crossings beneath the parkland and river, while undertaking appropriate mitigation and restoration measures that result in an overall net benefit to the effected properties and, in this case, public resources. Similarly, routes that propose to follow existing railroad corridors or cross the Charles River on a self-supporting utility bridge or repurpose an existing bridge (e.g., railroad trestle beneath the Boston University ("B.U.") Bridge), can present opportunities to partner with stakeholders relative to collocating the new transmission line with future planned multi-use pathway connections (e.g., Cambridge's Grand Junction Railroad Multi-Use Pathway).[64] Previously disturbed properties scheduled for redevelopment can also present opportunities relative to the placement of needed utility infrastructure including siting of new transmission lines. For example, within the Brighton Study Area the MassDOT Allston Multimodal Project Area is presently occupied by the CSX rail yard, MBTA Worcester commuter rail main line and I-90 interchange. This entire area is scheduled to

[64] https://www.cambridgema.gov/CDD/Projects/Transportation/GrandJunctionPathway.

undergo a major transformation, including realigning existing and constructing new roadways, and reconfiguring open space areas and multi-use pathways along the Charles River. Construction of the first phase of the MassDOT Allston Multimodal Project is anticipated to commence in late 2023 or early 2024.[65] With proper coordination and sequencing, these types of developments can present opportunities to avoid and minimize impacts during construction by locating new transmission lines within the layout of future roadway/utility corridors and previously developed and altered areas. Other examples exist within the Somerville Study Area where adjacent properties in and around the existing Somerville Substation are scheduled to be redeveloped. The MBTA is currently constructing a new train station platform as part of the Green Line Extension Project adjacent to the City of Somerville's Union Square and Boynton Yards development projects.[66] Not unlike MassDOT's Allston Multimodal Project, these Somerville development projects also propose to realign existing roads and construct new roads in and around the development footprints, presenting opportunities to site new transmission lines within the new roadway and utility corridors while avoiding and minimizing impacts to existing roadway infrastructure.

For brevity and ease of review, Appendix 4-2 includes a table with a detailed description of the routes considered by the Company. As noted therein, a total of 79 routes were considered suitable for additional screening, including 42 routes within the Brighton Study Area, 5 routes within the Putnam Study Area, 14 routes within the Kendall Study Area, and 18 routes within the Somerville Study Area, including several discrete route variations across certain parcels of land. Collectively, these routes comprise the Universe of Routes. Note that on the referenced table provided the Brighton Routes include an "East" or "West" designation after the route ID to indicate the direction of the route as it exits the New Substation Site onto Broadway Avenue in Cambridge. Figure 4-4 on the following page provides a graphical depiction of the Universe of Routes within each respective Study Area.

Section 4.5.2 below describes the screening methodology employed by the Company to refine the Universe of Routes to a reasonable set of Candidate Routes for more direct comparison and analysis within each respective Study Area.

4.5.2 Screening Methodology

The Universe of Routes identified by the Company, with input from stakeholders, consisted of 79 different route combinations that were advanced for screening. The initial screening process included reviewing publicly available data to consider existing abutting land uses and natural resources such as wetlands, floodplain and waterways associated with the Charles River, and

[65] https://www.mass.gov/service-details/recent-developments-and-next-steps-for-the-allston-multimodal-project

[66] https://www.somervillema.gov/departments/union-square-planning.

G:\Projects2\MA\MA\5711\EFSB\Figures\MXD\4-4_Universe_of_Routes_by_Study_Area_20211112.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

- New Substation Site #8025
- Existing Substation
- Town/City Boundary

Universe of Routes

- Brighton Routes
- Kendall Routes
- Putnam Routes
- Somerville Routes

Scale 1:16,800
1 inch = 1,400 feet
0 700 1,400 Feet

Basemap: World Street Map, Esri

Somerville Substation #402

New Substation Site #8025

East Cambridge Substation #875

Putnam Substation #831

Brighton Substation #329

Greater Cambridge Energy Program

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Figure 4-4
Universe of Routes

protected open space and recreational areas. In addition, traffic experts assessed general multimodal traffic patterns and traffic volumes, as applicable to the routes, and evaluated public transportation and bicycle usage as well as the degree of pedestrian use. The Company also reviewed the proposed transmission line routes for constructability constraints, such as identified areas of existing underground utility congestion, complex crossings (e.g., railroad tracks and subway tunnels, Charles River, major roadways, and bridges) and reviewed order of magnitude cost estimates for addressing these challenges. The Company also considered information received from municipal and state agency staff members, private landowners, and stakeholder groups, including information regarding planned developments along the proposed transmission line routes where opportunities might exist to collocate (e.g., MassDOT Allston Multimodal Project area, Cambridge's Grand Junction Multi-Use Pathway, Union Square and Boynton Yards Development in Somerville and so forth). Route options were screened out and eliminated from further consideration if they were determined to be unsuitable or inferior for transmission line development relative to other routes available for consideration by the Company.

One of the major obstacles encountered during the screening and route selection process was existing underground utility density and infrastructure and available space to construct and operate up to five new transmission line duct banks and splice vault installations. While utility density can be a challenge for underground transmission line projects in general, in this case it is amplified because five new transmission line duct banks are proposed, all of which extend onto adjacent roadways from the New Substation Site utilizing a single exit point on to Binney Street in Cambridge. Moreover, the Study Area within Cambridge, Somerville and Boston is a densely developed urban environment that presently contains a high concentration of underground utilities that serve existing and future planned developments. Based on feedback from local engineering and public works officials, private developers, and input from the Massachusetts Water Resources Authority ("MWRA"), MBTA, MassDCR, MassDOT and Rail Divisions, MIT, Harvard University, and utility surveys performed by the Company, certain potential routes or route segments were more constrained by utilities and other infrastructure than other potential routes or route segments. From a routing perspective, such routes are routinely eliminated or avoided to the extent practicable through the initial screening process. Some representative examples include:

- **MBTA Red Line Subway Tunnel** – Within the Project Study Area, the Red Line subway tunnel is located beneath Massachusetts Avenue and Main Street through the City of Cambridge. According to the MBTA, the depth to the ceiling of the Red Line subway tunnel is shallow in certain locations, particularly in and around Harvard Square and the Central Square area approaching the intersection of River Street/Western Avenue and Prospect Street in Cambridge. The shallow depth of the tunnel can constrain potential crossing locations for the new transmission line. As per conversations with the City of Cambridge and MBTA, the Company also understands the Red Line subway tunnel is located towards the center of Main Street and Massachusetts Avenue through the Study Area within Cambridge, with existing utilities located on either side. The arrangement of these facilities within the roadway reduces the amount of available space to construct and

operate a new transmission line and install splice vaults parallel to the Red Line subway tunnel on these streets. Accordingly, route segments crossing over or running parallel with the Red Line tunnel on Massachusetts Avenue and Main Street through Cambridge were avoided whenever possible. That said, it was not possible to avoid crossing the Red Line Subway tunnel in the Brighton and Putnam Study Areas given the north-south alignments of the identified potential routes relative to the east-west alignment of the subway corridor near the New Substation Site. In these instances, the Company worked with the MBTA to minimize the extent of longitudinal installations and identify crossing locations where the tunnel was deep enough to facilitate transmission line installations above the subway tunnel.

- **Other MBTA Facilities** – The MBTA commuter rail Fitchburg Route Main Line is in the Somerville Study Area and the Framingham/Worcester Line is in the Brighton Study Area, west of the Charles River. The Grand Junction Railroad corridor bisects the Project Study Area through Somerville, Cambridge and over the Charles River via a trestle bridge into Boston. The MBTA Railroad Operations Directorate (the "Directorate") prescribes specifications for any construction and/or related activities on, over, under, within or adjacent to railroad property owner by the MBTA. One of these specifications is that proposed underground transmission lines should cross perpendicular to the tracks whenever feasible and be installed in a steel casing, preferably with a minimum cover of 6.5 feet. Potential routes that were unable to cross substantially perpendicular to the tracks (or unable to meet other specifications in the Directorate, such as rail clearance requirements without relief from the MBTA), were avoided whenever possible. This was particularly true for certain routes in the Somerville Study Area approaching the McGrath Highway (Route 28) area near Somerville Avenue Extension and the Brighton Study Area west of the Charles River. In less travelled areas, such as the lightly used Grand Junction Railroad Corridor generally between Broadway and Medford/Gore Street in Cambridge, the MBTA indicated that it would consider granting relief from the Directorate specifications for non-perpendicular crossings in these discrete locations provided certain design and construction measures were employed. The MBTA further indicated that routing alongside the Framingham/Worcester Line commuter tracks in Allston adjacent to the MassDOT Multimodal Project Site was not feasible due to insufficient clearance between the tracks and the retaining walls and bridge abutments that border the route(s). In addition, the section of the Grand Junction Railroad corridor between Main Street and Massachusetts Avenue in Cambridge is not suitable for transmission line construction because of the presence of MIT's Brain and Cognitive Sciences Building, which spans the railroad tracks via a tunnel/archway. This area is also constrained by existing steam lines that pass beneath the tracks to the MIT buildings and was thus avoided.

- **Grand Junction Railroad Trestle Bridge** – The Company considered routes in the Brighton Study Area that could potentially repurpose the existing MBTA Grand Junction Railroad Trestle Bridge crossing of the Charles River, including possibly collocating with a future

multi-use pathway contemplated by the City of Cambridge. However, this crossing option was determined to be impracticable for several reasons, including but not limited to the following:

- The MassDOT Multimodal Project "Throat Design" on the west side of the Charles River, where the transmission line would cross, has not yet been finalized and presents an unacceptable schedule and construction risk to the Company, that could jeopardize the Project's in-service date.

- The uncertain future of the bridge for expanded rail use.

- Inability to re-purpose the existing bridge superstructure and piers for utility installation and a future multi-use pathway (project engineers determined that the existing trestle bridge structure cannot support the weight of the new transmission line).

- Likelihood of extensive removal of mature trees and other vegetation on both sides of the Charles River for staging and laydown, equipment, and construction access (including access for large cranes and space for pulling cable).

- Construction activities could likely require barge setups and cofferdam installation and dewatering work in the Charles River to install piers (also presenting a navigation challenge during construction to users of the river).

- The Company considered a self-supporting utility bridge parallel to the trestle bridge but determined that there was insufficient space for such a structure within the bounds of the route trajectory, in addition to potential concerns anticipated from the Massachusetts Historical Commission ("MHC") regarding viewshed effects to the Charles River Basin Historic District.

- As per discussions with MassDCR, if the transmission line collocated with a multi-use pathway project, the American Disability Act design constraints would likely present a significant challenge where the utility bridge/multiuse pathway intersects with the Dr. Paul Dudley White Bike Path on the south side of the Charles River, that would likely require a robust switchback ramp system to transition back at an appropriate slope to reach grade on Soldiers Field Road.

Accordingly, route segments that relied upon the Grand Junction Railroad Trestle Bridge to reach the Brighton Substation were avoided.

- **Harvard/MIT Properties** – Harvard and MIT have significant properties in the overall Study Area within Cambridge and Boston, including academic buildings, student housing, ancillary buildings, parking lots, athletic field complexes and real estate identified for re-development or expansion plans (new academic buildings, student housing, parking, public transportation projects, etc.). Some of these properties targeted for future

development present opportunities for routing the transmission line, particularly in the Brighton Study Area where with proper planning and coordination such projects might be able to accommodate a new transmission line(s) (e.g., roadway realignments associated with MassDOT's Allston Multimodal Project). However, other university properties presented constraints that should be avoided to the extent practicable. For example, MIT and Harvard requested that potential routes crossing over certain properties not constrain their ability to re-develop the land in the future, and that any proposed transmission lines or splice vaults be located off the property or as close to the property line(s) as possible, versus towards the center of the parcel(s) where these facilities would have greater potential to conflict with future redevelopment plans. Adhering the transmission line route to these areas is not always technically feasible, particularly when there are frequent and significant bends of the transmission line. Specifically, MIT requested that Eversource avoid and/or eliminate potential routes that bisect the Volpe Center Site adjacent to the New Substation Site in Kendall Square and certain campus properties between Vassar Street and Albany Street/Waverly Street over the Grand Junction Railroad tracks in Cambridge, reasoning that the presence of a new transmission line across the center of these parcels would severely constrain future redevelopment plans. Harvard expressed similar concerns with routes bisecting its athletic complex in Boston, generally between Soldiers Field Road and North Harvard Street as well as planned development footprints within the MassDOT Allston Multimodal Project Area.

- **Potential Future Development Plans by Others** – As a matter of Company policy, established ROWs, including public roadways should be used for underground transmission line location and use of private property avoided to the extent possible. Using existing public roads can limit the need to acquire property rights and limit impact to existing land uses, depending on project specifics.

- Certain properties within the Study Area were avoided in response to landowner concerns that the presence of a new transmission line and/or splice vaults would adversely affect the ability of the landowner to develop the parcel(s) in the future. For example, within the Brighton Study Area the Company explored the feasibility of routing a transmission line through the WBZ-TV studio's property on Soldiers Field Road to avoid work on the adjacent City of Boston William E. Smith Playground property and the Harvard University athletic field complex. According to the Boston Planning and Development Agency ("BPDA") and conversations with the developer (National Development), the site is scheduled to be redeveloped with a new studio for WBZ-TV, several life-science buildings, greenspace, and parking.[67] In consultation with National Development and the BPDA, it was determined that locating a new transmission line across this property would significantly constrain potential redevelopment opportunities and should be avoided. Similarly, the Company explored potential routes across certain areas of the Boynton

[67] http://www.bostonplans.org/projects/development-projects/1170-1200-soldiers-field-road

Yards redevelopment site that is located adjacent to Union Square and Cambridge's Inman Square, generally between South Street and Columbia Street. This industrial site is proposed to be redeveloped as a mixed-use district comprised of laboratory, office, multifamily and neighborhood retail, and community arts space.[68] In consultation with the City of Somerville Redevelopment Authority ("SRA") and the private developer, it was recommended that potential transmission lines through these areas be routed in a manner that considers, and does not restrict, the future development plans as described in the City's master planning documents.

- **Miscellaneous Roadway Segments** – Other roadways and/or roadway segments within the Study Area were determined to be infeasible or otherwise inferior from a routing perspective because of several constraints, including greater utility density that would restrict the Company's ability to construct a new transmission line duct bank or install splice vaults relative to other roadways and/or roadway segments. For example, the City of Cambridge Department of Public Works ("DPW") recommended that to the extent practicable, the Company should avoid routes along Western Avenue, Main Street, Hayward Street, Albany Street, Cardinal Medeiros Avenue, River Street (between Memorial Drive and Pleasant Street), portions of Galileo Way, Broadway and Binney Street, Hampshire Street/Broadway intersection, Harvard Street, and the Harvard Square/Inman Square areas. The City of Somerville indicated that routes following Somerville Avenue between Medford Street and Prospect Street were not likely feasible due to existing infrastructure and planned roadway reconstruction work and should similarly be avoided to the extent practicable. The Boston Water and Sewer Commission staff ("BWSC") indicated that Everett Street in Brighton is not likely a feasible route given the presence of existing electric distribution lines and other significant utilities. The BWSC expressed similar concerns regarding existing utilities in Western Avenue. The MWRA provided input relative to its sewer and water facilities, which are extensive throughout the Study Area, including certain major infrastructure in Cambridge such as large diameter sewer interceptor pipes on Cardinal Medeiros Avenue (North Metropolitan Cambridge Branch) and Albany Street (North Charles Relief Sewer). In other locations, it was determined that certain roadway segments would not likely have adequate space to accommodate multiple transmission lines, such as Kendall Street near the East Cambridge Substation where there is extensive steam tunnel infrastructure and a relatively shallow underground parking garage resulting in insufficient cover for a new transmission line, and Athenaeum Street and Broad Canal Way where there is extensive existing transmission and distribution line congestion, gas line expansion plans and steam lines.

[68] https://2xbcbm3dmbsg12akbzq9ef2k-wpengine.netdna-ssl.com/wp-content/uploads/2018/07/Union-Square-NP-FINAL-WEB.pdf

The section of Cambridge Street between the Grand Junction Railroad corridor and Harvard Square is constrained by an existing narrow roadway tunnel and ongoing intersection improvement work at the Springfield Street/Hampshire Street intersection.

- **Other Electric Transmission and Distribution Lines and Steam Lines** - Other significant utility related challenges encountered during the route selection and screening process included inadequate space to collocate the new transmission line duct banks with existing and proposed electric distribution lines and minimizing interactions with heat producing sources such as existing steam lines and other transmission lines. As was described in Section 4.5.1, the installation of a new transmission line within 10-feet of an existing transmission line or steam line for any appreciable length can potentially impact the performance of the existing line and the design basis (rating) for the new line. Accordingly, installing the new transmission lines within existing underground transmission line duct banks in the Study Area is not a viable possibility. Installing transmission lines in geographically diverse corridors minimizes the potential for a single contingency event to cascade and cause the failure of multiple transmission lines at once. In situations where it was not possible to attain a greater level of geographic diversity, the Company was mindful of potential routes overlapping each other from within separate Study Areas, to ensure a particular route segment could accommodate two new electric transmission line duct bank and/or splice vaults.

- **Article 97 Lands** – Acquisition of additional property rights, including lands subject to Article 97 of the Amendments to the Constitution of the Commonwealth in connection with the "conversion of land" held or owned by the Commonwealth for natural resource purposes ("Article 97 approval") were avoided, when possible. In instances where it was not possible to avoid Article 97 lands (such as those routes requiring a crossing of the Charles River between Cambridge and Boston), the Company located the transmission line routes in a manner that would minimize impacts during construction as well as the length of transmission lines across these properties.

- **Public Shade Trees** – Public shade trees are important in any community, but particularly important in densely developed urban areas where they play an important role in improving scenic quality and aesthetic appeal, mitigating the heat island effect by reducing temperature through shading and filtering air pollutants as well as providing other public health and environmental benefits. To the maximum extent practicable, the Company avoided routes that would require the removal of healthy public shade trees on sidewalks or adjacent areas.

While the Company strived to adhere to the above-referenced recommendations and guidance provided by stakeholders during the route screening process, it was not feasible in all instances to avoid routes along some of the referenced roadways, private lands, open space and recreational areas and rail corridors given the complexities of routing five new transmission line duct banks in the densely developed urban environment that characterizes the Project Study Area. In certain instances, it was necessary to carry forth certain routes for scoring purposes and

more detailed analyses, knowing the constructability and permitting challenges associated with these routes. Some examples include advancing routes involving work on Article 97 lands like Magazine Beach; MBTA railroad and subway tunnel crossings; routes that cross private properties planned for development by MIT, Harvard, and others; routes on Hampshire Street, Broadway, Cardinal Medeiros Avenue and Third Street in Kendall Square, and Lincoln Street in Allston, where there is particularly heavy utility congestion and limited space to install the transmission line. By means of this screening process, the Company determined that of the 79 original potential routes, 57 of these routes were inappropriate for further consideration as Candidate Routes and the remaining 22 routes were advanced for more detailed evaluation.

The rationale for dismissing these routes from further consideration is summarized on the following Tables 4-1 through 4-5.

Table 4-1 Summary of Routes Eliminated After Initial Screening (Brighton Study Area East)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
B2/B2B/B2C East	Cambridge, Boston	This route and related alignment variations across the MassDOT Multimodal Project Site were eliminated in response to feedback from MassDCR regarding the extent of work across Magazine Beach, potentially resulting in significant impacts to mature trees on the property and the availability of other less impactful alternatives proposed on the property (e.g., B2A/AN East).
B4 East	Cambridge, Boston	The City of Cambridge Public Works and Engineering Departments indicated that the route segment on Main Street between Ames Street and Sidney Street in Cambridge, is significantly constrained by existing utilities and other infrastructure including steam lines on both sides of the road (noting that work on Main Street should be avoided to the extent practicable). The MBTA Red Line subway tunnel is also located towards the center of the road with existing utilities on either side, adding further complexity to construction. Further, the City of Cambridge Public Works and Engineering Departments indicated that the segment of the route that follows River Street generally between Pleasant Street and Memorial Drive, is significantly constrained by existing utilities, likely making it technically infeasible to construct a new line and/or install splice vaults in this location. The BWSC indicated that Western Avenue on the west side of the Charles River between Soldiers Field Road and North Harvard Street in Boston is significantly constrained by existing utilities (including large diameter MWRA sewer line(s)) and should be avoided to the extent practicable. Harvard University provided similar input and noted the challenges of finding sufficient space in Western Avenue to install transmission line splice vaults.
B11 East	Cambridge, Boston	See discussion above for other routes involving work on Main Street and River Street in Cambridge including constraints associated with existing utilities, steam lines and shallow depth and location of MBTA Red Line subway tunnel. In addition, the BWSC indicated that the route segment that follows Western Avenue between the Western Avenue Bridge to North Harvard Street in Boston, is significantly constrained by existing utilities (including large diameter MWRA sewer line(s)) and should be avoided. Harvard provided similar input and noted the challenges of finding sufficient space in Western Avenue to install transmission line splice vaults.
B12 East	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Main Street in Cambridge. See discussion above for other routes involving work on Main Street and River Street in Cambridge, including significant constraints from existing utilities, MBTA Red Line subway tunnel with utilities on either side and steam lines.
B14 East	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Main Street in Cambridge. See discussion above for other routes involving work on this road, including significant utility constraints from existing steam lines and other infrastructure and the MBTA Red Line subway tunnel with utilities on either side.
B15 East	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Main Street in Cambridge. See discussion above for other routes involving work on this road, including significant utility constraints from existing steam lines and other infrastructure and the MBTA Red Line subway tunnel with utilities on either side.
B16 East	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Main Street in Cambridge. See discussion above for other routes involving construction on this road, including significant utility constraints from existing steam lines and other infrastructure and the MBTA Red Line subway tunnel with utilities on either side.
B19 East	Cambridge, Boston	This route was eliminated from further analysis because of the segments that follow Main Street and River Street in Cambridge and Western Avenue in Boston. See discussion above for other routes involving construction on these roads, including significant constraints from existing steam lines and other infrastructure, MBTA Red Line subway tunnel with utilities on either side, large diameter MWRA sewer lines, etc.
B21A[69]	Cambridge, Boston	This route was eliminated in response to feedback from MassDCR regarding the extent of work across Magazine Beach, potentially significant impacts to mature trees on the property and the availability of other less impactful alternatives proposed on the property. It was also eliminated because it would have resulted in substantial impacts to the Danny Lewin Park, opposite the New Substation site, and a difficult turn across a private driveway onto Galileo Galilei Way in Cambridge.

[69] Note that B21A does not head east or west from the New Substation. Rather, it heads south directly across Broadway and through a parcel of privately owned land before turning west towards Galileo Galilei Way.

Table 4-2 Summary of Routes Eliminated After Initial Screening (Brighton Study Area West)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
B1 West	Cambridge, Boston	This route was eliminated from further analysis because of the route segment that follows the Grand Junction Railroad corridor between Main Street and Massachusetts Avenue in Cambridge beneath MIT's Brain and Cognitive Sciences Building, which spans the railroad tracks via a tunnel / archway. The City of Cambridge Public Works and Engineering Departments and MIT also indicated that this stretch was not technically feasible from a construction perspective given existing infrastructure and significant utility constraints that pass beneath the MIT buildings (including steam lines).
B3 West	Cambridge, Boston	The City of Cambridge Public Works and Engineering Departments recommended that Eversource avoid work on Cambridge Street because of existing utility constraints and significant construction and permitting challenges at the Springfield Street intersection (Inman Square reconstruction project). In addition, the route segment that follows River Street between Putnam Avenue and Memorial Drive, is significantly constrained by existing utilities, making it technically infeasible to construct a new line and/or install splice vaults in this location.
B5 West	Cambridge, Boston	Like Route B4 East above, the City of Cambridge Public Works and Engineering Departments indicated that the route segment that follows River Street, generally between Pleasant Street and Memorial Drive, is significantly constrained by existing utilities, likely making it technically infeasible to construct a new line and/or install splice vaults in this location.
B6 West	Cambridge, Boston	The City of Cambridge Public Works and Engineering Departments recommended that Eversource avoid work on Cambridge Street because of existing utility constraints and significant construction and permitting challenges at the Springfield Street intersection (Inman Square reconstruction project). Construction would also be particularly challenging through the Cambridge Street Tunnel and should be avoided. The Harvard Square Plaza area also presents a significant challenge given the location of the existing historic headhouse (kiosk) and MBTA Harvard Square Subway Station and the Red Line subway tunnel located towards the center of Massachusetts Avenue with existing utilities on either side. The subway tunnel ceiling is also only about 18-inches deep in the square. The City of Cambridge Public Works and Engineering Departments did not see a viable route through the Harvard Square area.
B7 West	Cambridge, Boston	The City of Cambridge Public Works and Engineering Departments indicated that the route segment along Western Avenue, generally between Massachusetts Avenue and Memorial Drive, is significantly constrained by existing utilities (particularly at the intersection with Memorial Drive) and should be avoided. The City of Cambridge Public Works and Engineering Departments also indicated that utilities were recently replaced along Western Avenue and there is insufficient space within the roadway layout to accommodate construction of a new transmission line and/or splice vault installations without relocating these recently replaced utilities.
B8 West	Cambridge, Boston	The City of Cambridge Public Works and Engineering Departments recommended that Eversource avoid work on Harvard Street, generally between Prospect Street and Harvard Square (John F. Kennedy Street), because of significant existing utility constraints. Further, as noted above for Route B6, the Harvard Square area presents a significant challenge given the location of the existing historic headhouse (kiosk) and MBTA Harvard Square Subway Station and Red Line subway tunnel with existing utilities on either side. The City of Cambridge Public Works and Engineering Departments did not see a viable route through this area.
B9 West	Cambridge, Boston	Based on feedback from the City of Cambridge Public Works and Engineering Departments, the route segment on Cambridge Street and the Harvard Square area is unsuitable for a new transmission line and splice vault installation(s) for the reasons identified above for other routes that considered using these same roadway segments. Work on Broadway between Inman Street and Cambridge Street, is particularly challenging because of significant existing utility constraints, including Verizon's primary backbone telecommunications cable network.
B10 West	Cambridge, Boston	See discussion above for other routes involving work on Harvard Street and through the Harvard Square area in Cambridge. In addition, the route segment on Everett Street in the City of Boston between Soldier's Field Road and Aldie Street, is significantly constrained by existing Eversource electric distribution lines. The BWSC indicated that Everett Street is significantly constrained by other existing utilities including a 72-inch diameter storm drain (the road was recently reconstructed as part of a drainage improvement project) and that routes involving work on Everett Street should be avoided.
B13 West	Cambridge, Boston	This route was eliminated from further analysis because of the segments that follow Harvard Street and Massachusetts Avenue through Harvard Square in Cambridge; and Everett Street in Boston. See discussion above for other routes involving work on these roads, including significant constraints from existing utilities (steam and electric distribution lines) and the MBTA Red Line subway tunnel with utilities on either side.
B17 West	Cambridge, Boston	This route was eliminated from further analysis because of the segments that follow Western Avenue in Cambridge and Everett Street in Boston. See discussion above for other routes involving construction on these roads, including significant utility constraints from existing large diameter MWRA sewer line(s), electric distribution lines, large diameter storm drains and recent road re-construction work on Everett Street.
B18 West	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Everett Street in Boston. See discussion above for other routes involving work on this road, including significant constraints from existing electric distribution lines, large diameter storm drains, and recent road reconstruction work.
B20 West	Cambridge, Boston	This route was eliminated from further analysis because of the segments that follow River Street in Cambridge and Western Avenue in Boston. See discussion above for other routes involving construction on these roads, including significant constraints from existing utilities and large diameter MWRA sewer line(s), etc.

Table 4-2 Summary of Routes Eliminated After Initial Screening (Brighton Study Area West) (Continued)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
B21 West	Cambridge, Boston	This route was eliminated in response to feedback from MassDCR regarding the extent of work across Magazine Beach, potentially significant impacts to mature trees on the property and the availability of other less impactful alternatives proposed on the property.
B22 West	Cambridge, Boston	This route was eliminated from further analysis because of the segment that follows Everett Street in Boston. See discussion above for other routes involving work on this road, including significant constraints from existing electric distribution lines, large diameter storm drains, and recent road reconstruction work.
B24B	Cambridge, Boston	This route was eliminated from further analysis because of the additional work on Soldiers Field Road relative to Routes B24 and B24A and challenges and coordination issues associated with gaining access across the WBZ studio property that is being redeveloped by National Development.
B24C	Cambridge, Boston	This route was eliminated from further analysis because of the significant constructability and traffic management challenges associated with routing the line through the Eliot Bridge/Soldiers Field Road intersection, relative to Routes B24 and B24A.
B26 West	Cambridge, Boston	This route was eliminated from further analysis because the MBTA indicated that routing alongside the Framingham/Worcester Line commuter tracks in Allston was not feasible because of clearance requirements between the tracks and the retaining walls and bridge abutments that border the route.
B27 West	Cambridge, Boston	This route was eliminated from further analysis for the same reasons identified above for Route B26 West.
B28 West	Cambridge, Boston	This route was eliminated because it was not practicable to cross the Charles River on the MBTA trestle bridge.
B29 West	Cambridge, Boston	This route (and related alignment variations A through C below) were eliminated because it was not practicable to cross the Charles River on the MBTA trestle bridge.
B29A West	Cambridge, Boston	See B29 above.
B29B West	Cambridge, Boston	See B29 above.
B29C West	Cambridge, Boston	See B29 above.
B29D West	Cambridge, Boston	This route was eliminated because MIT asked that Eversource avoid crossing its property (former Cal-Paint site) due to potential soil contamination concerns and potential future development plans for the parcel, north of the Grand Junction Railroad Tracks on Albany Street.
B29E West	Cambridge, Boston	This route was eliminated because it was impracticable to cross the Grand Junction Railroad tracks in accordance with the MBTA Directorate at a nearly perpendicular crossing while avoiding work on the former Cal-Paint site and potential impacts to adjacent building foundations due to proximity of work during construction.

Table 4-3 Summary of Routes Eliminated After Initial Screening (Putnam Study Area)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
P14	Cambridge	This route was eliminated from further analysis because it was determined there was no viable way to extend the transmission line onto Memorial Drive from the Grand Junction Railroad corridor (Memorial Drive spans the railroad in this location at a substantially higher elevation and embankment relative to the railroad tracks).
P15	Cambridge	This route was eliminated from further analysis for the same reasons identified above for Route P14.

Table 4-4 Summary of Routes Eliminated After Initial Screening (Kendall Study Area)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
K1	Cambridge	This route was eliminated from further analysis because of the segment that follows Main Street and Ames Street. As previously noted, Main Street is significantly constrained by existing utilities including steam lines on both sides of the road and the MBTA Red Line subway tunnel with utilities on either side. In addition, Ames Street was identified as a more viable corridor for other routes leaving the New Substation Site within the Brighton and Putnam Study Areas, with the assumption that routes within the Kendall Study Area could be constructed without involving work on Ames Street (thus leaving Ames Street available as an option for other routes).
K2	Cambridge	This route was eliminated from further analysis because of the segment that follows Hayward Street and Wadsworth Street. The City of Cambridge Engineering and Public Works Departments indicated that Wadsworth Street is "packed" with utilities and was an impracticable option. Hayward Street was also determined not to be a viable option because of the existing MIT parking garage located beneath the street, connecting to either side.
K3	Cambridge	This route was eliminated from further analysis because of the segment that follows Ames Street. As previously noted, Ames Street was identified as a more viable corridor for other routes leaving the New Substation Site within the Brighton and Putnam Study Areas, with the assumption that routes within the Kendall Study Area could be constructed without involving work on Ames Street (thus leaving Ames Street available as an option for other routes).
K4	Cambridge	This route was eliminated from further analysis because of the segment that follows Main Street. As previously noted, Main Street is significantly constrained by existing utilities including steam lines on both sides of the road and the MBTA Red Line subway tunnel with existing utilities on either side.
K5	Cambridge	This route was eliminated because of significant utility congestion within the Third Street/Broadway intersection and because it would have required the removal of several mature public shade trees located on the middle median of Broadway, that Cambridge DPW indicated was not permittable.
K6	Cambridge	This route was eliminated for the same reasons described above for Route K5.
K7	Cambridge	This route was eliminated because it would bisect MIT's Volpe Center Site and significantly constrain future development by MIT.
K8	Cambridge	Like Route K7, this route was eliminated because it would bisect MIT's Volpe Center Site and significantly constrain future development by MIT.
K9	Cambridge	This route was eliminated due to existing utilities, presence of major steam tunnel infrastructure and shallow underground parking garage on Kendall Street.

Table 4-5 Summary of Routes Eliminated After Initial Screening (Somerville Study Area)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
S3	Cambridge, Somerville	This route was eliminated from further analysis because of the segment that follows Cambridge Street between Cardinal Medeiros Avenue and Webster Avenue (existing utility constraints and significant municipal roadway re-construction projects planned for this area). The City of Cambridge Public Works and Engineering Departments also recommended that to the greatest extent practicable Eversource avoid work on Cardinal Medeiros Avenue because of existing utility constraints and other significant construction projects.
S4	Cambridge, Somerville	This route was eliminated from further analysis because of the segment that follows Somerville Avenue between Linden Street and Prospect Street. The City of Somerville indicated that Somerville Avenue is significantly constrained by existing infrastructure, including installation of a substantial box culvert/drainage system, and does not likely have sufficient space to accommodate a new transmission line and/or splice vault installation and should be avoided.
S5	Cambridge, Somerville	This route was eliminated from further analysis because of the segment that follows Somerville Avenue between McGrath Highway and Prospect Street. As noted above, the City of Somerville indicated that this stretch of Somerville Avenue is significantly constrained by existing infrastructure, including installation of a substantial box culvert/drainage system, and does not likely have sufficient space to accommodate a new transmission line and/or splice vault installation. In addition, to reach Somerville Avenue, the line would require an impracticable east-west switchback bend radius beneath the McGrath Highway overpass on the MBTA commuter rail tracks, back to Somerville Avenue Extension and Somerville Avenue.
S6	Cambridge, Somerville	This route was eliminated from further analysis for the same reasons identified above for Route S4 (Somerville Avenue segment between Medford Street and Prospect Street).

Table 4-5 Summary of Routes Eliminated After Initial Screening (Somerville Study Area) (Continued)

Route ID	Municipalities Crossed by Route	Rationale for Dismissing Route from Further Analysis
S7	Cambridge, Somerville	This route was eliminated from further analysis for the same reasons identified above for Route S5 (Somerville Avenue segment between McGrath Highway and Prospect Street).
S8	Cambridge, Somerville	This route was eliminated from further analysis because of the segment located on the Prospect Street bridge, approaching the Somerville Substation facility. More specifically, the Prospect Street bridge is elevated above the eastern edge of the Somerville Substation over the MBTA commuter rail tracks, resulting in inadequate space to connect the transmission line to the substation with a reasonable bend radius.
S9	Cambridge, Somerville	This route was eliminated for the same reasons identified above for Route S8.
S10	Cambridge, Somerville	Like Route S5, this route was eliminated from further analysis because of the impracticable east-west switchback bend radius beneath the McGrath Highway overpass on the MBTA commuter rail tracks and the lack of space within the MBTA commuter rail track corridor to construct and operate a new transmission line without adverse effects to the commuter rail facilities.
S11	Cambridge, Somerville	This route was eliminated for the same reasons identified above for Route S10 (impracticable crossing of the MBTA commuter rail tracks beneath the McGrath Highway).
S11A	Cambridge, Somerville	This route was eliminated because it did not collocate with the future multi-use pathway proposed by the City of Cambridge along the Grand Junction Railroad corridor.
S11B	Cambridge, Somerville	This route was eliminated because it did not collocate with the future multi-use pathway proposed by the City of Cambridge along the Grand Junction Railroad corridor.
S14A	Cambridge, Somerville	This route was eliminated because it was unable to interconnect with the Somerville Substation due to constructability issues associated with the Prospect Street concrete retaining wall/bridge abutments, MBTA infrastructure associated with the new Green Line Extension train platform, inadequate space for trenchless construction to install the new transmission line beneath the Prospect Street Bridge, and the layout of the existing Somerville Substation equipment.

Tables 4-6 through 4-10 below provides a summary of the eliminated routes described above and the remaining 22 routes that were retained for scoring/ranking and more detailed analysis as Candidate Routes.

Table 4-6 Results of Route Selection After Initial Screening (Brighton Study Area East)

Route ID	Route Length (miles)	Municipalities Crossed by Route	Status
B2 East	2.94	Cambridge, Boston	Eliminated from Further Analysis
B2A East	2.91	Cambridge, Boston	Retained for Scoring
B4 East	3.23	Cambridge, Boston	Eliminated from Further Analysis
B11 East	3.13	Cambridge, Boston	Eliminated from Further Analysis
B12 East	2.75	Cambridge, Boston	Eliminated from Further Analysis
B14 East	2.89	Cambridge, Boston	Eliminated from Further Analysis
B15 East	2.89	Cambridge, Boston	Eliminated from Further Analysis
B16 East	3.11	Cambridge, Boston	Eliminated from Further Analysis
B19 East	3.11	Cambridge, Boston	Eliminated from Further Analysis
B21A	2.78	Cambridge, Boston	Eliminated from Further Analysis
B25 East	5.49	Cambridge, Boston	Retained for Scoring
B25A East	5.40	Cambridge, Boston	Retained for Scoring
B31 East	3.26	Cambridge, Boston	Retained for Scoring

Table 4-7 Results of Route Selection After Initial Screening (Brighton Study Area West)

Route ID[70]	Route Length (miles)	Municipalities Crossed by Route	Status
B1 West	2.82	Cambridge, Boston	Eliminated from Further Analysis
B3 West	3.84	Cambridge, Boston	Eliminated from Further Analysis
B5 West	2.63	Cambridge, Boston	Eliminated from Further Analysis
B6 West	3.76	Cambridge, Boston	Eliminated from Further Analysis
B7 West	3.39	Cambridge, Boston	Eliminated from Further Analysis
B8 West	3.20	Cambridge, Boston	Eliminated from Further Analysis
B9 West	3.33	Cambridge, Boston	Eliminated from Further Analysis
B10 West	4.08	Cambridge, Boston	Eliminated from Further Analysis
B13 West	3.64	Cambridge, Boston	Eliminated from Further Analysis
B17 West	4.35	Cambridge, Boston	Eliminated from Further Analysis
B18 West	4.31	Cambridge, Boston	Eliminated from Further Analysis

[70] Note that Route B23 West does not exist (it ultimately became Route B21 West during the route screening and selection process).

Table 4-7 Results of Route Selection After Initial Screening (Brighton Study Area West) (Continued)

Route ID[71]	Route Length (miles)	Municipalities Crossed by Route	Status
B20 West	3.00	Cambridge, Boston	Eliminated from Further Analysis
B21 West	2.80	Cambridge, Boston	Eliminated from Further Analysis
B22 West	4.15	Cambridge, Boston	Eliminated from Further Analysis
B24 West	4.14	Cambridge, Boston	Retained for Scoring
B24A West	4.05	Cambridge, Boston	Retained for Scoring
B24B West	4.07	Cambridge, Boston	Eliminated from Further Analysis
B24C West	3.95	Cambridge, Boston	Eliminated from Further Analysis
B26 West	2.83	Cambridge, Boston	Eliminated from Further Analysis
B27 West	2.84	Cambridge, Boston	Eliminated from Further Analysis
B28 West	2.79	Cambridge, Boston	Eliminated from Further Analysis
B29 West	2.84	Cambridge, Boston	Eliminated from Further Analysis
B29A West	2.85	Cambridge, Boston	Eliminated from Further Analysis
B29B West	2.81	Cambridge, Boston	Eliminated from Further Analysis
B29C West	2.91	Cambridge, Boston	Eliminated from Further Analysis
B29D West	3.01	Cambridge, Boston	Eliminated from Further Analysis
B29E West	2.99	Cambridge, Boston	Eliminated from Further Analysis
B29F West	3.00	Cambridge, Boston	Retained for Scoring
B30 West	3.43	Cambridge, Boston	Retained for Scoring

Table 4-8 Results of Route Selection After Initial Screening (Putnam Study Area)

Route ID[72]	Route Length (miles)	Municipalities Crossed by Route	Status
P11	0.87	Cambridge	Retained for Scoring
P12	1.44	Cambridge	Retained for Scoring
P13	0.49	Cambridge	Retained for Scoring
P14	1.53	Cambridge	Eliminated from Further Analysis
P15	1.76	Cambridge	Eliminated from Further Analysis

[71] Note that Route B23 West does not exist (it ultimately became Route B21 West during the route screening and selection process).

[72] Routes within the Putnam Study Area begin with "P11".

Table 4-9 Results of Route Selection After Initial Screening (Kendall Study Area)

Route ID	Route Length (miles)	Municipalities Crossed by Route	Status
K1	1.74	Cambridge	Eliminated from Further Analysis
K2	0.94	Cambridge	Eliminated from Further Analysis
K3	1.27	Cambridge	Eliminated from Further Analysis
K4	0.55	Cambridge	Eliminated from Further Analysis
K5	0.65	Cambridge	Eliminated from Further Analysis
K5A	0.59	Cambridge	Retained for Scoring
K6	0.73	Cambridge	Eliminated from Further Analysis
K6A	0.67	Cambridge	Retained for Scoring
K7	0.63	Cambridge	Eliminated from Further Analysis
K8	0.64	Cambridge	Eliminated from Further Analysis
K9	0.47	Cambridge	Eliminated from Further Analysis
K10	0.63	Cambridge	Retained for Scoring
K11	0.61	Cambridge	Retained for Scoring
K12	0.69	Cambridge	Retained for Scoring

Table 4-10 Results of Route Selection After Initial Screening (Somerville Study Area)

Route ID[73]	Route Length (miles)	Municipalities Crossed by Route	Status
S1A	1.25	Cambridge, Somerville	Retained for Scoring
S3	1.36	Cambridge, Somerville	Eliminated from Further Analysis
S4	1.48	Cambridge, Somerville	Eliminated from Further Analysis
S5	1.65	Cambridge, Somerville	Eliminated from Further Analysis
S6	1.39	Cambridge, Somerville	Eliminated from Further Analysis
S7	1.42	Cambridge, Somerville	Eliminated from Further Analysis
S8	1.14	Cambridge, Somerville	Eliminated from Further Analysis

[73] Note that Route S2 does not exist (it ultimately became Route S13 during the route screening and selection process).

Table 4-10 Results of Route Selection After Initial Screening (Somerville Study Area) (Continued)

Route ID[74]	Route Length (miles)	Municipalities Crossed by Route	Status
S9	1.26	Cambridge, Somerville	Eliminated from Further Analysis
S10	1.47	Cambridge, Somerville	Eliminated from Further Analysis
S11	1.64	Cambridge, Somerville	Eliminated from Further Analysis
S11A	1.74	Cambridge, Somerville	Eliminated from Further Analysis
S11B	1.56	Cambridge, Somerville	Eliminated from Further Analysis
S11C	1.56	Cambridge, Somerville	Retained for Scoring
S12	1.48	Cambridge, Somerville	Retained for Scoring
S13	1.57	Cambridge, Somerville	Retained for Scoring
S13A	1.82	Cambridge, Somerville	Retained for Scoring
S14	1.38	Cambridge, Somerville	Retained for Scoring
S14A	1.31	Cambridge, Somerville	Eliminated from Further Analysis

4.5.3 Review of Candidate Routes

A detailed description of the 22 Candidate Routes advanced for more detailed analysis, scoring and ranking is presented below.

4.5.3.1 Brighton Study Area

Eastern Routes

The Company identified four Candidate Routes in the eastern half of the Brighton Study Area.

[74] Note that Route S2 does not exist (it ultimately became Route S13 during the route screening and selection process).

Candidate Route B2A East (Magazine Beach HDD)

Candidate Route B2A East is approximately 2.91 miles long and is located in Cambridge and Boston (see Figure 4-5). This route heads east from the New Substation Site in Cambridge onto Broadway before turning south onto Ames Street. The segment of Candidate Route B2A East between the New Substation Site on Broadway to Ames Street is bordered by laboratory space, research and development facilities, pharmaceutical and biotechnology companies. Broadway is a wide (approximately 60 to 70-feet), well-travelled roadway with several lanes of two-way vehicular traffic, sidewalks on both sides of the road and dedicated bike lanes. MassDOT's functional classification of Broadway is a principal urban arterial roadway.[75]

The route follows Ames Street through the Main Street intersection, and the MBTA Red Line subway tunnel beneath it, to the intersection with Memorial Drive. The Ames Street segment of this route south of Main Street is bordered entirely by MIT campus facilities located on either side of the road, including its media lab and visual arts center, biology department, student housing, lab space, research facilities and courtyard/green space. Ames Street accommodates two-way vehicular traffic with on-street parking and dedicated bike lanes and sidewalks. Ames Street is classified by MassDOT as a major collector roadway.[76]

At Memorial Drive, the route turns to the west following the east bound lanes to MassDCR's Magazine Beach property. The Memorial Drive segment is located within the Charles River Reservation and is under the care and custody of MassDCR. Memorial Drive is a 3.9-mile parkway along the north bank of the Charles River in Cambridge. It runs parallel with two major Boston parkways (Soldiers Field Road and Storrow Drive), which run parallel with the south bank of the Charles River. The western terminus of Memorial Drive is in West Cambridge at Greenough Boulevard and Fresh Pond Parkway. The eastern terminus of Memorial Drive is at Main Street and the Longfellow Bridge near Kendall Square. Memorial Drive is classified by MassDOT as an urban principal arterial roadway. The Memorial Drive route segment is bordered by the Charles River to the south, including several sailing pavilions and boathouses, MassDCR's Magazine Beach property and the Dr. Paul Dudley White Bike Path up to the River Street Bridge. The north side of Memorial Drive along this same segment of roadway is predominantly bordered by MIT campus facilities. There are areas of commercial properties including banks, pharmaceutical companies, restaurants and coffee shops and a hotel (Courtyard Marriott).

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[75] Functional classifications are used by MassDOT and the Federal Highway Administration. Classifications are determined by the road type and characteristics of the vehicles using the road (see https://gis.massdot.state.ma.us/roadinventory/). An arterial road is a high-capacity road. The primary function of an arterial road is to deliver traffic from collector roads to freeways, and between urban centers at the highest level of service possible. As such, many arterials are limited-access roads, or feature restrictions on private access.

[76] A collector road is a low-to-moderate-capacity road that serves to move traffic from local streets to arterial roads.

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

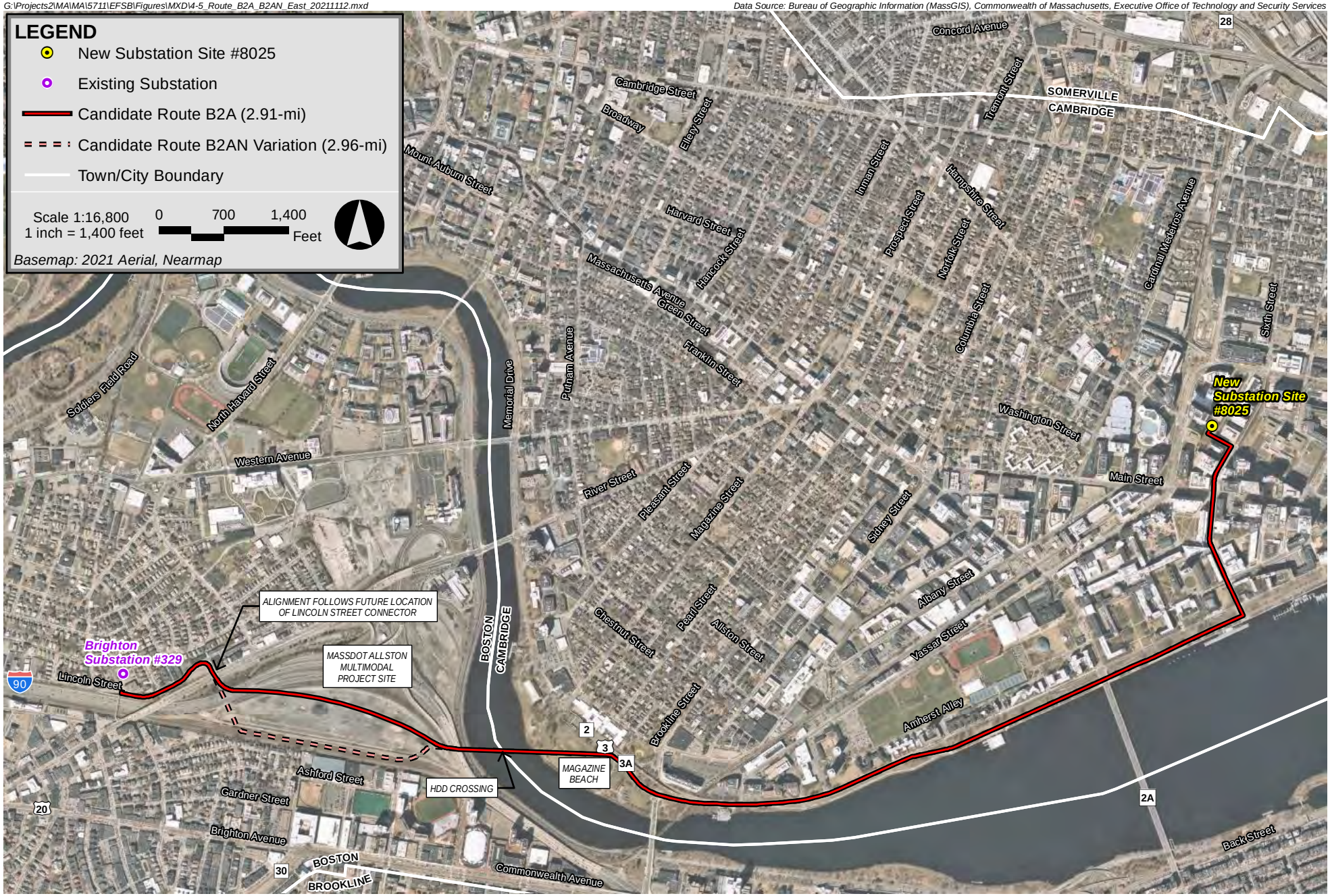

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Figure 4-5

Candidate Route B2A/B2AN East (Magazine Beach HDD)

At Magazine Beach, the route crosses beneath the Charles River into Boston via HDD. The limits of the HDD work will be located on the edge of the Magazine Beach property as close to Memorial Drive as practicable to avoid impacts to existing trees, athletic fields, and the outdoor gym space (see Section 5 of Petition for additional detail). After crossing beneath the Charles River, Soldier's Field Road and I-90 the HDD would extend onto MassDOT's Allston Multimodal Project site, which is presently disturbed and altered by existing roadway and rail facilities and is largely devoid of any vegetation. The route then transitions to open trench construction following the general alignment of the anticipated future location of the Lincoln Street Connector that is being constructed as part of MassDOT's Allston Multimodal Project. The route segment along Cambridge Street, Empire Street and Lincoln Street up to the Brighton Substation connection is predominantly bordered by mixed commercial/industrial uses and residential properties. Cambridge Street is classified by MassDOT as minor arterial roadway. Empire Street is classified by MassDOT as a local roadway and Lincoln Street is classified as major collector roadway.

The Company also evaluated a route variation to Route B2A East associated with the orientation of the HDD path across the MassDOT Allston Multimodal Project Site. This alignment variation, referred to as Route B2AN East. The "N" stands for "no-build" and represents a potential workaround route across the MassDOT Multimodal Project site should that separate project not be advanced to construction. This route variation does not add any appreciable length (approximately 0.05 miles) relative to Candidate Route B2A, and generally runs parallel with the southerly property line. This route variation provides routing flexibility should the MassDOT Allston Multimodal Project not be advanced into construction as currently proposed, while also minimizing potential future development constraints to the present landowner (Harvard) should it seek to develop this property in the future.

Candidate Route B25 East (Herter Park HDD and Memorial Drive)

Candidate Route B25 East is approximately 5.49 miles long and is in Cambridge and Boston (see Figure 4-6). This routes heads east from the New Substation Site in Cambridge onto Broadway before turning south onto Ames Street to Memorial Drive. This route crosses over the MBTA Red Line subway tunnel at the Ames Street/Memorial Drive intersection. As with Candidate Route B2A East above, the Ames Street segment between Main Street and Memorial Drive is bordered entirely by the same MIT campus facilities located on either side of the road; and is comprised of the same segment of Ames Street with two-way vehicular traffic, on-street parking and dedicated bike lanes and sidewalks and classification as a major collector roadway by MassDOT.

At Memorial Drive, the route turns to the west (following the east bound lanes of Memorial Drive) to the Reid Rotary at the B.U. Bridge, continuing west on Memorial Drive. The Memorial Drive segment is as described above for Candidate Route B2A East. As noted therein, Memorial Drive is located within the Charles River Reservation and is under the care and custody of MassDCR. To properly align the proposed HDD crossing of the Charles River from Longfellow (Riverbend) Park, Candidate Route B25 East turns north from Memorial Drive onto Ash Street and then west onto Mt. Auburn Street and onto Longfellow (Riverbend) Park. The Ash Street segment is about 500-

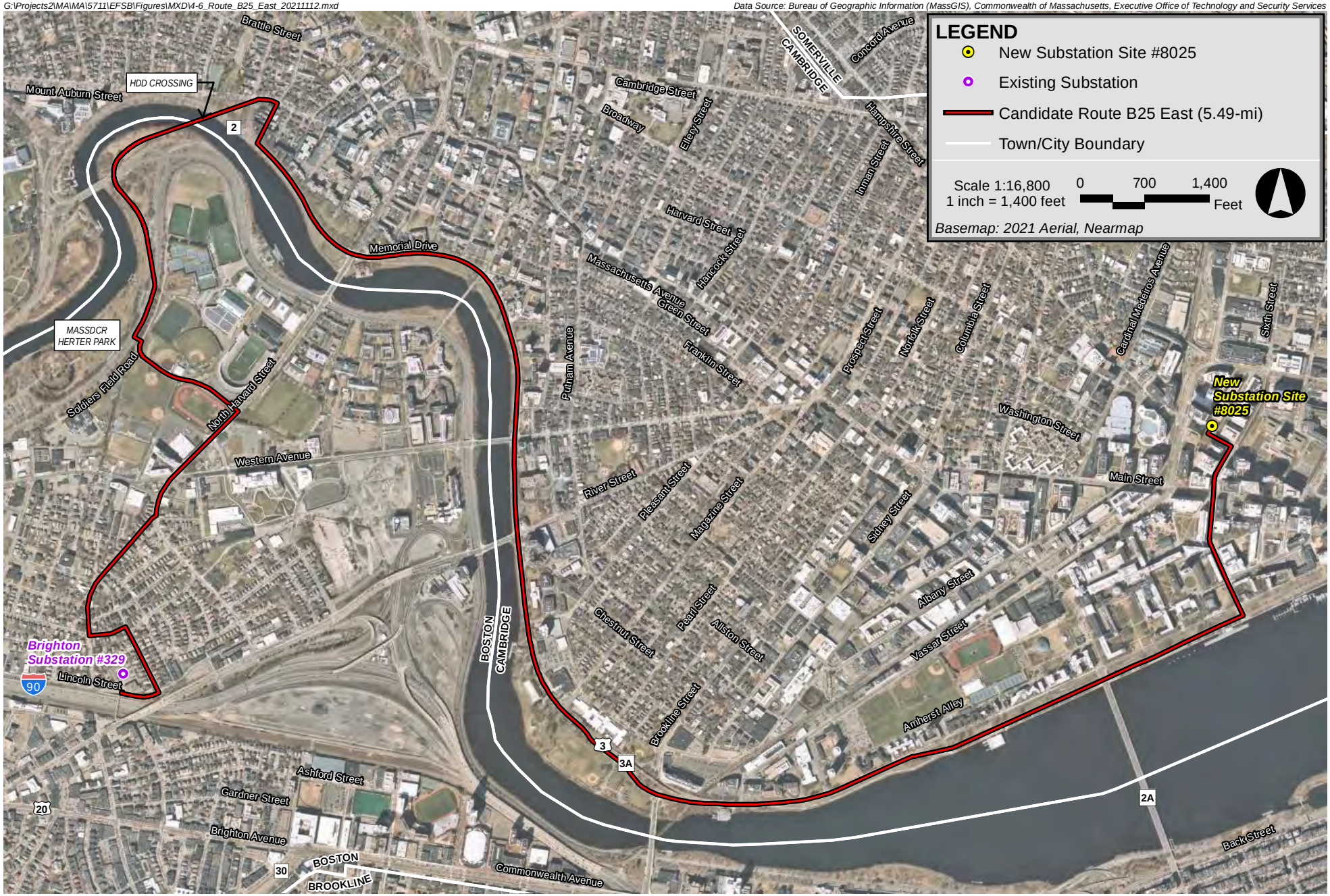

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Figure 4-6

Candidate Route B25 East (Herter Park HDD and Memorial Drive)

feet long. Ash Street is bordered by residential properties including apartments and condominium complexes. Ash Street accommodates one-way vehicular traffic, has sidewalks on both sides and on-street parking. Ash Street is classified by MassDOT as a local roadway. From this point forward, the route follows the same alignment as Candidate Route B24 West (see description below) and passes by the same land uses described above except that, instead of following Franklin Street to the Brighton Substation, this route follows Franklin Street to Bradbury Street and Mansfield Street before terminating at the Brighton Substation facility.

Candidate Route B25A East (Herter Park HDD and Harvard Athletic Complex)

Candidate Route B25A East is approximately 5.4 miles long and is located in Cambridge and Boston (see Figure 4-7 on the following page). This route follows the same alignment described above for Route B25 East. However, instead of crossing the Harvard University athletic complex in an east-west direction to North Harvard Street, this route would generally follow the Harvard University property line before turning south towards the Smith Playground and Western Avenue. The route would then cross Western Avenue onto Spurr Street before turning south onto North Harvard Street. From this point forward, the route would follow the same alignment described above for Candidate Route B25 East to the Brighton Substation.

Candidate Route B31 East (River Street Bridge)

Candidate Route B31 East is approximately 3.26 miles long and is located in Cambridge and Boston (see Figure 4-8 on page 4-42). This route heads east from the New Substation Site in Cambridge onto Broadway before turning south onto Ames Street. The route follows Ames Street up to its intersection with Memorial Drive. This route crosses over the MBTA Red Line subway tunnel at the Ames Street / Memorial Drive intersection. At Memorial Drive, the route turns to the west (following the eastbound lanes of Memorial Drive) to the Reid Rotary at the B.U. Bridge, continuing west on Memorial Drive to the River Street Bridge. At this location, the route turns to the west across the River Street Bridge, over the Charles River, and onto Cambridge Street in Boston. The River Street Bridge is under the care and custody of MassDOT, connecting River Street in Cambridge, to Cambridge Street in Boston near the southern end of the Harvard University campus. The arch-style bridge carries one-way vehicular traffic going east, into Cambridge. Westbound traffic must take the nearby Western Avenue Bridge. There are sidewalks on both sides of the bridge. MassDOT classifies River Street as a principal arterial roadway. The bridge crossing would be accomplished by installing the cable in the bridge deck/roadway pavement.[77]

[77] MassDOT indicated to Eversource that it is moving forward with certain repairs and upgrades to the River Street Bridge and confirmed there is sufficient space within the roadway deck to accommodate a new transmission line.

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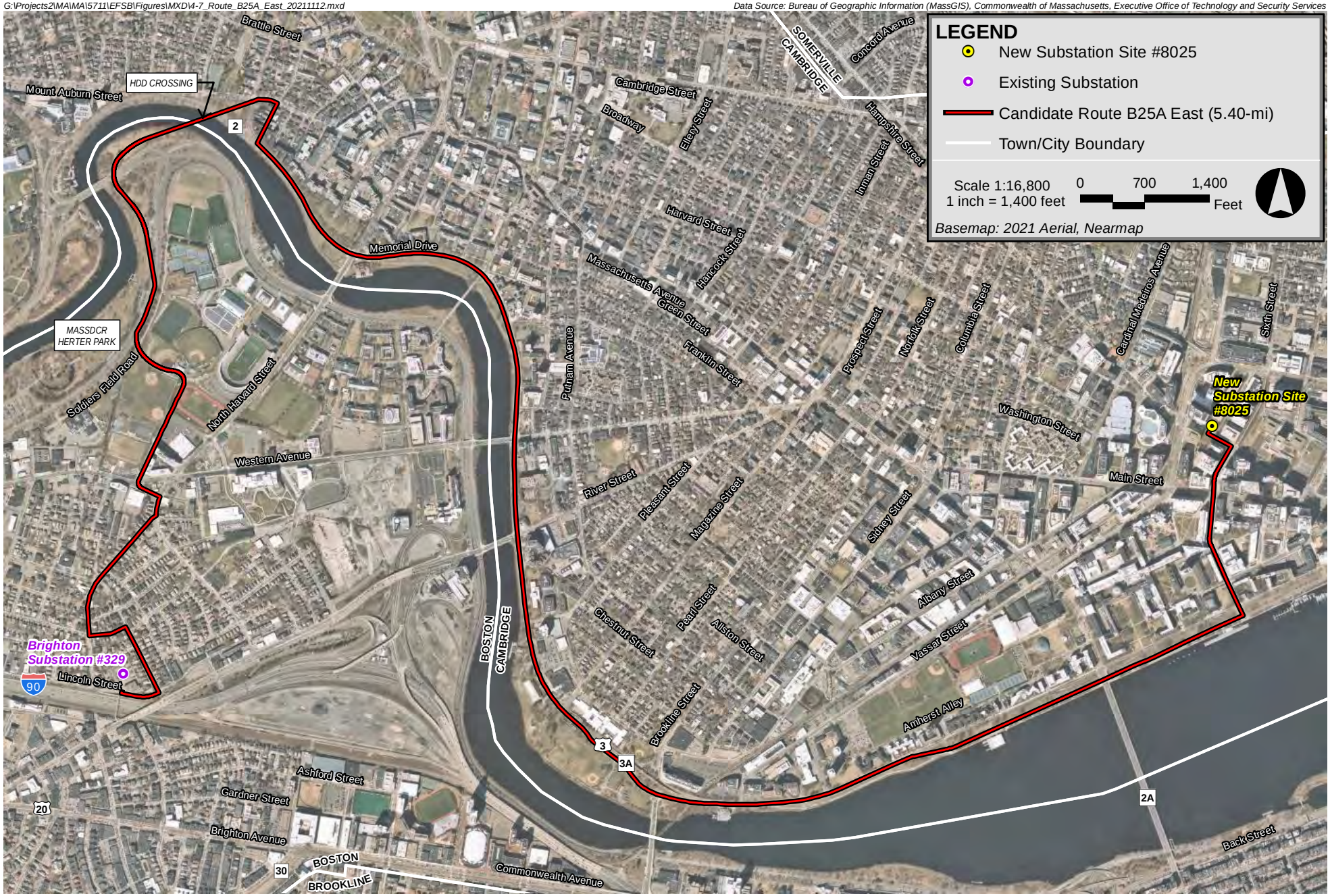

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Figure 4-7

Candidate Route B25A East (Herter Park HDD and Harvard Athletic Complex)

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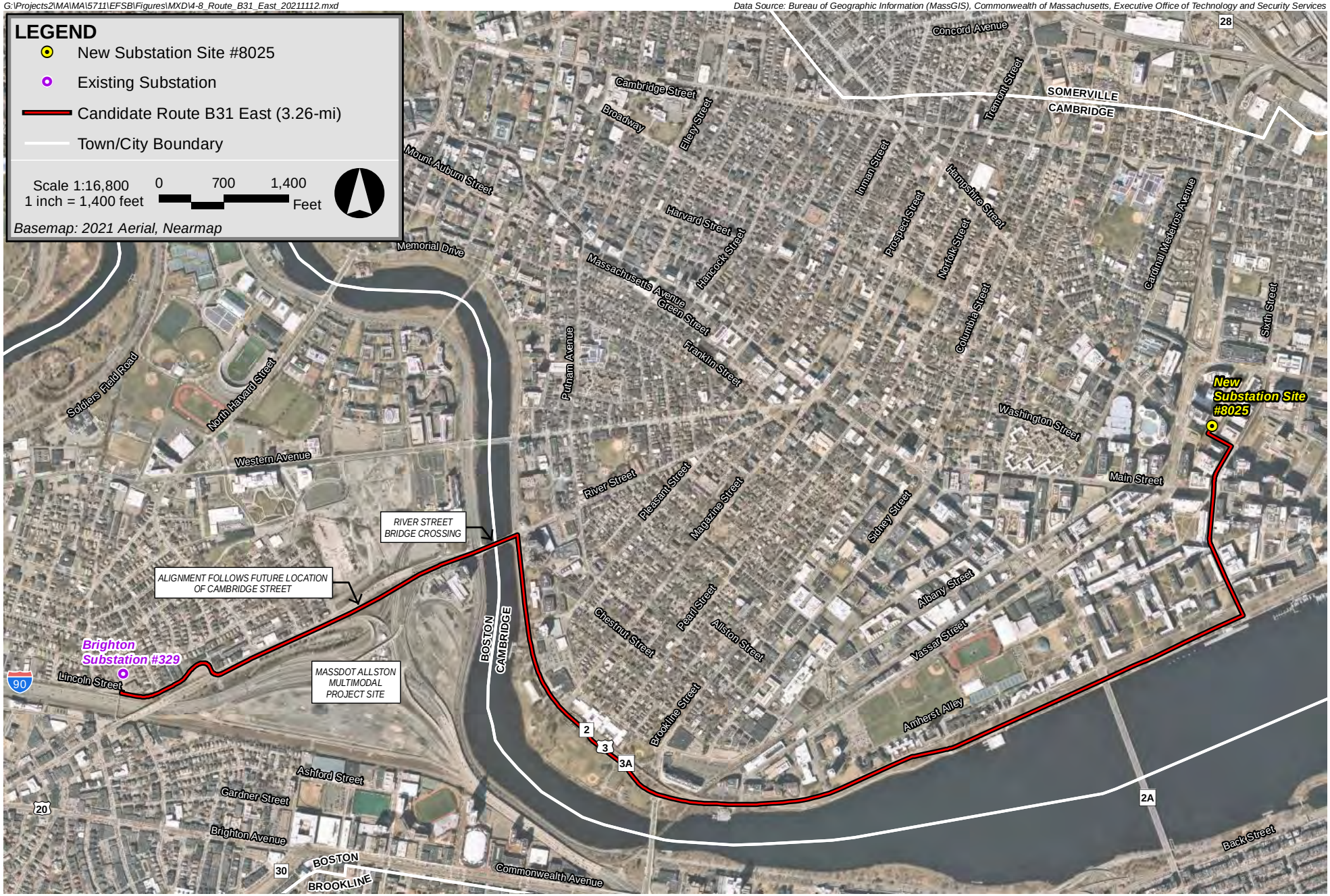

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Figure 4-8

Candidate Route B31 East (River Street Bridge)

On the Boston side of the Charles River, the route would cross over the I-90 ramps following the approximate location of the future planned Cambridge Street reconstruction at-grade as part of MassDOT's Allston Multimodal Project (the route cannot be constructed along the existing elevated section of Cambridge Street that spans the I-90 ramps). After passing through a short stretch (approximately 500 feet) of wooded area adjacent to the roadway shoulder within the state highway layout, the route transitions back onto Cambridge Street until it reaches Lincoln Street. The route follows Lincoln Street to the Brighton Substation.

Land uses bordering the route and MassDOT roadway classifications are the same as those described above for Candidate Route B25 East, including the River Street Bridge crossing of the Charles River.

Western Routes

The Company identified four Candidate Routes in the western half of the Brighton Study Area.

Candidate Route B24 West (Herter Park HDD and Mount Auburn Street)

Candidate Route B24 West is approximately 4.14 miles long and is located in Cambridge and Boston (see Figure 4-9 on the following page). This route heads west from the New Substation Site in Cambridge onto Broadway Street before turning south onto Prospect Street, through the Central Square area, and west onto Western Avenue and Green Street. The Broadway Street segment between the Hampshire Street intersection and Prospect Street passes through residential neighborhoods, commercial land uses, restaurant space, convenience stores, an elementary school (Fletcher Maynard Academy) and Sennott Park, a municipal park land situated adjacent to a local youth center at the corner of Norfolk Street. It is comprised of multi-purpose playing fields, a playground, water play, basketball courts, green space, and walking paths. Broadway accommodates two-way vehicular traffic, has sidewalks on both sides, on-street parking, and dedicated bike lanes. This stretch of Broadway is classified by MassDOT as a minor arterial roadway.

The Prospect Street route segment is not dissimilar from the Broadway in that it is bordered by a mix of residential development (including apartment complexes), commercial space and an urgent care medical facility (Mass General Brigham Urgent Care). Prospect Street accommodates two-way vehicular traffic, has sidewalks on both sides, on-street parking, and dedicated bike lanes. This stretch of Prospect Street is classified by MassDOT as a minor arterial roadway.

From Prospect Street, the route crosses over Massachusetts Avenue (including the MBTA Red Line subway tunnel) onto Western Avenue/River Street to Green Street. Green Street is bordered by several types of facilities including the Cambridge Senior Center, YMCA, U.S. Postal Service facility, convenience stores, several surface parking lots, apartment complexes, restaurants, office space residential neighborhoods. Green Street accommodates one-way vehicular traffic with on-street parking and sidewalks on both sides of the road. Green Street is classified by MassDOT as a local roadway.

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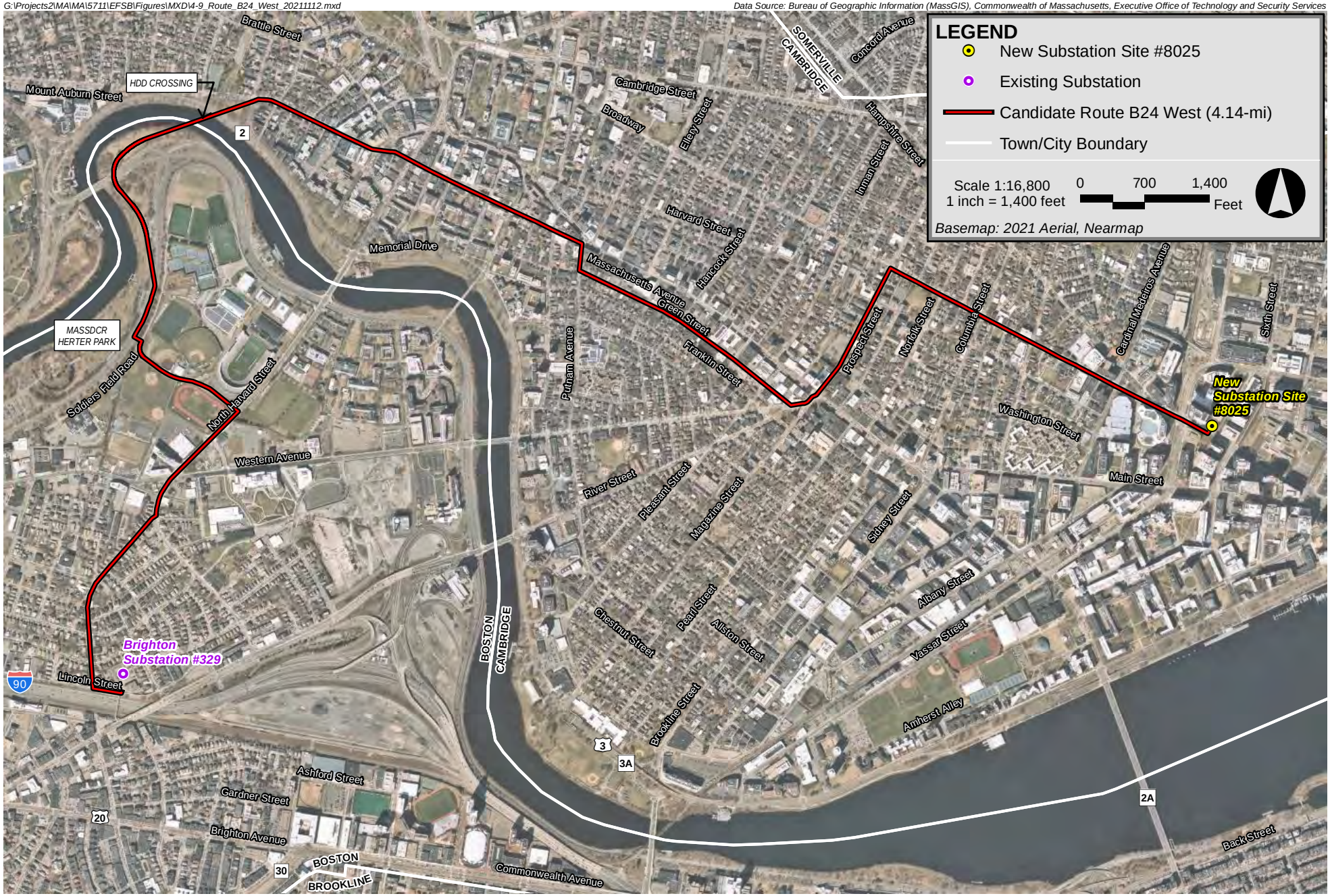

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Figure 4-9

Candidate Route B24 West (Herter Park HDD and Mount Auburn Street)

From Green Street, the route follows Putnam Avenue to Mt. Auburn Street. The Putnam Avenue segment is relatively short (about 300-feet) and is bordered by residential properties and commercial office space as it approaches Mt. Auburn Street. Putnam Avenue accommodates two-way vehicular traffic, has sidewalks on both sides and on-street parking. Putnam Avenue is classified by MassDOT as a minor arterial roadway.

The Mt. Auburn Street segment to Longfellow (Riverbend) Park is predominantly bordered by mixed commercial uses, office space, places of worship, restaurants and coffee shops and residential neighborhoods. The properties of Harvard University border a significant segment of this route. Mt. Auburn Street accommodates one-way vehicular traffic for much of its length, has sidewalks on both sides, on-street parking in select locations and dedicated bike lanes. It is classified by MassDOT as a principal arterial roadway.

From Longfellow (Riverbend) Park, the route crosses Memorial Drive and the Charles River via HDD. The entry/exit pit would be situated towards the northeast corner of the park, near Mt. Auburn Street. On the Boston side of the Charles River, the HDD entry/exit pit would likely be situated towards the center of the open grassed area within MassDCR's Herter Park, between Soldiers Field Road and the Charles River. Herter Park accommodates several facilities and uses including the Dr. Paul Dudley White bike path, green space, public shade trees, seating, and picnic areas for the public and several large surface parking lots. There is also a canoe/kayak rental facility in the park. The route travels through Herter Park, largely running parallel with the Dr. Paul Dudley White Path, to the Eliot Bridge and Soldier's Field Road. A second trenchless crossing would occur in this location to cross beneath Soldiers Field Road and access Herter Park on the south side.

The route then crosses through Herter Park to Soldier's Field Road for a relatively short distance (approximately 700 feet), crossing the median and turning east onto Harvard University's athletic facility complex. The segment of Soldiers Field Road is classified by MassDOT as an urban principal arterial roadway. Soldiers Field Road accommodates two-way vehicular traffic (with a median strip and curbing in the middle) and sidewalks or grassed shoulders on either side.

The route then follows an existing Harvard University campus access drive and parking lot in an east-west direction across the athletic field complex to reach North Harvard Street. The North Harvard Street segment is bordered by Harvard University facilities for much of its length, as well as by mixed commercial uses (supermarket, gas station, coffee shop, etc.) and pockets of residential neighborhoods. North Harvard Street accommodates two-way vehicular traffic, has sidewalks on both sides, on-street parking, and dedicated bike lanes. It is classified as a principal arterial roadway by MassDOT.

The balance of the route follows Franklin Street to Brighton Substation on Lincoln Street. Franklin Street is predominantly bordered by residential neighborhoods and some commercial uses (laundromat, convenience stores, etc.). Franklin Street accommodates two-way vehicular traffic, has sidewalks on both sides, some on-street parking and dedicated bike lanes. It is classified as a local roadway by MassDOT.

Candidate Route B24A West (Herter Park HDD and WBZ Site)

Candidate Route B24A West is approximately 4.05 miles long and is located in Cambridge and Boston (see Figure 4-10). This route follows the same alignment described above for Candidate Route B24. However, instead of crossing Harvard University's athletic field complex, the route follows Soldier's Field Road in a westerly direction before turning to the southeast across the National Development/WBZ-TV studio property, parallel to the City of Boston's William E. Smith Playground, to Western Avenue. As previously noted, this studio property is scheduled to be redeveloped with a new television studio and life science facilities.[78] The transmission line alignment would follow the approximate location of National Development's utility corridor and internal circulation drive. The route then turns east onto Western Avenue and then southeast to Spurr Street. From Spurr Street, the route turns to the southwest along Franklin Street before turning east to Bradbury Street, south to Mansfield Street and west to Lincoln Street before entering the Brighton Substation from the south.

The length of the short segment along Western Avenue is approximately 400 feet. In this location, Western Avenue is predominantly bordered by Harvard University campus facilities and the municipal playground. Western Avenue accommodates two-way vehicular traffic, has sidewalks on both sides and on-street parking. Western Avenue is classified as a principal arterial roadway by MassDOT.

Spurr Street is a short connector road between Western Avenue and Franklin Street. It is bordered by a Dunkin Donuts and gas station facility. Spurr Street accommodates one-way vehicular traffic, has sidewalks on both sides and on-street parking. It is classified as a local roadway by MassDOT.

The balance of the route follows Franklin Street to Brighton Substation on Lincoln Street, as described above for Candidate Route B24 West.

Candidate Route B29F West (River Street Bridge)

Candidate Route B29F West is about 3 miles long and is located in Cambridge and Boston (see Figure 4-11). This route heads west from the New Substation Site in Cambridge onto Broadway before turning south onto Galileo Way to Vassar Street. The majority of Vassar Street is bordered by MIT's campus on both sides of the road. The route follows Vassar Street before crossing northwest through a parking lot, a portion of which is owned by MIT and the MBTA. From this point, the route crosses the Grand Junction Railroad using a trenchless construction technique to reach a parking lot on a second parcel of land owned by MIT (referred to as #634 Memorial Drive). The route then follows Waverly Street to Brookline Street through the Reid Rotary at the B.U.

[78] See http://www.bostonplans.org/projects/development-projects/1170-1200-soldiers-field-road

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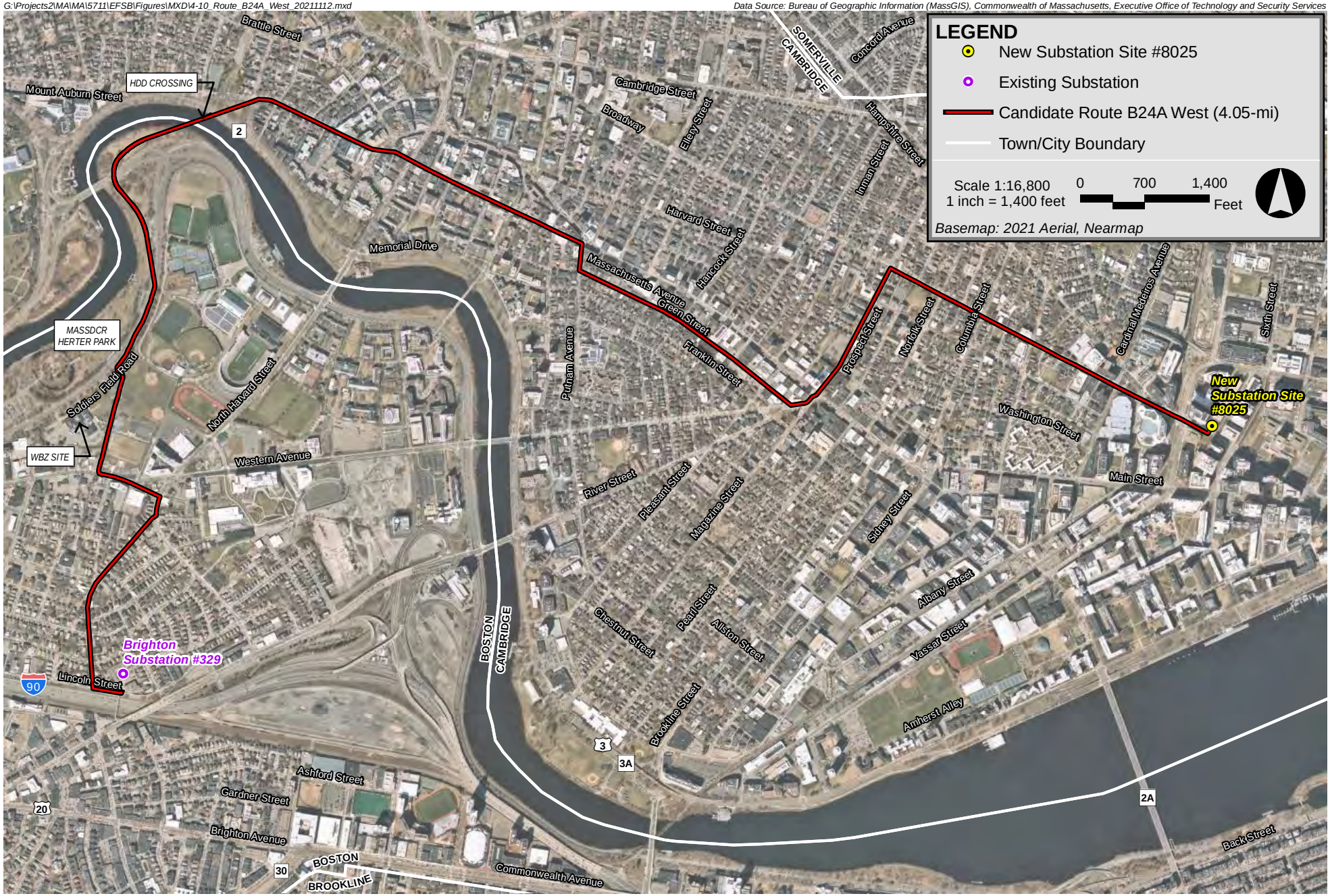

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Figure 4-10

Candidate Route B24A West (Herter Park HDD and WBZ Site)

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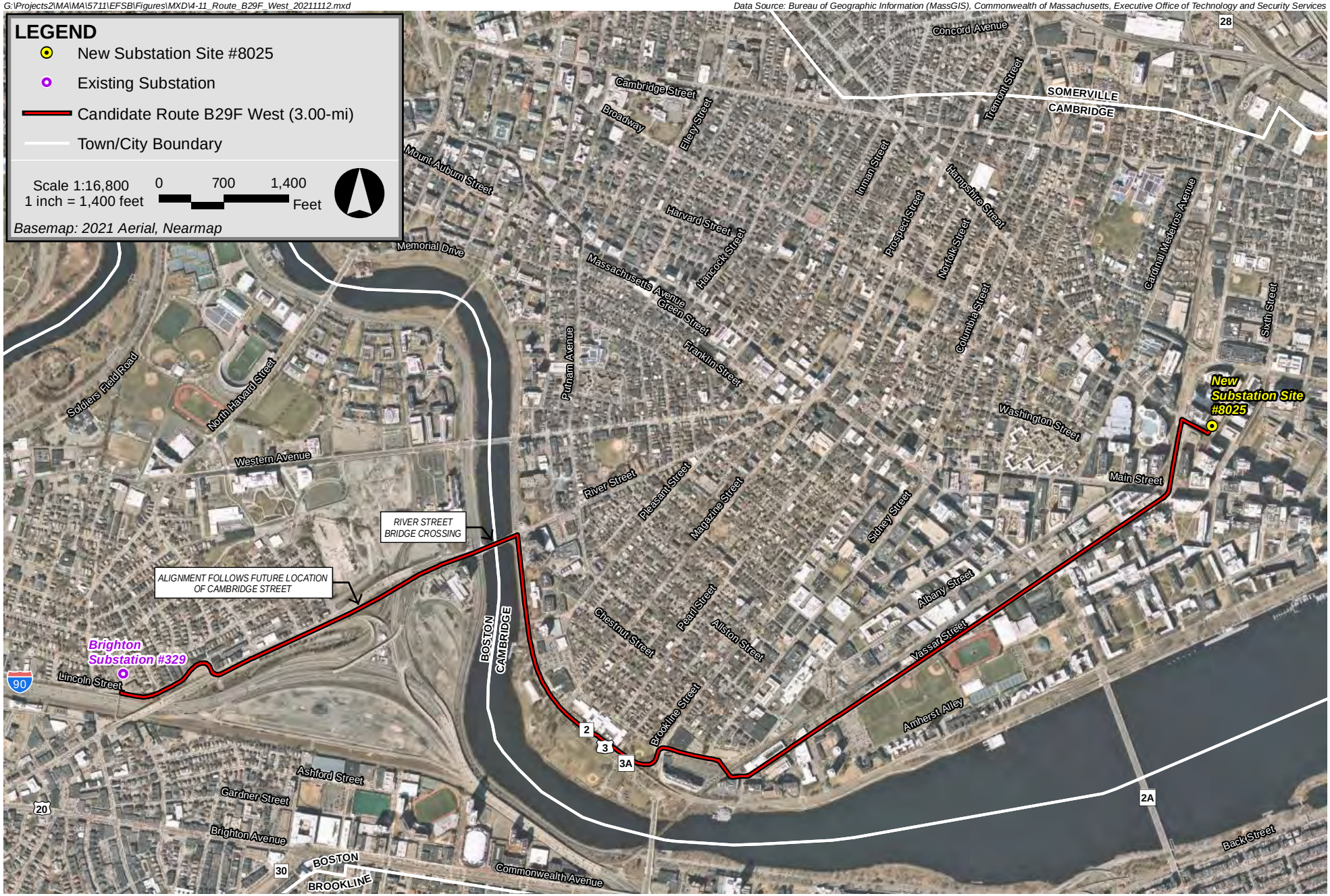

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Figure 4-11

Candidate Route B29F West (River Street Bridge)

Bridge, continuing west on Memorial Drive to the River Street Bridge. The Waverly Street segment is bordered by residential apartments, commercial properties, and MIT campus facilities. The Morse Elementary School and playground area borders Brookline Street approaching the Reid Rotary and Memorial Drive. From Memorial Drive, the route turns to the west across the River Street Bridge, over the Charles River, and onto Cambridge Street in Boston.

As was described for Candidate Route B31 East, the River Street Bridge is under the care and custody of MassDOT, connecting River Street in Cambridge, to Cambridge Street in Boston near the southern end of the Harvard University campus. The arch-style bridge carries one-way vehicular traffic going east into Cambridge. Westbound traffic must take the nearby Western Avenue Bridge. There are sidewalks on both sides of the River Street Bridge. MassDOT classifies River Street as a principal arterial roadway. The bridge crossing would be accomplished by installing the cable in the bridge deck/roadway pavement.[79]

On the Boston side of the Charles River, the route would cross over the I-90 ramps following the approximate location of Cambridge Street after it is reconstructed at-grade as part of MassDOT's Allston Multimodal Project (the route cannot be constructed along the existing elevated section of Cambridge Street that spans the I-90 ramps). After passing through a short stretch (approximately 500 feet) of wooded area adjacent to the roadway shoulder within the state highway layout, the route transitions back onto Cambridge Street until it reaches Lincoln Street. The route follows Lincoln Street to the Brighton Substation.

Candidate Route B30 West (Anderson Bridge)

Candidate Route B30 West is approximately 3.43 miles long and is located in Cambridge and Boston (see Figure 4-12 on the following page). As with Candidate Route B24 West described above, this route heads west from the New Substation Site in Cambridge onto Broadway before turning south onto Prospect Street and then west onto Western Avenue and Green Street. The route crosses over the MBTA Red Line subway tunnel on Massachusetts Avenue. The route follows Green Street to Putnam Avenue where it turns north and then west onto Mt. Auburn Street. The route follows Mt. Auburn Street to John F. Kennedy Street. The route segment located on John F. Kennedy Street is predominantly bordered by Harvard University campus facilities including the Harvard Kennedy School of Government, student dormitories and restaurants/cafes. In addition to the Charles River Reservation along the Charles River, there are two areas of open space bordering John F. Kennedy Street. The first public open space is Winthrop Square, located at the intersection of John F. Kennedy Street and Mount Auburn Street. This parcel contains footpaths, greenspace,

[79] As with Candidate Route B31 East, MassDOT indicated to Eversource that it is moving forward with certain repairs and upgrades to the River Street Bridge and that there is sufficient space within the roadway deck to accommodate the new transmission line.

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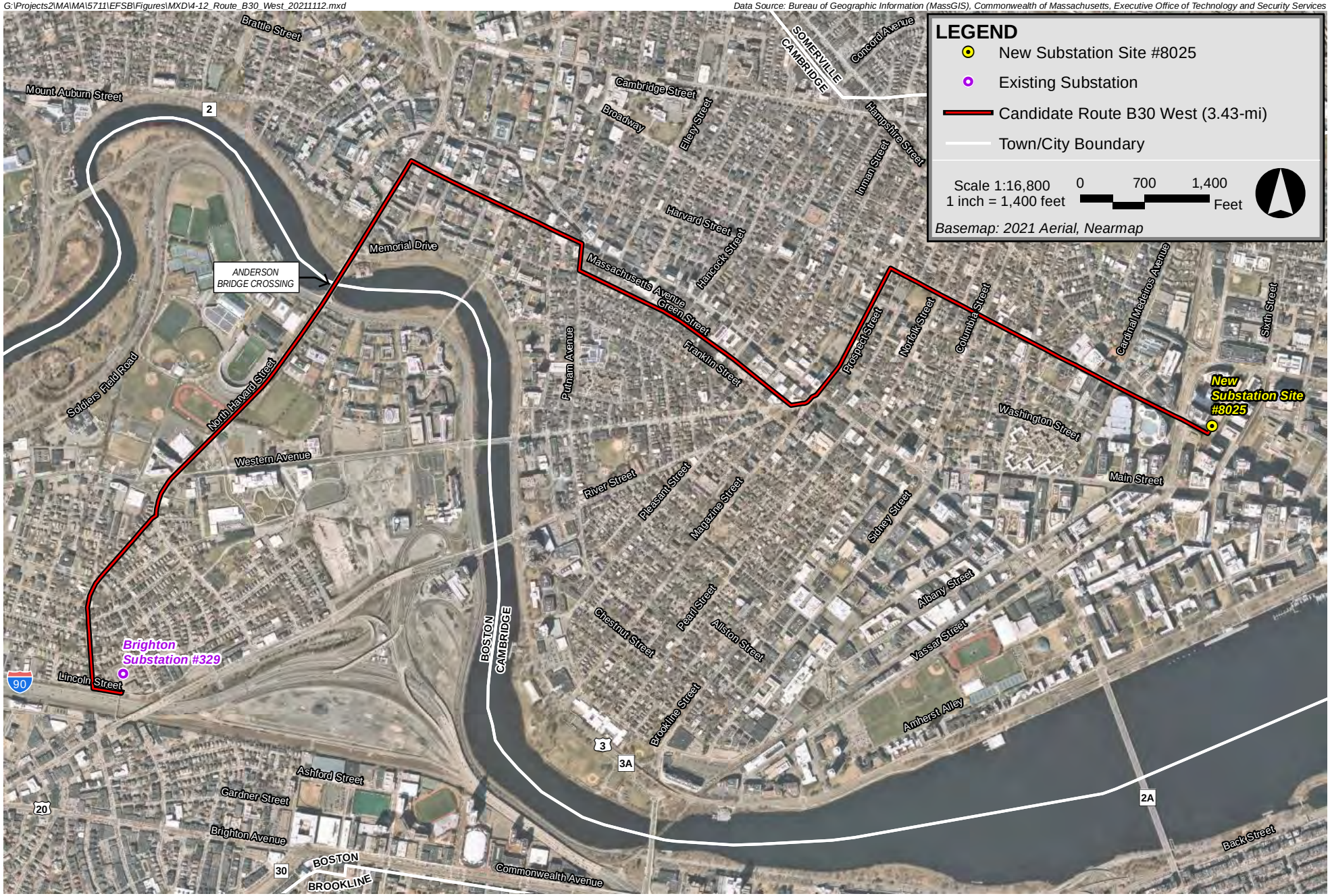

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Figure 4-12

Candidate Route B30 West (Anderson Bridge)

and seating areas. There is a café and coffee shop adjacent to it. The second public open space parcel is J.F.K Memorial Park. This public park borders the west side of the John F. Kennedy Street, approaching Memorial Drive. The approximately one-acre park is managed by MassDCR and contains footpaths, seating areas and greenspace. John F. Kennedy Street accommodates two-way vehicular traffic, has sidewalks on both sides and a dedicated bike lane. John F. Kennedy Street is classified by MassDOT as a principal arterial roadway.

The route then heads south along John F. Kennedy Street to the Anderson Memorial Bridge over the Charles River. The arch-style Anderson Memorial Bridge is owned by MassDOT and MassDCR and was rehabilitated by MassDOT in 2016. The rehabilitation project repaired the arches and replaced the parapets, sidewalks, lighting, and the bridge deck. The bridge presently has three lanes of traffic (two northbound and one southbound) and one bicycle lane and stands next to the Harvard-owned Weld Boathouse. The bridge crossing would be accomplished by installing the cable in the bridge deck/roadway pavement. On the Boston side of the Charles River, the route follows North Harvard Street to Franklin Street before connecting into the Brighton Substation from the west.

After crossing over the Charles River, the route transitions from the bridge onto North Harvard Street. North Harvard Street is bordered by Harvard University campus facilities on both sides of the road up to Western Avenue, including the football stadium, Harvard Business School, and several athletic fields. North Harvard Street accommodates two-way vehicular traffic, has sidewalks on both sides and includes several bus stops, on-street parking, and dedicated bike lanes. MassDOT classifies North Harvard Street as a principal arterial roadway.

From this point forward, Candidate Route B30 West follows the same alignment and is bordered by the same land uses as described above for Candidate Route B24 West to the Brighton Substation.

4.5.3.2 Putnam Study Area

Candidate Route P11 (Massachusetts Avenue)

Candidate Route P11 is approximately 0.87 miles long and is located entirely within Cambridge (see Figure 4-13). This route heads east from the New Substation Site onto Broadway and then south onto Ames Street to the intersection with Main Street. The route heads west on Main Street parallel to the MBTA Red Line subway tunnel before crossing over the tunnel onto Vassar Street. The route heads south on Vassar Street to Massachusetts Avenue, where it then turns towards the southeast on Massachusetts Avenue to Memorial Drive. At Memorial Drive, the route ends in a "T" configuration with the line being spliced into existing Eversource line(s) #831-538 and #540 to the east and west on Memorial Drive.

The land uses adjacent to Candidate Route P11 include primarily biotechnology, research and development and laboratory space in the Kendall Square area, mixed commercial space including restaurants and coffee shops, several parking garages and two major hotels (Boston Marriott

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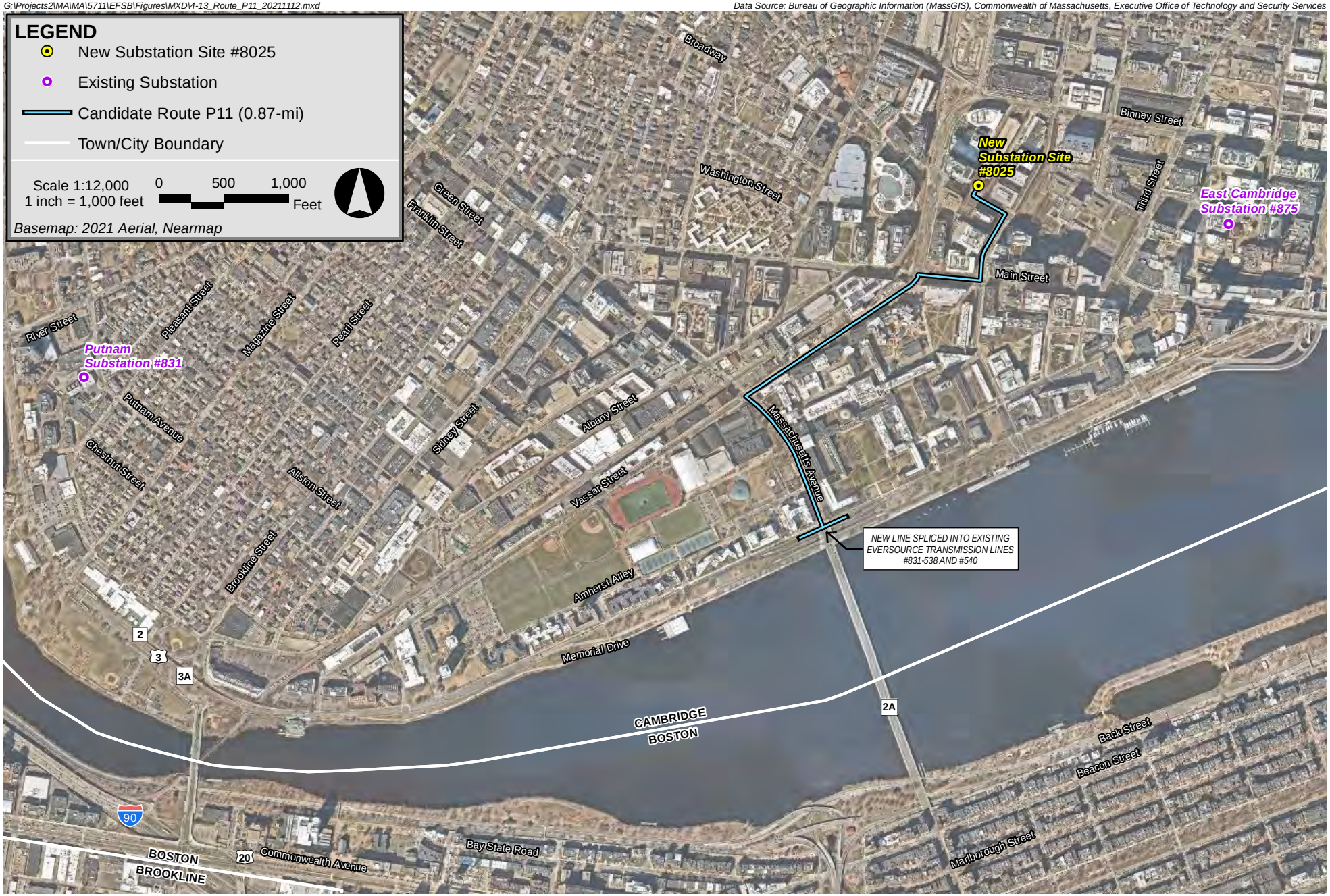

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Figure 4-13

Candidate Route P11 (Massachusetts Avenue)

Cambridge and Residence Inn Cambridge). A significant portion of the route passes by the MIT campus along Vassar Street and Massachusetts Avenue. Memorial Drive is located within MassDCR's Charles River Reservation. Each of the roadways comprising the route vary in width and lane configuration but generally include some level of on-street parking, accommodations for two-way vehicular traffic, dedicated bike lanes, sidewalks, and public transit bus stops. The MBTA Red Line subway tunnel is located beneath Main Street. Ames Street is classified by MassDOT as an urban collector roadway. Vassar Street is classified by MassDOT as an urban minor arterial roadway. Main Street and Massachusetts Avenue are classified by MassDOT as urban principal arterial roadways. Memorial Drive is a state-controlled roadway under the jurisdiction of MassDCR. Memorial Drive is classified by MassDOT as a principal arterial roadway.

Candidate Route P12 (Vassar Street)

Candidate Route P12 is approximately 1.44 miles long and is located entirely within Cambridge (see Figure 4-14). This route follows the same alignment described above for Candidate Route P11. However, instead of following Massachusetts Avenue to Memorial Drive, this route follows Vassar Street to Memorial Drive. At this point, the route ends in a "T" configuration with the line being spliced into existing Eversource transmission line(s) #831-538 and #540 to the east and west on Memorial Drive. Like Candidate Route P11, approximately 500 feet of this route follows Main Street and the MBTA Red Line subway tunnel located beneath it.

The roadway classifications and land use adjacent to Candidate Route P12 are like those described above for Candidate Route P11. The segment of Vassar Street between Massachusetts Avenue and Memorial Drive is predominantly bordered by MIT campus facilities, including surface parking lots and recreational facilities (e.g., football stadium, track and field, tennis courts, baseball, and soccer fields). This segment of Vassar Street also accommodates two-way vehicular traffic with on-street parking and dedicated bike lanes and sidewalks. As previously noted, Vassar Street is classified by MassDOT as a minor arterial roadway.

Candidate Route P13 (Ames Street)

Candidate Route P13 is approximately 0.49 miles long, located entirely within Cambridge (see Figure 4-15). Candidate Route P13 is the shortest of the three Candidate Routes identified within the Putnam Study Area. This route heads east from the New Substation Site onto Broadway Street and south onto Ames Street. The route follows Ames Street through the Main Street intersection, and the MBTA Red Line subway tunnel beneath it, to the intersection with Memorial Drive. At Memorial Drive, the route ends in a "T" configuration with the line being spliced into existing Eversource transmission line(s) to the east and west on Memorial Drive.

The roadway classifications and land use adjacent to Candidate Route P13 are as other Candidate Routes previously described. The segment of Candidate Route P13 that follows Ames Street to Massachusetts Avenue is bordered entirely by MIT campus facilities located on either side of the road, including its media lab and visual arts center, biology department, student housing, lab

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

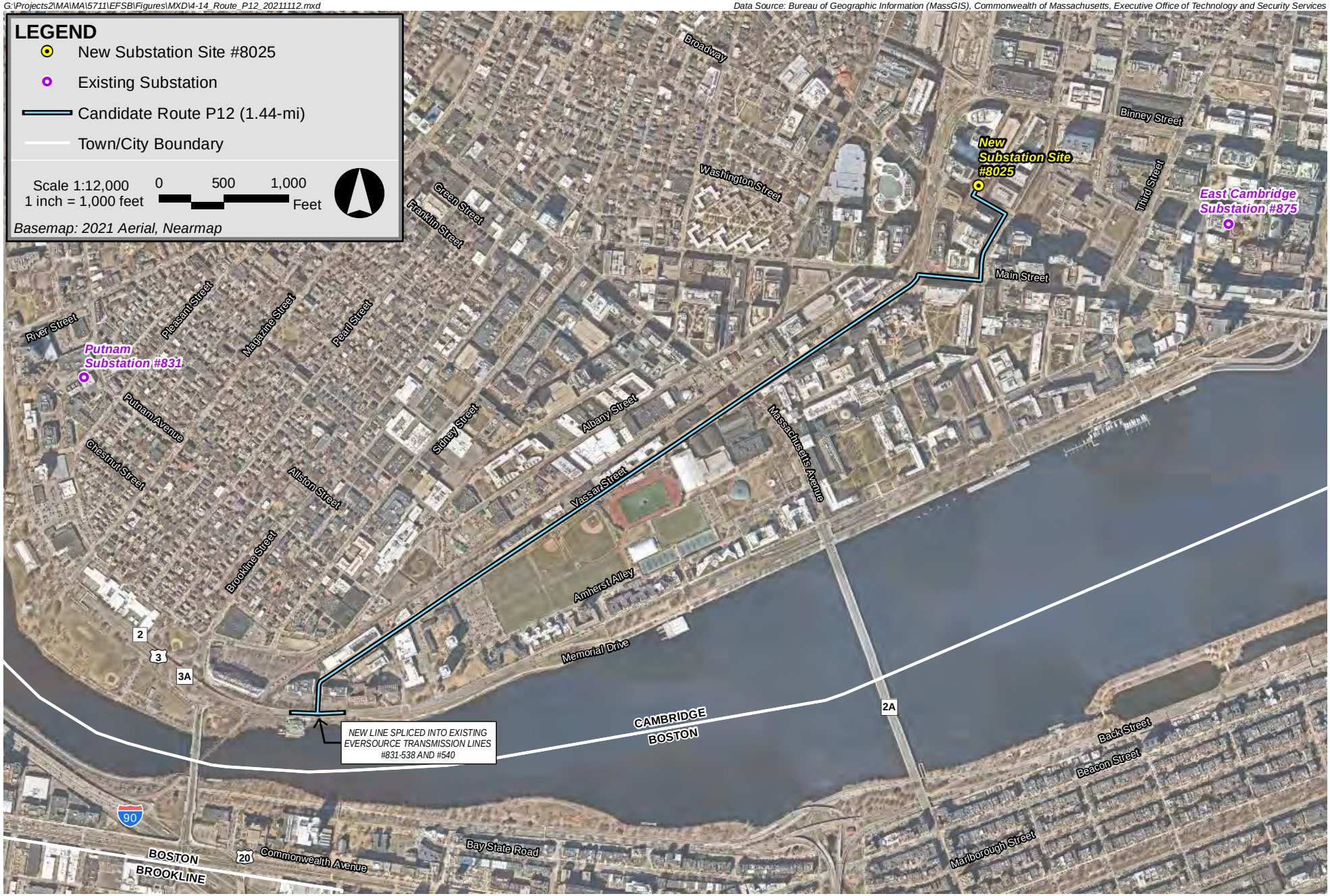

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Figure 4-14

Candidate Route P12 (Vassar Street)

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

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Figure 4-15

Candidate Route P13 (Ames Street)

space, research facilities and courtyard/green space. This segment of Ames Street accommodates two-way vehicular traffic with on-street parking and dedicated bike lanes and sidewalks. Ames Street is classified by MassDOT as a major collector roadway.

4.5.3.3 Kendall Study Area

Candidate Route K5A (Linskey Way)

Candidate Route K5A is approximately 0.59 miles long and is located entirely within Cambridge (see Figure 4-16). This route heads east from the New Substation onto Broadway before turning in a northeasterly direction across the Volpe Center Site. Broadway is approximately 60 to 70-feet wide, with several lanes of two-way traffic, median and street trees in the middle, sidewalks on both sides and dedicated bike lanes. This segment of Broadway is classified by MassDOT as a principal arterial roadway.

The alignment across the easterly end of the Volpe Center Site between Broadway and Third Street, was developed in consultation with MIT (the owner/ developer of the site)[80] and the City of Cambridge DPW with the goal of avoiding significant utility congestion in the Broadway /Third Street intersection and significant public shade tree removal in the median strip of Broadway Street. The route traverses through future greenspace and an expanded sidewalk area that will be constructed as part MIT's redevelopment of the Volpe Center Site. At the northeast corner of the Volpe Center Site, approaching Prospect Street, the route enters Third Street. The Third Street segment is bordered by apartment style housing, restaurants and cafes, and a fitness facility. Third Street accommodates two-way vehicular traffic with on on-street parking and dedicated bike lanes and sidewalks. Third Street is classified by MassDOT as a minor arterial roadway.

From Third Street, the route turns east onto Linskey Way and south onto Second Street, where it connects into the East Cambridge Substation. The Linsksey Way segment of Candidate Route K5A is predominantly bordered by pharmaceutical companies, restaurants and cafes, the Kendall Center Green Parking Garage, and a pre-school facility. Linskey Way accommodates two-way vehicular traffic with on-street parking and dedicated bike lanes and sidewalks. Linskey Way is classified by MassDOT as a local roadway.

The land uses bordering Candidate Route K5A include primarily residential (Third Square Apartments), biotechnology and laboratory space along Broadway near the New Substation Site. There are several parking garages and two major hotels (Boston Marriott Cambridge and Residence Inn Cambridge).

[80] Massachusetts Institute of Technology Investment Management Corporation ("MITIMCO").

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

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Figure 4-16

Candidate Route K5A (Linskey Way)

Candidate Route K6A (Binney Street)

Candidate Route K6A is approximately 0.67 miles long and is located entirely within Cambridge (see Figure 4-17). This route follows the same alignment described above for Candidate Route 5A. However, instead of following Linskey Way, this route continues along Third Street to Binney Street. From Binney Street, the route turns south onto Second Street to its connection point with the East Cambridge Substation. The segment of Binney Street between Second Street and Third Street is bordered by an apartment complex, restaurants, office space and pharmaceutical space. A place of worship (The Church of Jesus Christ of Latter-day Saints) is located at the corner of Second Street and Binney Street. This segment of Binney Street is relatively wide with two-way vehicular traffic, on-street parking and dedicated bike lanes on the adjoining raised sidewalks. Binney Street is classified by MassDOT as a minor arterial roadway.

The roadway classifications and land use adjacent to Candidate Route K6A are like those described above for Candidate Route K5A.

Candidate Route K10 (Potter Street)

Candidate Route K10 is approximately 0.63 miles long, located entirely within Cambridge (see Figure 4-18). This route heads east from the New Substation site onto Broadway before turning north across the Volpe Center Site to Potter Street. The alignment across the Volpe Center Site was identified in consultation with MIT and Cambridge officials so as not to constrain future development activities at the site and to avoid impacts to mature public shade trees bordering the Loughrey Walkway and Bike Path west of the site. From Potter Street (a private roadway), the route heads east to the Third Street intersection. At Third Street, the route turns north for two blocks to Linskey Way. The route follows Linskey Way in an easterly direction towards Second Street. At Second Street, the route heads in a southerly direction to East Cambridge Substation.

Adjacent land uses and roadway classifications are essentially the same as those described above for Candidate Route K5A.

Candidate Route K11 (Fifth Street)

Candidate Route K11 is approximately 0.61 miles long and is located entirely within Cambridge (see Figure 4-19). This route heads east from the New Substation Site onto Broadway before turning north across the Volpe Center Site (following the same alignment as Candidate Route K10) onto Potter Street. On Potter Street, the route heads east for one block before turning north onto Fifth Street, a local roadway. From Fifth Street the route heads east onto Linskey Way, across the Third Street intersection, and then south onto Second Street where it enters East Cambridge Substation.

Adjacent land uses and roadway classifications are essentially the same as those described above for Candidate Route K6A, although this route passes by the Third Square Apartment complex on at both Fifth Street and Munroe Street.