

Further, WMECO would employ local police to direct traffic at construction work sites along roads, as needed, and would erect appropriate traffic signs to indicate the presence of construction work zones. In addition, WMECO would develop an access and traffic control plan for the construction contractor(s); the objective of this plan would be to define requirements for traffic controls, consistent with the specifications of the highway departments with jurisdiction over each road, and to provide for the safe ingress and egress to the ROWs for construction equipment and other vehicles.

5.3.2 Land Use

The existing environment and impacts and mitigation measures for the Preferred Northern Route and the Noticed-Alternative Southern Route are in the following subsections.

5.3.2.1 Existing Environment

The existing land use for the Preferred Northern Route and the Noticed-Alternative Southern Route are summarized below.

5.3.2.1.1 Preferred Northern Route

Lands along the existing Preferred Northern Route are characterized by a variety of uses and developments, including residential, commercial/industrial, open space, agricultural, recreation², and transportation (e.g., highway and railroad corridors). Agricultural and open space uses are more predominant along the southern portion of the route, and the density of urban/suburban development near the ROW generally increases from south to north. The Preferred Northern Route encompasses both rural and urban areas, which are characterized by a variety of vegetative communities. The typical upland vegetative communities found in the Project area include:

- **Old Field/Shrubland.** This habitat type includes the existing maintained ROW, as well as abandoned fields, natural shrublands, and early successional forests. WMECO conducts vegetation maintenance along the existing overhead transmission line ROWs in accordance with WMECO's Operation & Maintenance Plans to assure that non-compatible plants (i.e., species that mature into trees) do not interfere with the reliability of the transmission lines and that maintenance and emergency crews have ready access to existing structures.
- **Mature Mixed Upland Forest.** This forest type includes mature mixed deciduous/coniferous forests in upland areas. Mature mixed forests consist typically of tree species common to the

² The Oak Ridge Golf Course and Robinson State Park – both in Agawam, are the principal recreational areas the Preferred Northern Route ROW crosses through.

Northeast, such as maples, oaks, hickories, hemlock, and pine. The ratio of deciduous to coniferous species and age of stands varies. This community type occurs along some portions of the Project where the existing ROWs are proposed to be widened to accommodate the additional transmission lines.

- **Cultural Grasslands.** This community type includes croplands, hay fields, grazing pastures, and orchards in active agricultural use, as well as parks and golf courses, maintained lawns, and roadside vegetation.

Predominate developed land use features in the vicinity of the Preferred Northern Route include Agawam High School and the Department of Special Education in Agawam, as well as West Springfield High School and Middle School and the John Ashley School in West Springfield. The existing ROW traverses Robinson State Park in the same area it crosses the Westfield River in Agawam, north of the Agawam Substation. Other notable land features in the vicinity of the Preferred Northern Route include: Cook Playground, Clark Field, Ray Ash Park, Garrity Grove Park, Slate Conservation Area, Chicopee Memorial State Park, Camp White, and Facing Rock Wildlife Management Area.

The evaluation criteria reflecting land use along the Preferred Northern Route are extracted from Table 4-3, above and presented in Table 5-5, below.

Table 5-5: Preferred Northern Route Land Use Evaluation Criteria

Evaluation Criteria Metrics	Preferred Northern Route
Total Length (Miles)	22.9 miles
Stream Crossings (Number)	47
Residences within 100 feet of edge of ROW (Number)	316
Residences within 101 to 300 feet of edge of ROW (Number)	754
Businesses within 100 feet of edge of ROW or centerline (Number)	46
Businesses within 101 to 300 feet of edge of ROW (Number)	42
Public Facilities within 300 feet of edge of ROW (Number)	2
Public Facilities within 301 to 1,200 feet of edge of ROW (Number)	9
Length by land use (Commercial/Industrial)	6.8 miles
Length by land use (Residential)	13.1 miles
Length by land use (Undeveloped Land)	11.3 miles
Length by land use (Park/School/Open Space)	3.3 miles
Length through vegetated wetland	3.6 miles
Length through environmentally sensitive area	7.8 miles
Cultural resources predictive modeling analysis (Rating)	39.2

In order to determine if the GSRP as currently planned is consistent with the over-arching planning documents of the involved municipalities, WMECO obtained and reviewed the available documents for each town or regional planning agency along the Preferred Northern Route, including:

- The Pioneer Valley Land Use Plan (2007)
- Agawam Community Development Plan (2004)
- Agawam Open Space & Recreation Plan (2006)
- Chicopee Open Space & Recreation Plan (2005)
- Springfield “Strategies for a Sustainable City” Plan (2006)
- West Springfield Open Space & Recreation Plan (1998)
- West Springfield Master Plan (2000)

Overall, these plans tend to focus on issues such as: mechanisms for preserving open space and agricultural lands; protecting valuable natural resources; identifying ways to connect existing protected

lands; identifying modes of alternative transportation; encouraging smart growth and sustainable development; decreasing low density urban sprawl; increasing both passive and active recreational facilities; creating and preserving low-income and senior housing; identifying and preserving historical resources.

As previously outlined, the primary reason for the GSRP is to make necessary upgrades and improvements to the existing electric transmission system in these towns to ensure safe, reliable electric power and to maintain compliance with regional and national electric standards. As a result, the GSRP is not at odds with the municipal planning initiatives within the Project area, and a safe, reliable source of electric power is vital to the overall well-being of these communities and will only help to allow the objectives of the municipal plans to be realized.

5.3.2.1.2 Noticed-Alternative Southern Route

The principal land uses near the Noticed-Alternative Southern Route include a mix of residential, agriculture, recreational, commercial and industrial development along with undeveloped forest land. The typical upland vegetative communities found in the Project area, and set forth above in Section 5.3.2.1.1, are also present along the Noticed-Alternative Southern Route. This route is generally more rural and forested than the Preferred Northern Route.

Predominant features in the vicinity of the Noticed-Alternative Southern Route include Crestview Country Club, Six Flags New England Amusement Park, Fanny Stebbins Memorial Wildlife Refuge, Wolf Swamp Park & Recreation Area, Mill Road Conservation Area, Elmcrest Country Club, Tanglewood Conservation Area, Wilbraham Country Club, Wilbraham Game Farm, Ludlow Country Club and Facing Rock Wildlife Management Area. In general, the Noticed-Alternative Southern Route traverses areas that are substantially less developed and more rural in nature than the Preferred Northern Route. The most developed towns along the route are Agawam and Ludlow; the most rural are Wilbraham and Hampden.

The evaluation criteria reflecting land use along the Noticed-Alternative Southern Route are extracted from Table 4-3 and presented in Table 5-6, below. In contrast to Table 4-3, however, scoring has been disassociated for the Noticed-Alternative Southern Route so that land use factors affecting the 115-kV upgrade work that will in all events occur on the Preferred Northern Route have been subtracted from the totals in Table 4-3 for the Noticed-Alternative Southern Route. The results in Table 5-6, therefore, show only the land use characteristics of the 345-kV route itself.

Table 5-6: Noticed-Alternative Southern Route Land Use Evaluation Criteria

Evaluation Criteria Metrics	Southern Route
Total Length (Miles)	21 miles
Stream Crossings (Number)	41
Residences within 100 feet of edge of ROW (Number)	112
Residences within 101 to 300 feet of edge of ROW (Number)	362
Businesses within 100 feet of edge of ROW or centerline (Number)	8
Businesses within 101 to 300 feet of edge of ROW (Number)	16
Public Facilities within 300 feet of edge of ROW (Number)	1
Public Facilities within 301 to 1,200 feet of edge of ROW (Number)	9
Length by land use (Commercial/Industrial)	3.6 miles
Length by land use (Residential)	5.6 miles
Length by land use (Undeveloped Land)	12.5 miles
Length by land use (Park/School/Open Space)	0.6 miles
Length through stream or wetland	12.8 miles
Length through environmentally sensitive area	20.5 miles
Cultural resources predictive modeling analysis (Rating)	29.1

In order to determine if the GSRP as currently planned is consistent with the over-arching planning documents of the involved municipalities, WMECO obtained and reviewed the available documents for each town or regional planning agency along the Noticed-Alternative Southern Route, including:

- The Pioneer Valley Land Use Plan (2007)
- Agawam Community Development Plan (2004)
- Agawam Open Space & Recreation Plan (2006)
- East Longmeadow Open Space & Recreation Plan (2000)
- Longmeadow Open Space & Recreation Plan (2002)
- Hampden Open Space & Recreation Plan (2003)
- Wilbraham Open Space & Recreation Plan (2000-2005)

Overall, these plans tend to focus on issues such as: mechanisms for preserving open space and agricultural lands; protecting valuable natural resources; identifying ways to connect existing protected

lands; identifying modes of alternative transportation; encouraging smart growth and sustainable development; decreasing low density urban sprawl; increasing both passive and active recreational facilities; creating and preserving low-income and senior housing; identifying and preserving historical resources.

As previously outlined, the primary reason for the GSRP is to make necessary upgrades and improvements to the existing electric transmission system in these towns to ensure safe, reliable electric power and to maintain compliance with regional and national electric standards. As a result, the GSRP is not at odds with the municipal planning initiatives within the Project area, and a safe, reliable source of electric power is vital to the overall well-being of these communities and will only help to allow the objectives of the municipal plans to be realized.

5.3.2.2 Impacts and Mitigation

The impacts and mitigation for land use of the Preferred Northern Route and the Noticed-Alternative Southern Route are summarized below.

5.3.2.2.1 Preferred Northern Route and Related Facilities

Lands along the Preferred Northern Route are characterized by a variety of uses and developments including residential, commercial/industrial, open space, agricultural, recreation, and transportation (e.g., highway and railroad corridors). The land use factors set forth in Table 5-5 are potentially impacted by the construction and operation of the Project on the Preferred Northern Route. Most of such impacts are specifically reviewed in the following subsections of this Section 5. With respect to impacts in general, however, the Project will comply with federal, state and local laws, regulations and policies in all respects. The Project is designed to be consistent with the mandates of the EFSB. WMECO will obtain all the necessary permits and approvals.

The development of the proposed transmission lines along the existing WMECO ROW would have negligible effects on topography and geology. Soil resources would be affected by the creation or expansion of access roads along the ROW, as well as by the earth-disturbing activities required to install the transmission line structures. Impacts to soil resources would be short-term, lasting only for the duration of the construction period, until re-vegetation or other forms of site stabilization are achieved.

In general, the construction of the Project will result in minor changes in topography, localized at structure locations or along access roads. For example, grading, which would change elevations, would

only be performed to create level areas for the installation of structures, and to improve existing access roads or to create new access roads along the ROW in order to provide safe passage for construction equipment. Changes in the grades adjacent to proposed structure locations may be required for the construction of crane pads, where fill may be imported to provide a safe and level work area around each structure location. Crane pads may be removed in some locations after construction. Grading would not be required along the ROW where the terrain is flat and open, where no access road improvements are needed, or where the conductors span the underlying terrain.

Blasting and Rock Removal

For the most part, blasting is not expected to be needed to install structures along the Project ROW. As currently proposed, the transmission line structures are expected to be steel poles which would require foundations with anchor bolts. The preferred techniques for removing rock, if encountered, would be to use either mechanical methods (e.g., mechanical excavators and pneumatic hammers) or mechanical methods supplemented by controlled drilling and blasting. Potential impacts from rock removal may include dust and vibration/noise from rock drilling, blasting (if required), and removal.

Temporary and permanent alterations to land (uplands) will occur due to the following Project activities:

- Expansion of existing maintained corridors within existing WMECO transmission line easements and, in select locations, the expansion of easements;
- Improvement of existing access roads or construction of new access roads, involving vegetation removal and/or grading along the transmission line ROWs;
- Installation of new transmission line structures and foundations;
- Creation of crane pads to support the heavy equipment needed to install structures;
- Expansion of the Agawam and Ludlow Substations.³

Vegetation removal to widen the ROW and to provide access for construction activities will be performed using mechanical methods. Improvements to existing access roads and the construction of new access roads will be accomplished with standard construction equipment. Construction of the foundations for the new transmission line structures may involve mechanical excavation, some controlled rock drilling and blasting (if required), installation of form work, supporting/reinforcing and anchor bolt steel, pouring of concrete, and installation of backfill material.

³ Impacts to the expansion required to the Agawam and Ludlow Substations will be addressed in detail in Section 5.4.

The principal land use impact arises from the expansion of the ROW, which is summarized in the following Table 5-7.

Table 5-7: Summary of ROW Expansion along the Preferred Northern Route

Town(s)	From	To	Mileage	Existing ROW (ft)	Proposed ROW (ft)	Additional Width (ft)	Acres of Additional ROW
Agawam	CT/MA Border	S. Agawam Switching Station	2.3	100	110	10	2.79
Agawam	Silver Substation	Agawam Substation	0.5	100	135	35	2.12
Chicopee	E. Springfield Junction	Exit 6 Junction	1.5	100	125	25	4.55
Totals	---	---	4.3	---	---	---	9.46

5.3.2.2.2 Noticed-Alternative Southern Route

Land uses along the Noticed-Alternative Southern Route include residential, agricultural, commercial, industrial, recreation, wetland, and forested areas. The land use factors set forth in Table 5-6 are potentially impacted by the construction and operation of the Project on the Noticed-Alternative Southern Route. Most of such impacts are specifically reviewed in the following subsections of this Section 5. With respect to impacts, as indicated above in Section 5.3.2.2.1, the Project will comply with federal, state and local laws, regulations and policies in all respects. Alterations to uplands for the Noticed-Alternative Southern Route would be generally similar to that of the Preferred Northern Route, including identical expansions to the Ludlow and Agawam Substations. The land acquisition for ROW expansion will differ slightly.

As with the Preferred Northern Route, the principal land use impact arises from the expansion of the ROW, which is summarized for the Noticed-Alternative Southern Route in the following Table 5-8.

Table 5-8: Summary of ROW Expansion along the Noticed-Alternative Southern Route

Town(s)	From	To	Mileage	Existing ROW (ft)	Proposed ROW (ft)	Additional Width (ft)	Acres of Additional ROW
Agawam	CT/MA Border	S. Agawam Switching Station	2.3	100	110	10	2.79
Agawam	Silver Substation	Agawam Substation	0.5	100	165	65	3.94
Agawam	Silver Substation	Agawam Substation	1.9	150	165	15	3.45
Totals	---	---	4.7	---	---	---	10.18

It is important to stress however, because the 115-kV lines along the Preferred Northern Route must be constructed anyway, selection of the Noticed-Alternative Southern Route would essentially double most of the alterations incurred for the Project as a whole.⁴ In other words, the potentially impacted land use factors are those set forth in Table 4-3, where the Noticed-Alternative Southern Route numbers all reflect the aggregation of impacts which occur when the 345-kV lines are constructed on the Noticed-Alternative Southern Route and the 115-kV lines are upgraded on the Preferred Northern Route.

5.3.2.2.3 Comparison of Land Use Impacts

The Preferred Northern Route encompasses an area that is substantially more developed than the Noticed-Alternative Southern Route. In addition, the Preferred Northern Route includes a substantial amount of adjacent industrial-zoned land and existing industrial uses – the same zone designation typically ascribed to electric transmission line facilities and ROWs. While there are some commercial and industrial areas along it, the Noticed-Alternative Southern Route is characterized mainly by residential, agricultural, and other rural areas. While there will be slight widening of the ROW along a small portion of the Preferred Northern Route, selection of the Preferred Northern Route will allow for the 115-kV line re-build work to occur simultaneously and within the same ROW as the construction of the new 345kv facilities. On the other hand, should the Noticed-Alternative Southern Route be selected for the new 345-kV facilities, the 115-kV re-build work would still need to occur along the Preferred Northern Route, effectively requiring impacts to the entirety of both routes. In short, selection of the Preferred Northern Route is preferable as it will allow for the needed transmission line infrastructure in the GSRP area to be limited to one ROW

⁴ ROW expansion will not be doubled since different areas of the ROW on the Preferred Northern Route require different expansions. Table 5-7 and Table 5-8 are, respectively, the total land expansions for the different routes and have only the segment from the Connecticut border to South Agawam in common.

network, rather than two, and in an area that already includes significantly more industrial zoned land and active, adjacent industrial uses.

5.3.2.2.4 Mitigation Measures

If blasting is required, WMECO would develop a blasting control plan in compliance with state, industry, and corporate standards; this plan would be provided to the state and local Fire Marshals. Further, if blasting is necessary, WMECO would employ methods to minimize adverse impacts. For example, blasting charges, if required, would be designed to loosen only the material that must be removed to provide a stable foundation for an overhead structure.

Excess rock (if any) generated from construction activities may be stockpiled at approved locations along the ROWs, with the landowner's permission, to create wildlife habitat, or to provide barriers to unauthorized vehicular traffic along the ROWs. The rock also may be used to re-construct stone walls, if any such walls are affected by the construction activities. Excess rock would not be deposited in wetlands or watercourses. Any excess rock not otherwise used along the ROW would be disposed off site at an appropriate location, pursuant to regulatory requirements.

Where grading and earth disturbing activities are required, temporary erosion and sediment control measures would be installed to minimize the potential for soil erosion and sedimentation off ROW or into watercourses or wetlands. Temporary erosion controls (e.g., silt fence, hay/straw bales, filter socks, mulching, and temporary reseeded) may be deployed after clearing or grading, or at other times during construction, in areas of land disturbance. The need for and extent of temporary and permanent erosion and sedimentation controls would be a function of considerations such as:

- Slope (steepness, potential for erosion, and presence of resources such as wetlands or streams at bottom of slope).
- Type of vegetation removal method used and extent of vegetative cover remaining after removal (e.g., presence/absence of understory or herbaceous vegetation that would minimize the potential for erosion and degree of soil disturbance as a result of the movements of clearing equipment).
- Type of soil and erodibility factor (K value).
- Soil moisture regimes.
- Schedule of future construction activities.

- Proximity of cleared areas to water resources, roads, or other sensitive environmental resources.
- Time of year: The types of erosion and sedimentation control methods for a particular area would depend on the time of year. For example, reseeded would not typically be effective during the winter months. In winter, with frozen ground, controls other than re-seeding (such as the use of wood chips, straw and hay, geotextile fabric, waterbars, or crushed stone) would be used to stabilize disturbed areas until seeding can be performed.
- Extreme weather conditions during or immediately following soil disturbance.

The measures selected would be appropriate to minimize the potential for erosion and sedimentation in areas where soils are disturbed. WMECO would adhere to its best management practices, and would prepare a Project-specific Erosion and Sedimentation Control Plan.

Typically, temporary erosion controls would be installed based on the judgment of WMECO's in-field representatives. Temporary erosion controls may be placed in the following types of areas, in accordance with site-specific field determinations:

- Across or along portions of cleared ROW, at intervals dictated by slope, amount of vegetative cover remaining, and down slope environmental resources.
- Across or along accessways within the transmission line ROW.
- Across areas of disturbed soils on slopes leading to streams and wetlands.

The temporary erosion controls would be maintained, as necessary, throughout the period of active construction until restoration has been deemed successful, as determined by standard criteria for storm water pollution control/prevention and erosion control. In addition to silt fence or hay/straw bales, temporary erosion controls may include the use of mulch, jute netting (or equivalent), erosion control blankets, reseeded to establish a temporary vegetative cover, and/or temporary or permanent diversion berms (if warranted). After the completion of construction activities in any area, permanent stabilization measures (e.g., seeding, mulching) would be performed.

During the course of periodic post construction inspections, WMECO would determine when it is appropriate to remove these temporary erosion controls.

Municipal consultations and document reviews conducted to date indicate that the proposed 345-kV lines generally will not conflict with local land-use plans, primarily because the proposed transmission lines

will be located principally within existing, well-established ROWs. Similarly, the transmission facilities are anticipated to have minimal effects on existing and future land uses within and adjacent to the ROW. Along most of the proposed overhead line routes, the easement for the existing 115-kV transmission lines already precludes the availability of the land for the construction of new, non-utility related, permanent structures. In areas where the existing ROW must be expanded or new ROW is required to accommodate the proposed transmission lines, WMECO will acquire easement rights from the affected property owners. In such areas, future land uses along the ROW will be restricted to those that are compatible with utility use.

The Project may temporarily affect certain recreational resources (e.g. Oak Ridge Golf Club and Robinson State Park in Agawam), particularly those that are crossed by the transmission facilities. WMECO expects to consult with representatives of these affected recreational areas in order to identify site-specific mitigation measures.

5.3.3 Noise

The existing environment and impacts and mitigation measures for the Preferred Northern Route and the Noticed-Alternative Southern Route are in the following subsections. The existing environment and impacts and mitigation measures for noise at the Agawam and Ludlow Substations where noise-producing equipment exists and where modifications to noise-producing equipment will be made are presented in Section 5.4, below.

5.3.3.1 Existing Environment

The existing noise environment for the Preferred Northern Route and the Noticed-Alternative Southern Route is summarized below.

5.3.3.1.1 Preferred Northern Route

The GSRP region is generally characterized by urban and suburban environments, where ambient sound levels are influenced by diverse factors such as vehicular traffic, commercial and industrial activities, and outdoor activities typical of developed environments. Certain types of activities may be considered to be more sensitive to changes in noise conditions; such uses include residences, schools, and designated recreational areas.

The Preferred Northern Route, which generally traverses developed portions of the Greater Springfield Area, is characterized by existing noise levels that are typical of such urban – suburban environments.