

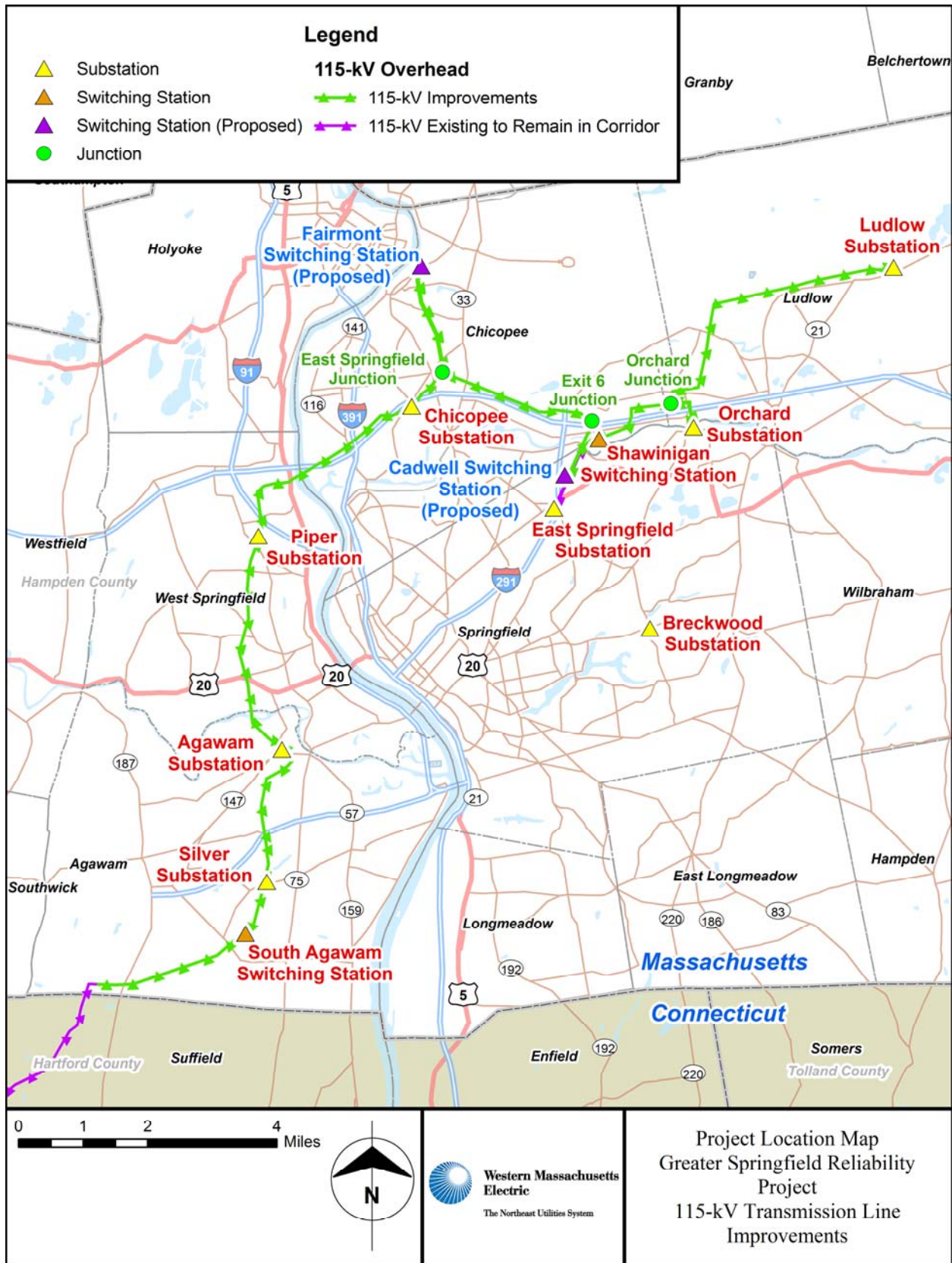
The Massachusetts portions of the Project consist of the following 345-kV components:

- Modify the 345-kV switchyard at the Ludlow Substation to connect the new Ludlow – Agawam 345-kV circuit, to reconnect the existing 345-kV Ludlow – Carpenter Hill 301 circuit, to reconnect the existing 345-kV Ludlow – Barbour Hill 3419 circuit, to replace the existing two 345/115-kV, three-phase 600-Megavolt Ampere (MVA) autotransformers with two new standard 345/115-kV, 600-MVA autotransformers (each employing three single-phase 200-MVA units), and to install two new 345-kV 120-MVAR capacitor banks.
- Build a new 345-kV switchyard at the existing Agawam Substation to connect the new 345-kV Ludlow – Agawam circuit, the new 345-kV Agawam to North Bloomfield (Connecticut) circuit and two new 345/115-kV, 600-MVA autotransformers.
- Build a new 345-kV circuit from Agawam Substation to Ludlow Substation, for approximately 17 miles.
- Build a new 345-kV circuit from Connecticut/Massachusetts state border to the Agawam Substation, for approximately 6.0 miles.

2.1.3 Re-Building 115-kV Lines and Distribution Lines

Upgrades to existing 115-kV transmission lines and modifications to existing distribution lines, which will occur primarily along the same route as the proposed new Massachusetts 345-kV lines, will also be made to handle anticipated flows through the system. In addition, approximately four miles of 115-kV transmission line upgrades will occur along existing “spurs” or ROWs which intersect the Preferred Northern Route in three locations: Orchard Junction, Exit 6 Junction and East Springfield Junction. All of the 115-kV line upgrades and distribution line modifications are being planned, and will be constructed with the new 345-kV lines, as integrated parts of a single transmission Project. Figure 2-2 depicts the routes for 115-kV line improvements.

Figure 2-2: 115-kV Transmission Line Improvements



The Massachusetts portions of the Project consist of the following 115-kV and distribution line components:

- Re-build the existing 115-kV Fairmont Switching Station or construct a new Fairmont Switching Station at a nearby site to connect the existing circuits interconnecting at the station and the two additional 115-kV circuit segments from East Springfield Junction.
- Build a new 115-kV switching station (Cadwell) in the vicinity of the East Springfield Substation. The new Cadwell Switching Station will interconnect the 115-kV 1481, 1426, 1603, 5001 and 5002 circuits.
- Re-build the 115-kV Ludlow – Shawinigan 1845 circuit, for approximately 6.2 miles. This 115-kV circuit will share double-circuit structures with the new 345-kV Ludlow – Agawam circuit.
- Re-build the 115-kV Ludlow – Cadwell (formally East Springfield) 1481 circuit, for approximately 7.3 miles. Where parallel with the 1552 circuit, the circuits will share double-circuit monopole structures.
- Re-build the 115-kV Ludlow – Orchard 1552 circuit, for approximately 5.5 miles. Where parallel, the 1481 and 1552 circuits will share double-circuit monopole structures.
- Re-build the 115-kV Orchard – Cadwell (formally East Springfield) 1426 circuit for approximately 3.2 miles. Where parallel, the 1481 and 1426 circuits will share double-circuit monopole structures.
- Re-build the 115-kV Shawinigan – Fairmont portions of the former 1254 circuit (to be designated circuit 1604), for approximately 4.5 miles on single-circuit monopole structures.
- Re-build the 115-kV Cadwell (formally East Springfield) – Fairmont portions of the former 1723 circuit (to be designated circuit 1603) for approximately 5.3 miles. The re-built circuit will share double-circuit structures with the new 345-kV Ludlow – Agawam circuit east of East Springfield Junction and with the 115-kV Fairmont to Chicopee 1602 circuit north of East Springfield Junction.
- Re-build the 115-kV Fairmont – Chicopee portions of the former 1254 circuit (to be designated circuit 1602) for approximately 2.4 miles. The re-built circuit will share double-circuit structures with the new 345-kV Ludlow – Agawam circuit west of East Springfield Junction and with the 115-kV Fairmont – Cadwell 1603 circuit north of East Springfield Junction
- Re-build the 115-kV Fairmont – Piper portions of the former 1723 circuit (to be designated circuit 1601) on single-circuit monopole structures. An outcome of the above-described re-building of 115-kV circuits to Fairmont will be three sets of monopole structures supporting sections of four 115-kV circuits (1601, 1602, 1603 and 1604) between East Springfield Junction

and Fairmont Switching Station. The 1602 and 1603 lines will share a common double-circuit monopole structure in this section.

- Re-build the 115-kV Piper – Agawam 1230 circuit on single-circuit monopole structures.
- Re-build the 115-kV Chicopee – Agawam 1314 circuit for approximately 7.1 miles. The circuit will share double-circuit monopole structures with the new 345-kV Ludlow – Agawam circuit.
- Re-build the 115-kV Agawam – Silver – South Agawam 1782 circuit on single-circuit monopole structures.
- Re-build the 115-kV Agawam – Silver – South Agawam 1781 circuit for approximately 3.0 miles. The circuit will share double-circuit monopole structures with the new 345-kV Agawam – North Bloomfield circuit.
- Relocation of existing distribution poles in six locations in Agawam, and removal of distribution poles in two locations in Chicopee. These modifications to existing distribution structures will be conducted within the limits of existing ROW, and will facilitate construction of the proposed 345-kV and 115-kV system improvements.
- Re-configure the existing 115-kV transmission system between the South Agawam Switching Station and the Southwick Substation in western Massachusetts, forming a single South Agawam to Southwick 115-kV circuit 1768 with no connections to North Bloomfield Substation.
- Re-build the Agawam portion of the new 115-kV Southwick – South Agawam 1768 circuit for approximately 2.5 miles. This portion of the circuit will share double-circuit monopole structures with the new 345-kV Agawam to North Bloomfield circuit.
- Utilize the existing 115-kV line sections for approximately 0.6 miles between the new Cadwell Switching Station and the East Springfield Substation for two new Cadwell to East Springfield circuits.
- Leave normally open a 115-kV bus-tie circuit breaker at the Breckwood Substation to split the substation and install a circuit switcher to normally bypass the existing series reactor on the 1322 circuit. The open bus-tie breaker will automatically close upon and during the outage of either 115-kV circuit.
- Replace limiting circuit breakers and terminal equipment at the Agawam and Ludlow Substations and at the Shawinigan Switching Station.

2.1.4 Switching Stations and Substations

WMECO will need to modify several existing switching station and substations to support the operation of the new 345-kV transmission line and re-built 115-kV transmission lines. The Project includes two