

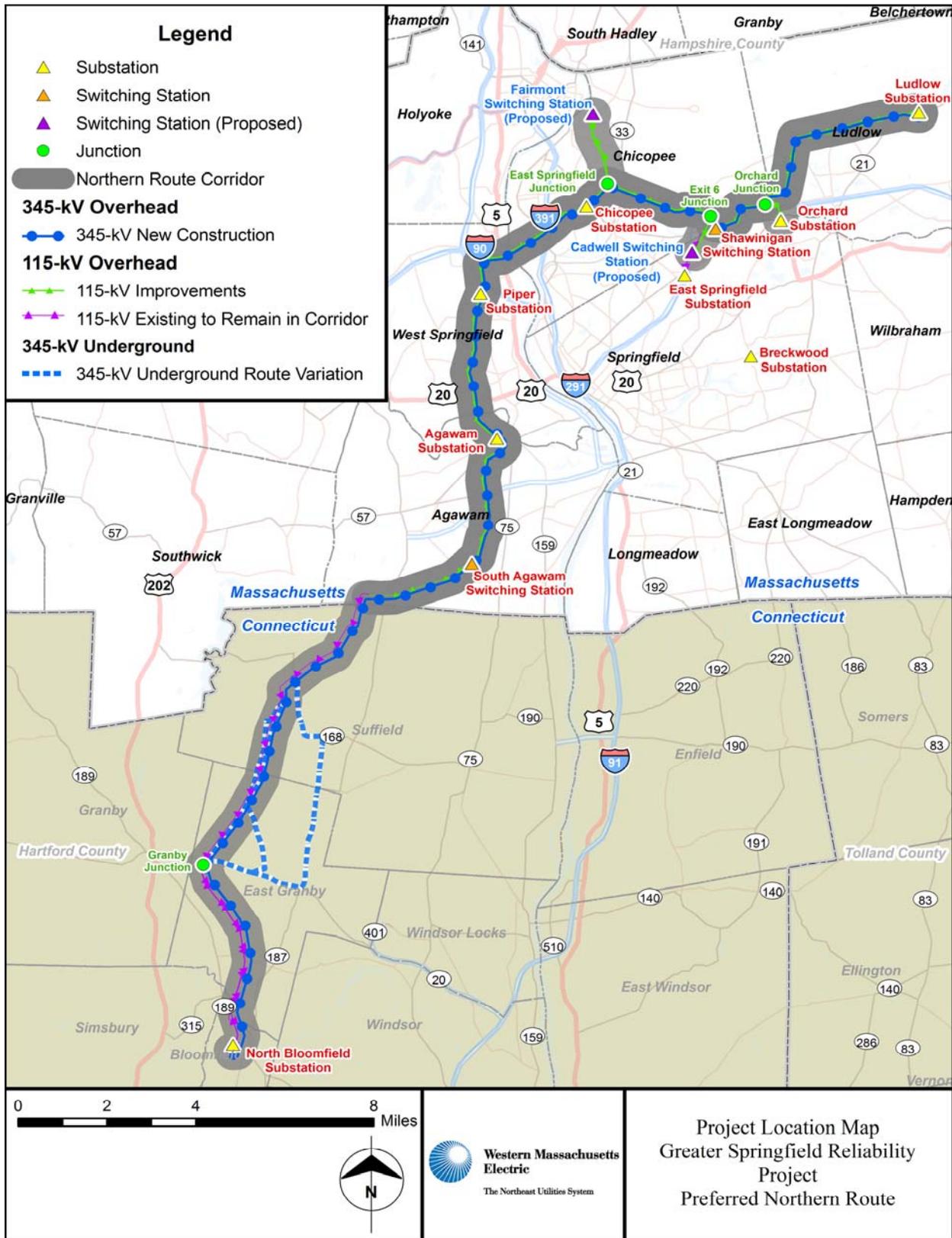
In addition to serving local area transmission needs, the Springfield 115-kV transmission system serves as a path for moving power farther west in Massachusetts and between Massachusetts and Connecticut.

Under the present system configuration, power flowing into the Hartford area from CL&P's North Bloomfield Substation (in Bloomfield, Connecticut) typically comes in substantial part through the Springfield 115-kV system. In the event of a planned or unscheduled outage of the 345-kV tie line between western Massachusetts and Connecticut (the Ludlow, Massachusetts-Barbour Hill, Connecticut line), the flow of power moves on the 115-kV system through Springfield. Under reasonably foreseeable system conditions, these flows will cause severe overloads and low-voltage problems on the 115-kV system.

2.1.2 The Preferred Northern Route (345-kV Loop) – Springfield to North Bloomfield

WMECO's Preferred Northern Route for the Project would place the Massachusetts portions of new 345-kV transmission lines along the existing route of an overhead 115-kV double-circuit transmission line from the Connecticut/Massachusetts border in a northerly direction to the Agawam Substation (approximately 6 miles). Upon reaching the Agawam Substation in Agawam, Massachusetts, the 345-kV transmission line would interconnect to the 115-kV transmission system through new transformation and switchyard equipment to be installed at the expanded Agawam Substation. From the Agawam Substation, a new 345-kV transmission line would traverse in a northeasterly direction through Agawam and West Springfield, and then would continue in an easterly direction through Chicopee and Ludlow to Ludlow Substation (approximately 17 miles). The Preferred Northern Route is shown on Figure 2-1. Refer to Volume 3 for detailed route mapping.

Figure 2-1: Preferred Northern Route



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.