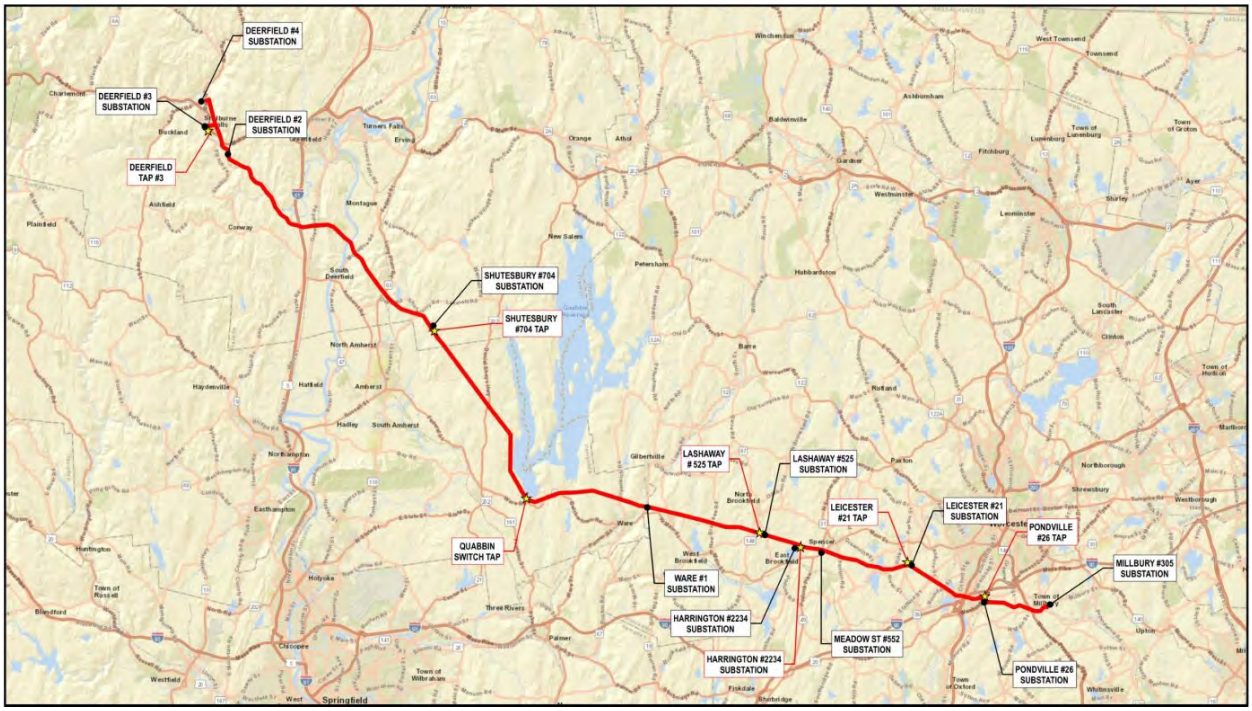
Central to Western Massachusetts Energy Improvement Project

Route Selection Process - Supporting Information
Appendix 4-1



Prepared for:
New England Power Company
170 Data Drive
Waltham, MA 02451

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Appendix 4-1

Table A: Electric Transmission Line Corridors

ROW	Operating Company	Approximate Location
ROW 1	NEP A127/B128	This is an estimated 125-to-250-foot-wide transmission ROW that runs approximately 61.2 miles NW/SE through the northern corner of the Study Area. The corridor passes through the towns of Auburn, Barre, Colrain, Erving, Gill, Greenfield, Leicester, Millbury, New Salem, Oakham, Paxton, Petersham, Rutland, Shelburne, Spencer, and Wendell. The ROW contains 115 kV overhead transmission lines (A127 and B128). A portion of the ROW contains 230 kV NEP overhead transmission line (E205E) in addition to the 115 kV lines. NEP controls majority of this ROW in fee or easement.
ROW 2	NEP V174	This is an estimated 200-to-250-foot-wide transmission ROW that runs approximately 15.6 miles E/W through the eastern corner of the Study Area. The corridor passes through the towns of Auburn, Charlton, Millbury, Oxford, and Sutton. The ROW contains 115 kV overhead transmission line (V174). A portion of the ROW contains 315 kV NEP overhead transmission line (302) in addition to the 115 kV line. NEP controls majority of this ROW in fee or easement.
ROW 3	NEP 301	This is an estimated 200-foot-wide transmission ROW that runs approximately 25.8 miles E/W through the south-eastern corner of the Study Area. The corridor passes through the towns of Belchertown, Brimfield, Brookfield, Charlton, Ludlow, Palmer, Sturbridge, and Warren. The ROW contains 345 kV overhead transmission line (301). A portion of the ROW contains 115 kV NEP overhead transmission line (W175/X176) in addition to the 345 kV line. NEP controls majority of this ROW in fee or easement.
ROW 4	NEP O15N	This is an estimated 80-to-130-foot-wide transmission ROW that runs approximately 8.9 miles N/S through the southern corner of the Study Area. The corridor passes through the towns of Palmer, Ware, and West Brookfield. The ROW contains 69 kV overhead transmission line (O15N). A portion of the ROW contains 115 kV NEP overhead transmission line (X176) in addition to the 69 kV line. NEP controls majority of this ROW in fee or easement.
ROW 5	NEP T20	This is an estimated 70-to-100-foot-wide transmission ROW that runs approximately 8.4 miles N/S through the south-eastern corner of the Study Area. The corridor passes through the towns of Charlton and Spencer. The ROW contains 69 kV overhead transmission line (T20). NEP controls majority of this ROW in fee or easement.
ROW 6	NEP D4	This is an estimated 100-foot-wide transmission ROW that runs approximately 3.7 miles N/S through Charlemont substation in the western corner of the Study Area. The corridor passes through the towns of Colrain and Shelburne. The ROW contains 69 kV overhead transmission line (D4). NEP controls majority of this ROW in fee or easement.
ROW 7	NEP A127, Y177	This is an estimated 200-foot-wide transmission ROW that runs approximately 2.7 miles N/S through the north-western corner of the Study Area. The corridor passes through the towns of Greenfield and Montague. The ROW contains 115 kV overhead transmission lines (A127 and Y177). NEP controls majority of this ROW in fee or easement.
ROW 8	Eversource 354	This is an estimated 140-to-200-foot-wide transmission ROW that runs approximately 30.3 miles N/S through the center of the Study. The corridor passes through the towns of Amherst, Belchertown, Erving, Granby, Leverett, Ludlow, Montague, Pelham, Shutesbury, and Wendell. The ROW contains 345 kV overhead transmission line (354). A portion of the ROW contains 115 kV NEP overhead transmission lines (1394 and 1515) in addition to the 354 kV line. Eversource controls majority of this ROW in fee or easement.

ROW 9	Eversource 312	This is an estimated 130-to-200-foot-wide transmission ROW that runs approximately 20 miles E/W through the western corner of the Study Area. The corridor passes through the towns of Ashfield, Conway, Deerfield, Erving, Montague, and Shelburne. The ROW contains 345 kV overhead transmission line (312). A portion of the ROW contains 115 kV NEP overhead transmission lines (1231 and 1242) in addition to the 354 kV line. Eversource controls majority of this ROW in fee or easement.
ROW 10	Eversource 1242	This is an estimated 100-to-140-foot-wide transmission ROW that runs approximately 3.6 miles NE/SW through the western corner of the Study Area. The corridor passes through the towns of Deerfield, Greenfield, and Montague. The ROW contains 115 kV overhead transmission line (1242). Eversource controls majority of this ROW in fee or easement.
ROW 11	Eversource 1044, 1113	This is an estimated 130-to-200-foot-wide transmission ROW that runs approximately 31.1 miles N/S through the central-western of the Study Area. The corridor passes through the towns of Amherst, Chicopee, Granby, Leverett, Montague, South Hadley, and Sunderland. The ROW contains 115 kV overhead transmission lines (1044 and 1113). Eversource controls majority of this ROW in fee or easement.
ROW 12	Eversource 1428	This is an estimated 150-to-250-foot-wide transmission ROW that runs approximately 12 miles N/S through the south-western corner of the Study Area. The corridor passes through the town of Chicopee, Easthampton, Holyoke, South Hadley, and West Springfield. The ROW contains 115 kV overhead transmission lines (1428). A portion of the ROW contains 115 kV overhead transmission line (Eversource 1327, 1702, 1314 and NEP 1819) in addition to the 115 kV lines. Eversource controls the majority of this ROW in fee or easement.
ROW 13	Eversource 3196	This is an estimated 150-to-200-foot-wide transmission ROW that runs approximately 9.6 miles E/W through the south-western corner of the Study Area. The corridor passes through the town of Chicopee and Ludlow. The ROW contains a 345 kV overhead transmission line (3196). A portion of the ROW contains 115 kV Eversource overhead transmission lines (1601, 1314, 1803, 1481, 1552) in addition to the 115 kV lines. Eversource controls majority of this ROW in fee or easement.
ROW 14	NEP B69	This is an estimated 100-foot-wide transmission ROW that runs approximately 2 miles NW/SE through the center of the Study Area. The corridor passes through the town of Belchertown. The ROW contains 69 kV overhead transmission line (B69). NEP controls majority of this ROW in fee or easement.

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Table B: Railroad Corridors

Railroad/Operating Company	Status	Approximate Location
CSX Boston Subdivision Railroad/CSX	Active	The CSX Boston Subdivision Railroad runs approximately 53 miles east-west through the eastern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Palmer, Brimfield, Warren, West Brookfield, Brookfield, East Brookfield, Spencer, Charlton, Oxford, Leicester, Rochdale, and Auburn. The CSX Boston Subdivision intersects local lines including North Brookfield and Webster Branch in the eastern corner of the Study Area, and East Brookfield and Spencer Branch in the eastern corner of the Study Area.
Ware River Branch Railroad/MassDOT	Active	The Ware River Branch Line runs approximately 38 miles south-west to north-east through the east-central corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Palmer, Ware, Hardwick, New Braintree, and Barre. The Ware River Branch Line intersects the Central Mass Railroad and Central Vermont Railroad.
Central Vermont Railroad/NECR	Active	The Central Vermont Line runs approximately 48.5 miles north-south through the central portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Erving, Montague, Sunderland, Leverett, Amherst, Belchertown, and Palmer. The Ware River Branch Line intersects the Patriot Corridor and Central Mass Railroad, along with a few local lines.
Guilford Yard Railroad/ Pan Am Railways, Inc ("PAR")	Active	The Guilford Yard Line runs approximately 2 miles north-south through the southern corner of the Study Area. Study Area. Some of the towns which intersect this railroad within the Study Area include Holyoke. The Guilford Yard Line intersects the Connecticut River Main Line.
Connecticut River Main Line Railroad/ Pan Am Southern ("PAS")	Active	The Connecticut River Main Line runs approximately 67 miles north-south through the south through north-eastern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Greenfield, Deerfield, Whately, Hatfield, Northampton, Holyoke, and Chicopee. The Conn River Main Line intersects the Patriot Corridor, Turner Fall Branch, East Deerfield Loop, Central Mass, Holyoke Branch, and a few local lines.
Greenfield Running Railroad/ Pan Am Southern (“PAS”)	Active	The Greenfield Running Line runs approximately 4 miles east-west through the north-western corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Greenfield and Deerfield. The Greenfield Running Line intersects the Conn River Main Line Railroad, Turner Fall Branch, and Patriot Corridor.
Patriot Corridor Railroad/ Pan Am Southern (“PAS”)	Active	The Patriot Corridor Line runs approximately 49 miles east-west through the western corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Buckland, Shelburne, Conway, Deerfield, Greenfield, Montague, and Erving. The Patriot Corridor Line intersects the Connecticut River Main Line, Central Vermont Railroad, Greenfield Running, Freight Mainline, and Turner Fall Branch.
Holyoke Branch Railroad/ Pioneer Valley ("PV")	Active	The Holyoke Branch Line runs approximately 11 miles north-south through the southern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Holyoke. The Holyoke Branch Line intersects the Conn River Main Line Railroad.
Norwich and Worcester Railroad/Providence and Worcester ("P&W")	Active	The Norwich and Worcester Line runs approximately 6 miles north-south through the eastern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Oxford and Auburn.

Providence and Worcester Railroad/ Genesee and Wyoming ("G&W")	Active	The Providence and Worcester Line runs approximately 4 miles north-south through the eastern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Milbury.
Northampton Running Railroad/ Pan Am Railways, Inc ("PAR")	Active	The Northampton Running Line runs approximately 2 miles north-south through the southern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Northampton. The Northampton Running Line intersects a few local lines.
Old Northbound Railroad/ Pan Am Railways, Inc ("PAR")	Active	The Old Northbound Line runs approximately 2 miles north-south through the southern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Northampton. The Old Northbound Line intersects a few local lines.
East Deerfield Loop Railroad/ Pan Am Southern ("PAS")	Active	The East Deerfield Loop Line runs approximately 1 mile east-west through the north-central corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Deerfield. The East Deerfield Loop Line intersects the Patriot Corridor and Connecticut River Main Line.
Easthampton Branch Railroad/ Local	Active	The Easthampton Branch Line runs approximately 0.7 miles north-south through the southern corner of the Study Area. Some of the towns which intersect this railroad within the Study Area include Easthampton. The Easthampton Branch Line intersects the Connecticut River Main Line Railroad and Old Northbound.
East Brookfield & Spencer Railroad ("EB&S")/CSX Boston Subdivision	Active, ROW Public Own	The East Brookfield and Spencer Line runs approximately 2 miles east-west through the eastern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Spencer and East Brookfield. The East Brookfield and Spencer Line intersects the CSX Boston Subdivision Line.
Webster Branch Railroad/ Boston and Albany Railroad Company	Abandoned	The Webster Branch Line runs approximately 5 miles north-south through the eastern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Auburn and Oxford. The Webster Branch Line intersects the CSX Boston Subdivision Line.
Central Mass Railroad/Boston and Maine Railroad/ Pan Am Railways, Inc ("PAR")	Abandoned	The Central Mass Line runs approximately 58 miles southwest-northeast through the central portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Northampton, Hadley, Amherst, Belchertown, Ware, Barre, New Braintree, Gilbertville, Hardwick, and Palmer. The Central Mass Line intersects the Ware River Branch, and local lines.
Turner Fall Branch/ Pan Am Railways, Inc ("PAR")	Abandoned	The Turner Fall Branch Line runs approximately 0.2 miles north-south through the central-west portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Deerfield, Greenfield, and Montague. The Turner Fall Branch Line intersects the Shelburne Falls Line, Conn River Main Line, Patriot Corridor, and local lines.
Palmer Industrial Park/New England Central Railroad ("NECR")	Abandoned	The Palmer Industrial Park runs approximately 1 mile east-west through the southern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Belchertown and Palmer.
North Brookfield Railroad/Local	Abandoned, ROW Publicly Owned	The North Brookfield Line runs approximately 5 miles east-west through the eastern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include North Brookfield and East Brookfield. The North Brookfield Line intersects the CSX Boston Subdivision Line.
Spencer Branch Railroad/Local	Abandoned, ROW Publicly Owned	The Spencer Branch Line runs approximately 2.6 miles north-south through the eastern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Spencer. The Spencer Branch Line intersects the CSX Boston Subdivision Line.

Millbury Branch Railroad/Local	Abandoned, ROW Publicly Owned	The Milbury Branch Line runs approximately 1 mile north-south through the eastern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Milbury. The Milbury Branch Line intersects the CSX Boston Subdivision Line.
Williamsburg Branch Railroad/Local	Abandoned, ROW Publicly Owned	The Williamsburg Branch Line runs approximately 7 miles east-west through the western portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Northampton. The Williamsburg Branch intersects the Shelburne Falls Line and Northampton Running.
SA&N Railroad/ New England Central Railroad ("NECR") and CSX	Abandoned, ROW Publicly Owned	The SA&N Line runs approximately 41 miles north-south through the southern portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Ludlow, Palmer, Belchertown, Ware, New Salem, and Petersham.
Shelburne Falls Railroad/ New England Central Railroad ("NECR") and CSX	Abandoned, ROW Publicly Owned	The Shelburne Falls Line runs approximately 24.5 miles north-south through the western portion of the Study Area. Some of the towns which intersect this railroad within the Study Area include Conway, Deerfield, Whately, Hatfield, and Northampton.

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Table C: Highway and Major Roadway Corridors

Highway and Roadway	Description
Interstate Route I-90 ("I-90")	I-90 is located in the western portion of the Study Area and runs north-south through the towns of Greenfield, South Deerfield, and Holyoke.
Interstate Route I-91 ("I-91")	I-91 is located in the western portion of the Study Area and runs north-south through the towns of Greenfield, South Deerfield, and Holyoke.
Interstate Route I-290 ("I-290")	I-290 is located in the south-eastern portion of the Study Area and runs north-south through the town of Auburn.
Interstate Route I-291 ("I-291")	I-291 is located in the south-western portion of the Study Area and runs north-south through the town of Springfield.
Interstate Route I-391 ("I-391")	I-391 is located in the south-western portion of the Study Area and runs north-south through the towns of Holyoke and Chicopee.
Interstate Route I-395 ("I-395")	I-395 is located in the south-eastern portion of the Study Area and runs north-south through the town of Auburn.
US Highway Route 202	Route202 is a state highway located in the central and southwest corner of the Study Area and runs north-western through the towns of Holyoke, Belchertown and New Salem.
US Highway Route 5	Route 5 is a state highway located in the western portion of the Study Area and runs north-south through the towns of Greenfield, South Deerfield, and Holyoke.
US Highway Route 20	Route 20 is a state highway located in the southern portion of the Study Area and runs east-west through the towns of Auburn, Sturbridge, Fiskdale, East Brimfield, Brimfield, Palmer, and Chicopee.
State Route 2/2A	Route 2/2A is located in the north-western corner of the Study Area and runs east-west through the towns of Greenfield, and Erving.
State Route 9	Route 9 is located in the central portion of the Study Area and runs east-west through the towns of Leicester, Spence, Brookfield, Ware, Amherst, and Northampton.
State Route 10	Route 10 is located in the southwestern corner of the Study Area and runs north-south through the town of Northampton.
State Route 12	Route 12 is located in the southeastern corner of the Study Area and runs north-south through the towns of Auburn, Worcester, Sterling, Leominster, Ashburnham, and Winchendon.
State Route 19	Route 19 is located in the southern area of the Study Area and runs north-south through the towns of Warren, and Brimfield.
State Route 21	Route 21 is located in the southwestern corner of the Study Area and runs north-south through the towns of Ludlow and Belchertown.
State Route 31	Route 31 is located in the southeastern corner of the Study Area and runs north-south through the towns of Spencer and Charlton.
State Route 32	Route 32 is located in the southern area of the Study Area and runs north-south through the towns of Ware, Gilbertville, and Wheelwright.
State Route 33	Route 33 is located in the southwestern corner of the Study Area and runs north-south through the town of Chicopee.
State Route 47	Route 47 is located in the western area of the Study Area and runs north-south through the town of Sunderland, Hadley, and South Hadley.
State Route 49	Route 49 is located in the south-eastern corner of the Study Area and runs north-south and connects MA Route 9 and US State Highway 20.
State Route 56	Route 56 is located in the south-eastern corner of the Study Area and runs north-south through the towns of North Oxford, Rochdale, and Leicester.
State Route 63	Route 63 is located in the northwestern corner of the Study Area and runs north-south through the towns of Montague, Millers Falls, and Erving.
State Route 67	Route 67 is located in the eastern area of the Study Area and runs north-south through the towns of North Brookfield and Barre Plains.

State Route 112	Route 112 is located in the western area of the Study Area and runs north-south through the towns of Ashfield, Buckland, and Shelburne Falls.
State Route 116	Route 116 is located in the western area of the Study Area and runs east-west through the towns of Holyoke, South Amherst, Amherst, North Amherst, South Deerfield, Conway, and Ashfield.
State Route 141	Route 141 is located in the south-western corner of the Study Area and runs northwest-southeast through the towns of Easthampton, Holyoke and Ludlow.
State Route 146	Route 146 is located in south-eastern corner of the Study Area and runs north-south through the town of Millbury.
State Route 148	Route 148 is located in the eastern corner of the Study Area and runs north-south through the towns of Fiskdale, Town of Brookfield, North Brookfield and Oakham.
State Route 169	Route 169 is located in the south-eastern corner of the Study Area and runs north-south through the town of Southbridge and Charlton City.
State Route 181	Route 181 is located in the southern area of the Study Area and runs north-south through the town of Three Rivers, and Belchertown.
State Route 32/32A	Route 32/32A is located in eastern area of the Study Area and runs north-south through the towns of Palmer, Ware, Gilbertville, Petersham, and Athol.
State Route 122/122A	Route 122/122A is located in south-eastern corner of Study Area and runs north-south through the town of Millbury.

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Table D: Electric Transmission Corridors Eliminated from Further Consideration

Route	Explanation for elimination
Portion of ROW 1	• The portion of this corridor that runs east-west through the towns of Colrain, Greenfield, Gill, Erving, Wendell, New Salem, Petersham, Barre, Oakham, Rutland, and Paxton in the north-western portion of the Study Area does not provide access to the intermediate substations along the Existing Lines. Therefore, ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • In addition, ROW 1, extends east-west from the Milbury #305 Substation, resulting in a longer route to the Deerfield #4 Substation.
ROW 2	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 2, in combination with ROW 5 and the Project Route (E5/F6 Line), extends south-west from the Milbury #305 Substation, resulting in a longer route to the Deerfield # 4 Substation. • This corridor passes adjacent to or through DCR properties and state properties such as the Wendell State Forest, Quabbin Reservoir Watershed Area, Ware River Watershed, and other open space recreational areas, potentially requiring the release of conservation lands in Wendell, New Salem and Oakham via the Article 97 land disposition process through the Legislature of the Commonwealth, land acquisition, and additional easement rights. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • This corridor also passes through several wetlands, streams, and outstanding resource waters, adjacent to multiple public water supply resource areas, along with NHESP Priority Habitat areas in town of Petersham and Barre. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line).
ROW 3	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 3, in combination with ROW 8 and the Project Route (E5/F6 Line), extends south-west from the Milbury #305 Substation, resulting in a longer route to the Deerfield # 4 Substation. • In addition, Eversource controls this ROW in fee or easement. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours.
Portion of ROW 4	• The portion of this corridor that runs north-south through the towns of Belchertown, Granby, Ludlow, Wilbraham, and East Longmeadow in the south-east of the Study Area does not provide access to the intermediate substation along the Existing Lines. • ROW 4 extends north-south from Ware #1 Substation, resulting in no feasible route options. • This corridor passes adjacent to or through several state properties such as the West Brookfield, Palmer Wildlife Management Area, Coy Hill Wildlife Management Area, and other open space recreational areas, potentially requiring the release of conservation lands in West Brookfield, Ware, Warren, and Palmer. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • This corridor also passes through several NHESP Priority Habitat areas in the town of Palmer. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line).

ROW 5	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 5 extends north-south from Meadow St #552 Substation, resulting in no feasible route options.
ROW 6	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 6 extends north-south from Deerfield #4 Substation, resulting in no feasible route options.
ROW 7	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 7, in combination with ROW 10, ROW 9, and the Project Route (E5/F6 Line) extends north-south from Deerfield #4 Substation, resulting in a longer route to the Deerfield #4 Substation.
Portion of ROW 8	• The portion of this corridor that runs east-west through the towns of Belchertown, Granby, and Ludlow in the south portion of the Study Area does not provide access to the intermediate substations along the Existing Lines. Therefore, ROW 8 does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 8, extends south from Shutesbury #704 Substation, resulting in a longer route to the Deerfield Substation.
ROW 9	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. ROW 9, in combination with the Project Route (E5/F6 Line) extends north-south from Deerfield # 4 Substation, resulting in no feasible route option. • In addition, Eversource controls this ROW in fee or easement. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours.
ROW 10	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 10, in combination with ROW 9 and the Project Route (E5/F6 Line) extends north-south from Deerfield #4 Substation, resulting in a longer route to the Deerfield #4 Substation. • In addition, Eversource controls this ROW in fee or easement. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours.
ROW 11	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 11, in combination with ROW 10, ROW 9, and the Project Route (E5/F6 Line) extends north-east from Deerfield #4 Substation, resulting in a longer route to the Deerfield #4 Substation. • ROW 11 passes through areas with varying degrees of residential land use (high, medium, low, and very low density and multi-family residential).
ROW 12	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 12, in combination with ROWs 2, 3, 11, 13 and the Project Route (E5/F6 Line), extends south-west from Milbury #305 Substation, resulting in a longer route to Deerfield # 4 Substation. • In addition, Eversource controls this ROW in fee or easement. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours.

	• ROW 12 passes through areas with varying degrees of residential land uses (high, medium, low, and very low density and multi-family residential). • This corridor passes through nine EJ areas, as opposed to the six intersected by the Project Route (E5/F6 Line). This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
ROW 13	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • ROW 13, in combination with ROWs 2, 3, 11, 12 and the Project Route (E5/F6 Line), extends south-west from Milbury #305 Substation, resulting in a longer route to Deerfield #4 Substation. • In addition, Eversource controls this ROW in fee or easement. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours. • This corridor passes through nine EJ areas, as opposed to the six intersected by the Project Route (E5/F6 Line). This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).

Table E: Railroad Corridors Eliminated from Further Consideration

Route	Description	Easement (feet)	Explanation for elimination
Portion of the CSX Boston Subdivision Railroad/CSX	Active Railroad	85-210	• The portion of this corridor that runs north-south through the towns of East Brookfield, Brookfield, West Brookfield, Warren, and Palmer in the southern corner of the Study Area does not provide access to an intermediate substation. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • This corridor passes adjacent to or through DCR properties and state properties such as the Spencer State Forest, Bennett Wildlife Management Area, and other open space recreational areas, potentially requiring the release of conservation lands in Spencer via the Article 97 land disposition process through the Legislature of the Commonwealth, land acquisition, and additional easement rights. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • This corridor also passes through several outstanding resource waters, adjacent to multiple public water supply resource areas, along with NHESP Priority Habitat areas in the town of Brookfield and Rochdale. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line). • Land acquisition and construction restrictions on working near active rail lines would increase costs.
Ware River Branch Railroad/MassDOT	Active Railroad	50-280	• This corridor runs south-west to north-east through the towns of Palmer, Ware, Hardwick, New Braintree, and Barre, in the east-central corner of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • This corridor passes through several riverfront areas, water bodies and streams, as well as vernal pools and rare species habitat. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Central Vermont Railroad/NECR	Active Railroad	35-300	• This corridor runs north-south through the towns of Erving, Montague, Sunderland, Leverett, Amherst, Belchertown, and Palmer, in the central portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response.

			• This corridor passes through several riverfront areas, water bodies and streams, as well as vernal pools and rare species habitat, and EJ areas. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Guilford Yard Railroad/ PAR	Railroad	Not available	• This corridor runs north-south through the town of Holyoke, in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Conn River Main Line Railroad/ PAS	Railroad	40-235	• This corridor runs north-south through the towns of Greenfield, Deerfield, Whately, Hatfield, Northampton, Holyoke, and Chicopee, in the north-west corner of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. Land acquisition and construction restrictions on working near active rail lines would increase costs. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Greenfield Running Railroad/ PAS	Railroad	70-200	• This corridor runs east-west through the town of Greenfield in the western portion of the Study Area. This corridor does not provide access to s intermediate substation. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Patriot Corridor Railroad/ PAS	Railroad	45-260	• This corridor runs east-west through the towns of Buckland, Shelburne, Conway, Deerfield, Greenfield, Montague, and Erving in the western corner of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.

Holyoke Branch Railroad/ PV	Railroad	30-215	• This corridor runs north-south through the town of Holyoke, in the southern corner of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Norwich and Worcester Railroad/P&W	Railroad	65-100	• This corridor runs north-south through the towns of Oxford and Auburn in the eastern corner of the Study Area. This corridor does not provide access to intermediate substation. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Portion of the Providence and Worcester Railroad/P&W	Railroad	55-150	• The portion of this corridor that runs north-south through the town of Millbury in the eastern corner of the Study Area does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Northampton Running Railroad/ PAR	Railroad	60-160	• This corridor runs north-south through the town of Northampton, in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Old Northbound Railroad/ PAR	Railroad	40-400	• This corridor runs north-south through the town of Northampton in the southern corner of the Study Area. This corridor does not provide access to s intermediate substation. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
East Deerfield Loop Railroad/ PAS	Railroad	40-170	• This corridor runs approximately east-west through the town of Deerfield in the north-central corner of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.

Easthampton Branch Railroad/ Local	Railroad	105	• This corridor runs north-south through the town of Easthampton in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
East Brookfield & Spencer Railroad ("EB&S")/CSX Boston Subdivision	Railroad	250	• This corridor runs east-west through the towns of Spencer and East Brookfield in the eastern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Webster Branch Railroad/ Boston and Albany Railroad Company	Railroad	77	• This corridor runs north-south through the towns of Auburn, and Oxford in the eastern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Central Mass Railroad/Boston and Maine Railroad/ PAR	Railroad	45-200	• This corridor runs southwest-northeast through the towns of Northampton, Hadley, Amherst, Belchertown, Ware, Barre, New Braintree, and Palmer in the central portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs. • This corridor passes through densely developed residential and commercial areas with many crossroads and driveways in Amherst which might increase potential to contribute to visual and noise impacts.
Turner Fall Branch Railroad/ PAR	Railroad	50-360	• This corridor runs north-south through the towns Deerfield, Greenfield, and Montague in the central-west portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.

Palmer Ind Park Railroad/ NECR	Railroad	35-50	• This corridor runs east-west through the towns of Belchertown and Palmer in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Portion of North Brookfield Railroad/Local	Railroad	93	• The portion of this corridor that runs north-south through the town of North Brookfield in the eastern corner of the Study Area does not provide access to s intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Spencer Branch Railroad/Local	Railroad	150	• This corridor runs north-south through the town of Spencer in the eastern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Millbury Branch Railroad/Local	Railroad	150	• This corridor runs north-south through the town of Milbury in the eastern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Williamsburg Branch Railroad/Local	Railroad	100	• This corridor runs east-west through the town of Northampton in the western portion of the Study Area. This corridor does not provide access to s intermediate substation. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
SA&N Railroad/ NECR and CSX	Railroad	110	• This corridor runs north-south through the towns of Ludlow, Palmer, Belchertown, Ware, New Salem, and Petersham in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor.

			• Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
Shelbourne Falls Railroad/ NECR and CSX	Railroad	30-160	• This corridor runs north-south through the towns of Conway, Deerfield, Whately, Hatfield, and Northampton in the western portion of the Study Area. This corridor does not provide access to intermediate substations. • Easement rights would be required from rail owners to collocate facilities along rail corridor. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.

Appendix 4-1

Table F: Highway and Major Roadway Corridors Eliminated from Further Consideration

Route	Description	Easement (feet)	Explanation for elimination
I-91	Highway	300-830	• I-191 runs north-south through the towns of Greenfield, Deerfield, Whately, Hatfield, and Northampton in the western portion of the Study Area. This corridor does not provide access to intermediate substations. • Rights/Agreements would be required from the Massachusetts Department of Transportation ("MassDOT") to occupy the I-91 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridors. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • This corridor also passes through several NHESP Priority Habitat areas in the town of Whately and Hatfield. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line).
I-291	Highway	300-1500	• I-291 runs north-south through the town of Auburn in the western portion of the Study Area. This corridor does not provide access to intermediate substations. • Rights/Agreements would be required from the MassDOT to occupy the I-291 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 and Tap Line corridors. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines.
I-391	Roadway	190-1080	• I-391 runs north-south through the towns of Chicopee and Holyoke in the southern portion of the Study Area. This corridor does not provide access to intermediate substations. • Rights/Agreements would be required from the MassDOT to occupy the I-391 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Route I-391 passes through densely developed residential and commercial areas with many crossroads and driveways in Holyoke which might increase potential to contribute to visual and noise impacts.
I-395	Highway	360-540	• I-395 runs north-south through the towns of Auburn in the eastern portion of the Study Area. This corridor does not provide access to intermediate substations.

			• Rights/Agreements would be required from the MassDOT to occupy the I-395 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
US Highway Route 202	Highway	40-1150	• US Highway 202 runs north-south through the towns of New Salem, Shutesbury, Pelham, Belchertown, Granby, and South Hadley in the center of the Study Area. This corridor does not provide access to intermediate substations. • Rights/Agreements would be required from the MassDOT to occupy the US Highway 202 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW. • This corridor also passes through the Quabbin Revervoir Watershed area, several public water supply areas, along with NHESP Priority Habitat areas in town of New Salem, Shutesbury, Pelham, and Granby. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line).
US Highway Route 5	Highway	45-930	• US Highway 5 runs north-south through the towns of Greenfield, Deerfield, Whately, Hatfield, and Northampton in the western portion of the Study Area. This corridor does not provide access to intermediate substations. • Rights/Agreements would be required from the MassDOT to occupy the US Highway Route 5 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 10	Major Roadway	60-165	• Rights/Agreements would be required from the MassDOT to occupy the Route 10 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 12	Major Roadway	60-1040	• Rights/Agreements would be required from the MassDOT to occupy the Route 12 corridor, which are not likely to be acquired due to the availability of other viable alternatives.

			• Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 19	Major Roadway	40-120	• Rights/Agreements would be required from the MassDOT to occupy the Route 19 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 21	Major Roadway	50-180	• Rights/Agreements would be required from the MassDOT to occupy the Route 21 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 31	Major Roadway	35-200	• Rights/Agreements would be required from the MassDOT to occupy the Route 31 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 32/32A	Major Roadway	40-430	• Rights/Agreements would be required from the MassDOT to occupy the Route 32/32A corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 33	Major Roadway	50-625	• Rights/Agreements would be required from the MassDOT to occupy the Route 33 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.

State Route 47	Major Roadway	40-270	• Rights/Agreements would be required from the MassDOT to occupy the Route 47 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 49	Major Roadway	300-755	• Rights/Agreements would be required from the MassDOT to occupy the Route 49 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 63	Major Roadway	50-250	• Rights/Agreements would be required from the MassDOT to occupy the Route 63 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 66	Major Roadway	55-130	• Rights/Agreements would be required from the MassDOT to occupy the Route 66 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 112	Major Roadway	45-300	• Rights/Agreements would be required from the MassDOT to occupy the Route 112 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.

State Route 116	Major Roadway	45-200	• Rights/Agreements would be required from the MassDOT to occupy the Route 116 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW. • Route 116 passes through densely developed residential and commercial areas with many crossroads and driveways in Holyoke which might increase potential to contribute to visual and noise impacts.
State Route 141	Major Roadway	45-1060	• Rights/Agreements would be required from the MassDOT to occupy the Route 141 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 169	Major Roadway	65-255	• Rights/Agreements would be required from the MassDOT to occupy the Route 169 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
State Route 181	Major Roadway	55-265	• Rights/Agreements would be required from the MassDOT to occupy the Route 181 corridor, which are not likely to be acquired due to the availability of other viable alternatives. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
All other Major Roadways running perpendicular to the E5/F6 and Tap Line ROWs and/or are far removed from the Existing Lines.			

Table G: Natural Gas Pipeline Corridor Eliminated from Further Consideration

Corridor	Explanation for elimination
Tennessee Gas Pipeline (TGP)	• ROW does not maintain system function and operation, as there is no practical connection to the intermediate substations along the Existing Lines. • Collocation with natural gas pipeline corridor can present safety concerns during construction and maintenance of a new transmission line, and these routes are generally avoided if a more feasible route is available.

Table H: Status of Remaining Potential Route Variations after Secondary Screening

Corridor Type	Potential Route Variation	Reason for Elimination
Electric Transmission Corridor	Portion of ROW 8 (Eversource 354)	• Eversource controls this ROW in fee or easement. This ROW, in combination with Route 2/2A, extends north-west from Shutesbury #704 Substation, resulting in a longer route to the Deerfield #4 Substation. • Use of this corridor would require an arrangement between National Grid and Eversource for the construction and operation of the transmission line. The exact details of this arrangement would need to be developed with Eversource. Working within other utility corridors can result in access restrictions, working space constraints, safety concerns, traffic disruptions, and restrictive work hours. • This corridor passes adjacent to DCR properties such as the Wendell State Forest, Montague State Forest, and other open space recreational areas, potentially requiring the release of conservation lands in Wendell, Montague, and Leverett via the Article 97 land disposition process through the Legislature of the Commonwealth. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
	Portion of ROW 1 (National Grid A127/B128)	• This ROW, combined with segments of US Highway 20 and MA State Route 56, extends south-east and results in a longer route to the Millbury #305 Substation. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines.
	Portion of ROW 4 (National Grid O15N)	• This ROW, combined with segments of MA State Route 9, and MA State Route 148, extends east-west from Quabbin Switch Tap, resulting in a longer route to the Ware #1 Substation. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • This corridor passes through state open space and recreational areas primarily owned by the Department of Fish and Game, potentially requiring acquisition of land and additional easement rights. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
Major Highway and Roadways	U.S. Highway Route 20	• Rights/agreements would be required from the MassDOT to occupy the U.S. Highway Route 20 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 and Tap Line corridors. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • This corridor passes several public water supply sources area, as opposed to the public water supply source area intersected by the Project Route (E5/F6 Line). This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).

Corridor Type	Potential Route Variation	Reason for Elimination
	Interstate I-90	• Rights/agreements would be required from the MassDOT to occupy the Interstate Route I-9E corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW. • This corridor passes through 12 EJ communities, as opposed to six intersected by the Project Route (E5/F6 Line). This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
	Interstate 1-290	• Rights/agreements would be required from the MassDOT to occupy the Interstate I-290W corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 2/2A	• Rights/agreements would be required from the MassDOT to occupy the State Route 2/2A corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • This corridor passes through 12 EJ communities, as opposed to six intersected by the Project Route (E5/F6 Line). This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
	State Route 32	• Rights/agreements would be required from the MassDOT to occupy the State Route 32 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 9	• Rights/agreements would be required from the MassDOT to occupy the State Route 9 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW. • This corridor passes through 18 EJ communities, as opposed to six intersected by the Project Route (E5/F6 Line), along with several rare species areas. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).
	State Route 67	• Rights/agreements would be required from the MassDOT to occupy the State Route 67 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor.

Corridor Type	Potential Route Variation	Reason for Elimination
		• Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 56	• Rights/agreements would be required from the MassDOT to occupy the State Route 56 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 122A	• Rights/Agreements would be required from the MassDOT to occupy the State Route 122A corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 146	• Rights/agreements would be required from the MassDOT to occupy the State Route 146 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.
	State Route 148	• Rights/agreements would be required from the MassDOT to occupy the State Route 148 corridor, which are not likely to be acquired due to the availability of the existing E5/F6 corridor. • Significant construction and improvement efforts would be required to create the general accessibility necessary for construction and future maintenance of the relocated lines. • Additional easement rights and/or land acquisition would be necessary along the ROW.

Corridor Type	Potential Route Variation	Reason for Elimination
Railroad Corridor	Portion of CSX Boston Subdivision Railroad	• Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail lines would increase costs. • This corridor passes adjacent to or through DCR properties and state properties such as the Spencer State Forest, Bennett Wildlife Management Area, and other open space recreational areas, potentially requiring the release of conservation lands via the Article 97 land disposition process through the Legislature of the Commonwealth, land acquisition, and additional easement rights. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line). • This corridor also passes through several outstanding resource waters, adjacent to multiple public water supply resource areas, along with NHESP Priority Habitat areas in towns of East Brookfield and Leicester. This would result in additional environmental impacts as compared to the Project Route (E5/F6 Line).
	Portion of North Brookfield Railroad (Local)	• Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail line would increase costs.
	Portion of Providence and Worcester Railroad ("P&W")	• Easement rights would be required from rail owners to collocate facilities along railroad ROW. • Restrictions on working near an active rail line would impact construction and maintenance costs and emergency response. • Land acquisition and construction restrictions associated with working near active rail lines would increase costs. • This corridor passes through several EJ, state conservation areas, and NHESP Priority Habitat areas in the town of Millbury. This would result in additional social/environmental impacts as compared to the Project Route (E5/F6 Line).