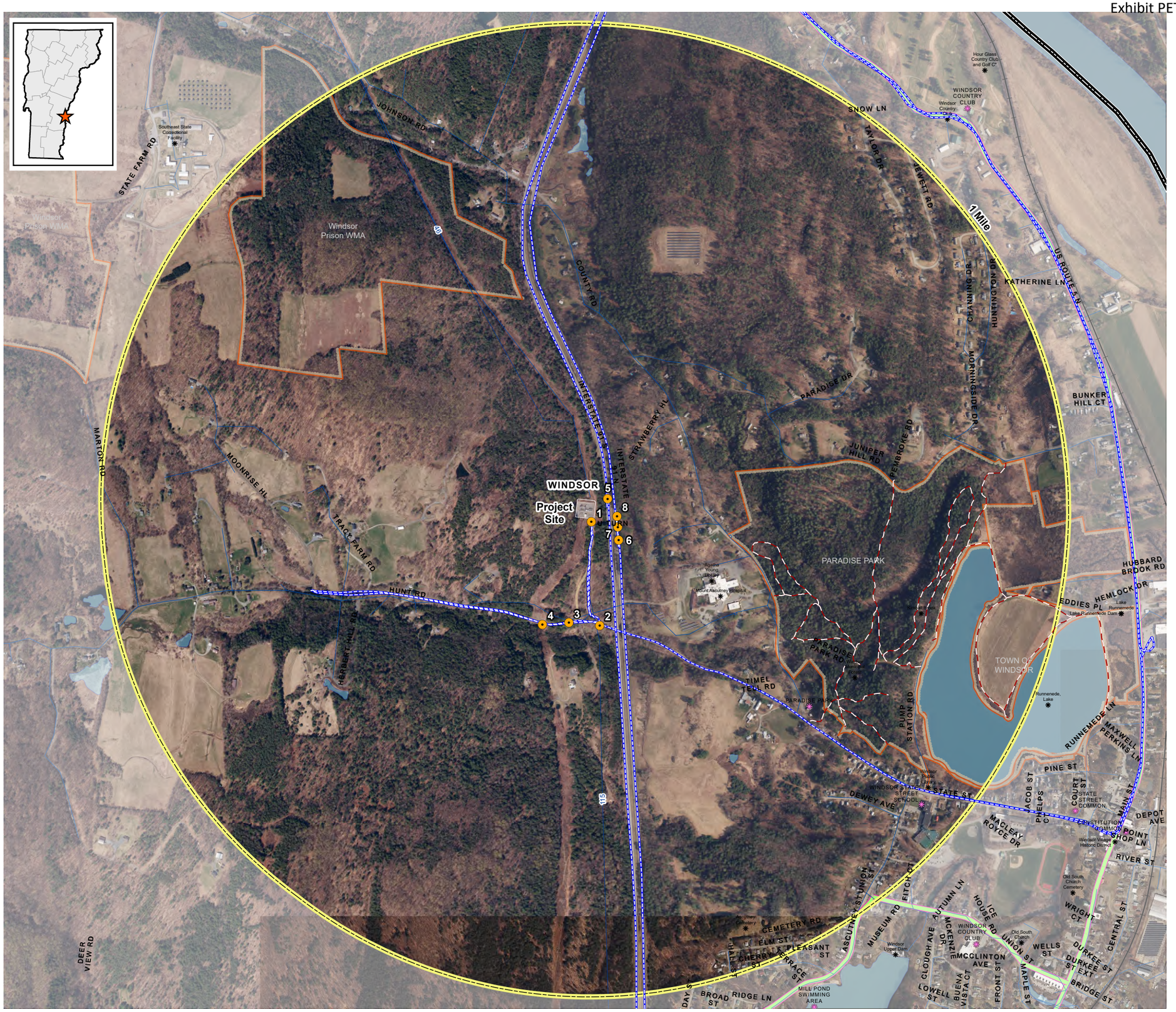

CONTEXT MAP

Windsor Substation Upgrade

Appendix A

MAP 1: AERIAL CONTEXT MAP

November 2024

LEGEND

- Viewpoint Location
- Landmarks
- Recreation Sites
- Inventory Route
- Vermont Scenic Byways and Highways
- Vermont Trails
- Railroads
- 1-Mile Radius
- Town Boundary
- Vermont Protected Lands
- Hydrology

NORTH

0 0.25 Miles

Service Layer Credits: EGC_services/ MAP_VCGI_ALLIMAGERYCLR_WM_NOCACHE_v1: VCGI

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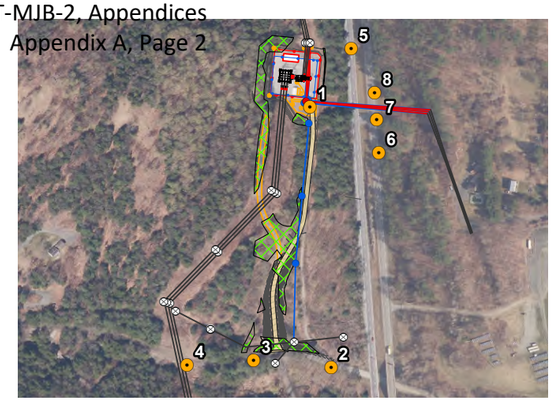

SITE MAP

Windsor Substation Upgrade

Appendix A

MAP 2: TERRAIN VIEWSHED MAP

[2-Mile Study Area]

November 2024

LEGEND

- Viewpoint Location
- Landmarks
- Recreation Sites
- Inventory Route
- Utility Lines
- 20' Contours
- Vermont Scenic Byways and Highways
- Vermont Trails
- Railroads
- 1-Mile Radius
- 2-Mile Study Area
- Town Boundary
- Hydrology
- Vermont Protected Lands

Potential Visibility within Non-Forested Areas

Low High

Potential Visibility within Forested Areas

Low High

NORTH

0 0.25 0.5 0.75 Miles

GIS viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, because of data assumptions and omissions, viewshed maps are not a definitive indication of visibility. Potential visibility needs to be confirmed through field investigation and other visualization techniques.

Elevation data derived from LiDAR data and/or the National Elevation Dataset.

T.J. BOYLE ASSOCIATES
LANDSCAPE ARCHITECTURE & PLANNING

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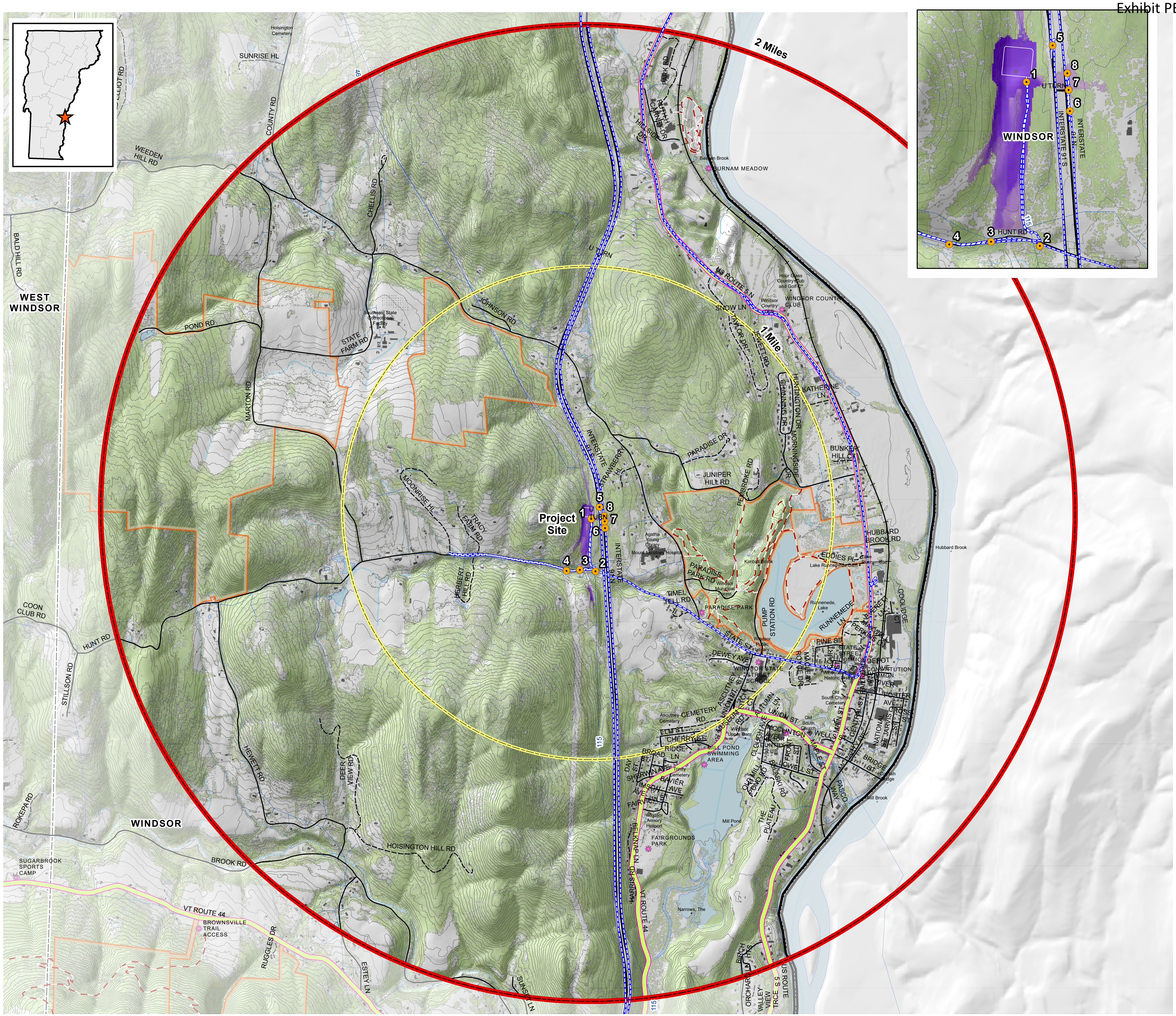
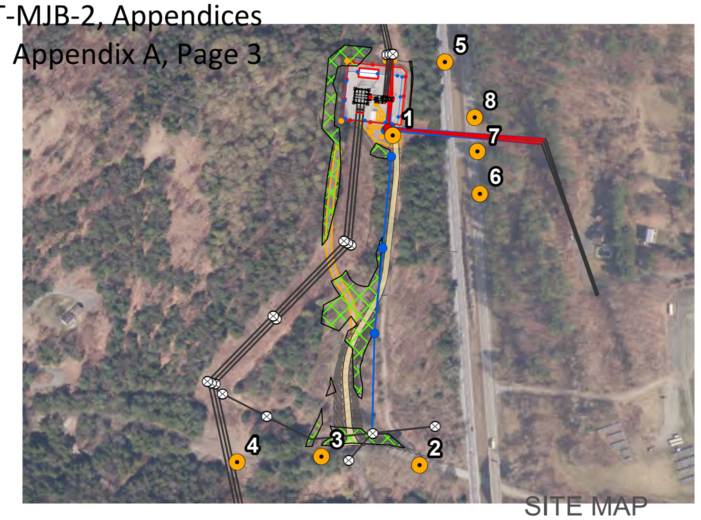




Windsor Substation Upgrade

Appendix A

MAP 3: VEGETATED VIEWSHED MAP

[2-Mile Study Area]

November 2024

LEGEND

- Viewpoint Location
- Landmarks
- Recreation Sites
- Inventory Route
- Utility Lines
- 20' Contours
- Vermont Scenic Byways and Highways
- Vermont Trails
- Railroads
- 1-Mile Radius
- 2-Mile Study Area
- Town Boundary
- Hydrology
- Vermont Protected Lands
- Proposed Solar Array Layout

Potential Visibility within Non-Forested Areas

Low High

NORTH

0 0.25 0.5 0.75 Miles

GIS viewshed mapping is a preliminary means of visual analysis. While beneficial for preliminary orientation and investigation, because of data assumptions and omissions, viewshed maps are not a definitive indication of visibility. Potential visibility needs to be confirmed through field investigation and other visualization techniques.

Elevation and obstruction data derived from LiDAR data, aerial imagery, the National Elevation Dataset and the National Land Cover Database.

T.J. BOYLE ASSOCIATES
LANDSCAPE ARCHITECTURE & PLANNING

Viewpoint 1: Approximately 180° panoramic view from the existing substation access drive, West of Interstate 91, panning from roughly north (left) to south (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

Viewpoint 1: View from the Project site looking east towards Interstate 91. This view is represented by the orange rectangle in the image above. (50mm)

Viewpoint 2: Approximately 180° panoramic view from Hunt Road across from the existing substation access drive south of the Project site, panning from roughly west (left) to east (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

Viewpoint 2: View from Hunt Road looking roughly northwest towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)

Viewpoint 3: Approximately 180° panoramic view from Hunt Road south of the Project site, panning roughly from west (left) to east (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

Viewpoint 3: View from Hunt Road looking north towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)

Viewpoint 4: Approximately 180° panoramic view from Hunt Road southwest of the Project site, panning from roughly west (left) to east (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

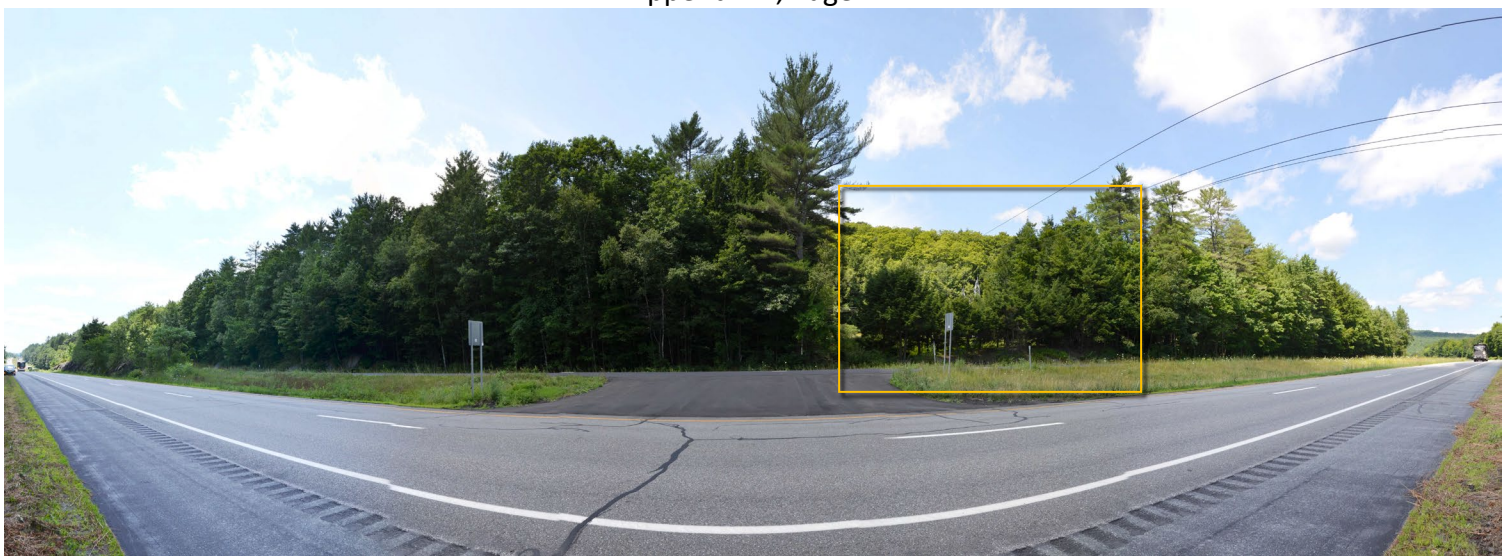
Viewpoint 4: View from Hunt Road looking approximately northeast towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)

Viewpoint 5: Approximately 180° panoramic view from Interstate 91 S northeast of the Project site, panning from approximately southeast (left) to northwest (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

Viewpoint 5: View from Interstate 91 N looking southwest towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)

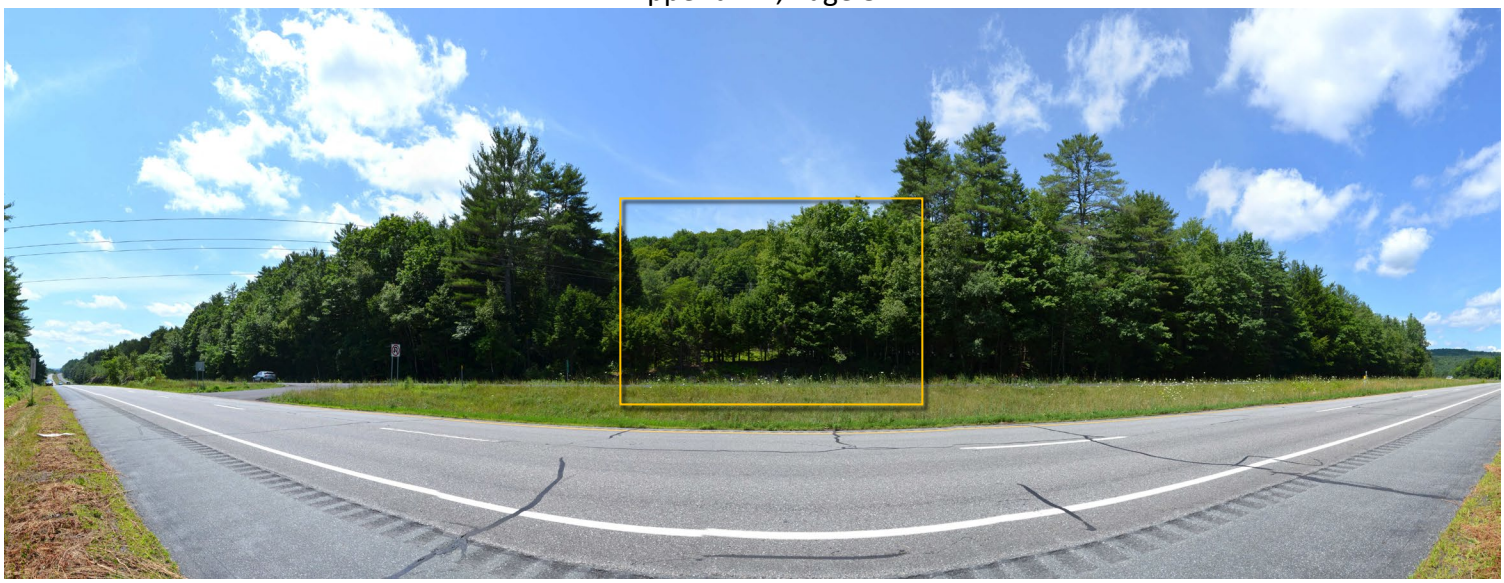
Viewpoint 6: Approximately 180° panoramic view from Interstate 91 N east of the Project site, panning from south (left) to north (right). The orange rectangle represents the image below, which is captured with a 50mm equivalent lens.

Viewpoint 6: View from Interstate 91 N looking northwest towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)



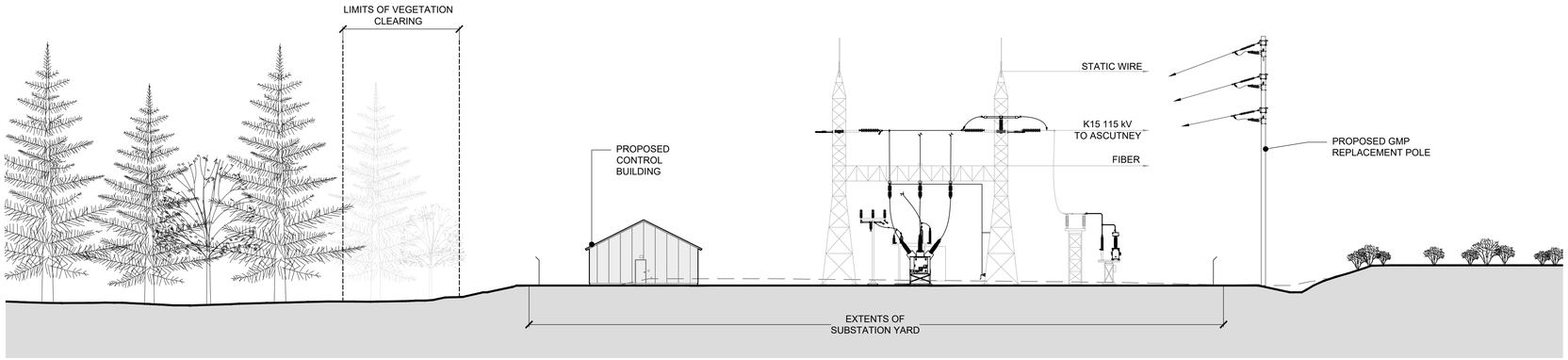
Viewpoint 7: Approximately 180° panoramic view from Interstate 91 N, east of the Project site, panning from south (left) to north (right). The orange rectangle represents the image below, which is captured with a 50mm lens.

Viewpoint 7: View from Interstate 91 N looking west towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)

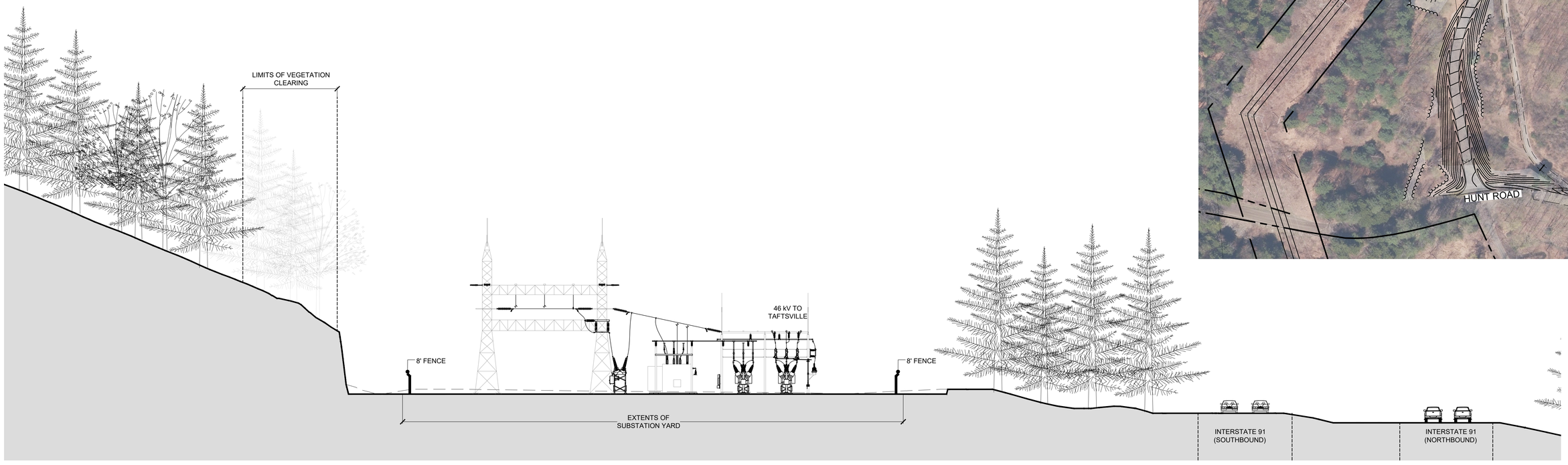


Viewpoint 8: Approximately 180° panoramic view from Interstate 91 N, east of the Project site, panning from roughly south (left) to north (right). The orange rectangle represents the image below, which is captured with a 50mm lens.

Viewpoint 8: View from Interstate 91 N looking west towards the Project site. This view is represented by the orange rectangle in the image above. (50mm)



1 SECTION A: LOOKING EAST
SCALE 1" = 20'



2 SECTION B: LOOKING NORTH
SCALE 1" = 20'

CONTEXT MAP

T.J. BOYLE ASSOCIATES
LANDSCAPE ARCHITECTURE & PLANNING

REVISIONS	DATE	REVISIONS	DATE

SCALE: 1" = 20'
0 10' 20' 40'

WINDSOR, VT
DATE: DECEMBER 17, 2024

WINDSOR SUBSTATION UPGRADE
APPENDIX C - CROSS SECTIONS
SHEET: L1.1

Municipal Plan

Town of Windsor, Vermont

Adopted by the Windsor Selectboard November 12, 2019

This Town Plan was updated in 2019 by the Windsor Planning Commission with assistance from the Southern Windsor County Regional Planning Commission, Ascutney, VT

TOWN of WINDSOR

Office of Zoning and Planning

29 Union Street
Windsor, Vermont 05089

Date: 24 November, 2019

Re: Updates to Municipal Plan, 2019

Much has changed in the years since the town made it initial efforts to formalize a "Town Plan". A municipal plan is created to provide guidance for all Town of Windsor officials to use in making choices and decisions. Vermont is changing. Population growth has stagnated. The number of older residents is increasing. Even the way we buy things has changed radically in only a few years.

The revisions to the Municipal Plans were undertaken with an eye toward revising the specific ideas and goals of the plan. Increasing the focus on sustainability and actively developing housing related projects are just two of the areas that have been enhanced.

We believe that Windsor is positioned to take advantage of a number of changes in the next few years. There is an increasing popularity to living in Walkable Downtowns. Sustainability is finally becoming a realistic opportunity. Bicycle paths and outdoor recreation are important parts of life in Vermont in 2019.

The Planning Commission would like to thank long time Commission Chair Marv Klassen-Landis for his efforts on behalf of the community. Marv has decided that with the completion of the Town Plan work it is time for him to go on to other interests and to leave it for new faces to continue the work he has been part of for so long. Thank you Marv for a lot of effort and a lot of evenings working on the details.

Robert D. Haight
Zoning Administrator
Town of Windsor, Vermont

802.674.1018

zoning@windsorvt.org

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7. LAND USE

PURPOSE

This chapter documents existing land use patterns and articulates the desired future growth patterns for the Town of Windsor in accordance with 24 V.S.A. §4382(a)(2).

A community rich in history, Windsor is the birthplace of Vermont and is notable for the precision manufacturing industry that was the foundation for the American industrial revolution in the 1800s. While manufacturing is still an important component of the local economy, Windsor has largely transitioned in recent years into a bedroom community for people employed in the Upper Valley.

Windsor's walkable historic downtown, surrounded by a rural countryside is a rare, real-world example of the State planning goal to "maintain the historic settlement pattern of compact village…separated by rural countryside" [24 V.S.A. §4302(c)(1)]. The downtown is surrounded by outstanding natural and recreational assets, such as the Connecticut River, Mill Pond, Runnemede Pond, Paradise Park and Mt. Ascutney State Park. The Downtown Master Plan completed in 2012 explores what is possible when focusing redevelopment efforts on the downtown area, along with strategic infrastructure investments.

EXISTING LAND USE

Land use patterns in Windsor have developed naturally in a classic village pattern. There is a downtown commercial center near the Connecticut River with industrial uses nearby. The downtown is home to many beautiful historic buildings. Immediately outside of the downtown and to the west of Route 5 are high- and medium-density residential neighborhoods, sprinkled heavily with historic structures. Beyond these neighborhoods are rural areas, where large residential lots are the rule, with substantial farmland and forested areas. All of the high-density residential areas are served by Town water and sewer, as are most of the medium-density residential areas, and portions of the rural residential areas along County Road and Route 44. The density of development and population is highest in and around downtown, and tapers off to the north, south, and west. The Interstate highway generally separates the densely developed areas from the rural countryside that consists of forests, farms, and rural settlements that are generally limited by steep slopes and other natural constraints.

Discussed below, and shown on the Existing Land Use Map which is included with this Plan, is an illustration of existing development patterns.

Downtown

Historic buildings line the streets in Windsor. The original site of the town center is where the legion hall stands today. It is characterized by the village green on the north side of State Street. A granite marker, south of the Congregational Church, was the spot of the first meetinghouse until 1798.

Downtown Windsor is easily accessible by foot. Banking, restaurants, retail shops, professional services are located within downtown, and schools and the Mount Ascutney Hospital are located within a half mile of downtown. This area is served by infrastructure, including sidewalks, on-street parking, Amtrak rail station, and public water and sewer services. Connecticut River Transit provides public transportation services for Upper Valley-bound commuters as well as dial-a-ride services for medical appointments and similar trips.

of states' Historic Preservation Funds be given to CLGs. A local government becomes eligible for this program when the State Historic Preservation Officer (SHPO) certifies that the local government has established its own historic preservation commission and a program that meets state and federal standards. In addition to being eligible for matching survey and planning grants, CLGs review nominations of National Historic Register properties within their jurisdictions and provide local perspective to the plans and programs of the VT Division of Historic Preservation.

Residential

Residential development is most concentrated surrounding Windsor's downtown where the most municipal services are provided. There is a mix of single- and multi-family housing with single-family housing becoming prevalent immediately west of Route 5. Minimum lot sizes range from 7,000 to 12,000 square feet allowed by existing zoning standards for locations served by public water and sewer. In the further reaches of the town, low-density residential development predominates, and is permitted by current zoning, in minimum lot sizes ranging from 40,000 square feet to 25 acres.

US Route 5 Corridor

US Route 5 connects Windsor to I-91 to the north at Exit 9 in Hartland and at Exit 8 in Ascutney to the south. Sections of US Route 5 both north and south of downtown are notable for clusters of single-family residences and scenic farm land. Development along the Roadside Business and Industrial zoning districts is starting to look like typical strip commercial development. However, there are a number of opportunities for redevelopment along this corridor in ways that improve this situation, as articulated in the future land use section.

VT Route 44 Corridor

VT Route 44 is the western approach to Windsor, and connects to Ascutney State Park, and the Towns of West Windsor, Reading and Woodstock. This is an important access to the Ascutney Mountain Resort, once it reopens. Most of the land along this road is developed as small residential lots, and has topography or natural features that limit commercial development options. A sewer force main line runs along this corridor servicing the ski resort area, but it does not currently serve the rural areas located between downtown and the resort. A small cluster of residences is located around the area roughly defined by the area near VT Routes 44 and 44A, Cole Hill Road, and a portion of Brook Road. Scenic fields and prime or statewide important agricultural soils are found along much this corridor.

Industrial Areas

Industrial activities have historically occurred in three areas, all between Route 5 and the Connecticut River. The Windsor Industrial Park (i.e. Artisans Park) consists of a total of 23.6 acres. Businesses in the park currently include Simon Pearce Glassblowing and Pottery, Harpoon Brewery, Lebanon Screw Products, Land Air Express, Vermont Farmstead Cheese Company, and American Crafted Spirits Distillery. This area also houses a canoe rental establishment and a garden for visitors to stroll through. The remainder of a permitted Planned Unit Development may still be developed. The Windsor Industrial Park now offers recreation and amenities, and in addition allows visitors to view pottery, glass-blowing and beer-making operations in action. Industrial uses are also allowed on Route 5 to the south of the industrial park, where they have access to town water and sewer, as well as easy access to the Interstate.

The second industrial area is a tract of land immediately north of the Weathersfield town line which is currently occupied by Biebel Builders and Miller Construction. It is not fully utilized, but may be the best location for heavier industrial development. However, industrial uses can have a dramatic impact on neighboring non-industrial uses. Special consideration should be given to how these uses impact neighboring Weathersfield.

The third industrial area is discussed as the Industrial Heritage area in downtown. This area was the historical core of the local manufacturing area. It is now occupied by older industrial buildings that are currently occupied, but underused. Seldon Technology, a nanotechnology firm, occupies a portion of the former Cone manufacturing building. Several small manufacturers, woodworkers, recycling center, offices and retail uses occupy buildings on the former Goodyear campus.

Agricultural and Open

Agriculture in Vermont has been on the decline for many years but now appears to be growing. Windsor typifies this change. The largest tracts of prime agricultural land in town lie in the flood plain along the Connecticut River both north and south of the downtown area. These strips of good, usable farmland are valuable not only for their agricultural function, but also for their scenic and cultural significance along the Connecticut River Corridor and for their capacity to store and convey flood waters.

The farmlands along US Route 5 north and south are noteworthy not only as quality agricultural soils, but also as scenic resources. These fields communicate a visual transition between the more built up downtown and roadside business district areas, with the rural portion of town.

Since even “postage stamp” gardens can produce significant yields of fruits and vegetables to their owners, agricultural uses of any scale should be encouraged in every part of town. Roadside stands and farmers' markets for selling locally grown produce should be supported by the community.

Prime farmland and soils of statewide importance are identified based on county-based soils mapping data and USDA definitions. Not all of these mapped areas may be economically viable for farming and, therefore, may be well suited for development, especially in close proximity to the downtown. Additional scientific and economic information may be required to refine these areas and to determine if mitigation efforts are warranted for developments on a case by case basis.

Open fields contribute to the valued scenic resources in Town, affording dramatic views of the Connecticut River, Mt. Ascutney and other resources. Open fields are also beneficial as wildlife habitat.

Outdoor Recreation and Forest Lands

Nearly one-third of Windsor’s total land area is publicly-owned, a large proportion of which is owned by the State. In the northwestern part of town, the State owns 946 acres on which the former Southeast State Correctional Facility and the Grasslands Wildlife Management Area is located. Most of this land consists of woods and open fields, and is available for outdoor recreational uses. In the southern part of town, Mt. Ascutney State Park covers 2,333 acres of land, most of which is wooded and is used for outdoor recreational purposes. Town-owned recreation lands, such as the Mill Pond beach area, Paradise Park, and the Fairgrounds, are discussed in the Public Lands and Recreation sections of the Municipal Services/Utilities and Facilities portion of this Plan. Although these lands do not directly contribute to the local tax base, they generally do not require local expenditures to provide services. In addition, they contribute toward rural character, protect water quality and provide opportunities for outdoor recreation. The economics of outdoor recreation are notable; see the

Mount Ascutney Outdoor Recreation Plan for more details. Despite the abundance of forest and recreation lands in Windsor, Town-owned access to the Connecticut River is lacking.

FUTURE LAND USE

In accordance with the State Planning Goals, growth is desired to further the existing settlement patterns by concentrating most commercial and civic uses as well as multi-family residential in the downtown and surrounding residential areas where infrastructure supports such densities, and maintaining a rural countryside in the surrounding areas to support a working landscape and low-density residential uses and home occupations. Industrial uses are desired in those locations shown on the future land use map and discussed below. Non-residential uses located outside of the downtown shall take measures to avoid or mitigate strip commercial development as discussed below. The Downtown Master Plan provides specific ideas for growth in the downtown, including infrastructure improvements to support such growth.

The Future Land Use map is a representation of the general land use patterns that the Town would like to see develop in the years to come. The future land use designations described below correspond with the designations included on the Future Land Use map. Together, this information is intended to show the types and relative concentrations of development that are most appropriate for different parts of Windsor. This information is meant to:

1. Guide and update effective implementation of local bylaws;
2. Give clear guidance on local priorities in state planning and regulatory proceedings; and,
3. Provide landowners and developers with a tool that will help them locate and design projects in efficient and locally acceptable ways.

Downtown

This area, including a number of discrete neighborhoods that combine to represent the traditional center of the community, is served by infrastructure allowing for the highest densities in Town and encourages travel by walking, bicycling and public transit. All of the following desired traits shall apply to the downtown area:

a) Served by public water and sewer;
b) Served by sidewalks, bicycle lanes, bicycle parking, bus stops;
c) Served by on-street parking; off-street parking, when needed, shall be located to the side or rear of buildings;
d) Pedestrian building orientation; new developments shall not be auto-oriented or result in strip development patterns;
e) Existing buildings that are substantially redeveloped (i.e. knock-down, rebuild) shall incorporate site design techniques to meet the desired character of the area, including points (c) and (d) above;
f) This area shall be the primary location in Town for commercial activities, such as retail, and civic uses typical for downtown areas;
g) Design review is required per the Zoning Ordinance in order to maintain historical character.

c) The area between the golf course and Industrial Park includes existing uses such as contractor yards, fuel distribution and quarry gravel pit which is effectively played out.

The recent transitional development detracts from both rural character and the visual effect of the northerly gateway into Windsor. In order to improve this situation, these areas shall be subject to special design considerations under site plan or conditional use review, and development of this type is to be limited in nodes in order to avoid spreading out along the entire highway corridor. In addition, industrial-type uses (e.g. contractor yards, fuel distribution and similar uses) must provide landscaping and screening in order to reduce the visual impact of travelers along US Route 5 and adjacent properties. Travelers' services, such as gas stations and automotive repair, may be suitable in these areas as long as they provide landscaping and screening as noted above. Retail and other businesses that are compatible with Vermont's so-called "Downtown Initiative" shall locate within Windsor's downtown, not in these Roadside areas. Development that meets the definition of strip commercial development – which exhibits auto-oriented designs such as parking in the front, large internally-lit signs, and big box-type siting of structures – are not appropriate in these areas. Traveler services and similar uses will be allowed if they provide pedestrian-oriented design, which shall include siting the building close to the roadway, providing parking to the rear or side of the building, and similar techniques. These areas are also subject to the access management requirements noted in the special considerations section.

Residential

The residential designation provides an area for residential and other compatible uses at moderate-to high-densities, as appropriate for the physical characteristics of the land and the availability of community facilities and services. Residential land uses will predominate within these areas, but dispersed agricultural and open land, small-scale neighborhood stores and/or home based businesses, and country inns and Bed & Breakfasts may be appropriate within some residential areas. In some rural areas, where preservation of open lands, wildlife habitat, or scenic views is a priority, cluster development is the preferred development approach for any large development. Smaller developments are encouraged to protect these resources and shall be consistent with historic settlement patterns.

Industrial

The industrial designation makes provision for uses which are inappropriate for commercial or residential areas. The overriding use within the industrial area will be light industry, including light manufacturing or related "See it Made" uses. There may be a few remaining residences within the industrial area; however, future residential development is to be discouraged. Industrial uses shall limit negative impacts on neighboring non-industrial uses by providing landscaping or screening and meeting the other performance standards in the zoning bylaws.

Rural

This category includes rural areas that are generally comprised of larger tracts of land which are best suited to maintaining rural character and supporting outdoor recreation or working landscape activities, including farming and sustainable forestry. Many of the forested areas provide valuable wildlife habitat. Low-density residential and home occupations are also allowed in these areas. Development densities shall depend on several factors, including proximity to major roadways and infrastructure, and environmental constraints, such as topography, wetlands, prime agricultural soils, important wildlife habitat, site suitability for on-site water and sewage disposal, and other

and minimize impacts to natural resources such as steep slopes, prime agricultural soils, wetlands, significant wildlife habitat areas, flood hazard areas and other development constraints. Minimum densities and site appropriate setbacks may be considered by the Development Review Board.

Access Management. Development along the US Route 5 North corridor is also subject to access management and setback considerations in order to reduce strip-like developments, require new parking areas to locate to the side or rear of buildings, minimize curb cuts/promote shared access, and not adversely affect traffic safety. This area currently exhibits emerging strip development land use patterns. Developments and re-developments along Route 5 should incorporate sound access management practices. VTrans' standards within their Access Management Design Guidelines shall apply to all developments in this area. New developments will share driveways and access roads or seek direct access from side roads to the greatest extent possible.

Ridgelines and Prominent Knolls. Any development which is proposed at moderate and high elevations and along ridgeline or other prominent knolls should demonstrate that measures have been taken so as the development is not visually obtrusive to surrounding and distant neighbors or from public roadways.

Flood Hazards. All development located within the FEMA special flood hazard areas is subject to flood hazard review in accordance with the Windsor Zoning Ordinance. These special flood hazard areas are primarily subject to inundation flooding. Conservation of the broad floodplains along the Connecticut River, including extensive farmland north and south of downtown, will maintain flood storage capacity, which will help mitigate flooding in the lower elevations of the downtown area.

During Tropical Storm Irene, significant erosion damages were sustained in other areas along the Mill Brook. The SWCRPC is currently beginning a stream geomorphic assessment which will help to determine where the river erosion hazard areas are located. Until that process is complete, residents are advised not to build new structures in flood or erosion prone areas of the Mill Brook in particular.

TIMING AND SEQUENCE OF DEVELOPMENT

One of the most important aspects of planning for future land use patterns is coordination of public investments in local infrastructure. By directing development within the guidelines of the Future Land Use map, the Town can ensure that future investments in roads, water and sewer lines, sidewalks, etc., will not place an unnecessary burden on taxpayers. Conversely, if the Town has an idea of where different types of growth should occur, it can construct utilities and other services in advance, as a way to attract development to Windsor while maintaining some control over its pace and location. Development in any land use designation must be carefully planned in order to maintain the outstanding natural resource characteristics of the area.

The Future Land Use map is based in large part on two important ideas: first, that historical development patterns are what make Windsor attractive, and will foster a healthy economy, strong community spirit, and a stable and affordable tax structure; second, that the most intensive development (commercial, industrial, and medium- to large-scale residential) should occur first and at the fastest pace in and around established and designated centers of these activities. Retail and civic uses shall occur in the downtown and surrounding area that is served by water and sewer. Outlying areas should grow at a slower pace, and should see relatively low-intensity and low-density uses.

Goal

1) Preserve the historic development pattern of a compact mixed-use village area~~s~~ surrounded by open land, agriculture, forest and low-density residential uses.

Policies

1) Future development shall be consistent with the future land use categories and map.
2) Develop only those land use regulations necessary to protect and preserve the health, safety, and welfare of residents and visitors, Windsor's economic viability, and important natural and historic resources, and to effectively reduce municipal costs to support development.
3) Intensive growth shall be directed to those areas along major roads and served by existing or planned public water and sewer infrastructure. Where infrastructure expansions are planned, the developer shall pay their proportional share of the necessary expansion costs.
4) Ensure that the pace of development correlates with the Town's ability to provide necessary public services, through the use of bylaws and through strategic investment in public infrastructure.
5) Direct the placement of appropriate governmental buildings, such as municipal offices, state offices, and Post Offices, to downtown areas, and utilize existing space whenever possible.
6) Develop a diverse economic base that will provide jobs, grow the Grand List, increase the number of users of water and sewer services, and have no undue adverse affect on surrounding neighborhoods.
7) Efforts to revitalize and redevelop the former industrial and commercial base within the designated downtown shall enhance the vitality and livability of the downtown while restoring employment opportunities for local residents.
8) Where development encroaches unnecessarily on forestlands, farmlands, wildlife habitat and/or wildlife travel corridors, development shall cluster or locate to the periphery in order to minimize fragmentation. Planned unit development review shall be required for large developments or developments on large tracts of land.
9) Development on large lots in rural areas shall be designed to focus development activities along existing roadways and on portions of land that have the least constraints (i.e. minimize disturbance of water courses, wetlands, steep slopes and other constraints).
10) Encourage shared driveways for developments off VT Route 44 outside of the village.

Recommendations

1) Review and revise the zoning, subdivision and flood hazard bylaws to ensure conformance with the Town Plan. Explore ways to streamline the local permitting process for desirable projects that are consistent with the future land use categories and map.
2) Seek funding to translate the Downtown Master Plan into a Smart Code, Form Based Code or other innovative land use regulation in order to better guide development in the Downtown area.
3) Develop special review standards and procedures for development along US Route 5 North in accordance with the Special Considerations in this Chapter.
4) Regularly update the Capital Budget and Program to reflect the goals of this Plan.
5) Coordinate local land use planning activities with local conservation and recreation groups, local and regional economic development agencies, and historic preservation groups.
6) Actively explore cooperative agreements between landowners and the Town to meet on-street and off-street public parking needs. Provide adequate signage to clearly direct visitors to public parking areas.
7) Review permit applications for commercial developments outside the downtown area with the potential impacts on the downtown business climate in mind.
8) Actively encourage downtown revitalization and scenic byway beautification programs and

projects.

9) Seek easements or land purchases to gain public access to the Connecticut River.
10) Promote the development of a Connecticut River Corridor Greenway through Windsor.
11) The removal of any additional lands from the tax rolls must be very carefully considered, especially with regard to the likely impact on the remaining tax base.
12) Invite and actively encourage public participation in local planning and development activities.
13) Develop an open space plan in order to lay out priorities for open space preservation and protection, including the identification of economically viable farmlands.
14) Work with the Vermont Department of Fish and Wildlife and Southern Windsor County Regional Planning Commission to refine the wildlife habitat map and identify important wildlife travel corridors.
15) Seek improvements to non-motorized connections between recreational facilities, civic areas and residential areas.
16) Consider establishing impact fees to help finance the Capital Budget and Program.
17) Maintain designation in Vermont's Downtown Program in order to provide tools that help to implement goals of this Town Plan.
18) The Town should continue to develop planning approaches aimed at protecting and maintaining the current rural nature of all lands west of I-91, and strive to focus any significant development to appropriate areas in and around Downtown.
19) Consider all of the areas currently identified as Industrial to see if the classification is still seen as the best and highest use.

8. NATURAL, SCENIC AND CULTURAL RESOURCES

GROUNDWATER/WELLHEAD PROTECTION AREAS (WHPA)

Groundwater is the primary source for drinking water in Windsor, and has many points of exchange both to and from surface water systems. Maintaining good quality and adequate quantities of groundwater are important considerations for preserving the public health and safety.

Windsor's municipal water supply comes from wells on Pumping Station Road near Lake Runnemede. The wells are fed by a "confined unconsolidated aquifer," as defined by the Vermont Department of Environmental Conservation, Water Supply Division. The Water Supply Division identifies Public Water Source Protection Areas for each Public water system source. Groundwater sources are protected through the delineation of Wellhead Protection Areas (WHPAs), which "include recharge areas, transmission zones and groundwater storage areas." The approximate area of a WHPA, which the Water Supply Division defines as "the surface and subsurface area surrounding a water-well or field, supplying a Public water system, through which contaminants are likely to move toward and reach such water well or field," is 175 acres. This area for the municipal WHPA encompasses Lake Runnemede, a large portion of Paradise Park, and sections of high and medium density residential neighborhoods (see map in Appendix). All buildings within the municipal WHPA are served by Town water and sewer. If properly protected, this abundant source of excellent drinking water should provide for Windsor's community water needs well into the future.

Contamination at brownfield sites may impact the quality of groundwater and the public drinking supply. The Town is actively engaged in the regional Brownfields Program, and should continue to monitor and seek funding to cleanup these contamination sites.

WHPAs serving smaller populations are established for the Southeast State Corrections Facility and the Mt. Ascutney Trailer Park.

Goal

1) Preserve the integrity and security of aquifers and maintain the sustainability of Windsor's groundwater resources.

Policies

1) Protect Windsor's community water supply by minimizing the introduction of new sources of pollution, and containing existing sources of pollution, within the Wellhead Protection Area.
2) Discourage new high-density development in Wellhead Protection Areas.
3) Do not allow salt or salted sand piles and limit the use of road salt in WHPAs.
4) No new roads or parking areas should be allowed in WHPAs.
5) Do not allow on-site disposal of hazardous waste, including disposal of household hazardous waste through on-site sewage disposal systems.
6) New and existing on-site underground storage tanks should be designed, installed, and inspected in accordance with the Agency of Natural Resources Underground Storage Tank Regulations for Aquifer Protection Areas or Class II Groundwater Areas.
7) All storm water runoff should be managed by best management practices or diverted away from wells and Wellhead Protection Areas.
8) Any use of herbicides or pesticides within WHPAs must be strongly discouraged.
9) Chemically treated swimming pool or hot tub water should not be drained in WHPAs.

Recommendations

1) Consider refining the WHPA map.
2) Monitor the soils, surface water and groundwater to ensure that hazardous substances from the contaminated site at the high school do not contaminate the town water supply or surface waters.

SHORELANDS/SURFACE WATERS/WETLANDS

Shorelands, surface waters, and wetlands are parts of very fragile and important ecosystems (see map in Appendix). Surface waters, wetlands, and adjacent land areas provide recreational and educational opportunities (fishing, boating, wildlife viewing, etc.), and contribute to the scenic and aesthetic properties of Windsor. They also supply local residents with food (by providing habitat for fish and wildlife) and drinking water (through exchanges with groundwater sources). Proper protection of these areas is vital to the protection of water quality, the basis of all life on our planet. We want our waters to be beautiful, clean, and accessible.

The Connecticut River Corridor is still partially undeveloped and much of the land within 500 feet of the river is open farmland. However, there is some industrial, commercial, and residential property along the river as well. Both types of riverfront property are valuable assets, and the town should support efforts to improve environmental and aesthetic resources along the river banks.

Other valuable shorelands in Windsor surround Mill Pond, Lake Runnemede, and several major streams. The Town owns shoreline and the Town beach on Mill Pond. Paradise Park abuts Lake Runnemede, and the Town water wells are by the shore of Lake Runnemede. The shores of these two major water bodies are largely undeveloped, though future development pressure seems likely.

Valuable public and private wetlands are scattered throughout Windsor. The Town has historically provided no special protection to these fragile and indispensable natural resources. One large wetland is located in the Wellhead Protection Area and may have a direct impact on the quality and quantity of groundwater used by the community water system. Another is located along Mill Brook just upstream from Mill Pond, which serves as the Town's swimming area. This wetland provides important wildlife habitat, and removes significant quantities of pollutants from water entering the pond. Wetlands also provide flood storage capacity and can be used as valuable educational tools. All wetlands in Windsor deserve special attention and protection.

Phosphorus influences surface water quality in Vermont more than any other single pollutant. Controlling the introduction of phosphorus into Windsor's surface and ground waters is critical to maintaining the quality of these waters.

Maintaining adequate vegetated buffers along surface waters is beneficial for the community. Natural vegetation, including trees shrubs and natural ground cover plants, should be encouraged along all surface waters. According to guidance from the VT Department of Environmental Conservation (*Native Vegetation for Lakeshores, Streamsides and Wetland Buffers*, 1994), minimum width of 50 feet is needed to protect streambank stability and aquatic habitat. Widths of 100 feet may be necessary to remove suspended sediment in runoff. In some cases, buffer widths between 200 and 600 feet may be beneficial as habitat for birds and mammals. The widths of each buffer should depend on site conditions, including soil type, slope and the purpose of the buffer.

iii. Maximize on-site water infiltration.

2) Primary agricultural lands, as defined by the USDA, should be devoted to the production of agricultural products, or to uses that will maintain or preserve such lands for future agricultural operations.
3) Promote farming and the production of local, healthy foods.
4) Any development planned for agricultural or forested lands should locate to the periphery of these resources in order to avoid fragmentation and encourage the natural productivity of these lands.
5) Earth resource extraction activities shall:
   a) Not cause undue adverse effects upon surrounding properties;
   b) Mitigate adverse impacts on important wildlife habitat and the environment; and,
   c) Provide adequate site restoration at the completion of extraction activities.

Recommendations

1) Review zoning and subdivision bylaws for consistency with the policies in this section.
2) Provide healthy food, an increase awareness of agricultural and environmental responsibility.
3) Support Farm-to-Table and Farm-to-School programs.

AIR RESOURCES

Windsor currently does not have an air quality problem according to national standards. As a result, the Town's good air quality constitutes an environmental resource that has aesthetic as well as human health benefits. Elements that could negatively affect air quality include: smell, light, particulate matter (from dust, smoke or fumes), radiation, chemical vapors, motor vehicle exhaust and power plant emissions. Outdoor lighting can also negatively impact safety and the dark night sky.

Goals

1) Maintain Windsor's existing ambient air quality.

Policies

1) Development is subject to the performance standards in the Windsor Zoning Regulations as they relate to air resource impacts.
2) Proposed new lighting shall avoid glare and other unnecessary light pollution.
3) Outdoor lighting levels should be a balance between aesthetics, security, energy efficiency, reducing adverse impacts on the night sky, and safety (i.e. reducing glare).

Recommendations

1) Town equipment should meet emission standards.
2) The Town should take an active role in the review of development proposals or plans that could adversely affect air quality.

SCENIC RESOURCES

Mount Ascutney, which is partially located in the Town of Windsor, is known regionally as an important scenic resource. Distant views of the mountain are an important sense of identity for Windsor and the surrounding area. The scenic mountain was an important focal point for the Cornish Artist's Colony centered in Cornish, NH in the late 1800s and early 1900s.

Other significant scenic resources include:

Connecticut River – Views of the River from US Route 5 are an essential aspect of the Connecticut River Scenic Byway. The large farm fields located between US Route 5 and the River both to the north and south of Downtown are very significant to maintain this scenic corridor.

Pastures and Farm Fields – In general, these features contribute to rural character and are results of the desired working landscape economic activities in rural areas. Specifically, fields along US Route 5 across from Artisans Park are scenic and maintain a pleasant rural gateway from I-91 Exit 9 into the Town of Windsor, as well as the fields along the river as discussed above.

Ridgelines and Prominent Knolls – High elevation areas and ridgelines include Mount Ascutney as well as the long ridge that roughly parallels I-91 to the west and extends generally between Hunt Road and the Hartland town line. Not only is this ridgeline in itself scenic, but it also divides the rural countryside to the west from the more developed areas in Windsor to the east.

Natural areas controlled by the State including the State Park and the scenic portions of the Grasslands Wildlife Management Area (WMA) along the Marton Road area. Not only are these areas scenic, but they provide other valuable functions, such as wildlife habitat, stormwater/groundwater recharge, and outdoor recreational opportunities.

Lakes and Ponds – Mill (Kennedy) Pond, Lake Runnemede and the Grasslands WMA pond are important scenic assets for the community.

Paradise Park – Not only is this park an outstanding recreational asset, it is also an important scenic area surrounding Lake Runnemede. Located just north of Downtown, this area provides a clear divide between the more developed area and the rural countryside. This area contributes to a pleasant rural gateway for visitors entering Windsor from the north.

Great views of the Connecticut River can be found from the Great Farm and other properties to the east of US Route 5 North. These areas could support developments that take advantage of these views and great access to I-91 Exit 9. These scenic qualities may be impacted by adjacent uses, such as fuel distribution and contractor yards.

Hunt Road – Rural western sections of Hunt Road are very scenic and worth preserving the rural character that it currently provides.

Goals

1) Preserve these scenic resources that most contribute to Windsor's rural character.

Policies

1) Development is discouraged in identified scenic resource areas. Any development in these areas shall minimize negative visual and environmental impacts through the careful placement of buildings, limited clearing, landscaping, screening and other methods.

Recommendations

1) Consider mapping scenic resources.
2) Consider land use regulations to restrict developments in scenic areas.

9. ECONOMIC DEVELOPMENT

PURPOSE

The purpose of this chapter is to document the existing local economy and identify desired future economic development conditions in accordance with 24 V.S.A. §4382(a)(11).

PRESENT ECONOMIC CONDITIONS

Windsor has a proud history as a manufacturing center. While manufacturing has declined in recent decades, it is still an important local economic sector along with education, health care, government, trade/transportation/utilities and professional services. A large proportion of residents are employed in the Upper Valley, an easy 15-20 minute drive north on I-91. Historic and existing economic conditions are discussed in the next sections.

History

Windsor's economy has traditionally been based largely on industry and manufacturing. As long ago as the early 1800s, the foundation for the American industrial revolution was being laid in Windsor. The Town's industrial base took shape and expanded during the years leading up to the turn of the Century, and remained strong for another 75 years or more. Its growth went beyond town borders and blossomed throughout the region, most notably in Springfield. The design and manufacture of machine tools were so prevalent in the regional economy during this period, and played such an important role in the industry at the national scale, that the area became known as Precision Valley.

During the past few decades, national and international economic trends have brought major changes to Windsor. Manufacturing continues to play an important role in the local and regional economy, but it does so at a dramatically reduced scale when measured in jobs and contribution to the local tax base. A large network of infrastructure and services established to support the historic manufacturing center is expensive to maintain, but presents a unique opportunity to support desired growth in and around the historic downtown.

Local Businesses

According to the Vermont Department of Labor statistics, there were 138 local employment establishments in 2017 (see Table 1). A few notable, large employers include Mt. Ascutney Hospital, Windsor School District, and Cedar Hill Continuing Care Community. Located in Artisan's Park are Harpoon Brewery, Simon Pearce, Land Air Express, Lebanon Screw Products and other businesses. Recently established local businesses include American Crafted Spirits, Vermont Farmstead Cheeses, and The Sustainable Farmer.

Since 1990, employment trends in Windsor have been mixed. The recent growth of Artisan's Park has been positive. Mount Ascutney Hospital, the largest employer in town, has been expanding in recent years and has an excellent reputation. Revitalization of several downtown properties is completed or underway, and many are fully leased. The former Cone property recently installed solar panels, but remains underutilized. A number of small businesses occupy the former Goodyear Campus and a solar project is to be developed on the slab located south of the main building. This area is severely limited in terms of expanded future development by brownfields and flood-related constraints. However, the community's goal for the site is to allow for the reasonable reuse of existing buildings and to clean up

the site, making it more attractive. New construction is unlikely in the portions of the lot that are within the floodway, but it may be possible within floodplain areas in the northernmost portion of the site.

However, the loss of the two largest employers in Town, Goodyear and Cone-Blanchard, has impacted the community in terms of lowering household incomes and reducing local tax revenues. Household incomes lag behind Windsor County and the State of Vermont; the Town's median family adjusted gross income is about 82% of the County level (see the Economic Profile). During this same period, Windsor's population has declined 20% since it apex in 1960.

Employment sectors that have been growing in Windsor between 2010 and 2017 include education, health care, financial activities, professional and business services, leisure and hospitality, and local government (see Table 1 below). Other important local economic sectors include manufacturing and trade, transportation, and utilities, which have declined during the same 7-year period. In addition to employment by economic sector, Table 1 also presents average wage rates by sector. See the Housing Chapter for more information on wages.

Table 1: Covered Employment & Wages in Windsor

	Establishments		Employment		Average Wage	
Industry	2010	2017	2010	2017	2010	2017
Manufacturing	12	13	180	153	$49,223	$39,161
Trade, Transportation, and Utilities	26	27	188	150	$25,654	$32,468
Information	2	1	N/A	N/A	N/A	N/A
Financial Activities	8	11	N/A	54	N/A	$37,962
Professional and Business Services	20	20	73	87	$45,686	$66,145
Education and Health Services	15	16	632	636	$43,792	$39,164
Leisure and Hospitality	9	10	60	78	$16,182	$23,442
Other services, except public administration	15	13	67	N/A	$20,421	N/A
Federal Government	2	2	11	11	$46,837	$52,196
State government	2	2	60	63	$56,782	$57,415
Local government	8	8	204	233	$34,311	$40,564

Source: VT Department of Labor, Economic & Labor Market Information (2017)

Many residents commute to the regional job center in the nearby Upper Valley (i.e. Lebanon and Hanover, NH and Hartford and Norwich, Vermont) due to higher wages and large employers, such as Dartmouth-Hitchcock Medical Center, Veterans Administration Hospital and Dartmouth College. According to 2015 Longitudinal Employer-Household Dynamics (LEHD) data from the U.S. Census Bureau, nearly 40% of working residents commute to the Upper Valley. Relatively low housing costs, easy access to the Upper Valley via I-91, and other factors combine to make Windsor an attractive location for commuters. As a result, Windsor is becoming increasingly a bedroom community for this area.

Local Assets and Opportunities

Windsor has a number of assets that can serve to attract new development and expand existing businesses. These assets include the following:

1. **Access -** Excellent Interstate access (I-91 and I-89) and the strong "influence" of regional metropolitan areas (Boston, New York, and Montreal) that offer complimentary opportunities for tourism and economic development. Windsor is also accessible by rail for both passenger and freight transportation.

2. **Downtown Property -** A substantial amount of "unused facilities assets" in the town and the region are available for development without adversely impacting open land. These include several former industrial properties, including the former Goodyear campus, that are undergoing site assessment in order to determine the nature and extent of contamination, and the costs for cleanup. These properties are already connected to public water and sewer, and are therefore attractive for commercial and light industrial development. Relatively cheap rents for downtown store fronts present a unique opportunity for start-up businesses. The Downtown Master Plan identifies vacant properties that can support a lot of growth in a way that is consistent with State planning goals and Smart Growth principles.

3. **Artisan's Park** – The Industrial Park has grown significantly in recent years. Now called Artisan's Park, it is home to Simon Pearce, Harpoon Brewery, Vermont Farmstead Cheese Company, Sustainable Farmer, Great River Outfitters, American Crafted Spirits and Path of Life Garden. The park has demonstrated that a market exists for tourism inspired, small-scale manufacturing. While there is little room for future expansion on the property, it does provide a model that may be considered for some parts of the former industrial properties in the downtown.

4. **Entrepreneurial energy -** A high level of entrepreneurial energy presents an opportunity for economic development. This energy is the result of the major economic changes that have taken place in the region over the last few decades. The opportunity to provide relatively inexpensive, highly adaptable space available to start-ups, tech firms and other non-typical users could become a significant asset to bring these firms to Windsor if it can be successfully promoted and given community support.

5. **Infrastructure -** The Town has ample infrastructure capacity in its water treatment and sewer plant, as well as established sewer and water lines within most of the desired area for economic development. The downtown industrial areas are supported by more than adequate three-phase power. Rail access exists; zoning should include provisions that projects be evaluated for rail access and that rail access remain available for future potential use. There is currently planning being developed that will make some amount of fiber internet available in the immediate area of these properties with the ability to expand the service as the need/desirability develops.

6. **School Capacity -** The Town has ample space within its school system to encourage property and business development that would attract a younger workforce with school age children. The school facility was completed in 1997. It is within the Downtown, and conveniently located near residential neighborhoods and recreational assets. West Windsor eliminated school choice and now send their students to the Windsor Schools for grades seven and beyond.

7. **Natural Resources -** Natural resources abundantly located within Windsor add an intrinsic value to the Town as a location for economic development. Nowhere else in this area is such an attractive historic downtown surrounded on all sides by water: the Connecticut River, Mill Brook, Lake Runnemede and Mill Pond. Mount Ascutney provides a scenic backdrop for the downtown, with the State Park and trail networks providing excellent recreational opportunities.

8. **Historic and Cultural Resources -** The commitment of the Town and property owners to preserving important historic resources and celebrating local history, combined with strong community support for the arts and innovation adds value to existing businesses and enables economic development officials to market the cultural vibrancy of the community.

c) Windsor's participation in the Downtown Program makes these building owners eligible for tax credit programs that encourage improvements to historic buildings (see page 27).

d) The importance of keeping Downtown Designation for maintaining certain local incentive programs for economic development as discussed on pages 59-60.

Goals

1) Create a diversified, sustainable economic base within Windsor that will provide measurable job creation and retention.
2) Seek economic activities that will provide competitive wages, benefits and job opportunities.
3) Create an incubating environment for "creative economy" enterprises to start-up and flourish in Windsor.
4) Maintain local downtown revitalization programs and initiatives in order to achieve an economically strong Downtown District in accordance with the Historic Downtown Development policies and purposes in 24 V.S.A. §2790.

Policies

1) Promote available technology environment (Wi-Fi, high speed internet access and bandwidth) within the core downtown area that will support potential business applications.
2) Achieve sustainable occupancy within designated economic development areas with businesses and activities that are compatible with the goals and objectives of this chapter.
3) Establish Windsor as a prime destination for "heritage tourism" and outdoor recreation, and as a regional center for cultural institutions and events.
4) Provide reliable, affordable, and relevant social services attractive to employers and workers, such as day care, elder care, recreation, health care, arts and culture, etc.
5) Build on the community's past history of innovation and cultural development to attract the casual visitor with goal of encouraging them to think of Windsor as a place to spend time, and perhaps live or start a business.
6) Match economic development activities with proportional growth in Town provided infrastructure, services and support required to sustain a robust and diverse community.
7) The Town shall continue to participate in Vermont's Downtown Program.

Recommendations

1) Continue to develop ways of extending fiber optic into Windsor in order to support local economic development initiatives.
2) Improve connections between Downtown and Artisans Park via a Riverwalk path, bicycle routes or other linkages.
3) Support the Windsor Improvement Corporation as Windsor's Economic Development "arm."
4) Continue to work towards integration of local economic development efforts through WIC with regional efforts through the Springfield Regional Development Corporation and statewide efforts through the Vermont Agency of Commerce and Department of Economic Development.
5) Participate in the creation and maintenance of a web-based database of commercial and industrial properties in Windsor.
6) Ensure continued cooperation between the planning commission and local economic development groups.
7) Ensure the availability of adequate municipal services in Windsor's designated downtown and other locations where development is specifically encouraged in this Plan.

8) Encourage the rehabilitation and use of existing, downtown retail and industrial space through zoning, local tax incentives, and other appropriate means.
9) Support the continued use and expansion of rail facilities for passenger and freight service.
10) Work with state and regional agencies to market Windsor and the surrounding area as part of the Connecticut River Scenic Byway.
11) Ensure the presence of a stable and capable workforce by supporting local education and encouraging local businesses to participate in the local vocational curriculum.
12) Collaborate with Mt. Ascutney Hospital to maintain a strong health care presence in the region.
13) Support the continued development of the hospitality industry.
14) Encourage Windsor Improvement Corporation and large businesses to work with area daycare providers to support expanding the daycare capacity in town.

10. TELECOMMUNICATIONS FACILITIES

The maintenance of a modern and accessible telecommunications network is essential to the public welfare. Public safety agencies, such as emergency medical services, fire and police departments, rely on broadcast and communications facilities to provide essential services. In addition, a modern and accessible telecommunications network provides communities with economic, social and cultural benefits.

At the same time, network infrastructure should be developed in an efficient, safe and thoughtful manner. Possible impacts upon scenic and cultural resources, aesthetics, and public health and safety should all be considered during the planning process.

The field of wireless communications and telecommunications is undergoing rapid change. Advancements in this technology have and will continue to affect growth in the Town of Windsor. Technological improvements will enable people to work at home and telecommute to work or to other remote or central offices more readily.

The major planning issue with wireless communications technology today is the siting and construction of new communications towers and supporting network infrastructure including power lines, access corridors and support buildings. These include towers[1] for wireless communications facilities[2] and wireless telecommunication facilities[3] (see definitions of these terms in the side bar). In the hilly topography characteristic of this Region, towers and related facilities need to be located on the hilltops or higher elevation points in order to provide the broadest service area coverage. These towers and their supporting infrastructure can alter mountaintops and ridge lines in ways that negatively impact scenic resources vital to the Region's economic future and cultural richness. Aesthetic concerns will increase as more mountains and ridgelines are developed. The towers and network infrastructure must be developed in an efficient, safe and thoughtful manner. Possible impacts upon scenic and cultural resources, aesthetics, and public health, and alternative tower designs that mitigate these impacts, should all be considered during the planning process.

Definition of Terms

[1] **Tower** - Any structure that is designed and constructed primarily for the purpose of supporting one or more antennas, including self-supporting lattice towers, guy towers, or monopole towers. The term includes radio and television transmission towers, microwave towers, common-carrier towers, cellular, personal communication service (PCS) and similar service towers, alternative tower structures, and the like.

[2] **Wireless Communication Facility** - A tower, pole, antenna, guy wire, or related fixtures or equipment intended for the use in connection with transmission or receipt of radio or television signals or any other electromagnetic spectrum-based transmission/reception and the construction or improvement of a road, trail, building or structure incidental to a communications facility. Wireless Communication Facilities include Wireless Telecommunication Facilities.

[3] **Wireless Telecommunication Facility** - A facility consisting of the structures, including the towers and antennas mounted on towers and buildings, equipment and site improvements involved in sending and receiving telecommunications or radio signals from a mobile communications source and transmitting those signals to a central switching computer which connects the mobile unit with land-based or other telephone lines.

There is ample opportunity for co-locating new antennae on the prominent, existing towers on the summit of Mount Ascutney, before new towers are built.

In recent years, new towers are being constructed in the region to allow for co-located antennae that often never take place. The result is towers that are taller and more prominent over the existing tree canopy than necessary.

The Telecommunications Act of 1996 restricts the authority granted under Vermont law to municipalities, such as the Town of Windsor, to prohibit wireless telecommunication facilities by zoning. Municipalities may not prohibit or have the effect of prohibiting efforts to provide wireless telecommunication facilities, and must provide reasonable opportunities for location of such facilities. [Federal Telecommunications Act of 1996, Section 704, (a),(7), (B),(i),(ii)] Other wireless communication towers such as towers for radio and television are not covered by the Telecommunications Act of 1996, leaving communities with greater authority to regulate these facilities. The Town of Windsor should assess where these facilities may be located within the municipality and enact conditions under the zoning authority to implement that policy decision.

In addition, there is some uncertainty about the health effects of the electromagnetic fields generated by wireless communications facilities upon people living near them. The Telecommunications Act of 1996 provides that no local government may regulate a wireless telecommunication facility on the basis of environmental effects of radio frequency emissions to the extent that such facilities comply with the Federal Communication Commission's (FCC) regulations concerning such emissions. [Federal Telecommunications Act of 1996, Section 704, (a),(7), (B),(iv)] An applicant for a wireless telecommunication tower must prove to the satisfaction of the Town of Windsor that the proposed facility will be and remain in compliance with the FCC's regulations of radio frequency emissions.
The Federal Communications Commission retains jurisdiction over the public airwaves and the communications industry in general. Additionally, the Federal Aviation Administration (FAA) exercises control over the location and height of wireless communication towers and similar structures to prevent interference with airport operations.

Goals:

1) Provide residents with the benefits of an integrated and modern telecommunications network while minimizing the economic, aesthetic and cultural costs of its development.
2) Support the enhancement of integrated and modern wireless communications networks when such facilities do not have significant adverse environmental, health or aesthetic impacts.
3) Enable new economic opportunities through the use of wireless communications technology.

Policies:

1) New communications towers and supporting infrastructures detract from the beauty of the Town and shall be sited and constructed only as necessary to meet the Town's changing needs. New towers, access corridors and utility poles serving towers shall not be sited or constructed where adequate communication coverage can be obtained through use of existing structures. The use of existing structures, such as water towers, farm silos, church steeples and buildings, to support the wireless communications broadcast equipment is encouraged whenever it will not have a negative impact on significant historic or aesthetic resources.
2) New wireless communications towers, access corridors, and utility poles serving towers shall not be sited or constructed as long as the existing site is viable. Those wishing to provide new or expanded communications services must utilize the existing Town tower and supporting infrastructure, unless it can be demonstrated that the sharing or collocation is prohibitive due

to frequency interference, adverse aesthetic impacts or risk to public health. The Town should facilitate the sharing of space to the fullest extent possible. Those building new towers or support infrastructure shall not prohibit the sharing of those facilities by other users for reasons other than frequency interference or avoiding a demonstrated risk to public health, in that the public exposure to Radio Frequency (RF) radiation will exceed the applicable FCC standards for human exposure. If the Town tower cannot be utilized, the use of existing structures, such as water towers and buildings, to support telecommunications broadcast equipment is encouraged wherever appropriate and where it will not have a negative impact on significant historic or aesthetic resources nor a risk to public health.

3) Siting and design of new communications towers and facilities (including any support and maintenance structures, necessary access corridors and utility lines) shall minimize impacts on natural, scenic, wildlife habitats and corridors and aesthetic resources. The use of the ridges for communications towers and related facilities needs to be undertaken in a manner that will neither unduly detract from nor adversely affect Windsor's scenic values. Access roads and utility lines shall minimize disturbance or fragmentation of important natural and historical resources.

4) To minimize conflict with scenic values, facility design and construction for new communication towers and accessory facilities should adhere to the following principles:

   a) Where feasible, new towers shall be sited in areas not highly visible to the traveling public and not visible from residential areas, historic districts and public use areas or outdoor recreation areas;

   b) New towers should be located in forested areas or be sufficiently landscaped to screen the lower sections of towers and related ground fixtures from public vantage points, such as trails, roads or water bodies;

   c) Towers, including antennae, shall be less than 150 feet as measured from the lowest grade at ground level to the top of the highest structure or component, and shall not exceed a height greater than the average height of the adjacent tree canopy measured from a distance of 300 feet from the base of the tower.

   d) New towers shall use materials, architectural styles, color schemes, lighting fixtures, mass and other elements to promote aesthetic compatibility with surrounding uses and to avoid adverse visual impacts (e.g. stealth technology such as cupolas, spires, chimneys or eastern white pine stealth towers);

   e) Where prominent views of a site exist, new towers shall be located downgrade of the ridge so as not to exceed the elevation of the immediate ridge;

   f) Where new access roads are proposed, they shall be located to follow the contours of the land and to avoid open fields or meadows in order to minimize their visibility;

   g) New towers should not be sited on peaks and ridges that function as regional focal points;

   h) Existing tree cover shall be maintained to the maximum extent possible, with tree removal allowed only to clear the footprint area of the tower structure and accessory facilities; and

   i) A balloon shall be raised to indicate the height of the tower for at least one day before a hearing is held provided it is in compliance with all local, state and federal regulations, including FAA restrictions on height limitations.

j) The applicant of any new proposed tower locations will need to prove that co-location on the existing towers on Mount Ascutney or other existing locations is not practicable.

k) For any new tower site, the application shall demonstrate demand for co-location in order to justify proposed additional structure height.

5) An applicant for installation of new transmission facilities shall demonstrate that public exposure to Radio Frequency (RF) radiation will not exceed the applicable FCC standards for human exposure. Assessment of possible health effects shall be based on the cumulative effects of all RF emissions at any given location, and should include both preconstruction and post-construction monitoring.

6) Any equipment that is discontinued or not in use for a period of 1 year shall be removed. In the event that use of a tower is discontinued, the site shall be restored to its natural condition, or to the condition that existed prior to construction, as appropriate. The developer of a new tower will provide the Town of Windsor with a site restoration and reclamation plan at the time of application for the new tower site in the event the tower and accessory facilities are abandoned in the future. This site restoration and reclamation plan must include provisions for removal of the tower and accessory facilities, regrading, revegetation, a time frame for accomplishing the site restoration, and adequate security, such as a letter of credit or a performance bond, including anticipated inflation, to provide funds necessary for completing the site restoration and reclamation plan.

7) The Secretary of Administration of the Office of the Governor of Vermont, pursuant to under 30 V.S.A. Section 227b, should notify the Planning Commission of the Town of Windsor in order to conform with this Plan before allowing the use of state or private property in the Town for a new or expanded communication facility.

8) The Vermont Public Service Board should notify the Planning Commission of the Town of Windsor in order to determine conformance with this Plan before allowing the use of state or private property in the Town for a new or expanded communication facility.

9) The Agency of Natural Resources in its capacity as managers of State Lands should notify the Planning Commission of the Town of Windsor in order to conform with this Plan before allowing the use of state property in the Town for a new or expanded communications facility on state land in the Town.

Recommendations:

1) The Town of Windsor, its officials and Planning Commission should develop and incorporate wireless communication policies and elements into the Town's zoning Regulations, and adopt the provisions of Title 24, V.S.A., Chapter 117, Section 4407, Subsection 17, into Windsor Zoning Bylaws. This subsection provides that any proposed tower developer pay the reasonable costs to the Town of a technical study of how the tower would affect the Town. The development of alternative technologies to serve the industry, such as satellite technology that would eliminate the need for towers should be encouraged.

Appendix A: Enhanced Energy Plan for the Town of Windsor, Vermont

A. Introduction

Windsor's *Enhanced Energy Plan* is a component of the *Windsor Town Plan* prepared in accordance with 24 V.S.A., Chapter 117, Subchapter 5. The intent of this plan is to address the requirements of Act 174 of 2016 and to meet the enhanced energy planning standards developed by the Vermont Department of Public Service (DPS). This document was prepared based upon the *Guidance for Municipal Enhanced Energy Planning Standards* (DPS; March 2, 2017) in order for the Windsor Town Plan to be given greater weight in the Section 248 process. The Section 248 process refers to the Vermont Public Utility Commission's (PUC) decision making process for public utilities, including, but not limited to, power generation facilities under 30 V.S.A. §248. For more information, see the A Citizen's Guide to the Public Utility Commission on the PUC's website.

Due Consideration: To give such weight or significance to a particular factor as under the circumstances it seems to merit, and this involves discretion. [*Black's Law Dictionary, 6th ed. 1990*]

Substantial Deference: Means that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy. [*30 V.S.A. §248*]

The Southern Windsor County Regional Planning Commission (SWCRPC) has developed a *Regional Energy Plan* to meet these standards in order to receive Section 248 "substantial deference." Windsor is coordinating the development of this municipal energy plan with the SWCRPC so that the municipal plan is compatible with the regional plan.

This Plan was developed with assistance from the SWCRPC through funding provided by the Vermont Department of Public Service.

A.1 Energy Goals

Through the 2016 Vermont Comprehensive Energy Plan (CEP), the State of Vermont has identified a number of goals and strategies to achieve energy conservation throughout the state. The most significant of these goals:

> By 2050, 90% of Vermont's total energy will be derived from renewable sources.

The CEP includes additional goals to achieve the overall, long-term "90x50" goal. These goals serve as the platform for determining energy policies, targets and pathways for the Town of Windsor, as articulated throughout this plan.

A.2 Windsor's Energy Goals

The Town of Windsor hereby adopts the goals established in state law and the 2016 CEP. Through the detailed policies and actions contained in this plan, Windsor will strive to achieve these goals. See Appendix C that lists these energy goals. Below is a list of some of the methods outlined in this plan to further energy conservation and efficiency efforts within our community:

a) The Land Use Chapter in the Town Plan limits intensive commercial and industrial activity to a few areas indicated on the Future Land Use Map (i.e. Downtown, Industrial), calls for high-density residential in areas surrounding the downtown, and it generally calls for low density rural development patterns elsewhere in keeping with the rural countryside aspect of the state planning goal.
b) The *Town Plan* discourages sprawl and strip commercial development. It recognizes the existing development and allows for continued commercial activity in the Roadside/US Route 5 North area but calls for sound access management in order to discourage strip development.
c) The parts of Windsor located to the west of I-91 are considered to be rural and the *Town Plan* and the Zoning Bylaws both call for maintaining the rural character.
d) The plan supports attracting local businesses to Windsor so residents can work locally.

D.3.2: Prioritize Development in Compact Mixed-Use Centers

As indicated in the enhanced energy planning guidance, households within a compact, mixed-use center typically use less energy than those located in outlying areas. The energy savings are realized through reduced vehicle-miles-traveled and generally smaller homes, which require less energy to heat and cool. Transportation energy use can be further reduced by locating services such as shopping or daycare within walking or biking distances to the places where people work and live. This enables people to either choose an alternative to driving a single-occupancy vehicle or to significantly reduce the length of their drive. Downtown Windsor is the compact, mixed-use center for the community. With that in mind, Windsor choses to encourage these desired patterns by:

a) Continuing the community's efforts to revitalize downtown Windsor.
b) Adopt/maintain a Capital Budget and Program that includes infrastructure investments necessary to support the compact development as envisioned in the *Town Plan* (e.g. sewer and water, pedestrian and biking facilities, parking).
c) Maintain Downtown designation under 24 V.S.A. Chapter 76A.
d) Complete the ongoing Better Connections-funded planning effort to revitalize the portion of downtown that is located between Main Street and the Connecticut River. Seek implementation of recommendations from that plan. Continue to pursue completion of the ongoing flood hazard mitigation projects in the riverfront neighborhood.

D.4 Pathways Standard: Statement of Policy on the Development and Siting of Renewable Energy Resources

The heating, transportation and conservation targets and pathways combined are not sufficient to meet the 90% by 2050 energy planning goal. The LEAP model also assumes the purchase of additional out-of-state renewable energy will help to reach this goal; however, that is also not sufficient to meet the energy goals. New local renewable energy generation is also needed in order to achieve the ambitious "90x50" energy goal. The following subsections discuss how the Town wishes renewable energy generation to take place in Windsor.

D.4.1: Evaluate Existing Renewable Energy Generation

There are currently 37 known existing solar sites in Windsor, representing 486 KW of installed capacity and 596,030 KWh of generation output. There are no known wind turbines, hydro power, or biomass power facilities in operation in Windsor at this time. See Appendices A and B or the Community Energy Dashboard for more detail.

D.4.2: Analyze Generation Potential from Preferred Sites and/or Potentially Suitable Areas

An analysis of renewable energy generation potential was conducted by Windsor with assistance from the SWCRPC. This consisted primarily of an analysis of available GIS mapping data and was based upon the guidelines established by the DPS for enhanced energy planning. Table 7 below summarizes the findings of this analysis.

Table 7: Windsor's Potential Renewable Energy Generation

Type	**Installed Capacity (MW)**	**Generation Output (MWh)**
Roof-top Solar	4.3	5,274
Ground-mounted solar	193.3	237,063
Wind	79.4	243,440
Hydro	0.232	813
Total	**277**	**486,590**

Based upon these raw numbers, there is significant potential to generate power from renewable sources in Windsor, primarily through ground-mounted solar and wind. There is potential to generate about 27.6% of Windsor's target through rooftop solar alone. Hydropower has potential for future generation, although the permitting procedures and high costs to do so are obstacles. Ground-mounted solar and/or some forms of wind will be needed in order to meet the "90 by 50 goal." See the discussion in the next section for more detail about the potential for ground-mounted solar and wind power.

D.4.3: Identify Sufficient Land for Renewable Energy Development to Reasonably Reach the 2050 Targets

Table 1 in Section C.1 summarizes Windsor's overall targets for renewable energy generation. There is more than an adequate land area in Windsor that has potential for solar to meet our 2050 renewable energy target of 19,078 MWh. That target is the equivalent of approximately 15.6 MW of ground-mounted solar at the installed capacity. The guidance assumes 8 acres of land are generally needed to support 1 MW of solar. This would amount to about 124 acres of land needed to meet this target. This represents about 26% of the land area in Windsor that is estimated to have *prime* potential to generate solar power.

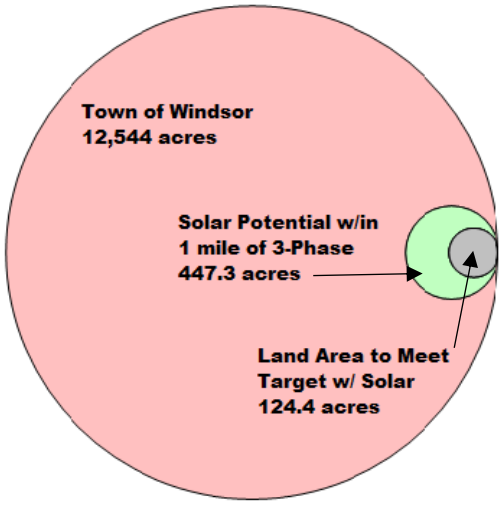

Figure 6: Land area comparisons. The total land area in Windsor is 12,544 acres. There are 484.6 acres of land estimated to have prime solar potential, 92% of which is within 1 mile of existing three-phase power lines (447.3 acres). An estimated 124.4 acres is needed to meet Windsor's renewable energy target through ground-mounted solar alone.

There are an estimated 1,670 acres of land in Windsor that have potential for solar production (see the Solar Resource Map). However, this potential is reduced when examining the prime potential areas, which account for about 485 acres. Solar potential is reduced further to 447 acres when evaluating prime areas that are within 1 mile of existing three-phase power lines[1] (see Figure 6). As

[1] An assumption being made here is that it is more cost-feasible to develop renewable energy generation projects if they are within one mile of three-phase power lines.

discussed above, 124 acres might be required to meet Windsor's renewable energy target for 2050 through ground-mounted solar alone. That represents about 27.8% of the land areas that have prime solar potential within 1 mile of three-phase power lines. Thus, adequate land area with solar potential is available to meet Windsor's target. However, we acknowledge that to do so will require land owners (both public and private) to be willing to pursue solar projects with developers.

Furthermore, Windsor completed an analysis of a future solar development scenario to determine if our goal of keeping solar projects east of I-91 is feasible. As of January 2019, 8 solar proposals for about 5,335 MWh of energy generation are either approved by the PUC or pending approval. An additional 13,743 MWh is needed to meet our renewable energy target. The Planning Commission identified 9 potential sites east of I-91 and within 1 mile of 3-phase power where solar projects might be acceptable to them. Those areas combine to include a total land area of 100.38 acres. If 8 acres are required to generate every 1 MW of solar, these areas could generate 15,388.25 MWh of generation. When combined with the 5,335 MWh of proposed solar projects, this could exceed Windsor's target (19,078 MWh) for the state's 90X50 goal by 1,645 MWh. This analysis does not factor in rooftop solar or residential wind, which adds to the potential for future renewable energy generation beyond our target for Windsor.

In Windsor, only about 318 acres of land have been identified as having wind potential, as shown on the Wind Resources Map. In theory, Windsor's renewable energy target could be reached with about six utility-scale wind turbines (measured at 70 meters high at the hub) that generate 1 MW each. It is estimated that about 25 acres of land area would be required to accommodate those wind turbines. Based upon the wind potential maps, there are only a few small areas with potential for utility-scale wind within 1 mile of three-phase power lines. However, prevailing conditions are such that it seems unlikely that Windsor could support a large wind farm. Windsor's Town Plan also calls for maintaining rural character to the west of I-91 and it generally limits uses there to residential and working landscape activities. We also understand that the proposed new state noise standards may make it difficult to permit utility-scale wind turbines in the State of Vermont.

The Town of Windsor's observation is that, in general terms, solar projects have more localized aesthetic impacts, while utility-scale wind projects have regional aesthetic impacts. Wind turbines of 70 meters or greater in height, built on a ridgeline, can usually be seen from many miles away.

A mix of renewable generation types is desirable in order to meet the overall renewable targets for Windsor. The following more detailed targets in Table 8 represent one scenario for how Windsor can meet the overall renewable generation target for the Town. Rooftop solar is desirable. Residential-scale ground-mounted solar is desirable. Commercial ground-mounted solar (150KW and above) is encouraged east of I-91 as long as it meets our siting criteria as articulated in this plan. Residential-scale wind turbines (not to exceed 30 meter hub height) are also encouraged. Commercial-scale wind turbines (not to exceed 50 meter hub height) may be acceptable as long as they meet all applicable policies in the Town Plan. Small renewable energy systems, such as one commercial-scale wind turbine, that are incorporated thoughtfully into a subdivision are encouraged. Utility-scale wind turbines appear to be unlikely in Windsor due to the existing landscape and prevailing wind conditions.

Table 8: Windsor's Detailed Renewable Generation Targets (in MWh)

Type	**2025**	**2035**	**2050**
Roof-top solar	1,468	2,348	5,283

Ground-mounted solar	3,148	6,884	12,415
Residential-scale wind (30 meter hub height)	153	307	460
Commercial-scale wind (50 meter hub height)	0	0	920
Total renewable generation in MWh	4,769.5	9,539	19,078

This plan embraces the "90x50" goal and we believe that the above analysis demonstrates that Windsor's plan for new renewable energy is adequate to meet our future needs and the renewable energy generation target, without utility-scale wind turbines.

D.4.4: Ensure that Local Constraints do not Prohibit or Have the Effect of Prohibiting the Provision of Sufficient Renewable Energy to Meet State, Regional or Local Targets

Local constraints for renewable energy generation are as summarized in this section. These constraints have been analyzed, and the Town of Windsor does not believe that these constraints prohibit or have the effect of prohibiting sufficient renewable projects needed to meet the state, regional, or local energy goals.

The following resources are not appropriate locations for renewable energy projects based upon the mapping methodology in the enhanced energy planning guidance and are hereby excluded from the potential wind and solar sites, as depicted on the map (i.e. "known constraints"):

a) Vernal pools with a surrounding 50 foot buffer;
b) DEC river corridors;
c) FEMA floodways;
d) State significant natural communities and rare, threatened and endangered species;
e) National wilderness areas;
f) Class 1 and Class 2 wetlands; and,
g) Significant agricultural soils/scenic fields as depicted on the solar potential map.

Also based upon the enhanced energy planning guidance, the following list represents constraints that will likely require mitigation and which may prove a site unsuitable after a site-specific study has been conducted based upon state, regional, or local policies that are adopted and currently in effect (i.e. "potential constraints"):

a) Agricultural soils (NRCS-mapped prime agricultural soils, soils of statewide importance or soils of local importance);
b) Act 250 agricultural soil mitigation areas;
c) FEMA special flood hazard areas (floodplain);
d) Protected lands (state fee lands and private conservation lands);
e) Deer wintering areas;
f) ANR conservation design highest priority forest blocks; and,
g) Hydric soils.

D.4.5: Statements of Policy to Accompany Maps

Windsor hereby promotes the development of renewable energy generation in order to achieve the energy goals and targets as established in this plan. The following statements of policy apply to renewable energy projects:

a) Establishing new utility-scale power generation facilities that utilize non-renewable fuel are not consistent with the goals of this plan.
b) All large residential, commercial and industrial developments must demonstrate that they have considered renewable energy in their application.
c) Windsor prefers renewable energy projects to be located east of the I-91 corridor and carefully sited and integrated into existing development patterns in order to be consistent with the surrounding area.
d) Renewable energy generation facilities must avoid "known constraints."
e) In Windsor, unsuitable sites for renewable energy generation facilities include Paradise Park, the Great Farm, state wildlife management areas, agricultural soils located between Mill Pond and US Route 5, and the Oak Knoll Farm fields along the Connecticut River. See the map.
f) Renewable energy generation facilities must not have undue adverse impacts on "possible constraints." In addition, applicants shall demonstrate that the project will not have undue adverse impacts on significant wildlife habitat, wildlife travel corridors, stormwater, water quality, flood resiliency, important recreational facilities or uses, scenic resources identified in this plan, or inventoried historic or cultural resources. Project proposals must consider placement of such facilities in locations where impacts are minimal or employ reasonable measures to mitigate undue adverse impacts of the applicable resources.
g) The applicant is expected to provide a plan for the site to be adequately decommissioned when the project ceases commercial operation in accordance with PUC Rule 5.900.

SOLAR

h) All new home construction should be designed to be solar-ready (i.e. be oriented for solar advantage, enabling future rooftop solar power generation.)
i) Windsor supports rooftop solar projects.
j) Windsor supports residential-scale ground mounted solar projects.
k) Ground-mounted solar projects must demonstrate that the proposed project siting is appropriate in scale as it relates to the character of the area in which it is to be located, and the applicant must also demonstrate that all reasonable options have been considered in siting the facility.
l) All applicable ground-mounted solar projects are subject to the minimum setback standards in 30 V.S.A. §248(s).
m) All ground-mounted solar projects of 150 kW capacity or greater must be east of I-91, unless it is located and the power is used on the same parcel or adjacent parcel.

WIND

n) Windsor encourages wind power that is consistent with the character of the surrounding area; as such:

a. Wind turbines of any scale must be east of I-91, unless it is located and the power is used on the same parcel or adjacent parcel.
b. All applicants must demonstrate that for any proposed wind project all reasonable siting options have been explored and that the project has minimized the negative impacts of interconnection.

BIOFUEL

o) Woody biomass is suitable to heat buildings.
p) A biomass power plant may be acceptable if the scale is appropriate for the proposed location, fuel deliveries do not cause excessive traffic or wear and tear on the roadways, it does not create a nuisance for the neighborhood (e.g. smoke, noise, pollution), the project utilizes higher-efficiency technology, and it produces both heat and power.
q) Biogas that is collected as a byproduct of farming operations is encouraged for use as heat or power.

Undue Adverse Effect (Impact):

An adverse impact that meets any one of the following criteria:

(1) Violates a clear, written community standard intended to preserve the aesthetics or scenic, natural beauty of the area;

(2) Offends the sensibilities of the average person (i.e. it is offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area); or,

(3) Fails to take generally available mitigating steps that a reasonable person would take to improve the harmony of the proposed project with its surroundings.

Mount Ascutney Regional Commission

REGIONAL PLAN

Adopted October 14th, 2022

Effective November 18th, 2022

Public Hearing Schedule

September 19th, 2022

October 14th, 2022

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Acknowledgements

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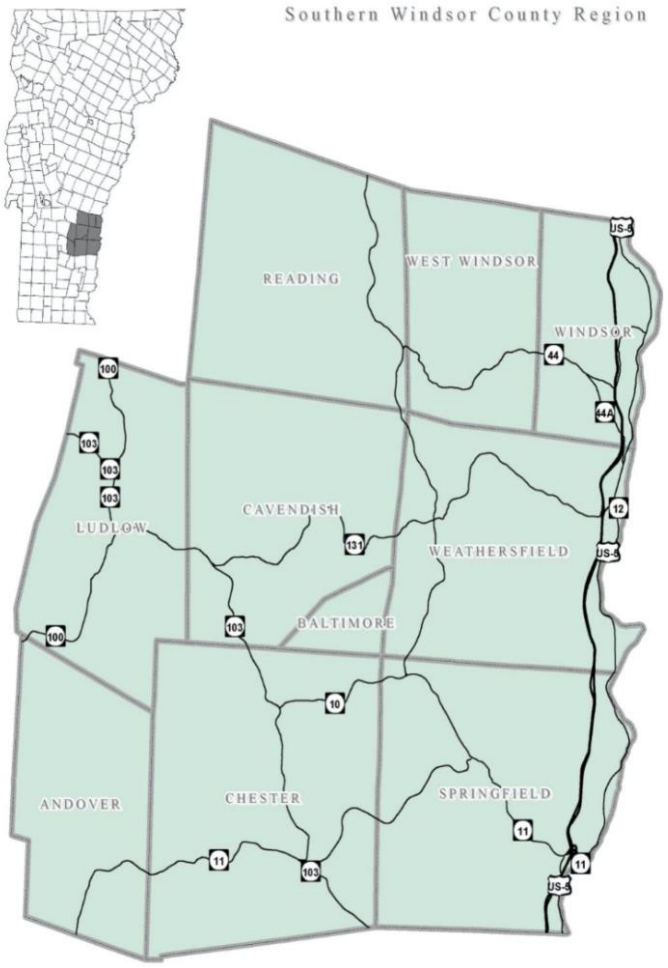

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CH 1: INTRODUCTION

A. Background of the Commission

The Mount Ascutney Regional Commission (MARC) was established in 1966, as the Southern Windsor County Regional Planning and Development Commission, through the action of its constituent towns. The original eight member towns were not contiguous, and it wasn't until 1970 that the Commission began receiving state and federal funds and operated as the Southern Windsor County Regional Planning Commission (SWCRPC) for many years. In 2021, the SWCRPC changed its name to Mount Ascutney Regional Commission.

Currently, the MARC's activities and programs are governed by a ten-person Board of Commissioners; each appointed by the legislative body of his or her member town, with assistance from up to three "at-large" Commissioners as appointed by the Board of Commissioners. In addition, the Board has the responsibility of hiring staff to carry out the goals and policies of the Regional Planning Commission.

The MARC also has the authority to establish advisory committees to address specific regional issues. Currently, the Commission has two such committees, the Brownfields Steering Committee and Transportation Advisory Committee (TAC). Representation on the Transportation Advisory Committee consists of one representative from each community, an ex-officio representative of the Agency of Transportation and provision for four "at-large" members. The primary mission of the Transportation Advisory Committee is to develop and evaluate transportation policy and recommendations as they relate to the Regional Transportation Plan and the Regional Plan.

The primary intent of the MARC and its advisory committees has always been to assist with and advocate for the planning and development activities of its member towns. The MARC exists primarily to provide technical assistance to its member towns; assist in mediating inter-jurisdictional planning and development issues that arise between member communities; facilitate discussion and understanding between local and state entities; develop plans, policies, strategies, and procedures for addressing issues that are regional in scope; assist communities with downtown revitalization and community development projects; annually compile, review, and prioritize regional transportation improvement projects for submission to the Agency of Transportation; and to serve as an information resource for member towns and residents.

D. Use of the Plan in Regulatory Proceedings

The Regional Plan has a regulatory role under three state review processes:

- Act 250/District Environmental Commission Hearings (10 V.S.A., Chapter 151);
- Public Good Determination Hearings for electric generation or transmission facilities (30 V.S.A. §248, or "Section 248")
- Solid waste facility certification (10 V.S.A. §6605).

Major developments are reviewed for conformance with any duly adopted local or regional plan under Act 250 or Section 248. If, however, a conflict exists between the local and regional plans, the regional plan will be given effect over the municipal plan if a proposed development has a "substantial regional impact." See the Implementation Chapter for a definition of substantial regional impact.

The MARC works closely with its member towns in order to ensure that municipal plans are not in conflict with the regional plan. This synergistic relationship attempts to recognize potential concerns with Act 250 and Section 248 applications prior to their submission. In addition, the Land Use Panel of the Natural Resources Board that oversees the Act 250 process narrowly interprets "conflict" as only existing when one plan allows the project, but the other does not. In addition, state statutes require compatibility between regional and municipal plans.

1. Act 250

In the spring of 1970, the Vermont Legislature passed the Land Use and Development Act (Act 250) in order to address growth in the 1960s resulting from the opening of I-89 and I-91, development of the IBM facility in Essex Junction, and expansion of ski tourism in Vermont. Act 250 (10 V.S.A., Chapter 151) establishes a state land use permitting process in order to protect the environment.

The law created nine District Environmental Commissions, consisting of three members appointed by the Governor, to review large-scale development projects and subdivisions using 10 criteria that address environment, aesthetic and community impacts. The District Environmental Commissions have jurisdiction over any project that encompasses more than 10 acres, or more than 1 acre for towns that do not have permanent zoning and subdivision bylaws. (See **Table 1.1** for a listing of one- and ten-acre towns.) The law also applies to any development project with more than 10 housing units or housing lots; and may also apply for construction proposed above 2,500 feet of elevation.

TABLE 1.1 – ONE- AND TEN-ACRE TOWNS FOR ACT 250 JURISDICTION	
1-Acre Towns	**10-Acre Towns**
Cavendish	Andover
Reading	Baltimore
	Chester
	Ludlow
	Springfield
	Weathersfield
	West Windsor
	Windsor

Source: VT Natural Resources Board (July 22, 2022).

Act 250 also created the Vermont Environmental Court to review appeals coming from District Commission rulings.

The Act 250 process allows for the review and comment on all eligible applications by municipal governments, local and regional planning commissions, the state of Vermont, along with other interested parties. Before a proposed development receives approval, it must meet the ten criteria set forth in 10 V.S.A. §6086, which are detailed on the State Natural Resources Board website and summarized below:

Criterion 1: Air and water pollution

1(A): Headwaters

1(B): Waste disposal

1(C): Water conservation

1(D): Floodways

1(E): Streams

1(F): Shorelines

1(G): Wetlands

Criterion 2: Water supply
Criterion 3: Impact on water supply
Criterion 4: Erosion and capacity of soil to hold water

Criterion 5: Transportation

5(A): Traffic

5(B): Transportation

Criterion 6: Educational services
Criterion 7: Municipal services
Criterion 8: Aesthetics, scenic and natural beauty

Historic sites

Historic sites – archaeology

Rare and irreplaceable natural areas

8(A): Necessary wildlife habitat

Criterion 9:

9(A): Impact of growth

9(B): Primary agricultural soils

9(C): Productive forest soils

9(D): Earth resources

9(E): Extraction of earth resources

9(F): Energy conservation

9(G): Private utility services
9(H): Costs of scattered development
9(J): Public utility services
9(K): Public investments
9(L): Settlement patterns (*formerly* "Rural growth areas")

Criterion 10: Local and regional plans

2. Section 248

The development and construction of electrical generation facilities, electrical transmission facilities, and some gas pipelines are regulated by the Public Service Board created by the Vermont Legislature under (30 V.S.A. §248). The Public Service Board has been granted partial judicial power to conduct hearings and issue decisions. The Board consists of three members, appointed by the Governor, serving staggered terms. Prior to undertaking a proposed project, an involved party must receive a "Certificate of Public Good" from the Board.

Under the Section 248 review process, projects are evaluated to determine if they serve the general public good. Pursuant to 30 V.S.A. §248(b), criteria to receive a Certificate of Public Good include:

- Orderly development of the Region with due consideration of Town and Regional Plans;
- Need for present and future demand;
- System stability and reliability;
- Economic benefit;
- Undue adverse impacts on aesthetics, historic sites, air and water purity, natural environment, public health and safety, and Act 250 Criteria 1-8 and 9(K);
- Consistent with company's approved least cost integrated plan;
- Consistent with the VT Department of Public Service's electric energy plan; and
- Does not affect designated outstanding resources waters.

Projects subject to Section 248 review, including net-metered private wind turbines, are exempt from local regulations. However, the impacted municipality and regional planning commission may participate as interveners in the proceedings.

3. Solid Waste Facility Certification

All towns, whether in a solid waste district or not, must adopt a Solid Waste Implementation Plan, which must be in conformance with the Regional Plan in accordance with 24 V.S.A., Chapter 61, §2202(a). The certification process for solid waste facilities will consider if the SWIP is in conformance with the town and regional plans (10 V.S.A., Chapter 159, §6605).

E. Goals, Policies, and Recommendations Defined

The needs of a growing population, the events and consequences that lead to a declining population, and the health of the environment and economy all require the attention of regional and local planning commissions. The goals and policies listed below are general overriding statements of the desired principles that should guide the growth and development of the Region and protect the natural and built environment. The goal and policy statements should be taken within the context of the information and analysis contained in the chapters which follow.

10. To develop an economic environment that will support the continuation of traditional land use activities, including sustainable agriculture, forestry, manufacturing, and commerce at scales consistent with the existing land use patterns of the Region.

11. To develop a transportation system that balances the needs of safety, convenience, cost, energy efficiency, environmental protection, economic growth, and recreation.

12. To further the Vermont Planning Goals found in (24 V.S.A. §4302).

13. To welcome people of all backgrounds to southern Windsor County, to commit to the fair, equitable and inclusive treatment of everyone in the Region, and to be a place where individuals can live freely and safely express their opinions.

Regional Policies

1. All inhabitants and wildlife should be provided with a healthy living environment through improvement and maintenance of the air, water, and soil quality.
2. Natural resource use that ensures the protection of sufficient renewable resources for future generations and provides for reasonable economic return should be supported.
3. Irreplaceable natural and fragile areas, outstanding water resources, rare and endangered species and their habitats, and significant scenic features should be protected and preserved.
4. Regionally significant natural, cultural, and archeological features, and historic sites and buildings should be protected and preserved.
5. Cooperation and coordination among member towns is encouraged in planning for growth and development, to enable an evaluation of the potential for regional and inter-jurisdictional impacts.
6. All appropriate agencies should cooperate in the development and maintenance of a safe and efficient regional transportation system that meets the vehicular and pedestrian needs of all residents with minimum impact to the Region's environmental and aesthetic qualities.
7. Environmentally benign or beneficial economic development that will provide desirable jobs for regional residents, reduce unemployment, improve per capita income, enhance the local tax base, and maintain the character of the Region should be promoted.
8. Energy efficiency and conservation, the development of renewable resources, and the use of alternative energy sources are encouraged.
9. The manufacturing and marketing of local value-added agricultural and/or forest products is encouraged.

CH 3: LAND USE

Brownsville from Mt. Ascutney

A. Background

Settlement and land use patterns are among the most crucial aspects of how a region functions and grows. This plan places an emphasis on those patterns that characterize our region. The most common settlement pattern is the compact center surrounded by rural countryside. This quintessential Vermont landscape is found throughout southern Windsor County. It is the reason many people choose to live here and is the foundation of the Vermont brand, which benefits many of our region's businesses.

In order to maintain this settlement and land use pattern, most of our region's growth and development will need to occur in or near existing centers, where there is already a built environment and infrastructure to accommodate it, or where traditional settlement patterns and infrastructure can be reasonably extended as needed to accommodate growth over time.

Water and wastewater solutions are needed in some existing centers, such as Perkinsville and Felchville that presently rely on on-site systems.

This goal will be met primarily through town plans and local land use regulations. Towns will need to continue setting the stage for their own land use and development through responsible planning that takes into account settlement and land use patterns in the area and the needs of current and future residents. This regional land use plan is intended to provide a guiding framework for coordinated land use planning and regulation at the municipal level. The Mount

B. Land Use Classifications

This land use chapter is formulated around six land use classifications that represent a progression from the least developed to the most developed areas in our region, as well as other more specialized land use categories, as shown on the Future Land Use Map. See the descriptions of each land use classification on the following pages.

LEAST DEVELOPED

1. CONSERVATION
2. WORKING LANDS
3. RURAL RESIDENTIAL
4. HAMLETS & VILLAGE CENTERS
5. NEIGHBORHOOD RESIDENTIAL
6. TOWN & REGIONAL CENTERS

MOST DEVELOPED

Conservation

Working Lands

Rural Residential

Hamlets & Village Centers

Residential Neighborhood

Town & Regional Centers

Least Developed

Most Developed

In addition to the six land use classifications described above, the following other land use classifications that have special characteristics are also shown on the Future Land Use Map and described in more detail in the next section of this chapter:

SPECIAL USE AREAS

1. RIPARIAN AREAS
2. RESORT AND RECREATIONAL AREAS
3. INTERCHANGE
4. COMMERCIAL NODES AND CORRIDORS
5. INSTITUTIONAL
6. INDUSTRIAL

CONSERVATION. This land use classification includes lands that are protected from development through public ownership or conservation easements, as well as large blocks of forest land that are largely undeveloped. Some of these lands have physical constraints such as high elevations, steep slopes, or shallow soils. Much of the land is not readily accessible from year-round maintained roads. These factors combine to make these lands poorly suited for development.

Conservation lands are an essential element of our region's landscape and are part of the rural countryside this plan seeks to preserve. They provide ecological services – such as wildlife habitat, floodwater reduction, soil retention, carbon sequestration, recreation, and scenic beauty – that make them a valuable resource for our region. The recreational use of conservation lands contributes to the quality of life enjoyed by our region's residents and to the tourism industry that is a significant component of our regional economy.

The most suitable uses of conservation lands are wildlife habitat and nature preserves, forestry and agriculture, hunting and fishing, outdoor recreation and seasonal camps, environmental education, flood attenuation and groundwater recharge, and similar low-intensity uses that leave the land in a primarily undeveloped, natural state. Conservation lands are generally not appropriate for residential development or for extensions of infrastructure, including but not limited to roads and utilities, that would facilitate further development.

It is our vision that conservation lands will contribute to the environmental, social, and economic well-being of our region and will remain in a largely undeveloped state for the benefit and enjoyment of future generations. To achieve this, MARC will encourage and assist towns to enact effective land use plans and controls intended to guide future residential development away from conservation lands and to limit forest fragmentation and development on land with significant natural resource constraints. On conservation lands, the overall density of residential development allowed is not to exceed 1 dwelling unit per 10 acres.

RURAL RESIDENTIAL. This land use classification encompasses rural areas where residential development has displaced farming or forestry as the primary land use. These areas may share many physical characteristics with the region's working lands, but more of the land has been subdivided into residential lots and is no longer configured to support larger- scale or intensive rural production. These areas may include farm and forest lands, but agricultural or timber management activities are more likely to be secondary income sources, hobby farms, or homesteading operations.

Through context-sensitive approaches to siting and design, housing can be accommodated in these rural settings in a manner that protects the productive, ecological, and/or scenic value of these lands provided that the overall density of development in the area remains low. There should continue to be a mix of undeveloped lands, working lands, and residential lands in this classification. Most of the region's new housing should not be located in rural residential settings, but should be guided into existing settlement areas or adjoining areas designated for future growth. The most suitable uses of rural residential lands are agriculture and forestry, rural enterprises, renewable energy generation, outdoor recreation, hunting and fishing, environmental or agricultural education, wildlife habitat and nature preserves, flood storage, housing, and similar low-impact uses.

It is our vision that the rural residential areas throughout the region will continue to provide primarily single-family housing in a rural setting that maintains open space between developed sites and offers views of the surrounding natural or agricultural landscape. Accessory dwellings, two-family housing and co-housing are also suitable for rural residential areas. The development pattern will remain irregular (ex. variation in lot sizes and building design) and will respond to the topography and other natural features of the land. Given the absence or limited capacity of the public infrastructure (roadways, water, sewer) serving these areas, large-scale, high-density or rapid development that would significantly increase the amount of housing in these areas is not appropriate. To achieve this, MARC will encourage and assist towns to enact effective land use plans and controls intended to discourage further encroachment of rural residential development into areas designated as working lands or conservation areas. Where the goal is to accommodate rural residential development, the overall density of residential development allowed should not exceed 1 dwelling unit per 2 acres, and local regulations should guide the siting and design of new homes in a manner that preserve rural character and open space.

within town and regional centers must be built to last with quality materials and architectural details that are compatible with nearby historic structures.

C. Special Use Areas

This land use chapter takes into account other future land use areas in our region that have special characteristics. These special use areas are shown on the Future Land Use Map.

RIPARIAN AREAS. The riparian areas serve as an overlay land use category, and include land along rivers, streams, lakes, ponds, and wetlands throughout our region. These areas have soil and vegetation characteristics that are strongly influenced by the presence of water and that distinguish them from surrounding lands. Historically, flooding, and the eroding and depositing of sediment that results, was the predominate force shaping riparian areas. Now, human activities such as damming or channelizing streams, filling or draining wetlands, clearing streambank vegetation, and constructing impervious surfaces has altered, and in many cases adversely impacted, the natural dynamics and functions of riparian areas. Healthy riparian areas provide multiple benefits to our region such as:

- Helping control nonpoint source pollution (run-off from developed lands) by holding and using nutrients, and reducing the amount of sediment entering our surface waters;
- Offering recreation opportunities and contributing to the scenic beauty of our landscape;
- Supplying food, cover, and water for a diversity of animals and serving as migration and travel routes between habitats for a variety of wildlife;
- Reducing downstream floodwater velocity, erosion, and sedimentation, and flood peaks; and,
- Maintaining the water table and the base flow of streams and rivers.

It is our vision that riparian areas outside the developed areas of the region will remain largely undeveloped and naturally vegetated to preserve their critical ecological and flood mitigation functions. The most suitable uses of lands within riparian areas outside our downtowns and village centers are wildlife habitat, outdoor recreation, environmental education, flood attenuation and groundwater recharge, and similar low-intensity uses that leave the land in a primarily undeveloped, natural state. Little new development other than water-dependent structures such as bridges or passive recreation amenities, such as trails, will occur within

riparian areas. Existing development within riparian areas subject to damage from inundation or fluvial erosion will be flood-proofed or removed as most appropriate to reduce the risk to life and property. Rivers and streams will be reconnected to their floodplains and allowed to move naturally within their corridors to the maximum extent feasible given the location of existing infrastructure and development.

Within the developed areas of the region, it is our vision that riparian areas will be transformed into community amenities that provide recreational opportunities, are visually attractive, and serve as green infrastructure to the maximum extent feasible. The substantial investment in public infrastructure and private development within riparian areas will be safeguarded to the maximum extent feasible through flood-proofing and upstream flood attenuation and mitigation efforts.

RESORT AND RECREATION AREAS. This category also serves as an overlay, and identifies locations that were intensively developed primarily for recreational or seasonal use. Examples include the Okemo Mountain Resort and nearby seasonal homes in Ludlow, the public recreation areas on Mount Ascutney, and the densely developed summer home communities around Lake Rescue and Lake Pauline, also in Ludlow. These are areas with

significant natural amenities that bring visitors and seasonal residents to our region, as well as enhance the quality of life for year-round residents. Careful planning is needed to balance development of the facilities and amenities needed to support a four-season tourism industry with preservation of the features and natural settings that are essential to attracting visitors.

The most suitable uses of resort and recreation areas are recreational uses, particularly those that extend the season, diversify offerings, and/or connect recreational facilities. Other tourism- and recreation-supporting uses, such as dining, lodging, vacation homes, recreation equipment rentals, guide services, and transportation providers, are also suitable provided they remain within compact areas designated for residential and/or commercial uses. However, MARC encourages, and will assist its resort communities to build strong, mutually beneficial ties between tourist destinations and nearby downtowns and village centers. One way to achieve that objective is to limit the amount of non-recreation, commercial development in resort and recreation areas and guide more of those uses to nearby downtowns or village centers.

It is our vision that the region's resort and recreation areas will support a tourism industry that will continue to attract visitors and seasonal residents by offering a variety of recreational opportunities throughout the year. They will continue to enhance the quality of life enjoyed by our region's residents and will remain essential components of the sense of place and identity in their host communities. Trail networks and other recreational amenities will be added, improved, expanded, and/or interconnected for the benefit of residents and visitors alike. Future commercial or residential development within resort and recreation areas will remain compact and will be thoughtfully sited and designed with a context sensitive approach to not degrade the scenic beauty, natural resource base and unique sense of place that our tourism industry depends upon.

INTERCHANGE AREAS. This category also serves as an overlay, and includes land around Interstate 91 Exits 7 and 8. These interchanges create opportunities and challenges for their communities and our region with respect to land use and economic development. Interchanges attract development that, if not properly planned, can have adverse impacts on the economic viability of traditional centers, traffic safety and congestion, environmental quality and natural resources, and scenic character.

With good planning and land use regulation, interchange areas can be attractive, efficient community assets that are developed in a manner that is integrated and compatible with the surrounding landscape, and that efficiently provides necessary services to travelers and residents. The most suitable uses of interchange areas are businesses that provide necessary services to the traveling public or that are otherwise transportation-related (transit or trucking providers, for example). Redevelopment and infill of previously developed sites is preferred over greenfield development (i.e. development on previously undeveloped sites).

It is our vision that the interchanges will be attractive gateways to the region that provide necessary traveler services while establishing a distinctive sense of place, minimizing congestion, and avoiding unsafe traffic conditions. They will not be characterized by a pattern of low-density, auto-oriented sprawl. While the interchanges may offer traveler accommodations and services, businesses will not compete with commercial activities within the downtowns or village centers. Efforts will be made to entice visitors into the region's downtowns and village centers where most of the dining, lodging, and similar uses will be located. Existing development sites will be retrofitted or redeveloped in a manner that increases their economic value, enhances their visual appeal, and improves the quality of buildings and site design elements. To achieve

this, MARC will encourage and assist towns to enact effective land use plans and controls to manage the amount, type, and scale of commercial activity that may occur at the interchanges and to promote high-quality site and building design.

COMMERCIAL NODES AND CORRIDORS. This land use classification includes locations outside of traditional centers that have been developed for commercial and light industrial uses, primarily since the 1960s. This development pattern arose in response to transportation and economic changes that led many customer-oriented businesses to cater to motorists and locate along major roadways. This development pattern is now commonly referred to as sprawl and is often viewed as undesirable in a planning context. Strip development and sprawl is a problem of our own making; it has been cheaper to design, easier to finance, faster to permit, and less complicated to build than compact, walkable, mixed-use development in our traditional centers.

These areas are often the gateways into our traditional centers that create the first impression of a community for travelers. While the services provided in these areas are often essential to the community and region (automobile dealers, for example), this development pattern undermines our basic land use goal of maintaining compact downtowns and village centers surrounded by rural farm and forest lands. This plan recognizes that our region's commercial nodes and corridors are serving an important economic function that can be distinguished from, and complementary to, the function of the commercial districts within our traditional centers. To further state planning goals, it is a policy of this plan to mitigate or avoid many of the issues associated with sprawl – such as poor access management, excessive signage, lot frontages dominated by pavement, lack of sidewalks, and low-quality, generic, single-purpose buildings – through appropriate site planning and design.

Targeted land use planning and regulation can encourage transformation of these areas from single-use, car-dominated development into attractive, mixed-use, pedestrian-friendly development. (See the illustrative images in the next section that demonstrate the intent of this statement.) Many of these locations, particularly those that are served by existing water and/or sewer infrastructure, are suitable for redevelopment. Existing development sites in commercial nodes and corridors often present the potential for more intensive use in a manner more consistent with our land use goals. Redevelopment should transform these areas through improved access management and site design, provision of streetscaping and sidewalks, and

construction of higher-quality, distinctive, multi-purpose buildings. Redevelopment and infill of previously developed sites is preferred over further greenfield development.

It is our goal that the region's commercial nodes and corridors will be transformed to function efficiently and adapt to changes in transportation modes, economic trends, and lifestyle preferences over time; and that a pattern of low-density, auto-oriented sprawl will not expand further into the region's rural areas. Existing development sites will be retrofitted or redeveloped in a manner that increases their economic value, enhances their visual appeal, and improves the quality of buildings and site design elements. Where appropriate and feasible, infrastructure will be improved or provided to support higher intensity use in these already developed areas. The commercial nodes and corridors will become places that people can safely walk and bike around as well as drive to.

To achieve this, MARC will encourage and assist towns to enact effective land use plans and controls to guide businesses of different types and scales to the appropriate location – downtown or village center vs. commercial node or corridor – and to promote high-quality site and building design. The most suitable uses of commercial nodes and corridors are larger-scale or land-intensive commercial and light industrial uses that are not compatible with the scale, settlement pattern, and pedestrian-orientation of our traditional downtowns and village centers and multi-unit housing located in proximity to employment, services, and transit. Where deemed desirable, commercial nodes and corridors may be designated for mixed-use (residential and commercial) development.

INSTITUTIONAL. This land use classification encompasses several sites and facilities throughout the region that are dedicated to public or quasi-public purposes such as airports, prisons, schools, and hospitals. These lands provide essential services or serve necessary civic functions, and most are likely to continue to do so. Many feature purpose-built structures that have unique characteristics and/or are considered local landmarks.

It is our vision that most of these sites and facilities will continue in their current use, potentially with some upgrades or expansions over time, as necessary. If a special use site or facilities will no longer be used for a public or quasi-public purpose, this plan encourages its adaptive re-use in a manner that will be beneficial to the host community (provide needed housing or employment opportunities, for example) and contribute to the tax base.

CH 4: COMMUNITY UTILITIES AND FACILITIES

In the Mount Ascutney Region there are numerous infrastructure systems and other public services that are essential to the health and welfare of our citizens, the functioning of communities, and to support the economy. This includes such things as water and wastewater systems, communication technologies, electricity, solid waste management, health and human services, emergency services, and other civic facilities and services. Transportation facilities and services are addressed separately in Volume 2 of this Plan.

The purpose of this chapter is to document existing facilities and services; evaluate how they support or could better support local, regional, and state planning goals; and to identify priority investments. Vermont's planning goals (24 V.S.A. §4302) seek "to maintain the historic pattern of compact village and urban centers separated by rural countryside." A critical focus for this chapter is planning how the existing facilities and services should be changed to better serve community needs as well as to support this land use goal. For example, villages without adequate water or wastewater systems will continue to struggle with village revitalization efforts and support affordable housing developments.

Utilities and Facilities Goals

To plan for and provide public facilities and services that meet the current and future needs of the Region and its individual towns and villages. To accomplish this in such manner that maintains the historic settlement pattern of compact centers surrounded by a rural countryside and supports and promotes the economic vitality and development goals of the individual communities and those of the Region. To achieve this goal we will:

1. **Promote public water and sewer infrastructure in community centers and other areas designated for growth in the Regional Plan and municipal plans.**
2. **Facilitate and support broadband improvements so that every household in the Region has access to a fast, efficient and affordable broadband connection at speeds of 100mbps (upload)/100mbps (download).**
3. **Provide other public facilities and services – such as solid waste, health and safety, communications, and educational services – to all inhabitants of the Region in a financially sustainable, energy efficient, and equitable manner.**
4. **Maintain, enhance, and promote recreational, entertainment, and cultural opportunities for all residents of and visitors to the region.**
5. **Promote and support efforts to meet the demand for quality, safe, and affordable child care across the Region. (See also Economic Development and Health Chapters goals and policies)**

and open access to people and ideas in other parts of the world. Developing the necessary communications infrastructure and access to these services, such as broadband, is an integral component of economic development and land use planning. The COVID-19 public health emergency emphasized the importance of broadband access when in-person economic and educational activities are restricted.

1. Telecommunications

a. Land-Line Telephone Services

Over ninety percent (90%) of Vermont residents had one landline telephone in their household, according to the 2018 Vermont Telecommunications Plan prepared by the Vermont Department of Public Service. While mobile phones and email are now everyday means of communication, land-line phones continue to provide critical functions, including 911 emergency services and health care information networks. In the Region, these services are provided by four providers: Comcast (Xfinity), VTel, TDS, and Consolidated Communications (formerly FairPoint).

b. Wireless Communication Facilities

The Department of Public Service, records 22 telecommunications facilities approved by the Vermont Public Utility Commission (PUC) under 30 V.S.A. § 248a between 2011 and 2017[8]. The majority are located in Ludlow. A 2018 Wireless Drive Test conducted by the Department of Public Service collected wireless service data along State Highways, for each of Vermont's six facility based operating providers: AT&T, Sprint, T-Mobile, US Cellular, Verizon Wireless and VTel Wireless. The measurements ranged from No Service to Great Service at a download speed of over 10 Mbps (megabits per second). In the Region, service was generally worse along state routes in western areas, especially in Reading, Cavendish, and Chester.[9] Improving wireless service in the region is vital not only for convenience but to improve public safety. Public safety agencies, such as emergency medical services, fire, and police departments, rely on wireless communications and telecommunications to provide essential services, disseminate vital information, and respond to emergencies.

[8] A map showing locations of approved facilities is available here: https://publicservice.vermont.gov/content/tower-locations

[9] The resulting report can be found here: https://publicservice.vermont.gov/sites/dps/files/documents/Mobile%20Wireless%20Coverage%20in%20VT_Jan%2 02019.pdf
The accompanying map can be found here: https://www .arcgis.com/apps/webappviewer/index.html?id=444a3d49c2374d509958f1c0e1d0d21b

Network infrastructure must be developed in an efficient, safe, and thoughtful manner. Possible impacts upon scenic and cultural resources, aesthetics, and public health should all be considered during the planning process.

(1) Telecommunications Act of 1996

Congress enacted the Telecommunications Act of 1996, which called for the rapid deployment of advanced telecommunications and information technologies and services. The Act significantly limited communities' traditional zoning and health authorities over the siting of towers, giving the FCC almost sole power to regulate a variety of environmental siting issues including public health concerns.

Wireless telecommunication facilities require near "line of sight" access from the user to a tower to avoid disconnected calls. In addition, the new technology, PCS and SMRS in particular, operate at a low frequency with a range of only one and half to two miles. Our Region's topography dictates that these facilities are located at close intervals, resulting in more locations.

(2) Local and Regional Planning

Thoughtful local and regional planning, which includes viewshed analysis, should be done for the inevitable siting and development of future wireless communications facilities. The Vermont League of Cities and Towns has prepared a Model Wireless Telecommunications Facilities Bylaw. Contact the RPC office if your town would like a copy. The MARC can also assist towns in understanding the limitations of the Telecommunications Act of 1996 and how Act 250 applies, identifying which ridge lines and viewsheds to preserve, determining alternative locations and designs that could mitigate negative impacts, and outlining provisions for the removal of a facility when it is no longer needed. 24 V.S.A. § 4412(9) authorizes local administrative review for telecommunication facilities with no or de minimis impacts.

2. Television, and Other Media

While television and radio are largely used for entertainment purposes, they are also a key part of the communications system in the Region. Both play a role in accessing information and emergency broadcasting. Cable television is available in at least a portion of eight towns in the Region (see Table 4.4). There are two satellite television providers that can serve any location as long as the site allows for adequate satellite reception. Local public access television channels include Springfield Area Public Access television (SAPA TV), Okemo Valley TV, and Windsor On-Air.

remain in the workforce or reengage in the workforce by temporarily covering costs pertaining to childcare, including back bill and registration fees.

SAPCC offers additional financial support for families to cover unexpected costs of living including transportation and housing challenges.

G. Recreation

Recreation Photograph 1 - Town of Ludlow with Okemo Ski Area in the Background, Source: MARC

1. Introduction

The Mount Ascutney Region offers many recreational opportunities to residents and visitors alike. Some of these opportunities include hiking, biking, camping, downhill skiing, x-country skiing, hunting, horseback riding, ATV riding, paddling, and fishing. The abundance and variety of opportunities within the region are not only a reason to live within or visit the region (outdoor recreation is commonly associated with the Vermont 'way of life'), but also an important sector of the economy.

2. Recreation Resources

The region is home to many areas devoted to indoor and outdoor recreation, ranging from public opportunities on state and municipal lands to those available on private lands. Ludlow is home to the Okemo State Forest and the Okemo Ski Resort, West Windsor is home to Ascutney Trails (a multi-use trail system) and Ascutney Mountain which is one of the Northeast's premier

g. Road Network

It is also worth recognizing the importance of our state and local road networks for recreational uses, which are perhaps the most frequently used resource for routine recreation by residents. Roads are used for walking, jogging, bicycling, equestrian and other uses. With the advent of fat bikes and electric bicycles, bicycling is becoming a year-round recreational activity and more difficult routes are accessible to a greater number of people. The region's scenic gravel roads make it well situated to take advantage of these developments. MARC has published maps and descriptions of bicycling routes in the region on the Ride Windsor County webpage at https://ridewindsorcountyvt.weebly.com/.

Variable widths of the existing roadway shoulders on paved routes may limit recreational uses. Many class 4 town highways and legal trails are used for snowmobiling, snow shoeing, and cross- country skiing; however, their use is subject to local rules and restrictions. In accordance with Vermont's Complete Streets Law (Act 34, 2011), accommodating all modes of travel (i.e. walking and bicycling) is to be considered in all state and municipally managed transportation projects on paved roads.

h. Water Access

The Connecticut River forms the eastern boundary of the area, providing the towns of Springfield, Weathersfield, and Windsor with ample river-based recreational activities such as canoeing, kayaking, fishing, and swimming. In addition to the Connecticut River, the region also is home to two other major rivers, the Black River and Williams River, and various streams and ponds that contribute to water-based recreation. Many informal swimming holes also exist along the network of streams and rivers in the region. According to the Basin 10 Management Plan, the Black River hosts Twenty- Foot Hole on the North Branch in Reading, and Buttermilk Falls in Ludlow, on Branch Brook. Also on the Black River are Tolles Hill Dam, a USACE recreational area in Perkinsville, and Flat Rock, opposite Mill Road just north of the Route 106 river crossing in Perkinsville. For more information on water-based recreation, please see the Connecticut River Joint Commission's Recreation Plan, the Basin 10 Water Quality Management Plan, and the Connecticut River Paddlers' Trail Guide.

H. Policies

Water, Sewer and Electricity Policies

1. Extensions of service infrastructure should take place in areas proposed for development by town plans and local bylaws and should not lead to sprawl or strip development or service use that exceeds existing or planned system capacity.

2. Water conservation techniques should be used in new development, and in the rehabilitation of existing development, to lengthen the life of wastewater treatment facilities and slow the depletion of groundwater resources.

3. Careful facility siting, landscaping and other mitigation techniques should be employed to minimize aesthetic impacts of transmission line projects.

Solid Waste Facilities Policies

1. Promote efforts within or among the Region's towns to reduce waste production, reuse, recycle, and compost. The hierarchy, as described in the Vermont Solid Waste Management Plan, of "reduce, reuse, recycle" should form the basis for all solid waste planning in the Region.

2. Land application of sludge[10] in the Region is encouraged provided that it does not pose a risk to human health or have negative impacts on aesthetics or the natural environment.

3. When measuring the economic viability of solid waste reduction or recycling programs, avoided costs of solid waste production and disposal, and of environmental cleanup, shall be considered as economic benefits.

[10] Sludge, also known as biosolids, is a byproduct of wastewater treatment. For more on biosolids and their potential uses, see the EPA webpage: https://www.epa.gov/biosolids/basic-information-about-biosolids.

Community Health and Safety Resources Policies

1. Expansion or creation of health and safety facilities is encouraged in locations selected for the efficient delivery of services and as necessary to meet the current and future demand.
2. Existing or proposed correctional facilities should be sited, maintained, and managed in a manner which ensures the safety and security of local residents.
3. The impact of existing and potential development on public health and safety facilities and services should be evaluated prior to new development.
4. New nursing homes and assisted living facilities should be located in close proximity to services or along public transportation routes in order to provide efficient access to services for residents.

Communication Facilities Policies

1. Support the development of broadband communication networks Region-wide.
2. New or expanded wireless communications services must collocate on existing facilities or be sited on existing structures, where feasible, and shall minimize negative visual impacts.
3. New communications facilities must minimize impacts on wildlife habitat and corridors, forest blocks, wetlands, rivers, streams, ridgelines, and other natural, scenic, and aesthetic resources, and should comply with the following standards
    a. Protecting view corridors from highways, residential areas, historic districts, public use areas, and outdoor recreation areas such as hiking trails, rivers, lakes, and ponds should be paramount in the design and siting permitted.
    b. All new wireless communications facilities sited on a ridge should be located below the ridge so that the tops of any such facility are below the site lines of persons using the highways or in the residential areas and historic districts. At a minimum, the tops of such facilities must not exceed the elevation of the immediate ridge.
    c. New access roads should be designed for minimal ground disturbance and clearing, follow the land contours, and avoid open land to minimize visual and ecological impact.
    d. If new wireless communications facilities are added to existing wireless communications facilities on peaks or ridges, such existing facilities should be retrofitted or maintained in a manner to minimize any negative visual impact.

e. At the site of wireless communications facilities, the existing vegetation and tree cover should be maintained to the maximum extent possible.
f. Prior to the application hearing, a demonstration of the visual impact of the tower must take place to inform the public (by simulating the silhouette of the facility by raising a dark colored balloon to the height of the top of the proposed facility, or other reasonable simulation).

4. Decommissioned wireless communications facilities or portions of facilities must be removed and the site restored and reclaimed to its original condition. All roads and accesses to the site which are no longer needed should be reclaimed and restored.
5. Permits for communications facilities should require a performance bond or other financial security ensuring the reclamation and restoration of the site should the facility be abandoned or rendered obsolete by technological advances. The performance bond should take inflation into account as many years may elapse between construction and removal of the facility.
6. The development and use of alternative technologies to serve the industry is encouraged. These include, but are not limited to, "stealth" designs for wireless communications facilities or complete coverage of such facilities within existing buildings and structures, and satellite technology, which would reduce the need for new, and allow for the removal of existing, wireless communications facilities.

Educational Resources Policies

1. Expansion or restructuring of academic, vocational, recreational, and cultural education facilities and resources to meet the needs of all residents will be supported, where communities show need and/or where existing facilities are inadequate.

Child Care Policies

1. Town plans should assess current and future local needs and supplies of child care services, including whether local barriers exist for the provision of these services.
2. Member towns should periodically review land use regulations to identify unnecessary barriers to childcare facilities and mechanisms to promote the development of childcare services in appropriate locations convenient to local services and densely populated areas.

Ch 5: EMERGENCY MANAGEMENT, FLOOD RESILIENCY, AND THE COVID-19 PANDEMIC

Emergency Management Goals

To build disaster-resistant communities in the Region through sound emergency and land use planning by:

1. Developing community resilience and resistance by connecting municipalities with a variety of resources, tools, and Information to respond to various disasters and emergency situations.
2. Assisting in the preparation, development, and implementation of local emergency operations plans, local hazard mitigation plans, mapping of vulnerable areas, etc.
3. Minimizing the loss of life, physical and emotional Injury, financial loss, property damage
4. Organizing and encouraging emergency training for local emergency personnel and elected municipal officials.
5. Participating in and supporting the Regional Emergency Management Committee to facilitate cooperation and coordination among fire and rescue services, law enforcement, and other emergency management service providers.
6. Identifying and securing funding to reduce emergency planning and management costs within the Region.
7. Facilitating key stakeholder engagement and planning, to include training, recruitment, and retention for emergency management volunteers.

1. EMERGENCY MANAGEMENT

1A. Emergency Planning

Building disaster-resistant communities through sound land use planning is a primary goal of emergency planning. When considering future land use in town plans and zoning regulations, towns should weigh the predictable consequences of development given disaster risks such as flood hazard areas, steep slopes, and inadequate roads. If done effectively, emergency planning can save lives, reduce incidences of injury, protect public and private property, and preserve the cultural, historical, scenic, and natural resource assets of the Region. Within our Region, there are issues of adequate emergency management service coverage, lack of volunteers, and the cost of emergency management equipment. Emergency responders face challenges such as volunteer recruitment, retention, and aging volunteers, which can result in longer wait times for residents. More recently, with the onset of the COVID- 19 pandemic, other emergency management issues have arisen.

There are four phases in Emergency Management:

- Mitigation
- Preparedness
- Response
- Recovery

Being prepared for when an emergency or natural disaster occurs is a priority for all towns in the Region. Towns can take steps to combat the four main objectives of emergency management.

Each town in the Region currently has adopted or is in the process of adopting a Local Hazard Mitigation Plan, to help prevent and mitigate the damages caused by these events. With the plan and membership in the National Flood Insurance Program (NFIP), all towns within the MARC Region may apply for Pre-Disaster Mitigation, Hazard Mitigation, Building Resilient Infrastructure and Communities, and Flood Mitigation grants all administered through the Federal Emergency Management Agency (FEMA). In addition to the Local Hazard Mitigation plans, towns must adopt a Local Emergency Management Plan (LEMP) that outlines the specific procedures and locations for Emergency Operations Centers, shelters, and other emergency services (20 V.S.A. § 6). If a town does not adopt or keep current mitigation, preparedness, response, and recovery measures, eligibility for the emergency relief assistance funds (ERAF) drops significantly. As of 2022, 80% of eligible communities have adopted all four hazard mitigation measures.

CH 6: NATURAL RESOURCES

Class II Wetland in Ascutney

Background

The landscape of our Region is composed of forests, fields, surface waters, and developed lands. This rural landscape, with an abundance of natural resources, is the reason many people choose to live in or visit this region.

Changing land use patterns have resulted in ecosystem shifts and changes, affecting both wildlife and habitat. Throughout the region, the landscape has undergone shifts from an original landscape of forested land to agricultural lands in the 19th and early 20th centuries, and now back to primarily forestland. The re-establishment of forestland has significantly improved the water quality of our rivers, streams, and lakes, along with the species that depend on them. However, the loss of agricultural land has made communities within the Region less self-sufficient, requiring many food products to be imported from other regions and states.

also encouraging smart growth, can be challenging. Many designated downtowns and village centers are located in a river valley and are surrounded by areas of prime agricultural soils and/or agricultural soils of statewide significance, which constrain future growth and development in those areas. A balance is necessary in order to protect agricultural soils, while allowing the flexibility to facilitate new growth within or adjacent to growth centers in accordance with the State Planning Goals in 24 V.S.A. §4302(c)(1).

Forest Resources

Forested land, including forest blocks and habitat connectors (Map 6), serves as a major asset to the Region. These forestlands provide a natural system of surface and groundwater filtration, stormwater retention, air purification, soil stabilization, carbon sequestration, and critical habitat for many species of native wildlife such as bobcat, bear, and deer. Vermont forests are home to a diversity of significant natural communities, Species of Greatest Conservation Need and uncommon species, along with many rare, threatened, and endangered (RTE) species. They also serve as an important economic resource for the Region. The harvest and manufacturing of forest products contributes approximately $1.4 billion to Vermont's economy annually and employs 10,555 people.[11] Forestlands form the foundation for numerous outdoor recreational activities such as walking, hiking, skiing, hunting, and camping; serve as a renewable energy resource through heat and power production; and provide the scenic qualities of an attractive natural setting for residents and visitors. Sound management of forested land takes into account all of these economically and environmentally beneficial values, and balances them for the common good.

Forest Fragmentation

Forest fragmentation presents an increasing threat to the economic and ecological stability of forest land in the Region. As discussed in the Wildlife Section of this chapter, many of the species that drive tourism, wildlife viewing, hunting and fishing require larger, contiguous blocks of forest and a connected network of forest blocks. Even as overall forest cover remains relatively stable over time, large, contiguous forest blocks are becoming fragmented and isolated in the Region. Forest fragmentation occurs through two processes: increased residential and public infrastructure development such as roads and power lines, and parcelization. Parcelization occurs when large parcels are subdivided into smaller lots. Even if left forested, small lots in multiple ownerships can be difficult to effectively manage; recreation access can be reduced due to differing objectives of landowners; and timber production is less economically feasible. The charts below track parcelization in the Region through two metrics, parcel size and

[11] Vermont Department of Forests, Parks and Recreation, *2015 Vermont Forest Fragmentation Report* (April, 2015)https://fpr.vermont.gov/sites/fpr/files/About_the_Department/News/Library/FOREST%20FRAGMENTATION_FINA L_rev06-03-15.pdf

systems to stay in attainment with standards. In addition, dust from mining operations and construction can cause local air quality problems if not properly controlled.

For additional discussion on air quality issues and climate change, please refer to the Regional Enhanced Energy Plan.

Natural Resources Policies

Development Definition**:** For the purposes of this Chapter, the term "development" is defined as any development activity that requires approval through either Act 250 or Section 248 review procedures.

1. Where an alternative exists, development is prohibited in large tracts of Prime Agricultural Soils located outside of designated downtowns, villages, and other locally designated growth areas.
2. Development within downtowns, villages, and other locally designated growth areas should be allowed on areas of Primary and/or Secondary Agricultural Soils, if supported in the town plan, but shall use innovative site designs such as clustered development on the periphery (for examples, see *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks* (1996) by Randall Arendt) to minimize negative impacts and prevent fragmentation. Additionally, such developments shall be required to maintain a small tract for future small-scale agricultural use or community garden.
3. Agricultural and forestry activities shall minimize point and non-point source pollution through use of the Vermont Required Agricultural Practices (RAPs) and Acceptable Management Practices (AMPs) for forestry activities.
4. Invasive species that threaten forestry, agriculture and aquatic resources and habitat should be closely monitored by state and federal governments, and education and prevention methods shared with landowners.
5. All developments must show the following information on site plans, based on the most currently available data through the Vermont Center for Geographic Information, the Vermont Fish and Wildlife Department's Biofinder, the Vermont Agency of Natural Resource's Natural Resource Atlas, local natural resources inventories, or detailed site review:
    a) Rare, threatened and endangered species (see Map 6);
    b) Priority forest blocks and habitat connectors (see Map 6);
    c) Areas over 2,500 feet in elevation;
    d) Cliff areas or rock outcroppings identified as habitat for peregrine falcons, bobcats, or other wildlife;[13]

[13] Not currently available through online resources. This data would have to come from a local natural resource inventory or detailed site review.

e) Other identified significant wildlife habitat areas available through other sources, such as local natural resource inventories.

6. Development must avoid negative impacts to the following critical wildlife habitats as identified by the Vermont Fish and Wildlife Department:
    a) Rare, threatened and endangered species;
    b) Cliff areas or rock outcroppings identified as habitat for peregrine falcons, bobcats or other wildlife.
7. Development must minimize negative impacts to and fragmentation of the following critical resources as identified by the Agency of Natural Resources to maintain their important ecological and economic functions. Such development must be designed and sited in a manner to minimize encroachments to and preserve continuous priority forest blocks and habitat connectors by locating structures and roads to the periphery of these areas:
    a) Priority forest blocks and habitat connectors (see Map 6);
    b) Other identified significant wildlife habitat areas available through other sources, such as local natural resource inventories.
8. Maintain undisturbed buffers of vegetation along watercourses, lakes, ponds and wetlands in order to protect shorelines, provide shading to prevent undue increase in stream temperatures, minimize effects of erosion, sedimentation and other sources of pollution, and maintain scenic, recreational, and habitat values in accordance with *ANR Riparian Buffer and Corridor Technical Guidance (2005)*. In order to further development goals of this plan, reduced buffer width requirements should be considered to accommodate the development of public recreation paths, sidewalks, and utility or road crossings, within designated Downtowns and Village Centers, but efforts shall be made to minimize undue adverse impacts.
9. Headwater streams[14], gorges, waterfalls, and cascades and the land around these important resources must be protected. Outstanding Resource Water (ORW) designations for these areas should be considered where deemed appropriate.
10. Development must not result in undue degradation of any surface water resource.
11. It is state policy to achieve no net loss of significant wetlands as defined in the *Vermont Wetland Rules*. In order to achieve this:
    a) Destruction of wetlands and construction in wetlands will be avoided when any reasonable alternative exists.
    b) Development will minimize negative impacts to significant wetlands and their associated values and functionality.
12. Groundwater withdrawals must not adversely impact the quality or quantity of groundwater or surface water resources, such as municipal water sources, adjacent wells, wetlands, streams, rivers and lakes.
13. Minimize areas of earth disturbance, grading and vegetation clearing on slopes over 15%.

[14] A stream that has few or no tributaries, and typically has a steep, incised channel that is often associated with active erosion, seeps, or springs. Headwater streams are referred to as first order streams.

14. In working land and conservation future land use areas, development on slopes between 15-24% must be designed to minimize adverse stormwater and erosion impacts by incorporating low impact development and green stormwater infrastructure principles, including:
    a) Development of a lot or site shall require the least amount of site disturbance and reduce the lot coverage and building footprints as much as possible in order to maintain the natural hydrologic processes and reduce the volume and water quality impacts of the proposed development.
    b) Roads, driveways, buildings and utilities must be located on the flattest portions of the site.
    c) Minimize crossing steep slopes with roads and driveways and lay them out to follow topographic contours in order to minimize soil and vegetation disturbance.
    d) Minimize the length of driveways.
    e) Reduce the total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.
    f) The scale of development will not exceed the development capacity of the site.
15. Development is prohibited in areas predominated by slopes exceeding 25% or above 2,500 feet in elevation (other than appropriately designed recreational trails, ski lifts, zip lines, lookouts, and other similar recreational uses). Appropriately designed recreational uses above 2,500 feet in elevation are those that do not result in undue adverse impacts on the environment and are consistent with the future land use goals in this Regional Plan.
16. When any alternative exists, developments shall not be sited on soils that are:
    a) Susceptible to flooding;
    b) Located in identified river corridor areas; and
    c) Not suited for foundations and/or septic systems.
17. Development proposals for shallow soils shall provide and conform to an erosion control plan for construction activities and a site drainage plan.
18. Support mineral resource extraction as an important component of the working landscape economy, provided that such operations minimize impacts to the environment and neighboring properties.
19. Mineral extraction activity that is determined to have undue adverse impacts on neighboring properties is prohibited.
20. Mineral extraction activity that may destroy or significantly imperil wildlife habitat or other critical natural resources is prohibited.
21. Where mineral extraction is determined to be appropriate, adequate measures to minimize adverse effects (e.g., visual, noise, groundwater, surface water, and air pollution) on the environment and its wildlife shall be taken.
22. Effective site reclamation and re-vegetation plans shall be provided and implemented.
23. Mineral extraction and processing facilities must be planned, constructed, and managed:
    a) to provide direct access to Class III or better highways;
    b) to not interfere with the function and safety of existing road systems serving the project site. Factors to be considered in determining impacts include, but are not limited to:

Ch 7: CULTURAL & AESTHETIC RESOURCES

Long before European settlement, Abenaki people inhabited and were stewards to the land. Because of cultural and historic genocide put in place by European settlers throughout history, there are few Abenaki people left. Because of the history of violence towards this group, it is important that we, as a Region, commit to equitable policies and acknowledgements that benefit future generations of Abenaki descendants and vow to omit future harm.

Abenaki History

While the exact dates of Abenaki and indigenous settlement cannot be traced back exactly, Abenaki oral history and archelogy point to people being in Vermont and New Hampshire as far back as 12,000 years ago, and data signifies that as far back as 7,000 years ago indigenous people were propagating plants and using agricultural practices in the Northeast. Abenaki people were and still do plant corn, beans, squash, and sunflowers to sustain their families. In addition, Abenaki people hunted, fished, and gathered resources both as a form of sustenance, but as a part of a long-standing culture. The Abenaki people have historically and presently played a large part in reforestation and conservation efforts throughout the state.

From the 1620's to present day, with the first colonizers from Europe reaching the Americas to present day, Abenaki people have seen thousands of their burial goods and sacred items stolen. Every European foray into Abenaki land included "searches" for gold and treasure that included looting sacred burial sites, and murdering Abenaki people. In addition to pillaging villages, and murdering the indigenous people, European colonizers exposed smallpox and other diseases that devastated the Indigenous communities. More acts of harm have been enacted over the history of European colonization through harmful policies, treaties, and unequal distribution of punishment.

Since then, there have been some preservation efforts by the State of Vermont to recognize harm done and acknowledge and preserve indigenous resources and recognize indigenous Abenaki people and stewards of the land.

In 2006, the Vermont Legislature formally recognized the Abenaki.

In 2019, the State replaced "Columbus Day" with "Indigenous People's Day".

In 2020, hunting and fishing rights were recognized by the State of Vermont.

While hundreds of years of harm cannot be undone overnight, the Region can take steps to enact goals and policies that recognize significant historical and archeological indigenous sites and recognize the contribution of knowledge the Abenaki people have understanding scenic lands.

For more information on the Sokoki Abenaki people, click here.

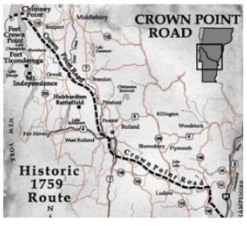
A. 1. Cultural and Historic Resources

Cultural and Historic Resources Goals

Ensure the protection, promotion, and restoration of culturally and historically significant resources by

1. Promoting equitable acknowledgements of indigenous populations throughout the Region through cultural and historic preservation methods as defined by the Abenaki and indigenous people themselves;
2. Ensuring the preservation, maintenance, and enhancement of significant cultural and historic resources throughout the Region;
3. Promoting the historical and cultural heritage of the Region.

Cultural, natural, economic, and political history has shaped the character of the Region. This character is reflected in the buildings, archeological sites, structures, events, and traditions established by residents throughout the Region's history. The importance of these cultural and historic resources is reflected in their ability to provide a sense of continuity to the Region's cultural fabric. A shared sense of history and cultural pride creates stronger communities and encourages the appreciation of other cultures. Historic and cultural sites, buildings, and events can also provide economic benefits because they draw visitors from around and outside of the region to enjoy the rich cultural fabric these resources provide. Cultural and historic resources can also serve dual purposes as unique community gathering places for the enjoyment of music, theater, and other cultural performances. In all, it is important to protect significant cultural and historic resources from destruction or inappropriate alteration to avoid losing the sense of place that has been developed over hundreds of years.



Crown Point Military Road

The Crown Point Road originally served as a military supply route for the British army, and later for American forces during the Revolutionary War. Started in 1759, The Crown Point Military Road connected Fort No. 4 in New Hampshire with other military fortifications at Crown Point and Mt. Independence on Lake Champlain. The road was built through Springfield, Weathersfield, Cavendish, and Ludlow and sections of the road are still in use for transportation and recreation.

historic character of a site; it can also provide communities and individual property owners with federal funding for rehabilitation projects, and with investment tax credits.

Downtown Designations - Vermont's "Historic Downtown Development Act" is intended to "encourage investment in and restoration of municipal downtown districts". Areas that receive designation as a "downtown development district" are eligible for benefits in the form of financial aid and tax incentives for certain projects. In our Region, Springfield and Windsor have designated downtown status. As of 2021, Ludlow is seeking downtown designation.

Designated Village Centers – Village center designation, as provided for in 24 V.S.A. Chapter 76A, was created by the legislature to recognize and encourage local efforts to revitalize Vermont's traditional village centers. While village center revitalization is an ongoing process to improve a community's vitality and livability, village center designation is only one tool and its focus is on supporting commercial activity in the center of Vermont's villages. In our Region, the villages of Ascutney, Brownsville, Cavendish, Chester, Felchville, Perkinsville and Proctorsville are Designated Village Centers.

Certified Local Governments (CLGs) - A 1980 amendment to the National Historic Preservation Act of 1966 requires that at least 10% of states' Historic Preservation Funds be given to "Certified Local Governments" (CLGs). A local government becomes eligible for this program when the State Historic Preservation Officer (SHPO) certifies that the local government has established its own historic preservation commission and a program that meets state and federal standards. In addition to being eligible for matching survey and planning grants, CLGs review nominations of National Historic Register properties within their jurisdictions and provide local perspective to the plans and programs of the VT Division of Historic Preservation. Windsor is the only town in the Region that is a CLG.

Local Zoning - Under Vermont law, towns may include Design Review Districts and Historic Districts in their zoning bylaws. Design Review Districts offer communities, after public hearing and preparation of a design plan, the opportunity to review and approve the construction, demolition, substantial alteration, movement, or change in use of a building within the district. Historic Districts offer a more specific set of guidelines for reviewing projects in the district based on historical an architectural significance and a predetermined set of criteria. Springfield and Windsor have adopted downtown design review districts in their zoning bylaws. Towns may also include review of historic impacts under conditional use and site plan approval guidelines in their zoning bylaws.

Act 250 - Some development may be subject to review of potential impact on historic resources under criteria 8 and 10 of Act 250. Under criterion 8, applicants must show that a project will "not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas". Under Criterion 10, a project must be shown to be in conformance with "any duly adopted local or regional plan or capital program".

B. Aesthetics: Scenic Lands and Open Space

Scenic Lands and Open Space Goals

Achieve a balance between scenic or open land uses and other land uses in the best interest of the environment and the Region's residents through:

1. Maintaining and/or enhancing the diversity of ecosystems throughout the Region by promoting connectivity between significant habitat wherever possible;

2. Protecting the environmental character and integrity of significant natural and scenic resources as identified by member towns.

3. Integrating indigenous knowledge of conservation into policies and practices.

The harmonious mix of open space, villages, farms, country roads, mountainous terrain, historic architecture, and surface waters in the Region provides for scenic vistas and an attractive landscape. This landscape is also an economic asset and has a tangible economic value to the Region. The rural lifestyle and scenic landscapes attract many tourists. Tourism is a significant industry in the Region. The preservation of these aesthetic and scenic resources has become increasingly difficult due to economic and development pressures. Over the past several decades, highway strip development has emerged between town and village centers and the countryside thus threatening the Region's traditional land use pattern. Agricultural fields and working forestlands juxtaposed to dense villages combine to create the traditional Vermont landscape that residents and tourists cherish. Development can occur in ways that do not adversely impact this traditional landscape, such as innovative site plans, clustering around already established villages and town centers. Future development needs to be cognizant of the landscape's heritage and work towards mitigating any adverse impacts to the land's historic legacy.

Scenic Resources

Scenic resources are public or publicly accessible areas, features, landscape patterns, or sites that are easily recognized by the Region and contribute to Region's distinct character. Vermont has been involved with scenery preservation issues as early as 1937. In 1966, the State established the Scenery Preservation Council. Key milestones for the Council were the passage of the "outdoor Advertising Law, i.e., the billboard ban in 1968; numerous studies on Vermont's scenic qualities; and the publication of

the "Vermont Backroads Handbook". Efforts to mitigate any negative effects of development are necessary to protect, preserve, and improve the significant aesthetic resources within the Region. Such efforts should include a continued emphasis and restructuring of municipal planning and zoning administration, which protects and preserves the landscape heritage in the Region. Identifying key scenic resources is imperative to protecting the rural landscape and value of the Region. While scenic resources can be hard to identify, they can be sorted into four main categories; Highlands, Lowlands; Centers; and Countryside.

Highlands:

Mountainous areas made up of scenic ridgelines with significant changes of topography, bedrock and soil conditions that also host woodlands containing native plant and wildlife habitat. The Region has prominent ridgelines and mountain tops that are inherently and especially sensitive, e.g. the Alps and Little Ascutney Mountain. Development in these areas is strongly discouraged. Such proposed development should work towards design plans that retain the prominent natural appearance by locating in less visible areas and away from highly visible ridgelines, blending and or hiding structures within existing wooded hillsides, and where possible, avoid excessive use of reflective glass.

Aesthetic resources are protected by Criterion 8 of Vermont's Act 250, which does not relegate scenic beauty to pristine areas alone, but to settled areas and farmlands as well.

Lowlands:

Characterized by riparian corridors, wetlands, waterways, and floodplains, areas like this can provide ecological benefits as well as recreational opportunity. Lowland areas, like those around the Connecticut River, are good examples of resources that should be preserved. Covered Bridges that go over waterways are of particular interest to this region and help create a unique aesthetic experience for visitors and community members alike.

Central Gateways:

Dense central places like a village center that is characterized by significant or historic buildings like public offices, monuments, a commercial core, and a more urbanized residential area.

Countryside:

Woodland or agricultural areas outside of an urban center with limited residential development. Countryside can be characterized by open fields, managed crop fields, and/ or orchards.

Scenic Roadways:

The Scenic Roads Law was passed in 1977, initiating the state Scenic Roads Program. The purpose of the Scenic Roads Program was to protect the physical character and condition of the roadway right-of-way.

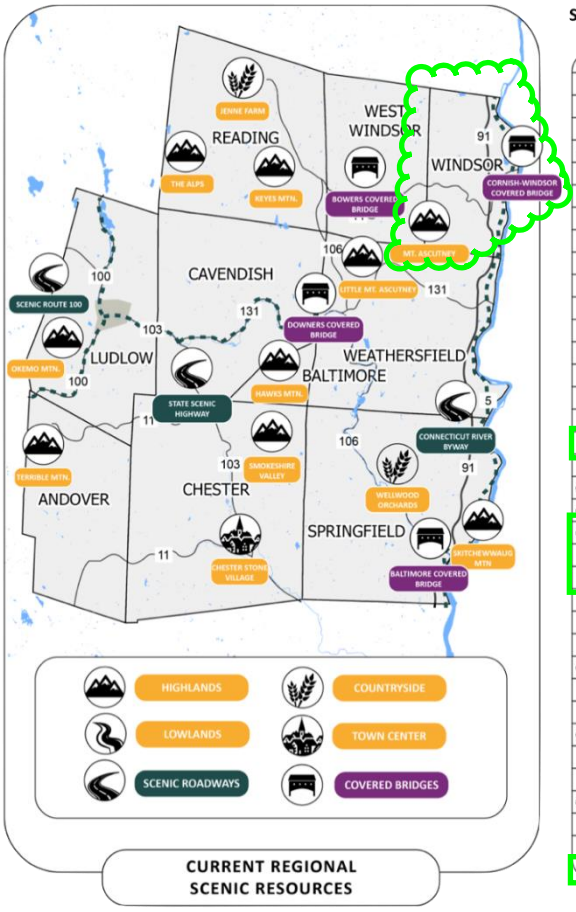
National Scenic Byways Program: The purpose of the Byway program is to foster cooperative ventures or public-private partnerships, and to protect, enhance, and/or promote the natural, cultural, historic, archeological, recreational, and scenic qualities. The Connecticut River Byway was awarded national designation by the Federal Highway Administration. The segment of the Byway in this Region includes the US Route 5 corridor through Windsor, Weathersfield and Springfield. The two spurs including VT Route 44 to Brownsville and VT Route 11 to downtown Springfield, continue to be part of the originally designated Connecticut River Scenic Byway.

State scenic roads may be established by recommendation of the Scenery Preservation Council per 19 V.S.A. §2501. Any construction or maintenance work on designated state scenic roads must be consistent with the standards established by VTrans pursuant to 10 V.S.A. §425. The segment of VT Route 131 in Cavendish is the only designated State Scenic Highway in this Region.

Towns in Vermont are enabled to designate municipally maintained roads as "scenic roads," as established by 19 V.S.A. §2502. Town scenic roads are also subject to the standards established by the State Transportation Board. Those standards for scenic roads address appropriate minimum roadway widths, alignment, landscaping, and traffic control methods, pursuant to 10 VSA §425. There are no town designated scenic roads in this Region currently.

Covered Bridges:

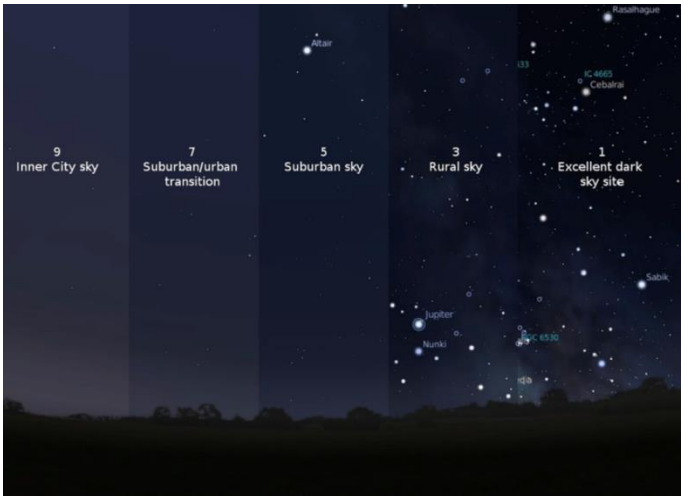
Covered bridges are a staple of New England, and the character of many of the scenic resource elements listed above are amplified by covered bridges in the region. For example, the iconic Cornish-Windsor covered bridge from multiple angles frames a view of Mount Ascutney and the Connecticut River.



SCENIC RESOURCE TYPOLOGY	TOWN	NAME
COUNTRYSIDE	CAVENDISH	20 MI. STREAM RD.
COUNTRYSIDE	READING	BAILEY MILLS RD
COUNTRYSIDE	WEST WINDSOR	BIBLE HILL
LOWLANDS	LUDLOW	BLACK RIVER
CENTRAL GATEWAY	WEST WINDSOR	BROWNSVILLE
COUNTRYSIDE	READING	CAPERS HILL RD.
LOWLANDS	CHESTER	CHESTER RESEVOIR
LOWLANDS	SPRINGFIELD	COMTU FALLS
LOWLANDS	WINDSOR, WEATHERSFIELD, SPRINGFIELD	CONNECTICUT RIVER
HIGHLANDS	WINDSOR	CORNISH HILLS
COUNTRYSIDE	LUDLOW	GHIA FARM
LOWLANDS	SPRINGFIELD	GOULDS MILLS
COUNTRYSIDE	WINDSOR	GREAT RIVER FARM
HIGHLANDS	BALTIMORE, CAVENDISH	HAWKS MOUNTAIN
COUNTRYSIDE	READING	JENNE FARM
HIGHLANDS	READING	KEYES MOUNTAIN
LOWLANDS	CAVENDISH	KNAPP POND
LOWLANDS	WINDSOR	LAKE RUNNEMEDE
HIGHLANDS	WEST WINDSOR	LITTLE MT. ASCUTNEY
CENTRAL GATEWAYS	LUDLOW	MAIN ST.
CENTRAL GATEWAYS	SPRINGFIELD	MAIN ST.
CENTRAL GATEWAYS	WINDSOR	MAIN ST.
LOWLANDS	WINDSOR	MILL BROOK
LOWLANDS	WINDSOR	MILL POND
HIGHLANDS	WEATHERSFIELD	MOUNT ASCUTNEY
HIGHLANDS	LUDLOW	OKEMO MOUNTAIN
COUNTRYSIDE	WEST WINDSOR	PARIS HILL FARM
CENTRAL GATEWAYS	CAVENDISH	PROCTORSVILLE VILLAGE CENTER
HIGHLANDS	SPRINGFIELD	SKITCHWAUG MOUNTAIN
HIGHLANDS	CHESTER	SMOKESHIRE VALLEY
CENTRAL GATEWAYS	CHESTER	STONE VILLAGE
HIGHLANDS	ANDOVER	TERRIBLE MOUNTAIN
HIGHLANDS	READING	THE ALPS
CENTRAL GATEWAYS	CHESTER	THE GREEN
LOWLANDS	CAVENDISH	TWENTY MI. STREAM
COUNTRYSIDE	SPRINGFIELD	WELLWOOD ORCHARD
COUNTRYSIDE	WINDSOR	WINDSOR PRISON PROP.

Preserving Scenic Resources:

Limiting Light Pollution:



One of the most valued resources of a rural region is a night sky unimpaired by "sky glow" from the misdirected light of urbanized areas and recreational resorts. Many outdoor lights are poorly designed or improperly aimed, allowing light to project above the horizon and wash out the view of the stars. Poorly designed exterior lighting also creates glare, light trespass on neighboring property, and energy waste. There are now options for outdoor lighting, which are better designed to direct light downward where it belongs. These fixtures are commonly referred to as "dark sky compliant," and maintain light distribution towards the ground full cutoffs avoiding projection into the sky. Future consideration of this technology would help reduce cumulative negative effects on aesthetic resources. Groups like the Springfield Stellafane astronomy club rely on the dark sky created by limited light of sky to recreate. Springfield also has an "Observatory Protection Overlay District" that minimizes light effecting observatories in Springfield.

Maintaining Open Space:

"Open space" may be defined as land which is not developed and is of some benefit to the public for many of the reasons described throughout this chapter and the Natural Resources chapter. Open space that is publicly owned or permanently protected through the sale or donation of development rights may ensure the long-term productive capacity of forest or agricultural land; preserve wildlife habitat; protect groundwater resources; provide recreation land; and preserve important historic, scenic and cultural resources.

The Upper Valley Land Trust (UVLT) is in Hanover, New Hampshire, and provides conservation leadership, tools and expertise to permanently protect the working farms, forested ridges, wildlife habitat, water resources, trails and scenic landscapes that surround residential areas and commercial centers. UVLT focuses its mission in 45 Vermont and New Hampshire towns (including Springfield, Weathersfield, Windsor, West Windsor, and Reading) in the upper Connecticut River valley. UVLT is a sponsor member of the Land Trust Alliance, an organization that promotes land

conservation by providing advocacy and professional resources to over 1,600 land trusts nationwide.

To ensure that open lands that provide the greatest public benefit are protected for present and future generations, towns should develop open space plans.

For more information: Open Space & Resource Protection Programs

Policies

A. Cultural and Historic Resources Policies

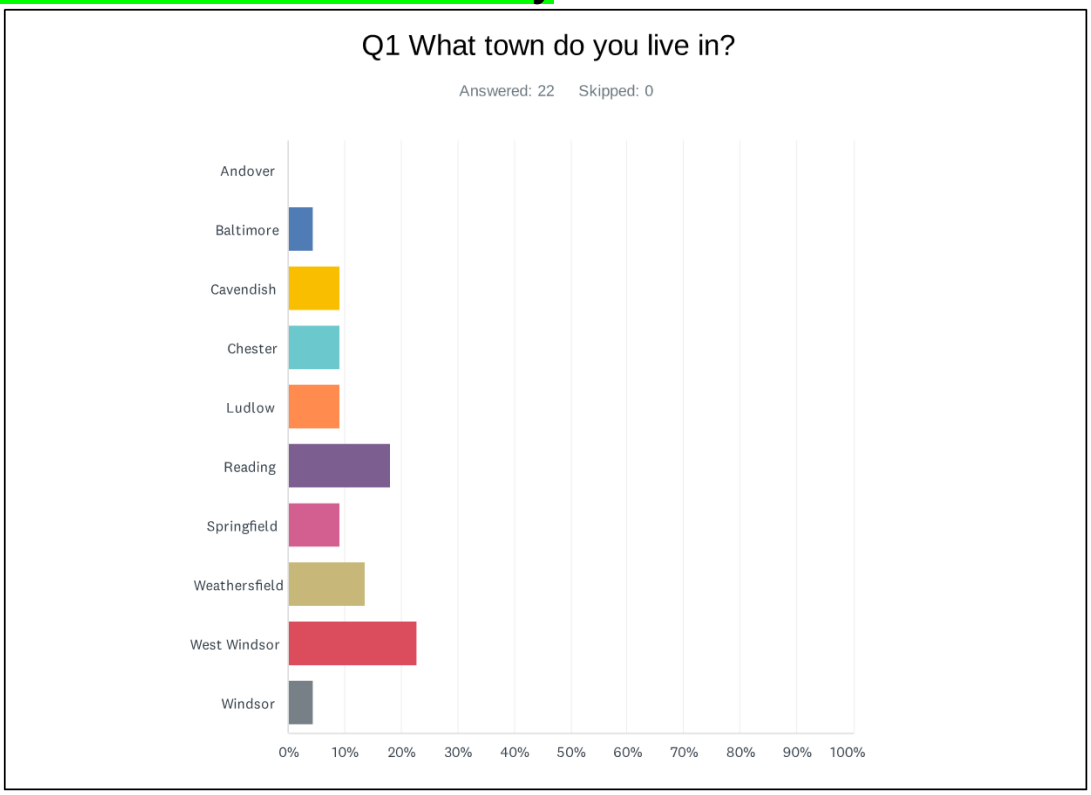
1. Acknowledge the presence and continuous stewardship of indigenous people to the cultural and historical resources in the region.
2. Proposed development adjacent to or within historic or cultural sites must adhere to similar massing, size, scale, and overall design of the site. Development must enhance historical or cultural value and appreciation.
3. Increase awareness of community, regional, state, and federal programs which sponsor or provide financial or technical assistance for cultural and historic preservation and education.
4. Adaptive reuse of historically significant buildings and sites is desired as long as the project is consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties and any local historic or design review guidelines.
5. Regionally significant historic buildings and sites should be preserved unless existing conditions make it unreasonably cost prohibitive. Necessary renovations should reflect the historic character of the resource. In the case of private homes, owners are encouraged to consider the site's historic, cultural, and economic value to themselves and the community when deciding how best to maintain and manage them.
6. Promote the education and increased awareness of significant cultural/aesthetic resources, such as cellar holes and stonework.
7. Acknowledge, protect, respect, and memorialize Abenaki and indigenous burial sites, archeology, ethnohistory, and traditional knowledge.

B. Scenic Lands and Open Space Policies (See also Natural Resources Chapter)

1. Support local, state, or federal programs and legislative efforts which protect and enhance the economic, cultural, environmental, and aesthetic values of forested and scenic resources.
2. Support, and promote, the continuation of programs that provide incentives for landowners to conserve farmland, forestland, and open space (e.g., Forest Legacy Program, Use Value Appraisal Program).
3. Conservation easements of important open and scenic lands are supported.
4. Historic, archeological, and indigenous sacred resources that enhance the scenic resources of the Region are preserved.
5. The sites highlighted in the Scenic Resources section of this chapter are inherently and especially sensitive. Development around the Region must not result in undue adverse impacts on these scenic resources.
6. Structures and exterior areas shall be illuminated only at levels necessary to ensure the safety and security of persons and property. Any lighting that will disturb the natural or aesthetic value of a scenic resource shall not be used.

   Exterior lighting must be fully shielded and minimize the amount of blue light in the nighttime environment (i.e., Dark Sky Friendly).

APPENDIX: Scenic Resources Survey



ANSWER CHOICES	RESPONSES	
Andover	0.00%	0
Baltimore	4.55%	1
Cavendish	9.09%	2
Chester	9.09%	2
Ludlow	9.09%	2
Reading	18.18%	4
Springfield	9.09%	2
Weathersfield	13.64%	3
West Windsor	22.73%	5
Windsor	4.55%	1
TOTAL		22

Q2 What would you say are the outstanding scenic mountains or highlands in your town or region? Highlands: Hillsides and ridgelines, that because of topography, bedrock, and soil conditions prominent mountains, forest cover, and other elements, are outstanding scenic resources. (ex. View of Mt. Ascutney from Paradise Park in Windsor)

Answered: 22 Skipped: 0

#	RESPONSES	DATE
1	Springfield is not really a mountain or highland place, it however has been attracting glamping sites and a rural retreat. The development of these resources has been impeded by ANR and Acr 250 restrictions that sometimes make little sense.	2/1/2022 10:59 PM
2	Mt. Ascutney, Skitchewaug Mt., Mt. Ephraim, Hawk's Mt. (see this link about plane crash on Hawk's Mt. http://www.gendisasters.com/vermont/11490/hawk039s-mountain-vt-bomber-crashes-june-1947)	2/1/2022 12:19 PM
3	Keyes Mountain, Mt Moses	12/6/2021 5:38 PM
4	Mount Ascutney as seen from various points in W. Windsor. one is along Bible Hill Road but there are many more	11/29/2021 7:54 PM
5	hawkes MT Keyes MT	11/29/2021 7:38 PM
6	Steadman Fro the East Side	11/22/2021 8:37 AM
7	View from the height of S. Reading Rd. looking south south east. Hawks mountain.	11/22/2021 7:08 AM
8	Hawks Mountain Little Ascutney	11/18/2021 3:01 PM
9	Views of ascutney, view of Cornish hills and ridges across the river from Jarvis St, view from the beach of Kennedy Pond, covered bridge, windsor town forest, prison property	11/18/2021 12:46 PM
10	Views of: The Alps, Mt. Ascutney, Little Ascutney In Reading. Region: Okemo Mtn, Skitchewaug Mtn, Terrible Mtn	11/18/2021 12:04 PM
11	View from the top of Okemo View from the top of North Hill View from the top of the Ford Farm/Burns residence View from the top of the cemetery View from the top of East Hill View from the dams on Route 100 South/Andover Road View of the lakes from parts of Okemo	11/18/2021 10:57 AM
12	View of Okemo as you drive into town from the south. Views of the Lakes on VT Rt. 100 North. New England style architecture in the village.	11/18/2021 8:07 AM
13	Mt Ascutney, Little Ascutney and the valley between. View of Hawks Mtn from the Weathersfield Center Rd.	11/18/2021 7:08 AM
14	Jenne Rd., Town Hill, Grasshopper Rd. Ridgeline views, Pastures, Available trails	11/18/2021 5:57 AM
15	The land on both sides of Birmingham Road before Chaos; outcropping on one side with an amazing assortment of spring wildflowers and the ledge on the other with lady slippers and below, wetlands.	11/17/2021 8:01 PM
16	Mt. Ascutney, Rt. 44, and the Brownsville/Hartland ridgeline.	11/17/2021 5:04 PM
17	hawk mt.	11/17/2021 4:04 PM
18	View of Ascutney from the end of High Street, Smokeshire valley,	11/17/2021 3:55 PM
19	Mount Ascutney and Little Mount Ascutney not to mention every ridgeline in town	11/17/2021 3:53 PM
20	Mt. Ascutney--view from every angle.	11/17/2021 3:50 PM
21	Mt Ascutney, Little Ascutney Mtn, Hawks Mtn, Ludlow Mtn, Terrible Mtn	11/4/2021 4:13 PM

Q3 What would you say are outstanding scenic lowland features in your town or region?Lowlands: Characterized by riparian corridors, wetlands, waterways, and floodplains, areas like this can provide ecological benefits as well as recreational opportunities. (ex. The Connecticut River)

Answered: 20 Skipped: 2

#	RESPONSES	DATE
1	The Black River could be a major asset of the Town, however its ability to serve as such has been destroyed by buffer zone requirements which have surrounded it with poison ivy, tree debris, dying trees, and other obstructions which impede it visibility, accessibility, and use. The Town is protected from flooding by a large flood control dam, yet it is still subjected to unnecessary restrictions, against the wishes of the Town	2/1/2022 10:59 PM
2	Black River, Connecticut River and Hoyt's Landing, North Springfield Bog	2/1/2022 12:19 PM
3	Land around the Black River as it flows through Felchville. Land around the Mill Brook in and north of Hammondsville.	12/6/2021 5:38 PM
4	Mill Brook as it runs through West Windsor. In the region, the Connecticut River is very scenic, especially with the Windsor/Cornish Covered Bridge. In Taftsville, the river, dam, and River Road	11/29/2021 7:54 PM
5	Beaver meadows along 106Reading. Beaver meadows upper Black R for flood resiliance and habitata	11/29/2021 7:38 PM
6	The North Branch Williams River Valley North of Chester	11/22/2021 8:37 AM
7	20 mile stream road as a parallels the alps. Route 131 corridor. Davis Road	11/22/2021 7:08 AM
8	Black River and Valley	11/18/2021 3:01 PM
9	Paradise park, CT river (duh), old mill brook	11/18/2021 12:46 PM
10	Mill Brook, North Branch Black River, wetlands along Tyson Rd in Arthur Davis WMA, Niagara Falls, Twentyfoot Hole in Reading. Region: CT River and valley, Black River along RT 131, Goulds Mill & Comtu Falls (Springfield), Paradise Park wetlands and Lake Runnemede, west Windsor flats along Rt 44, Hoyts Landing and setback	11/18/2021 12:04 PM
11	Black River watershed Lake Pauline and Lake Rescue Flood Control Dams (includes our recreation pond)	11/18/2021 10:57 AM
12	See above. Scenic drive along VT Rt 100, North and South. (Maybe that's why it's a 'scenic corridor')	11/18/2021 8:07 AM
13	Protected areas along the Black River (Army Corps), Black River North Branch fields following Rte 106	11/18/2021 7:08 AM
14	Mill Brook	11/18/2021 5:57 AM
15	Twenty Mile Stream as it flows along Heald Road.	11/17/2021 8:01 PM
16	Mill Brook, West Windsor Rt. 44 valley corridor.	11/17/2021 5:04 PM
17	Connecticut River and every stream in the area	11/17/2021 3:53 PM
18	The Mill Brook water way, including the low land area along Rt. 44	11/17/2021 3:50 PM
19	Covered bridges, Connecticut River, Black River along Scenic Route 131, Ludlow lakes region, Black River through downtown Springfield, Knapp Ponds, Lake Runnemede, Mill Pond, Chester Reservoir	11/4/2021 4:13 PM
20	Mill Brook	11/4/2021 10:06 AM

Q4 What would you say are outstanding scenic community centers in your town or region?Centers: Dense central places like a village center that is characterized by significant buildings or historic architecture like public offices, monuments, a commercial core, and a more urbanized residential area. (ex. Main Street in Downtown Windsor)

Answered: 21 Skipped: 1

#	RESPONSES	DATE
1	The potential scenic center for Spring field is the Black River, however, because of buffer zone restrictions it cannot be easily seen, accessed, or used. Muckross State Park could also be a major scenic center but its structures are being neglected and falling into decay by the State. And the State has not improved its access or trail system. It needs more funding and local control.	2/1/2022 10:59 PM
2	Downtown Springfield	2/1/2022 12:19 PM
3	Felchville; Hammondsville; land around Bailey's Mills	12/6/2021 5:38 PM
4	In the region, the Town of Woodstock - Main Street, Billings Farm.	11/29/2021 7:54 PM
5	Old barns. Stone walls along roads… which are often pushed over for the sake of "road drainage". The better back roads program by the way destroys scenic roads withe armouring that wa sat times a useless need	11/29/2021 7:38 PM
6	The Green In Chester	11/22/2021 8:37 AM
7	Proctorsville village center. Cavendish historical society building	11/22/2021 7:08 AM
8	None	11/18/2021 3:01 PM
9	Main st downtown windsor, Waterfront area in downtown windsor, Juniper Hill Inn, Snapdragon Inn	11/18/2021 12:46 PM
10	Reading: Fletchville, Indian Stone marker. Region: Chester Stone village, Weathersfield Bow, Windsor main St old buildings	11/18/2021 12:04 PM
11	Historic Preservation area Village Center Black River Academy Museum Ludlow Town Office Building Veteran's Park and Minipark (Daniel Kesman Park) Historic Churches: Baptist, Catholic and United Church Dorsey Park and Town Recreation Area The Armory that includes our TV station, Good Neighbors and Recreation areas	11/18/2021 10:57 AM
12	See #2 above. Main St. Ludlow. No billboards. No "big box" stores.	11/18/2021 8:07 AM
13	I suppose Perkinsville although additional infill development would make it more attractive	11/18/2021 7:08 AM
14	The village green in Proctorsville	11/17/2021 8:01 PM
15	Mt. Ascutney and associated ski area.	11/17/2021 5:04 PM
16	town office	11/17/2021 4:04 PM
17	The village green along Main Street (VT Route 11)	11/17/2021 3:55 PM
18	Main street, Windsor	11/17/2021 3:53 PM
19	Brownsville Village center, Ascutney Outdoors	11/17/2021 3:50 PM
20	Main Street in downtown Windsor, State Street Common Windsor, Proctorsville green, Chester Village Green, core Main Street in downtown Springfield, Stone Village, Brownsville, Weathersfield Center Church and Grove, Perkinsville Green, Ludlow Village Center, Felchville	11/4/2021 4:13 PM
21	Brownsville	11/4/2021 10:06 AM

Q5 What would you say are outstanding scenic countryside vistas in your town or region?Countryside: woodland and/or agricultural areas outside of an urban center with limited residential development. (ex. Jenne Farm in Reading)

Answered: 20 Skipped: 2

#	RESPONSES	DATE
1	The complex being developed by Jim Veltrop	2/1/2022 10:59 PM
2	As you say - Jenne Farm; Lexington Farm in Felchville; New Hall Farm in S. reading; Springbrook Farm	12/6/2021 5:38 PM
3	Already mentioned - River Road in Woodstock/Taftsville, Bible Hill in West Windsor, Route 12A along the river with the Covered Bridge. Almost every road has beauty!	11/29/2021 7:54 PM
4	The visat from south reading stone schoolhouse of a scarred up MT ascutney. Let the whole darn thing grow back and leave it the sacred it once was. Ascutney Outdoors center is about to kill the solitude of the MT	11/29/2021 7:38 PM
5	Mount Ascutney and little Ascutney from the 131 west side	11/22/2021 8:37 AM
6	S. Reading Rd. 20 mile Stream Road. Sections of East Road	11/22/2021 7:08 AM
7	Views of Mountain Ascutney from various high points. Views of the southern Green Mountains from Center Road and Skyline Drive. And Connecticut Valley from same. North Branch valley.	11/18/2021 3:01 PM
8	Great River Farm, Windsor prison property and windsor town forest, view from Kennedy Pond	11/18/2021 12:46 PM
9	Reading: Caper Hill Rd & farms, Jenne Farm, Baileys Mills Rd., Knapp ponds. Region: Twentymile Stream Rd fields, CT River valley	11/18/2021 12:04 PM
10	South Hill, East Hill and North Hill have beautiful woodlands, farms and meadows. Our zoning requires 3 acres in our agricultural, residential areas. The aquifer district (Terrible Mountain) requires 5 acre zoning. Parts of West Hill encompass several different zoning areas. Example: the Ghia Farm on West Hill has beautiful fields and scenery, but is surrounded by chalets and second homes.	11/18/2021 10:57 AM
11	Any area outside of the Village. Especially those areas with views of the valleys and opposing ridge lines.	11/18/2021 8:07 AM
12	Weathersfield Center meeting house and surrounding lands, open agriculture fields across from Crown Point GC, Wellwood Orchard	11/18/2021 7:08 AM
13	Jenne Farm / Rd, Baileys Mills Rd, Town Hill all in Reading	11/18/2021 5:57 AM
14	The western side of East Road	11/17/2021 8:01 PM
15	West Windsor Story Town Hall and Butcher & Pantry Store.	11/17/2021 5:04 PM
16	woodland and agricultural	11/17/2021 4:04 PM
17	view of farms along 103 North	11/17/2021 3:55 PM
18	Armstrong property, GMHA, mile long field, certainly tree lines roads such as Bryant Rd and Cowshed in W. Windsor	11/17/2021 3:53 PM
19	Views from Cemetery Road towards Bible Hill and beyond.	11/17/2021 3:50 PM
20	Paris Hill farm	11/4/2021 10:06 AM

Ch 12: IMPLEMENTATION

Background

Implementation of the goals and policies outlined in this document depends upon the cooperative efforts of the Region's member communities, along with the efforts of the numerous local, regional, state and federal agencies, and private interests involved in land use planning activities. The MARC must work with all of these groups to successfully implement this Plan, and the Plan has been written with this idea as its foundation.

At the federal level, the Regional Plan can be used to justify and prioritize the use of federal funds for community development, transportation improvements, natural resource protection and management, and other investments. Careful planning and clear statements of regional goals and priorities help to ensure that federal money is spent usefully and fairly. State funding can be secured through the same process, and state government can use the Regional Plan in several other ways, as well. One of the goals of Act 250 is to include local and regional planning concerns in the state regulatory process. These concerns are addressed by requiring developers to show that projects will conform to local and regional plans. Regional plans are used in the certification of solid waste facilities and in the granting of certificates of public good for electric generation and transmission facilities; they may also have an effect on state policy through the statutory requirement for review of state agency plans (24 V.S.A. §4305(d)).

At the local and regional levels, the Regional Plan interacts with plans of surrounding regions, municipal plans adopted by member towns, and with the activities of developers and other private groups. Implementation of this plan can only proceed if its goals and policies are compatible with those of adjoining regions and member towns. It is the responsibility of the MARC to provide assistance to its members in the development of their town plans and to help ensure that those plans are in the best interest of not only an individual town, but for all towns in the Region. This Plan sets forth guidelines for the most effective implementation measures to be developed by local governmental bodies with assistance from the MARC. Finally, it is the duty of the MARC, through the adoption of this Plan, to provide general advisory guidance for managing the growth and development of the Region. Additionally, the Plan should provide guidance to developers to help ensure the orderly, efficient, and healthful use of land and resources.

A. Determination of Substantial Regional Impact

The MARC should act as a review agency for any proposed development of substantial regional impact. The MARC is required under Vermont law (24 VSA §4345(a)) to define "substantial regional impact as that term may be used with respect to its region." As such, the MARC defines "substantial regional impact" as:

> *Any proposed development of such size, scale, character or intensity of use that it has a sustained influence upon: the growth and development in adjacent towns; the regional economy; affordable housing stock; or regionally important cultural and natural resources or infrastructure; and meets one or more of the following criteria:*

1. It may affect the Region's economy by:

a) Generating new employment equal to or greater than 1 percent (1%) of the Region's existing employment as measured by the Department of Employment and Training; or

b) Increasing the cost or availability of affordable housing in the town in which the project is located or in adjacent towns;

2. It may affect the infrastructure capacity by:

a) Substantially affecting the safety of the traveling public on highways and other transportation facilities within other towns;

b) Generating peak hour traffic equal or greater than five percent (5%) of the peak hour capacity of the transportation network serving the project site;

c) Contributing to a reduction in the peak hour Level of Service (LOS) from D to E or from E to F;

d) Substantially changing the service area or capacity of utility services, including but not limited to, public water and sewer systems, demand for energy, and/or solid waste services;

e) Generating student populations that will adversely affect school capacities in one or more neighboring communities and/or union high school districts; or,

f) Creating capital improvements such as the extension, upgrading or enlargement of electrical transmission lines.

3. It may change the existing settlement patterns in the Region by:

a) Requiring the alteration, degradation or destruction of designated regionally significant historic, cultural, natural, aesthetic or scenic features; or,

b) Locating in geographic areas that have not supported the type, scale or intensity of proposed development in the past, and is not supported by local or regional Future Land Use Maps.

4. It may affect the natural resources of the Region by:

a) Producing excessive pollutants or substantially degrading air or water quality;

b) Altering, degrading or destroying the animal and/or plant habitat as identified in this Plan as worthy of protection; or,

c) Substantially fragmenting or reducing the area or productive capacity of regionally significant forested and agricultural lands;

The definition of substantial regional impact shall include both individual project proposals as well as cumulative impacts of multi-phased projects as described in this Chapter. Proposed developments that have substantial regional impacts may have positive as well as negative impacts.

An impact analysis should be provided for any project of substantial regional impact. The analysis should include such effects as population growth in other towns, impact on infrastructure capacity (roads, traffic congestion, public water and wastewater facilities, schools, etc.), and impacts on cultural and natural resources (critical wildlife habitat, water quality, scenic resources, etc.).

1. CUMULATIVE DEVELOPMENT IMPACTS

When certain development occurs incrementally, there is concern for the impacts resulting from that cumulative growth. Development or a series of developments, when located within a limited geographic area, under the control of a single applicant, and planned incrementally over a relatively short period of time, can produce environmental, social, and economic impacts that are contrary to sound and coordinated comprehensive planning, which is the goal of this Plan and Vermont law. Incremental development review methods have the potential of failing to adequately evaluate the cumulative impacts of growth within an area. (Examples of this kind of development could include a large multi-phased subdivision or recreational area such as a ski resort.)

In these situations, the MARC may request cumulative impact review by requesting, coordinating and reviewing cumulative impact studies. The scope of each cumulative impact study or master plan should address impacts to both the natural and human environment and offer measures to avoid and/or mitigate adverse impacts. The costs of such studies shall be borne by the applicant.

development that is compatible with past land use and settlement patterns and more, offering a multi-faceted approach to sustaining and improving the Region's infrastructure. The WRC plan is compatible with the adjacent designations in the MARC Regional Plan.

Due to the developmental nature of the local, regional, and state agency plans, the MARC provides elements of its plan for review and continually reviews elements of adjoining regions and member communities for consistency. The MARC is working with the various local, private and state entities to ensure planning consistency at all levels. As such, the MARC has provided each town in the Region; the Vermont Department of Housing and Community Affairs; the Vermont Agency of Natural Resources; the Southern Windsor/Windham Solid Waste Management District; Conservation Commissions; Chambers of Commerce; regional development corporations; and abutting towns and regional commissions with copies of the draft of the Regional Plan and an invitation to comment.

6. CONSISTENCY WITH STATE PLANNING GOALS

The Regional Plan was reviewed for consistency with the State planning goals under 24 V.S.A. §4303. Under state law, "consistent with the goals requires substantial progress toward attainment of the goals established in this section, unless the planning body determines that a particular goal is not relevant or attainable" [24 V.S.A. § 4302]. The proposed plan was found to be consistent with the State planning goals which are summarized below.

24 V.S.A. § 4302(b) Engage in a continuing planning process that will further the following goals:

(1) To establish a coordinated, comprehensive planning process and policy framework to guide decisions by municipalities, regional planning commissions, and State agencies.

(2) To encourage citizen participation at all levels of the planning process, and to assure that decisions shall be made at the most local level possible commensurate with their impact.

(3) To consider the use of resources and the consequences of growth and development for the region and the State, as well as the community in which it takes place.

(4) To encourage and assist municipalities to work creatively together to develop and implement plans.

24 V.S.A. § 4302 (c) To further the following specific goals:

(1) To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

(A) Intensive residential development should be encouraged primarily in areas related to community centers, and strip development along highways should be discouraged.

(B)Economic growth should be encouraged in locally designated growth areas, employed to revitalize existing village and urban centers, or both, and should be encouraged in growth centers designated under chapter 76A of this title.

(C) Public investments, including the construction or expansion of infrastructure, should reinforce the general character and planned growth patterns of the area.

(D) Development should be undertaken in accordance with smart growth principles as defined in subdivision 2791(13) of this title.

(2) To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.

(3) To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.

(4) To provide for safe, convenient, economic, and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and cyclists.

(A) Highways, air, rail, and other means of transportation should be mutually supportive, balanced, and integrated.

(5) To identify, protect, and preserve important natural and historic features of the Vermont landscape, including:

(A) significant natural and fragile areas;

(B) outstanding water resources, including lakes, rivers, aquifers, shorelands, and wetlands;

(C) significant scenic roads, waterways, and views;

(D) important historic structures, sites, or districts, archaeological sites, and archaeologically sensitive areas.

Mount Ascutney Regional Commission

REGIONAL PLAN

VOLUME 3: ENERGY

Adopted June 25, 2018
Re-Adopted October 14th, 2022
Effective November 18th, 2022

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Acknowledgements

Th Mount Ascutney Regional Energy Plan was developed by the Mount Ascutney Regional Commission with support and assistance from the following organizations:

Vermont Public Service Department

Vermont Energy Investment Corporation

Bennington County Regional Commission

Public input was sought through a series of presentations during the development of this draft plan. Thanks to the many town officials and members of the public who provided valuable feedback. We would like to extend a special thanks to town energy coordinators and town energy committee members for your valuable coordination and assistance.

Executive Summary

❖ Background and State Energy Goals

Vermonters rely on energy to support their lifestyles. We are heavily reliant on fossil fuels for much of the energy that is currently consumed in both Vermont and southern Windsor County. Fossil fuels are problematic due to a number of factors, including their finite supply, highly variable costs, negative environmental impacts (e.g. extraction operations, fuel distribution, emissions, climate change), and need to be imported from outside of the region. In response, Vermont has established ambitious goals to conserve energy, increase the utilization of renewable energy, and reduce greenhouse gas emissions.

The intent of this plan is to serve as the energy element of the Mount Ascutney Regional Plan per 24 V.S.A. §4348a(a)(3) as well as to meet the requirements of an "Enhanced Energy Plan" in accordance with 24 V.S.A. §4352. The Mount Ascutney Regional Commission (MARC) intends to submit this Plan to the Commissioner of Public Service for a determination of energy compliance, which would enable this document to receive "substantial deference" in Section 248 proceedings. Accordingly, this Plan hereby embraces the following State energy goals:

> Expanding upon the statutory goal of 25% renewable by 2025 [10 V.S.A. § 580(a)], the ***2016 Vermont Comprehensive Energy Plan (CEP)*** establishes the following set of goals:
>
> 1. Reduce total energy consumption per capita by 15% by 2025, and by more than one third by 2050.
> 2. Meet 25% of the remaining energy need from renewable sources by 2025, 40% by 2035, and 90% by 2050.
> 3. Three end-use sector goals for 2025:
>   a. Transportation: 10% renewable;
>   b. Buildings: 30% renewable; and,
>   c. Electric power: 67% renewable.
>
> 10 V.S.A. § 578(a) calls for **reducing emissions of greenhouse gases** from the 1990 baseline by:
>
> 1. 50% by January 1, 2028;
> 2. 75% by January 1, 2050, If practicable using reasonable efforts.
>
> **25 by 25 State goal** [10 V.S.A. § 580]: By the year 2025, produce 25% of the energy consumed within the State through the use of renewable energy sources, particularly from Vermont's farms and forests.
>
> **Building efficiency goals** [10 V.S.A. §581]
>
> 1. To improve substantially the energy fitness of at least … 25% of the State's housing stock by 2020 (approximately 80,000 housing units).
> 2. To reduce annual fuel needs and fuel bills by an average of 25% in the housing units served.
> 3. To reduce total fossil fuel consumption across all buildings by an additional one-half percent each year, leading to a total reduction of … 10% annually by 2025.

4. To save Vermont families and businesses a total of $1.5 billion on their fuel bills over the lifetimes of the improvements and measures installed between 2008 and 2017.
5. To increase weatherization services to low-income Vermonters by expanding the number of units weatherized, or the scope of services provided, or both, as revenue becomes available in the Home Weatherization Assistance Fund.

❖ Regional Energy Profile

Current energy usage is discussed in Section III; some key points are summarized below:

- Transportation accounts for nearly half of the region's current energy costs, with electricity at 25% and heating at about 26%.
- As a rural area, we are heavily reliant upon the automobile for personal mobility. According to Estimates for the region, more than 283 million vehicle miles were traveled in 2015. Significant changes are needed in order to meet our targets. This will probably be the most difficult sector to address.
- Electricity consumption has been fairly level over the past few years. Looking to electric vehicles and heat pumps as strategies to meet the statewide energy goals will place additional demands on electricity, which will need to be off-set by reducing demand in other ways and increasing generation of electricity from renewable sources.
- Our building stock is old[1], indicating that weatherization may have a large impact on energy demand for heating. We are far behind meeting our statutory goal for weatherization of homes by 2020.
- Fossil fuels are currently used to heat about 75% of all homes in the region.
- Heating commercial and industrial buildings is estimated to cost about $8 million annually, or about $9,500 per business.

Targets are established for the region in Section IV. They illustrate the levels of change that will likely be needed in order to meet the stated energy goals. These goals are extremely ambitious. Therefore, the changes needed to meet them are also significant.

❖ Policies and Implementation Actions

In order to meet the above energy goals, the MARC has identified a number of implementation strategies. These strategies are detailed in Section V, and some are highlighted below:

We will encourage the **conservation and efficient use of energy** through various means that include, but are not limited to, the following:

- Support municipal energy planning initiatives and educational outreach efforts.
- Increase public awareness of energy efficiency programs made available through Efficiency Vermont, and provide staff support to assist Efficiency Vermont's education and outreach efforts.
- Encourage building techniques and technologies that reduce general energy demand or peak energy demand (e.g. day-lighting buildings or utilizing energy storage systems).

[1] 1972 is the median year homes were built in Windsor County

- Assist towns and partner organizations with education and outreach efforts to influence behavioral changes needed to meet these goals.

We will promote efforts to **reduce transportation energy demand**, **decrease single-vehicle occupant use**, and encourage **renewable or lower-emission energy sources for transportation** through various means that include, but are not limited to, the following:

- Increase awareness of existing services and programs such as public transportation services and the Go Vermont program.
- Assist towns with the maintenance and improvement of pedestrian and bicycling infrastructure in village centers, and with the connection of residential neighborhoods to common destinations, such as schools and job centers.
- Promote or encourage high-speed internet development/access in order to enable telecommuting.
- Encourage development of infrastructure necessary for the wider use of electric vehicles (i.e. EV charging stations).

The MARC has established policies to encourage **land use patterns and densities that are more likely to result in energy conservation**. These policies can be found primarily in the land use chapter of the *Mount Ascutney Regional Plan*. Policies in the transportation element of the *Regional Plan* also contribute toward this end.

This Plan establishes policies on the development and siting of renewable energy projects. In our baseline year (2015), this region had about 9.41 MW of renewable energy capacity – or 17,942 MWh of renewable energy generation – from known existing facilities (i.e. 276 solar arrays, 4 residential-scale wind turbines, and 6 hydropower facilities). In order to meet the stated energy goals, considerably more renewable energy generation is needed. This region's 2050 target for new renewable energy generation is 194,612 MWh (nearly 11 times the baseline renewable energy generation in 2015). The region encourages new renewable energy generation in the types and in the appropriate scales as discussed in Section V. In general, this Plan calls for a mix of roof-top solar, ground-mounted solar, residential-scale wind, and, where feasible, hydropower at existing dam sites. Commercial-scale wind (i.e. no greater than 50 meters at the height of the hub) may be acceptable if it meets the policies contained in Section IV. The MARC encourages the use of biomass primarily for heating. Smaller-scale biomass power generation facilities may be appropriate if they generate both heat and power, and meet the policies laid out in this Plan.

Megawatt (**MW**) is a unit of electrical power equal to one million watts. A MW is equal to 1,000 kilowatts (kW). This unit of measurement is used in this plan to represent the installed capacity of power generation facilities.

Megawatt hour (**MWh**) is a unit of measure of electric energy. A MWh is equal to 1,000 kilowatt-hours (kWh). A MWh is the amount of electricity generated by a one megawatt (MW) power generation facility producing electricity for one hour (i.e. generation output). On an electricity bill, electricity usage is commonly reported in kilowatt-hours.

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Section III: Regional Energy Targets

Attaining state energy goals will require each region to set targets for energy use, conservation, and generation. This Section projects regional energy needs, and establishes future energy targets to meet state goals. The **Long-range Energy Alternatives Planning (LEAP)** software system, which was relied upon for estimating projections and determining the regional energy targets, is described below. The purpose of establishing energy targets is to provide guidance and a sense of the scale of change needed to meet the energy goals. Individual targets presented in this plan are not intended to be interpreted as actionable goals.

This section first looks at the methodology used for determining the state and regional energy targets under the 90/50 goal scenario, and dissects these targets by energy use sector and by fuel type over the projected period (2015 to 2050). The section closes with an analysis of the projected additional demand for electricity in the region derived from the projected use targets, and how this demand may be met through generation from renewable sources.

In general, it will be difficult to accomplish the significant levels of change and investment that will be needed to reach our energy goals. However, this is a working plan that represents one potential pathway to attain our 90/50 energy goal. As conditions change, this plan should be updated accordingly in the future.

A. LEAP Model & Methodology

LEAP System and Energy Targets

To generate the regional targets needed to meet overall state guidelines for energy conservation, RPCs throughout the state partnered with Vermont Energy Investment Corporation (VEIC). VEIC staff utilized the **Long-range Energy Alternative Planning (LEAP)** software system to produce an energy use model to project future energy usage for the region. The model is based on current energy usage and projections.

British Thermal Units

BTUs are the standard measurement throughout the plan to allow for easy conversion between different fuel sources.

Measurement	BTUs
1 gallon of gasoline	124,000
1 gallon of diesel	139,000
1 gallon of heating oil	139,000
1 gallon of propane	91,330
1 cord of wood	20,000,000

This complex model allows users to project energy consumption and demand for types of fuel with inputs that reflect current trends in usage and future energy needs in the region. Population growth, number of households, commercial building square footage, vehicle miles traveled, and fuel source assumptions are examples of the type of data input used to model and project consumption.

See the Constraints Map for more detail.

PREFERRED SITES

The following sites indicate preferred locations for siting a generator of a specific size or type in this region:

a) Rooftops of existing buildings;
b) Remediated brownfield sites;
c) Disturbed portions of extraction sites (i.e. gravel pit, quarry);
d) Vacant lands within industrial parks; and,
e) Any preferred sites that are clearly and specifically identified in a municipal plan that has received an affirmative determination of energy compliance.

The MARC reached out to our towns as part of the process to develop this plan. Local planning commissions and energy committees found it very challenging to identify specific preferred sites on a map. No specific preferred sites were located on a map for this Regional Energy Plan. The MARC will work with developers and municipal boards to consider proposed preferred sites under PUC Rule 5.100 for any specific sites not clearly within the above categories.

UNSUITABLE AREAS

This category represents areas that are not suitable for renewable energy generation projects (i.e. "no go" areas). Unsuitable sites include the presence of one or more of the "known constraints" as described above. However, there may be other unsuitable areas that cannot be mapped at this time (i.e. archeological resources).

The MARC will provide technical assistance to our member towns to develop local enhanced energy planning maps, including but not limited to identifying local constraints and preferred sites.

Solar Resource Potential

The growth of solar power generation projects in this region has been significant between 2013 and 2017. According to data provided in support of this enhanced energy planning process as of May 2017, this region has 276 known solar project sites with a total capacity of nearly 6.6 MW. Common issues with ground-mounted solar projects include, but are not limited to, choosing a suitable site for the scale of the project, setbacks from roads and adjacent buildings, landscaping/screening, maintenance, and site decommissioning.

The Potential Solar Resources Map shows where prime and secondary ground-mounted solar potential sites are located in relation to transmission lines and three-phase power lines. The solar potential data is based upon a computer model that takes slope direction, slope steepness, and solar radiation values into consideration. Figure 21 depicts the proportional relationship between the total land area in the

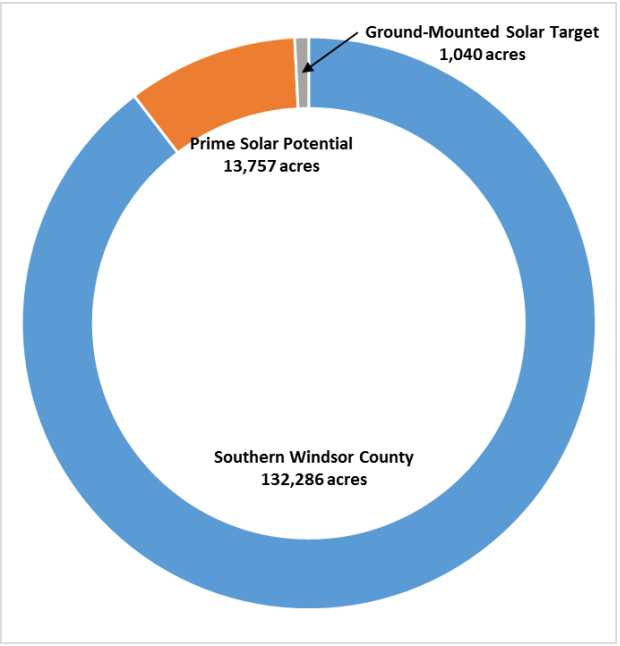


Figure 21: Proportional relationship between total land area in the region, land area of prime solar potential, and the estimated land area needed to address our renewable target via ground-mounted solar in Table 9.

region, prime solar potential land area, and estimated land area needed to meet the ground-mounted solar target.

Approximately 43,700 total acres of combined prime and secondary solar potential land areas were in the region. That is about 33% of the region's total land area. Reducing the solar potential area to include only those areas within 1 mile from 3-phase power lines resulted in a reduced solar potential land area of just over 18,000 acres, or nearly 14% of the land area of the region. There are nearly 6,175 acres of prime solar potential land within 1 mile of 3-phase power lines. If we were to meet our region's total renewable energy target through ground-mounted solar alone, we would need an estimated 1,270 acres, which is about 1% of the total land area in the region. These areas represent a combination of public and privately-owned lands.

Certain projects are perfectly sited, such as a 150 kW photovoltaic array constructed on town-owned land on a south-facing slope behind the Cavendish wastewater treatment facility. It is hidden from view from most vantage points. There are no neighbors, and travelers on the adjacent section of VT Route 131 would never know it is located there. (See Figure 23.)

In 2016, a petition was withdrawn for a 4.5 MW ground-mounted solar project proposed to be located on the prison lands in Windsor due to local opposition and concern for both the scale of the project and impacts upon scenic resources and wildlife habitat. The MARC did not take a formal position on the project.

In 2017, the Public Utility Commission issued a Certificate of Public Good (CPG) for a 20 MW solar power generation facility in Ludlow and Cavendish known as the Coolidge Solar Project [Docket #8685]. This project is not included in the existing conditions data presented in this plan due to the timing of the CPG. Despite the project's large size, the visual impacts are highly localized due to its location in a bowl-shaped area. The Coolidge Solar Project is in very close proximity to the existing Coolidge Substation.

Wind Resource Potential

According to available data (May 2017), there are four known wind turbine sites in this region, generating about 0.02 MW of installed capacity and nearly 65 MWh of output. There have not been any commercial- or utility-scale wind power proposals in this region to date. Notable local opposition has been observed for recent utility-scale wind turbine proposals in Grafton and Windham, located adjacent to this region.

The wind potential (i.e. utility-scale) is greatest in the western portion of the region. However, residential-scale wind generation may be possible throughout most of the region at lower elevations. The Wind Resources Map shows where prime and secondary wind potential sites are located in relation to transmission lines and three-phase power lines. The wind potential data is based upon a numerical weather model and a micro-scale wind flow model to produce a high-resolution (200m) wind resource map. The models are the product of a collaborative effort between the Massachusetts Technology Collaborative, the Connecticut Clean Energy Fund and the Renewable Energy Trust Northeast Utilities. It is intended as a preliminary assessment of wind potential areas.

Table 10: Summary of Generalized Wind Turbine Types			
Scale	**Hub Height**	**Lower Wind Speed Cutoff**	**Generalized Capacity**
Residential	30 meter	4.5 m/s	≤ 10 kW
Community/Commercial	50 meter	5.5 m/s	≤ 100 kW
Utility	70+ meter	6.5 m/s	≥ 1 MW

A significant portion of the potential wind areas are located further than one mile away from transmission and three-phase power lines, which makes them more expensive and less feasible to develop for wind power generation. Local concern has been expressed about potential wind project impacts including forest fragmentation, damage to wildlife habitat, degradation of scenic resources and ridgelines, and excessive noise[15]. These concerns are consistent with the Land Use policies and Goals established in the Regional Plan with respect to natural, cultural, and scenic resource preservation and the constraints placed on industrial development[16]. Input received while doing outreach in Andover and Ludlow, in particular, showed very little support for utility-scale wind projects, especially since a project often involves 10-15 turbines and the related clearing for access roads and interconnection. The siting of utility-scale wind is a divisive issue in this region and across Vermont as a whole.

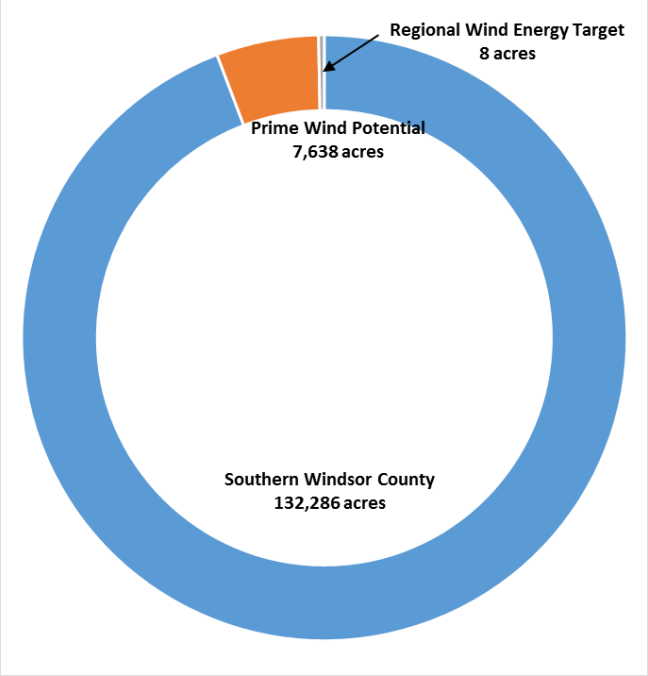


Figure 22: This graph illustrates the proportional relationship between the total land area in region, estimated wind potential land area, and the approximate land area needed to meet our wind target in Table 9.

The MARC remains committed to providing for wind generation as a component of meeting our regional renewable energy targets, but only through the construction of appropriately-scaled wind generation facilities. Through consultation with our towns, and based upon an analysis of generation potential and likely negative impacts, the MARC has concluded that utility-scale wind power does not conform to this plan.

If a municipality, through its local planning process, identifies a preferred location(s) for utility-scale wind facilities within their boundaries, the MARC may consider amending this plan to account for this local preference. Coordination and consensus among neighboring municipalities will be a critical component of any process to amend the regional plan in this regard. Additionally, the MARC shall only consider such an amendment if the location, or locations, identified by the municipality do not include "known constraints" and mitigate impacts to "possible constraints" as identified in this plan.

[15] Including both infrasound, low-frequency noise as well as the typical loudness and frequency noise impacts

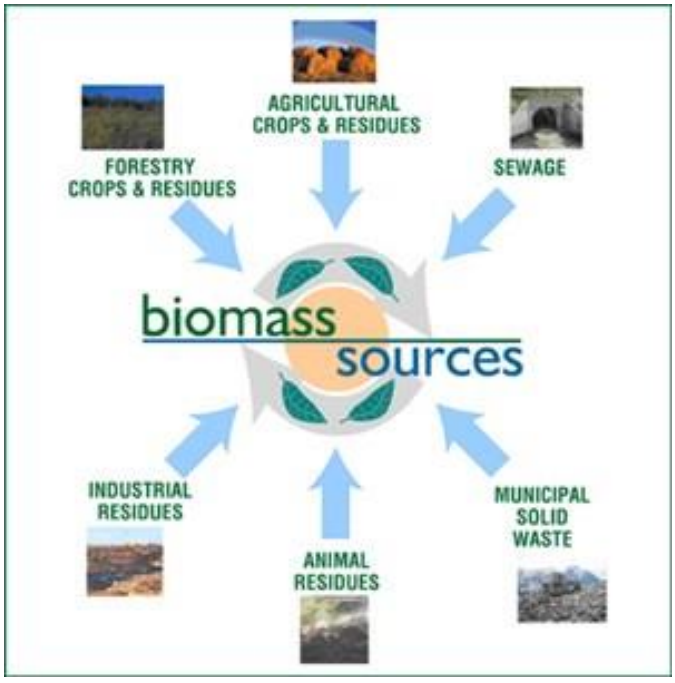
[16] Many wind potential areas coincide with both the Resource future land use category as well as notable sites identified in the Scenic Lands and Open Space Policies.

Hydroelectric Resource Potential

Six existing hydro facilities are located in the southern Windsor County region, totaling almost 2.8 MW of capacity (see Map 4). These existing hydro dams include the GMP facility in Cavendish and five dams in Springfield: Fellows, Gilman, Comtu Falls, Lovejoy and Slack Dam. A number of other existing dams in this region do not presently generate hydro-power.[17] The process to permit a hydro facility is complex and, as a result, we are assuming that new hydro facilities can only be established or re-established at existing dam sites. However, the cost and attendant permitting procedures may discourage the development of new hydro facilities. Our renewable energy generation scenario summarized in Table 9 represents generating power at the existing dam sites in the region, as depicted on Map 4. The generation potential for each dam site is based upon estimates provided by the Vermont Sustainable Jobs Fund.

The hydropower facilities along the Connecticut River are not located within this region. However, towns along the eastern boundary of the region are adjacent to the impoundment area of the Bellows Falls facility and, as a result, are affected by dam operations.

Biomass Resource Potential



Biomass is primarily to be used in the region for heating buildings. Approximately 80% of the land in the region is forested, representing a potentially significant renewable local energy resource. According to the 2010 analysis by the Biomass Energy Resource Center, Windsor County as a whole annually produces approximately 104,055 green tons of Net Available Low-grade Growth (NALG) wood. This represents the estimated amount of wood used for biomass fuel that can be sustainably harvested from Windsor County above and beyond current levels.[18] Around 1,900, or approximately 18%, of the region's homes currently use cord wood or wood pellet heating systems. By 2050, 55% of all homes should use Biomass as a heating fuel in order to meet the 90/50 goals. There are a number of wood chip or wood pellet heating plants in larger commercial and industrial buildings in this region currently, and it is anticipated that this use will increase with time.

Supplying sustainably harvested wood products for heating is also beneficial to the local economy. The MARC supports wood processing industries as long as they conform to the best practices outlined in the Regional Plan. The Regional Plan supports forestry management practices that further "regional goals concerning open space, wildlife habitat, air and water quality, scenic resources, access to recreation, and the tourism economy" and

[17] Existing and Potential Hydro Sites from Vermont Sustainable Jobs Fund, 2010,

[18] Biomass Energy Resource Center, Vermont Wood Fuel Supply Study (2010 Update), 2010.

Section IV: Energy Strategies

The following section provides policies and strategies to achieve the regional targets and goals outlined in the previous section. These strategies represent implementation pathways that are intended to meet the need for both energy conservation and generation in the region that will make progress towards our energy goals.

By 2050, 90% of Vermont's total energy will be derived from renewable sources.

The following are policies and strategies to be executed by the MARC as well as private citizens and businesses owners. Although residents of the region cannot be forced to change current energy patterns, steps to encourage conservation through education and incentives can be provided. The implementation strategies outlined below represent the initial framework designed to achieve the 90/50 goal, and are expected to evolve over time to better meet the needs of the region.

General Energy Conservation Strategies

Total regional energy use to decrease by 50%

1) Encourage towns to establish energy committees to serve as advisory committees in accordance with 24 V.S.A Chapter 117 §4433 and §4464.
2) Work with town energy committees and other organizations to provide outreach and education for businesses concerning energy conservation practices for new construction and retrofits.
3) Encourage towns to support their local energy committees (e.g. providing meeting spaces, conducting public outreach, releasing press releases, putting out calls for volunteers, coordinating with schools and services, and asking for input from the committees on all matters related to energy).
4) Support local efforts to identify businesses/facilities that are large energy consumers (manufacturing, industrial parks, and schools) and encourage their participation in Energy Efficiency Utility (i.e. Efficiency Vermont) programs.
5) Support municipal efforts to encourage the development of locally-controlled renewable energy projects.
6) Encourage statewide discussions with stakeholders (e.g. trucking industry, fuel dealers) about the transition from our current energy situation towards our ambitious energy goals for 2050.

Solar Generation

The following statements of policy apply to the development of solar energy generation projects in the Mount Ascutney region:

1) Encourage the exploration of newer technologies that improve energy production and/or reduce impacts as they become available.
2) Encourage infrastructure improvements that further our energy goals (e.g. larger container sized battery storage systems).
3) Support rooftop solar projects.
4) Encourage the location of solar projects on preferred sites, as identified in this Plan, as long as they are appropriately designed and scaled for the character of the area in which they are located.
5) Support residential-scale ground-mounted solar projects.
6) Ground-mounted solar projects of 150kW and greater must demonstrate that the proposed project siting is appropriate in scale as it relates to the character of the area in which it is to be located, and that all reasonable options have been considered in siting the facility.
7) The setback standards in 30 V.S.A. §248(s) apply to all applicable ground-mounted solar projects.
8) All ground-mounted solar projects of 150 kW or greater[20] that are within view of major roadways (i.e. interstate highways, state highways, US routes, and Class 1 and Class 2 town highways) must provide adequate landscaping in order to appropriately screen the project from the view of the traveling public.
    a) This landscaping must consist of a mix of native plants that provide adequate screening during all months of the year (i.e. conifers or a mix of deciduous and conifers).
    b) All landscaping materials will be planted at a size that provides adequate screening within 5 years of being planted.
9) The applicant must maintain any landscape plantings required for mitigation, including the replacement of any dead or diseased vegetation serving as part of the landscape mitigation measures, throughout the life of the project or until the project ceases commercial operation.
10) The applicant is expected to provide a plan for the site to be adequately decommissioned at the time when the project ceases commercial operation in accordance with PUC Rule 5.900.
11) Ground-mounted solar facilities must avoid "known constraints".

Figure 23: This is a photo of the Town-owned 150 kW solar project in Cavendish as described on page _. This is an example of a perfectly sited project. Because it is not visible from any major public roads and has no neighbors, no landscaping is warranted. (Credit: Peter LaBelle)

Figure 24: This project is an example of inadequate landscaping/screening. Note deciduous shrubs do not provide year-round screening, small plants will take many years to grow up to provide effective screening, and a lack of mowing the grass between the landscaping and roadway, which is to the left of the photo.

[20] This includes all applicable projects that are not exempt under PUC Rule 5.800.

12) Ground-mounted solar facilities must not have undue adverse impacts on "possible constraints". In addition, applicants shall demonstrate that the project will not have undue adverse impacts on significant wildlife habitat, wildlife travel corridors, stormwater, water quality, flood resiliency, important recreational facilities or uses, scenic resources identified in this plan, or inventoried historic or cultural resources. Project proposals must consider placement of such facilities in locations where impacts are minimal or employ reasonable measures to mitigate undue adverse impacts on the applicable resources.

Wind Generation

The following statements of policy apply to the development of wind energy generation projects in the region:

1) The MARC supports the installation of residential-scale wind turbines (i.e. not to exceed 30 meters in height, measured at the hub).
2) The MARC encourages consideration of newer technologies (e.g. vertical axis wind turbines).
3) Commercial-scale wind turbines (i.e. not to exceed 50 meters in hub height) must demonstrate that the proposed project siting is appropriate in scale as it relates to the character of the area in which it is to be located, and the applicant must also demonstrate that all reasonable options have been considered in siting the facility.
4) All wind turbines and related facilities (e.g. access roads, power line interconnections) must avoid "known constraints".


Figure 25: This photo is an example of a vertical axis wind turbine.

5) All wind turbines and related facilities must not have undue adverse impacts on "possible constraints". In addition, applicants shall demonstrate that the project will not have undue adverse impacts on public safety (e.g. ice shedding, ice throw), significant wildlife habitat, wildlife travel corridors, stormwater, water quality, flood resiliency, important recreational facilities or uses, scenic resources identified in this plan, or inventoried historic or cultural resources. Project proposals must consider placement of such facilities in locations where impacts are minimal or employ reasonable measures to mitigate undue adverse impacts on the applicable resources.