4.5 ROUTE SELECTION OPTIONS

WMECO and CL&P incorporated the transmission line routing objectives and criteria into studies that were used to identify and subsequently assess different route options for the new 345-kV lines. These analyses included the identification and evaluation of existing ROWs and other potential routes or route segments within the Project study area. The initial universe of potential line-route options was developed primarily based on Geographic Information System (GIS) data and confirmed by field reconnaissance. Other information was developed by reviewing digital aerial, U.S. Geographic Survey (USGS) 7.5-minute topographic maps and various GIS data layers available from the following sources: the Massachusetts Office of Geographic and Environmental Information (MassGIS), various municipalities along the routes, and the Environmental Systems Research Institute (ESRI). Alternative route analyses were then conducted for both the 345-kV transmission line required between the Connecticut/Massachusetts border and the Ludlow Substation, with an interconnection at the Agawam Substation, as well as the segment from the Connecticut/Massachusetts border south to the North Bloomfield Substation in Connecticut.

In applying the Company's route selection objectives to find the initial universe of potential route options in the study area, WMECO took into consideration the urbanized land use characteristics of the study area and focused on potential alignments along or within existing ROWs, including existing transmission lines, pipelines, railroads and limited access highways. The non-transmission line corridors that were identified in the study area would have limited (if any) ROW width available to accommodate a new transmission line due to the close proximity to existing residential and commercial development. New easements would be required for most, if not all, of any non-transmission corridor that was paralleled with a new transmission line. Many of the non-transmission line corridors that were identified such as a pipeline ROWs in Agawam, traversed the study area perpendicular instead of parallel to the general direction that a route between two primary end points (North Bloomfield Substation and Ludlow Substation). In this instance, a short portion of the non-transmission corridor could be paralleled but would be subject to the limitations of obtaining new easements and limited available ROW that would make use of this corridor highly constrained.

Within the study area, there are a few railroads that represent a better linear direction between the two primary end points. These non-transmission corridors were reviewed but were determined to also be highly constrained in the urban areas of Agawam, West Springfield, Springfield and Chicopee because of the significant amount of development immediately adjacent to the railroad ROW. For much of these corridors, there would not be sufficient ROW to install a new overhead or underground transmission line without relocating existing utilities (fiber optic cables, pipelines, distribution lines) already located within

or immediately adjacent to the railroad ROW. Even if these utilities were relocated, relocation of some businesses and residences would be required. Limited access highways also had constraints similar to those of railroad corridors because of the amount of residential and commercial development located immediately adjacent to the ROW. When these options were reviewed, relocation of residences and businesses would be required to install an overhead or underground transmission line paralleling the edge of the ROW.

Due to these reasons and because WMECO has numerous transmission line ROWs in the Project area, such corridors became the focus of alternative route evaluations. The use of overhead transmission lines allows flexibility, provided that a continuous ROW of adequate width is available. Individual line structures can often be located to avoid, or span conductors over sensitive environmental areas (e.g., wetlands, streams, steep slopes). However, overhead lines require relatively wide ROWs within which certain land uses and vegetation are not allowed to be in the ROW. Potential locations where ROW expansion areas would be needed also were determined based on the additional ROW required for the new 345-kV transmission line. Figure 4-4 illustrates the routes that were identified and evaluated for the GSRP.

4.6 CRITERIA ANALYSIS OF THE FEASIBLE ROUTE OPTIONS

WMECO used the following criteria in evaluating the selection of potential overhead transmission line routes for the new GSRP 345-kV facilities:

- **Availability of Existing ROW for the New Lines to Follow.** The potential collocation of the 345-kV transmission facilities along existing ROWs (e.g., transmission lines, highways, railroads, pipelines), where linear uses are already established, was a primary routing consideration. In accordance with WMECO design standards, an entirely new 345-kV overhead line would require a minimum 100-foot-wide ROW, based on a steel-monopole design with vertically arranged line conductors. The alignment of the same 345-kV facilities on an existing corridor (parallel to existing transmission lines) may entail a lesser expansion of an existing ROW or may not require any additional ROW at all.
- **Engineering Considerations.** Whether on existing or new ROWs, the length of the route and constructability issues must be considered. These include the ability to avoid or minimize the location of structures along steep slopes or embankments, in areas of rock outcroppings, or within environmentally sensitive areas, such as wetlands. Engineering requirements for crossing