

Monkton Scenic Viewshed Study 2015-2016

Report prepared by Addison County Regional Planning Commission

Table of Contents

Summary	3
Project Team	3
Methodology	4
Viewshed Mapping Process	4
Viewshed Mapping Results	7
Field Study Process	7
Field Study Results	10
<i>Scenic Features</i>	<i>14</i>
Google Earth Viewshed Mapping Process	18
Google Earth Viewshed Mapping Results	20
Next Steps	20
Local Planning Tools	22
State Planning Tools	23
Figure 1 Prominent features graph.....	4
Figure 2 Prominent features analysis.	5
Figure 3 Digital Elevation Models (DEM).	6
Figure 4 Field study spreadsheet.	8
Figure 5 Streets as scenic places.....	10
Figure 6 Street types in Monkton	10
Figure 8 Natural attributes as scenic attributes	11
Figure 9 View to Camel’s Hump from Turkey Lane.....	13
Figure 10 View of Hogbacks from Tracey Road.....	13
Figure 11 Views West to from Raven Ridge	13
Figure 12 Bristol Road, Meander Hill looking south	14
Figure 13 <i>Google Earth</i> viewshed mapping.....	18
Figure 14 Overlay of field located scenic views and prominent features map	19

Summary

This study was directed by a priority task within the Monkton Town Plan:

Action 2: Identify and inventory the scenic roads and features within Monkton.

Why: *In order to create meaningful zoning and subdivision regulations, we must determine what scenic means, the value of the scenic location to the town, and establish the balance between maintaining the rural character of the town and the rights of the individual landowner(s).*

The Monkton Planning Commission hired Addison County Regional Planning Commission (ACRPC) to develop a scenic landscape and viewshed study. The goal of the study was to identify and inventory natural, cultural, and historical views and elements within Monkton which were visible and prominent from public land or right-of-ways and which residents perceived as intrinsic to the positive and unique character of the town.

This study used both GIS mapping software to identify prominent natural features (such as hilltops, ridge lines) and their associated viewsheds (where they can be seen from), and also engaged with a project team to identify and document elements and views around town. The study incorporated state historic sites, buildings and cemeteries into the inventory. It also incorporated field study images into Google Earth in order to show viewsheds in a 3d format from a given location.

The study was successful in bringing together a project committee to identify and record prominent elements and views within Monkton and which of these prominent features are perceived as ‘scenic’ amongst residents. The study highlights Monkton’s numerous unique and expansive views to the Hogback, Green and Adirondack Mountains and also highlights the scenic value residents associate with the agricultural landscape of rolling meadows, nestled farm buildings and green valleys.

This study does not recommend specific land use policy or zoning revisions. Similar to having a natural resource inventory, this scenic viewshed study identifies and records natural and cultural views and elements within Monkton which are perceived as integral to the Towns identity. In the future this study can be used to guide development decisions, town policy and/or land conservation efforts, with the end goal of preserving characteristics of the town that make it unique and a place people love. The database of scenic views and elements and prominent natural features is a planning resource for anyone making landuse decisions within Monkton.

Project Team

The project team and contributors included:

Ivor Hughes, Monkton Planning Commission member
Scott Wilson, Monkton resident
Gill Coates, Monkton Historical Society and resident
Buzz Kuhns, Monkton resident
Wendy Sue Harper, Monkton resident and planning commission
Monkton Planning Commission
Kevin Behm, ACRPC Staff
Claire Tebbs, ACRPC Staff

Methodology

Viewshed Mapping and Field Study

Inventory of scenic viewsheds and features was done in two ways: quantitative, technical, GIS mapping was done by ACRPC staff and qualitative field study with photography was done by the project committee, including ACRPC staff. Both inventory strategies are explained below with a *process* and *results* section for each. These two strategies were then layered together to determine most significant scenic areas and features for Monkton, and provides preliminary information for future planning discussions and policy.

Viewshed Mapping Process

Two kinds of mapping programs were used during this study to demonstrate the concept of viewsheds. The first, explained below, provided information regarding (1) *visually prominent natural features* and (2) *scenic landscape views*. These two analyses were combined into one map highlighting (3) visually prominent scenic views. This mapping utilized the concept of combining views from many locations into one map.

The second type of mapping utilized the free Google Earth software to show viewsheds specific to identified locations. This was used in a public meeting to demonstrate the concept of a viewshed and allowed residents to look at the landscape from different locations around town. The latter is explained in the Google Earth Viewshed Mapping section of this report.

Visually Prominent Natural Features

A specialized computer mapping analysis is able to delineate the area that is likely to be visible across the landscape from a known location. This visible area is called the viewshed of the location. The following image illustrates the idea of a viewshed – the green areas are visible to an observer and are therefore part of the observer’s viewshed and the backside of the hills are not part of the viewshed.

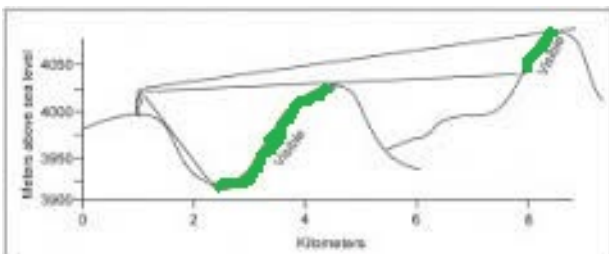


Figure 1 Graph showing visibility of prominent features in the landscape.

Our Visually Prominent Natural Features map development was designed to identify those areas of Monkton that are highly visible to residents of the town and to travelers passing through town. A straightforward process to accomplish this is to create individual viewsheds from locations along the major roads and then combine them together to identify areas of town that are visible

from many of these road locations. This will result in a map of visual prominence for Monkton’s landscape

For the purpose of the viewshed map, viewing locations are established approximately every 1500 feet along the Class 2 paved roads throughout town. This established 97 viewing locations. The roads chosen were as follows; Bristol Rd, Hardscrabble Rd, Hollow Rd, Monkton Rd, Monkton Ridge, Parks-Hurlburt Rd, Silver St, State’s Prison Hollow Rd and Tyler Bridge Rd. The map below identifies the roads, and the viewing locations are shown as dots along each road.

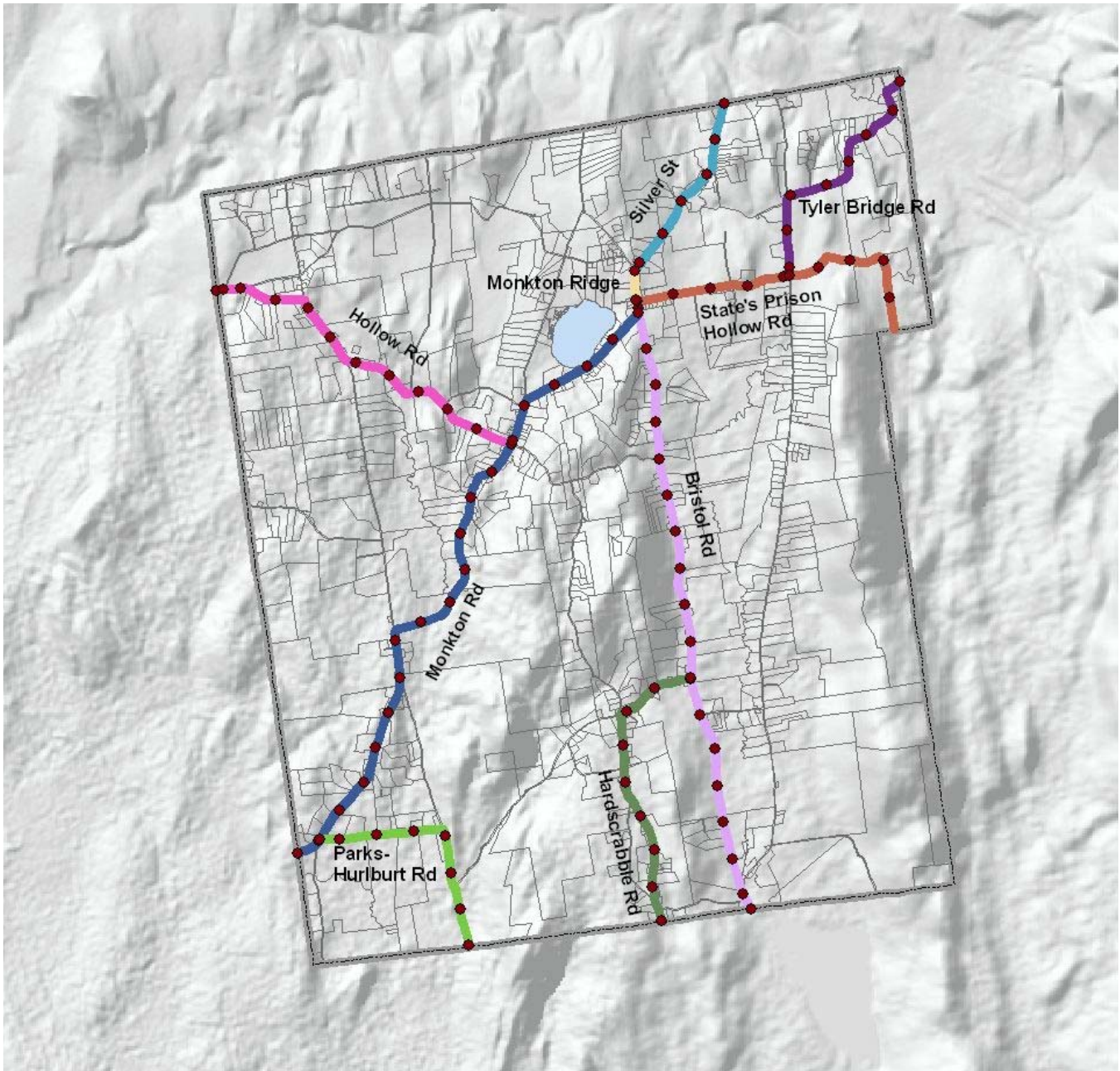


Figure 2 Viewing locations and roads were identified for a the prominent features analysis.

The development of the viewshed map is based primarily on Digital Elevation Models (DEM) available from the United States Geological Survey (USGS). The DEM is developed from 7.5' quadrangle maps that most users are familiar with as hiking maps. The contour elevation data is converted for analytical use to one elevation value within a 10 meter area (approx. 30x30 feet.) Topographic relief ranges from 165 ft. to 1,665 ft. throughout the study area. The viewshed analysis will be based on the ground elevation only without forest cover. Visibility ~~thru~~ **through** forested land is difficult to model since seasonal views may be totally obscured when hardwoods are leafed-out and conversely visible during the winter months. This viewshed is probably better referred to as a potential viewshed since on-the-ground confirmation is needed to verify the analysis.

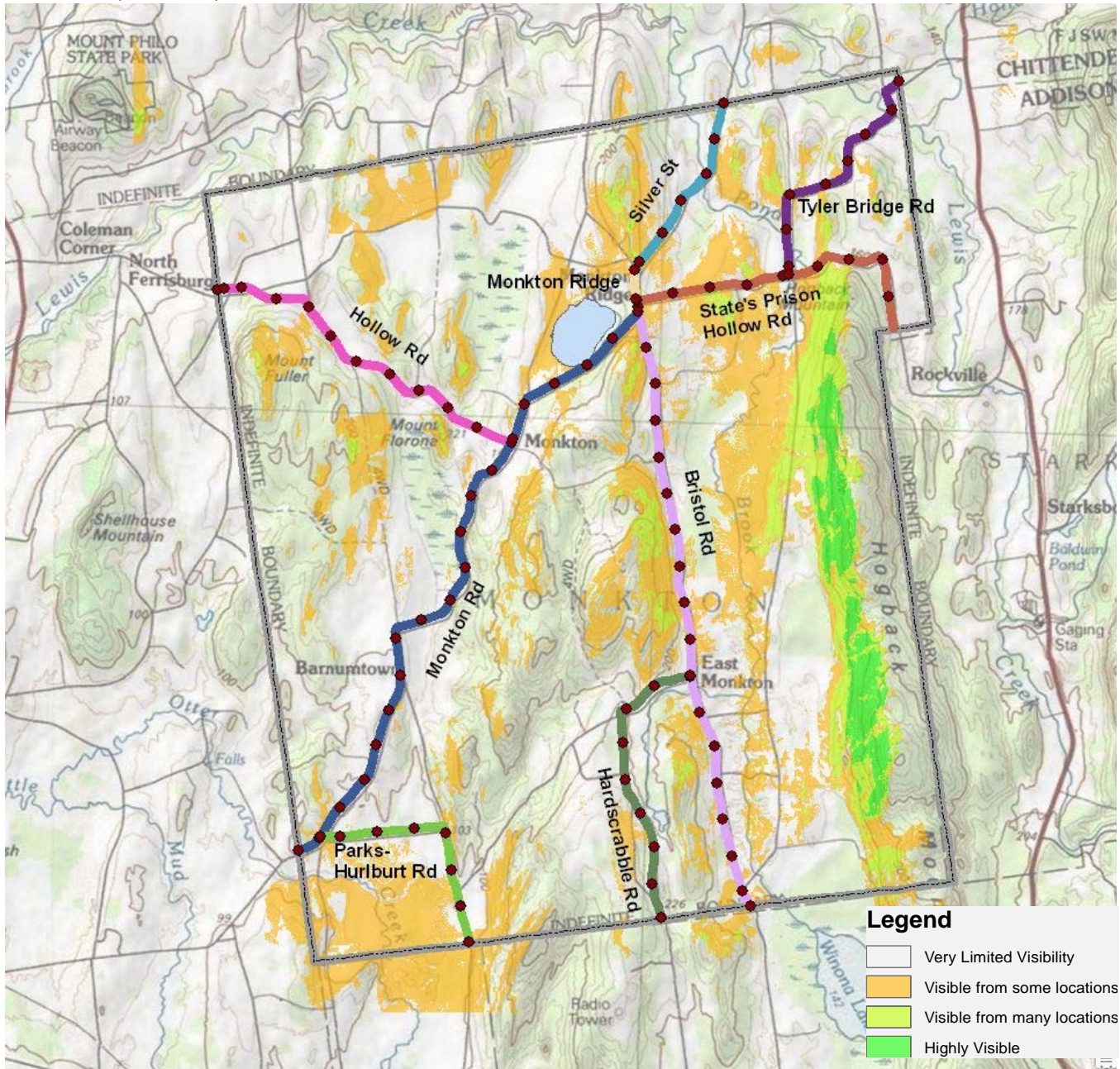


Figure 3 Prominent features are calculated using Digital Elevation Models (DEM).

The viewshed modeling is accomplished using the surface modeling operations available in ESRI's ArcGIS mapping software (ver 10.2.2) and the Spatial Analyst Extension (ESRI, 2015). Essentially, a line-of-sight is attempted between the specific observer locations along the road and every other elevation cell in the DEM. A successful line-of-sight slope calculation will flag the landscape location of the DEM cell as within the viewshed. A count is maintained of each

viewable cell and incremented by one for each successful viewing. If an intermediate cell with a higher elevation value occurs, the slope at the intervening cell will be greater and the line-of-sight will not be established. In this case the DEM cell is flagged as outside the viewshed. A potential viewshed was calculated for the entire study area in Monkton. The resulting map shows the frequency of view from the observer locations by using the tabulated counts of successful line-of-sight views.

The viewshed analysis specifically shows the cumulative frequency of view throughout the viewing area. Progressive shading from a cantaloupe color through a bright green identifies the likely visibility of an increasing number of viewing points along the public roads. The color categories in the legend are classes by the number of viewing points that can see a particular location.

Viewshed Mapping Results

The most visually prominent landscape in town is Hogback Mountain on the eastern border. This seems natural since it is higher in elevation. However the Pond Brook valley between Bristol Road to the west and Hogback Mountain to the east is very visible since Bristol Road and State's Prison Hollow Road are also higher in elevation, providing views to the surrounding valley. The Little Hogback hills just west of Bristol Road are also very visible but the view further west is blocked since the road runs north-south along the base of the hills. The vicinity of Monkton Ridge, the west shore of Monkton Pond and north of Silver St. is also a highly visible area from the public roads.

In the northwest part of Monkton, the Raven Ridge area north of Rotax Road along the town boundary is visible as are Mount Fuller and Mount Florona Mountain just south of Hollow Road. These hills are visible from Monkton Road looking west and Boro Hill is visible towards the east. The agricultural valley of the Little Otter River is visible southwest of Parks-Hurlburt Road and east of Monkton Road.

The hilly landscape of Monkton and these viewsheds contribute significantly to the scenic character of the community. The views of the surrounding hills and creek valleys are present from several vantage points throughout Monkton. The largest settlement area along Monkton Ridge has views southwest to Monkton Pond and the school at the southern end as well as a view east to the valley of Pond Brook and Hogback Ridge. Travelers passing through Monkton take note of the scenic views from the community center.

These public viewsheds are classed and colored in the legend based on the frequency of views from selected roads, but they can also be named by the natural features they highlight and addressed in planning documents with policies that take great care to acknowledge their public contribution to the character of Monkton. As can be seen by the tax parcel overlay in Figure 1., these viewsheds are also in private ownership and the stewardship of the landowners must be acknowledged.

A subsequent task in this study was to identify specific scenic views and features that the study committee felt contributed to the character of Monkton. Some of these scenic views may coincide with these prominent roadway viewsheds while others may be more localized and less visible.

Field Study Process

Mapping prominent natural features only shows a slice of what may or may not be perceived as scenic in any given town. To field check what Monkton residents perceived as scenic, members of the project team were assigned specific streets to document their perceived scenic views and features seen from public right-of-ways. A picture was taken for each view and/or feature identified, then geo-located and included in a GIS database. A data collection sheet was used to record this information:

3. HELP US!

Please locate and identify your favorite scenic views and/or scenic features.



another opportunity for public input on scenic viewsheds and features. Below is an interactive poster where participants located favorite views from public right-of-ways. Many of these corresponded to locations gathered by the project team.

Locations identified on this map include:

- Looking southwest to Monkton Pond from Monkton Ridge
- Looking east to valley at Davis and Silver St.
- Looking west to Adirondacks, down Hollow Rd. at intersection of Hand and Higbee Rd.
- View from walking trail, looking east to pond and ridge (flag graphic)
- Looking west from Monkton Rd., toward Huizenga Farm/Barn
- Looking northeast from Lime Kiln Rd. northeast toward Hogbacks
- Looking east to Camels Hump from General Store
- Wetlands, Cemeteries and Monkton Pond were identified as special scenic features.

Most scenic locations identified on the poster during the Open House were synonymous with views and features

previously identified in the field study. This information was assimilated into the inventory of view and feature locations.

Scenic Value and Street Type

Public-right-of-ways/streets play an important role in this study, providing the public locations from which features and viewsheds have been identified. This study also recognizes roads/streets as places in and of themselves. When looked at as a place, a road has a unique identity and aesthetic which impacts how it is used, by whom, how safe it feels and how much it is considered a unique scenic feature within a town. While roads must be maintained to provide a safe transportation network, it is beneficial to consider what other benefits the road/street offers to the Town. Vermont's tourism owes a lot to scenic streets and byways.

At the open house participants were asked to rank types of roads found in Monkton in order of scenic preference. The street types, listed in order of highest number of preference points:

1. gravel with overhead tree canopy – 6 votes
2. gravel with abutting farm fields – 6 votes

3. paved with abutting farm fields – 4 votes
4. gravel, residential with vegetative screening – 3 votes
5. paved with large old trees in tact – 3 votes
6. paved residential with no screening – 1 vote
7. paved with parallel recreation trail – 0 votes
8. paved with guard rail – 0 votes



Figure 5. Some streets are considered scenic places.

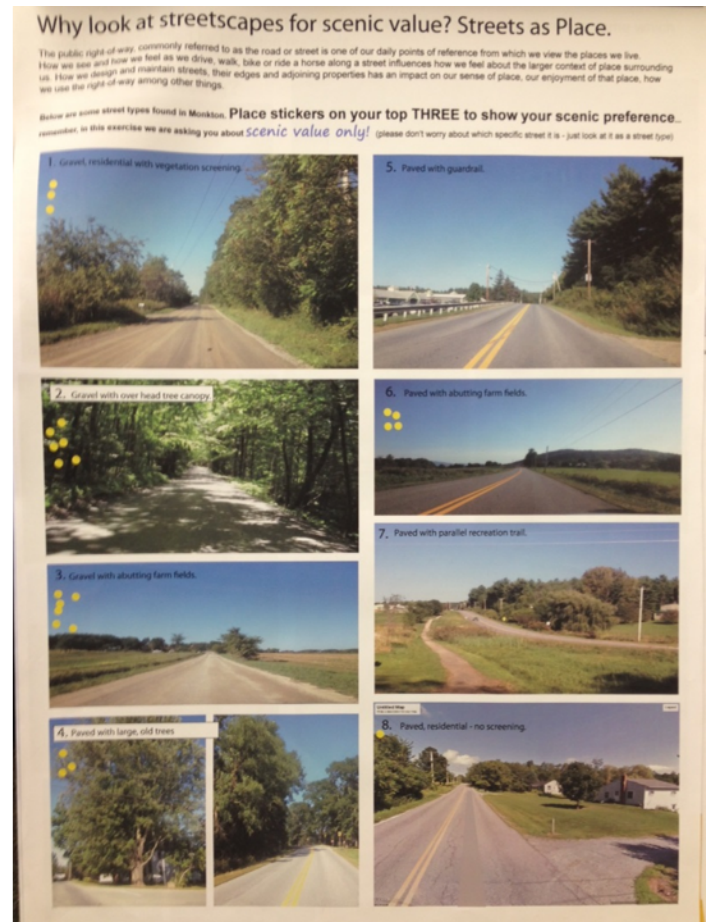


Figure 6. Street types in Monkton

While more participants are needed to represent a clear picture of the preferences of Monkton residents, the road type exercise does highlight how maintenance and street design impacts the visual preference and aesthetic value of that street. At the Open House the most votes for visual preference went to gravel roads with canopy overhead and gravel roads with abutting agricultural fields. Questions the Town may want to ask in the future include: which roads do we want to preserve as special recreation corridors? How do we do this? How do we wish to maintain the edge of our roads so that they are a. safe b. aesthetically pleasing; What landscape screening requirements might we include in our regulatory language?

Field Study Results

The project team collected over 100 scenic views and features between seven members. A link to all the images and the location with which they were taken (embedded into google earth) can be seen on Monkton's Town website: <http://monktonvt.com/boards-and-committees/planning-commission/>

The majority of images showed an agricultural/meadow foreground with either an expansive (long or wide) view of a middle ground and contrasting background view of the Hogback, Greens and/or Adirondack Mountains, Monkton Pond or specifically Camel's Hump – one of the tallest peaks in Vermont. This is consistent with typical findings from scenic viewshed studies in which most people will identify a significant view as one having a water feature or unique topography contrast, be a relatively long or wide view, and offer significant unity, contrast and/or variety between foreground and background. See images below as examples:



Figure 7 Attributes of 'scenic landscape'

Some images that were identified as scenic views lacked the elements of a scenic view as described above, and may be better identified as a *feature* or *place*. See the two images below as examples:



Figure 8 Some towns will consider all wetlands and streams, such as these pictured, to be scenic attributes in the landscape.

Below are a sample of some of the views identified as scenic in Monkton:



Figure 9 View To Camel's Hump from Turkey Lane



Figure 10 Views of hogbacks Looking southeast From Tracey Road




Figure 11 View west from Raven Ridge



Figure 12 Bristol Road, Meander Hill looking south.

Scenic Features

Scenic features, which represented a specific place and/or structure, are listed in the image table below and include a range of natural and built features unique to Monkton.

Identified Scenic Features of Monkton	
Example Image	Features
	<p>Cemeteries Hazzard-Friends Monkton Ridge Monkton Borough Smith Barumtown Carter-Carpenter Horan Beers Morgan-East Monkton</p> <p><i>See also Monkton Historic Society and Burial Grounds of Vermont for listings.</i></p>



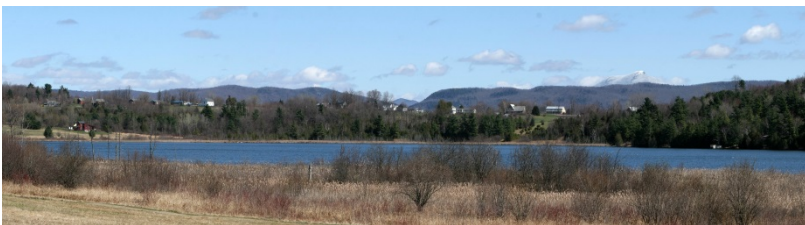
Farm properties and structures
(various)



War Memorials
(three identified in Boro)



Historic cultural and residential structures.
Monkton Grange
Monkton School Houses
Monkton Post Office
Monkton Town Hall
See also State Historic Registry and Monkton Historic Society for listings.



Monkton Pond



Old, large trees (various)
Monkton Road
Lime Kiln Road

Not all inventoried at this time.



Raven Ridge Trail



Raven Ridge Oven



Canopy-lined streets throughout Monkton

- Old Stage Road
- Piney Woods Road
- Turkey Lane
- Roscoe Road



Hogback Mountains



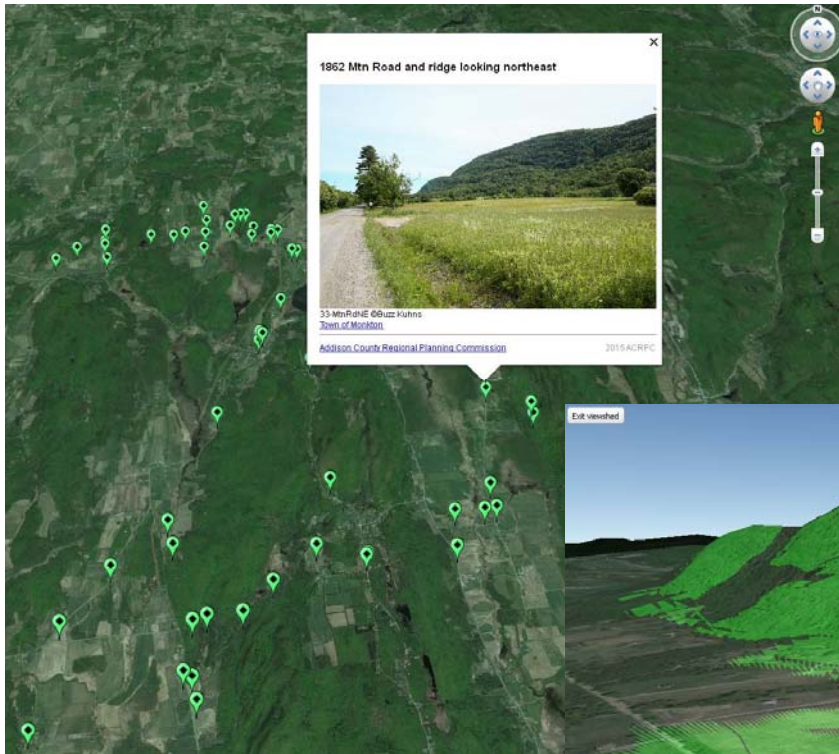
Rivers and Streams throughout Monkton
See town plan for more listings



Wetlands throughout Monkton
Borohill Beaver Pond
Salamander Crossing off of Monkton Rd.
See town plan for more listings

Google Earth Viewshed Mapping Process

All photos gathered either had geographic coordinates or were located on a map which were then added to a GIS database. This allowed the creation of another viewshed analysis based on the scenic photos and the location from which a photo was taken.



Using the free Google Earth program, the images were embedded into an aerial view map, with their specific location point. From this point a 3-dimensional viewshed is generated (in light green below), depicting what can be seen from that location. This software has the unique ability to zoom in to a 'Street View' on most major roads and view the surrounding landscape. At the open House, this feature of Google Earth was used to provide several town-wide tours of Monkton from the perspective of various citizens.



The images depict the scenic photo from a location (left image) and the view from Street View in Google Earth with aerial photography (right image). This feature of Google Earth was utilized during the open house to gather public input on the project. The actual photos and the Google Earth view helped to validate the significance of the scenic views identified by the project team.

Figure 13 3d viewsheds as seen in Google Earth digital mapping program.

Scenic Landscape Views

A viewshed analysis of the locations where scenic views were photographed was undertaken in similar fashion to the viewshed analysis from the public roads. In this case, the point locations from where the photos were taken were used as the viewing location to develop the scenic viewsheds. The photo locations of scenic features were not used in this analysis. The scenic inventory form had a map attached that could be used to locate the viewing point and to show the direction of view. A complete set of view directions would have allowed the viewshed analysis to be calculated in only

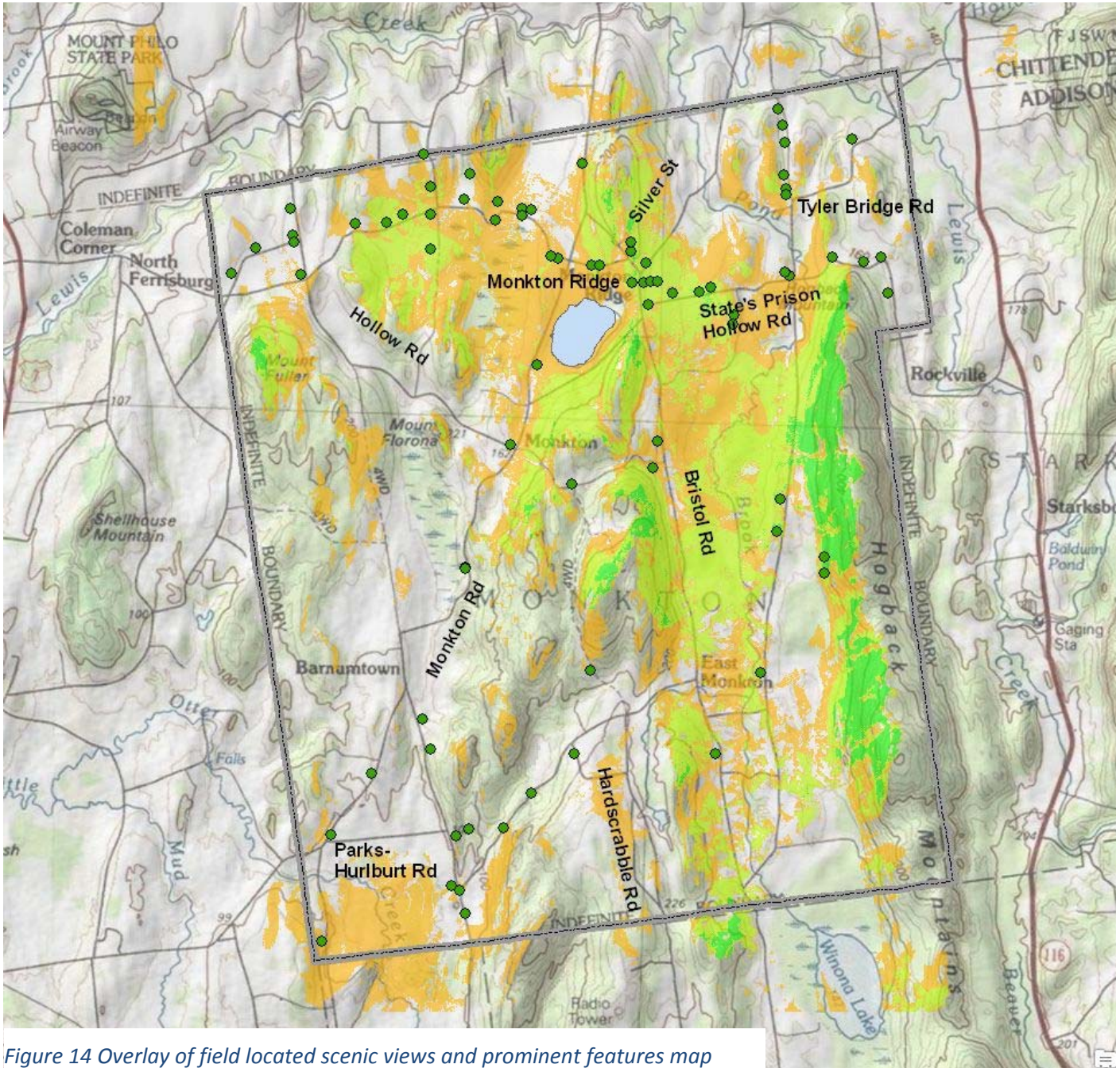


Figure 14 Overlay of field located scenic views and prominent features map

specific directions. The entry of viewing direction was approached differently by different team members and was not utilized in the analysis. This should be addressed in any subsequent use of this methodology.

An image of the photo locations and the resulting scenic viewshed map are shown below. The viewing locations are primarily along the public right-of-way so there were no private property access restrictions. Several team members took photos in the northwest corner of Monkton which may signify higher scenic quality. Traffic on Hollow Road is

lighter than in some other parts of town and wooded hillsides with meadows and creek valley wetlands are prevalent.

Google Earth Viewshed Mapping Results

The combined viewsheds of the photo locations provided a legend similar to the highly visible locations, ranging from cantaloupe to bright green based on the number of visible locations in the analysis.

This map has identified those areas of Monkton that have the most frequently identified scenic landscape views. The scenic viewsheds are very similar to the highly visible areas. This is sensible since the highly visible areas highlight prominent natural features which are typically scenic as well. The addition of more scenic photo locations in the Hollow Road vicinity did increase the scenic significance of the surrounding area. Likewise fewer scenic photo locations in the southwestern part of town resulted in lower scenic viewshed significance.

Overlaying the prominent natural feature map with the scenic landscape map

The maps that were created to identify scenic landscape areas as well as visually prominent natural features do not need to be viewed separately. The mapping system allows the two sets of information to be overlain to visualize locations that score highly in both categories. The two viewshed layers were added together and the same color scheme used to highlight areas that are highly visible and scenic. Since both the road analysis and the scenic photo locations originated from viewing spots adjacent to the roadway in order to stay in the public right-of-way the two maps are similar and their overlay reinforces the Hogback as the most scenic and visible area in the town. Monkton Ridge and Little Hogback west of Bristol Road are also scenic higher elevation locations. As are the highlands along Hollow and Rotax Roads. The lowlands of Pond Brook and the Little Otter Creek in the sw corner offer farmland, meadow and riparian views.

Next Steps

This study is the first step in a three step process described in the Vermont Agency of Natural Resources publication: "*Vermont's Scenic Landscapes: A Guide for Growth and Protection*" (1991). The steps are conceptually to:

- 1) **Describe the resource/know what it is/where it is**
- 2) Identify the sensitivities/potential to obscure or enhance
- 3) Prescribe the protections/clear community standards

Monkton now has a broad understanding of some key scenic areas, prominent natural features and also specific scenic places and structures throughout town. To delve into the next level of understanding (#2) their relative scenic value is dependent on characteristics which make some landscapes more scenic than others. The following is a list of considerations for review:

Unique or Prominent Landscapes

Such areas are generally accepted as areas of scenic significance and should be addressed in any review:

- (1) shore lands immediate to public lakes, rivers, or ponds;
- (2) areas immediately adjacent to scenic corridors;
- (3) prominent ridgelines, mountain tops, or excessively steep slopes that can be readily viewed from public corridors;
- (4) exceptional agricultural and historic areas, recognized as outstanding resource values;
- (5) areas within or immediately adjacent to natural areas (i.e. wetlands) designated by the State; and
- (6) areas of high scenic quality which are publicly recognized as exceptionally.

Ridgelines or Mountain Tops

Where land development or subdivision is proposed on a prominent ridgeline or mountain top and visible from a wide area, design plans should work toward the goal of retaining its prominent natural appearance. To accomplish this, structures or buildings are encouraged to locate away from the highly visible ridgeline to a lower backdrop on the hillside and structures should be partially hidden within existing wooded hillsides, where possible, and avoid excessive use of reflective glass. Additional planting may also be considered.

Highly Scenic Areas with Distant Views

Where land development or subdivision is proposed in the foreground of a highly scenic location with distant views, design plans should work toward the goal of retaining or enhancing the view. New buildings or structures should be as unobtrusive as reasonable. To accomplish this, structures or buildings are encouraged to be designed so as to be compatible with the traditional pattern, scale, size, form, etc., and not unnecessarily block distant views from highways or locations noted as especially scenic. Buildings or structures are encouraged to be sited in less visible areas such as at the edges of or within wooded areas rather in open meadows. Clustering of buildings or structures is encouraged to leave vistas open on the site. Design of structures which does not unduly compete with the existing natural or cultural focal point is encouraged.

Scenic Working Agricultural Land

Where land development or subdivision is proposed on highly scenic agricultural land within a scenic context, design plans should work toward the goal of retaining the overall quality of the scenic area and of minimizing loss of the agricultural potential of the land. To accomplish this, structures or buildings are encouraged not to be sprawled over the entire site, leaving areas that are unusable for agriculture. In the alternative, development or subdivisions should be planned so that structures are clustered or located in a manner that remaining land is made available for practical use as open land, cropland, or hay-land. Common access drives to properties are encouraged. Location of utilities and common access drives is encouraged on the site away from productive agricultural land and in a manner to minimize visual impact on the scenic resource.

Scenic Areas Highly Visible from a Public Corridor

Where land development or subdivision is proposed in scenic areas highly visible from a public corridor, design plans should work toward the goal of minimizing the adverse visual impacts often associated with large-scale box-like buildings and/or large lot parking areas. To accomplish this, structures, buildings and other site improvements should be planned so that building form, massing, and other features are compatible with dominant patterns of the area or site and in ways that reduce the apparent scale of the project on the site. Design planners are requested to break large parking areas into smaller lots with ample landscaping or screening from off-site views, and to locate the project on the less scenic areas of the site. Prominent grade changes that starkly contrast with existing or surrounding contours should be discouraged.

Built Environments with Scenic Value

Where land development or subdivision is proposed within or adjacent to a built environment noted for its exceptional scenic value, including historic sites or areas recognized by the State of Vermont or municipalities, design plans should work toward the goal of minimizing contrast with the exceptional resource and to enhance visual quality. To accomplish this, project planners are encouraged to site buildings and structures that are compatible with the scale, massing, texture, or otherwise respect the pattern of nearby structures. Plans that promote large box-like structures which sharply contrast with existing scenic resource values are not recommended, particularly where the composition of the overall project is highly visible from public viewpoints.

Industrial or Commercial Developments in Areas of Scenic Value

Where single purpose developments such as industrial or office parks, or shopping centers are proposed in areas of exceptional scenic value, design plans should work toward a goal which reflects the traditional settlement pattern and characteristics of the area. To accomplish this, project planners must design the site so the development does not

appear to be grossly out of scale with its surroundings. It must not extend or enlarge existing patterns of development that are deemed unacceptable (e.g. strip development). Design solutions should respect location and design of the project to minimize visual intrusion on the most valuable scenic attributes of the site. They should respect the natural contours of the land, utilize, where necessary, landscaping which harmonizes with existing vegetation to create project buffers and screening of buildings, and to encourage pedestrian access and internal circulation.

Local Planning Tools

It should be stated that not everywhere is highly scenic nor is land use development necessarily bad. A community drafts its planning documents with an eye towards the future acknowledging that some areas are suited for dense development, a rural aesthetic is preferred elsewhere and some places provide significant environmental benefits and should be left alone.

If the characteristics of a landscape are identified and vulnerabilities are understood, guidelines and regulations can be put in place that encourage land use development to 'fit-in' to a landscape and embrace the community's desires. The following list of planning techniques are mostly extracted from "*Vermont's Scenic Landscapes: A Guide for Growth and Protection*".

Conservation Easements are voluntary agreements between a land trust or government entity that limits the type or amount of development on one or more parcels of land.

Forest, Agricultural and Conservation Districts are all useful on lands with high resource value. They provide for restricted or qualified uses on designated areas. Care must be taken to describe the specific resource value and the impacts that are and are not allowed. Plan language cannot be vague, contradictory or suggestive as in "should" or "encourage" an action. Desired future conditions in a planning district must be clearly defined and enforceable using words such as "shall", "require" or "prohibit".

River Corridor designation for flood resilience and hazard mitigation limit new development in identified flood hazard, fluvial erosion and river corridor protection areas. Flood resilience also encourages the restoration of flood plains and upland forested areas the attenuate and moderate flooding from run-off.

Scenic Easements are similar to conservation easements, but are directed specifically towards a view from a particular location or focused on a particular scenic site.

Design Control and Historic Districts are used in areas where maintaining a certain visual character or historic architectural pattern is desired. These districts can protect visual treasures and historic architectural detail, and encourage design coordination and compatibility among existing and future structures. Height restrictions, sign controls and parking and landscaping are some of the issues considered in such an ordinance or bylaw.

Planned Unit Developments encourage future development to consolidate growth in a specific area, leaving spaces open for scenic, recreational, conservation or hazard mitigation purposes.

Public Access Easements allow the general public to use a specific area for such activities as walking, jogging, biking or traveling to and from a water resource.

Density Requirements can be expanded in one area in order to reduce those of another area or specify overall density within each district and set a smaller lot size to ensure conservation of natural resources.

Setback Requirements can create desirable patterns of development such as compact villages, narrow residential streets overhung with a canopy of trees, attractive open spaces and adequate separation. For the past 50 years, though, this tool has also been used randomly to distance structures from each other, contributing to a sprawling settlement

pattern rather than a compact settlement pattern with open space.

Sign and Lighting Ordinances can have a powerful effect on the landscape, especially on well-traveled roads. Ordinances regulating the height, color and intensity of signs and lights can result in dramatic, positive effects.

Road, Driveway or Curb Cut Ordinances can decrease the potential for strip development and control the access of future developments to collector roads or major arteries by requiring frontage roads or the configuration of drives to access major road-ways at existing or proposed intersections.

Ridgeline Overlay Districts can minimize the potential for interrupting natural hillsides silhouetted against the sky. Careful study of those areas on accurate topographic maps and site visits to assure accuracy are essential to the success of this ordinance. Phased Growth Ordinances can help control the impacts of larger projects by phasing their implementation.

Shoreline Protection Districts can be established addressing lakes smaller than those regulated by the State. State Shoreland Protection permits regulate activities within 250 feet of the mean water level of lakes greater than 10 acres in size. The intent of the Shoreland Protection Act is to allow reasonable development along the shorelands of lakes and ponds while protecting aquatic habitat, water quality, and maintaining the natural stability of shorelines.

Transfer of Development Rights can be used in areas where a community has identified a scenic resource worthy of protection. TDR allows one landowner to convey his or her right to develop certain land to another area within the town where development would be preferable. This mechanism enables landowners to sell their development rights, thereby realizing some financial gain on their property, while protecting it from the potentially negative impacts of development.

Maximum Permissible Lot Size within a growth center or village or town center encourages a compact settlement pattern and helps reduce the sprawl of a more suburban settlement.

State Planning Tools

ACT 250 Review

Act 250, Vermont's state land use law (10 V.S.A. Ch. 151), involves the review and permitting of proposed land subdivision and development under ten statutory criteria. The state has declared a goal of planning for the use and development of Vermont's air, water, wildlife, mineral, and land resources according to the principles set forth in Act 250 (24 V.S.A. § 4302(c)(6)(A)(6)). Criterion 10 of Act 250 specifically considers a project's conformance with the municipal and regional plan. A project can be denied if it does not conform to the applicable municipal or regional plan.

Act 250 jurisdiction is generally separate from and does not preempt local regulation of land subdivision and development.

Review of Act 250 projects includes a review of protection of scenic resources under Criterion 8. Criterion 8 reads (before granting a permit, the board or district commission shall find that the subdivision or development):

(8) will not have an undue adverse effect on aesthetics, scenic beauty, historic sites or natural areas, and 8(A) will not imperil necessary wildlife habitat or endangered species in the immediate area.

Prior to 1985 the meaning of this statute had been interpreted in various ways. In 1985 the Environmental Board issued a decision on a Quechee Lakes project that has become the standard for review of Criterion 8 decisions – the Quechee

Test. There are two stages to the process which are also used to evaluate aesthetics under the Section 248 energy projects:

First a determination must be made as to whether a project would have an adverse impact on aesthetics and the scenic and natural beauty. In order to find that it would have an adverse impact, a project must be out of character with its surroundings. Specific factors used in making this evaluation include the nature of the project's surroundings, the compatibility of the project's design with those surroundings, the suitability of the project's colors and materials with the immediate environment, the visibility of the project, and the impact of the project on open space.

The next step in the two-part test, once a conclusion as to the adverse effect of the project has been reached, is to determine whether the adverse effect of the project is "undue." The adverse effect is considered undue when a positive finding is reached regarding any one of the following factors:

1. Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?

In evaluating whether a project violates a written community standard, the District Environmental Commissions typically look to the municipal plan, supporting open space plans, and other municipal studies and documents to discern whether a clear, written community standard exists that can be applied in the review of a project's aesthetic impacts.

In adopting the first standard in the Quechee analysis, the board intended to encourage towns to identify scenic resources that the community considered to be of special importance: a wooded shoreline, a high ridge, or a scenic back road, for example. These designations would assist the district commissions and the board in determining the scenic value of special resources to a town, and would guide applicants as they design their projects.

Re: Town of Barre, Vt. Env. Bd. Decision #5W1167-EB (6/2/94, p.21)

2. Have the applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the project with its surroundings?

3. Does the project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?

There are many project reviews that have involved the use of the Quechee analysis. These reviews become quite detailed with several experts testifying on the quality of visual resources. Generally, a good practice is to follow the recommendation noted earlier: Describe the resource, Identify the sensitivities, and Prescribe the Protections as a clear community standard.

Public Service Board and Section 248 Review

Public utilities in Vermont are regulated by the State's three-member Public Service Board (PSB), appointed by the Governor. PSB jurisdiction extends to the regulation of power generation and transmission facilities, under a process generally referred to as "Section 248" review (as authorized under 30 V.S.A. § 248)1. The extent of a review under Section 248 varies based on the type and scale of a project; but all facilities regulated by the PSB – including all solar, wind, and other renewable energy facilities connected to the power grid – are exempt from municipal regulation under Chapter 117 (24 V.S.A. § 4413(b)).

The Section 248 process, though also quasi-judicial, differs significantly from Act 250 review in several ways – most

notably in Section 248's underlying policy directive to consider and serve statewide public interests or the "public good". The PSB is required by law to consider and weigh the costs, impacts, and overall benefits of a proposed project, and to issue a Certificate of Public Good (CPG) only if it finds that the project will "promote the general good of the state" In this context, PSB jurisdiction, unlike Act 250, preempts municipal jurisdiction. It also preempts Act 250 review.

The Section 248 process is also a much more formal, legal process than Act 250. Applications for larger projects are presented as "petitions" to the PSB and projects smaller than 150 kW go through either a registration or an application process and benefit from certain criteria being conditionally waived and a more streamlined review process. Section 248 hearings are conducted "on the record", similar to court proceedings – with similar, potentially significant, costs to participants. Parties (intervenors) are typically represented by legal counsel. The PSB issues its findings in the form of a written decision (order) that supports the issuance or denial of a Certificate of Public Good. Given the legal status of Section 248 review, PSB decisions (unlike Act 250 decisions) are appealable directly to the Vermont Supreme Court. Given the legal nature of the 248 review process, the PSB has produced and periodically updates its "Citizens' Guide to the Vermont Public Service Board's Section 248 Process".

When determining whether to grant a certificate of public good for a proposed project, the Board considers whether the proposed project meets ten statutory criteria(see 30 V.S.A. § 248). These criteria include site-specific environmental criteria incorporated from Act 250, in addition to general issues such as need, reliability, and economic benefit. In the case of scenic, historic and irreplaceable natural areas (10 V.S.A. § 6086(a)(8)) the PSB follows a process similar to that used under Act 250. Specifically the PSB is guided by the Quechee Test to determine whether or not the proposed project would have an undue adverse impact on aesthetics.

The Section 248 process preempts municipal jurisdiction, but before the PSB can issue a Certificate of Public Good they must find that the project:

Will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained within the plan of any enacted municipality (30 VSA § 248(b)(1)).

The town plan language is very determinative on the importance both Act 250 and Section 248 place on evaluating the orderly development of the region and the aesthetic impact of a development proposal. These 2 criteria are clearly subjective and a plan must have definitive and authoritative language that constitutes a clear community standard that a proposed development either adheres to or violates.

<http://psb.vermont.gov/sites/psb/files/publications/Citizens'%20Guide%20to%20248%20February%2014%202012.pdf>

<http://psb.vermont.gov/sites/psb/files/orders/2016/February/8302%20Final%20Order.pdf>

http://lakematters.org/wp-content/uploads/2015/07/lp_ShorelandHandbook.pdf

http://accd.vermont.gov/strong_communities/opportunities/planning/manual