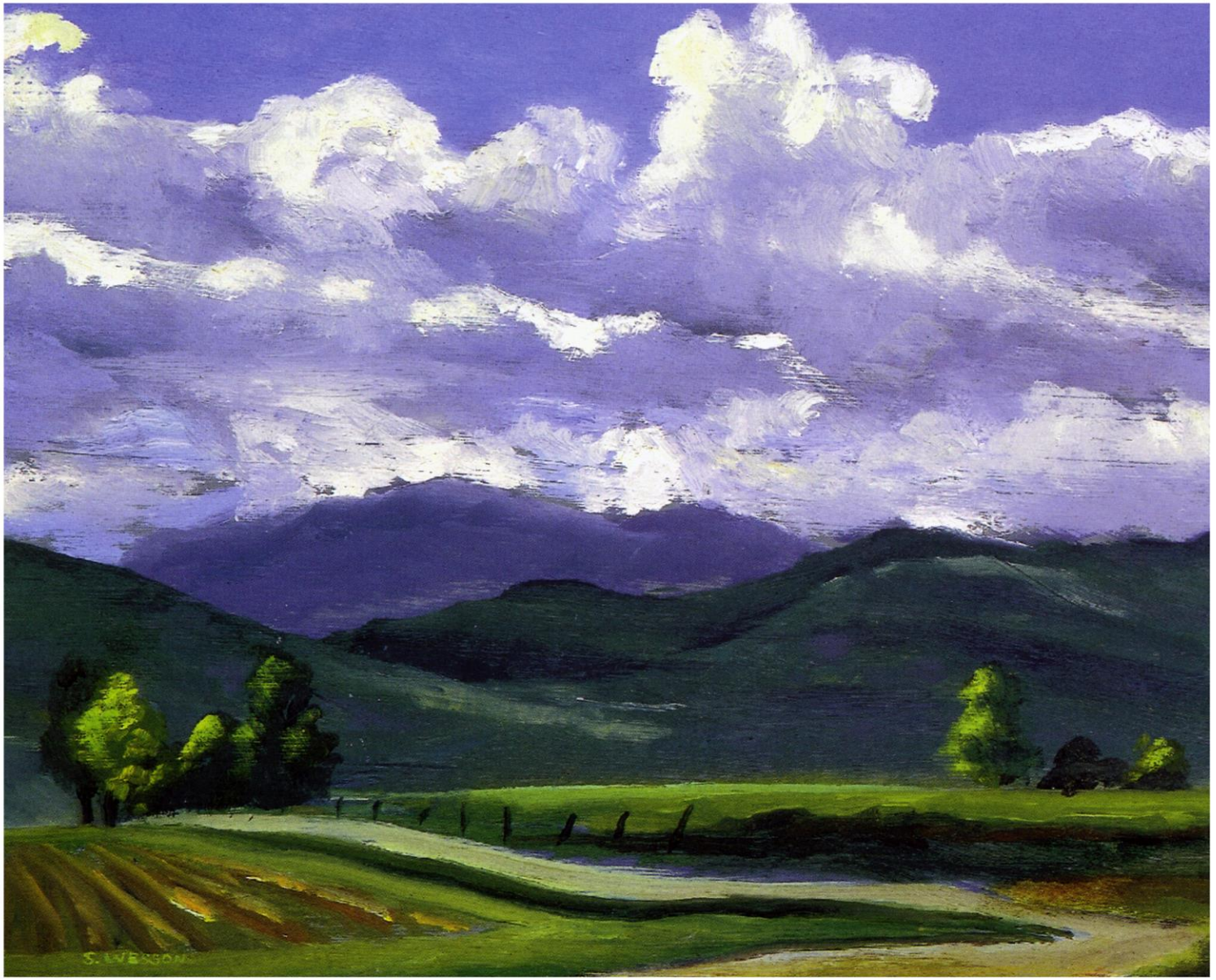
Panton Town Plan

2019



Panton Town Plan 2019-2027

Adopted November 14, 2019

Prepared by **Town of Panton Planning Commission**

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Funding for the 2016-2017 Municipal Plan update was made possible through a Municipal Planning Grant provided by the Vermont State Agency of Commerce and Community Development

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Adams Ferry Road at the High Peaks

Winter at Arnold Bay

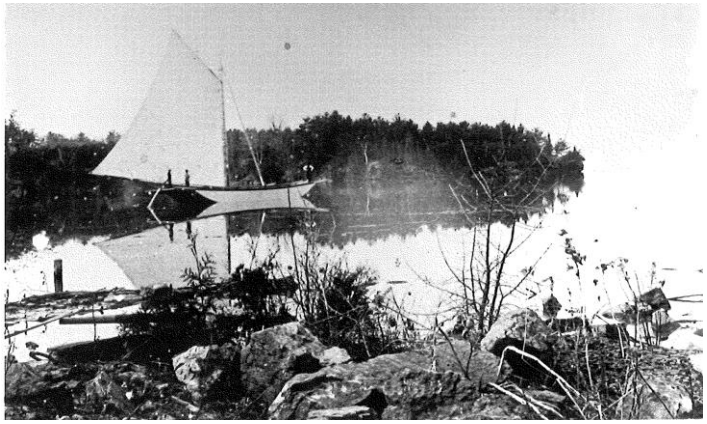
Mist over Dead Creek on Panton Road

Photography by Rob McNamara

Old barn on Panton Ridge at sunset.

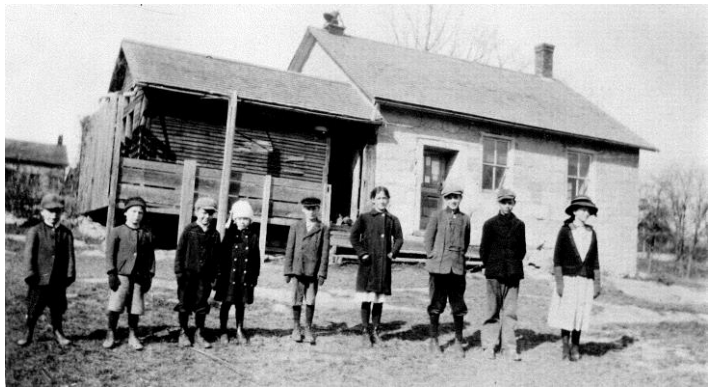
Photos of Panton's Past

Planning Grant provided by the Vermont State Agency of Commerce and Community Development



The scow boat belongs to Loyal Spaulding and ran from Arnold's Bay to Westport, NY. 1880

One of Benedict Arnold's gunboats pulled on the shore at Arnold's Bay. The sail ferry is Pat Sinon's that ran from Arnold's Bay to Westport, NY



School District No. 1. Teacher Mary Conant.
Left to right: Sheldon Fleming, Fay Fleming, Glen Fleming, Elsie Gaines, Lester Fleming, Unis Allen, Donald Atkins, Robert Neil, Jessie Neil. 1916

School District No. 3. Teacher Mary Conant
Gertrude Allen, Evelyn Allen, Glen Fleming, Cora Norton, Lester Fleming, Violet Otis, Edgar Norton, Eunice Allen, Jesse Neil, Robert Neil, Richard Sheldon.

Photos courtesy of Barbara Fleming. See last page for "Panton's Present"

Section 1. Introduction

This Panton Town Plan is a comprehensive document. It is prepared in conformance with the provisions of Chapter 117 of the Vermont Municipal Regional Planning and Development Act. Zoning regulations were first enacted in 1968. A Town Plan has been in place since that time and was substantially updated in 2005. This current plan builds on those efforts in an attempt to continue to keep the plan a living document. Vermont Plans must now be adopted every eight years, with changes and amendments, as appropriate.

The Town Plan provides a guide for the future of Panton's natural and human environment. It also provides a "snapshot" of the town, its current conditions, facilities and programs, its natural and cultural resources and demographic make-up. It gauges community interests and forwards the values of the town's citizens.

The Town Plan also provides a basis for the implementation and administration of the zoning bylaws. As such it represents one element in the ongoing planning process, which must be fluid, responding to changes within the community, as well as trends and factors which influence it from the outside.

It is important to maintain a formally adopted town plan in order to be eligible for state grant funding from certain agencies, and for the Town to effectively participate in Act 250 and Section 248 regulatory reviews.

The plan must serve to promote the health, safety and welfare of all of the town's residents. It also serves as a guide for development review within the town. It provides a basis for funding initiatives and grant applications. Equally important, it articulates planning goals and objectives, and outlines steps for fulfilling them.

The plan, however, is only a document. It is the people of this community who will put the plan into action, in striving to sustain and enhance the special quality of life we value and experience in Panton.

The involvement of the citizens of Panton in the planning process leading up to the creation of this plan has been critical, insofar as it ensures that the plan will reflect the character and vision of the community. With this input, the plan will be more readily embraced and its initiatives forwarded.

The Planning Commission has been meeting on a regular basis for a number of years working toward the creation of this plan, and at several junctures residents have been urged to participate in the "visioning" process. Town officials, including selectmen, the regional planning commission delegate, and school board members, were invited to participate in the development of the goals and objectives of this plan. The process doesn't end with this plan. In fact, the plan becomes the springboard for the next phase of work; evolving and implementing the vision.

Goals are the general aims of the community, such as preserving active agricultural lands in Panton.

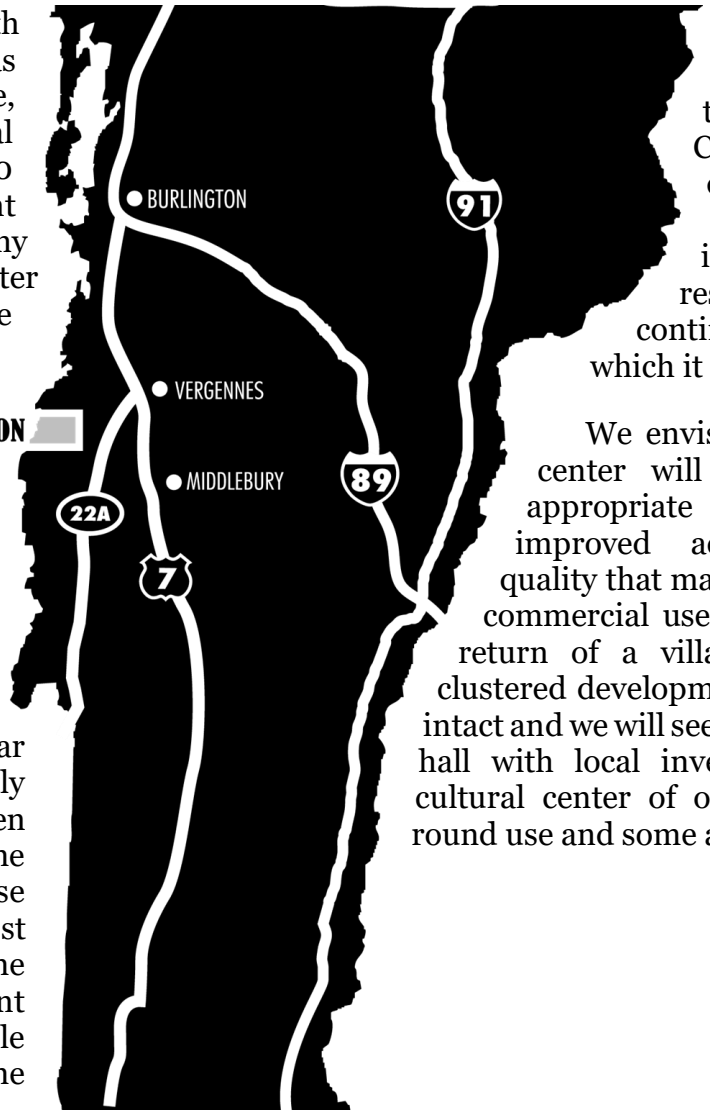
Objectives are more specific sub-elements of goals, usually providing measurable, mid-range strategies. Thus, the objective for preserving active agricultural lands might be to support and develop zoning regulations that help maintain agricultural lands.

Strategies are operational actions, usually with the purpose of relatively short-term implementation. For example. policies for the objective of supporting and developing zoning regulations that help maintain agricultural lands might include developing a cluster subdivision/development bylaw.

Section 2. Vision

The Vision for the Town Plan sets forth an aspirational view of the town's future as it relates to land planning, land use, conservation and development. The initial vision statement was conceived over 10 years ago. As with many Vermont communities much has changed, but many aspects of the town's landscape character and development pattern remain the same

Panton, chartered in 1761, remains primarily a rural residential and agricultural community, and its population is about the same as it was in 1840 when the town was home to 670 people. The pattern of farmlands, fields and forest that have characterized the community's landscape for many years is envisioned to remain primarily the same. However, a new element, solar energy arrays, has recently begun to appear in yards, on rooftops, and most prominently as a 5-Megawatt, 40-acre project in an open agrarian landscape along Panton Road. The vision is for our town to accommodate these renewable energy projects in a modest balance that does not undermine the integrity of our valued open spaces, distant views, and rural landscape character, while recognizing the need to respond to the challenge of global climate change.



It is our vision that our "big sky" landscape with views in all directions to the mountains and to Lake Champlain remain as a key quality in our local experience, and that the incremental growth of residential properties can continue at a similar pace to that which it has maintained for years.

We envision that our small village center will evolve to accommodate appropriate development with an improved aesthetic and functional quality that may include some small-scale commercial uses and the revitalization or return of a village store. The historic, clustered development pattern should remain intact and we will see the restoration of the town hall with local investment as the civic and cultural center of our community with year-round use and some added amenities.

We continue to strive for a lakeshore that remains visually intact, has healthy waters, a natural shoreline, stabilized and vegetated slopes, and clear streams. Farming practice will continue to improve manure management and cultivation methods to ensure improved water quality for drinking, swimming, fishing and other recreational pursuits, as well as improve the ecological health of this primary natural resource. Along with more sustainable land management methods, we envision that the town and its citizens will encourage the upgrading of individual wastewater treatment as appropriate. Overall there is the hope that our natural resource base will not only remain intact, but be enhanced with improved lake access while preserving habitat connectivity and strengthening efforts to curtail or prevent forest fragmentation.

We foresee continued efforts to conserve and connect more lands and open spaces, a future trail network, and improvements at Arnold Bay. As with the Lake Champlain Bikeway and Scenic Byway, we see a future in which we are more connected with our neighboring towns and the region.

It is also the vision of the town that over time there continues to be housing opportunities for all of our citizens, including affordable housing, start-up housing for young families, and homes for our growing population of seniors. The pattern of small-scale businesses, local small farms and food production, and a diversity of home occupations will continue to enhance our local economy and support our citizenry. We can, and will continue to sustain our planning initiatives and a robust local government to bring the community together. We envision a community where neighbors know one another, there are community events that bring us together and citizens participate in respectful dialogue as we chart our future and sustain our town. We will manage our land planning, conservation and development so as to ensure that our quality of life and the values we collectively cherish are carried forth for future generations.

Section 3. Community Engagement

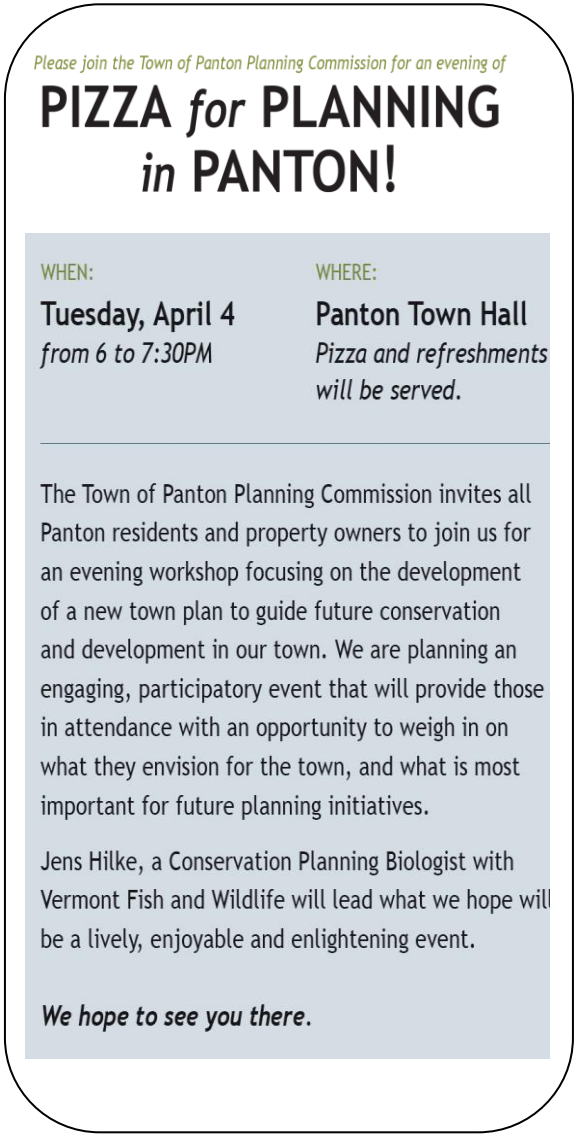
Town Survey

The 2016-17 planning cycle included an updated town survey to assess specific values of Panton residents as it relates to resident values, and what policies and regulations are most important to residents.

As with many rural communities, the natural landscape and natural resources surrounding them are highly valuable to residents. In particular, the Lake, mountain views and Dead Creek rose to the top of important features among survey participants.

When asked what natural resources residents wished to protect, seventy five percent of participants responded with rivers and streams, seventy three percent responded with class 1 and 2 wetlands and seventy two percent responded with wildlife habitat. Undeveloped lake shoreline, historic sites and structures, forestland and agricultural land and soil were also noted by over half of participants as important to protect. Over half of participants thought new zoning and subdivision regulations should be created to protect many of these.

When asked about solar development projects, an often contentious issue among property owners, seventy percent agreed that private property owners should be able to incorporate small solar energy infrastructure on their property, with screening considerations. Eighty-eight percent of survey participants agreed that commercial solar, equal to or greater than 500 KW should be subject to more detailed local review as to aesthetic and visual impacts.



Please join the Town of Panton Planning Commission for an evening of

PIZZA *for* PLANNING *in* PANTON!

WHEN:
Tuesday, April 4
from 6 to 7:30PM

WHERE:
Panton Town Hall
Pizza and refreshments will be served.

The Town of Panton Planning Commission invites all Panton residents and property owners to join us for an evening workshop focusing on the development of a new town plan to guide future conservation and development in our town. We are planning an engaging, participatory event that will provide those in attendance with an opportunity to weigh in on what they envision for the town, and what is most important for future planning initiatives.

Jens Hilke, a Conservation Planning Biologist with Vermont Fish and Wildlife will lead what we hope will be a lively, enjoyable and enlightening event.

We hope to see you there.

When asked what amenities would improve the quality of life in Panton, fifty eight percent stated improvements to the town beach at Arnold's Bay, fifty seven percent agreed with wanting bike lanes and shoulders on major roads, and fifty five percent agreed with a wanting public trail system for hiking, biking, and cross-country skiing.

These are just some highlights of the survey. Other questions focused on renovations of the Town Hall, the Town Hall cupola restoration and an opportunity to share any other concerns.

The complete survey and survey results can be found in the appendix of this plan.

Town Planning Workshop

On April 4, 2017 about 20 Panton Citizens attended a Town Planning Workshop designed to update residents on process of updating the Town Plan and to engage participants in a community values exercise led by Jens Hilke, a Conservation Planning Biologist with the Vermont Fish and Wildlife Department. A number of questions were posed for break out groups to discuss and map on large scale aerial photographs of the town, provided for the workshop. Questions posed included:

The break out groups presented their findings and discussion points at the conclusion of the workshop activity. Topics and concerns ranged from agricultural open space, biking and walking opportunities, to the importance of the village and town hall complex as a community center. Final maps were generated and provided by Mr. Hilke and the Fish and Wildlife Department.

PIZZA FOR PLANNING IN PANTON!
Panton Town Plan Community Workshop
April 4, 2017 from 6-7:30PM

6:00 Introductions and Purpose/Agenda for the Meeting
Introduce Jens Hilke, Conservation Planning Biologist from VT F&W Introduce planning commissioners

6:15 Town Plan Overview/Updates/Use and Need/"Survey says"
6:30-7:15 Small Group Break outs with list of issues/instructions

Overall questions we are asking as part of the Town Plan rewrite process:

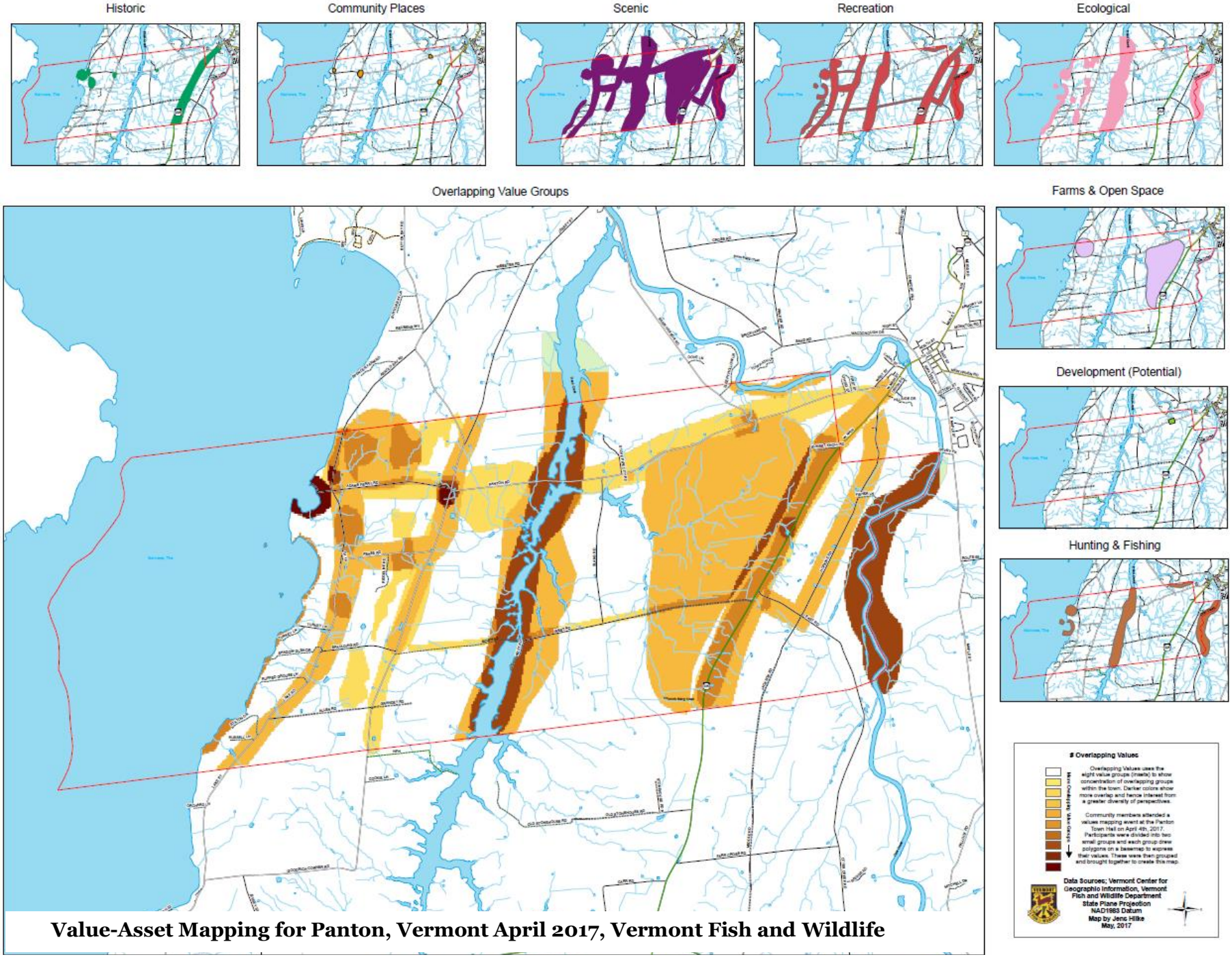
Where should we develop?
Where and what should we conserve/protect?
What about the village?
What about Energy/Solar and the need for Community Standards?
Recreation/Trails/Arnold Bay?
What is Panton missing?

Mapping Component: Jens will guide us and articulate specifics, but some considerations include:

Favorite places
Where do I walk/hunt/bike etc.
Valued views – what are our community's visual and natural resources that need to be acknowledged or protected
Problem areas or places for improvement on the ground

7:15 Groups report out/summaries/discussions
7:30-7:45 Next Steps/Timeline

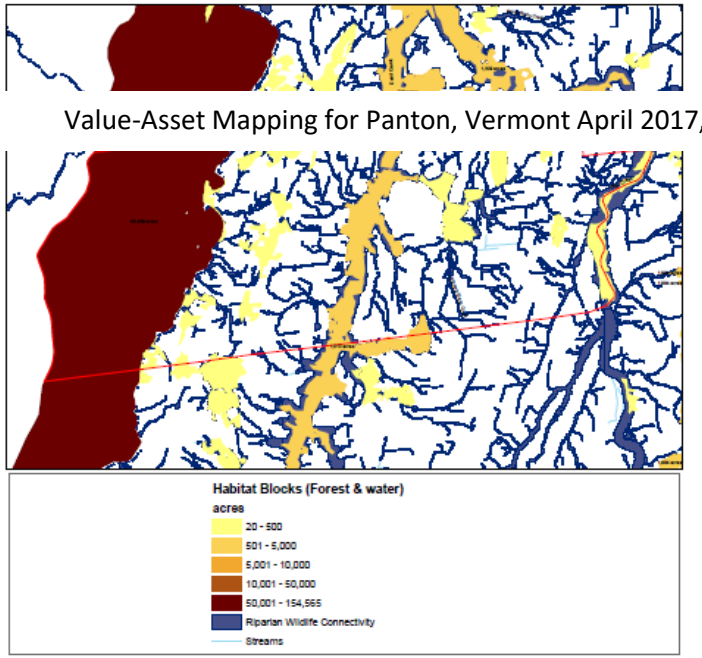
Panton Community Values



Value-Asset Mapping for Panton, Vermont April 2017, Vermont Fish and Wildlife

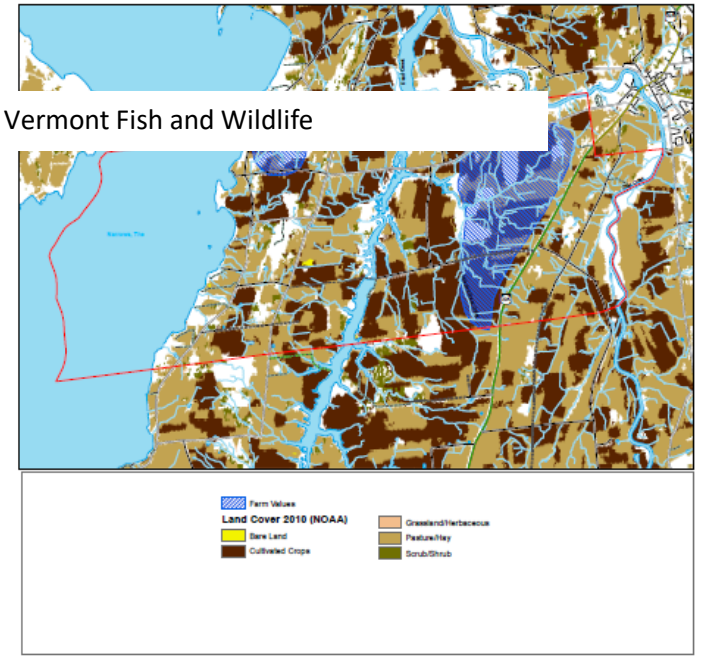
Community Values & Ecological Priorities

Habitat Blocks and Wildlife Corridors

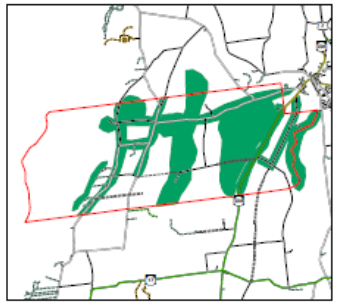


Value-Asset Mapping for Panton, Vermont April 2017, Vermont Fish and Wildlife

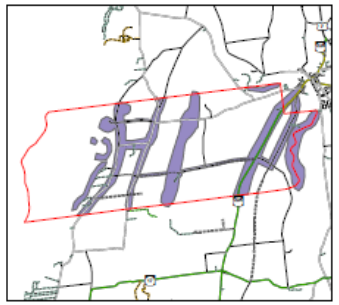
Farm values and Open Land Use (Farms)



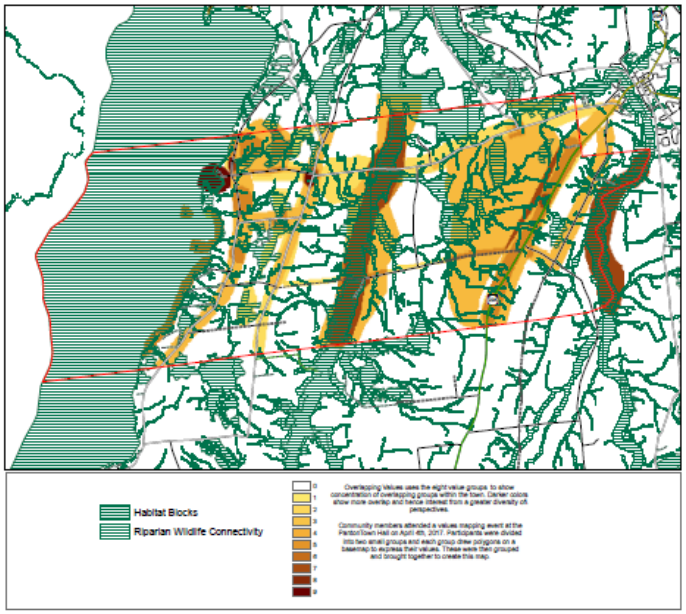
Scenic Values



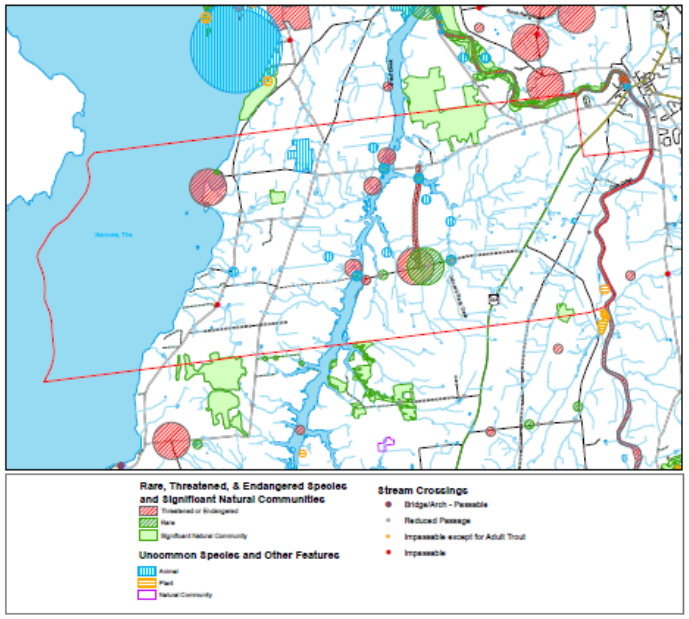
Recreation Values



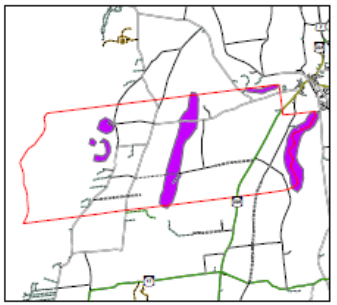
Overlapping Community Values and Ecologicaly Significant Sites

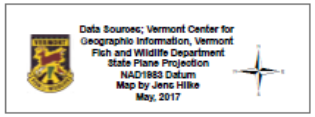


Rare Species and Natural Communities (F&W data)



Hunting & Fishing Values





Section 4. History

"At first glance Panton would appear to be the epitome of a serene little hamlet, with sprawling agricultural lands and rolling green hills. If those hills could talk, however, they would speak of a more violent epoch when Panton's early settlers were in conflict with British troops, Native American tribes and the elements of nature." (John Flowers, Addison Independent, 8-29-91.)

Indeed, Panton has a rich and engaging history, well chronicled in the recent publication, Panton Past and Present.

Colonial Settlement

Colonial settlement began in earnest in Panton during the 1760s. The town was granted its charter in 1761 by Governor Benning Wentworth of New Hampshire. However, these early efforts to build homes, farms, mills, and roads were set aside as Panton was swept into the conflict that culminated in the Revolutionary War. As written by Smith in his 1886 *History of Addison County,* "Events had by this time occurred within the immediate neighborhood, that convinced them [the inhabitants of Panton] that they could not remain inactive spectators of the struggle in their exposed locality."

Revolutionary War

On October 13, 1776, Panton was at the center of the war. The British planned to destroy the rebel fleet on Lake Champlain and take the American forts at Ticonderoga and Mt. Independence. On October 11, the battle began at Valcour Island at the north end of the lake. The British forces vastly outnumbered the hastily built and poorly outfitted American boats.

In defeat, Benedict Arnold made a desperate attempt to sail the remaining vessels south to Crown Point. With the British in pursuit, Arnold realized they would not make Crown Point and sailed his ships into what was then called Ferris Bay. He ordered the boats burned, rather than having them end up in the hands of the British. Arnold and his troops fled on foot to Crown Point and ultimately Fort Ticonderoga. The bay now bears his name.

The significance of this delaying action was summed up by Admiral Alfred Mahan in his *War of American Independence* when he wrote, "The little American navy on Champlain was wiped out: but never had any force, big or small, lived to better purpose nor died more gloriously, for it had saved the Lake for that year."

Following this incident, Panton residents suffered at the hands of both Indians and Tories. In 1778, every home in Panton was burned by British soldiers, save one structure owned by Timothy Spaulding. A town road still bears his name.

Growth and Development

After the war, Panton grew quickly into a vital community. The town's original charter had included 25,000 acres, but the town's area shrank as Addison, Weybridge, and ultimately Vergennes absorbed portions of its lands. Panton and Addison had resolved their charter dispute in 1774. It was 1788 when Vergennes was formed from parts of the towns of Panton, Ferrisburgh and New Haven.

Peter Ferris was one of the prominent early settlers of the town and lived on Arnold Bay; he was of the family from which the town of Ferrisburgh took its name. After the war, he

championed several efforts to merge the towns of Panton and Ferrisburgh. The Ferris family operated a ferry between Panton and Barber's Point, N.Y.

The ferry was one of the earliest commercial operations in Panton, and its base at Arnold's Bay was a hub of commercial activity. During the years between the Revolutionary War and the advent of rail travel in the mid-1800s, Lake Champlain was a highway of commerce. In the early 1800s, the Landing at Arnold's Bay included a wharf, storehouse and store, and even a hotel.

In the 1800s, Panton became a center for the manufacture of potash, used for fertilizer and soap. The completion of the Champlain Canal in 1823 opened up new markets for Vermont wool, and Panton prospered with its sheep farms. In fact, Panton's population reached a peak population in 1840 of 670 residents that was not exceeded until 2000.

In the 1850s, an enterprise known as Elgin Springs, which was located on present day Route 22A, developed around the spring of the same name. The spring water was noted for its medicinal properties. A springhouse, hotel and boarding house were developed on the site, and the spring waters were shipped around the country. The spring remained in operation through 1870.

With opening of the railroad in 1849, Vergennes became the center of commerce, and Panton, like other communities along the lake, developed a primarily agricultural economy.

Agriculture

The land use history of Panton rests primarily in the story of its farming community. The soils and topography of the town, as well as its milder climate (relative to the rest of Vermont), affords an amenable environment for dairy farming, crop and livestock farming as well as orcharding.

The town's proximity to major road and rail transportation routes running north and south through Panton and its neighboring communities of Ferrisburgh, Vergennes, and Waltham has also ensured that the agricultural base had (and to this day has) access to services, commodities, and markets.

Sheep and dairy farming were the principal agricultural activities, supplemented by sugaring and poultry farming. With the opening of the railroad, Panton's agricultural economy slowly shifted from wool production to dairy. Panton farmers shipped livestock, butter and cheese to both western and New England markets by rail.

At the turn of the century, a creamery was constructed on Sand Road, but burned down in 1910, never to be rebuilt, although another creamery, known as the Panton Creamery operated during this same period.

Structures and Settlements

Panton historically had several villages or more densely settled areas in town. At the junctions of Jersey Street and Allen Road was one historic settlement area, and at the junctions of present day 22A and East Road was a second settled location. Each had schools at or near the crossroads, as did "Panton Corners."

To this day, Panton Corners (or Four Corners as it is commonly referred to) serves as the "center" for the town, despite its location in the western section of the community. Historically this center has had the town's post office, a school, church and the Town Hall. It has in recent times served as one of two commercial areas in the community, with the general store.

Panton's first school was constructed in 1786. By 1800, there were four established school districts. The District 1 School was located at the intersection of Lake Street and Spaulding Road and remained in existence until 1930. Today that building has been relocated at Basin Harbor as part of the Maritime Museum.

District 2 was formed on the east side of town at the intersection of East Road and 22A. That school remained open until 1964.

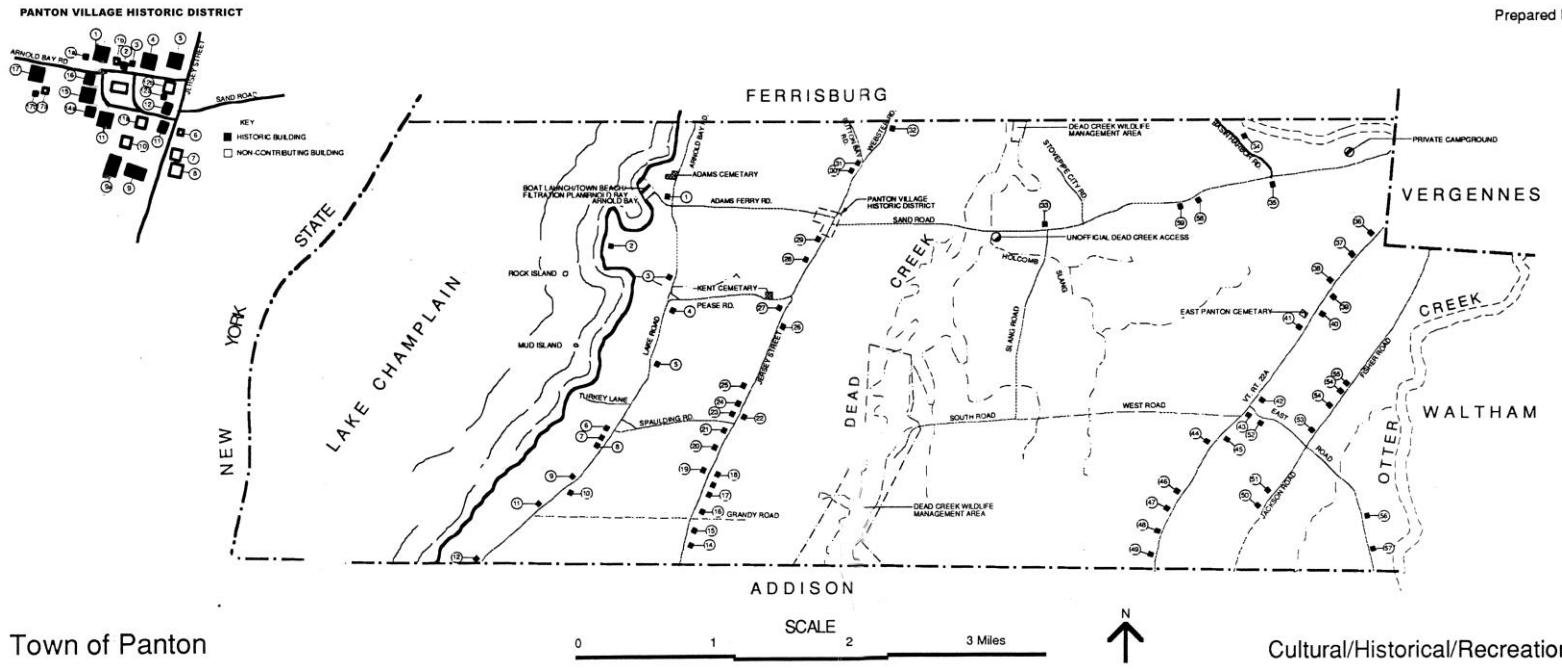
District 3 was located on Middle Road (now Jersey Street) in a small building that provided for overflow students from the District 4 School. The latter was situated at Panton Corners and served the town until 1930.

Finally, District 5, known as the Sand Road School, opened in 1901, and remained open, except for a temporary closure in 1945, until 1962. In 1929, the West School was built on Jersey Street to replace the three smaller schools on the west side of town.

The road network in Panton was established in the early 1800s and remains essentially intact today. Slang Road, Stovepipe City Road, and Pease Road came later in that century.

Old South Road, which was an east west connector through the town, was closed in 1929 due to the condition of the bridge crossing over Dead Creek, leaving Panton's only through connection along Sand Road, and this situation remains to the present day.

Prepared by 12/22/93
12/01/94



Town of Panton

Cultural/Historical/Recreational Map

SITES LISTED IN THE STATE REGISTER OF HISTORIC PLACES

1. House, c.1790
Gambrel roof, 2 1/2 stories

2. Camp, c.19[illegible]
Stone, gable roof, 2 stories

3. House, c.18[illegible]
Sidehall plan, 2 1/2 stories
Related barn

4. (Farm)
House, c.1828/c.1850
Stone, gable roof, 2 1/2 stories
Barns and outbuildings

5. (Farm)
House, c.1860
Greek Revival style, gable roof, 2 1/2 stories
Barns and outbuildings

6. House, c.1810
Vernacular-Federal style, Georgian plan
Barns

7. House, c. 1935
Gable roof, 1 1/2 stories
Related garage, shed

8. House, c.1865
Gable roof, 1 1/2 stories

9. Barn, c.1850
Related house

11. House, c.1800
Vernacular-Federal style, Cape Cod
Related early barn

12. House, c.1870
Gable roof, 2 1/2 stories
Related barn

13. (Farm)
House, 1970
Early barn, c.1873
Related barns and outbldngs.

14. House, c.1873
Classic Cottage
Related chicken coop, barn

15. House, c.1840
Classic Cottage
Related granary, chicken coop, carriage barn

16. House, c.1825/c.1940
Stone, Georgian plan
Related barn

17. House, c.1835
Gable roof, 1 1/2 stories
Related barn and outbuildings

18. House, c.1830
Classic Cottage
Related barn

19. House, c.1885
Gable roof, 1 1/2 stories

20. (Farm)
House, c.1800, Cape Cod
Barns and outbuildings

21. School, c.1823
Stone, gable roof, 1 story

22. House, c.1900
Gable roof, 1 1/2 stories

23. House, c.1870
Classic Cottage
Related barns and outbldngs

24. House, c.1815
Federal style, Georgian plan
Related barns

25. (Farm)
House, c.1875
Italianate, Classic Cottage
Related barn and outbldngs.

26. School, 1929
Hip roof, 2 stories

27. House, c.1885
Hip roof, 2 stories

28. (Farm)
House, 1848
Gable roof, 1 1/2 stories
Barns and outbldngs.

29. House, c.1825
Stone, Classic Cottage
Related Barn

30. (Farm)
House, c.1812
Classic Cottage
Barns and outbldngs.

31. (Farm)
House, c.
Adirondack, gable roof, 2 1/2
Barns and outbuildings.

32. (Farm)
House, c.1855
Greek Revival style, sidehall plan, 2 1/2 stories
Barns and outbuildings

33. (Farm)
House, c.1890
Tri-Gable Ell, 1 1/2 stories
Barns and outbuildings.

34. House, c.1880
Italianate style, hip roof, 2 stories
Related garage, chicken coop

35. House, c.1795
Georgian plan

36. House, c.1835
Classic Cottage

37. (Farm)
House, c.1900
Barns and outbldngs.

38. (Farm)
House, 1827
Vernacular-Federal style, brick, gable roof, 2 1/2 stories.
Barns and outbldngs.

[illegible]1835
[illegible]ewal style, gable roof, 1 1/2 stories
Related barn

40. (Farm)
House, c.1834
Vernacular-Federal style, sidehall plan, 2 1/2 stories
Barn and outbldngs.

41. House, c.1860
Italianate style, hip roof, 2 stories
Related sheds

42. House, c.1835
Vernacular-Federal style, brick, gable roof, 2 1/2 stories

43. House, c.1871
Brick, gable roof, 1 story

44. (Farm)
House, c.1845
Vernacular-Greek Revival style, gable roof, 1 1/2 stories

45. House, c.1890
Gable roof, 1 1/2 stories
Related garage

46. House, c.1890
Georgian plan

47. House, c.1880
Gable roof, 1 1/2 stories

48. House, c.1845
Greek Revival style, gable roof, 2 stories

49. (Farm)
House, c.1885
Italianate style, hip roof, 2 stories

50. (Farm)
House, c.1850, Classic Cottage
Barns and outbldngs.

51. (Farm)
House, c.1900
Georgian Plan
Barns and outbldngs.

52. School, c.1885
Vernacular-Italianate style
gable roof, 1 1/2 stories

53. House, c.1880
Vernacular-Italianate style
hip roof, 2 stories
Related shed and outbuildings

54. (Farm)
House, c.1930
Gable roof, 1 story
Barn and outbldngs.

55. Sugarhouse, c.1900
Board and batten, gable roof, 1 story
Related house

56. House, c.1825
Vernacular-Federal style
brick, gable roof, 2 stories
Related barns, windmill

57. (Farm)
House, c.1895
Classic Cottage
Barn and outbldngs.

58. (Farm)
House, c.1878
Gable roof, 2 stories
Barns and outbldngs.

59. School, c.1895
Gable roof, 1 story

PANTON VILLAGE HISTORIC DISTRICT

A1. House, c. 1840
Classic Cottage

A1a. Chicken Coop, c. 1900

A1b. Garage, c.1950
Non-contributing due to age

A2. Shop, c.1860

A3. Ice House, c.1950

A4. House, c.1834
Gable roof, 1 1/2 stories

A5. House, c.1830
Gable roof, 1 1/2 stories

A6. Mobile Home, c.1950
Non-contributing due to age

A7. House, c.1935
Non-contributing due to alteration

A8. House, c.1965
Non-contributing due to age

A9. Church, 1858
Greek Revival style, gable roof, 1 story

A9a. Carriage Shed, c.1880

A10. House, c.1970
Non-contributing due to age

A11. School, c.1818
Stone, gable roof, 1 story

A11a. Garage, c.1970
Non-contributing due to age

A12. House, c.1830
Non-contributing due to alterations

A12a. Shed, c.1960
Non-contributing due to age

A12b. Garage, c.1965
Non-contributing due to age

A13. Church, c.1854
Greek Revival style, gable roof, 1 story

A14. Parsonage, c.1840
Classic Cottage

A14a. Early Barn, c.1870

A15. House, c.1900
Gable roof, 2 stories

A16. Early Barn, c.1870

A17. House, c.1870
Gable roof, 2 stories

A17a. Garage, c.1960
Non-contributing due to age

A17b. Chicken Coop, c.1890

Section 5. Population

Population change has a range of social, economic, and environmental impacts on communities. Change does not have to be swift or dramatic to be significant. Indeed, it is the slow but steady changes over longer periods of time that often have the greatest impact on small towns like Panton.

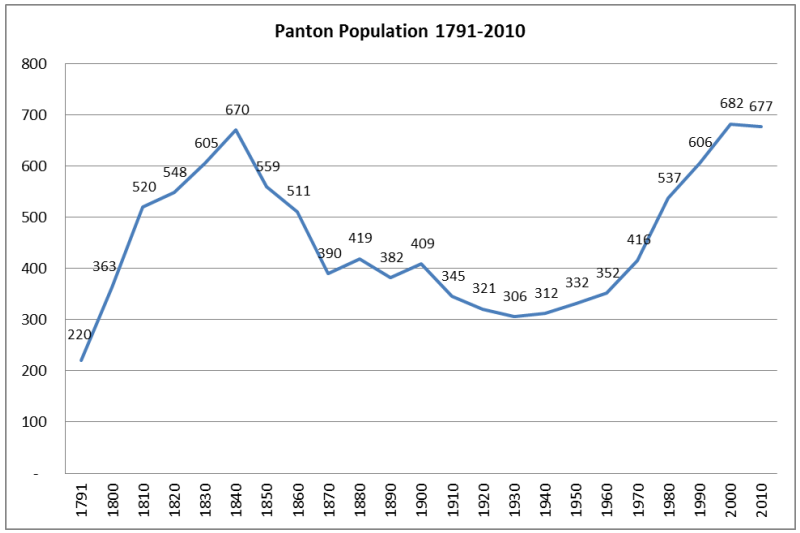
Understanding Panton's demographic history and current trends is an important part of planning for its future. The characteristics of the population change over time and the policies guiding future growth and development should reflect the changing needs of Panton's residents.

Population Growth

A review of historic population data for Panton indicates that Panton has experienced two strong periods of growth since the first Census in 1791: the period from 1791 to 1840 and the period from 1960 to the present.

This is shown in Figure 5.1, which traces Panton's population from 1791 to 2010. In 2000 the population reached 682, which exceeded the historic peak from 1840 of 670. This population represents more than a doubling in size since 1930, when Panton's population declined to its lowest point. Population has dipped slightly since 2000, with total population of 677 in 2010.

Figure 5.1: Historic Population



Source: U.S. Census

The greatest increase in population occurred during the 1970s. However, growth has remained strong in Panton during both the 1980s and 1990s. Figure 5.2 illustrates recent growth trends in Panton.

Figure 5.2: Population Growth

	Population Increase		Average Annual Growth Rate
	#	percent	
1970s	121	29.1 percent	2.59 percent
1980s	69	12.8 percent	1.22 percent
1990s	76	12.5 percent	1.19 percent
2000's	81	10.0 percent	1.00 percent
2010's	-5	0 percent	

Source: U.S. Census and Vermont Agency of Commerce and Community Development

Population growth occurs because of both natural increase and migration. Natural increase is calculated by comparing births and deaths of town residents, while net migration is calculated by comparing the number of people moving into town with the number moving out.

Towns with strong growth are generally experiencing both kinds of population increase, but often one is more dominant than the other. In the 1970s, 60 percent of Panton's growth was due to people moving into town. During the 1980s, approximately 60 percent of the town's growth was generated by natural increase. In the 1990s, natural increase was responsible for 66 percent of the population growth. Figure 5.3 indicates the breakdown of growth in Panton since 1997.

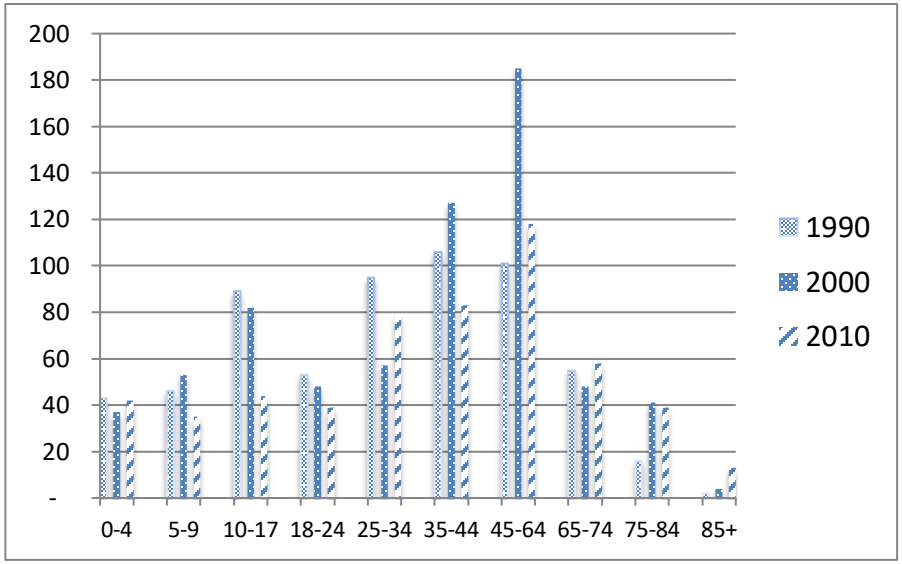
Figure 5.3: Type of Growth

	Population Change	Births	Deaths	Natural Increase	Migration
1997	-8	5	2	3	-11
1998	-3	7	4	3	-6
1999	-9	10	6	4	-13
2000	43	6	3	3	40
2001	-27	8	11	-3	-24
2002	2	1	2	-1	
2003	-2	6	5	1	
2004	3	11	6	5	
2005	-1	6	5	1	
2006	-2	8	4	4	
2007	-2	6	3	3	
2008	-3	8	4	4	
2009		5	4	1	
2010		4	7	-3	
Total	48	91	66	25	

Age Distribution

Like many rural Vermont towns, the population in Panton is aging. The median age increased from 28.5 in 1980 to 41.5in 2010.

Figure 5.4: Age Group Comparison

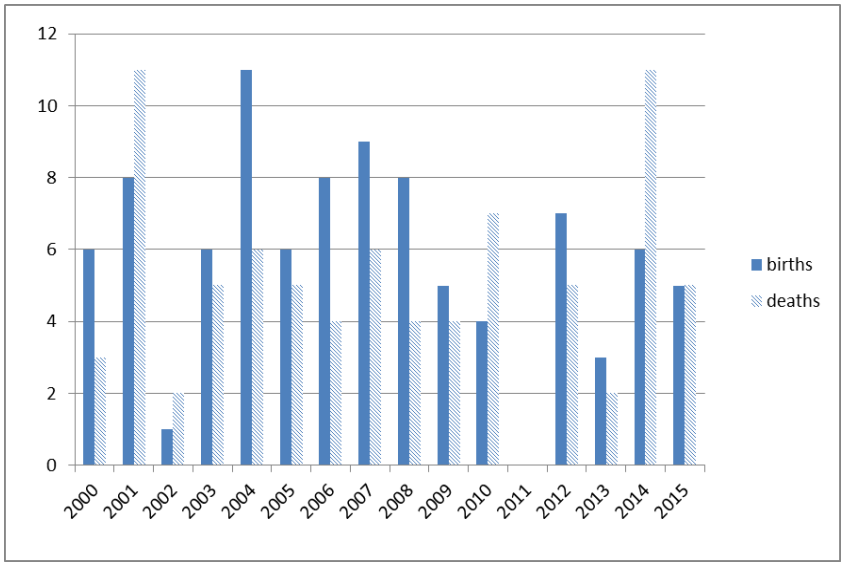


Source: U.S. Census

20 years. The chart indicates that not only is the population declining, but those between 45-64 represent the largest age group in Panton. Figure 5.5 compares births and deaths in Panton from 2000 to 2015.

Due to the impact of migration, birthrates alone cannot be used to predict future school enrollment. However, it is important for small communities to carefully monitor birthrates and other statistics related to population change. A small change, whether up or down, in the number of students can have a substantial impact on local schools and budgets.

Figure 5.5: Births and Deaths



Households

Information on households is often more useful for planning purposes than information on the population in general. The Census Bureau defines a household as a group of people sharing a housing unit. Families are a subset of households in which the people are related.

The number and character of households in Panton has shifted over the past several decades. Average household size has declined significantly from 3.82 people in 1970 to 2.5 percent in 2010. This decreasing household size has caused the number of households in Panton to grow at a faster rate than the population, as shown in Figure 5.6.

Figure 5.6: Average Annual Growth Rate Comparison

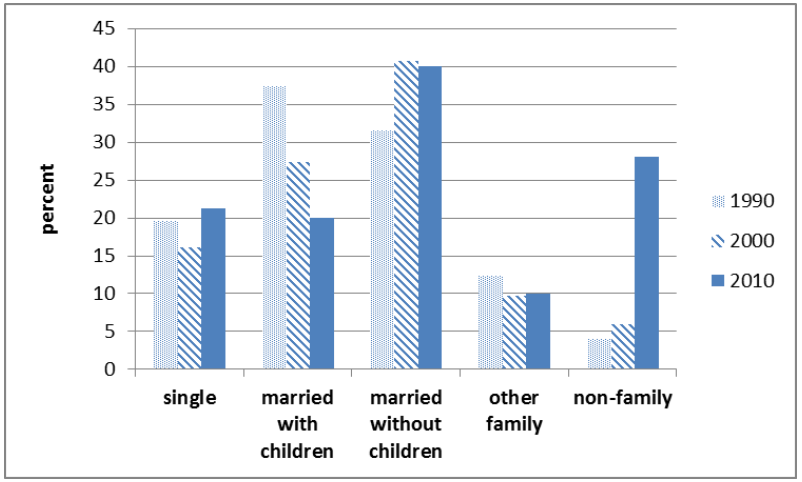
	Population	Households	Housing Units
1970s	2.59	4.73	5.13
1980s	1.22	2.39	1.43
1990s	1.19	1.25	1.03
2000's	-0.07	0.7	1.05
2010	0.07	0.7	0.95

Source: 2010 U.S. Census

The number of households in Panton more than doubled from 109 in 1970 to 219 in 1990. Growth has slowed since then with 267 households in 2010. The character of the households has also changed. In 1980, roughly 86 percent of Panton's households were families. In 2000, that percentage decreased to less than 78 percent and declining. By 2010, non-family households had surged from approximately six percent of the households to approximately 28 percent of the households. Married without children makes up 40 percent of the households. Figure 5.7 illustrates the shift in Panton's household types between 1990-2010.

Over the next several decades the number of elderly people living alone is expected to increase. This demographic shift will affect the type of housing and services needed by households in Panton.

Figure 5.7: Household Types as a Percentage of Total



Source: 2010 U.S. Census

The amount and type of housing that Panton's residents will want is highly influenced by the character of their households. As people grow older, they may want a home that is smaller, easier to maintain and closer to needed services. People living alone or in non-family types of households may want to rent rather than own a home. People with young children may want space for their growing families.

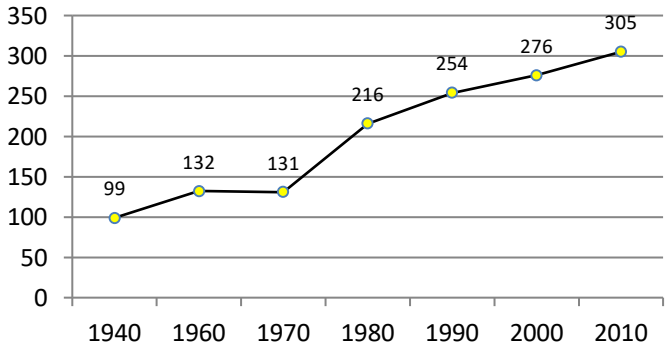
Section 6. Housing

A community's character is largely shaped by the amount, density, location and type of housing it contains. Housing is also a basic human need. For Panton to achieve its vision for the future, the demand for housing must be understood and planned for in a manner consistent with the needs of residents and values of the community.

Growth in Housing

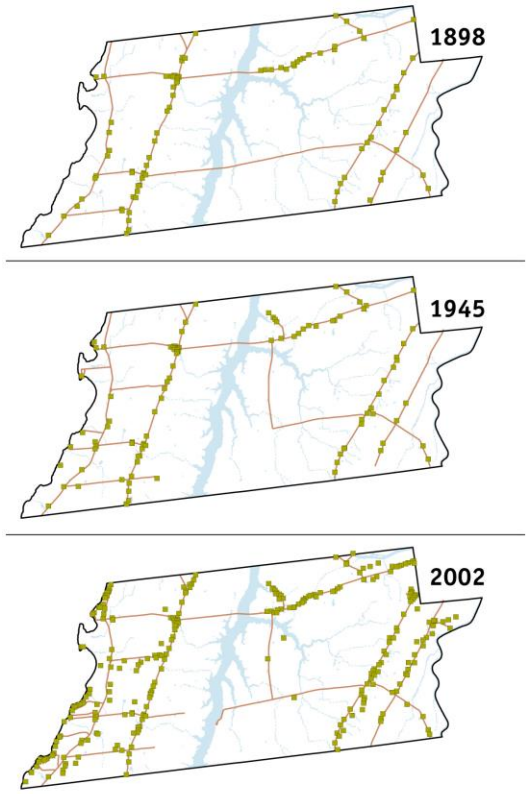
In 1940, the first year the Census Bureau counted housing units, there were 99 homes in Panton. This number has steadily increased over time, as can be seen in the settlement patterns shown in Figure 6.2. From 2000-2015 there has been an overall increase of approximately 30 units.

Figure 6.1: Housing Units 1940 to 2010



Source: Vermont Housing Data

Figure 6.2: Settlement Patterns

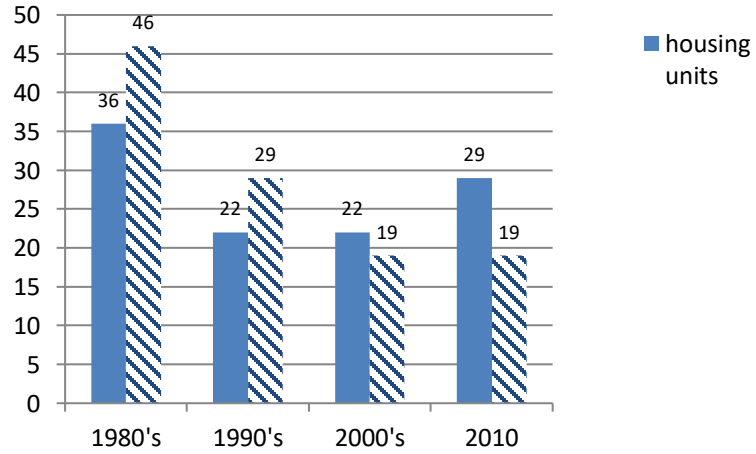


Dots indicate house locations from USGS maps (1898 and 1945) and E911 (2002).

The number of housing units in Panton grew most rapidly during the 1970s when 85 new housing units were constructed. In the 30 years from 1980 to 2010, only 51 new housing units had been constructed. As illustrated by Figure 6.2, much of that new housing has been built along the lakeshore.

Construction of new housing and growth in households are seldom perfectly matched. As Figure 6.3 shows, during the 1980's growth in households outgrew growth in housing units. In 2010, the opposite occurred; an increase in housing units from 2000, but a decrease in households. Whether these are the right types of housing units needed by the current population is a good question to ask.

Figure 6.3: Growth in Households and Housing Units



Source: U.S. Census and Vermont Housing Data

Housing Types

According to the 2010 Census Bureau, out of 305 housing units, 66 percent were owner-occupied and 21 percent were rental units. Ninety percent of housing units in Panton are single-family occupancy.

Panton has a small number of multi-unit structures and mobile homes. The number of seasonal homes has remained relatively constant since 1970 at between 20 to 28 units in 2010. As in other lakeshore towns in Addison County, a number of seasonal lake homes are being converted to year-round homes.

***Figure 6.4: Rental and Owner-Occupied Housing* (2010)**

	Owner-Occupied		Rental	
	#		#	
1970	96	88.1	13	11.9
1980	136	78.6	37	21.4
1990	175	79.9	44	20.1
2000	198	79.8	50	20.2
2010	203	66	64	21

Source: Vermont Housing Data

Housing Costs and Values

In 2016 the average sale value of a Panton home was $130,000, a decrease from $138,000 in 2002 and $99,000 less than the County average of $229,000. In comparison, the average price for a seasonal vacation home was $282,000 in 2016.

According to the U.S Census and *Vermont Housing Data*, between 2009-2013 median monthly owner costs for home owners with a mortgage was $1,656. The State median was $1,546. For renters, median monthly costs were $1,366, compared to $875 for the State median.

Due to the small number of sales in Panton annually, the average price is highly variable. However, during the past 15 years, Panton has been experiencing a trend in housing sales similar to that in surrounding communities.

The state definition of *affordable* is housing that a household earning 80 percent of the county median income can afford without spending more than 30 percent of their gross income.

If the 2009-2013 housing costs for both home owners and renters are studied, the *Vermont Housing Data* concludes that 70 percent of homeowners are paying more than 30 percent of their monthly income on housing costs, and a staggering 82 percent of renters are paying 30 or more percent of their monthly income, one third of which are paying 50 percent or more of their monthly income on housing costs.

Because of the great need for a more diverse and more affordable housing stock, in 2007, the Planning Commission revised zoning regulations to include accessory dwelling units. These are comprised of efficiency or one-bedroom independent living accommodations and allowed, with restrictions, throughout the town's zoning districts. In addition, a broadened allowance of by-right uses and conditional uses subject to approval by the Panton Development Review Board were extended to all the zoning districts.

For detailed statistics on Panton's housing stock and costs please go to:
https:www.housingdata.org/profile/snapshot

Vision

We envision that Panton Four Corners will still be the village center of the town with the church, Town Hall and historic homes still providing the structure for the historic hamlet/village settlement pattern.

We see that in the coming decades we will have to develop alternative options for housing, including cluster developments with new and innovative septic systems. There will be increased construction of accessory dwelling units on existing developed lots, enabling some residents, especially young couples and the elderly, to remain in the community and fostering increased density where development already exists. Affordable and elderly housing opportunities would ensure that there is housing for all citizens of our town.

An expansion of conditional use permits issued throughout the town, where appropriate, will encourage the development of more home occupations as an alternative to commuting to work. Pressure for growth will be counteracted to some degree by the distance of the town from any urban areas and the consequent need for personal transportation to access work and public services.

Overall Goals

1. The town's residents will have safe, healthy, and efficient housing that is within their means.
2. There will be a range of housing opportunities, including affordable housing, in town to serve the needs of Panton's residents.
3. Future development will provide for the needs of the residents of Panton, while maintaining the essential rural small-town character of the town.

Strategies, Actions & Objectives

1. Work with the Addison County Community Trust, and/or other regional land trusts and agencies, to develop affordable housing and senior housing where possible or appropriate.
2. Administer housing development proposals using Panton zoning regulations to ensure that they do not result in the overdevelopment of one particular type of housing.
3. Encourage housing that will enable elderly residents of Panton to remain in their community.
4. Encourage any development of multiple housing units to implement cluster housing with consideration for preserving open agricultural and natural habitat areas.

Section 7. Economy

Panton's economy has been primarily agriculturally based for most of its history. When Lake Champlain served as the main corridor for trade and travel, Panton was a center for commerce. However, since that time, there has been little non-agricultural economic activity in the town. Most residents are employed outside of Addison County.

Place of Work

According to the US Census, only 2.2 percent of Panton's work force works within Panton. Almost 43.7 percent travel less than 10 miles, and 22 percent travel 25 or greater miles to work. As shown in the diagrams to the right, since 2010, 29 percent of workers are working outside of Addison and Chittenden County, compared to only 18 percent in 2002.

Income

Some of the gains in household median income over the past 20 years can be attributed to the growing number of two-wage earner households. According to the Department of Labor, in 2010 the median household income in Panton was $67,917 and $71,000 in 2016. This figure is in line with both the County and the State statistics for median household income. The Panton annual average wage in 2014 was $29,878 compared to an annual average wage of $40,788 for the County and $43,017 for the State. This marked difference has trended since the mid-nineties, showing there is a wide spectrum of wage range within Panton.

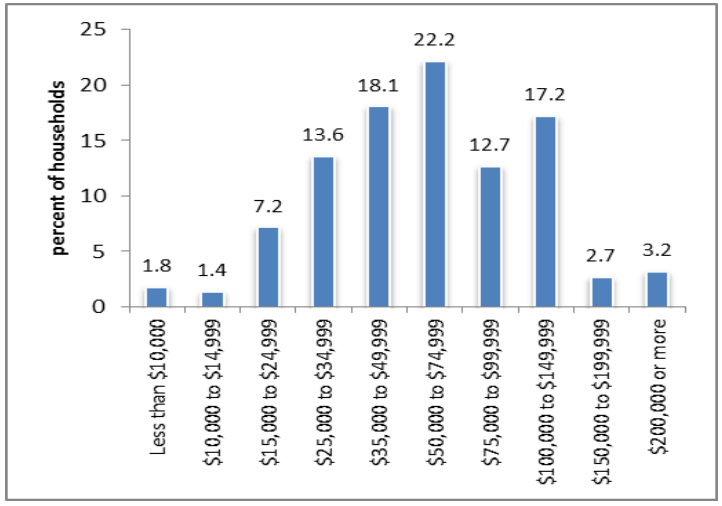
BJ's, pictured above, locally owned family business located at the intersection of Panton and Basin Harbor Roads, has evolved from a farm and feed store to more of a convenience store to serve Panton's residents. Since the closure of the general store at Panton 4 Corners, BJ's is now the only such retail business in the town.

Figure 7.1 Income 1980 to 2010

	Unadjusted		Adjusted for inflation 2010	
	Median Household Income	Per Capita Income	Median Household Income	Per Capita Income
1980	$12,500	$5,000	$32,638	$13,055
1990	$29,300	$13,900	$48,248	$22,889
2000	$46,000	$20,600	$57,651	$25,818
2010	$67,917	$24,095	**$67,917**	**$24,095**

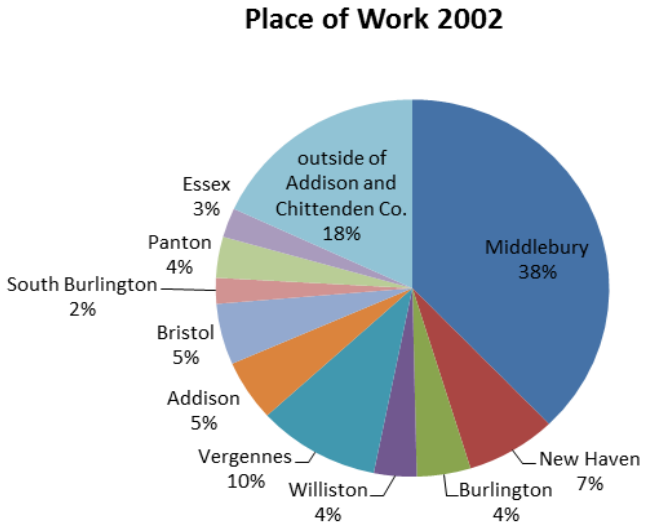
Source: U.S. Census

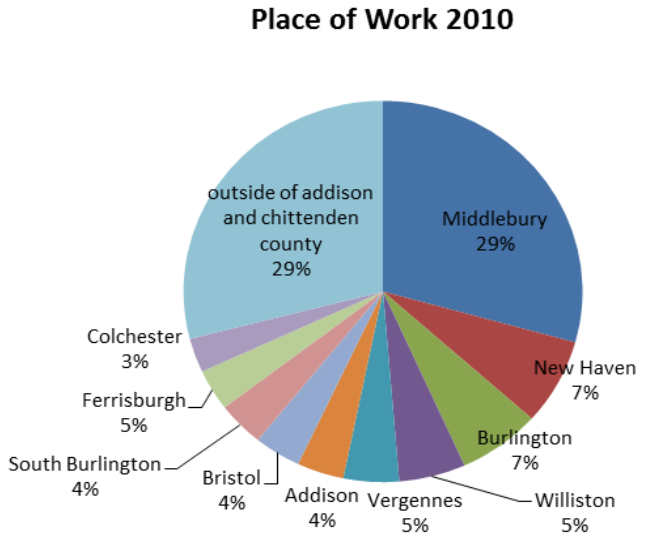
Figure 7.2: Income Brackets for Households in 2010



Source: 2010 U.S. Census

Figure 7.3 Comparison of Place of Work 2002 and 2010





Source: U.S. Census

Figure 7.4: Industry Sectors Represented by Panton Labor Force 2014

Source: 2010 U.S. Census

Job Counts by NAICS Industry Sector

2014

	Count	Share
Total Primary Jobs	321	100.0%
Agriculture, Forestry, Fishing and Hunting	11	3.4%
Mining, Quarrying, and Oil and Gas Extraction	1	0.3%
Utilities	1	0.3%
Construction	32	10.0%
Manufacturing	39	12.1%
Wholesale Trade	7	2.2%
Retail Trade	37	11.5%
Transportation and Warehousing	6	1.9%
Information	1	0.3%
Finance and Insurance	9	2.8%
Real Estate and Rental and Leasing	4	1.2%
Professional, Scientific, and Technical Services	11	3.4%
Management of Companies and Enterprises	1	0.3%
Administration & Support, Waste Management and Remediation	7	2.2%
Educational Services	52	16.2%
Health Care and Social Assistance	55	17.1%
Arts, Entertainment, and Recreation	3	0.9%
Accommodation and Food Services	22	6.9%
Other Services (excluding Public Administration)	11	3.4%
Public Administration	11	3.4%

Agriculture

Over 50 percent of Panton's land, or about 7,500 acres, remains in farming. This correlates with the rural landscape quality and character and with the tax base of the town.

Current agricultural activity in Panton includes a small vineyard, Christmas tree farms, and a number of smaller, diversified farms, including: *Farmhouse Table* providing beef, pork, poultry, eggs and vegetables, *Fryston Farm Grazers* producing grass-fed Angus beef, lamb and pork, *Roads End Cattle Co*, also producing grass fed beef, *Otter Creek Farm* producing eggs and vegetables and *Agricola Farm* producing specialty pork, lamb and poultry and u-pick flowers.

Dairy farming continues to be an active land use in Panton, however the number of dairy farms in Panton has decreased significantly from 30 in 1950 to only 6 in 2002 and 4 in 2016.

Panton's last orchard, Shadow Glen Orchard, closed in the 1980s. A well-known turkey farm, Shawnee Shores on Lake Road, ceased operation in the early 1990s.

Some small-scale quarrying and logging activity is still ongoing in town, but this land use activity has done little to change the overall physical make-up of town.

Vision

Panton will continue to be a rural agricultural and residential community with working farms, open space, agricultural enterprises and seasonal farm stands.

It is our vision that additional small-scale agricultural and related commercial enterprises, will contribute to the diversity and stability of the community.

Overall Goals

1. Support local businesses and encourage economic diversity.
2. Continue to encourage home-based businesses that are consistent with the character and traditions of Panton.
3. Maintain the necessary and efficient infrastructure to support the reasonable economic development of the town.
4. Support the strengthening of the local economy through recreational development that supports amenities such as bed and breakfasts, guide services and other ventures.

Strategies, Actions & Objectives

1. The Planning Commission should identify planning policies and regulations that maintain village character while supporting economic development.
2. Where appropriate, the Town and Planning Commission should support and promote a diversified agricultural economy based on local products and crops.
3. Panton's forests should be managed sustainably to promote yields of cordwood and saw-timber while at the same time promoting wildlife habitat and ongoing regeneration of commercially valuable tree species.

Section 8. Education

Panton's commitment to the education of its children began in 1786 with the construction of the town's first schoolhouse. By 1800 there were four established school districts. By 1930 those districts had merged and were served by three schools that operated until the 1960s.

In 1959 the five municipalities of Panton, Vergennes, Ferrisburgh, Waltham and Addison formed the Union High School District #5, or the Addison Northwest Supervisory District. Panton students in grades 7 through 12 then began attending the Union High School.

In 1967 Panton was operating the only one-room school remaining in the supervisory district when the town decided to close the West School and send its students to Addison or Vergennes. In 1989 Panton joined with Vergennes and Waltham to form the Vergennes Union Elementary School District #44. Currently, these two union schools serve most of Panton's students. As Panton's educational needs are served by the Union Elementary and Union High Schools in Vergennes, there are no schools currently operating in Panton. Therefore no map was created for educational facilities.

Facilities

Vergennes Union Elementary School at present houses not only grades K-6, but a preschool as well. The preschool is located in a leased modular facility.

One of the areas of primary concern is the need for a middle school to include grades 6 through 8. At present, the 6th grade remains with the elementary grades, and the 7th and 8th grades are situated at VUHS.

In the school year 2003-2004 VUES developed and implemented plans, in accordance with Act 60, to address specific aspects of student performance identified for particular attention; namely writing effectiveness, reading range and comprehension, and mathematical concepts and problem solving. In addition, steps were taken to achieve the identified goals of connecting social and academic curricula and nurturing good citizenship. Accordingly, conflict resolution training was undertaken, a student mentor program was created, and student participation in the district-wide Drug, Alcohol, and Violence Prevention Council was initiated, as well as other programs.

2002 saw the completion of extensive renovations and expansion at Vergennes Union High School with greatly enhanced classrooms and facilities for science and technology studies, a state-of-the-art bio-technology laboratory as part of the agricultural studies program, newly created space for counseling offices, and the alternative education program, classrooms for students with special educational needs, and consumer science and health classrooms with elevator access. The music program now has its own space with greatly improved facilities and practice areas. The library area has been expanded from 2000 to 5000 square feet, and the computer workstations have high-speed internet access.

VUHS has worked to establish links with the local business community and to expose students to an extensive array of career opportunities, both in working with United Technologies Aerospace, and in the development of Career Fairs. Improvements have been made at the high school, including the complete renovation of senior high science labs.

The Hannaford Career Center located in Middlebury serves students from VUHS with programs such as agriculture and natural resources, video and theater arts, building trades, computer technology, drafting, culinary arts and office skills. Hannaford Career Center also offers adult continuing education classes that are available to Panton residents.

Additionally, the library and some other facilities at Middlebury College are available to area residents, and Community College of Vermont (CCV) offers some courses in Middlebury. Panton residents may also enroll in Continuing Education programs offered by the University of Vermont, the State College system and other private colleges.

Enrollment

Given the relatively small number of school-age children in Panton it is difficult to accurately predict enrollment trends. A few families with children moving in or out of town can significantly impact enrollment figures.

Panton students represent about 20 percent of the Vergennes Union Elementary school population. At the high school—which includes students from the towns of Addison and Ferrisburgh in addition to those from Panton, Vergennes and Waltham—Panton students comprise about 10 percent of enrollment. In the 2016-17 school year, a total of 296 children were enrolled in VUES, of whom 45 are from Panton.

Figure 8.1: Panton Students 2010-2016

	K	1	2	3	4	5	6	7	8	9	10	11	12	K-6 Total	7-12 Total
09-10	8	7	3	14	2	8	7	4	6	10	11	3	6	49	40
10-11	3	8	7	1	15	4	10	9	6	3	9	11	4	48	40
11-12	10	5	7	7	2	16	3	10	8	8	3	8	12	50	49
12-13	5	7	5	8	7	3	15	2	11	8	7	3	11	50	42
13-14	6	7	7	6	9	8	3	16	2	12	6	9	5	46	50
14-15	4	7	8	6	6	9	9	3	14	4	11	7	7	49	46
15-16	3	3	8	6	6	6	9	10	4	13	4	10	8	41	49
16-17	7	4	3	9	9	7	6	9	10	2	15	3	11	45	50

As a member of these union schools, Panton will also be impacted by enrollment trends in the other participating municipalities. Total enrollment at the union schools is shown in Figure 8.2.

In addition to the public schools, a number of private schools are located in the area including; the Red Cedar School and the Bridge School in Middlebury, and the Champlain Valley Christian School in Ferrisburgh. A small number of Panton students attend private school and some are being home-schooled.

Figure 8.2: Union School Enrollments 2016

	2015-16
VUHS	460
VUES	286

Source: Vergennes School and Town Reports

Funding

The funding of education through local property taxes continues to be an area of great concern to the residents of Panton. Increasingly the demands of state and federal mandates, not accompanied by funds to pay for them, have put local school districts in a precarious position and made ever-increasing school budgets difficult to accept.

In Panton over the past eight years, total education expenses have risen even as the number of students enrolled has decreased. In 1994, Panton's total education budget was around $740,000 for 127 students. In 2002 that figure was over one million for 112 students. After adjusting for inflation, per student expenses have increased from around $7,000 in 1994 to over $9,700 in 2002.

While it is apparent that few are happy with the existing means of funding public education, the issues are complex, and the process of creating an acceptable alternative has proven extremely difficult. The recent vote to approve consolidation of VUES, Ferrisburgh and Addison is hopefully a step towards containing expenses within a unified school district.

Town of Panton Payment History

	VUES	VUHS	Total	% Change from Previous Year
FY 11	$520,716.14	$523,430.91	$1,044,147.05	
FY 12	$560,942.15	$515,309.10	$1,076,251.25	3.07%
FY 13	$505,853.93	$506,663.94	$1,012,517.87	-5.92%
FY 14	$604,263.89	$582,895.04	$1,187,158.93	17.25%
FY 15	$598,714.85	$620,167.16	$1,218,882.01	2.67%
FY 16	$621,747.94	$658,359.00	$1,280,106.94	5.02%

Vision

We plan to continue exploring ways to connect with the rest of our region in terms of the provision of services and recreational and educational opportunities.

Overall Goals

1. Continue to support the provision of appropriate educational opportunities for all the citizens of Panton.

Strategies, Actions & Objectives

1. Support the development of programs to promote increased awareness of planning and environmental issues, strategies or actions, and stewardship of the land.

2. Support efforts that foster an understanding of, and an appreciation for, Panton's historic, cultural, and agricultural resources.

Section 9. Community Facilities and Service

Panton does own some land and facilities. However, as a small rural community the town relies on its neighbors and the state for many services. The demands for these services vary from year to year, but remain relatively small because of the town's population.

Sewer and Water

At this time, there are no municipal or community waste disposal systems in Panton. All developed properties are served by private septic systems. Vergennes does have a municipal sewage treatment plant, but there is no provision at present for the town of Panton to use this facility.

This possibility might be explored, particularly as the town considers rezoning lands adjacent to Vergennes for commercial or industrial development. There is no indication that Vergennes would consider allowing Panton to hook up with its system. There may be some precedence for this multi-municipal cooperation, particularly since the town and the city share a common water system.

The Vergennes-Panton Water District was established and began operation in 1972 with the construction of the Arnold Bay Treatment Plant in Panton. This facility serves the bulk of Panton, all of Vergennes and smaller sections of Addison, Ferrisburgh, New Haven and Waltham. It was upgraded in 2010.

The water district relies on Lake Champlain for its supply, so volume is not a concern. Water quality is an issue and of particular concern is the zebra mussel influx, which threatens intake pipes. The water districts along the lake have banded together to address this concern with both research and remediation. The systems report that the infestation is currently being controlled, although ongoing prevention is an added expense for the district.

The Vergennes-Panton Water District maintains several main distribution lines, with neighborhoods and other specific end users extending the lines as private system extensions. The Vergennes-Panton and Tri-Town lines are interconnected to allow them to serve as back-up systems for each other in an emergency situation.

There are two major Wellhead Protection Areas in Panton; one along the lake, and the other in the southeast section of the town in the Otter Creek watershed.

Solid Waste

Vermont's solid waste management law, Act 78, requires municipalities to plan for the management of solid waste and provides for regional coordination through solid waste management districts. The Addison County Solid Waste Management District was created in 1988 with Panton as an original member. Currently 19 municipalities comprise the district.

The district operates under a management plan, which includes a program for waste recycling, reuse and reduction, as well as the handling of waste materials for landfills and the disposition of hazardous wastes. The ACSWMD Plan, last adopted in 2015, outlines the district's responsibilities, waste management programs and future plans for facilities and programs.

Panton currently has curbside pick-up of non-recyclable and recyclable trash, as mandated in the district's plan. The district contracts with other regional landfills to ensure our waste is disposed of properly and as economically as is feasible. The construction in 1993 of a Regional Transfer Station in Middlebury has facilitated trash handling in the district. Curbside pick-up is provided by private vendors, not the town. Additionally, Panton residents have access to the recycling facility in Vergennes, owned and operated by Casella Waste Management. Access is supported by property taxes. Currently a trash hauler is available at the Vergennes recycling facility when it is open.

In 2012 the Vermont legislature passed ACT 148, Vermont's Universal Recycling Law. Among other things, it mandates recycling of leaf and yard debris and clean wood and food scraps (organic, compostable kitchen wastes) Implementation of the law has been incremental, and by 2020 these materials will be banned from all landfills, creating challenges and opportunities for the town.

Vergennes Recycling Center

Panton residents are able to drop off recycling in Vergennes. Vergennes Recycling is owned and operated by Casella and is located on Canal Street in Vergennes. They are open Wednesdays and Saturdays.

Fire, Rescue, Police and Emergency Services

The town has an agreement with the Vergennes Fire Department for fire protection throughout Panton. Response to Panton fires has always been timely and effective. Panton residents serve on the VFD. Panton also has a Fire Warden who issues permits for burning and promotes adherence to State Fire Regulations and accepted safety practices.

Panton is served by and regularly supports the Vergennes Area Rescue Squad, which provides rescue coverage to eight communities in Addison County. Panton residents volunteer with the Rescue Squad. The Rescue Squad is addressing some current needs as it plans. These include starting a subscription service and/or billing individual patients for services provided. The Rescue Squad continues to provide the entire town of Panton with excellent emergency services.

The Vermont State Police are the main law enforcement entity for Panton. The State Police Headquarters for this region is located on Route 7 in New Haven. Due to the low crime rate in town, there is relatively little activity involving law enforcement. There is occasional police presence for traffic safety enforcement.

The Addison County Sheriff's Department does contract with towns to provide various law enforcement services, particularly in the enforcement of posted speed limits. This is an option the town may want to consider as travel increases, in particular on Panton Road. As 22A is a state highway, that route is under State Police jurisdiction.

Panton has an appointed Emergency Management Director (EMD) to ensure the town is prepared for potential disasters or emergencies. Due to the limited capacity to deal with a disaster in the town of Panton, assistance would be expected from outside sources in much the same way that fire, rescue and police services are provided.

Panton Town Hall and two locations in Vergennes have been designated as evacuation centers, and the town office as an emergency operations center. Panton's emergency plans indicate that flooding or a winter storm would be the most likely disaster the town would face.

Healthcare, Social Services and Childcare

Panton is served by a number of area social service and health care providers, including Addison County Community Action Group, Addison County Counseling Service, Addison County Home Health and Hospice, Addison County Parent Child Center, WomenSafe, the John Graham Emergency Shelter in Vergennes, the Champlain Valley Agency on Aging, and the Vermont Center for Independent Living.

Each of these organizations can provide detailed information of residents served in Panton as well as the scope of services available. Town residents provide yearly financial support to many of these agencies through appropriations voted on at Town Meeting.

Panton residents use the Porter Medical Center in Middlebury for medical and emergency services, as well as Fletcher Allen Health Care in Burlington. Town residents use medical and dental services provided by practitioners in Vergennes, Middlebury and elsewhere in the county, as well as in Chittenden County.

Childcare is an important need for Panton's residents. There are two licensed childcare providers in Panton. There is an accredited early education program and an after-school program associated with the Vergennes Elementary School. In Vergennes and nearby towns, there are a range of childcare providers from accredited preschools to home-care providers. Finding affordable, quality childcare conveniently located that is available during the hours parents work, is a challenge for many families.

Town-Owned Facilities

The town of Panton owns two parcels of land and has several rights-of-way to Lake Champlain. There is no municipal forest or recreation land (aside from the Town Beach at Arnold's Bay), but as a member of both the Union Elementary School and High School Districts, town residents have access to the facilities associated with those schools.

The historic Town Hall, located on Jersey Street just south of Panton Four Corners is the municipal facility for the town and contains meeting spaces, a large hall, and the Town Clerk's Office. It sits on a half-acre of land and there is a shed to the rear of the property.

The Panton Town Hall and environs is one of two municipal properties with buildings that the Town of Panton owns outright, the other being the Town Garage that includes an historic schoolhouse and the town garage facilities.

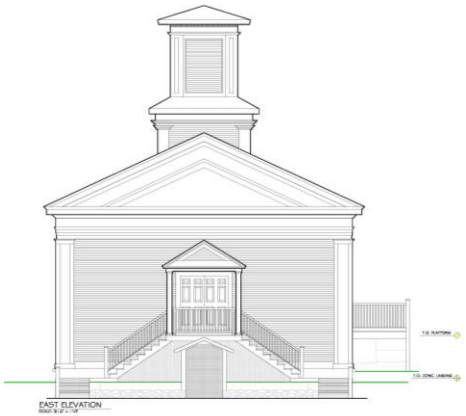
The restoration and renovation of the Town hall and related property has been a focus or goal of previous Town Plans. As of Spring 2017 work is underway initiating the first of several steps to achieve this goal. This project is indeed a work in progress but several important and positive steps have been made in achieving that goal.

The need has continued to mount to reinvest in the Town Hall to address both interior and exterior repairs, efficiency improvements and structural and restoration elements. The historic cupola needs to be returned to its rightful place atop the building. Accessibility has become a major issue, along with a number of energy and conservation measures to upgrade the town offices and meeting space for the long term. The carriage barn to the rear of the property, an historic element in its own right, is in poor condition and will have to be dealt with at some point in the near future.

Built in 1858 as a church and meetinghouse, the building is listed in the Vermont State Register of Historic Places and is part of the Panton Village Historic District, also on the State Register. The building is Greek Revival style and noted for its central tower, belfry, porch and related details of that period. The Town took ownership of the building in the 1930's.

The central tower is what distinguishes this building, according to the Register entry. This building is the only public community building owned and used by the town and houses the town clerk's office in the lower level. The town had to address a leaking roof as part of the process of restoring the building for community use and as a result, contractors removed the central tower (or cupola). Up to this point in time the town has not been able to afford the repair and re-mounting of the tower onto the roof.

In more recent times, the Selectboard had also had to address a mold issue in the lower level office space. In the past year an issue with the town hall septic system has been satisfactorily addressed as well. A new parking lot has also been constructed to serve the facility, and has now been developed as a park and ride facility.



The Town hall Committee and the Selectboard are working to take the necessary steps to develop a plan for the future of this building and its role in the community. The current town planning survey response from almost half of Panton households provided overwhelmingly positive support for 1) the restoration of the historic cupola and 20 improvements to the Town hall to make it more usable year-round for town events and other uses. Funding will be an issue, but the town received in 2016 a $25,000 grant from the Walter Cerf Fund of the Vermont Community Foundation designed to support the restoration or replacement of the cupola. As discussed elsewhere, Green Mountain Power is collaborating with the town to construct energy efficiency improvements to be completed in 2017, with support from the company. In the summer of 2019 the town was able to fund with the aforementioned grant and town hall appropriations, the long awaited return of the historic cupola to the building's roof. The exact replica was constructed with lightweight aluminum and copper to be relatively maintenance free over time.

The Town Garage, which is located on Panton Road on a six-acre lot, was built in 2004 and should serve the town well into the future. This lot also contains the old wood frame schoolhouse, a historic building. This building is deteriorating, and its maintenance and future use will need to be addressed by town residents.

The town also owns three acres of land at Arnold's Bay and this area serves as a de-facto town swimming and fishing area. It also is well used as a local boat launch facility. The 2016 survey showed that 58 percent of respondents support improvements at the site. Management of this resource will need to be addressed.

The town has a formal right-of-way to the town beach property and has a four-rod (66 foot) right-of-way to the lake at Turkey Lane.

Adam's Ferry Road

Vision

We plan to continue exploring ways to connect with the rest of the region in the provision of services and opportunities in recreation, social services, education and infrastructure. We shall continue to support and maintain the best services and facilities, which are both affordable and appropriate for Panton.

Overall Goals

1. Support and upgrade where possible or appropriate, all community facilities and properties.

2. Support adequate health and social service delivery to the community and encourage location or development of services and facilities in Panton.

3. Encourage safe and appropriate access to new residences for fire and rescue services.

4. The Vergennes Panton Water District is a community resource and thus the costs and services are shared by all users. Our drinking water comes from Lake Champlain, and therefore the town should support activities, policies and land uses which protects rather than degrades water quality.

5. Continue to maintain, enhance and develop town owned facilities as appropriate and necessary, with citizen engagement and support.

Strategies, Actions & Objectives

1. Maintain and enhance community facilities and lands.

2. Support the development of a plan for the future of the Sand Road School on Panton Road.

3. Continue to support the collaborative effort of the Selectboard and Town Hall Committee to renovate, restore and improve the town hall, the carriage barn and the surrounding property and parking areas.

Section 10. Utilities and Energy

Residents and businesses in the Town of Panton have historically relied on externally generated energy for power and heat. The last decade has seen a shift to more locally sourced energy with many homes, in particular, deriving electrical energy from solar panels. There are now more than 30 sites in Panton with solar energy generation infrastructure. These new developments, and the advent of rooftop solar arrays coupled with energy conservation initiatives such as that being undertaken in the "evolve Panton" program sponsored by Green Mountain Power is transforming the town as a whole into an energy conserver and producer, as well as a consumer. This effort is underway with individual home energy audits in the Winter and Spring of 2016-2017. GMP is also working with the town to significantly upgrade Panton Town Hall and the Town Garage. These energy efficiency improvements will address deficiencies in both buildings, substantively reduce long term energy costs, and address maintenance and functional needs with improved lighting, upgraded windows, ductwork and other targeted improvements.

In 2019, the planning commission created an Enhanced Energy Plan, attached as Appendix 2, to meet the municipal determination standards for enhanced energy planning enabled in 24 V.S.A. 4352.

Solar

Panton is a prime location in Vermont for solar energy. The area receives between 4.0 and 4.5 kWh/sq. m./day as opposed to the highest solar potential in California which is between 6.0 and 6.5 4.0 and 4.5 kWh/sq. m./day. The openness of its landscape, the presence of many fallow fields formerly farmed, and the fact that the town's location in the valley between two mountain ranges translates into more clement weather and more access to sun and its potential insolation. Panton has fewer days (and hours on any given day) with overcast conditions and precipitation, as compared with surrounding areas of upland and mountain landscapes away from Lake Champlain.

Over the last several years Panton has seen proposals for and construction of 3 net metered, larger scale (500kW and 5MW) solar energy developments, two of which have been constructed off of Panton Road; a 40 acre 5MW project just to the west of Dead Creek along Panton Flats, and a 5 acre/500KW project off of Panton Road – both on lands owned by the Vorseteveld Farm, with one owned and operated (on leased lands) by Green Mountain Power, and the other owned and operated by the farm. A third solar array has been planned for west of Jersey Street and about ¾ mile south of the intersection with Pease Road. The GMP project resulted in a transmission line upgrade from Panton 4 corners to the Vergennes substation, so there has been increased capacity for moving locally generated power to the statewide grid.

Wind

Wind power can be harnessed for both large and small-scale power generation. In recent years several studies have shown that Vermont's wind resource is abundant enough to meet a significant portion of the state's electric energy needs. Ridgelines provide the best location for commercial wind generation facilities, with elevations between 2,000 and 3,500 feet above sea level being ideal for maximum power production.

There are no grid scale wind energy turbines in town, with any dependable wind resource being available on the Route 22A ridge in East Panton or potentially near to or along the low ridge just east of the town's lakeshore. The wind resource present is not sufficient or reliable for any large-scale wind generation facility due to its intermittent nature and variable speeds. It is possible that as wind energy generation becomes more efficient in the future the local suitability for wind might change. While large-scale generation is unlikely to be located in Panton, residential wind turbines are possible. Small wind turbines, designed for individual residential or business use, usually generate under 15 kW. They have two or three blades usually with a diameter of eight to 24 feet. They are often mounted on a guyed monopole or a freestanding lattice tower ranging in height from about 80 to 120 feet. Turbines need to be 40 to 60 feet above nearby trees or other obstructions for optimum efficiency. In 2002, the first net-metered wind turbine began generating power in Panton. This technology is developing rapidly and over the next decade it is expected that small wind turbines will become smaller, more efficient and affordable.

Biomass

Biomass consists of renewable organic materials, including forestry and agricultural crops and residues, wood and food processing wastes, and municipal solid waste. All these products or waste products can be used as energy sources. The benefits of these resources are that they are local, sustainable and otherwise, often waste materials. Some biomass materials, such as wood, have been traditionally burned to provide heat. However, these materials can also be used in more efficient ways, such as producing gas that can then be burned to generate heat or power.

Hydro Power

There are no hydropower facilities in Panton, but there are Green Mountain Power facilities along Otter Creek, both upstream in Weybridge and downstream in Vergennes. Dead Creek, the main body of water in central Panton, does not have sufficient flow or change in elevation to produce hydropower.

Fuel Distribution

There are no in-ground fuel distribution systems in Panton. Local distribution by trucks owned by local and regional suppliers of oil and gas products provides fuel to residential, commercial and agricultural users in the town.

Telecommunications and Cable Services

Local wired phone service in Panton is provided by Champlain Valley Telecom. There is a central switching center located on Panton Road near Panton Four Corners, operated by Champlain Valley Telecom. Wireless phone service in Panton is spotty with the eastern side of town, near Route 22A having somewhat better coverage.

High-speed internet access is available in most locations in town through Champlain Valley Telecom. Approximately thirty five percent of locations are served by fiber optics with speeds of 100 down/50 Mbps (Megabytes per second) up available.

The remaining sixty five percent are served via copper lines and available DSL. Of the locations served with copper, approximately eighteen percent can have speed packages of 20/10 or 50/25 Mbps.

Another thirty nine percent of the locations with copper have the option of 12/1 to 18/1 Mbps. The remaining eight percent have access to the lowest level DLS service at 5/1 Mbps. Since there is no cable television infrastructure in Panton, provision of high-speed access over cable is not an alternative.

For the locations served by fiber optics, local television network stations, PBS and CBC are available through Champlain Valley Telecom with a streaming application.

There are currently no telecommunications towers located in Panton. Telecommunications infrastructure can be incorporated into the town's existing built environment in a manner that has virtually no visual impact. The cell phone antennas installed on top of silos throughout the region are an excellent example of such "stealth technology." Most people driving by these silos would not be aware that they were also serving as cell phone towers.

When possible, the town should further encourage use of existing structures by making such projects easy to permit.

Energy Conservation

While energy policy and fuel prices often seem abstract or completely beyond the control of local government and consumers, energy conservation is the simplest way for individuals to take action. If the potential of energy conservation were fully realized, it would go a long way towards solving our nation's energy problems.

Homeowners can reduce the energy consumed in their homes in a variety of ways. Basic, inexpensive measures such as turning off lights in empty rooms or replacing light bulbs with new, more efficient bulbs can substantially reduce energy usage. According to Efficiency Vermont, if every household in the state changed one light bulb, Vermonters would save enough electricity to light 14,500 homes for a year. Using timers to regulate lighting, heating or cooling in a home can also significantly decrease energy consumption.

Energy-efficient construction methods, materials, fixtures and appliances can substantially reduce the energy consumption of buildings. Energy efficiency can be built into new structures and older buildings can be retrofit to reduce the energy needed to heat them. Panton's homeowners can take steps to weatherize their homes or to replace older, inefficient appliances or mechanical systems that can result in significant reductions in energy use and expense for heating and cooling. The Champlain Valley Office of Economic Opportunity provides a weatherization service that assists income-qualified households in the region take steps into increase the efficiency of their homes and reduce their energy bills.

Energy and Land Use

Land use and energy are closely related. Land use patterns exert a strong influence on major end uses of energy, including transportation, heating and cooling of buildings, and the energy used in developing infrastructure. Development that is clustered provides for greater energy efficiency. Clustering means fewer miles of road are needed to connect the homes or commercial buildings, school buses and snow plows travel shorter distances, and electric utility lines need not extend as far. Carefully considered placement of a building on a lot adds to the efficiency of any new structure by increasing passive solar gain and decreasing wind pressures.

The Enhanced Energy Plan presented in the Appendix of this Town Plan includes details, policies and actions related to maintaining the desired land use, infrastructure and community character in town, as well as considerations with regard to protecting our town's invaluable scenic resources.

While the clustering of development helps decrease transportation costs, it is not the only answer. The majority of Panton's residents travel to work outside of town. Carpooling would be beneficial for these residents, not only in fuel conservation, but also in reduced wear and tear and maintenance on vehicles. Other options that should be supported include vanpools and the use of the Park and Ride lot off of Route 7 on Route 22A in Ferrisburgh.

Vision

The town of Panton will continue to support the siting and development of small scale, independent, and innovative energy generation alternatives that will not adversely impact environmental health and the personal safety and wellbeing of our residents. Utility scale facilities and corridors, if deemed necessary, will be upgraded and/or developed in a manner that will not alter or unduly impact our scenic resources and quality of life. See also *Community Standard* on the following pages.

Overall Goals

1. Encourage the use and development of alternative energy, information technology, and energy conservation.

2. Support the provision of all necessary utilities to Panton residents, institutions and businesses, and encourage future development of additional or new services where appropriate and feasible.

3. Continue to develop energy planning and review standards and monitor the efficacy and overall performance of new renewable energy projects

Strategies, Actions & Objectives

1. Encourage residents, businesses, and developers to participate in Efficiency programs, as appropriate.
2. Review and implement Municipal Energy Planning guidelines distributed by the Public Service Department for any future updates of our Town Plan.
3. Identify a policy agreement with Green Mountain Power for power from a distributed generator (DG), 'islanding', in the case of a town blackout.

Community Standard

In planning for future solar and related energy generation opportunities, along with the possibility that future energy transmission corridors could be developed in or through the town, a number of community standards have been developed to guide planning and permitting of such facilities. Note that the framework for Panton's Community Standards is provided in the Town Plan in concert with Section 527; Energy Systems of Panton's Zoning Ordinance; it is intended that all energy generation and transmission projects address the community standards forwarded in both the town plan and the zoning ordinance, and in particular those projects generating 500kW or greater in energy.

1. Purpose and Need

Energy generation and transmission projects in Panton should be supported by a distinct purpose and need statement to ensure that the project is necessary, has a long-term use and energy generation horizon (20 years is typical for solar projects), and returns value to the town, its residents and taxpayers. Developers of such projects shall be required to establish necessity, identify all costs and benefits to the town, and demonstrate that the project can be developed in a manner that adheres to all applicable town standards and development regulations, and will provide benefits that outweigh or satisfy potential costs and impacts to the town.

2. Development

Project siting is often considered the most critical component of developing an energy project; but how the project is developed can also be critical in terms of its long-term effects on the community from an aesthetic, economic and environmental perspective.

3. Scenic, Cultural and Natural Resource Protection

All proposed and current net metered energy projects and or other projects with potential off-site effects are required to address and/or maintain protections for scenic, cultural and natural resources in Panton as prescribed or conditioned by the Town of Panton and the State of Vermont, and the appropriate entities of the municipality and the State.

See also the **Enhanced Energy Plan attached as an appendix,** as well as **Section 13 of this plan: Historic, Cultural and Scenic Resources** and specifically the ***Historic, Cultural Scenic Resource Listing*** within Section 13 Panton's Zoning Ordinances. Panton seeks to preserve the assets included in the above referenced resource listing for present and future generations.

Section 11. Transportation

Panton has a modest road network with a total of just over 24 miles of roads in Panton. Route 22A, which is a Class 1 highway, is the major state route running north to south on the eastern side of town. There are 21.5 miles of Class 2 and 3 roads, and 2.55 miles of Class 4 roads in town. There are also a number of private roads in Panton.

The classes of Panton town roads are as follows: Class 1 are State numbered roads (22A); Class 2 are those designated town highways that secure truck lines of improved highways from town to town (e.g. Panton Road); Class 3 are all traveled town highways other than Class 1 or 2 highways which drivers of passenger cars can negotiate in all seasons (e.g. Hopkins Road; the southern extension of Jersey Street); Class 4 are all other town highways, including those which are untraveled or lacking access (e.g. southern extension of Hopkins Road). Trails are not considered highways, and the town is not responsible for any maintenance on these trails including culverts and bridges.

In terms of functional classification, Route 22A is classified a minor arterial road, Panton/Sand Road and Basin Harbor Road are classified as major collectors, and Lake Road is considered a minor collector. This functional classification describes the road's use and value as part of the region's transportation network.

As part of Panton's 250th celebration a new town identity was created and one result has been the installation of these unique town welcome signs, located at entry points along the town's roadways

Traffic

Traffic volumes and speeds may also become a concern for Panton and Lake Roads, as these routes serve commuter and truck traffic from New York State and Addison County destined for United Technologies Aerospace or Chittenden County, serving as short cuts from Route 7 to the Crown Point Bridge. See tables below for traffic volumes on Route 22A and Panton's Town Highway Major Collectors.

Road	Beginning Reference		Ending Reference		2010 AADT	2012 AADT	2015 AADT
	Name	Mile Marker	Name	Mile Marker			
VT 22A	Addison Town Line	0.00	East Road	1.24	4600E	4900E	4800E
VT 22A	East Road	1.24	Vergennes City Line	2.76	4800E	5100E	5500E

*AADT = Annual Average Daily Traffic

Infrastructure

Road Condition & Safety

Route 22A which snakes through Panton, and a major north-south connection for thousands, is maintained by the State. The majority of the section that runs through Panton is currently classified as 'fair' condition. More detailed information can be found on VTrans website: http://vtransparency.vermont.gov

Panton's local roads have an ongoing road maintenance and re-surfacing schedule. Several gravel roads have been paved recently, including the southerly end of Arnold Bay Road to the Ferrisburgh town line.

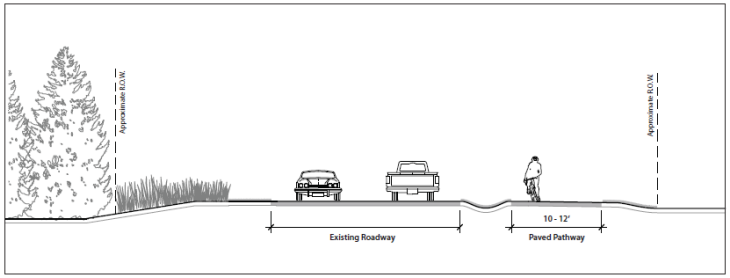
There are some major problems with road safety in several locations in Panton, including the junction of Panton Road with Jersey Street, the junction of Pease Road and Jersey Street, and the curve at the junction of Pease Road and Lake Road. Signing and realignment are possible considerations for addressing these concerns. See the road crash siting map within this plan for more data on this.

Class IV road in Panton shall be controlled and maintained per the standards set forth in the "Town of Panton Class 4 Highway Policy". Use of and access to the Town Highway System and Public Rights-of-Way within the town of Panton shall be regulated by the "Town of Panton, Vermont Use of Public Right-of-Way Policy". These were adopted by the Selectboard in 2019, and are planned to be adopted as an ordinance by the end of 2019.

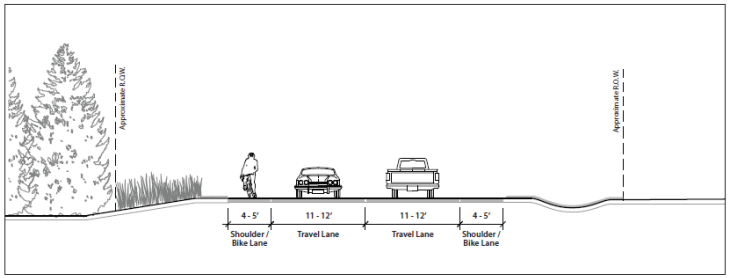
Cycling

Developing a much safer and better delineated bicycle link to Vergennes along Panton Road so as to support bike commuting and connectivity. We would envision an option to either develop a separate path or extended shoulders to support bicycling. There is more interest and use in this route than previously. Some of the proposed bicycle commuter route overlaps with the Lake Champlain Bikeway which follows Lake Rd, Pease Rd, Jersey Street, and Button Bay Road between Addison and Ferrisburgh.

These graphic representations show two different options for bicycle or recreational travel along Panton Road. The road has never been an ideal bicycle or walking route due to the lack of sufficient shoulders for safe use of alternative transportation modes. Extended shoulders for a bike lane or a separate multi-use pathway have been considerations for development in past plans and are still being considered for future planning.



OPTION 1: Separate Recreation / Commuter Multi-Use Path



OPTION 2: Expanded Shoulders / Bike Lanes

Park and Ride

Panton has established a Park and Ride at the Town Hall which is being used infrequently as of this point in time. In the long run it could be a stop for an occasional commuter transit route. The transit stop in downtown Vergennes is important and any outlying morning or evening connectors from the more rural, outlying areas of the county could be an option or developed on an experimental basis. Reaching out to key employers (UTC-Collins Aerospace, Middlebury College, Porter Hospital and the University of Vermont) might also be valuable for developing a long-term strategy for transportation alternatives that might provide options for Panton.

Highway Department Assets

Panton has a town-owned garage, trucks and a salt shed. The salt shed needs to be replaced. Drainage from the salt shed needs to be mitigated so that unnecessarily runoff is not entering Dead Creek, which is in close proximity.

Public Transportation, Rail and Air Travel

There is no public transportation available in Panton, although bus connections are available through a Vermont Transit stop in Vergennes, and Amtrak Rail Service is available in Port Henry, New York, 25 minutes from Panton Four Corners. There are no rail lines in Panton, although Vergennes is on the Vermont Railway network.

Addison County Transit Resources (ACTR) does provide commuter bus service connecting Vergennes, Bristol and Middlebury from bus stops in Vergennes and the State Park-and-Ride Facility at the intersection of Routes 7 and 22A in Ferrisburgh. A commuter bus route to Burlington is operated by Chittenden County and stops in Vergennes as well.

There are two private airstrips in Panton, on Lake Road. The nearest public facility is the County Airport in East Middlebury, owned and operated by the State of Vermont, although that airport has no commercial service. Burlington International Airport in South Burlington is the nearest commercial airport and provides regional, national, and international airline connections.

Bridges & Culverts

The bridge over Dead Creek on Panton Road was reconstructed in 1992. A State inspection of this bridge in 2016 reported that the structure was in 'good to satisfactory' condition. It also suggested plug joints should be considered for installation over both abutments and that concrete repairs are needed in the cheek walls with all loose concrete/dams removed.

Panton worked with the Addison County Regional Planning Commission (ACRPC) to complete a full-scale culvert inventory in December 2015. This work revealed that seventy five percent of Panton's culverts are in excellent or good condition, compared to the county averages. When budgeting for future infrastructures upgrades and improvements, Panton needs to focus on its culverts rated as poor (21 total), critical (7 total), or urgent (1 total).

Panton's Roads & Water Quality

The Vermont Department of Environmental Conservation (DEC) has been developing the Municipal Roads General Permit (MRGP), which is scheduled to begin during summer 2018. At that point, all Vermont towns will be required to apply for coverage and pay permit fees. Towns will then have until 2020 to inventory road segments that have been identified as hydrologically-connected with potential impacts to water quality, then develop priorities and a capital budget plan to address identified issues over a certain period of time.

Panton Culvert Status Matrix (Feb. 2017)

Road	Excellent	Good	Fair	Poor	Critical	Urgent	Total
Adams Ferry	4	3	0	0	1	0	**8**
Allen	1	1	0	2	1	0	**5**
Arnold Bay	7	0	0	0	0	0	**7**
Basin Harbor	2	0	0	0	0	0	**2**
Button Bay	2	0	0	0	0	0	**2**
East	3	0	1	0	0	0	**4**
Hopkins	13	3	0	4	1	0	**21**
Jackson	3	1	0	0	0	1	**5**
Jersey	14	6	4	2	1	0	**27**
Lake	7	2	0	4	2	0	**15**
Panton	4	5	1	3	1	0	**14**
Pease	0	2	0	2	0	0	**4**
Slang	3	0	0	1	0	0	**4**
Spaulding	3	1	0	2	0	0	**6**
Staton	0	0	0	0	0	0	**0**
Stove Pipe City	5	0	0	0	0	0	**5**
Sunset Knoll	0	0	0	0	0	0	**0**
Turkey Lane	0	1	0	0	0	0	**1**
VT Route 22A	0	0	0	0	0	0	**0**
West	6	1	0	1	0	0	**8**
Total	**77**	**26**	**6**	**21**	**7**	**1**	**138**
Percent	**56%**	**19%**	**4%**	**15%**	**5%**	**1%**	**100%**

Route 22A Bypass

The proposal to provide an alternative route for truck traffic traveling through Vergennes on Main Street/Route 22A has been resurrected from the 1990's and the findings and recommendations with regard to a new highway have been set forward in the "Vergennes 22A Truck Route Study" as adopted by the Addison County Regional Planning Commission in July, 2019. Panton held its first public meeting to hear a presentation if the study and to ask questions about it on July 29, 2019. This plan recognizes the traffic issues and concerns with regard to truck traffic in downtown Vergennes, but does not take a position at this time supporting or opposing the study and its recommendations. It is recognized that the final details of the study - including the new roadway's alignment – as well as the timing of future construction, and the benefits and costs to our town have yet to be fully reviewed or understood by Panton officials and citizens. Additional town discussions and meetings, as well as opportunities for Panton citizens to determine their position with regard to the proposal, will be ongoing through 2019 and early 2020.

Overall Goals

1. Encourage safe and efficient travel for all modes of transportation (including walking and biking) throughout the town of Panton on our local and state highways.
2. Support local and regional public transportation.
3. Continue to support safe pedestrian and bicycle transportation both within Panton and in linkages from the town connecting elsewhere in the region.

Strategies, Actions & Objectives

1. Monitor regional highway development plans that have the potential to affect Panton. Monitor State Agency of Transportation activities as they relate to or affect Panton, such as the *Municipal Roads Permit* mandate.
2. Consider planning for a proposed Panton-Vergennes bicycle linkage and seek state planning funds, if and when available.
3. Review highway signs and sign ordinance in regards to roadside directional and infrastructure signs in Panton and change as needed – protocols, locations etc.
4. Add 'Share the Road' or 'this is a shared road' signs along Lake Road, Pease Road, Jersey Street, Button Bay Road to address commuter, scenic byway and Lake Champlain bikeway traffic and use.
5. Monitor at specified intervals traffic volumes along Panton's major and minor collector roads and overall traffic safety issues related to planning and development.
6. Discuss with ACTR possible public transit options for Panton and to serve the elderly.
7. Apply for funds for infrastructure upgrades via the Agency of Transportation Better Roads Program: http://vtrans.vermont.gov/highway/better-roads
8. Pursue a scenic roads ordinance to protect specific right of ways for their recreational and aesthetic value

Section 12. Recreation

Panton has one boat launch area that provides access to Lake Champlain for commercial and recreational boating. There are no sidewalks, bike paths, or designated hiking trails in Panton, although the town experiences heavy bicycle use on its roads during the spring, summer and fall, and the safety of these travelers will become an issue as their numbers continue to mount.

The Lake Champlain Basin Program has developed a Bikeways System that includes roads and routes in Panton. Local residents and tourists use the road network for recreational and functional travel. To this end, future transportation planning in Panton should place a priority on the management and designation of official bike routes.

In particular, the concept of a Panton to Vergennes Class 1 Transportation Path for non-motorized travel is proposed as a parallel route to Panton Road from Panton Four Corners to the town boundary with Vergennes. This proposal is consistent with the impetus to develop alternative travel options and path systems for communities throughout the state.

The town has a trail across Dead Creek at West Road that is a discontinued path to West Panton and could be opened to non-motorized traffic. A Recreation Committee could be established to work on developing bicycling, hiking and riding trails in town.

Vision

We plan to continue exploring ways to connect with the rest of our region in terms of the provision of services, recreational and educational opportunities. Regional bikeways are one example of this vision.

We foresee that the lakeshore will be more accessible than it has been, with an active town facility at Arnold Bay accommodating swimming, fishing, boating and even moorings for longer-term use.

Organized Recreation

At present organized summer recreational activities are offered in the city of Vergennes including: a Little League, Babe Ruth League, softball league and soccer league, pool facilities and public tennis courts. While competition for the playing fields is intense and may limit the opportunity for expansion and increased participation in the future, the pool and the tennis courts are underutilized at present.

At Veteran's Memorial Park there is an ice rink and a basketball court. All of these activities require travel to Vergennes.

State Facilities

Town residents have access to Button Bay facilities including a pool, boating and a nature trail.

Water-Based Recreation

Dead Creek and Otter Creek are valuable sources for outdoor recreation limited by water quality and access. In Panton both are navigable waterways for smaller motorboats, canoes and kayaks, providing excellent opportunities for fishing, photographing, duck hunting and wildlife viewing. Access to Otter Creek is primarily offered in downtown Vergennes, in Ferrisburgh and in Addison. In Panton, Dead Creek can be accessed at West Road and at the bridge on Panton Road, which are popular sites for fishermen, but both sites are compromised by illegal dumping of refuse. The town, in concert with the state, has worked to improve the environment at these locations.

At Arnold's Bay, the town owns 1.7 acres with 600 feet of shore frontage that serves as a town beach, boat launch, and picnic site. Parking would probably need to remain at the road head, with access to the swimming area by foot only. Improvements to the area have been made with the installation of a garbage can, recycling container, dog waste bag dispenser, an informational sign and a stone marker.

Upgrades being considered are a portable toilet facility, a picnic table, and a campfire ring.

Maintaining and improving water quality, public access where feasible and protecting shorelines from incompatible development could enhance enjoyment of these areas. Assistance with maintenance at the state and federal levels could be obtained through the Vermont Water Quality Division's Lakes and Ponds Management Unit and the U.S. Army Corps of Engineers. The latter informs us that weeds may be cleared by hand or with the use of a York rake.

Use of Private Land

As the population grows, recreation such as hunting, which has always been integral to the rural way of life, has come under increasing pressure from competing interests. There are still areas of forested and open lands which remain accessible, and many landowners allow hunters and other to continue to use their land, but that informal arrangement is increasingly vulnerable. Responsible, environmentally sensitive usage by individuals should be encouraged (seeking permission from the landowner before using the land; not leaving trash) so that unposted land may remain accessible to the public.

Trails

Throughout the town there already exist a number of trails and Class 4 roadways such as West Road. Other informal networks that are utilized by hunters, skiers, hikers, horseback riders and recreational vehicles exist throughout the town and could be recognized and enhanced. The town should support the development of additional nonmotorized trails and/or recreational vehicle trails while respecting private property and wildlife habitat. Areas for consideration of such attention might be along or near Sand Road, Lake

Road, Jersey Street, Hopkins Road, South Road, and Slang Road, and along portions of Otter and Dead Creek. The Middlebury Area Land Trust has expressed interest in exploring the possibility of expanding its support in the future to include such areas if there is sufficient local interest and support.

The 2016 town survey revealed that 55 percent of respondents agreed that a public trail system for hiking, cross country skiing etc., would improve the quality of life in Panton, and 57 percent support bike lanes and shoulders on the town's main roads.

Such considerations as access to rights-of-way, constraints of existing terrain, cost of development and maintenance, safety, and environmental impact would need to be studied in depth. Funds could be sought at the state level through the Land and Water Conservation Fund or the Recreation Division's Transportation Path Program. Creative incentives for private landowners to provide rights-of-way such as those supported by the Middlebury Area Land Trust, might be considered. Membership in the Lake Champlain Scenic Byways program could enable the town to enhance designated areas by providing a funding source for signage, surface upgrades, etc. if federal funding for this program continues.

Currently a route exists called South Road, which extends across Dead Creek at Third Bridge and connects to Jersey Street. Travelled by bikers, hunters, ATV users and others, it is a valuable recreational resource for the town and should be formally recognized as a Class 4 road or trail, so that it can be maintained as such.

The town is participating in the Lake Champlain Basin Program and the Lake Champlain Bikeways system. The latter has established two designated theme loops passing through Panton; *Rebel's Retreat* which runs along Lake Street and Jersey Street, and *Otter Creek Wandering* which extends along Hopkins Road and East Road in Vergennes, both of which are identified with signage along the routes and have bike maps available online at: www.champlainbikeways.org.

There remain concerns regarding the significant hazards that exist with the confluence of cyclists, pedestrians and operators of motor vehicles on roadways lacking shoulders and/or adequate visibility throughout the town. Panton Road and Lake Road are considered especially dangerous, and the procurement of funds to alleviate the danger by creating bike lanes or wider shoulders on existing roadways should be a priority.

Currently a Vermont ATV Sportsman's Association trail is routed through Panton. The trail begins on 22A, leads west on West Road and travels north along Slang Road to Stovepipe City Road and on to Ferrisburgh.

Public Space

A small park was created with Lake Champlain Partnership Program funds on Jersey Street opposite the Panton General Store. This park is well used by bicyclists and visitors to Panton, has picnic tables and a bike rack, as well as an interpretive sign. It has a spectacular view of the Green Mountains and the Champlain Valley. A portable toilet at the site would be a welcome amenity for visitors.

A number of roads in Panton are used for walking and cycling, and as such should be protected, designed and valued for more than just motor vehicle use.

Vision

The town's vision for recreation is to support recreational opportunities for all our residents and visitors where appropriate. A wide range of recreational programs and facilities contribute to our quality of life and our health and thus should be encouraged and supported. We want to maintain our lakeshore access both visually and physically where possible and continue current trail use, water sports, fishing, and hunting where such activities are traditional, acceptable and ongoing.

Overall Goals

1. Promote safety and access for walkers and cyclists along Panton's roadways.
2. Plan for recreational development in concert with the strengthening of the local economy and tourist amenities such as B&Bs.
3. Continue to improve lakeshore access.
4. Improve water quality through measures such as phosphorus reduction, erosion prevention, and control of invasive species such as Eurasian Milfoil.
5. Create recreation segment on the Panton website with links to other recreational sites in the state.

Strategies, Actions & Objectives

1. Develop and expand bikeways and walking trails in Panton to link historic, recreational and natural areas. Seek funding, such as state planning grants, to develop and implement the plans.
2. Consider supporting the establishment of easements for, or outright purchase of, conservation land for public use and recreation.
3. Work with state officials to ensure compliance with all lake and water safety regulations.
4. Continue to manage and upgrade Arnold Bay Beach area.
5. Explore conditions for motorized and non-motorized recreation in Panton to provide a balance for both types of users.
6. Initiate a Panton Recreation Committee to support the development and maintenance of recreational resources in the town.
7. Support efforts by the Vt. Department of Fish and Wildlife to clean up the West Road fishing access on a regular basis.
8. Encourage a culture of respect for the natural beauty of Panton by promoting periodic roadside cleanup.
9. Explore installation of a portable toilet at Arnold's Bay.
10. Pursue a scenic roads ordinance to protect specific right of ways for their recreational and aesthetic value

Section 13. Historic, Cultural and Scenic Resources

The legacy of Panton's history is present in its historic structures and sites, and the tradition of land use that has evolved over time. The architectural styles in Panton reflect the periods of growth and progress in the town, ranging from vernacular stone structures, to Federal period styles, the Greek Revival architecture of the Town Hall and Baptist Church, and the Italianate design of several prominent residences. See Map 12. Historic Resources

Historic Districts and Buildings

There are 74 structures in Panton on the State Register of Historic Places, a fact that reflects the extent of the historic resource in this community. In addition to this, the historic town center at Panton Four Comers is a state designated Historic District, with its historic settlement pattern and most of its historic structures intact.

One troubling issue is the fate of Panton's historic schoolhouses, all but one of which is in private ownership. Two of the remaining stone schoolhouses (which were one room, village schools developed in the age before motor travel) are in poor condition, and one of the wooden schoolhouses (on Jersey Street) was sold by the town and is now a private residence.

In hindsight, one regrettable development was the sale and removal of the Old Stone Schoolhouse on Lake Road. While the town was uncertain as to how the building could be used and how to underwrite its maintenance, by allowing its removal from its site, the town lost a part of its history forever. The positive side of this is that the building has been restored as the headquarters of the Lake Champlain Maritime Museum, just a short distance away at Basin Harbor. A marker commemorating the site is supposed to be placed by the Museum, but this has not occurred.

The remaining schoolhouse in town ownership is at the Town Garage site and is vacant and deteriorating. The town must act soon to develop a plan to maintain and use this important piece of Panton's past.

Historic Sites

Arnold's Bay is one of the most significant sites of the Revolutionary War and an important historic site in Panton. A historic sites marker celebrates the events of its Revolutionary War history. Recent archaeological investigations unearthed remnants of the original Ferris Homestead overlooking the Bay. Additional sites exist in Panton, and these should be demarcated as well with commemorative plaques.

Finally, it should be noted that the ridge running to the east of Lake Champlain has its own historic value due to the presence of numerous fossils visible on the surface of the shale.

Arnold Bay, from boat launch looking southeast.

Cemeteries

The numerous historic cemeteries of Panton are also part of the town's history, where many prominent local residents are buried. They include Adams Ferry Cemetery, where many original settlers are buried, including the descendants of the Ferris, Shepard, and Spalding families. Kent Cemetery was created in 1830 and is still in use. The Hawley Cemetery surveyed in 1788, contains plots that were developed between 1803 and 1910.

Two other cemeteries, the Adams and Spaulding Family Burial Lots, were established in Panton and, although the Spaulding Lot is abandoned, the remains having been transferred to a burial site in Vergennes.

Scenic Resources

Panton is an extraordinarily scenic town due to its open landscape, low hills, and regional context, situated in the Champlain Valley floor, surrounded by mountains to the east, west and south. The highways of the town, particularly Route 22A, afford exceptional long distant views of Lake Champlain and the high peaks of the Adirondacks. Many of the roads are through pasture or cropland areas and have unobstructed views in all directions.

Another particularly scenic resource is the ridge paralleling Jersey Street in the western section of the town. From open areas along this ridge on Adams Ferry Road, 360-degree views provide eastern panoramas stretching from Mount Mansfield in the north to Killington Peak in the south, and the valley environs in the fore- and mid-grounds.

The lake provides yet another visual amenity. Lake Road has a number of outstanding views along its length, and the access area at Arnold Bay is a fine lake viewing location. Some of Panton's natural areas along Dead Creek are scenic in and of themselves; the view of a field almost white with hundreds of Snow Geese is common in Panton.

There is no question that most of Panton's roads are scenic, whether they lie on the west or east side of town. This poses the question as to whether the town should formally designate them as such, an act that could enhance the ongoing preservation of Panton's scenic qualities for future generations.

Vermont Statutes Annotated, Title 19 §2502 provides the framework for town designation of scenic roads. The legislative body of a municipality, with the recommendation of the planning commission or on its own initiative, after one warned public hearing, may designate a town highway as scenic.

This typical vista in Panton shows the Green Mountain Range and Snake Mountain.

This designation does not remove a highway from eligibility for receiving state aid and, in fact, may afford opportunities for receiving additional funds ear marked specifically for management and enhancement of scenic roads and their environs. It should be noted that designation of scenic roads in no way precludes the rights of individual landowners whose property is adjacent to a scenic road so designated.

Designating scenic roads is one step towards recognizing scenic assets. A number of tools exist for scenery preservation, including initial inventory and identification of scenic resources, outright land purchase, purchase of development rights, and implementing conservation or scenic easements.

These methodologies aside, maintaining and enhancing local visual and scenic quality begins with the individual landowner and developers of new projects. As subdivisions are altered or developed, some basic guidelines may be observed which will help maintain visual and scenic quality and a partial listing of some basic considerations are as follow:

1. Careful siting of structures to fit the landscape and minimize visual intrusion. Siting structures within the tree line or against the backdrop of tree lines minimizes visual impact, particularly in a town where there is so much open land. Placement of buildings in the middle of large open fields can undermine landscape quality; appropriate grading and landscaping can, to some extent, reduce the impact of building in such locations.

2. Site design that is consistent with the location to include road layout that respects topography, clustering of buildings, structures and utilities, and landscaping that relates to surrounding vegetative and topographic patterns. Good site design ultimately saves money and increases property value. The concept of clustering and sensitive siting is particularly important when and if large properties, such as farms, are redeveloped for residential or commercial purposes.

3. Building design that includes sensitive scale, massing, and general aesthetic concepts. This does not imply a specific architectural style is better than another, but suggests that well established design principles be employed where possible in new construction and additions to existing structures, particularly those which are of historic value.

4. Recognition of natural features and environmental factors in site and building design. Development that recognizes and relates to existing conditions will, over time, be energy efficient, less costly to maintain, and provide a more amenable environment for living and working.

Monument near Arnold Bay

Lake Champlain Byway

Town of Panton Selectboard voted to become a member community in the Lake Champlain Byway in 2010. The State of Vermont Scenery Preservation Council will consider that request and by 2011 it is hoped that the Town will be approved as the newest member community. The Lake Champlain Byway is part of the Vermont Byways Program which is based on and part of the National Scenic Byway Program. The Byway program was developed to recognize and promote the unique resources and community values associated with road based scenic corridors throughout the United States. Vermont has 6 Byways and they are all based on each Byway's "intrinsic resources", which include historic, cultural, recreational, natural, archaeological and scenic resources.

Panton's intrinsic resources include the following:

Historic/Cultural

Arnold Bay
Ferris Homestead Site
Panton Four Corners Historic Village District
Panton Town Hall
District School Houses

Recreational

Lake Champlain Bikeway
Panton Memorial Park
Arnold Bay Boat Access

Natural

Champlain Thrust Fault - unique geological feature
Clayplain Forest
Lake Champlain
Dead Creek
Otter Creek

Archaeological

The clays and shales which comprise much of Panton's geology also include the imprint of ancient fossils from the Jurassic era. Traces of indigenous people's former presence in Panton can be found in the occasional arrowheads which surface in the Dead Creek lowlands.

Scenic

Panton Memorial Park
Scenic Roads include 22A, Panton/Sand Road, Lake Road, Adams Ferry Road, Arnold Bay Road, and Hopkins Road

In Panton 22A would be the primary designated byway route, with Panton Road/Lake Street the secondary route. All of the town would be included in the byway. The Byway Corridor and associated roads are subject to traffic safety and transportation planning processes which identify opportunities for enhancing multi-modal travel and traffic and pedestrian safety initiatives. Developing scenic pull-offs and corridor amenities related to roadscapes are another integral component of byway planning and development.

Regional byways are all developed from grass roots, community-based efforts which are built around these resources and are integrated with economic development and tourism. When Panton becomes a Byway community, options will include an opportunity to maintain and enhance our local assets and to develop them in a coordinated way to make the most of our town's resources both for local benefit and to engage those who would visit our town.

Historic, Cultural, Scenic Resource Listing

As part of Panton's efforts to identify and protect historic, cultural and scenic resources a number of sources were relied on to develop the list of key resources.

1) The historical precedents of conservation and protection efforts as forwarded in previous town plans;
2) The 2016 Survey provided specific support for key conclusions as to what the community considers to be important;
3) the work and study conducted prefatory to Panton's inclusion in the Lake Champlain Scenic Byway: and, most recently, the reinforcing results of the Community Values Mapping conducted in the 2017 Planning Workshop (see the relevant maps from this workshop in Section 3).

This list does not intend to preclude development in valued viewsheds or locations, rather it recommends careful consideration in the development review process to ensure changes and proposals do not undermine or unduly impact the resources.

Bikeway and Byway. The viewshed encompassed by the routes of the Lake Champlain Bikeway and Lake Champlain Scenic Byway is considered a valued scenic resource.

Westerly viewshed and Adirondack Mountain views from Route 22A. The long-distance sweeping views from the height of land along Vermont's Route 22A between Addison and Vergennes offer outstanding vistas of the High Peaks of the Adirondack Mountains and the pastoral landscapes of Panton.

The view from Panton Memorial Park at the junction of Panton Rd and Jersey Street has an interpretive panel specifically focused on the panorama of the Green Mountains (Mt. Mansfield to Killington) visible from this location.

Panton Village Historic District and Panton Town Hall. are valued as historic resources. This plan recognizes that the village is in transition and requires further planning and study to protect and restore certain visual and historic elements.

Lake Champlain lakeshore. One does not often consider the view from the lake, but the unfettered shoreline of Panton has been somewhat compromised by large scale residential development, associated clearing and lakeshore stabilization. There are still locations such as Arnold Bay, and the southern and northernmost lakeshores that have intact, vegetated shorelines that should remain intact. Views to the lake from the public ROWs of Lake Street, Arnold Bay Road and Adams Ferry Road should not be undermined or compromised by future development or insensitive management practices.

Dead Creek and Environs. This area emerged as an area valued by Panton residents and other in the region for its hunting and fishing values, as well as for its undeveloped landscape. Part of Dead Creek is protected as a State Wildlife Management Area, but the waterbody and its shoreline area are highly visually sensitive and as such should be protected from any incursions or changes which undermine its scenic and natural resource values, as well the recreational experience that draws a wide variety of users, young and old.

Undeveloped Agricultural Open Space and Forestlands Residents rated this type of open space quite high as a key component of the community's character. The undeveloped nature of the forests along Panton Ridge, and the open farmlands of the town should be retained in their current state to the greatest extent possible. Significant land use and development practices can negatively affect such resources and thus should be monitored carefully over time.

Vision

Panton's historic, cultural, and scenic resources are an integral part of our community's legacy and are integral to our quality of life. We seek to preserve those qualities which make Panton unique and which are the reasons, in part, that many of us live here today. Our respect for the past and those qualities of our town which we value can inform our future in a manner that respects and retains those qualities for the coming generations to appreciate and enjoy.

Overall Goals

1. Maintain and enhance community facilities and lands which have scenic, historic and cultural value.
2. Protect scenic, historic and cultural resources from development impacts

Byway Related Goals:

1. To become a member of the Lake Champlain Byway.
2. To participate in Lake Champlain, Vermont and National Scenic Byway programs and opportunities.

Strategies, Actions & Objectives

1. Guide and oversee lakeshore development and conservation in a manner that complements scenic and historic values.
2. Explore energy efficient transportation modes such as public transportation, trails, and bike paths that complement land use patterns in Panton and provide access to the Town's resources.

Strategies/Activities/Objectives

1. Continue to support efforts to restore and renovate the Panton Town Hall and to enhance its use as a town center and future visitor center, and consider developing an interpretive exhibit.
2. Consider appropriate enhancements and upgrades to Memorial Park at Panton Four Corners as a scenic overlook and picnic area. Continue ongoing management of the site.
3. Promote safe biking along the Champlain Bikeway and throughout town with signage and, in the future, improved shoulders, where possible and appropriate.
4. Add to the interpretive sign system already established at Panton Memorial Park.
5. Review the status and condition of other public access and use areas in Panton.
6. Strengthen or develop the protections afforded Panton's historic, cultural and scenic resources
7. Continue to support land conservation efforts as appropriate in the town and interconnected with regulatory communities.

Section 14. Natural Resources and Environment

Panton is part of the Champlain Valley Lowland physiographic region, and, in fact, is probably the state's lowest lying town in terms of elevation, with its lowest point being about 100 feet above sea level and at its highest, along the Vergennes ridge, at about 300 feet. (Physiography is another term for geomorphology, which is the study of the characteristics origin and development of landforms).

The town's great scenic asset, long range views, is perhaps attributable to its physiography, for the roads in and around Panton's open lands, low ridges, and lakeshore afford the traveler and resident alike sweeping views of the central Champlain Valley, the Green Mountains and Adirondack High Peaks.

Panton is also part of the Lake Champlain International Biosphere Preserve, a designation that recognizes the outstanding environmental qualities of the area, and which has led in part to the federally funded Lake Champlain Basin Program, ongoing since 1994, and designed to address environment quality and land use management issues.

Panton has very little land in public ownership. The State of Vermont owns 205 acres as part of the Dead Creek Wildlife Management Area, and less than an acre in the Lower Otter Wildlife Management Area is located in the town. The Lake Champlain Islands Trust has purchased and preserved several islands in Panton and adjoining communities.

Climate

Vermont as a whole is influenced by continental air masses and the jet stream flow. Its climate classification is humid continental-cool summer. At the confluence of several major weather patterns, regional weather is variable, with frequent low- and high-pressure systems converging, bringing either moisture laden, humid or warm air masses on prevailing southwesterly winds or cooler fair-weather patterns borne on northwesterly winds from the arctic regions. Nevertheless, microclimate is a determining factor in Panton's localized weather.

On one height of land near the lake, the clear view reaches from Mt. Mansfield in the north to Killington in the south, and to the west, Mt. Marcy, and the highest peaks of the Adirondacks loom over Lake Champlain.

Panton's position on the valley floor substantially influences its climate. The western section of the town is only five miles from the eastern foothills (elevation 1000-2000' above sea-level) of the Adirondacks, and the eastern height of land is within 20 miles of the Green Mountains. Panton is bordered on the west by a deep section of the lake (120 to over 200 feet deep in sections), which is

typically 3 to 5 miles wide at this point. The mountains to the west create a rain (moisture) shadow that keeps precipitation levels among the lowest in Vermont.

The moderating influence of the Lake's warmer temperatures in fall keeps the valley floor more temperate, extending the growing season to over 150 days, which is almost a month longer than that of the upland areas of the state and spans from April to October in some years, adding to the areas' appeal as an agricultural setting. The United States Department of Agriculture Hardiness Zone Map (the map on which plant hardiness ratings are base) has put Panton in Zone 5, which has an average annual minimum temperature of between 15-20 degrees Fahrenheit. The Green Mountains to the east induce orthographic cooling, creating frequent cloud cover in the region and often signal weather changes associated with changing frontal systems of low and high pressure.

These factors contribute to Panton's slightly milder winters, although some storms along the lake (summer squalls among them) and so-called "lake effect" snow can bring on unique weather-related phenomena. When the lake freezes, (usually by February), the winds seem colder, and lakeshore sites and open fields feel the full brunt of winter. During the heat of the summer, the lake moderates the temperatures in an opposite manner, with cooling on shore and off shore breezes that fluctuate from dawn to dusk and keep some parts of town cooler than the more developed areas in the town and cities that surround this part of the valley.

Because of its setting, climatic extremes are not as great as those areas outside of this section of the valley, and this leads to the realization that Panton is perhaps a more comfortable area to live in than the uplands of Vermont and the more mountainous sections to the west and north.

Geography and Geology

Panton is still primarily a rural town. Its geology and geography factor in to this. It is almost equidistant from the two major centers in this part of the state: Burlington and environs, and Middlebury. Bordered on the east by the "smallest city (in terms of physical size) in the U.S.," Vergennes, Panton's 1990 population of 606 and area of 14,272 acres makes it among the smaller communities in Vermont. It is a town without a post office and school, although historically it had both.

The heavy clay soil and distance from major employment centers have kept Panton off the so-called "beaten path," although recent trends toward longer distance commuting have changed the make-up of Panton residents' places of employment. Even so, the town lies far from an Interstate and has but one state highway, Route 22A, running through it, along its eastern edge. Coupled with this factor is the historic settlement pattern of large farms (by Vermont standards) and favorable soils for crops but not septic systems. The clays of lacustrine deposits and the relatively flat topography have lent

themselves to large-scale agricultural endeavors, primarily dairy and beef farming.

The lands of Panton, West Addison, and West Ferrisburgh to the north, share in the western slope of this part of Lake Champlain. It is delineated by a low ridge of shale limestone/dolomite rock and includes block faulting, which is seen in the escarpments running parallel to Lake Road and along the lake north of Arnold Bay. This formation delineates a linear drainage basin that reaches to the lake on the west, with the other drainage east into Dead Creek, flowing north to its confluence with Otter Creek.

The geological history of the Champlain Basin is a complicated account of continental forces coupled with the more recent effects of glaciations. Indeed, at one point the entire town was underneath the waters of "Lake Vermont" and then partially submerged under the so-called "Champlain Sea", both water bodies resulting from the recession of stages of continental glaciations. The Champlain lowland, of which Panton is a part, is a broad basin bordered on the west by the Adirondacks and on the east by the Green Mountains. Thrust faults provide relief within the lowland, but the Cambrian and Ordovician rock strata that predominate, lie nearly flat. Since glacial times some streams have cut through the rock in a modest fashion, with Otter Creek being the most notable in that part of the valley where Panton is located. The bedrock surface is visible in many locations, particularly on the heights of land just east of the lakeshore and on the Vergennes thrust fault. This fault is the prominent topographic and geological feature in the eastern section of the town. The presence of the shale in particular, as a mineral resource has influenced the architecture of the town, as this rock, commonly known as Panton Stone, is used as a building stone and continues to be in demand throughout this part of Vermont for its bedding characteristics, color, and form.

Along the lakeshore, a band of shale is found, and this is a fine textured rock easily weathered and eroded and containing numerous fractures. Other bedrock types present in Panton include primarily metamorphic and sedimentary material such as slates, limestone, and dolomite rock.

Soils and Hydrology

The geology and geomorphology set the stage for the hydrology of the area, insofar as surface and subsurface water systems are determined by the physical conditions created by the rock types and the landforms present.

There are two major stream systems in Panton: Dead Creek and Otter Creek. The bulk of Panton lands are in the Otter Creek Drainage Basin, which drains a total of 936 square miles in Vermont. The Dead Creek area is considered a significant deep rush and cattail marsh system, and although not designated as a Class I Wetland, the town could petition the state Water Resources Board for such a designation to ensure statutory protection of this resource. Numerous seasonal streams drain from the heights of land into either of these drainage basins, as well as into Lake Champlain. The far western section of Panton is part of the Lake Champlain Drainage Basin, with waters flowing directly to the lake. Numerous wetlands abound, and there are large areas where extensive groundwater flow occurs. A potential groundwater protection area exists in Panton constituting the entire shore land area adjacent to Lake Champlain that is considered a recharge area due to the presence of groundwater flows towards the Lake itself. A default wellhead protection area is also located in a 3000' radius centered on the Arnold Bay Water Plant intake location, and as described in An Analysis of Wellhead Protection Areas in the Addison Region, a report prepared by the Addison County Regional Planning Commission in 1990.

The heavy depositional soils laid by former glacial lakes and inland seas provide Panton with some of the state's richest agricultural lands. The low lying and relatively level terrain coupled with the comparatively moderate climate, compared to the rest of the state, support agricultural endeavors, and indeed while Panton's overall number of farms has dwindled, the size of the remaining farms has increased. The result is that in 1992 Panton still has the appearance and feel of a primarily agricultural community. Small-scale agricultural activities are also visible in the town and are a relatively new development. Several nurseries and some Christmas tree farming are examples of silviculture, a type of farming that may grow in viability during the next decade.

Despite the extent of farming which currently and historically characterized Panton, these soils are difficult to work and slow to drain. The fine textured soils derived from similarly textured parent material hold water and are exceedingly slow to drain. This in turn has implications for everything from road building and foundation design to the design of in-ground septic systems. This fact alone will continue to limit or prevent residential, commercial, and industrial development, particularly without a municipal sewer system. Another problem created by these soils and the town's hydrology is that the clay banks of Panton's lakeshore are subject to erosion, and indeed, there have been ongoing losses of lakeshore lands coupled with stabilization efforts by private property owners to reduce or limit this problem.

Extraction of Earth Resources

The primary earth resources present in the town of Panton consist of topsoils and Panton stone, the native shale stone used for building. Occasionally crushed shale stone is used for road construction and similar types of site work. The extraction of such resources is only possible with a Zoning Permit and any commercial extraction of such resources is subject to review and approval by the Planning Commission and must be in accordance with Section 526 of the Zoning Ordinance. Any extraction of earth resources in Panton shall be done in a manner so as to not unduly impact the character of the neighborhood the activity is proposed for, and with respect to the public health, safety and welfare of the town's citizens and property owners.

Fisheries and Wildlife

Panton abounds with small game and has been a site for the state sponsored wild turkey release program, which has been, by all accounts, successful in reintroducing the bird to the Champlain Valley. A wide variety of small mammals are present in Panton, from opossums to raccoons. A recent reintroduction has been the coyote, and it is common to hear or see these animals throughout the town, especially along wooded corridors. The presence of extensive open lands bordered by wooded sections creates ecotones or edge habitats in which many animal and bird species thrive. The extent of open land has limited deer habitat, and Panton has a relatively small deer herd, and the Vermont Department of Fish and Wildlife has not identified any winter deer range in the town.

An occasional bear, bobcat, and even moose have wandered into these parts, but for the most part larger wild animal populations are non-existent in the town.

Panton is perhaps best known for its wildfowl populations. The Dead Creek Wildlife Management Area and abutting lands provide excellent food sources for huge flocks of Canada and Snow Geese, including some flocks that remain through several seasons of the year. The town is located on a major continental flyway. Large flocks of other migratory birds and songbirds also frequent Panton, and hawks and owls are

common. In the wetland areas and slow-moving water bodies, the great blue heron is frequently sighted.

Vegetation and Woodlands

Panton is primarily an open landscape of pasture and cropland punctuated with corridors of forest land and remnant woodlands or woodlots. As some lands are taken out of farming, the progression from field to forest begins, and this is evident in many locations throughout the town. These lands do serve their purpose as wildlife habitat, but over time will need to be managed to ensure a succession to healthy, productive forestland.

Panton is truly a transition environment for tree species, containing those species commonly found further to the south as well as those types found in the uplands and mountain areas of Vermont and New York. The tree species that predominate in Panton are typically referred to as the Oak-Pine association along with the Northern Hardwoods. White Pine is plentiful and is the most widespread species in Panton. Wooded areas of Panton contain mature oaks, hickories, and maple. Ash, poplar, beech, hardhack and cherry are also found particularly on higher ground and low ridges. Bottom land species such as elm and Balsam poplar are also present, although the magnificent elms are slowly but surely disappearing, victims of the Dutch elm disease.

One issue affecting the health of our forests and the successional pattern is increasing competition from invasive species including Buckthorn, non-native Honeysuckle and perennials such as Wild Parsnip (which has spread along many of our roadsides and into fallow fields). The eradication of such species is challenging and needs to be addressed not only on a regional scale, but also on a site by site basis.

According to inventories conducted by the State of Vermont, some intact and outstanding examples of river bottom woodlands exist along the Otter Creek in East Panton and the unique Champlain Valley Clayplain forest drapes the low ridges of the town.

Some logging has been ongoing in Panton through the years. Many woodlots throughout the town are managed for cordwood yield on a yearly basis, but neither of these activities will pose any long-term threats to the integrity of the existing forestland, and if managed properly, may actually improve the quality of these lands.

Most visitors to Panton note that there is one last magnificent landmark American Elm on Panton Road near Dead Creek. Trees such as this one add much to our rural community, bring beauty and fall color, climate modification, habitat, stormwater filtration and soil stabilization to the landscape. There has recently been some discussion with regard to developing a Tree Ordinance for Panton, which would address the condition and management of trees in the public right of way and on public lands in the town. Trees provide many benefits and are part of Vermont's traditional landscape and rural character.

The Vermont Urban and Community Forestry Program (https://vtcommunityforestry.org/) provides guidance and technical support for town tree planning, planting and management activities. The maintenance of roadside trees is challenging; both road maintenance and agricultural activities can conflict with the establishment and health of trees. It is important, nonetheless, for Panton to plan for the future of its forests and trees, and considering a Tree Ordinance could be one important step towards this goal.

Fisheries

Due to its lakeshore and Dead Creek areas, Panton possesses extensive fish habitat and is a popular fishing destination for local residents and visitors. This reflects the fact that there are both warm water species such as bass and catfish in abundance in the creeks, and cold-water game fish in the lake, such as trout and perch. The fish populations in the lake have suffered from numerous environmental stresses, such as contaminants and the spread of the lamprey eel and the zebra mussel, but these populations fluctuate over time, and improvements to septic systems and farm management practices, as well as storm water drainage management bode well for the future of the lake's water quality and aquatic habitat.

In fact, the State of Vermont has just adopted an updated version of the Basin Plan, “Opportunities for Action” which will strengthen the effort to improve water quality, and which supports Panton’s natural resource planning efforts.

Rare and Endangered Species

According to inventories conducted by the Vermont Department of Fish and Wildlife, Panton is home to rare or endangered bird species in five separate locations. These include the nesting sites of the Loggerhead Shrike and the Short-Eared Owl. Additionally, one site along Lake Champlain has been identified as a significant community of a rare orchid.

Air Quality

Panton, as a rural town without any industry or extensive traffic enjoys relatively clean, unpolluted air quality. There are no factors, plans or projects in the immediate future that would alter this condition, other than the potential for increased pollutants from the Ticonderoga Paper Mill, which recently considered burning used tires as fuel for the plant. Panton should monitor this activity if it is proposed anew and understand what the potential impacts to the town’s air quality could be. Odor from the plant is occasionally prevalent in Panton when the wind direction supports airborne pollutant dispersal to the north and northeast.

Other than background air quality considerations that have regional impacts, there are no issues or actions that would need to be addressed in this regard, other than to continue to promote a shift to lower emission vehicles and renewable energy options with lower carbon footprints and to encourage the use of clean fuels and renewables for home heating.

As Panton is a member of the Addison County Solid Waste District it is governed by an ordinance prohibiting the burning of solid waste. Outdoor burning of brush piles requires a burn permit from the town Fire Warden when there is no snow on the ground.

Outdoor wood stoves are controlled by Vermont state air pollution control regulations (10 VSA 5 - 204,205), adopted January 2009, and must meet those standards for safe and legal operation. Indoor wood stoves should include EPA approved pollution control measures for cleaner burning and more energy efficient operation.

Vision

Panton's natural resources are an integral part of the town's physical character and support our cultural and agricultural traditions. Care must be taken to maintain the environmental health of our landscape and wildlife for their economic benefits, recreational opportunities, and for their intrinsic value to future generations.

Overall Goals

1. Protect the natural resource base of the town of Panton.
2. Maintain the visual and physical character of the town as reflected in its natural resource base.
3. Promote and maintain high quality habitat for fish and wildlife.
4. Protect endangered species.
5. Protect and enhance water quality both in groundwater and in surface water.
6. Discourage improper disposal of hazardous waste and participate in the Solid Waste Management District's hazardous waste programs.
7. Encourage wise management of roadside trees, forest and woodlands to ensure environmental health and the stability of this renewable resource.

Strategies, Actions & Objectives

1. Promote the protection of natural and scenic resources through conservation easements and purchase of lands, including the possibility of lakeshore preservation.
2. Consider options to purchase or otherwise acquire municipal forest, conservation, or recreation land.
3. Consider expanding conservation districts as part of the zoning ordinance, with special provisions.
4. Monitor development activities to ensure the protection of rare and endangered species.
5. Consider adding streamside buffers to zoning regulations.
6. Consider adopting a Tree Ordinance.

Section 15. Water Resources

Flood Resiliency

Panton Watersheds

The Town of Panton flows into three separate drainages which all flow into Lake Champlain. The Lower Otter Creek watershed drains the eastern quarter of town from the higher elevations along Route 22A toward the east. The Otter Creek is Vermont's longest river and eventually empties into Lake Champlain in the Town of Ferrisburgh. The Dead Creek drains the central half of town and is characterized by slow flows whether at high water or in drought conditions.

Dead Creek is regulated by several impoundment dams in the Town of Addison and one in the Town of Panton. These dams serve to assist the State of Vermont in creating ideal conditions for waterfowl, especially in the Dead Creek Wildlife Refuge. Dead Creek joins the Otter Creek in the Town of Ferrisburgh before it empties into Lake Champlain.

The remaining lands in the western quarter of town drain directly into Lake Champlain in a series of small streams, swales and sheet flow. See Panton's River Corridors map for corresponding information.

Buildings Within the Flood Plain

Due to its relatively flat topography and marshy lowlands bordering these drainages, settlers in Panton have always found better locations to build their homes and invest in infrastructure than along its waterways. Early settlers in need of water power, generally moved into areas where there was sufficient head to power the machinery, such as seen in nearby Vergennes. Because of this lack of infrastructure in lower lying areas, Panton has basically no history of flooding damages. While most of Vermont is most vulnerable to flash floods, Panton's topography is one of the few towns in Vermont where inundation flooding is more commonplace, which is typically less damaging.

Both the floodready.gov website hosted by the VT Agency of Natural Resources and independent analysis of E-911 sites by ACRPC, indicate that only three single family homes in Panton fall within FEMA's estimated 1 percent flood zone. None of these homes are insured under the National Flood Insurance Program which Panton has been a member of since September of 1986. No damages have been recorded for any of these homes in recent memory.

Town-owned infrastructure at risk for inundation flooding is limited to Panton Road where the road crosses the Dead Creek and West Road, which formerly crossed Dead Creek south of Panton Road. The West Road bridge was abandoned and replaced by an impoundment dam when the wildlife refuge was developed. Only one member of the town's mitigation committee remembers a time when Panton Road was under water due to back up from Lake Champlain. No damages were recorded other than a road detour around the flooded section of town highway at that time.

From time to time when the Lake Champlain water level exceeds 101 feet in elevation above sea level some minor shoreline flooding may occur although due to the fact that almost all of the structures and residences are well above the highest recorded flood level of 103', little if any damage affects private property. The only other location where minor flooding occurs is in a public use/access area is at the Arnold Bay boat launch and beach area. This flooding will come up to the base of the access road and cover the entire beach area. Given that there is little above ground infrastructure in that area the flooding does not typically create any problems other than minor erosion of the road edge and beach area.

Emergency Planning and FEMA Eligibility
The Town of Panton utilizes an adopted Local Emergency Operations Plan to guide its actions should a need arise and has also adopted the recommended VTrans road and bridge standards for local highway construction and culvert replacement. The town of Panton conducted a planning process focusing on resiliency in 2017 which resulted in the adoption of a Hazard Mitigation Plan (1/10/2018) that received FEMA approval (1/19/2018).

The town is eligible for a 7.5 percent state match should a presidential disaster declaration occur. Under a presidential declaration, the town would be eligible for 75 percent of eligible costs to be reimbursed by FEMA, 7.5 percent would be matched by the State of Vermont and the town would be liable for 17.5 percent. Under the Emergency Relief and Assistance Fund (ERAF) which governs the state share, Panton will be eligible for a 12.5 percent match by the state once a local hazard mitigation plan has been completed. In the event the town chooses to limit future development in the mapped floodplain and in the recently mapped river corridors, it will then be eligible for a 17.5 percent state share leaving the town only liable for 7.5 percent of costs associated with declared disasters.

The Town of Panton is striving to reach the maximum reimbursement possible through development of a hazard mitigation plan and strengthening its regulations addressing development in the mapped floodplain and river corridors. The town has adopted Road and Bridge Standards (2014), and an annual Local Emergency Management Plan (2019). Updated ERAF status can be found on the state's Expanded Community Report for Panton.

Planning for Flood Prevention
Panton recognizes the importance of preventative landuse policies and practices in order to be resilient to floods and other such hazards. The probability of flooding is directly linked to the natural lay of the land and landuse plans, policies and practices. Culvert size, conventional piping, and impermeable surfaces impact flooding. Panton must consider policies and practices within a watershed context to recognize the extent of positive or negative impacts on the health and resiliency of our town, our neighboring towns and our shared natural resources.

Land Use Planning
The materials we use, the siting of development and infrastructure, and the way we design and maintain street networks and related infrastructure are some examples of how our land management determines our ability to mitigate the impacts of stormwater and flooding. New structures should not be built in flood plains and land use plans should minimize the disturbance to our wetlands and forestlands, in order to capitalize on their ecological function for water absorption. Road maintenance should follow the *Vermont Better Roads* program guidelines: http://vtransengineering.vermont.gov/bureaus/mab/better-back-roads

Natural Resources and Ecological Services
Our forests, hedgerows and open space are essential players in flood mitigation, as well as providing wildlife habitat and water quality resources. The unnecessary removal of vegetation, including forest cover and filling of wetlands increases the probability of flooding and erosion of sediments and toxins into our waterways. Local policies, including shoreland policies, which seek to maintain stable forest and wetland ecosystems deter devastating flood impacts.

Stormwater
Green Infrastructure and Low Impact Development are technical and policy related strategies which towns can use to slow stormwater, allow it to infiltrate into the ground, and/or filter sediments and pollutants before entry into tributaries, ponds and lakes.

These practices are particularly pertinent to homes in our R-10 district on the west side of Lake Champlain, but are encouraged throughout our municipality.

Agricultural operations can plan to lessen the impact of runoff from agricultural fields and impervious surfaces and lessen the impact of stormwater by following Vermont's Required Agricultural Practises (RAP's). Maintaining wetlands and incorporating vegetated buffers along river corridors are two such examples.

For more information on these techniques go to the following websites:
http://www.watershedmanagement.vt.gov/stormwater/htm/sw_green_infrastructure.htm

http://agriculture.vermont.gov/water-quality/regulations/rap

Lake Champlain

Lake Champlain is an extraordinarily important environmental, recreational and economic resource for the town of Panton and the state of Vermont. Lake Champlain's water serves as drinking water for the area and the lake's clean water and aesthetic beauty continue to draw business and tourists to the region. Water quality is critical for the lake to continue as the major regional drinking water supply and to sustain a healthy fishery and activities such as swimming and boating.

The significance of Lake Champlain and its watershed have been underscored with the designation of this resource and its environs as an International Biosphere Preserve. Lake Champlain was also designated a resource of national significance by the Lake Champlain Special Designation Act (Public Law 101-596), which was signed into law in 1990. The act's goal was to bring together people with diverse interests in the lake to create a comprehensive pollution prevention, control and restoration plan for protecting the future of the Lake Champlain Basin. This goal has been realized by the plan, Opportunities for Action. The Lake Champlain Basin Program is currently working to implement the plan by addressing water quality issues, land and water use, and recreational and educational opportunities throughout the basin.

There are a number of distinct and unique planning issues and opportunities related to the lakeshore environment and the management and use of the lake resource itself. Panton will have to continue to focus on these issues and develop consistent and effective policies and programs to successfully address them over time.

Erosion and Pollution

Opportunities for Action identified four priorities for the Lake Champlain Basin, three of which are directly related to erosion and pollution in the lake.

1. Reduce phosphorus inputs to Lake Champlain to promote a healthy and diverse ecosystem and provide for sustainable human use and enjoyment of the lake.

2. Reduce toxic contamination to protect public health and the Lake Champlain ecosystem.

3. Minimize the risks to humans from water-related health hazards in the Lake Champlain Basin

Local planning can be used as an implementation measure to achieve these priorities. Local plans should delineate lakeshore districts that would include land that is visually, functionally and physically related to the lake. In Panton this would include all the land that is west of the height of land demarcating the Dead Creek Watershed.

To preserve lakeshore character and reduce sedimentation and runoff carrying nutrients like phosphorus and pollutants into the lake, bank stabilization is critical. Local regulations should require development setbacks to prevent increased bank erosion and pollution.

Panton's farmers have changed their management practices to reduce the amount of nutrients running off into the lake. Soil conservation and ecologically sound farm management practices are being actively supported and implemented through the activities of the Natural Resource Conservation Service. Continuation of these programs and the participation of Panton's landowners in them are supported by this plan.

Another important consideration for the reduction of phosphorus and the prevention of water-related health hazards is the replacement of failed or substandard septic systems. A program to identify these types of problems and prepare remediation plans may need to be developed in the near future, as voluntary compliance with health standards and regulations has not always been forthcoming. New construction and renovation projects along the lakeshore might trigger site and septic system review, and zoning should require adherence to accepted or adopted standards for aesthetic and environmental quality.

Shoreline Vegetation and Stabilization

Shoreline vegetation stabilizes soil, prevents erosion, and thus reduces sedimentation and increased turbidity. Shoreline vegetation provides food for fish, screens buildings, and preserves the natural character and look of the shoreline. It is an important aesthetic element. A minimum buffer or filter strip of 50 to 100 feet of natural vegetation should remain intact where possible. Replanting should be encouraged to improve conditions that may already be altered and eroding, or aesthetically degraded. Techniques for preventing shoreline erosion can be found in The Shoreline Stabilization Handbook for Lake Champlain and Other Inland Lakes, which is available for review in the Panton Town Office.

Lake Encroachment

Structures in the lake itself are subject to permit approval by both the Vermont Department of Environmental Conservation (for projects constructed at or below the average annual or mean water level of 95.5' above sea level) and the Army Corps of Engineers (for projects constructed at or below the mean high-water level of 99.8' above sea level). Excluded from this provision are temporary structures removed on a seasonal basis.

Public Access

Under the Public Trust Doctrine, public waters of the state are to be maintained with a minimum of hazards and accessible to all.

Panton has few public access opportunities along the lakeshore within its boundaries. There are two state parks located on the lakeshore in adjacent towns, Button Bay State Park in West Ferrisburgh and D.A.R. State Park in Addison.

The Arnold Bay boat launch area has been managed to facilitate public use, but it has limited space. The steep access road does not promote safe or easy access on foot, and eventually a stairway or walkway may need to be built.

The narrow right-of-way at Turkey Lane experiences minimal use and is limited for recreation activities as the shoreline is not conducive to swimming or passive recreational uses.

The Lake Champlain Land Trust has purchased Rock and Mud Islands, and these properties are now accessible to the public. Panton should continue exploring any other opportunities that exist for lakeshore conservation, land preservation, and additional public access.

Aesthetics

Visual quality and aesthetics are integral to our appreciation and enjoyment of the lake and its environs, and every effort must be made to preserve and protect the natural beauty and scenic qualities of the lake and its shore lands.

Visual access to the lake is important also, enhancing property values and contributing directly to the quality of life in Panton. Agricultural meadows adjacent to the shore and areas where there are now unobstructed views of the lake from public roads should be maintained. Site plan review for lakeshore development proposals might be one basic provision that could be adopted in the zoning regulations to address these issues.

In approving a lakeshore residential development, the Panton Planning Commission granted a permit with specific conditions that required the clustering of buildings and the preservation of a meadow that afforded views of the lake from the road. Minimizing visual impact is possible with sensitive site planning and architectural design, sufficient set- backs of structures, landscaping, and the preservation of existing site character. The town should balance these initiatives to ensure that it respects private property rights.

Overall Goals

1. Monitor and respond to any changes in flooding patterns as appropriate in order to protect Panton homes and resources.
2. Monitor and respond to lakeshore flooding and slope erosion events and issues.
3. Promote resiliency in general and low impact development strategies that employ green infrastructure techniques for flood and water quality measures.
4. Continue to promote lakeshore protection and stabilization strategies and inform citizens with regard to the Shoreland Protection Act

Policies

1. No development is allowed within Panton's river corridors as identified and defined by ANR.[1]

2. No development is allowed within Panton's flood plains as identified and defined by FEMA.

3. Development is discouraged in sensitive areas including lowlands, wetlands and wooded filtration and recharge areas.
4. Encourage the maintenance, management and development of wooded buffer strips, hedgerows and woodland areas that serve to filter and slow runoff from agricultural lands and impervious surfaces into our river corridors.

5. Support Best Management Practices for lakeshore landscapes and shoreland stabilization and encourage low impact development strategies

6. Maintain adequate road, bridge and culvert design to minimize impacts of minimize risk of flooding.

Recommended Actions

1. Consider revisions and refinements to the zoning and subdivision ordinance that incorporates support or requirements for green infrastructure and low impact development.

2. Review and revise the town maps to incorporate new information regarding areas susceptible to erosion such as clay banks, first order watersheds and the state mandated shoreland protection area, as well as any other pertinent mapping elements.

3. Explore site plan review options to require setbacks from water features and to encourage the retention of existing buffers.

4. Consider a river corridor ordinance and/or river corridor zoning regulation/s to improve water source protection.

5. Consider additional zoning regulation/s requiring vegetated areas and maintenance of hedgerows along our rivers and streams.

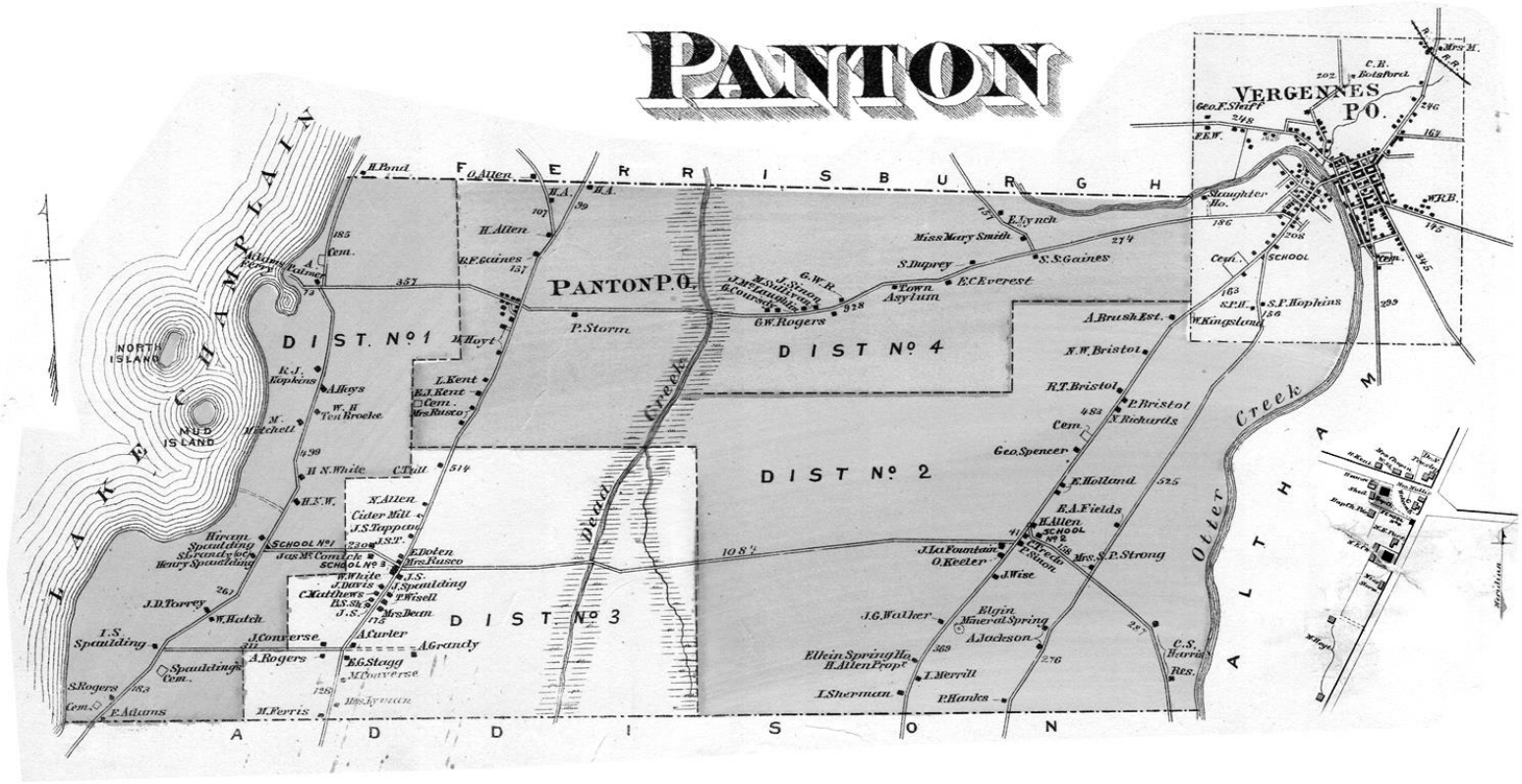
[1] The Statewide River Corridor includes rivers and streams with watersheds over two square miles. For small streams, with watersheds less than two square miles, the extent of the River Corridor is measured on the ground as fifty (50) feet from the top of the stream bank. The SRC of 1/2/2015 was developed using map-based data on watershed catchments, stream gradient, reference channel width, meander belt widths, valley walls, and major transportation features.

Section 16. Current and Future Land Use

Historic Land Use Patterns

Historically, Panton has always been primarily an agricultural community. The town's proximity to major road and rail transportation routes running north and south through Panton and its neighboring communities of Ferrisburgh, Vergennes and Waltham has also ensured that the agricultural base had (and to this day has) access to services, commodities, and markets.

There were, nevertheless, several villages or more thickly settled areas in town, and where these existed the schools were located, comprising four districts in all. At the junctions of Jersey Street and Allen Road was one historic settlement area, and at the junctions of present day 22A and East Road



Early 1800s Map of Panton

was a second settled location. Each had schools at or near the crossroads, as did "Panton Corners." To this day, Panton Corners (or Four Corners as it is commonly referred to) serves as the "center" for the town, despite its location in the western section of the community. Historically this center has had the town's post office, a school, church, and the Town Hall. It has in recent times served as one of two commercial areas in the community, with the general store.

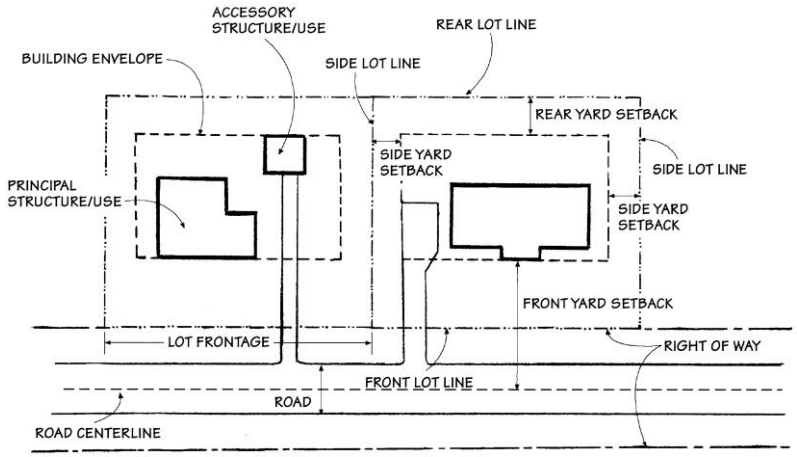
The road network in Panton was established in the early 1800's and remains essentially intact today.

Panton consists of 14, 272 acres, or about 22 square miles and is bordered on the West by Lake Champlain; on the East by Otter Creek and the City of Vergennes. With the road network relatively unchanged since the early part of this century, any and all growth has occurred almost exclusively along these routes, creating linear development patterns, almost exclusively residential in character. There are 276 housing units in Panton, including eight seasonal homes. There is a campground, farm store, general store, and several home occupations with little, if any, land use components associated with them.

There continues to be one village center in Panton, where the Town Hall, Baptist Church, general store and gas station is located. It is the only commercial area in the town. The general store is currently not in use. A state-owned wildlife conservation area, known as the Dead Creek Wildlife Management Area extends along Dead Creek from the south and comprises 205 acres of land. There are two private air strips.

Pressures have led to some subdivision of farmlands on a 1 to 3 lot basis, but so far, Panton has escaped the type of large-scale subdivisions, which many of the agricultural communities to the north and south have experienced, in part due to its location and soils. The predominance of clay silt associations does not afford suitable locations for septic fields. This in turn has led to a proliferation of 10-acre lots, which were permitted under local zoning code when developed with engineered septic fields, but which did not require a state permit. In contrast to this fact, Panton does have municipal water service, as part of the Vergennes Panton Water District, with the water pumping facility located in Arnold Bay. While many homes and farms are served by private, shared lines connected to the main trunk which runs to Vergennes, most of the town is covered by the water district system. Thus, potable water availability has certainly not been an impediment to development. A comprehensive map of the system is being developed.

Panton has a right-of-way to the lake at Turkey Lane and owns three acres at Arnold Bay, including the water pumping facility, which is currently being developed into a Town Beach facility.



The typical components of a residential lot/ site plan.

Future Land Use

There is overwhelming support in Panton for maintaining its rural residential and agricultural pattern of development and the integrity of its existing natural resources, particularly lands along Dead Creek and Otter Creek. While the pattern of residential development will continue along the road network, it is envisioned that future development that is more creative may allow "back lot" and clustered type of residential development, which will preserve the rural character, open spaces, and viable farm land. This has happened to some extent in a subdivision just to the west of the village center. Area for more intensive development via smaller lot size is a consideration that the town should address, particularly as pressures increase in the future. The Planned Development Ordinance and the subdivision regulations both encourage/support clustered and innovative development patterns.

Expanding the existing neighborhood commercial district is another proposal that may be explored to encourage more focused growth, although there are potential physical and development limitations for this. The other area where this may be a possibility is the vicinity of Sand Road/Basin Harbor Road intersection, where the Farm Supply operation is in place. Over time, denser development will only be possible with innovations in septic systems and/or the development of a community septic system. Panton's proximity to Vergennes allows the town to take advantage of all its services, and indeed there are several political and social realities that will continue to support this: Panton receives its mail from the Vergennes Post Office, and although we share a zip code, 05491, residents may use Panton as their mailing address. The Town has unionized with the City and the Town of Waltham to form the Vergennes Union Elementary School and Vergennes Union High School with Addison, Ferrisburgh and Waltham.

A proposal for Route 22A Bypass around Vergennes and through Panton was forwarded in the late 1990's, but given current economics and state transportation policy, it is highly unlikely that a bypass will be considered anytime in the near future.

Lakeshore uses should remain primarily residential, with the understanding that the Arnold's Bay facility has the potential to become a multi-purpose resource for the town in the future. The purchase or securing of town conservation or forest land may also be considered to develop additional community resources over time.

As Panton grows and changes the community should employ planning methods and initiatives which will maintain the historic land use patterns and valued physical and aesthetic characteristics of our community while providing suitable places to live, work, and farm for our future citizens.

Future Planning Areas

Panton is a Champlain Valley lowland town but does have some distinct topography and delineated areas of town where land use planning can be tailored to specific characteristics and historic land use patterns. The future land use plan reflects these qualities and suggests some planning considerations, which could be applied as the town looks to manage its future growth and land use decisions

Five distinct areas have been identified with concomitant guidelines for future planning in these areas. These Future Land Use Areas include:

1) The Ridgelands Area
2) The Shorelands Area
3) the Neighborhood Commercial Area
4) the Rural Residential Agricultural Area
5) Floodplains or the Floodplain Area

The Ridgelands Area represents the higher ground of Panton that contains a pattern of woodlands and forests, meadows and croplands, and incremental residential development. Outstanding long-distance views are characteristic of this landscape area. Some quarrying and forestry activities have taken place in the areas delineated by ridgelands The Ridgelands include areas of shallow soils, exposed bedrock and Clayplain forests. This area can accommodate additional residential development in or at the edges of wooded sections that is carefully sited and sensitively developed.

The Shorelands Area represents the lakeshore of West Panton. Most of this area is comprised of large lot zoning with a few sections of smaller, grandfathered lots primarily in the northern portion along the lake. Limited future development is envisioned for this area, although several large parcels could be subdivided in the future. Eroding clay banks along the lakeshore is one notable land use and development issue, although long stretches have been artificially stabilized with rip rap, constructed sea walls and gabions. As much of the lakeshore was farmed, most of the wooded areas are along the shore, with long open stretches of meadow and successional growth along Lake Road.

The Neighborhood Commercial Area is one location in town where additional density may be considered in the future, although the availability of suitable soils to accommodate septic systems could be an issue. The village commercial planning area represents the historic settlement of "Panton Four Corners" and includes the Town Hall, a church and a village store (currently closed). Future planning efforts for this area could focus on expanding the district and identifying locations for septic systems to serve any increase in density. New development in this area can build on historic land use and architectural design patterns.

The Rural Residential - Agricultural Area is characterized by extensive parcels of croplands and farmsteads, open spaces with some small sections of woodlots, and scattered low density residences along the roads of the area. The minimum lot size for much of this area is currently 10 acres, with some small areas of 5-acre zoning. The primary long-term land use desired in this area is ongoing large- and small-scale agriculture interspersed with low density development.

The Floodplains Area represents Federally determined floodplain zones surrounding Dead Creek and Otter Creek. While these areas are limited in size, they do contain constraints for development and thus will remain sparsely developed and used primarily for conservation and recreational purposes, along with the cropping and grazing that currently occurs in association with the active farms in or abutting this area.

Rather than change zoning districts at this time, several planning initiatives will be considered in the future to guide Future Land Use in the specific physiographic regions of the town. To this end, the idea of 5 planning areas are proposed. These planning areas are thus incorporated into the Town Plan and could eventually be referenced in the zoning ordinance. They would carry no statutory authority, and provide guidance and direction only for current and future land owners and developers. Examples of the type of guidance or recommendations that might be forwarded with them are outlined. For the Shoreland Planning District considerations include: A) careful siting of homes, buildings and roads; B) shoreline stabilization initiatives to protect soils and water quality; and C) guidance as to aesthetic qualities and supporting development approaches which avoid undue impacts to our scenic resources.

For the Ridgeland Planning District consideration should be given to efforts which address A) the preservation and management of wildlife and habitats and their connectivity through the town; B) the preservation and management of Clayplain forests; C) careful development of access points and shared driveways to new residences; D) agricultural development and preservation; and E) maintaining the integrity and contiguity of open spaces and forestlands.

Current Zoning Districts and Future Land Use Maps

The two maps included in this town plan that address land use are the current Zoning Districts Map and the Future Land Use Map. The Zoning Districts map reflects the location and characteristics of Panton's current land use, including lot sizes and densities. This pattern and these districts have served Panton well over the last ten years and the town has grown in an orderly and acceptable pattern, consistent with the goals of the plan.

The Future Land Use Map reflects the interest in exploring the future of Panton's land use and development patterns and provides a point of departure for the town to consider some refinements to the either the current zoning districts or the provisions of those districts. It recognizes that in the coming years Panton may want to address the means by which it manages its future growth and land use patterns.

This approach to land use planning districts will be the focus of future planning efforts for the Panton Town Planning Commission.

Overall Goals

1. Maintain the rural residential/agricultural character of the town
2. Maintain and promote the agricultural land base of the town.
3. Support Land Use planning initiatives which maintain and enhance the economic vitality of Panton and the overall physical and spiritual health of its citizens.
4. Maintain and enhance community facilities and lands.
5. Support maintenance of open space and agricultural land.
6. Promote safe, sensible, appropriate development patterns whenever and wherever possible, limiting strain on town services and expenditures. Locate several areas where more densely clustered, well-planned residential development could occur.

Policies and Recommended Actions

1. Apply for *Village Center Designation* program in order to garner additional State support for any revitalization in this historic area.
2. The Planning Commission should initiate a review of Land Use Districts, Boundaries and Densities.
3. Consider the delineation of several areas where more densely clustered, well-planned residential development could occur.
4. Explore ways to refine the Zoning Regulations to promote more intensive land uses where appropriate.
5. Support diversification of the agricultural and commercial base where feasible and appropriate, in the permitting process.
6. Develop more extensive approaches to land preservation and conservation initiatives in Panton. Protect existing open space where possible and appropriate.
7. Monitor State Agency of Transportation activities as they relate to or affect Panton.

Section 17. Implementation

As per Section 4382 of Chapter 117, Vermont Municipal Regional Planning and Development Act, town plans shall include "a recommended program for the implementation of the objectives of the development plan."

As part of the Panton's stated goals and objectives for this plan, several key elements have been identified which the town can begin to address in the next five to ten-year period. These elements serve not only to guide growth and development, but also to preserve those characteristics of Panton that have been identified as being integral to the identity of the community and the quality of life that exists there.

Of the goals stated for the plan, four objectives emerge as being worth of immediate attention in the near future. If we divide the proposed implementation plan into short term, 1-4 years and mid to long-term, 5-10 years or greater, we can assign specific target activities and accomplishments to be undertaken within this period.

The implementation of goals and objectives as listed are derived from the individual chapters. More detailed objectives/activities and policies are provided therein. The primary goals and objectives are as follow in this outline.

Short Term Implementation Efforts (1-4 yrs)

1. Agriculture

1.1 Support the purchase of development rights from farmers where requested or appropriate.

2. Housing

2.1 Continue the ongoing review of zoning bylaws and districts for applicability to the fair provision of affordable housing and land development. Propose amendments to current zoning laws as appropriate.

3. Development and Economy

3.1 Explore the neighborhood commercial district for changes to zoning bylaws to ensure and support, as appropriate, development in the future.

3.2 Review zoning laws to ensure that the regulations support town plan recommendations and initiatives.

3.3 Meet with businesspeople in Panton and the Addison County Chamber of Commerce/Development Corporation to explore possibilities for future that reflect Panton's context and capacities.

3.4 Continue to support new agricultural enterprises.

3.5 Continue to support businesses and home occupations as appropriate.

4. Town Facilities and Recreation

4.1 Continue to manage and maintain our lakeshore access while monitoring use.

4.2 Work with Selectboard to develop recommendations for improvements to the town's road and pathway network and policies to promote safe and alternative means of transportation.

4.3 Continue to support the Selectboard's effort to revitalize Panton's Town Hall and to address its functional deficiencies

4.4 Strive to highlight Arnold Bay to promote and enhance its historic values, scenic and natural qualities to local citizens and visitors.

4.5 Continue to support the Lake Champlain Byway and participate in Byway activities.

4.6 Explore options for easements for or purchase of municipal conservation and recreation land.

5. Natural Resources

5.1 Review Zoning By-laws to ensure suitable lakeshore development standards and review processes. Propose amendments for same, to include site plan review and/or different lot standards, shoreline stabilization.

5.2 Actively explore purchase of town owned conservation or recreation lands. Initiate fund for same or explore opportunities for funding.

6. Planning

6.1 Develop strategies for more public involvement in the planning process. Sustain liaison efforts with the Selectboard.

7. Energy

7.1 Discuss conformance with Act 174 so as to have statutory participation in petitions for Certificates of Public Good.

Mid. Term Implementation Efforts (5-10 yrs)

1. Agriculture

1.1 Support the purchase of development rights from farmers where requested or appropriate.
1.2 Support efforts to promote agriculture practices that address or enhance water quality, wildlife, and recreation.

2. Housing

2.1 Work with the Land Trust, Habitat for Humanity and/or other entities to support or develop affordable housing opportunities.

3. Development and Zoning

3.1 Continue to monitor the zoning bylaws to reflect changes in the town.
3.2 Review zoning laws to ensure that the regulations support town plan recommendations and initiatives.

4. Town Facilities and Recreation

4.1 Implement access improvements to town lands.
4.2 Explore and develop trail networks along Class 4 roads, as appropriate.

5. Natural Resources

5.1 Explore conservation easements for contiguous undeveloped parcels and farmland. Consider amendments to zoning districts to allow for conservation lands (such as wetlands).

5.2 Engage the citizens and property owners of Panton in an educational effort regarding the value and need for preserving and enhancing hedgerows, vegetative buffers and forestlands for aesthetics, community values, property values and ecological health.

5.3 Revisit the development and adoption of a Tree Ordinance.

5.4 Participate, as appropriate, in regional and statewide efforts to improve water quality on Lake Champlain.

6. Transportation

6.1 Implementation and maintenance of bike path and/or recreation path opportunities in town. Explore opportunities for improving road safety for bicyclists, walkers and joggers.

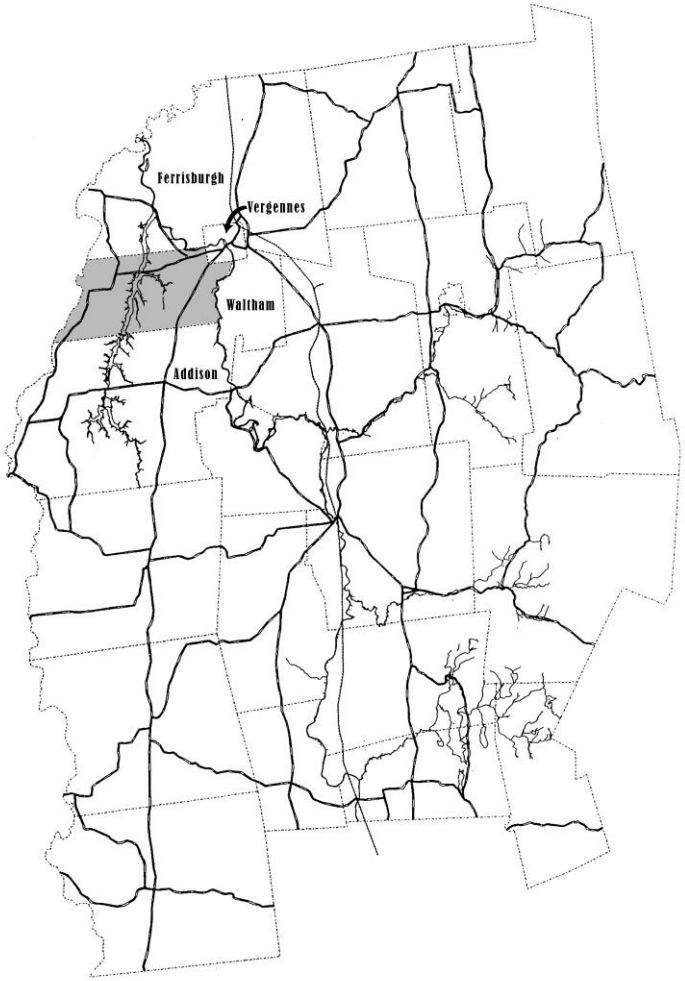
6.2 Monitor town road use, maintenance, management, and safety.

6.3 Improve public transit options for town residents.

7. Citizen Involvement

7.1 Promote citizen understanding and involvement in planning and town affairs and projects through better publicity, town sponsored events and other forms of outreach, such as an annual planning newsletter.

Section 18. Connections and Compatibility



Panton relies on regional resources. It must plan for the future within the context of the region which provides the town with services and educational, recreational, cultural and economic opportunities. In turn, Panton provides scenic beauty, residential opportunities, and economic support to the region and many of its political, educational, and social service institutions. This creates the basis for a mutually beneficial relationship.
Panton is a member of the Addison County Regional Planning Commission, the Vergennes Union Elementary School and Union High School Districts, and is served by the Vergennes-Panton Water District.

In general, Panton's Town Plan is compatible with the Addison County Regional Planning Commission's Regional Plan, last adopted in 2016. The regional transportation plan has been updated since then, with specific discussion on the road and scenic byway network of the region. The Regional Plan underlines the importance of this resource to our towns and notes the traditional pattern of farm and forest, village centers, and open space.

While the development pressures that may alter or undermine these patterns are evident elsewhere in the county, for the most part Panton, as of 2017, has yet to experience developments or major changes that threaten this resource locally. Some concern exists, however, with regard to policies that support and maintain agriculture and the designation of agricultural lands. The Regional Plan, as it is refined, should address compatibility with town agricultural lands designation, to ensure a regional approach to the support of agriculture and agricultural lands preservation.

Addison

Addison's Town Plan was last adopted in 2016. Panton's southern border is shared with Addison and has similar zoning to Addison, although Addison, like Ferrisburgh, has more stringent lakeshore zoning; Addison requires a 200' setback, although greater densities are allowed. Any developments other than residential require conditional use permits and site plan review.

Panton shares the Dead Creek watershed with Addison (and Ferrisburgh), and as such is part of a regional conservation district and floodplain, ensuring that scenic and natural resource quality will be sustained for generations to come.

In general, the land uses that are in place along the Addison/Panton town border and beyond are compatible; often single properties and/or agricultural activities span the town lines. Addison's plan outlines a density-based subdivision requirement for its rural-agricultural district. Most of Panton's north south roads extend into Addison, 22A, Hopkins Road, Jersey Street and Lake Street provide this connection. The Lake Champlain Bikeway courses through both communities as well, along Lake Street. The two towns also share a similar landscape and agricultural tradition thus ensuring connectivity and compatibility into the foreseeable future.

Ferrisburgh

Ferrisburgh's current Town Plan adopted in 2006, amended in 2007 and most likely readopted after a major plan update, in the Summer of 2017. The lands to the north of Panton are part of Ferrisburgh and an area known as West Ferrisburgh. The land uses and zoning districts are, for the most part, compatible with those of Panton. In fact, West Ferrisburgh is contiguous to Panton and separated from the rest of Ferrisburgh by Otter Creek and Vergennes, requiring, as is the case with Panton, all traffic to travel through Vergennes for destination points to the north. This fact funnels traffic through Panton's road system for several miles. As this part of Ferrisburgh develops, future traffic on Basin Harbor and Panton Roads, as well as associated impacts to the road conditions and possible development pressures to adjacent lands, may be anticipated.

Ferrisburgh and Panton recognize the value of both Dead Creek and Otter Creek and, for the most part, the rural agricultural/residential districts which abut these water courses maintain low density, low impact development. Floodplain areas also add to the protection provided for these surface waters.

As with Addison, Panton shares the Dead Creek watershed and Wildlife Management Area designation with its northerly neighbor. Panton should work both with Addison and Ferrisburgh on matters pertaining to the maintenance (and perhaps expansion) of this valuable resource.

Ferrisburgh has a conservation district along Lake Champlain, with a minimum 200-foot lakeshore setback and 25-acre lot sizes. The lakeshore district in West Ferrisburgh has historic uses that include summer camps and housing development (which continue along Panton's shores as well) and has the mixed-use development of the Basin Harbor Club and Button Bay State Park just to the north. The presence of the State Park adds to Panton's traffic only in a minimal fashion, but has benefits to the town insofar as it brings business to several local establishments.

The state park also reduces pressures on Panton lands for open space along the lakeshore, since it is truly a regional resource historically enjoyed and used by many Panton residents.

Vergennes

Vergennes' Municipal Development Plan was readopted in 2014. Vergennes was, in part, created from lands that were once included in Panton; to this day the communities share key municipal facilities and resources, including the Vergennes-Panton Water District, and the Union Elementary School and High School. Vergennes also serves as a regional center for the area, providing commercial services on which Panton residents rely. In turn, Vergennes residents regularly use Panton's boat launch and beach area, and Vergennes employers and businesses find an employee base in Panton. Panton also derives its fire protection and rescue services from Vergennes, and regularly supports these services with financial contributions.

Compatibility with adjoining land uses in Vergennes is an issue, however. On the south side of Vergennes, residential density exceeds that of Panton at 1 unit /acre versus 5- and 10-acre zoning in Panton, but is consistent with Vergennes being a city, a fact implying greater densities. On the westerly edge of Vergennes, Industrial and Medium Density Residential districts abut Panton, differing from the current Panton zoning of RA-5 and RA-10 (residential with 5-acre zoning and rural agricultural with 10-acre zoning, respectively).

One additional area of coordination or collaboration potentially exists between the two municipalities. Panton has explored a transportation path project which would initially connect Panton Four Corners with Vergennes following the Panton Road alignment. This path could or should connect with any future bikeway or paths in Vergennes; indeed, the City and Panton should explore these opportunities and resuscitate local efforts to develop path connections, especially in light of Vergennes 2015-2016 Downtown-Basin Master Plan which highlights next steps for implementing walk-bike and recreation opportunities.

Waltham

Waltham last adopted its Town Plan in 2015. Waltham is separated from Panton by the Otter Creek, and is not directly accessible by road from Panton. Other than visual and environmental factors that characterize the Otter Creek watershed, Panton and Waltham have no physical interrelationships. As in Panton, wetlands and floodplain are the predominant landscape types along Otter Creek, and as such will see little development over time. Traditional agricultural uses may be continued on both sides of the river, and Waltham and Panton share a common legacy in terms of the wildlife habitats and high-quality bottomland forests present along the creek. Where necessary, the towns should work cooperatively to protect these habitats and to monitor and improve groundwater and surface water quality. Along the river, each town has zoning districts that are low density rural agricultural designations.

Section 19. Maps of Panton

A note about the map section:

These maps were prepared in consultation with the Addison County Regional Planning Commission. They reflect the current condition of the town and its physical and demographic characteristics. They conform to Vermont State Geographic Information System standards. The buildout map represents the potential number of individual housing units that could be built under the current Panton Zoning Ordinance, and as such provides a sense of how the town might or could develop over time, without any changes to the ordinance or incentives for alternative land use patterns. Note that all the maps here have current individual property parcels shown on them. Also note that an education map is not included as there are no public education facilities located in the town.

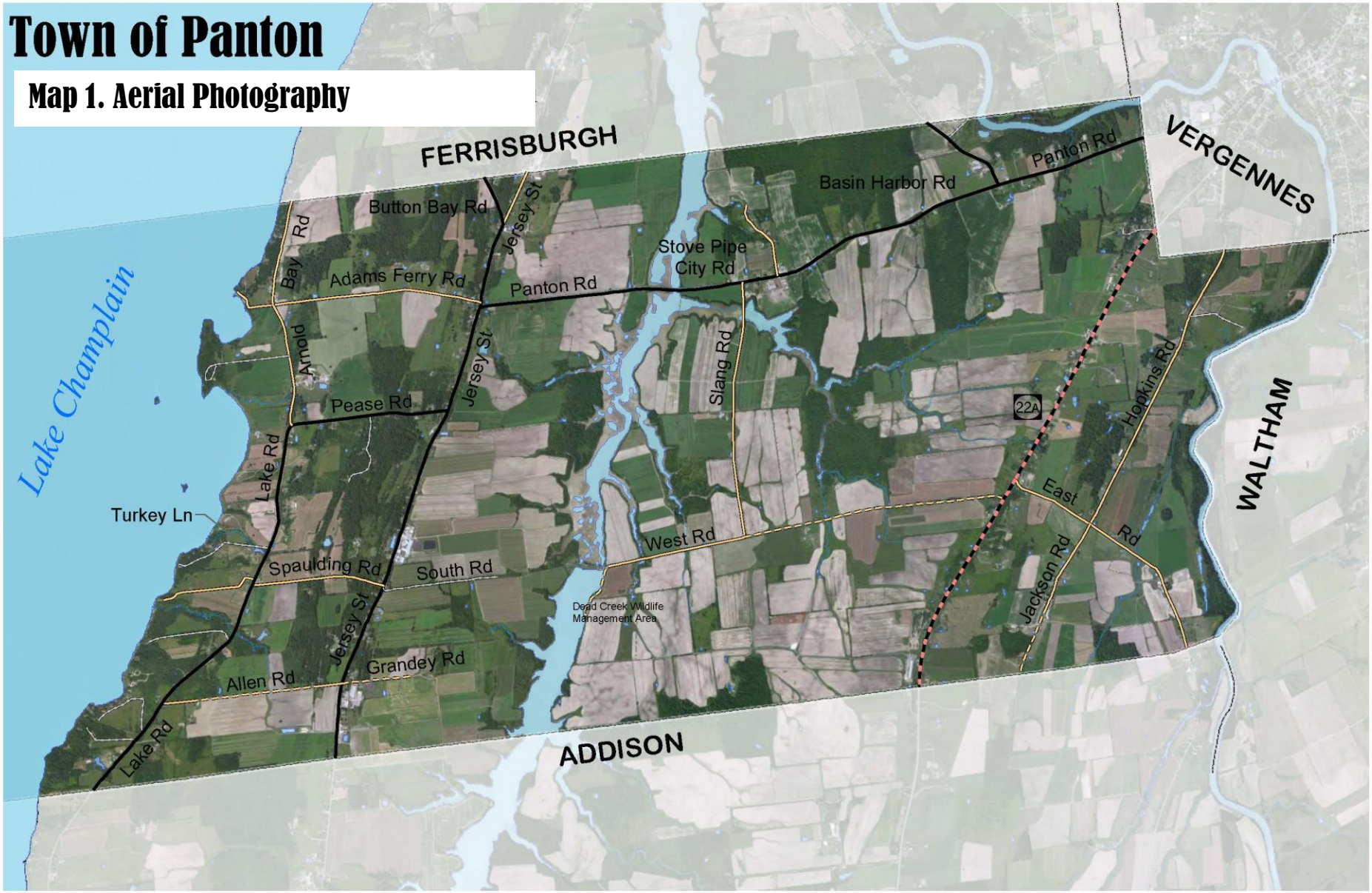
The list of maps includes:

1. Aerial Photography
2. Utilities, Facilities and Transportation
3. Important Resource Areas
4. Generalized Land Cover/ Land Use
5. Population Density
6. Primary Agricultural Soils
7. Landscape Slope
8. Water Resources/River Corridors
9. Transportation
10. Future Land Use
11. Cultural, Recreational and Scenic

(See also Community Value Maps p.12-13)

Town of Panton

Map 1. Aerial Photography



Bing Aerial Photography, 2016

US Highway
State Route or Class 1
Town Class 2
Town Class 3
Town Class 4
Legal Trail
Forest Rd
Private Rd

0 0.5 1 Miles

N

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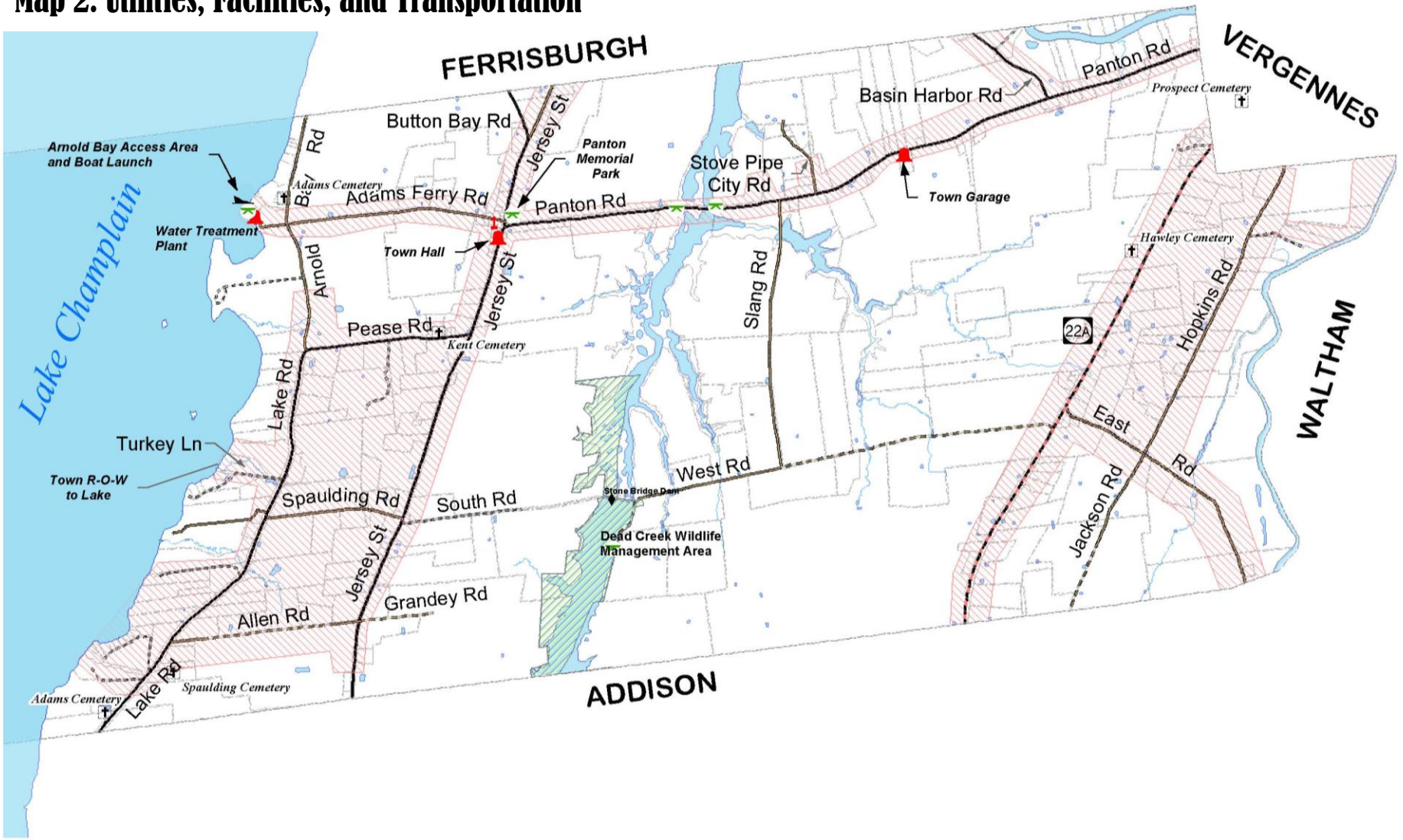
Town of Panton

Map 2. Utilities, Facilities, and Transportation



Sources:
Dam: VT Dam Inventory
Vergennes-Panton Water Service Area from sketch maps.
Tax Parcels: 2015, R. J. Turner Co., Bristol, VT.
Bing aerial photography, 2016.

Municipal Government
Church
Park or Gathering Place
Dam
Cemetery
Vergennes-Panton Water District Service Area

0 0.5 1 Miles

N

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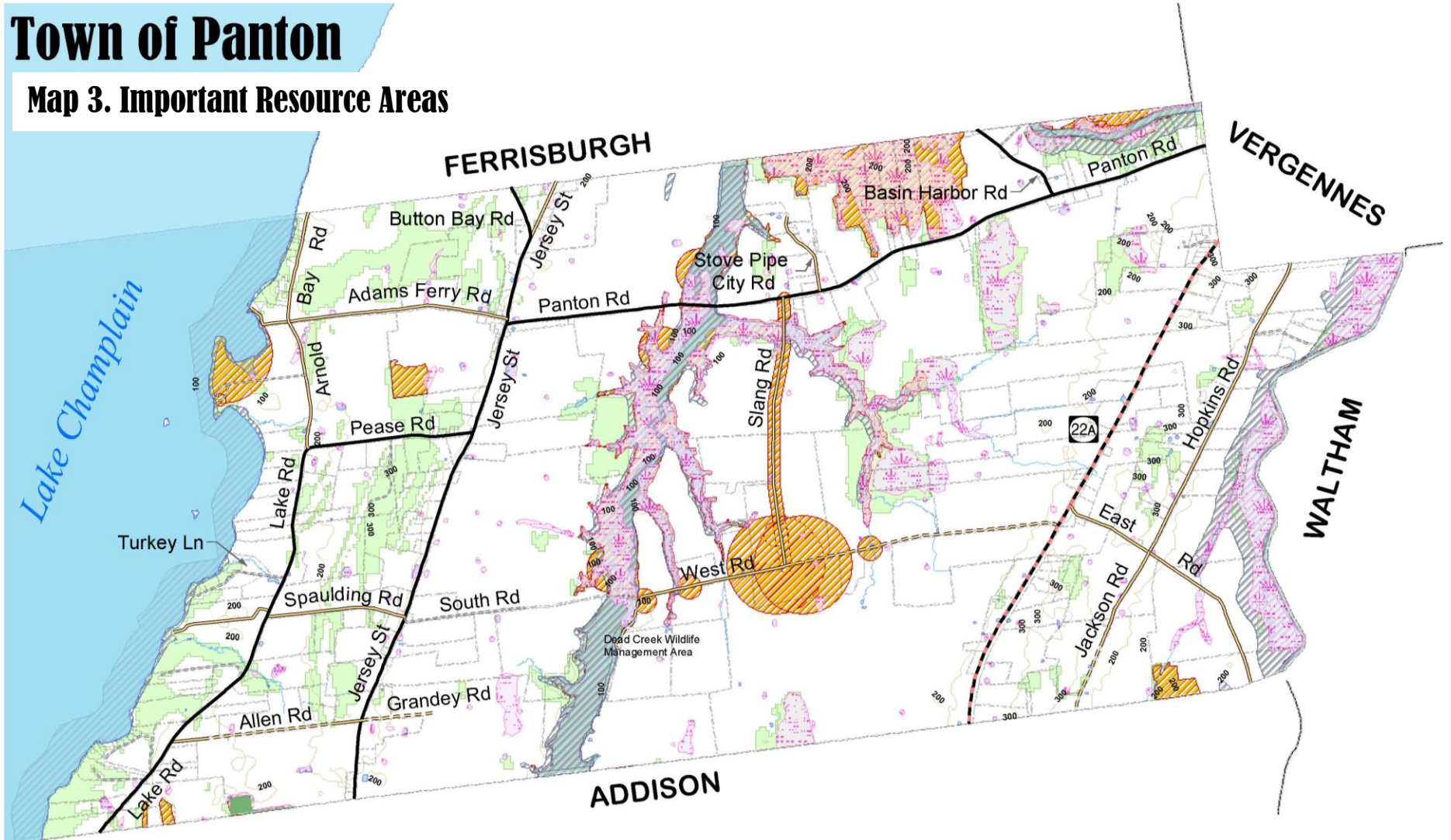
Town of Panton

Map 3. Important Resource Areas



Sources:
Floodplain: Developed from
FEMA Maps; ACRPC, 2008
Vermont Significant Wetlands: VT ANR, 2011.
Rare Species and Communities: Rare,
Threatened and Endangered Species and
Natural Communities, VT ANR, 2017
Circles are for areas without a defined boundary.
Deer Wintering Areas: VT ANR, 2017
Clayplain Forest Fragments, Marc Lapin,
Middlebury College

FEMA floodplain
Vermont Significant Wetlands
Natural Heritage Sites and Communities
Deer Wintering Areas
Clayplain Forest Fragments
Elevation (100 foot interval)

0 0.5 1 Miles

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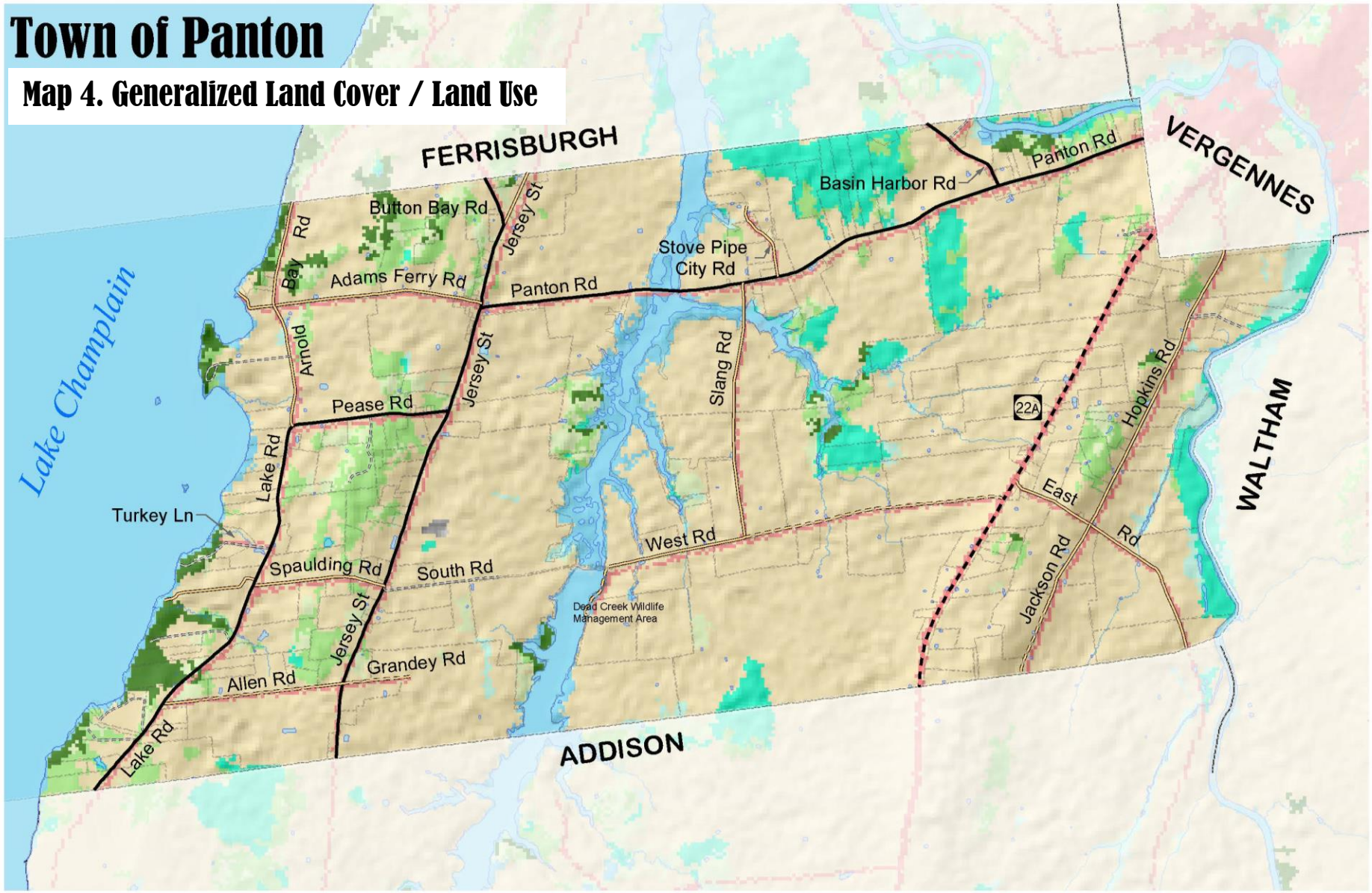
Town of Panton

Map 4. Generalized Land Cover / Land Use



Land Use and Land Cover 2011,
US Geological Survey.

Land Cover Types

- Water
- Village Center, Farmsteads and Roads
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Cultivated, Pasture or scrub
- Forested Wetland
- Nonforested Wetland

0 0.5 1 Miles

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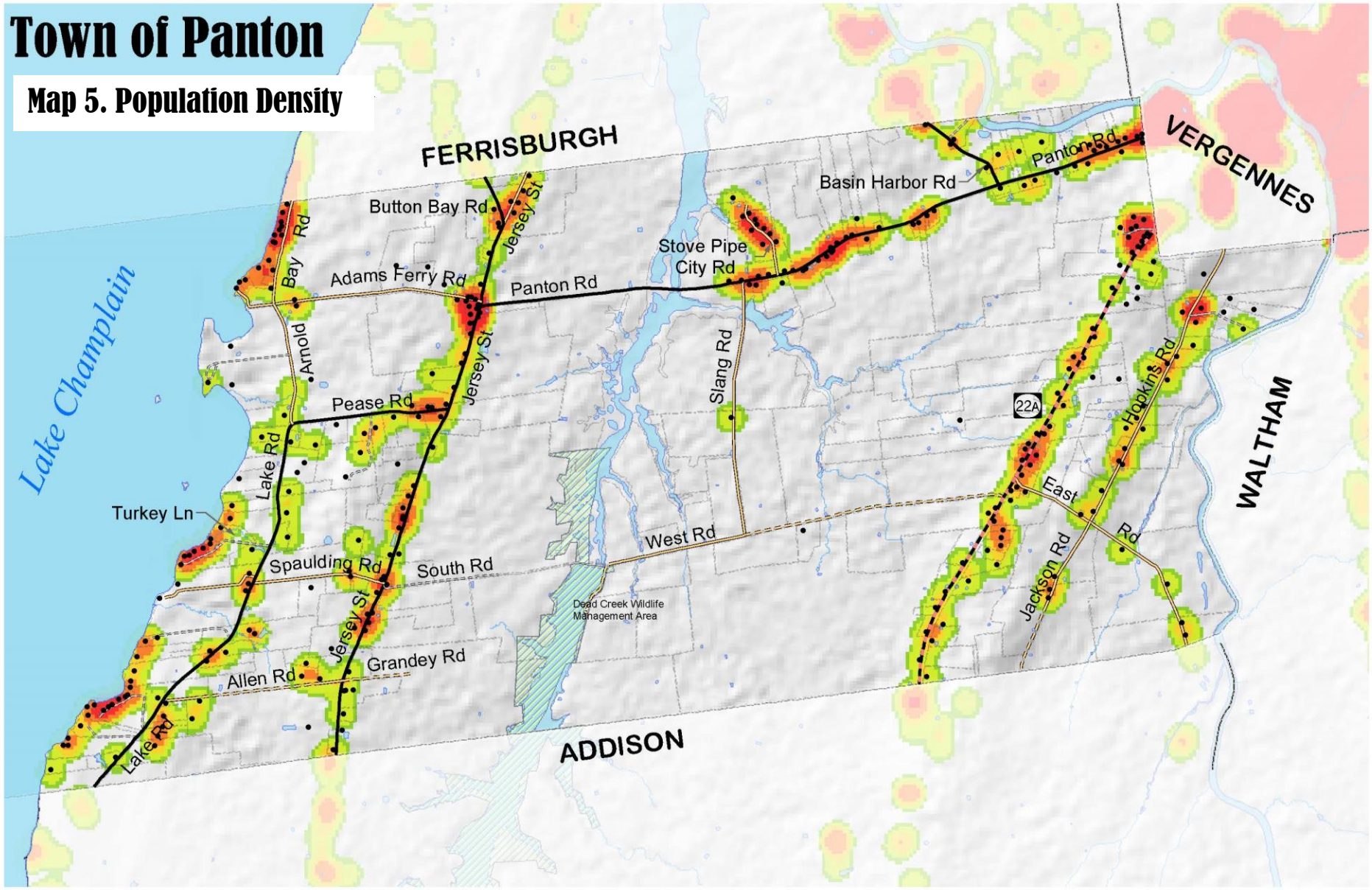
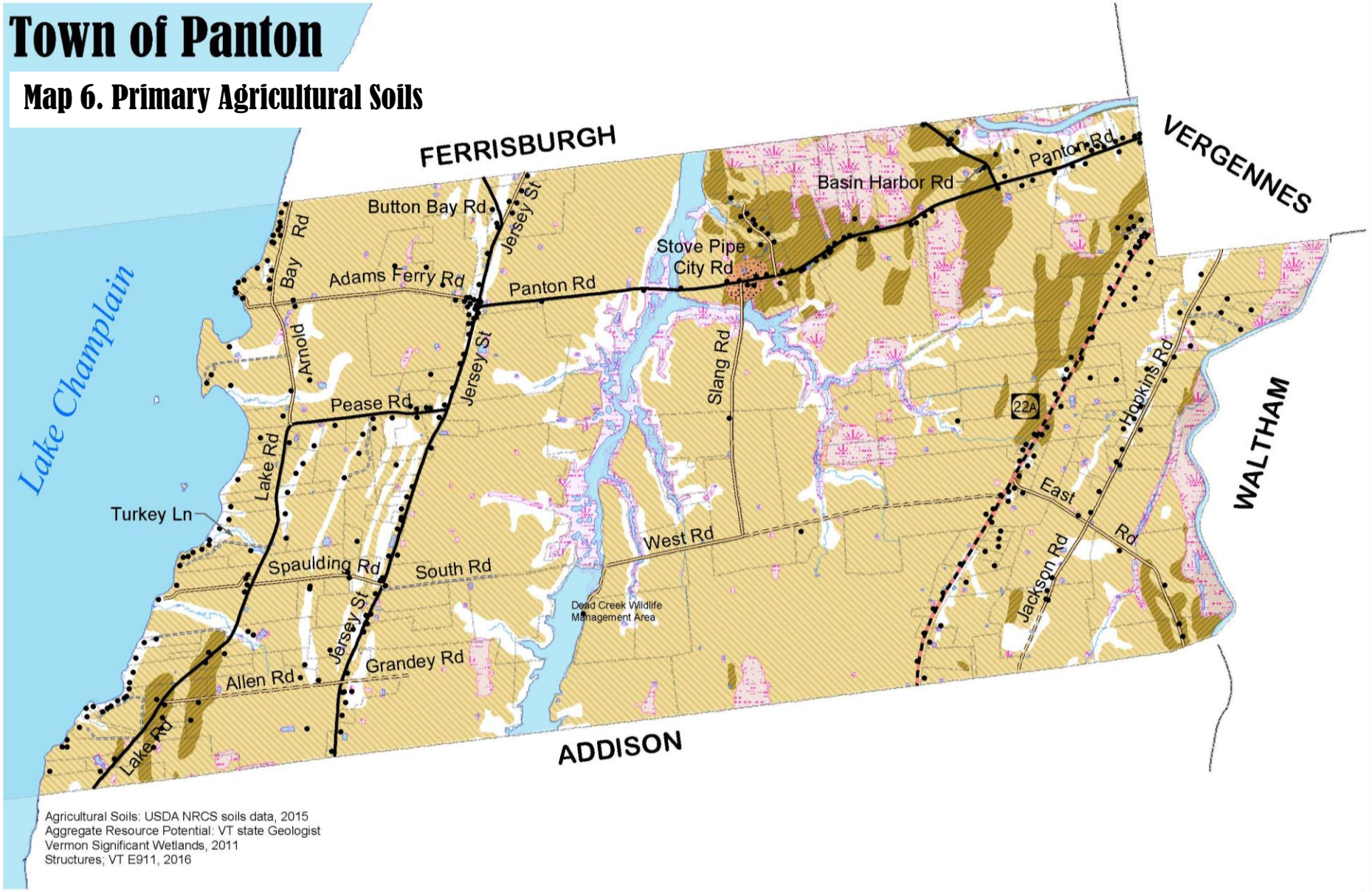
Town of Panton

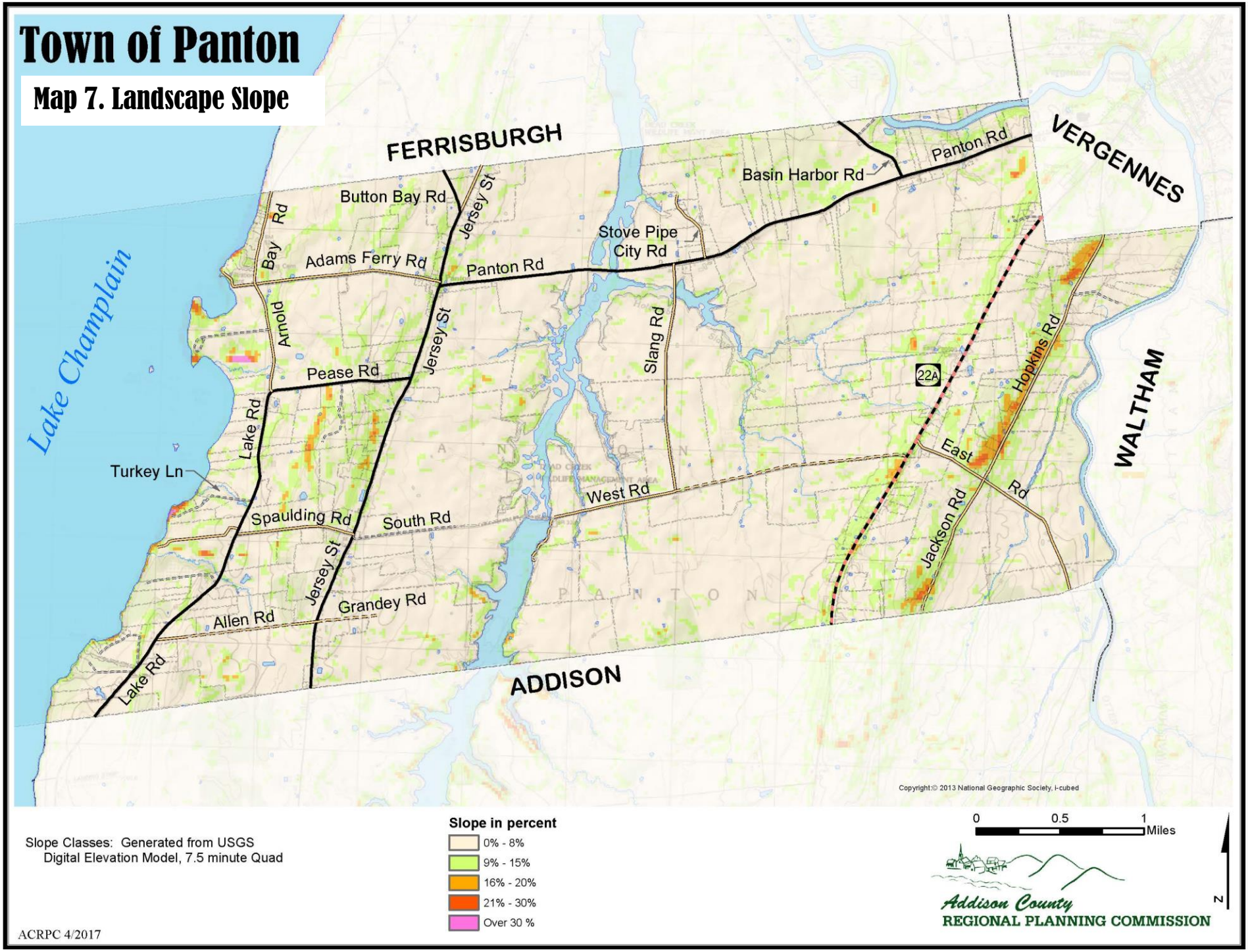
Map 5. Population Density



Town of Panton

Map 6. Primary Agricultural Soils




Town of Panton
Map 7. Landscape Slope
FERRISBURGH
VERGENNES
WALTHAM
ADDISON
PANTON
Lake Champlain
Button Bay Rd
Bay Rd
Adams Ferry Rd
Jersey St
Panton Rd
Basin Harbor Rd
Stove Pipe City Rd
Arnold
Pease Rd
Slang Rd
22A
Hopkins Rd
East Rd
Lake Rd
Turkey Ln
West Rd
Spaulding Rd
South Rd
Jackson Rd
Grandey Rd
Allen Rd
Copyright:© 2013 National Geographic Society, i-cubed
Slope Classes: Generated from USGS Digital Elevation Model, 7.5 minute Quad
Slope in percent
0% - 8%
9% - 15%
16% - 20%
21% - 30%
Over 30 %
0
0.5
1
Miles
N
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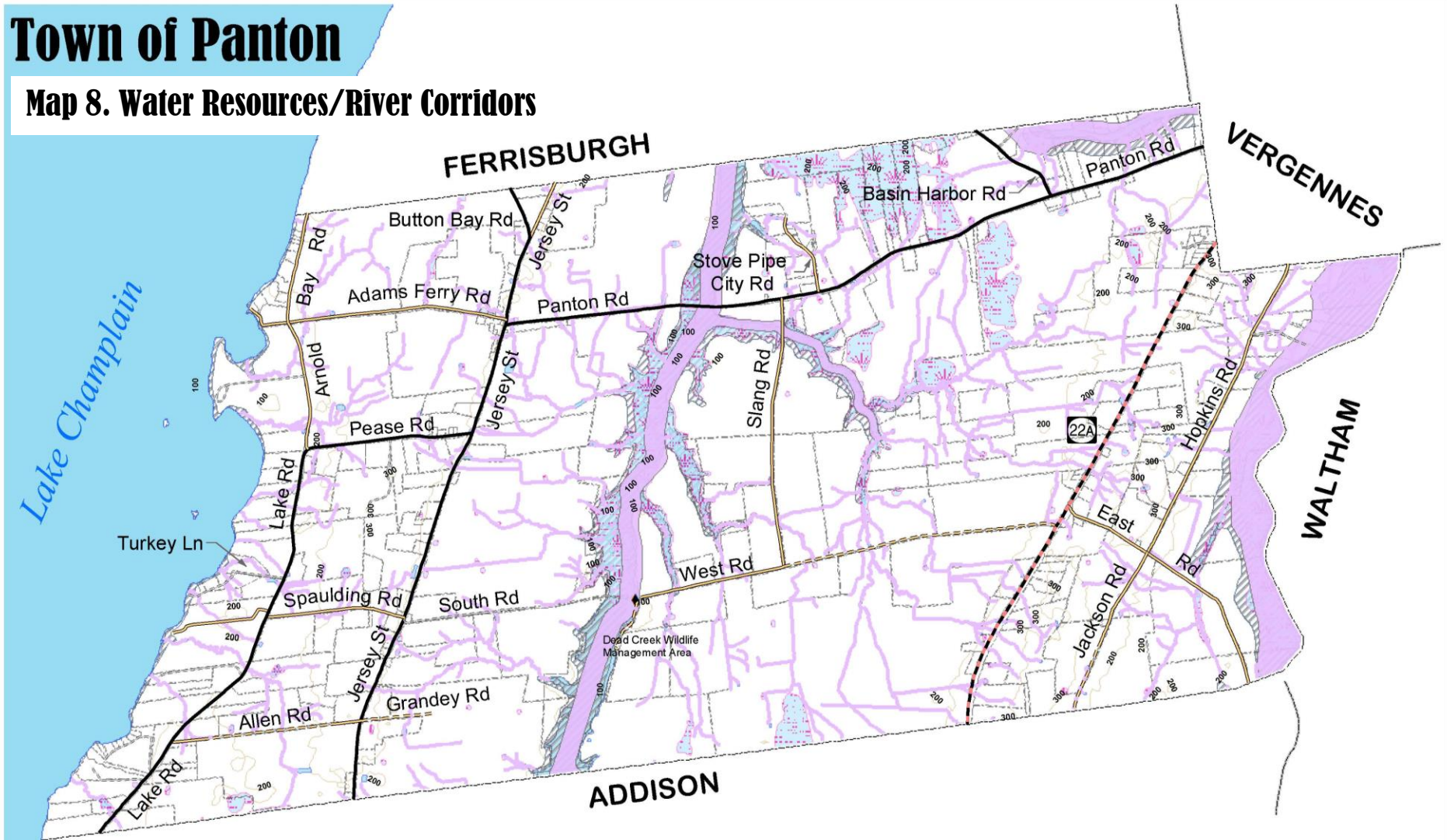
Town of Panton

Map 8. Water Resources/River Corridors



Current flood planning information is available here - http://floodready.vermont.gov/

Sources:
Elevation: 100 ft contours
Dams: VT Dam Inventory.
Floodplain: Developed from FEMA Maps; ACRPC, 2008
Wetlands: VT ANR 2012
Statewide River Corridors: VT DEC, Jan, 2015 (watersheds over 2 sq mi)
Statewide River Corridor Stream 50 ft Buffers: VT DEC, Jan, 2015 (watersheds less than 2 sq mi)
Tax Parcels: 2015, R. J. Turner Co., Bristol, VT.
Bing aerial photography, 2016.

Dam
State River Corridors
State River Corridor Stream 50 ft Buffer
Floodplain
Vermont Significant Wetlands
Elevation (100 foot interval)

0 0.5 1 Miles

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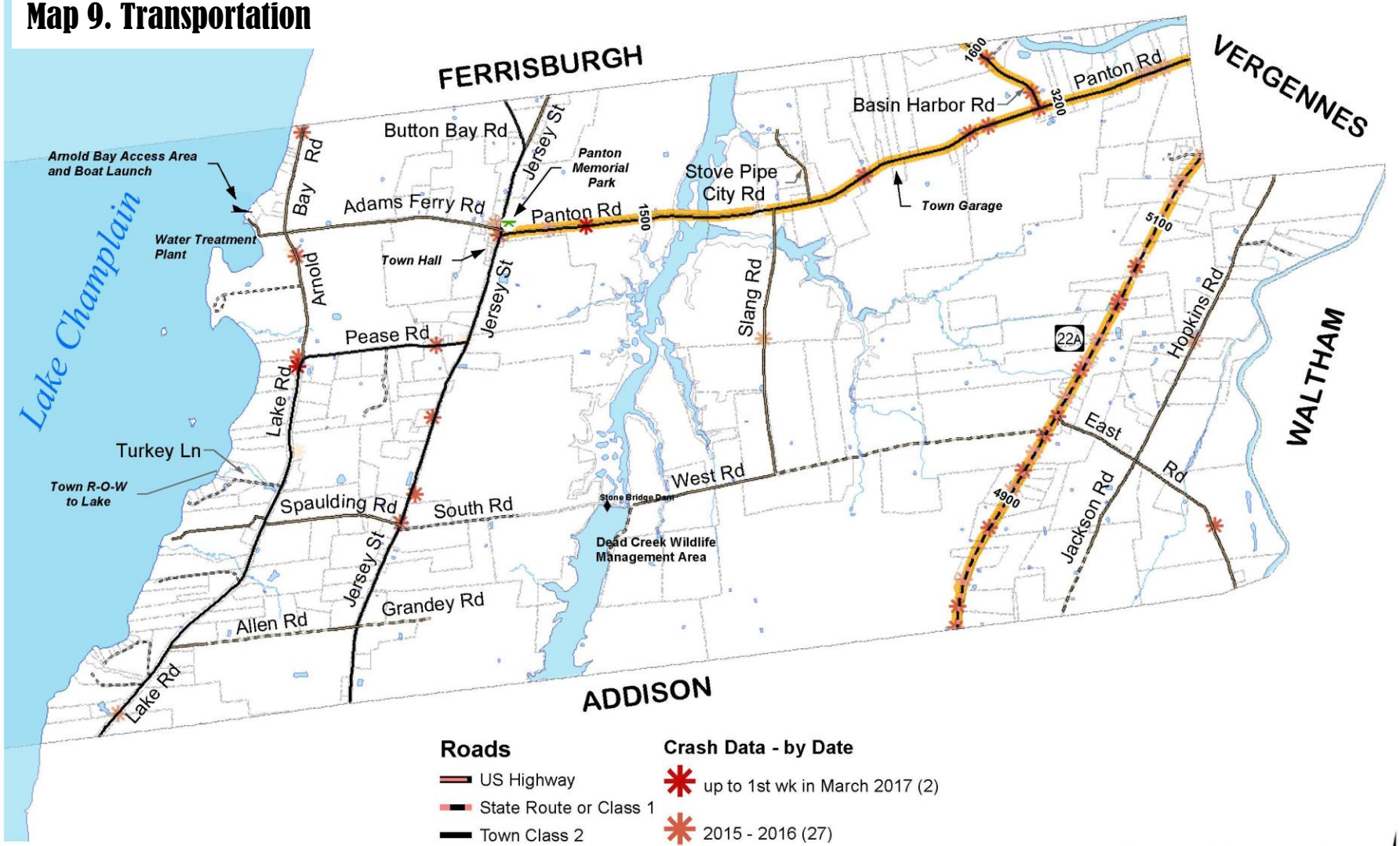
Town of Panton

Map 9. Transportation



Roads

- US Highway
- State Route or Class 1
- Town Class 2
- Town Class 3
- Town Class 4
- Legal Trail
- Forest Rd
- Private Rd

Crash Data - by Date

- up to 1st wk in March 2017 (2)
- 2015 - 2016 (27)
- 2013 - 2014 (19)
- 2011 - 2012 (12)
- Average Annual Daily Traffic 2012

0 0.5 1 Miles

N

Sources:
Dam: VT Dam Inventory
Vergennes-Panton Water Service Area from sketch maps.
Tax Parcels: 2015, R. J. Turner Co., Bristol, VT.
Bing aerial photography, 2016.

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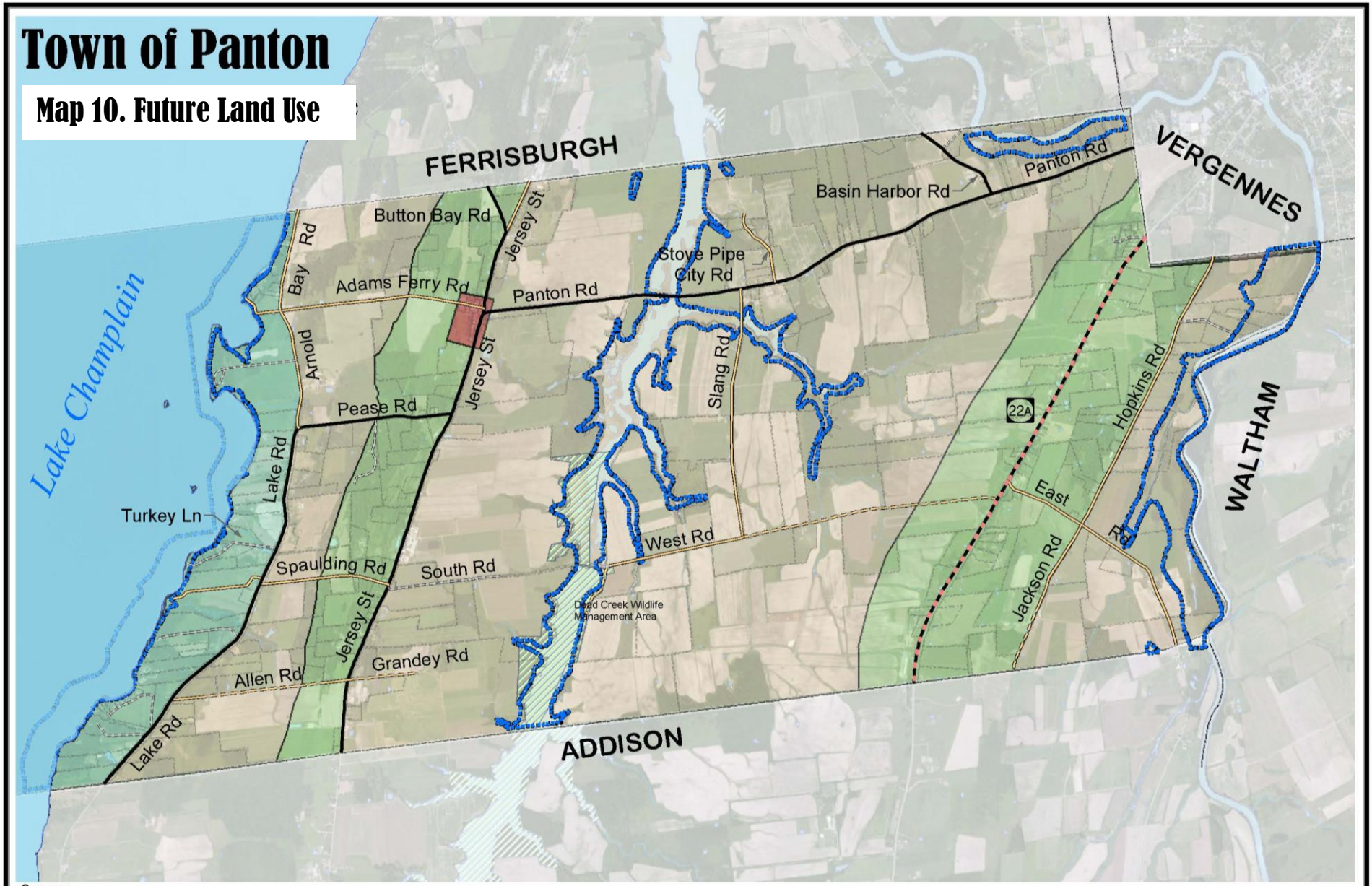
Town of Panton

Map 10. Future Land Use



Sources:
Land Use Areas: Adopted June 16, 2011
Floodplain: Developed from FEMA Maps; ACRPC, 2008
Tax Parcels: 2015, R. J. Turner Co., Bristol, VT.
Bing aerial photography, 2016.

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Future Land Use Planning Areas

- Village
- Rural Residential/Agriculture
- Shoreland
- Ridgeland
- Floodplain (100 yr)

- US Highway
- State Route or Class 1
- Town Class 2
- Town Class 3
- Town Class 4
- Legal Trail
- Forest Rd
- Private Rd

0 0.5 1 Miles

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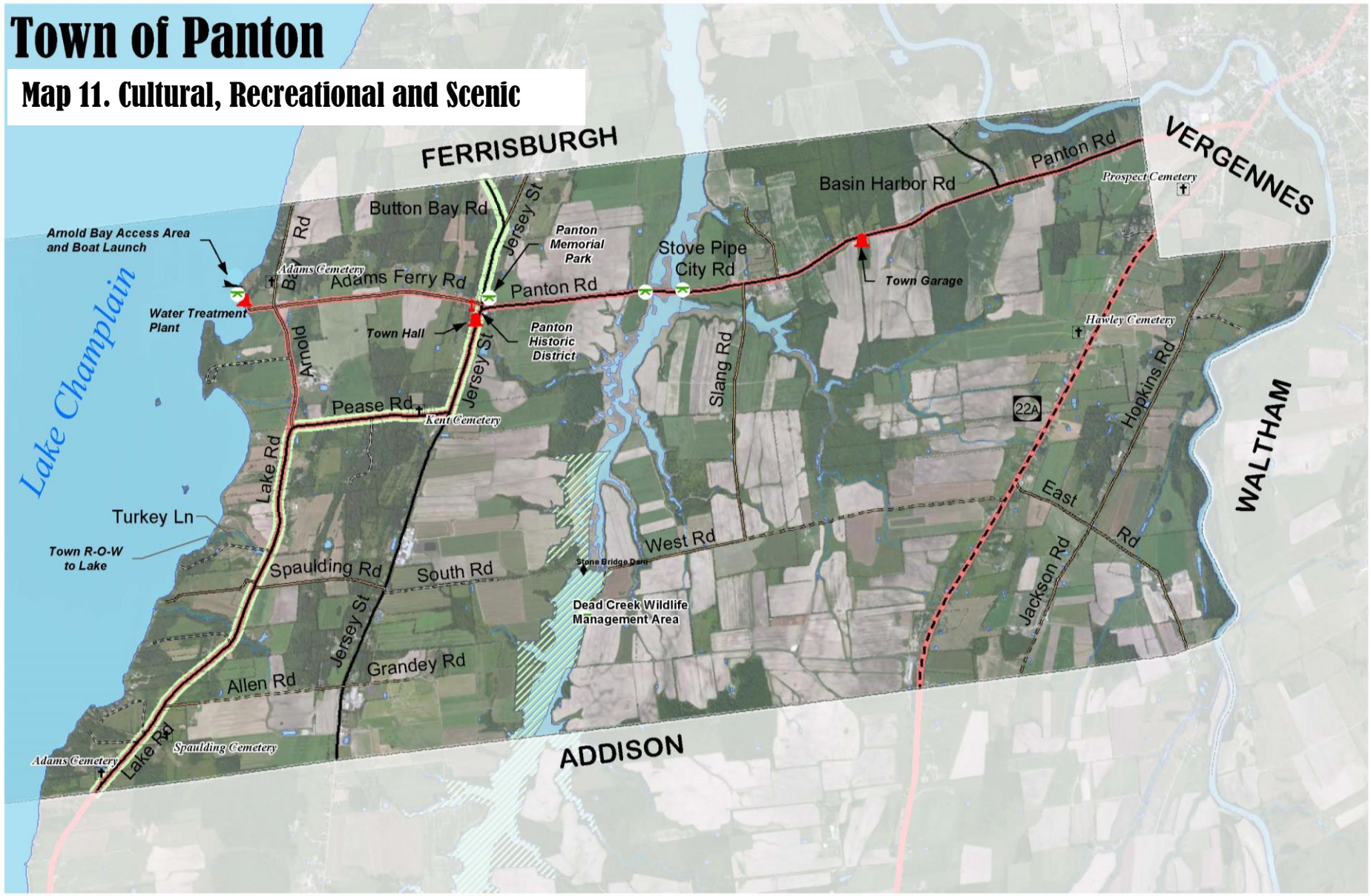
N

Town of Panton

Map 11. Cultural, Recreational and Scenic



Sources:
Lake Champlain Bikeways: refer to http://www.champlainbikeways.org/
Lake Champlain Byway: refer to https://www.vermontvacation.com/byways
Dead Creak WMA: VT Fish and Woldlife
Tax Parcels: 2015, R. J. Turner Co., Bristol, VT.
Bing aerial photography, 2016.

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Municipal Government
Church
Park or Gathering Place
Dam
Cemetery
Lake Champlain Byway
Lake Champlain Bikeway

0 0.5 1 Miles

N

Addison County
REGIONAL PLANNING COMMISSION

Appendix 1: Panton 2016 Survey Results

All percentages (%) represent the portion of the total vote of 92 submissions. They may not total 100%. Comments are provided separately.

On what road do you reside?_____

2. Please rate the following from 1 to 4 with 1= strongly agree, 2 = agree,3 = disagree, 4= strongly disagree: (*See accompanying map of zoning districts- note that all districts allow for one single family dwelling or duplex and one accessory dwelling)*

a. The zoning density in my area of town has contributed to overdevelopment.
0% strongly agree. 5%agree. 44% disagree. 30% strongly disagree.

b. The zoning density in my area of town has provided for just about the right level of development.
23% strongly agree. 45%agree. 10% disagree. 8% strongly disagree.

c. The zoning density in my area of town has resulted in underdevelopment.
8% strongly agree. 7%agree. 34% disagree. 30% strongly disagree.

d. I would like to see my area rezoned to preserve more open space.
16% strongly agree. 18%agree. 28% disagree. 16% strongly disagree.

e. I would like to see my area rezoned to allow for smaller lot sizes.
15% strongly agree. 7% agree. 25% disagree. 34% strongly disagree.

f. I would like to see the zoning districts remain as they are.
26% strongly agree. 33% agree. 10% disagree. 11% strongly disagree.

g. I would like to see fewer zoning restrictions throughout the town.
14% strongly agree. 11% agree. 27% disagree. 22% strongly disagree.
Comments on separate page

3. Please rate the following scenic and natural resource elements in order of importance to you from 1 to 5 with 5 = extremely important, 4 = quite important, 3 = somewhat important, 2 = not very important, 1= not at all important

a. Lake Champlain shoreline

64% extremely important. 14% quite important. 11% somewhat important. 4% not very important. 4% not at all important.

b. Dead Creek area

41% extremely important. 22% quite important. 19% somewhat important. 10% not very important. 3% not at all important.

c. Open agricultural lands

31% extremely important. 31% quite important. 21% somewhat important. 10% not very important. 5% not at all important.

d. The Lake Champlain Scenic Byway (along Panton Rd., Jersey St., Pease Rd. and Lake Road in Panton)

32% extremely important. 29% quite important. 19% somewhat important. 9% not very important. 8% not at all important.

e. Mountain views from major roads

41% extremely important. 17% quite important. 19% somewhat important. 10% not very important. 5% not at all important.

f. Otter Creek area

29% extremely important. 22% quite important. 23% somewhat important. 10% not very important. 5% not at all important.

g. Wooded ridges

25% extremely important. 23% quite important. 21% somewhat important. 10% not very important. 9% not at all important.

4. Should the **Panton Town Plan specifically identify for protection** the following resources? (*Check all that apply*)

63% a. Undeveloped lake shoreline
73% b. Important wetlands (Class 1 & 2)
75% c. Rivers and streams (i.e. further conservation of Dead Creek and/or Otter Creek shorelines and environs)
72% d. Wildlife habitat
63% e. Historic sites and structures
56% f. Agricultural land and soils
46% g. Undeveloped open space
61% h. Forestland (such as the clay plain forests along Otter Creek, Panton Ridge and Dead Creek)
60% i. Scenic views to the Green Mountains and Adirondacks from Panton Road, Rt 22A, and other major roads in town.
_____ j. Other (Please specify)_____

5. Should Panton **adopt provisions in the zoning or subdivision regulations** to protect the following? (*Check all that apply*)

54% a. Undeveloped lake shoreline
60% b. Important wetlands (Class 1 & 2)
62% c. Rivers and streams (i.e. further conservation of Dead Creek and/or Otter Creek shorelines and environs
57% d. Wildlife habitat
46% e Historic sites and structures
41% f. Agricultural land and soils
41% g. Undeveloped open space
47% h. Forestland (such as the clay plain forests along Otter Creek Panton Ridge and Dead Creek
46% i. Scenic views to the Green Mountains and Adirondacks from Panton Road, Rt 22A and other major roads in town
____j. Other (Please specify)_____

6. Should Panton provide funds in the budget (with a town vote) to purchase open space or conservation lands such as a town forest?

Yes **44%**
No **45%**
Blank **9%**

7. Do you support clustered housing development patterns that site homes on smaller lots while preserving larger areas of the proposed development acreage?

Yes **40%**
No **37%**
Undecided **17%**
Blank **4%**
Comment_____

Solar energy has become an important alternative for supplying electricity to the region. A 500 KW solar net metered project (one that delivers/sells energy to a utility or specific entity) takes up about 4 acres with panel layout, utility buildings and electrical connections. Smaller scale wind energy projects are also being developed in the area- typically as 500kW turbines such as the one at Northlands Job Corps. These projects are generally reviewed and permitted by the Vt. Public Service Board, but new legislation provides towns with more standing and the opportunity for input into the permitting process.

8. Please rate the following questions with 1= agree; 2= disagree;

a. Private property owners should be able to construct these projects anywhere on their property without town input or review.

16% Agree. 76% Disagree.

b. Private property owners should be able to construct these projects as long as they are properly screened and do not result in impacts to abutters or the public as per town review and input.

70% Agree. 16% Disagree.

c. Larger projects equal to or greater than 500 KW should be subject to more detailed local review as to aesthetic and visual impacts.

88% Agree. 4% Disagree.

d. I support solar energy, but only at a very small scale (150kw typically) or as rooftop mounted installations.

43% Agree. 40% Disagree.

e. I support wind energy, but maintaining scenic quality and the rural character of Panton is very important to me.

62% Agree. 24% Disagree.

Comments_____

9. Which of the following would improve the quality of life in Panton? (*Please check all that apply).*

55% A public trail system for hiking, biking, cross country skiing, etc.
57% Bike lanes and shoulders on major roads
27% Town forest
39% Town park or conservation area
58% Improvements at the town beach at Arnold's Bay

Other _____

10. At present Town Office Hours are as follows: M-Tu-Th 9am-3pm; Wed- 9am-5pm. Are the hours the town office is open each week. [*check one*]:

8% More than needed
75% About right
7% Less than needed

If "more" or "less than needed", please suggest how they might be improved. _____

11. The Cupola structure of the Town Hall is an architectural element of this historic town building, which has been in use since the 1930s. The cupola was removed to repair the roof.

a. Do you support restoring and putting the cupola back?

Yes **68%**
No **24%**
Blank **7%**

b. Do you support restoring and putting the cupola back if town funds (supported by a town vote) are needed to do so?

Yes **54%**
No **36%**
Blank **8%**

12. The upstairs of the Town Hall; is being renovated.
a. Do you support it being renovated for year-round use?

Yes **70%**
No **21%**
Blank **7%**

b. What uses would you envision for this space (aside from town meeting) such as private rentals, events, etc.? Please describe_____

13. **Are you interested in serving the Town in some capacity**? If so, please contact the Town Clerk or provide your email address here: _____

14. **Do you have concerns** which you would like to share with the Panton Planning Commission? Please tell us below and please be specific. Thank You!!

Appendix 2: Panton Enhanced Energy Plan

Section I. Introduction

The small, rural Town of Panton, Vermont is unique to Addison County, and is among a select few towns across the State, that are home to strikingly beautiful natural vistas and resources and, principally, to a rural residential and agrarian landscape. Panton has a low density of residential properties and homesteads, an historic village center, a concentration of a handful of lakefront vacation residences and several larger scale family-owned dairy farms. The current draw and long-term ability to generate tax revenue value in Panton will remain due to the attraction of its pristine Lake Champlain shoreline, stunning westerly views of the Adirondacks, broad easterly vistas of the Green Mountains, and the uninterrupted rural open agricultural landscape of the valley floor.

As Panton looks forward to meeting its energy compliance requirements in the coming years, it is our hope we do so with the principal goal of making Panton an even more attractive and wonderful draw than is it today. Considering the Town's near 50 lakefront vacation homes comprise about 40% of its total property tax base, it is vital we protect Panton's unique beauty, livability and non-residential vacation home property market values. We want all property tax payers to stay. Therefore, we will look to endorse strategies and initiatives that position Panton as a Vermont leader in shared, low-impact distributed energy generation and usage. Our rural footprint – a population of 688 spread over 22 square miles – makes this endeavor both economically and physically attractive, and a win-win for the environment and for our residents. A wireless Panton landscape would be a beautiful sight.

In order to promote a viable and affordable future for Panton residents with appropriate energy use generation, the following key recommendations are integral to Panton' energy planning:

- Encourage Residential Distributed Power Investment – Maintaining the Grid is expensive in rural markets and electrical transmission and distribution over long distances is inefficiently wasteful. As storage technologies develop, distributed energy generation and usage should likely grow significantly in rural markets. We encourage Panton residents to expect and embrace this development and to understand the untapped value a 'wireless' Panton would mean to our town's beauty and prosperity. Therefore, we will always encourage residential upgrade projects and plans that include distributed energy investments.
- Endorse Communal Distributed Energy Set-asides for New Residential Developments – Where new subdivision developments are proposed, the Panton DRB will support the inclusion of set-asides for potential shared distributed energy installations for the home sites. As a town, we will publicly promote our wireless vision, so that all property developers and new home buyers will be aware of this before the application and approval process begins.
- Encourage clustered development and appropriate siting for home and building sites to maximize solar energy potential and to reduce infrastructure costs. This recommendation includes support for localized alternative/renewable energy initiatives as well as the principles of energy conservation. New building construction can adopt and/or incorporate a range of energy conservation measures that reduce overall energy use.
- Support land use and transportation decision making that provides for local entrepreneurial activity, home businesses, and the reduction of single occupancy vehicular commuting and overall consumption of fossil fuels.

In summary, the plan forwards the commitment to appropriate and alternative energy planning and energy conservation. It is the intent to ensure that Panton embraces the "Boy Scout Rule" – leaving a "campsite" in better condition than it was found in. As a community, we need to preserve our natural beauty and economic vitality and viability for the future generations to come.

Intent of Energy Plan

The Town of Panton recognizes our individual and collective responsibility to help reduce and conserve the energy we all use. Panton believes it serves its citizen's interests by conserving energy, reducing our consumption of non-renewable energy and shifting our usage to carbon free or carbon neutral renewable energy sources. It also believes the Panton Town Plan must create a vision and clear policy statements for the town to follow concerning energy conservation, consumption and generation. By this Plan Panton intends to exercise more control over the types of energy choices made within town.

One of the principal ways for Panton to gain more control over its energy policies is to meet the municipal determination standards for enhanced energy planning enabled in 24 V.S.A. 4352. By pursuing enhanced energy planning Panton agrees that its energy plan will further regional and state energy goals, including the goal of having 90% of the energy used in Vermont obtained through renewable sources by 2050 ("90 x 50") and the following:

- *Vermont's greenhouse gas reduction goals under 10 V.S.A. § 578(a);*
- *Vermont's 25 by 25 goal for renewable energy under 10 V.S.A. § 580;*
- *Vermont's building efficiency goals under 10 V.S.A. § 581;*
- *State energy policy under 30 V.S.A. § 202a and the recommendations for regional and municipal energy planning pertaining to the efficient use of energy and the siting and development of renewable energy resources contained in the State energy plans adopted pursuant to 30 V.S.A. §§ 202 and 202b (State energy plans); and the,*
- *distributed renewable generation and energy transformation categories of resources to meet the requirements of the Renewable Energy Standard under 30 V.S.A. §§ 8004 and 8005;*

To receive a positive determination of energy compliance, an enhanced energy plan must be duly adopted, regionally approved and must contain the following information:

A. An analysis of current energy resources, needs, scarcities, costs, and problems.
B. Targets for future energy use and generation.
C. "Pathways," or implementation actions, to help the municipality achieve the established targets.
D. Mapping to help guide the conversation about the siting of renewables.

Compliance with the requirements of enhanced energy planning will enable Panton's Plan to achieve "substantial deference" from the Public Utilities Commission in Section 248 applications for energy transmission or generation facilities (wind facilities, solar facilities, hydro facilities, etc.). The Public Utilities Commission applies the "substantial deference" standard when evaluating a proposed generation or transmission project under Criteria (b)(1) of Section 248. Substantial deference increases the deference the Public Utilities Commission will provide to clearly articulated policies in this plan.

This chapter includes the required analysis, target data, the goals, policies and implementation actions, and associated mapping necessary to meet the standards for an enhanced energy plan. Topics covered include energy conservation and efficiency as it relates to thermal and electrical energy usage, transportation and land use planning. The plan also includes siting standards and policies proclaiming the type and size, and also suitable locations for energy generation facilities in Panton. Lastly, it specifies the goals, policies and actions Panton will undertake to help implement conservation and efficiency policies to help meet the State's larger renewable goals.

Outline of this Plan

This plan breaks Panton's energy demand and usage into the following five sections:

Section I, Introduction: Introduction and Summary of Panton's Enhanced Energy Plan;
Section II, Thermal Use: This Chapter focuses mostly on Energy used for space heating.
Section III, Transportation Use: This Chapter focuses on energy used for Transportation.
Section IV, Electrical Use: This Chapter focuses mostly on energy used for operating equipment, but electrical use is predicted to expand significantly to include transportation and heating equipment as indicated in the first and fourth chapters. And,
Section V, Land Use, Generation and Transmission: This Chapter focuses on planning land uses to reduce vehicle trips and to site energy generation and transmission resources.

Each chapter noted above contains the following three sub-sections:

1.) The first sub-section, entitled, "Use Analysis" will analyze current usage data in Panton for each of the four energy sectors. It includes charts of usage and a discussion concerning the usage data.
2.) The second sub-section will look at future projections of usage if Panton is to meet the State goal of using 90% renewables by 2050. This sub-section, entitled "Targets" contains projections of usage targets corresponding to one scenario that would theoretically meet that goal. In 2016 Addison County Regional Planning Commission worked with the Vermont Energy Investment Corporation (VEIC) and the Vermont Department of Public Service ("PSD") to develop regional targets for future energy use and generation that met the State of Vermont's 90 x 50 goal. However, there are numerous different ways for Vermont to achieve the 90 x 50 goal. The Target Scenario included in this plan represents Panton's participation in the Region's goals. It also represents an approach that appears reasonable given current technology and understanding of probable technological advances in the timeframe from the present to mid-century. For more information about the regional targets, please see the Addison County Regional Energy Plan (www.acrpc.com).
3.) The third sub-section, entitled "Pathways to Implementation", provides goals, policies and recommended actions to implement the plan.

Additionally, the Land Use, Generation and Transmission chapter will include a mapping analysis of Panton's energy resources and constraints and a siting policy for new generation.

Energy Plan Assumptions:

This plan is based on the assumptions that:

- Fossil fuels may not be abundant or cheap in the future;
- The full social, environmental, and economic costs of fossil fuels are not reflected in present market prices;
- The public interest is served by conserving energy, reducing consumption of nonrenewable energy and shifting reliance to renewable energy; and,
- Each town must play a role in shaping and implementing policies and actions that promote wise energy use.

Thermal Use analysis

An estimate of current residential thermal energy demand in Panton, based on data from the American Community Survey ("ACS"), a product of the United States Census (2012-2016), is shown in Table 1. The data shows that the majority of residences in Panton use fuel oil as their primary heating source (54.8%). Fuel oil is followed by wood, serving 23% of households, and propane, serving nearly 19% [2].

Table 1. Panton Current Residential Thermal Energy Use

Fuel Source	Households (ACS 2011-2015)	Percentage of Households	Total Square Footage Heated	Energy Required for Residential Heating* (Billion BTUs)
Natural Gas	0	0.0%	0	0.00
Propane	54	18.6%	98,370	5.90
Electricity	2	0.7%	3,984	0.24
Fuel Oil	159	54.8%	297,675	17.86
Coal	2	0.7%	3,984	0.24
Wood	67	23.1%	126,237	7.57
Solar	0	0.0%	0	0.00
Other	6	2.1%	11,952	0.72
No Fuel	0	0.0%	0	0.00
Total	290	100.0%	542,202	32.53

(* at 60,000 BTU/sq. ft.)

Figure 1 below compares the price trends of various fuels used by Panton residents from May 2008 through July 2015.

[2] The survey shows that 0.7% of households' heat with natural gas. However, since that fuel source is not currently available in Panton, we believe it may be an error in response and they likely heat with propane.

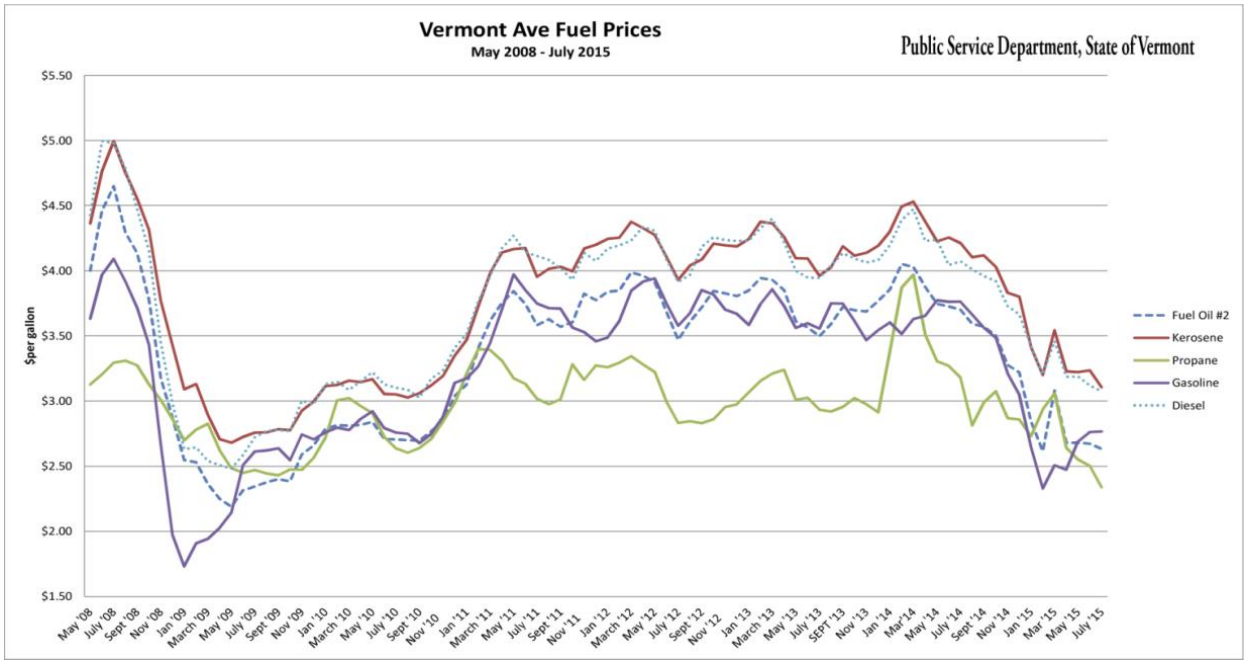


Figure 1. Vermont Average Fuel Prices, May 2008 – July 2015

Like the previous graph, the table below lists the relative cost per million BTUs of heating fuels in Vermont as of September 2014 - January 2015.

Table 2. Comparing the Cost of Heating Fuels

Comparing the Cost of Heating Fuels — Public Service Department, State of Vermont							
Type of Energy	BTU/unit	Typ Effic	$/unit	$/MMBtu		High Efficiency	$/MMBtu
Fuel Oil, gallon	138,200	80%	$2.84	$25.73		95%	$21.67
Kerosene, gallon	136,600	80%	$3.41	$31.23			
Propane, gallon	91,600	80%	$2.73	$37.25		93%	$32.05
Natural Gas, therm	100,000	80%	$1.48	$18.55	*	95%	$15.62
Electricity, kWh (resistive heat)	3,412	100%	$0.15	$43.46			
Electricity, kWh (cold climate heat pump)	3,412		$0.15			240%	$18.32
Wood, cord (green)	22,000,000	60%	$ 227.14	$17.21	*		
Pellets, ton	16,400,000	80%	$294.00	$22.41	*		

* The natural gas price is based on the rate effective 11/1/14. *Wood green and Pellets updated 9/19/14.

Both fuel oil and propane gas are carbon-releasing fossil fuels. In order to meet State targets, their use will need to be largely eliminated by 2050. Making homes more thermally efficient reduces fossil fuel use. Improvements in technology can make fuels work more efficiently. However, over the long-term, it will also be necessary to replace fossil fuel sources with renewable fuel sources, such as electricity produced through renewable generation. The cost of the change, principally the capital investment in new equipment, and sometimes the comparative price of the fuels used, constitute the major barriers to entry. While the Town of Panton has little control over the cost of energy, it can and does work to encourage conservation, efficiency, and decreased use of fossil fuels for heating by individuals and organizations.

The Town of Panton promotes efficient buildings and leads by example. In 2016, Green Mountain Power agreed to partner with Efficiency Vermont on "eVolve" Panton, a pilot community-wide energy transformation project in Panton to reduce energy costs, lower fossil fuel use and improve comfort. GMP agreed to help fund and design energy improvements to Panton Town Hall, town clerk's office and town garage, and install an electric car charging station and lighting at the park-and-ride lot across the road from the town hall. Efficiency Vermont offered Panton home, farm and business owners energy audits and offered technical assistance, financial incentives and financing to spur energy transformation. By November 2016, the project announced that 20% of the homes in Panton had completed a home energy visit. In 2017 efficiency improvements at the Panton town hall and clerk's office, including foundation insulation and heat pump installation, were completed.

Other services available that promote weatherization and efficiency include:

- The Champlain Valley Office of Economic Opportunity (CVOEO) provides fuel assistance to income-qualified residents either on a seasonal basis on a crisis basis. The CVOEO website, CVOEO.org, describes additional fuel assistance programs available to Vermont residents.
- Efficiency Vermont, the nation's only efficiency utility, has a number of programs to improve energy efficiency, many described at Efficiencyvermont.com, including energy audits, incentives for Home Performance, information on appliances and compact fluorescent and LED bulbs, building an Energy Star home, home heating help, rebate information, and a reference library.
- Champlain Valley Weatherization Service, part of CVOEO, provides free weatherization services to income-qualified Addison County households.
- Neighborworks of Western Vermont also offers audits and subsidized weatherization services through their Heatsquad program https://heatsquad.org/.

The State of Vermont also has residential energy standards. Officially called the "Residential Building Energy Standards" (RBES), the Residential Energy Code is a minimum standard of energy efficiency for all new (after July 1, 1998) residential construction in Vermont. The Vermont Residential Energy Code Handbook edition 4.2 effective March 1, 2015 contains Vermont's residential building standards. REBS encompasses two requirements:

1. A technical requirement that includes minimum standards for energy-efficient building components and construction practices; and,

2. A certification requirement for reporting compliance. Upon completion state law requires every Vermont builder to self-certify that the home complies with the Code as built. The builder must complete and sign a certificate and submit it to the Town Clerk for filing. This should be on record before the Zoning Administrator issues a Certificate of Occupancy.

The Zoning Administrator's duty to enforce the RBES also constitutes an opportunity for the Town to communicate with homeowners regarding energy programs and conservation opportunities.

Panton's commercial establishments also present opportunities to conserve thermal energy. However, estimates for commercial and industrial thermal energy use are more difficult to

calculate. An estimate of total commercial thermal energy use, or heat, is provided in Table 3 and based on data from the Vermont Department of Labor (VT DOL) and the Vermont Department of Public Service (VT PSD).

Table 3. Current Panton Commercial Energy Use

Category	Number
Commercial Establishments in Panton (VT Dept. of Labor 2017)	13 [3]
Estimated Thermal Energy BTUs per Commercial Establishment (in Billions) (VT Dept. of Public Service)	0.725
Estimated Thermal Energy BTUs by Commercial Establishments in Panton (in Billions)	9.425

As the table immediately above shows, Panton has a limited number of commercial establishments, primarily commercial farms (9). However, assuming the estimates in this table are realistic, these 13 commercial establishments account for approximately 22% of the thermal BTU's used in Panton. So, working with only this relatively small business community has the potential to significantly reduce Panton's overall thermal use. Green Mountain Power (GMP) has efficiency incentives for businesses as well as homeowners. While GMP's programs have traditionally focused on electric efficiency, the program has recently expanded to include thermal benefits. All businesses in Panton are encouraged to speak with GMP about conducting an energy audit and determining improvements that may help them increase their efficiency to conserve the amount of energy they use.

Comparing total thermal use in the Table 1 and Table 3 demonstrates that residential structures consume roughly 78% of the thermal energy consumed within town. Accordingly, while commercial changes can help substantially, most of the thermal energy changes that will need to take place in Panton to meet the targets will need to be done by individual home owners.

[3] Commercial establishments are defined as any firm/establishment that participates in the unemployment insurance program in Vermont, this excludes railroad workers and sole proprietors (VT DOL, June 2017).

Thermal Targets

Thermal efficiency targets for Panton include increasing weatherization of homes, increase in new efficient wood heat systems and switching to efficient heat pump systems. See the tables below for one scenario of target numbers to meet the 90 X 50 State goal [4].

Table 4a. Residential Thermal Efficiency Targets	2025	2035	2050
Residential - Increased Efficiency and Conservation (% of municipal households to be weatherized)	2%	9%	47%

Table 4b. Commercial Thermal Efficiency Targets	2025	2035	2050
Commercial - Increased Efficiency and Conservation (% of commercial establishments to be weatherized)	17%	18%	51%

Table 4c. Thermal Fuel Switching Targets (Residential and Commercial) - Wood Systems	2025	2035	2050
New Efficient Wood Heat Systems (in units)	0	1	10

Table 4d. Thermal Fuel Switching Targets (Residential and Commercial) - Heat Pumps	2025	2035	2050
New Heat Pumps (in units)	30	72	143

Table 4e. Use of Renewables - Heating	2025	2035	2050
Renewable Energy Use as a Percentage of Heating BTUs	46.5%	60.2%	89.4%

To meet the goal of 90% renewable energy use in Panton, targets have been established for each of the three major strategies (weatherization, wood heat efficiency, heat pump switching) to reduce or change the type of fuel used for space-heating. In order to hit the targets by 2050, property owners in Panton will need to make significant improvements to their homes and businesses. Approximately half of the houses and businesses in Panton will need to be weatherized to conserve energy used to heat those spaces. Given the significant weatherization effort Panton has already completed, Panton may have an easier time reaching these targets than other communities. For instance, given the significant number of homes currently using wood as a heating source, the number of homes that would need to invest in new technology to burn that wood more efficiently is minimal compared to other towns. Lastly, electricity currently plays an insignificant part in heating Panton homes. In order to meet targets, nearly all of the houses currently heating with oil or propane (and some heating with wood) will need to switch to efficient electric heat pumps. Table 4E assumes that the electricity powering the heat pumps referenced will be renewable. By 2050, 89.4% of heating BTU's will need to be supplied by renewable sources.

[4]Tables 4A-4E are based on a methodology developed by the PSD using data from the regional Long-range Energy Alternatives Planning (LEAP) analysis and ACS. The data in the table represents the percentage of municipal households that will need to be weatherized in the target years. The targets for Tables 4A and 4B are cumulative for the town. As an example, in table 4A, only 2% of households in Panton will need to be weatherized by 2025 to meet that interim goal, but 47% of all households in Panton will need to be weatherized by 2050.

Thermal Pathways to Implementation - Goals, Policies and Recommended Actions

Given the large changes that Panton will need to make to conserve energy and switch fuels in pursuit of its energy targets, Panton adopts the following Goal, Policies and Recommended Actions for itself and its citizens:

Goal

Increase Panton's thermal energy efficiency and self-sufficiency by reducing its energy use, and reducing its carbon footprint to meet local and State targets of 90% renewable energy by 2050.

Policies and Recommended Actions

1. Promote thermal efficiency in Panton's municipal buildings
   a. Conduct an energy audit of all municipal buildings including the town hall and town garage to identify heating system and weatherization retrofits.
   b. Maintain thermal efficiency in town properties and improve energy efficiency of the town garage.
   c. Incorporate audit recommendations into the municipal capital budget and continue to work with Green Mountain Power to improve the efficiency of Town buildings.

2. Encourage and promote local and sustainably harvested wood and efficient wood heating
   a. Require outdoor wood boilers in Panton to comply with state efficiency and emission standards
   b. Recommend EPA III approved energy efficient wood stoves when approving new developments.

3. Work with local public agencies and protected areas to notify residents about cordwood harvesting and sustainable firewood harvesting techniques.

4. Encourage Panton residents to weatherize their homes, and support that effort by coordinating with Green Mountain Power, Champlain Valley Office of Economic Opportunity (CVOEO), Neighborworks of western Vermont, Efficiency Vermont and other weatherization service providers to encourage Panton residents to participate in weatherization programs.

5. Encourage proposed development to optimize design features and energy systems that conserve energy or use renewable sources.
   a. Promote as an option the installation of air source and geothermal heat pumps to reduce residential energy consumption and CO^2 production.
   b. Promote the use of the residential and commercial building energy standards through the Zoning Administrator's distribution of information on Vermont's Energy Codes in order to permit applicants and explain options for energy efficiency.[5]
   c. Amend zoning and subdivision regulations to address and encourage opportunities for improvements in energy efficient homes and commercial spaces.
   d. Encourage landscaping for shade and windbreaks to reduce heating and cooling costs.

[5] Zoning Administrator's Handbook, Vermont Land Use: Education & Training Collaborative (October, 2015)

Transportation Use Analysis

Like most Vermonters, the majority of Panton residents drive themselves to work and to shop, rather than carpool or take public transport. More than any other sector, the transportation costs borne by Panton's residential vehicle use demonstrate the scope of the change that will need to take place in Panton to meet the State's energy goals.

Table 5. Current Panton Transportation Energy Use

Transportation Data	Quantity	Information Source
Total # of Vehicles (2016)	609	American Community Survey 2012-2016
Average Miles per Vehicle (2015)	11,680	VTrans 2017 Energy Profile
Total Miles Traveled	7,113,120	
Average Realized MPG (2015)	18.9	VTrans 2017 Energy Profile
Total Gallons Used per Year	376,356	
Transportation BTUs (Billion)	45.3	
Average Cost per Gallon of Gasoline (2018)	$2.78	VTrans Fuel Prices 2018
Gasoline Cost per Year	$1,046,268	

The table above shows the number of vehicles, average miles for vehicle and miles traveled by vehicles per year in Panton. It also shows the gallons of fuel used per year. Finally, it demonstrates that Panton's residents likely spend more than a million dollars per year on gasoline, a fossil fuel product produced outside the area. Clearly, conservation by reducing miles traveled, fuel-switching and alternative transportation infrastructure demonstrate potential to save Panton's residents money over the long-term.

Transportation Targets

The increasing expense of fossil fuels noted above should provide a significant incentive to move towards the proposed targets contained in Table 6 below.

Table 6. Transportation Fuel Switching Targets	2025	2035	2050
Electric Vehicles	55	374	730
Biodiesel Vehicles	12	20	29

As Tables 6 illustrates, to meet the proposed targets by 2050, assuming growth, nearly all personal vehicles in Panton will need to run on renewably generated electricity. Additionally, most commercial vehicles and farm equipment will need to switch from diesel to bio-diesel. The town has already taken an important step with the installation of an electric vehicle charging station across from the Town Clerk's Office (3149 Jersey St).

However, converting fuels but continuing to rely primarily on single family vehicles will only produce limited fossil fuel energy savings. In order to reduce vehicles miles travelled, Panton will need to encourage other lifestyle changes. These include supporting and building alternative transportation infrastructure and promoting more compact building options in specific areas close to necessary services. Offering increased public transportation options is a great way for residents and the whole region to cut down on transportation costs and energy consumption. The Park and Ride lot across from the town hall encourages the consolidation of travelers and the reduction of single occupancy vehicles on the roads and resources like GoVermont (https://www.connectingcommuters.org/) can be used to organize carpooling and van pools.

Currently the majority of Panton's employed residents travel to work outside of town – many to Middlebury (~20%), Vergennes (~10%), and Burlington or South Burlington (~10%). Carpooling would be beneficial for these residents not only in fuel conservation, but also in reduced wear and tear and maintenance on vehicles. ACTR offers a Rideshare program that allows area residents to match their commuting needs with neighbors interested in carpooling. Based on 2011 survey results of 84 residents, 50 residents never carpool, and 33 said they wouldn't consider it, even if it were an option. Giving up flexibility, having small children, and having a varying schedule were reasons why residents would not consider this option.

Lastly, providing infrastructure that promotes biking and walking, especially along the Lake Champlain By-way, as well as public trail systems for hiking, biking, and cross-county skiing would reduce the community's reliance on single occupancy vehicular travel. Over half of respondents to a 2016 Town survey indicated that bike lanes and shoulders on major roads would improve the quality of life in Panton. Implementing land use policies to encourage compact development. like creating a village center with services and jobs for Panton's residents, constitutes another method of significantly reducing citizens' travel requirements and fossil fuel use.

Transportation Pathways to Implementation - Goals, Policies and Recommended Actions

Given the significant changes that Panton will need to adopt to switch fuel sources in order to meet statewide targets, Panton promotes the following Goals, Policies and Recommended Actions for itself and its citizens in order to reduce transportation energy demand and single-occupancy vehicle use, and encourage use of renewable or lower-emission energy sources for transportation:

Goal

A. Reduce reliance on nonrenewable fossil fuels, and shift reliance to renewable energy sources.

Policy and Recommended Actions

1. Create infrastructure supporting electric vehicles within Panton
   a. Maintain electric vehicle charging infrastructure on municipal property.
   b. Incorporate electric vehicle (EV) ready standards into building code. (This can be as simple as requiring 220v outlets in garages)
   c. Encourage all major employers in the region to install (additional) EV charging stations for employees and encourage carpooling.

Goal

B. Maintain or reduce vehicle miles traveled per capita to 2011 levels by reducing the amount of single occupancy vehicle (SOV) commuter trips.

Policies and Recommended Actions

1. Support regional efforts to increase access to safe every day walking and cycling within and across municipal borders.
   a. Review municipal road standards to ensure that they reflect all "complete streets" principles applicable to our rural roads;
   b. Work with the road foreman to make small, but important infrastructure improvements to roadways benefiting bicycle travel each time Panton repaves a road (Examples would include a bike lane on a hill or dangerous corner, striping, signage or other cost-effective methods of creating complete streets);
   d. Nominate a Panton representative to sit on the *Walk-Bike Council of Addison County* to foster safe and accessible opportunities for walking and cycling as an alternative to SOV;
   e. Promote other land use changes and practices that reduce Panton resident's reliance on single family vehicle trips (Please see the Land Use section for recommended actions.)

2. Support state and regional public transportation programs serving Panton and ask major employers to promote energy efficient commuting.
   a. Work with ACTR to support and increase the use of existing service and to explore creative approaches to service for Panton, including small capacity ride-share, ZipCar style micro-lease, and even self-driving EVs for a connecting service between the village and other populous areas of Panton;

b. Explore the possibility of seating a Panton representative on the ACTR Board to bring issues facing smaller, more isolated towns to the table; and,
c. Support use of the Park-and-Ride in Panton at the town offices and encourage Panton residents to consider ride-sharing programs.

3. Monitor and review any proposed increase in traffic generated by energy development projects so as to address and reduce impacts to municipal infrastructure and to ensure conformity with land use and energy efficiency goals.
   a. Revise zoning standards as appropriate to address traffic generation, related impacts and roadway capacities and characteristics necessary to accommodate increased traffic and the type of traffic associated with energy production facilities such as biomass plants.

Electrical Use Analysis

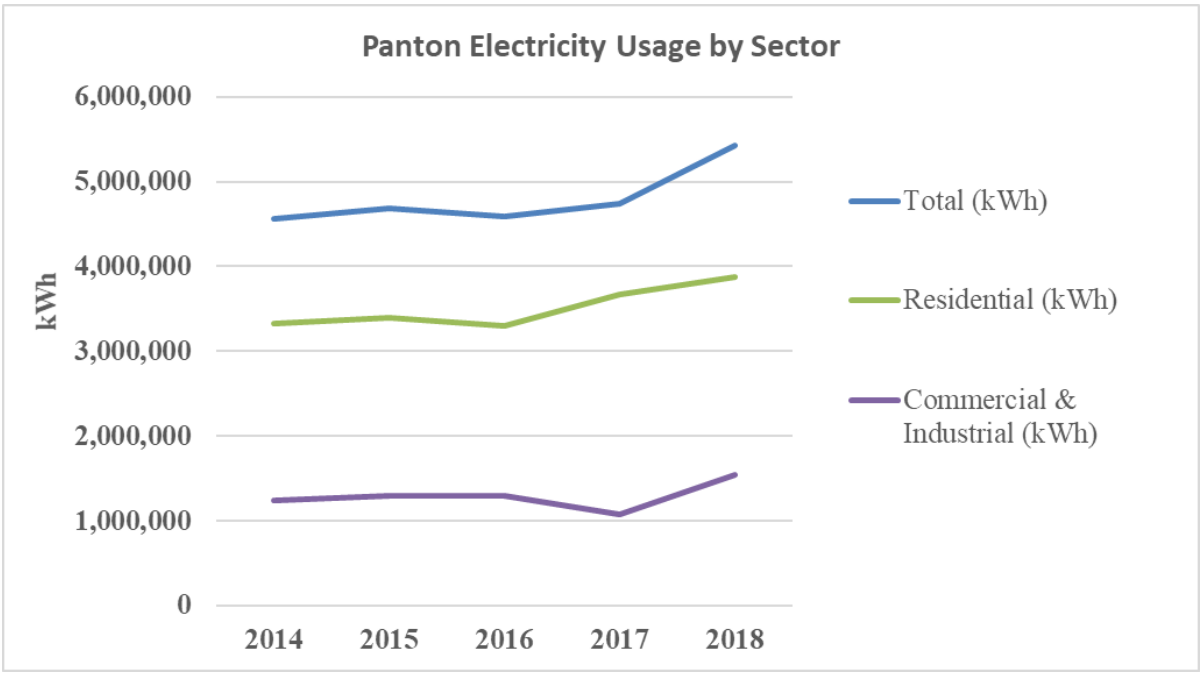
Electrical Use

Recent electricity use in Panton is shown in Table 7. These numbers represent everyday electrical use by Panton residents, and commercial and industrial businesses. Panton consumed more than 4,500,000 kWh of electricity per year, or an average of nearly 400,000 kWh/month.

Table 7. Electricity Use - Town of Panton

Use Sector	2014	2015	2016	2017	2018
Commercial & Industrial (kWh)	1,236,973	1,293,092	1,289,991	1,072,678	1,540,572
Residential (kWh)	3,328,431	3,398,364	3,306,400	3,664,682	3,882,278
Total (kWh)	**4,565,404**	**4,691,456**	**4,596,391**	**4,737,360**	**5,422,850**

(2014-2016 data from Efficiency Vermont, 2017-2018 from Green Mountain Power)



About 72% of Panton's electricity use is by residential customers. Residential electrical use is largely driven by lighting and appliances. Commercial use is primarily from lights, motors, pumps and other equipment. These commercial uses account for roughly 28% of all electricity currently consumed in Panton and were responsible for the increase in consumption from 2017-2018.

Electrical Targets

Like the thermal targets noted above, Panton will need to focus on efficiency and conservation to impact the amount of electricity that it uses. Since most of the electrical consumption in Panton is by residents, rather than commercial entities, the targets will largely require individual home owners to increase the efficiency of the electrical fixtures, motors and bulbs used in their homes and appliances. However, commercial businesses will also need to improve their electrical efficiency to meet the goals noted below. Below, Table 8a demonstrates that Panton must increase its overall efficiency and conservation by nearly 60% by 2050 to meet the proposed targets. Technological advances, such better fuel or motor efficiency, will drive this change.

Table 8a. Electricity Efficiency Targets	**2025**	**2035**	**2050**
Increase Efficiency and Conservation (BTUs)	10.8%	37.2%	59.2%

However, even with significant efficiency steps taken by businesses and residents, Panton's electrical usage is predicted to increase. The electric heat pumps and electric cars touted in the previous to sections as technological innovations to reduce our reliance on fossil fuels, will increase Panton's consumption of electricity. Tables 8b. and 8c. reflect the significant percentages of conversions touted as necessary in the previous two chapters to reduce reliance on carbon-based fuels.

Table 8b. Use of Renewables - Transportation	**2025**	**2035**	**2050**
Renewable Electrical Use - Transportation	2.7%	18.2%	83.5%

Table 8 c. Use of Renewables - Heating	**2025**	**2035**	**2050**
Renewable Electrical Use - Heating	48.9%	61.1%	85%

As a result of the transportation and heating fuel switching to electricity, Panton's use of electric energy use is likely to increase. However, since the electricity it uses will be derived from renewable sources, its total use of fossil fuels will drop significantly.

Electrical Pathways to Implementation - Goals, Policies and Recommended Actions

Given the significant changes that Panton and its residents and businesses will need to adopt to conserve energy and increase efficiency in order to meet statewide targets, Panton promotes the following Goals, Policies and Recommended Actions for itself and its citizens:

Goal

Reduce reliance on nonrenewable energy sources such as oil and gas, and shift reliance to renewable electrical energy sources, thereby reducing carbon emissions and acid rain.

Policies and Recommended Actions

1. Support energy conservation efforts and the efficient use of energy by installing efficient electric equipment.
   a. Explore funding opportunities and implementation possibilities for upgrading the energy efficiency of all town buildings;
   b. Discourage the use of "always-on" parking lot lamps and other indoor and outdoor lighting in public spaces.

2. Promote energy efficiency in all buildings, especially new ones.
   a. Promote improved compliance with the residential and commercial building energy standards by distributing code information to permit applicants and working closely with the Zoning Administrator;
   b. Advocate incorporating electric vehicle (EV) ready standards in new building construction;
   c. Consider requiring new construction to comply with the Residential Building Energy Code "stretch code" requirements; and,
   d. Investigate the installation of a municipal solar and/or wind net-metering facilities to off-set municipal electric use.

Land Use, Generation and Transmission Analysis

Land use and energy are closely related. Land use patterns exert a strong influence on major end uses of energy, including transportation, heating and cooling of buildings, and the energy used in developing infrastructure. Development that is clustered provides for greater energy efficiency. Clustering means fewer miles of road are needed to connect the homes or commercial buildings, school buses and snow plows travel shorter distances, and electric utility lines need not extend as far. Carefully considered placement of a building on a lot adds to the efficiency of any new structure by increasing passive solar gain and decreasing wind pressures. Panton has tied this energy land use section closely to the town Plan's Current and Future Land Use section. The Village Center of Panton's Four Corners area at the intersection of Jersey St and Adams Ferry Road in the northwest part of town is zoned for neighborhood-commercial use and is intended to support clustered development of housing, businesses and services in the future. Conversely, the town's Ridgelands, Shorelands, and Floodplains land use areas allow very limited residential or commercial scale development. Instead, these regions promote protecting scenic and recreational values, critical forest blocks, wetlands and floodplains, the habitats they create and the species they support. Readers are encouraged to look to the Panton Town Plan for housing and general development policies and actions promoting energy efficient land use. The remainder of this chapter focuses on land use decisions addressing energy infrastructure.

Current Renewable Energy Generation

Although Panton's energy supply is largely consistent with statewide patterns, Panton does have a number of alternative energy installations that tap local energy resources. Panton is a prime location for solar energy, receiving between 4.0 and 4.5 kWh/m^2/day. The openness of its landscape, the presence of many fallow fields, and the town's location in the valley between two mountain ranges translates into more sunny days compared with surrounding upland and mountain areas away from Lake Champlain.

In 2017 Green Mountain Power opened a 40-acre, 4.99MW project that was more than twice the size of the largest existing Addison County arrays. The array was projected to generate about 9 million kilowatt hours of energy per year, enough to provide power for more than 700 homes. The facility is owned and operated by Green Mountain Power on leased agricultural land with "tracker" panels to move slowly and silently with the direction of the sun and can increase a project's production by up to 15 percent. The project's productive life should range from 25 to 35 years and GMP will remove the panels and restore the site when the array is no longer useful. The project resulted in a transmission line upgrade to the Vergennes substation, which has increased capacity for moving locally generated power to the statewide grid. There have been two other net-metered 500 KW solar energy developments constructed which would each potentially produce enough energy to power 100 and 120 homes for a year.
Additionally, in 2018 Green Mountain Power received a state permit to build a 1 MW commercial Tesla battery storage facility in Panton associated with the 4.99MW photovoltaic project. This facility allows GMP to store renewable energy and then sell it back into the regional grid when energy demand peaks.

A growing number of homes have photovoltaic (PV) systems that supply at least a portion of their electrical energy. Thanks to Vermont's net-metering law, owners of these systems can sell

excess power back to the grid during periods of high solar production, and purchase grid power when needed. A number of homeowners have also installed batteries that provide backup power and are fueled either by their own solar arrays or off the grid. GMP can share access to stored energy to pull down power demand at key times and use stored energy to drive down costs for all customers. No homeowners currently use wind energy to generate electricity, but several homes have solar domestic hot water systems.

As of March 6, 2019, Panton's existing electricity generation resources are exclusively from solar power (Data from https://www.vtenergydashboard.org/my-community/panton/statistics).

Table 9a. Renewable Energy Generation Sites in Panton

Source	Total Sites	Total 2019 Capacity (kW)	Total 2019 Generation (kWh/year)	Capacity installed since end of 2016 (kW)	Generation since end of 2016 (kWh/year)
Solar	30	6,083.86	7,461,246	4,923.3	6,037,935
Wind	0	0	0	0	0
Hydro	0	0	0	0	0
Biomass	0	0	0	0	0
Hot Water	4	0	0	0	0
Total	34	6,083.86	7,461,246	4,923.3	6,037,935

Table 9b. Solar Generation Sites in Panton

Source	Total Sites	Total 2019 Capacity (kW)	Total 2019 Generation (kWh/year)	Capacity installed since end of 2016 (kW)	Generation since end of 2016 (kWh/year)
Ground-mounted PV	5	1,021.4	1,225.80	0	0
Ground-mounted PV: Tracker	6	4,938.6	7,700.66	4,900	6,009,360
Roof-Mounted PV	19	123.86	131.97	23.3	28,575.12
Total Solar	30	6,083.86	9,058.44	4,923.3	6,037,935

As Table 9 a. and b. illustrate, 34 different solar generation sites create 7,461,246kWh (or 7,461 MWh) of renewable power within Panton, exceeding the town's current electric use (Table 7) and total renewable electrical target for 2025 (Table 8d). More than 4,923kW of capacity (6,037,935 kWh) has been installed since the beginning of 2017 when regional renewable energy production targets were calculated. This is nearly twice the town's 2050 Generation Target (3,527,960 kWh) in the regional energy plan.

The discussion below encompasses several types of renewable generation available to Panton's residents and addresses how they might harness them to meet generation targets for the community.

Solar Energy

On average, the energy equivalent of over five megawatt hours of solar energy falls on each acre of land in Vermont annually. Despite long winters and a variable climate, there is a relative abundance of sunshine and potential for utilizing solar energy. The challenge to using solar energy in Vermont is the seasonal difference in the amount daylight hours between summer and winter. So, it would probably not be feasible at this time to rely solely on solar energy as the only power source in Panton.

The simplest use of sunlight is passive use for lighting and heating. Properly insulated buildings oriented so that their long axis is within 30 degrees of true south with unobstructed south facing windows can offset their space heating costs by 15 to 50 percent. Taking this one step further floors and walls can be built of materials that will capture and store warmth from the sun. In many cases, passive solar buildings can be constructed at little or no extra cost, providing free heat and light – and substantial energy cost savings – for the life of the building.

Solar water heating is another cost-effective solar application. Water heating is one of the largest energy costs for the town's households. A water heating system that utilizes solar energy can reduce energy costs by up to 65 percent. A solar water heater cannot generally supply all the hot water needed year-round because of the climate and weather, so a back-up system is required. Consumers currently heating their domestic hot water with electricity would see the largest energy cost savings.

New developments in photovoltaic cell (PV) technology, which converts solar energy into electricity, has led to PVs that are smaller, less expensive and more consumer-friendly – trends that should continue into the future. Photovoltaic cells come in a wide range of sizes and applications, from large collectors for utility-sized power plants to tiny cells built into consumer appliances

There are currently 30 solar generation sites in the town of Panton (Table 8), many of which are net-metered. Net metering involves the installation of grid-connected, on-site renewable electric generation. Net-metering customers purchase power from the grid when needed, and export power to the grid when output exceeds demand, resulting in a credit against charges for purchased power.

Panton supports solar energy generation installations sized, sited and constructed pursuant to the community Siting Standards contained later in this section. **Panton supports residential scale solar development** in all areas of town that do not fall under known constraints. Panton believes the only commercial/industrial solar sites in town should be in the areas the town has specified "preferred areas" for solar as enabled by Rule 5.100 of the Public Utilities Commission governing solar net-metering. See **Map 12** showing designated preferred areas for solar development and siting. These preferred areas are composed of approximately 300 acres in the central portion of Panton on both sides of Slang Road in the area east of Dead Creek and south and west of Holcomb Slang, north of West Road. This excludes the areas with Known Constraints as identified in Table 10, which are primarily river and stream corridors as well as State Significant Natural Communities and Rare, Threatened, and Endangered Species locations. Additionally, the preferred area excludes those areas along Holcomb Slang identified as Highest

Priority Forest Blocks, as well as areas of scenic value as identified in the community value-asset mapping project conducted by the Vermont Fish and Wildlife Department on April 4, 2017

Given its designation of these preferred sites, the town has chosen to **discourage additional commercial scale solar generation outside of the designated preferred area**. Panton believes it is appropriate to treat commercial energy generation similarly to its treatment of other commercial activities. Specifically, the Future Land Use section of the Panton Town Plan calls for very limited residential or agricultural development within the Shoreland and Ridgeland planning areas. Commercial developments are not supported in these planning areas. Therefore, the town of Panton has chosen to prohibit commercial solar development in its Shoreland and Ridgeland Districts as defined in the Future Land Use section of the Town Plan

Biomass
Biomass consists of renewable organic materials, including forestry and agricultural crops and residues, animal manure, wood and food processing wastes, and municipal solid waste. All these products or waste products can be used as energy sources.

The benefits of these resources are that they are local, sustainable and often waste materials. Some biomass materials, such as wood (as firewood, chips, or pellets), have been traditionally burned to provide heat directly to interior space and water. Other materials can also be used in more efficient ways, such as capturing heat from compost to heat space and water, or capturing methane from landfills or manure to run combustion engines that generate heat or power. Panton has several potential sources of biomass, including forested areas and several large dairy farms. The passage of Act 148 by the Vermont legislature in 2012, which bans all organic materials from landfills by 2020, may increase the local supply of food waste and other organic materials for energy production.

Firewood and Wood Pellets
Both wood and wood pellets offer a local, renewable heat source from local sources, increasing efficiencies while building local forest industries. The town of Panton supports the use of wood heat in energy efficient and non-polluting residential wood stoves. Panton has a limited forest area, which if sustainably harvested could supply cordwood or pellets to support a small number of residential or small commercial uses. Many of these forested areas are located in high-priority forest blocks (**Maps 6, 10**) and sustainable harvesting would economically support their continued existence, especially on privately-owned land.

Biomass crops
Some farms in Vermont are producing biomass crops, such as corn for corn pellet stoves, seed-oil crops for the production of bio-diesel, and willow trees for heat and electricity production. These crops are planted on existing open, agricultural land and harvested at regular intervals. They can be used to support regional energy production and maintain continued agricultural land use.

Anaerobic Digesters
The management of manure is an ongoing challenge for dairy farmers and several techniques are currently in use, but anaerobic digestion combined with biogas storage has the added benefit of also reducing odor and limiting the introduction of nitrogen and phosphorus to water sources via

surface runoff and groundwater infiltration. Anaerobic digesters have long been used to digest sewage sludge at waste water treatment plants to reduce the odor of the sludge before disposing of it. An anaerobic digester is an airtight vessel where "anaerobic" bacteria (i.e. those that thrive in the absence of oxygen) are used to decompose or breakdown an organic, carbon based, solid waste slurry, such as cow manure or food wastes, into smaller molecular weight compounds with lower residual odor. The anaerobic bacteria generate both methane (CH_4, also called natural gas) and carbon dioxide (CO_2) gases in near equal volume as they digest the waste material. In modern anaerobic digesters this biogas is captured and used for energy recovery, typically in an internal combustion engine coupled to an electric generator. During the subsequent combustion, the methane is converted to carbon dioxide, releasing energy to drive the engine or provide heat for other uses. The CO_2 emissions are released to the atmosphere.

Only a small percentage of the manure is actually converted to biogas in modern anaerobic digesters. Dairy cow manure is about 85 percent water and 15 percent solids and only about a quarter of the solids end up being converted to biogas[2]. The residual solids left over after the digestion are lower in odor and may be dried and reused as cow bedding.

By using the biogas captured, a facility can reduce greenhouse gas emissions, reduce the amount of energy that it needs to purchase, combat potential negative public comments about its business operations, and providing additional financial for family farms. Methane digesters could be located as part of Panton farming operations with the first emphasis to supplement the farm's own energy needs, as demonstrated on other Addison County farms. Digesters in the nearby communities of Addison, Bridport, and Weybridge currently produce between 150kW (750MWh) and 450kW (2,000MWh) of electricity.

Panton has granted permits for and continues to support the use of biomass on local farms to create renewable natural gas for heat and or power. As technology evolves, there may also arise the possibility to create a "filling station" for town vehicles which could be converted to burn methane. The emergence of farm-based methane and subsequent production of energy from the same, should be locally sourced and distributed separately from non-renewable 'natural gas' sources.

Wind

Wind power can be harnessed for both large and small-scale power generation. In recent years, several studies have shown that Vermont's wind resource is abundant enough to meet a significant portion of the state's electric energy needs. Ridgelines provide the best location for wind generation facilities, with elevations between 2,000 and 3,500 feet above sea level being ideal for maximum power production. In Panton, the wind power resource is rated as marginal at best, and in most of the central and northern parts of town it is rated as poor (**Map 2**). Therefore, Panton has chosen to **prohibit industrial scale wind generation and commercial scale wind generation**.

While large-scale generation is unlikely to be located in Panton, residential wind turbines are possible. Small wind turbines, designed for individual residential or business use, usually generate under 15 kW. They have two or three blades usually with a diameter of eight to 24 feet. They are often mounted on a guyed monopole or a freestanding lattice tower ranging in height from about 80 to 120 feet. Turbines need to be 40 to 60 feet above nearby trees or other

obstructions for optimum efficiency. This technology is developing rapidly and over the next decade it is expected that small wind turbines will become smaller, more efficient and affordable. Panton **supports residential scale wind** in areas that allow residential uses, provided they are not visible from scenic roads, including VT Rte. 22A, Panton/Sand Road, Lake Road, Adams Ferry Road, Arnold Bay Road, and Hopkins Road, and avoid any and all impacts to sensitive natural and aesthetic resources.

Geothermal Energy

Energy emanates from the Earth's interior to the surface at a modest average rate of about 350 watts per acre, far less than the solar input. In addition, solar energy warms the Earth, especially in the summer, and some of that energy is stored as heat in the upper layers of soil and rock. The result of these geothermal and solar effects is that soil temperatures just a few yards deep under Vermont average around 45˚F to 50˚F year-round. This temperature is too low for direct heating, although it can help with summer cooling. Nevertheless, the constant ground temperature represents a significant energy resource, and with appropriate technology it can be used as a heat source.

On the other hand, subsurface water has high heat capacity and can be used with water-source heat pumps to provide home heating in a way very similar to air-source ("cold climate") heat pumps. These systems often use existing potable well water systems for the heat exchange. The principal energy input required is electricity for pumping water through the system, as well as driving the compressor, so economic feasibility is related to well depth.

Hydropower

There are currently no hydroelectric energy generating facilities in Panton. the nearest hydropower facility is the GMP plant on the Otter Creek Falls, just upstream from Panton.

Land Use - Renewable Generation Targets

As a part of PSD requirements for Enhanced Energy Planning, ACRPC calculated renewable energy generation targets for the Town of Panton for the years 2025, 2035 and 2050 by using the same resource maps it used for the Region, but broken down to the town level.

Mapping Generation Potential[6]

Renewable Generation Resource Mapping
ACRPC created a series of maps depicting generation resources and also potential constraints for the Town of Panton. These maps show data as required by the Department of Public Service Determination Standards and are a required element of enhanced energy planning. The maps show areas that are potentially appropriate or inappropriate locations for future renewable generation facilities. The maps are a planning tool only and may not precisely indicate locations where siting a facility is acceptable. When proposing a generation facility, applicants must verify the presence or absence of the natural resources and other specific characteristics of the site as a part of the application.

Map 1 depicts the current transmission and distribution resources and constraints within Panton. Construction of new transmission facilities to support renewable energy generation can be a substantial driver for the total cost of the power the facility will generate. Knowing what infrastructure is available, and where, is an important planning component for renewable power development. **Map 2** depicts the places with the best potential wind speed for development in Panton.

The map displaying "State and Local Known Constraints" (**Map 3**) depicts natural resource layers that preclude renewable energy development. These "Known Constraints" depict places where, because of the natural resources located in the area or administrative limitations, it would be prohibitive to secure a permit for energy development. An additional known constraint includes the Shoreland and Ridgeland future land use planning areas (**Map 4**). A full description of each type of known constraint included on Maps 3 and 4 is located in Table 10a. Statewide known Constraints are listed first, flowed by locally identified critical resources that also prohibit commercial scale renewable energy production. **Map 5**, entitled "State and Local Possible Constraints" depicts places where natural resources exist and should be considered, but may not prohibit development. A full description of each type of "possible constraint" included on Map 5 is also located in Table 10b. The possible constraints identified by the town include High Priority Forest blocks (**Map 6**), Scenic Value Areas (**Map 7**), and Community Value Areas (**Map 8**) as identified in a 2017 community values mapping exercise included in the town plan.

The remaining maps show the location of where solar resources exist, and where wind resources and biomass resources exist in quantities that would support generation. These maps are depicted below as Potential Solar Resources (**Map 9**), Potential Biomass Resources (**Map 10**), and Potential Wind Resources (**Map 11**). These maps depict where resources exist and where no known natural resource constraints exist. They also depict baseline resources, not necessarily the "best" resources in the area. For example, the Wind Resource Map depicts where the wind blows

[6] All maps depict information available at the time of their creation. Energy Developers and others must use the most current maps available. "Local known constraints" and "Local possible constraints" maps are available from the Town of Panton.

at the minimum velocity necessary to support wind power and where no known natural resource constraints exist. As noted in the wind discussion above, while many places may meet the minimum criteria for wind development, almost no areas in Panton have better than marginal wind speed for energy production. Accordingly, users are cautioned to read the maps in this context.

Maps similar to those contained in this plan are available in a searchable format at ACRPC's website. The "scalability" of the digital version of the maps makes them a much more valuable tool for those desiring to understand resources or constraints within a small area of the Region. However, these Regional maps do not contain locally identified constraints and should be read in that context.
http://54.172.27.91/public/energysiting/regional_maps_sm/

A full list of known and possible constraints included on the maps is located in Table 10a and 10b. The known constraints and possible constraints used to create the maps include constraints that are required per the State Determination Standards from the Department of Public Service. In addition to the state level constraints the Town of Panton chose to add the local constraints listed at the bottom of Table 10a.

Table 10a – Mapping Constraints[7]

Solar, Wind and Biomass Maps - Known Constraints		
Constraint	**Description**	**Source**
Confirmed and unconfirmed vernal pools	There is a 600-foot buffer around all confirmed or unconfirmed vernal pools.	ANR
State Significant Natural Communities and Rare, Threatened, and Endangered Species	Rankings S1 through S3 were used as constraints. These include all of the rare and uncommon rankings within the file. For more information on the specific rankings, explore the methodology for the shapefile.	VCGI
DEC River corridors	Mapped River Corridors.	ANR
National Wilderness Areas	Parcels of Forest Service land congressionally designated as wilderness.	VCGI
Class 1 and Class 2 Wetlands	Vermont State Wetlands Inventory (VSWI) and advisory layers from site specific work collected by the municipality	VCGI
Shoreland and Ridgeland Future Land Use Planning Areas	Constraints identified by the Town of Panton limiting renewable energy generation.	Panton Town Plan

[7] "Local known constraints" and "Local possible constraints" maps are available from the Town of Panton.

Table 10b. Solar, Wind and Biomass Maps - Possible Constraints		
Constraint	**Description**	**Source**
Protected lands	This constraint includes public lands held by agencies with conservation or natural resource oriented missions, municipal natural resource holdings (ex. Town forests), public boating and fishing access areas, public and private educational institution holdings with natural resource uses and protections, publicly owned rights on private lands, parcels owned in fee by non-profit organizations dedicated to conserving land or resources, and private parcels with conservation easements held by non-profit organizations.	VCGI
Deer wintering areas	Deer wintering habitat as identified by the Vermont Agency of Natural Resources.	ANR
Hydric soils	Hydric soils as identified by the US Department of Agriculture.	VCGI
Agricultural soils	Local, statewide, and prime agricultural soils are considered.	VCGI
Act 250 Agricultural Soil Mitigation Areas	Sites conserved as a condition of an Act 250 permit.	ANR
FEMA Flood Insurance Rate Map (FIRM) special flood hazard areas	Special flood hazard areas as digitized by the ACRPC were used (just the 100-year flood plain -500-year floodplain not mapped). The inclusion of this resource as a regional constraint is consistent with goals and policies of the Addison County Regional Plan.	ACRPC
Vermont Conservation Design Highest Priority Forest Blocks and Rare Physical Landscape Diversity Blocks	The lands and waters identified here are the areas of the state that are of highest priority for maintaining ecological integrity. Together, these lands comprise a connected landscape of large and intact forested habitat, healthy aquatic and riparian systems, and a full range of physical features (bedrock, soils, elevation, slope, and aspect) on which plant and animal natural communities depend. The inclusion of this resource as a regional constraint is consistent with goals and policies of the Addison County Regional Plan. (Source: ANR)	ANR
Scenic Value Areas	Areas identified in the 2017 Community Values-Asset Mapping	Panton Town Plan, VT Fish & Wildlife

Generation Potential

As a part of the PSD's "determination standards", or the standards necessary to establish an "enhanced energy plan," the town was required to calculate the amount of renewable resource generation possible in Panton. With the assistance of the ACPRC, Panton generated the amount of energy potential in the town based on maps above, and some assumed values for the amount of land it took to produce specified amounts of solar and wind energy. The methodology of the mapping methodology is explained in further detail below. The results of this analysis are depicted in Table 10c, Renewable Generation Potential. As Table 10c below demonstrates, the amount of renewable generation potential, as theoretically calculated from the maps, dwarfs both the output of actual generation that currently exists in Panton (Table 9) and Panton's renewable generation targets contained in Table 11 below. Panton recognizes that the theoretical generation potential shown in Table 10c dramatically overestimates the potential generation available. As noted earlier in this plan, the wind resource in Panton is generally poor, but since it exists throughout Panton the potential generation table depicts it as vast.

Table 10 c. Renewable Generation Potential in Municipality		
Source	**Generation Potential (MW)**	**Generation Potential (MWh)**
Rooftop Solar	0.5	552
Ground-mounted Solar	569	698,282
Wind	3,160	9,689,327
Hydro	0	0
Total	**3,730**	**10,388,161**

Panton has established 2025, 2035, and 2050 targets for renewable energy generation. A set of regional targets for solar and wind energy were produced for each planning commission by the Northwest Regional Planning Commission (NWRPC) and the PSD. Due to the amount of renewable energy currently generated in the region, ACRPC chose to work with the low targets for solar and wind generation, in order to calculate the targets necessary for each town. ACRPC found that in order to meet the State's 90 x 50 goals, according to the targets provided by the NWRPC and PSD, Panton will have to generate 3,527.96 MWh of electricity per year from new renewable energy sources by 2050 (Table 11).

Table 11. Renewable Generation Targets	2025	2035	2050
Total Renewable Generation Target (in MWh)	1,164.23	2,328	3,527.96

Since the regional and town goals were calculated in 2017, more than 4.923MW of capacity (6,037 MWh) have been installed (Table 9a and 9b). This is nearly twice the town's 2050 Generation Target (3,528 MWh). As of 2019, solar facilities in Panton produce 7,461 MWh of renewable energy, exceeding the town's annual electric consumption (Table 7).

ACRPC and the town of Panton recognize these targets as a framework for renewable energy generation. Therefore, the town has developed goals and actions for energy conservation and generation that support the attainment of Vermont's energy goals, while also considering the demand required by Panton's residents and businesses. Given the limited hydroelectric potential in Panton, the town believes the majority of new energy it generates will stem from **solar energy**, followed by **biomass** and to a much lesser extent, **wind** generation.

Since Panton has the luxury of having significantly more area for generation potential than it needs to meet its goals, Panton has chosen to prohibit commercial solar and wind development in its Shoreland and Ridgeland Districts as defined in the Future Land Use section of the Town Plan (**Map 4**).
A preferred area for solar energy development is identified in **Map 12**.

Lastly, Panton has developed a specified set of community land use standards to help guide energy projects to locate in areas it deems preferred or acceptable and to prohibit them in other areas.

All Energy Facilities

Project visibility

Renewable energy projects shall not be visible from identified scenic roads, or if visibility is determined to be unavoidable, such visibility shall not unduly impact views from identified scenic roads in Panton.

Sensitive Resources

Renewable energy projects shall avoid any and all impacts to identified sensitive resources, including but not limited to:

A) Highest priority forest blocks as identified by the Vermont Agency of Natural Resources
B) Views of Lake Champlain as seen from Lake Road and Arnold Bay Road;
C) The Town's two prominent ridgelines in East Panton between 22A and Hopkins/Jackson Road and West Panton between Lake Road/Arnold Bay Road and Jersey Street; and
D) Lands incorporating and adjacent to Dead Creek.

If the applicant can demonstrate the necessity and if the potential impacts from project components can be satisfactorily addressed and mitigated, then a waiver from this standard may be considered.

Protection Existing Forestland

Given the lack of extensive forest cover in Panton, proposed renewable energy projects shall avoid any clear-cutting for project siting that exceeds 2 acres in size. Energy projects should not be sited in highest priority forest blocks, as identified in the Panton Renewable Energy Planning Possible Constraints Map and Highest Priority Forest Blocks Map (**Maps 5 and 6**).

Preservation of Agricultural Soils

Larger projects shall be sited in open lands that have no Prime or Statewide Agricultural Soils. If the applicant can demonstrate that such soils are not suitable for agricultural use, or can conserve an equivalent amount of agricultural land with suitable soils to match the proposed acreage being lost, that may be accepted as a reasonable mitigation measure. See the "Panton Renewable Energy Planning Possible Constraints Map" (**Map 5**) and the listing of agricultural soils as provided by the Vermont Agency of Natural Resource Atlas (https://anr.vermont.gov/maps/nr-atlas).

Retention of and Preservation of Existing Landscape Character and Vegetation

A) The natural topography of the proposed renewable energy site development shall be retained and not altered unless the applicant demonstrates the necessity for such alteration and any associated impacts and effects can be satisfactorily mitigated.
B) Any existing vegetative screening and hedgerows on a proposed renewable energy site shall not be removed or altered in such a manner as to reduce or eliminate effective existing screening for the project.

Avoidance of Neighborhood Impacts

A) When siting residential or small-scale wind energy projects, potential neighborhood impacts shall be identified and mitigated to the reasonable extent possible, and any and all applicable and established state standards for sound impacts shall be adhered to.
B) The applicant for any renewable energy project may be required, at their own expense, to provide industry standard visual simulations, natural resource and noise studies and evaluations so as to ensure the project will not result in adverse undue impacts to adjacent residences and neighborhoods.

Incorporation of the Community Values Mapping

Panton is an extraordinarily scenic town due to its open landscape, with unobstructed views of Lake Champlain and the high peaks of the Adirondacks across open pasture and cropland areas. The Community Values Map and Scenic Values Map (**Maps 7 and 8**, produced 4-2017) should be used as a guide for reviewing potential aesthetic and natural resource impacts/effects posed by potential energy development projects (generation and transmission).

Solar Energy Projects

Residential scale solar projects, defined as grid-connected net-metered projects less than 15 kW, whether rooftop or ground mounted, are **allowed** in all areas of the Town of Panton. Owners are encouraged to use the siting standards noted below when siting their array on their property.

Net-metered commercial solar projects, defined as any project subject to Rule 5.100 governing net-meter solar arrays and ranging in size from 15kW – 500kW are **encouraged** in Panton, subject to the siting criteria below, within the preferred areas as designated by this Plan and depicted on **Map 12**. They will also be allowed, subject to review pursuant to the siting criteria below in areas with no "known constraints" as depicted on **Map 3**. However, **Map 4** shows that Panton has designated its Shoreland and Ridgeland's Future Land Use Planning Areas as local known constraints and accordingly, commercial solar projects (15kW – 500kW) and are **prohibited** from those planning Regions.

Industrial solar projects of a size greater than that permitted by the net-metering rules (>500kW) are **prohibited** in the Town of Panton outside the preferred area.

1. Solar Energy Siting:

Where a project is placed in the landscape constitutes the most critical element in the aesthetic siting of a project. Poor siting cannot be adequately mitigated. Accordingly, all solar energy generation projects proposed in Panton must evaluate and address the proposed site's aesthetic impact on the surrounding landscape.

Good sites have one or more of the following characteristics:

- Building and roof-mounted systems;
- Systems located in close proximity to existing larger scale, commercial, industrial or agricultural buildings;
- Proximity to existing hedgerows or other topographical features that naturally screen the proposed array from view from at least two sides;
- "Preferred" areas as defined by Public Utilities Commission Rule 5.100 governing net metered sites.
- Sites designated as "preferred" areas by this Plan.

Poor Sites have one or more of the following characteristics:

- No natural screening;
- Topography that causes the arrays to be visible against the skyline from common vantage points like roads or neighborhoods;
- The removal of productive agricultural land from agricultural use;
- Sites that require public investment in transmission and distribution infrastructure in order to function properly;
- Areas of forestland that need to be clear cut for the installation of solar arrays

Mass and Scale: The historical working landscape that defines Panton is dominated by viewsheds across open fields to wooded ridges and Lake Champlain. Rural structures like barns fit into the landscape because their scale and mass generally do not impact large tracts of otherwise open land. Industrial scale solar arrays may need to be limited in mass and scale, and/or have their mass and scale broken by screening to fit in with the landscape. The Town of Panton has chosen to cap the mass and scale of any solar development to the maximum size allowed by Rule 5.100 of the Vermont net metering program. Accordingly, solar facilities greater than 500kW in size are **prohibited** in the Town of Panton except in the preferred energy area.

2. Solar Mitigation Methods:

In addition to properly siting a project, solar developers must take appropriate measures from the list below to reduce the impact of the project:

- Locate the structures on the site to keep them from being "skylined" above the horizon from public and private vantage points;
- Shorter panels may be more appropriate in certain spaces than taller panels to keep the project lower on the landscape;
- At a minimum, all solar arrays must observe the setback restrictions contained in Act 56 governing solar installations. However, developers are encouraged to increase setbacks to at least those listed in the Municipal Zoning Regulations within the Zoning District in which it lies;
- Use the existing topography, development or vegetation on the site to screen and/or break the mass of the array;
- In the absence of existing natural vegetation, the commercial development must be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height and depth to provide effective screening within a period of 5 years. Partial screening to break the mass of the site and to protect public and private views of the project may be appropriate;
- When installing pollinator plantings other than for screening purposes, the development should follow the voluntary pollinator-friendly solar standards as defined by the Solar Site Pollinator Habitat Planning & Assessment Form available on the UVM website at:

https://www.uvm.edu/sites/default/files/Agriculture/Pollinator_Solar_Scorecard_FORM.pdf

- The siting of solar equipment shall minimize view blockage for surrounding properties. As an example, a landowner may not site an array on his or her property in a location calculated to diminish the visual impact of the array from his or her residence but places the array immediately within their neighbor's or the public's viewshed. Locating solar equipment in a manner designed to reduce impacts on neighbors or public viewsheds constitutes reasonable mitigation;
- Use black or earth tone materials (panels, supports fences) that blend into the landscape instead of metallic or other brighter colors).

Wind Energy Projects:
The Town of Panton will support wind projects that conform to the provisions of these siting standards:

- *Residential (on property) Scale Wind* consists of a single tower less than 120 feet high generating less than 15kW of energy. They are **allowed** within the Town of Panton and are encouraged to site their project pursuant to the standards below and those contained within the guidelines in the Vermont Public Service Board publication "Siting a Wind Turbine on Your Property"[8], and using the scoring system therein, be reasonably construed to score below the "significant" zone.

- *Community Scale Wind* consists of 1 or more towers all less than 200 feet high (so as not to require night lighting) and producing less than 1 MW of electricity. Community Scale wind projects are **allowed** in Panton, subject to the siting criteria below, within the preferred area as designated by this Plan and depicted on **Map 12**. They will also be allowed, subject to review pursuant to the siting criteria below in areas with no "known constraints" as depicted on **Map 3. Map 4** shows that Panton has designated its Shoreland, Ridgeland, and Floodplain Areas as local known constraints. Accordingly, community scale wind projects are **prohibited** from those planning Regions.

- *Industrial Scale Wind* consists of wind projects with a total capacity of greater than 1MW or with a tower or towers taller than 200 feet or requiring night lighting for any reason. The Town of Panton **prohibits** industrial scale wind.

A. Siting of Wind Generation Projects:
Where a project is placed in the landscape constitutes the most critical element in the aesthetic siting of a project. Poor siting cannot be adequately mitigated. Accordingly, all wind generation projects proposed in Panton must evaluate and address the proposed site's aesthetic impact on the surrounding landscape.

Good sites have one or more of the following characteristics:
- Systems located in close proximity to existing larger scale, commercial, industrial or agricultural buildings;
- Proximity to existing transmission system to minimize the new infrastructure required to serve the project;
- Reuse of former impacted property or brownfields that have qualified for and are listed in the State of Vermont Brownfield program.
- Significant isolation distances from existing residential uses to allow the noise from the turbine to dissipate to a level of at least the State decibel standard before it reaches the property line.
- Sites designated as "preferred" areas by this plan.

[8] "Siting a Wind Turbine on Your Property. Putting Two Good Things Together: Small Wind Technology & Vermont's Scenic Landscape" Available at http://publicservice.vermont.gov/sites/dps/files/documents/Renewable_Energy/Resources/Wind/psb_wind_siting_handbook.pdf

Poor Sites have one or more of the following characteristics:

- A location in proximity to and interfering with a significant viewshed.
- Sites that require public investment in transmission and distribution infrastructure in order to function properly.

B. Mitigation Methods for Wind Generation Projects:

In addition to properly siting a project, wind developers must take appropriate measures from the list below to reduce the impact of the project:

- At a minimum, all wind turbines must observe setback restrictions such that if a tower falls, the entire structure will land on property owned or controlled by the tower's owner. Developers are encouraged to increase setbacks to mitigate noise and shadowing impacts.
- Use white or other colored materials (tower, hub blades) and earth tones for ground infrastructure or fences that blend into the landscape instead of metallic or other brighter colors).

Energy Transmission:

A. Siting of Energy Transmission Facilities:
Good sites have one or more of the following characteristics:

- Systems located in close proximity to existing larger scale, commercial, industrial or agricultural buildings;
- Proximity to existing hedgerows or other topographical features that naturally screen the proposed corridor from view from at least two sides;
- Shared or neighboring ROW with other transmission or transportation infrastructure.

Poor Sites have one or more of the following characteristics:

- No natural screening;
- Topography that causes the lines to be visible against the skyline from common vantage points like roads or neighborhoods;
- The removal of productive agricultural land from agricultural use;
- Height and Scale: The historical working landscape that defines Panton is dominated by viewsheds across open fields to wooded hillsides and eventually the Green Mountains. Rural structures like barns fit into the landscape because their scale and mass generally do not impact large tracts of otherwise open land. Industrial scale transmission lines may need to be limited in height and scale, and/or have their height and scale broken by screening to fit in with the landscape. In Panton, transmission projects with tower heights greater than 72 feet are higher than the tree line and nearly all other structure within the town. They cannot be adequately screened or mitigated to blend into the landscape and are therefore must be designed to travel underground or to limit the total height of the structures to 72 feet.

B. Mitigation methods:
In addition to properly siting a project, transmission developers must take appropriate measures from the list below to reduce the impact of the project:

- Consider burying the transmission infrastructure in sensitive areas;
- Locate the structures on the site to keep them from being "skylined" above the horizon from public and private vantage points;
- Shorter towers may be more appropriate in certain spaces than taller towers to keep the project lower on the landscape;
- Developers are encouraged to increase setbacks away from public roads to reduce the views of the infrastructure;
- Use the existing topography, development or vegetation to screen and/or break the mass of the transmission facility;
- In the absence of existing natural vegetation, the commercial development must be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height and depth to provide effective screening within a period of 5 years. Partial screening to break the mass of the site and to protect public and private views of the project may be appropriate;
- Use black or earth tone materials that blend into the landscape instead of metallic or other brighter colors.

ENERGY SUBSTATIONS

A. Siting:

Where a project is placed in the landscape constitutes the most critical element in the aesthetic siting of a project. Poor siting cannot be adequately mitigated. Accordingly, all energy generation and transmission projects proposed in the Region must evaluate and address the proposed site's aesthetic impact on the surrounding landscape.

Good sites have one or more of the following characteristics:

- Systems located in close proximity to existing larger scale, commercial, industrial or agricultural buildings;
- Proximity to existing hedgerows or other topographical features that naturally screen the proposed array from view from at least two sides;
- Reuse of former impacted property or brownfields that have qualified for and are listed in the State of Vermont Brownfield program;

Poor Sites have one or more of the following characteristics:

- No natural screening;
- Topography that causes the sub-station to be visible against the skyline from common vantage points like roads or neighborhoods;
- A location in proximity to and interfering with a significant viewshed.
- The removal of productive agricultural land from agricultural use;
- Mass and Scale: The historical working landscape that defines Panton is dominated by viewsheds across open fields to wooded hillsides and eventually the Green Mountains. Rural structures like barns fit into the landscape because their scale and mass generally do not impact large tracts of otherwise open land. Industrial scale substations may need to be limited in mass and scale, and/or have their mass and scale broken by screening to fit in with the landscape.

B. Mitigation methods:

In addition to properly siting a project, substation developers must take appropriate measures from the list below to reduce the visual of the project:

- Locate the structures on the site to keep them from being "skylined" above the horizon from public and private vantage points;
- Shorter structures may be more appropriate in certain spaces than taller structures to keep the project lower on the landscape;
- Developers shall meet setbacks equal to those listed in the Municipal Zoning Regulations within the Zoning District in which it lies;
- Use the existing topography, development or vegetation on the site to screen and/or break the mass of the substation;
- In the absence of existing natural vegetation, the substation must be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height and depth to provide effective screening within a period of 5 years. Partial screening to break the mass of the site and to protect public and private views of the project may be appropriate;
- Practice a "good neighbor policy". Site the sub-station so that it creates no greater burden on neighboring property owners or public infrastructure than it does on the property on which it is sited;

- Use black or earth tone materials (panels, supports fences) that blend into the landscape instead of metallic or other brighter colors).

Projects found to have poor siting characteristics pursuant to the standards contained in Section 1 above
that cannot be mitigated by the mitigation methods contained in the policy, violate these standards regarding orderly development.

Panton shall not apply the siting standards so strictly so as to eliminate the opportunity to meet its electrical generation targets.

DECOMISSIONING AND RESTORATION:
All projects shall be decommissioned at the end of their useful life pursuant to the requirements contained in Rule 5.900 of the Vermont Public Utility Commission rules. In Panton, the requirements of section 5.904 (A) shall apply to commercial scale solar installations greater than 100 kW.

Land Use, Renewable Generation and Transmission Pathways to Implementation– Goals, Policies and Recommended Actions

In order to meet the energy generation targets cited elsewhere in this document, Panton promotes the following Goals, Policies and recommended Actions for itself and its citizens:

Goal

A. Plan for increased electric demand in partnership with Green Mountain Power and Efficiency Vermont.

Policies and Recommended Actions

1. Lead by example. Encourage the use of renewable energy production in town buildings and residences.
   a. Investigate and support the installation of additional municipal solar and/or wind net-metering facilities that are compliant with the standards enumerated in this plan to off-set municipal electric use.
2. Support the development and siting of renewable energy resources in the Town that are in conformance with the goals, strategies, and mapping outlined in this energy plan. Support responsibly sited and responsibly developed renewable energy projects, which shall include solar panels, wind turbines and all associated supporting infrastructure.
   a. The Panton Energy Coordinator will continue to work closely with the Panton Planning Commission on any proposed energy development projects within Panton.
   b. Investigate and support installation of community-owned renewable energy project(s) that are compliant with the standards enumerated in this plan to allow Panton's citizens to participate in the economic benefits of local energy production.
   c. Determine if the PACE program could be used as a financing and administrative mechanism to support community renewable ownership.
   d. Require all solar projects, regardless of scale, location, whether roof mounted, net metered or otherwise, to be reviewed locally and to be added to the inventory of renewable energy sources in town.
3. Favor the development of generation utilities in identified preferred locations over the development on other sites.

Goal

B. Promote Land Use planning that supports reducing energy usage and conserving resources

Policies and Recommended Actions

4. Encourage settlement patterns that reduce travel requirements for work, services, and recreation.
   a. Encourage development of compact neighborhoods within Panton's Neighborhood Commercial, High Density Residential and Medium Density Residential Planning Areas.
   b. Support the general stores and other businesses in the village area.
   c. Allow infilling of existing large-lot development where higher density development is desirable and appropriate.
   d. Provide opportunities for appropriate home occupations and telecommuting.
   e. Support continued improvements in broadband connectivity and encourage telecommuting.
5. Conserve forest land as a renewable energy resource, and promote the responsible and efficient use of wood for biomass energy production.

Locally Preferred Areas for Energy Production Siting

Panton has identified the following specific areas as preferred locations for siting energy generation (**Map 12**): An area of approximately 300 acres on both sides of Slang Road in the area east of Dead Creek and south and west of Holcomb Slang, north of West Road. This excludes the areas with Known Constraints as identified in Table 10, which are primarily river and stream corridors as well as State Significant Natural Communities and Rare, Threatened, and Endangered Species locations. Additionally, the preferred area excludes those areas along Holcomb Slang identified as Highest Priority Forest Blocks, as well as areas of scenic value as identified in the community value-asset mapping project conducted by the Vermont Fish and Wildlife Department on April 4, 2017. This preferred location is the largest contiguous piece of unconstrained land in Panton and is in close proximity to existing power transmission infrastructure.

Using the existing GMP facility as a model, this area has the potential solar energy capacity of 37.5 MW or production of 46,000 MWh each year, well in excess of Panton's new generation targets.

Panton Enhanced Energy Plan Maps

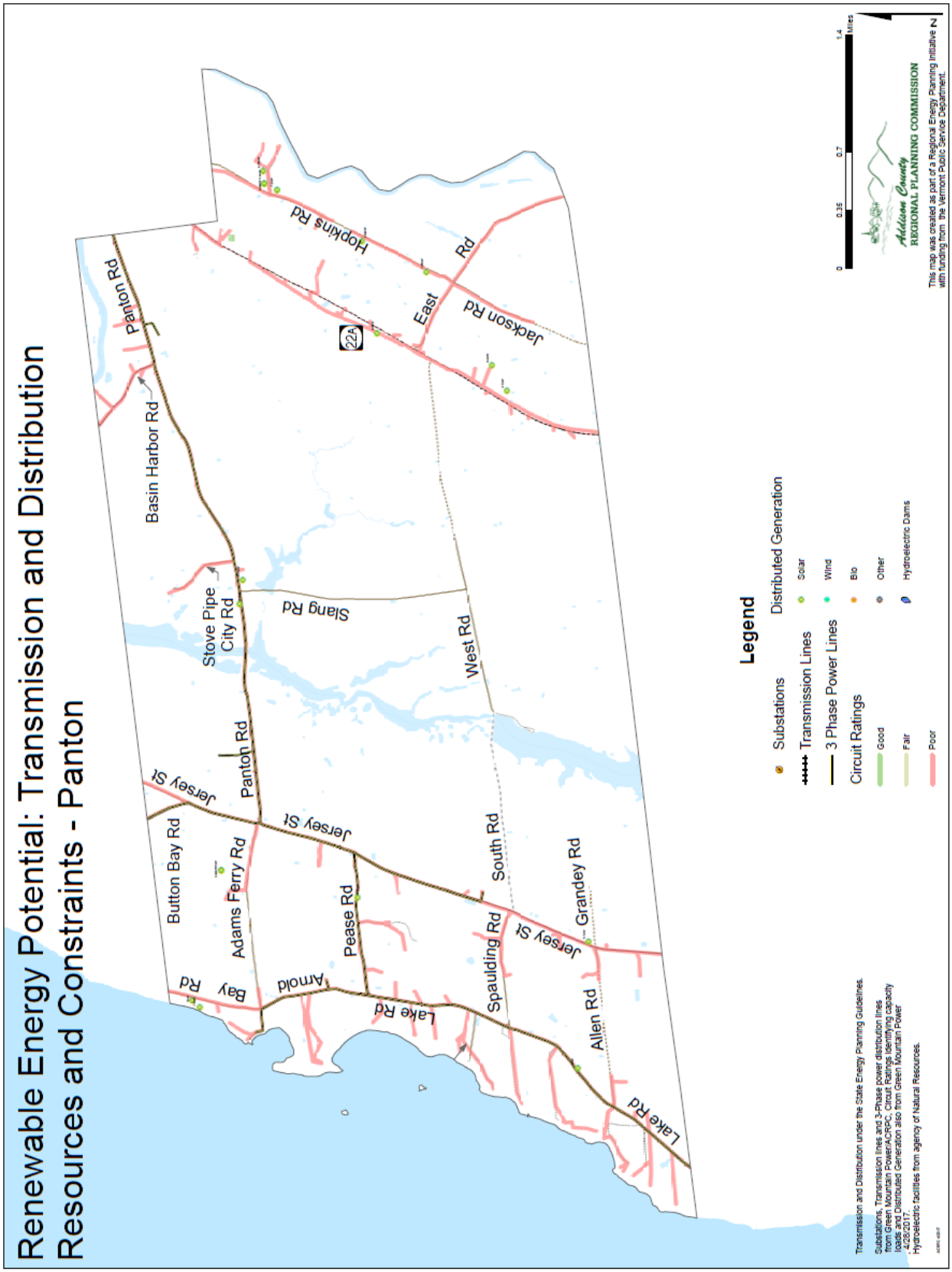
Map 1. Transmission and Distribution Resources and Constraints
Map 2. Potential Wind Power Resource

Map 3. State and Local Known Constraints Map
Map 4. Future Land Use Planning Areas Map
Map 5. State and Local Possible Constraints
Map 6. Highest Priority Forest Blocks
Map 7. Community Value Areas
Map 8. Scenic Value Areas

Map 9. Potential Solar Resource Siting Areas
Map 10. Potential Biomass Resource Siting Areas
Map 11. Potential Wind Resource Siting Areas

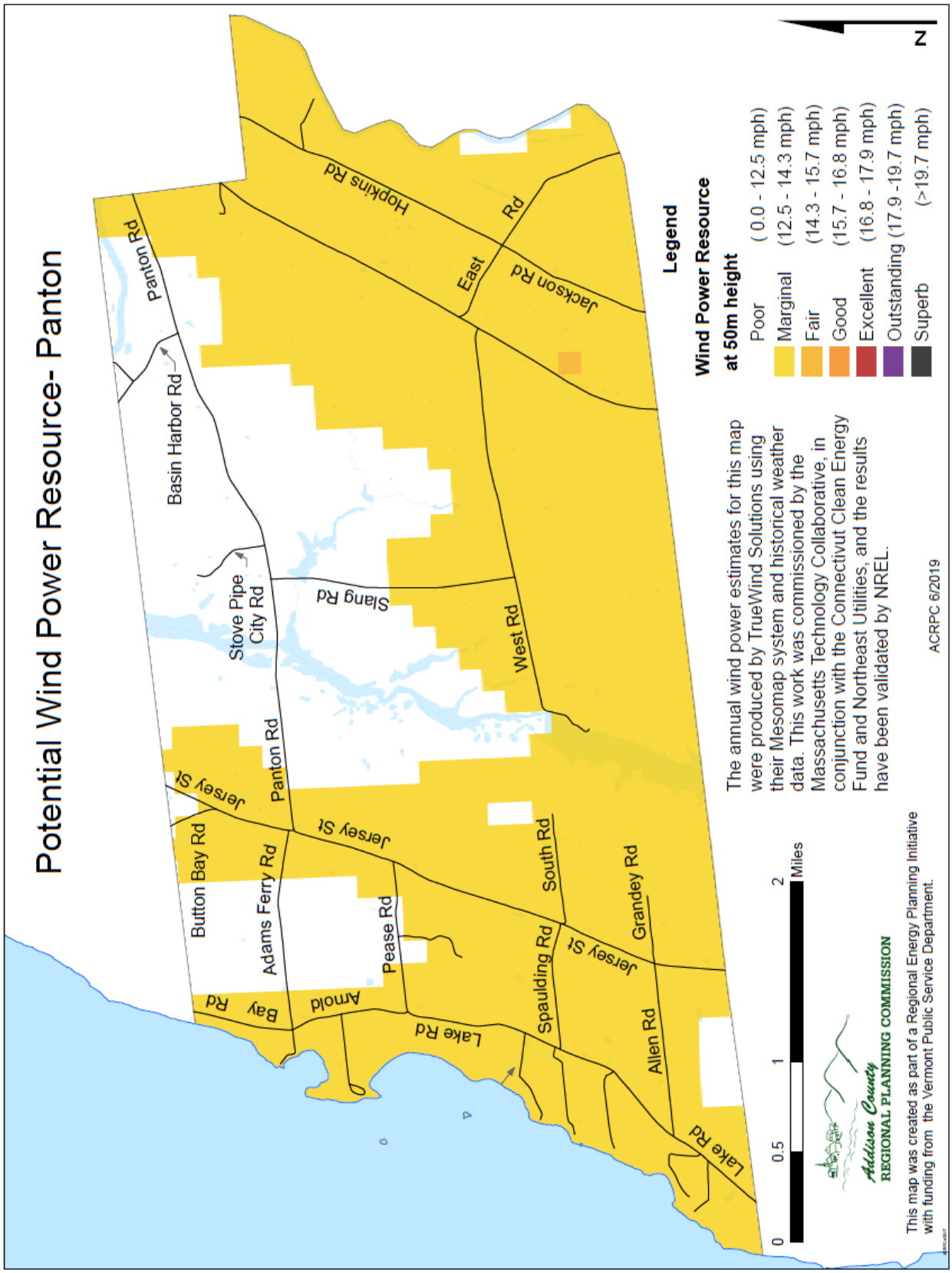
Map 12. Preferred Energy Area

Map 1. Transmission and Distribution Resources and Constraints

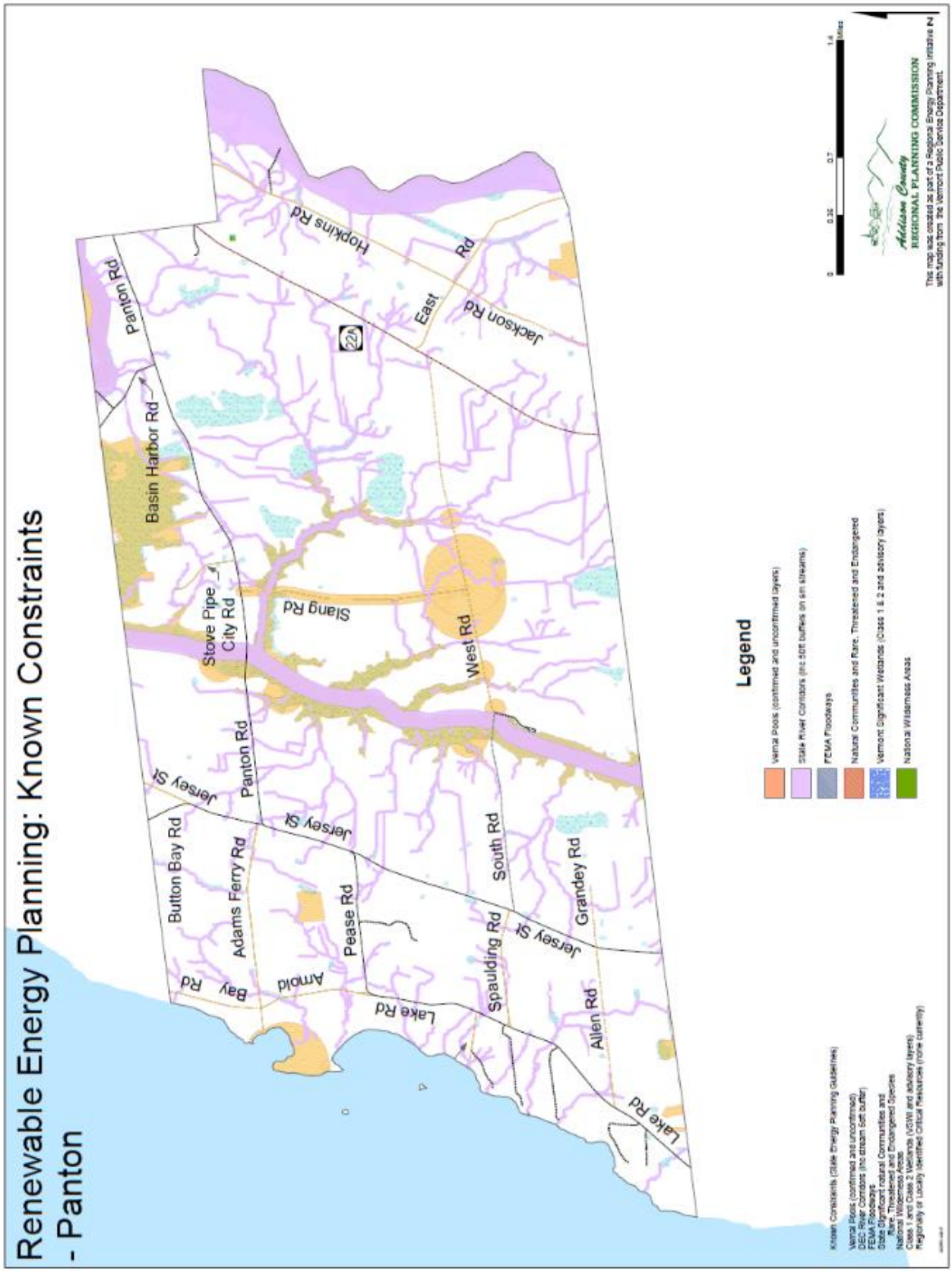


(Updated information available from [Green Mountain Power Solar Map 2.0])

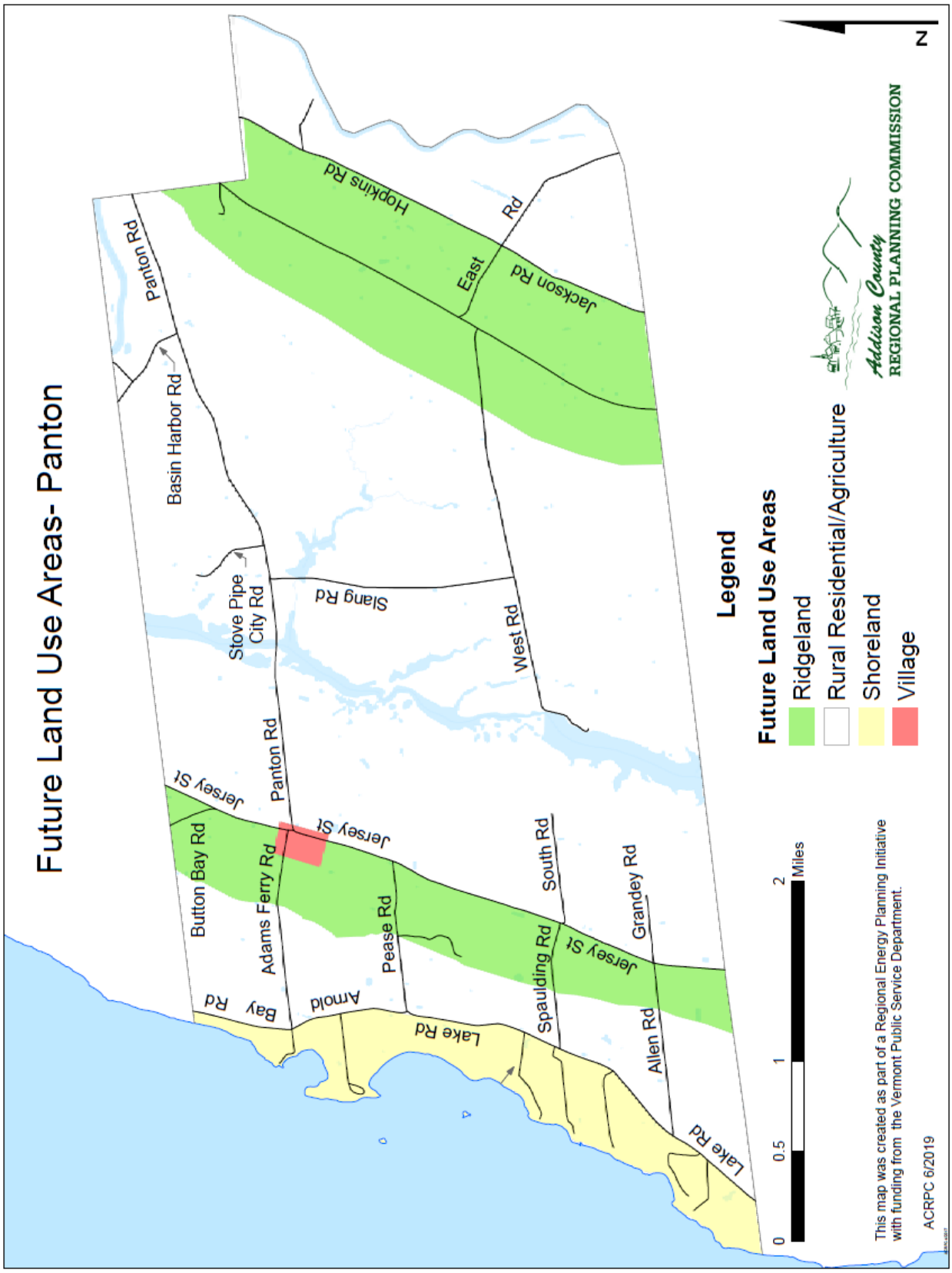
Map 2. Potential Wind Power Resource



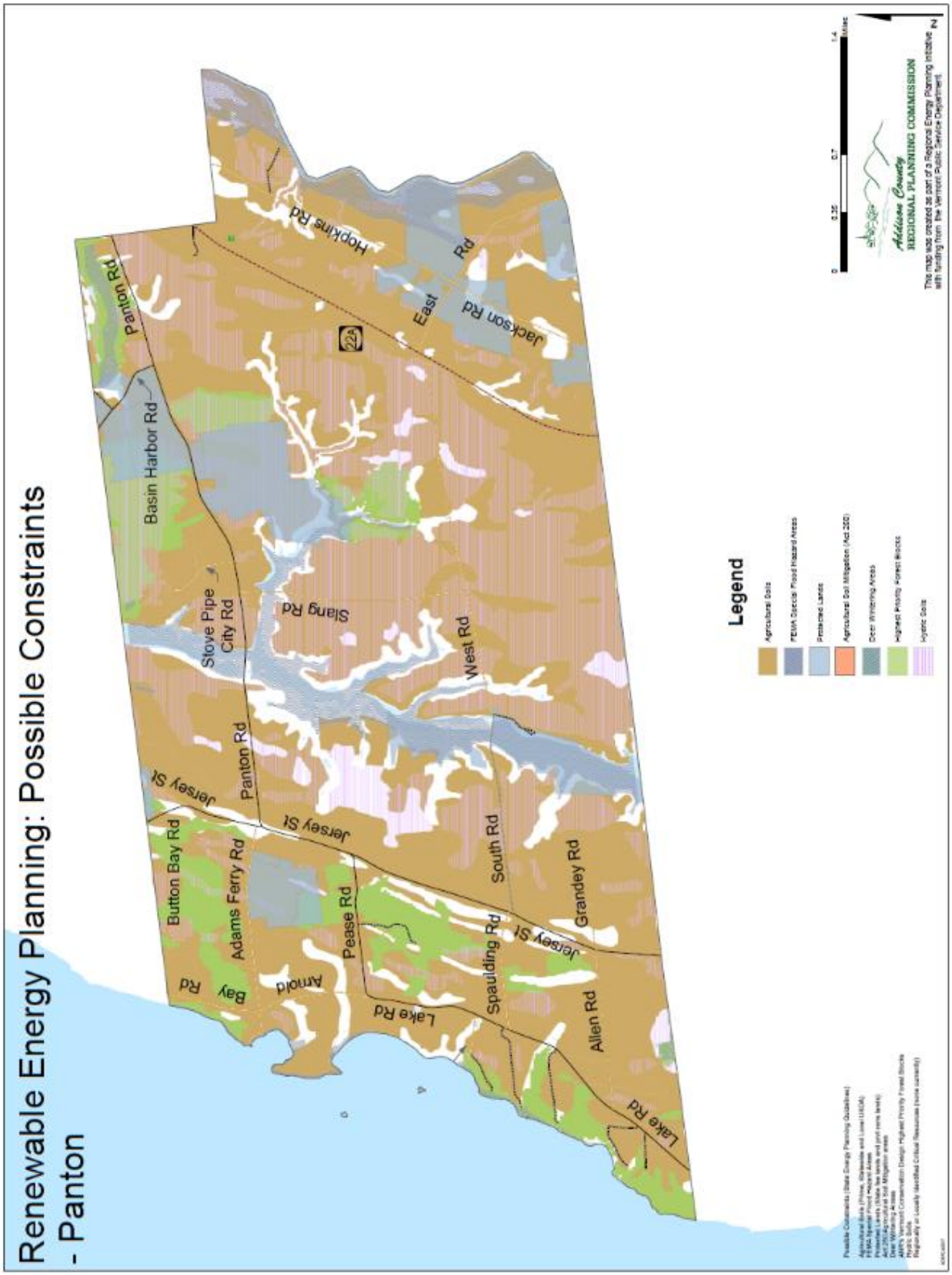
Map 3. State and Local Known Constraints



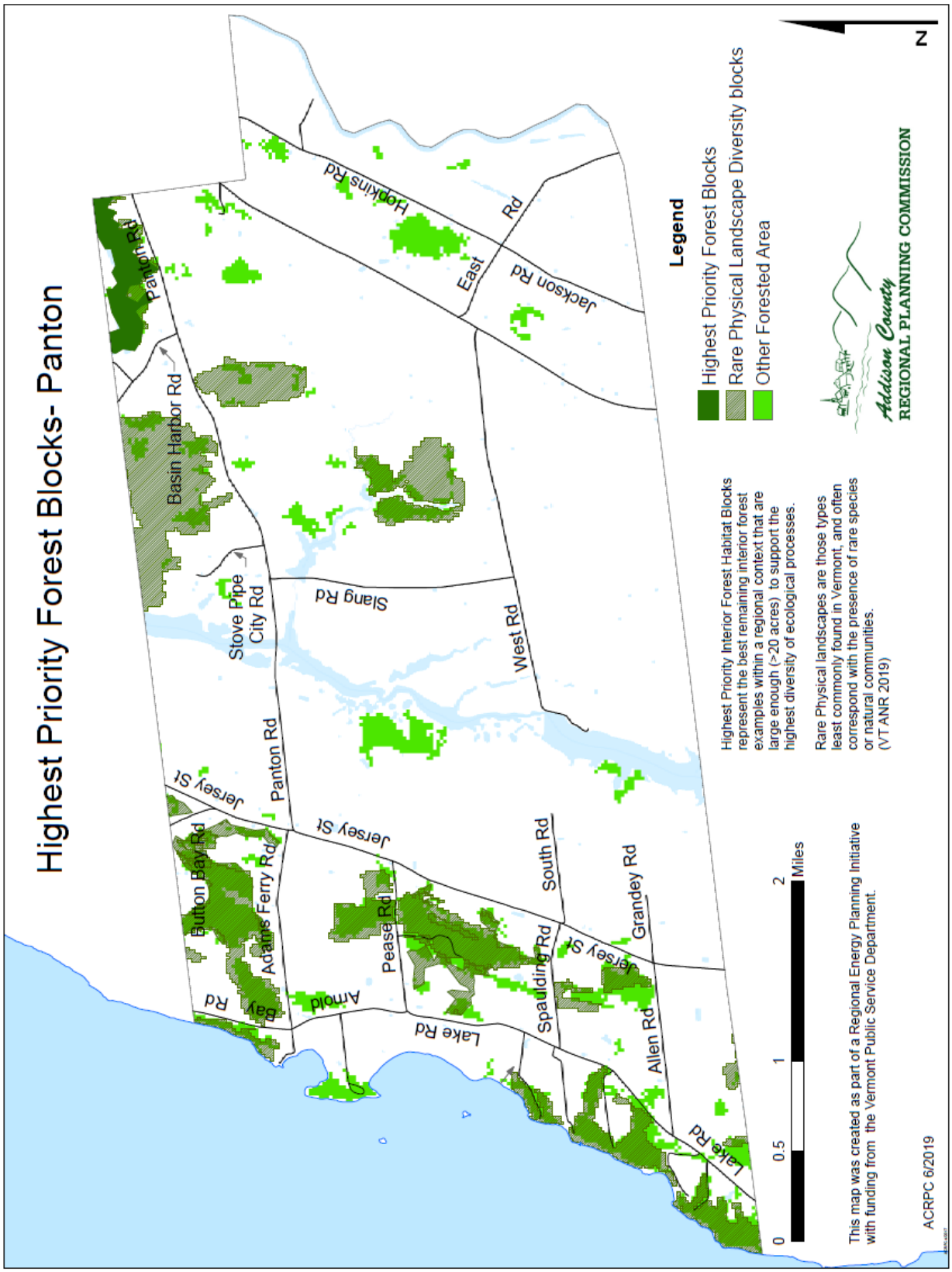
Map 4. Future Land Use Planning Areas



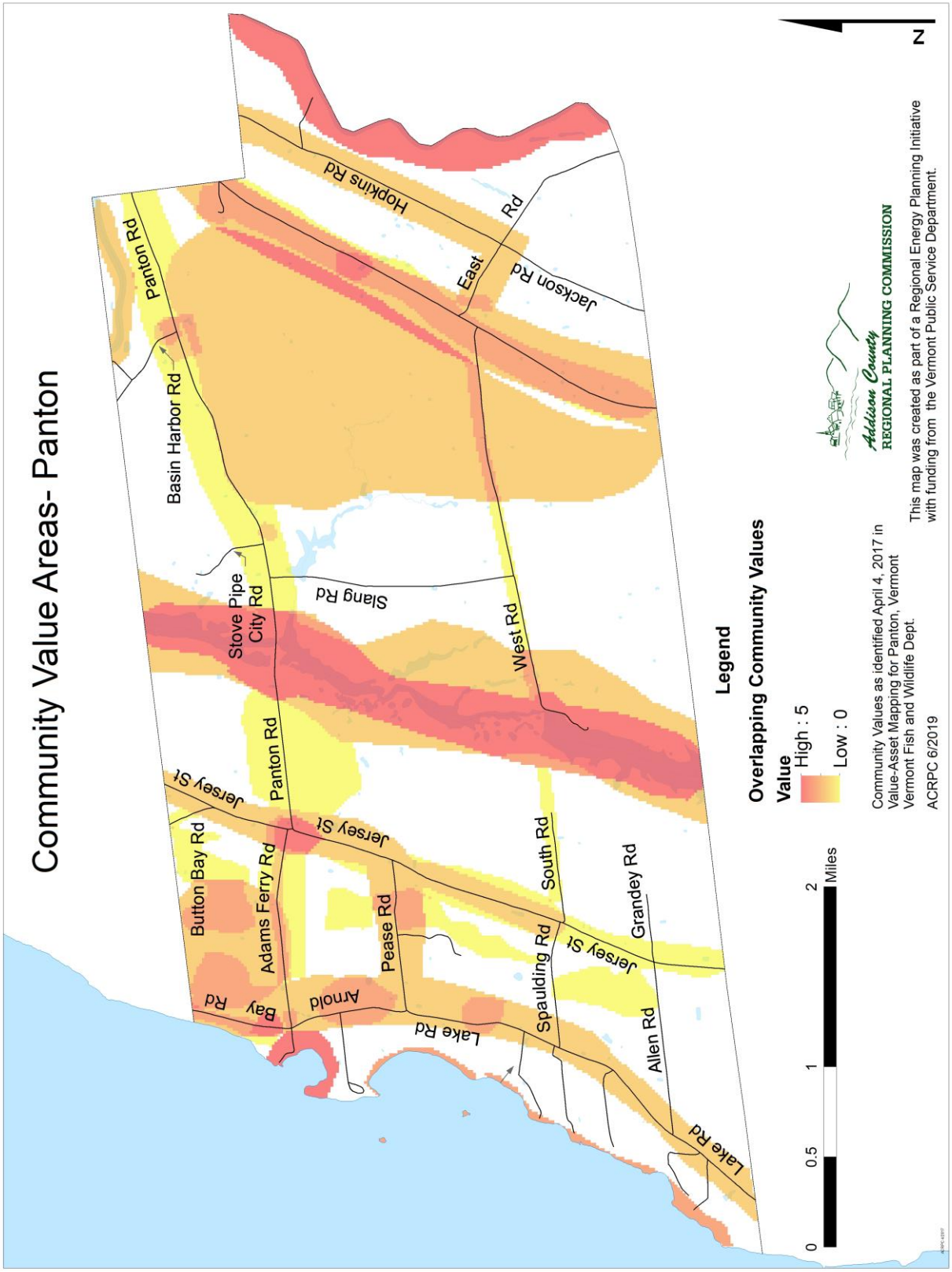
Map 5. State and Local Possible Constraints



Map 6. Highest Priority Forest Blocks

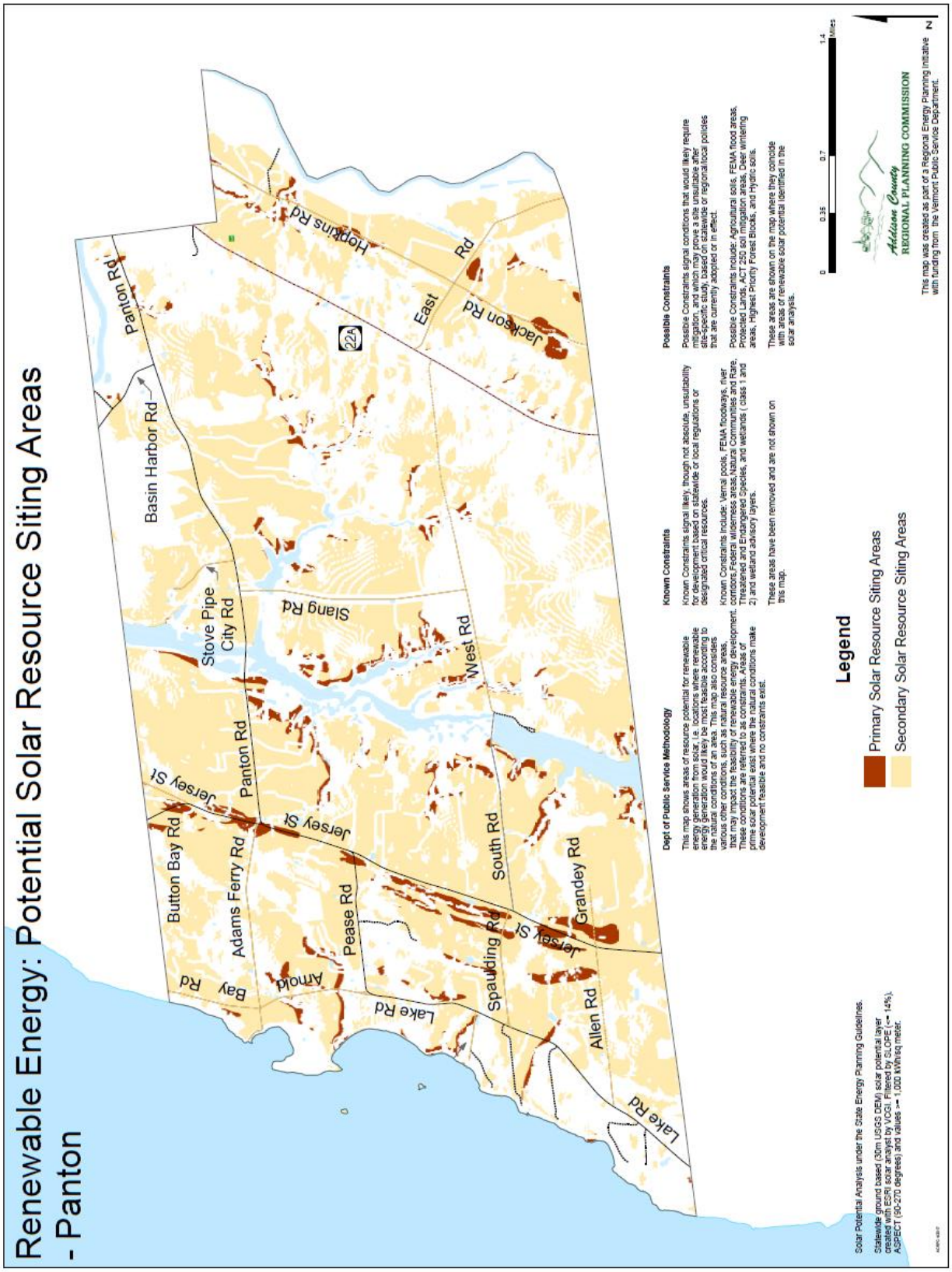


Map 7. Community Value Areas

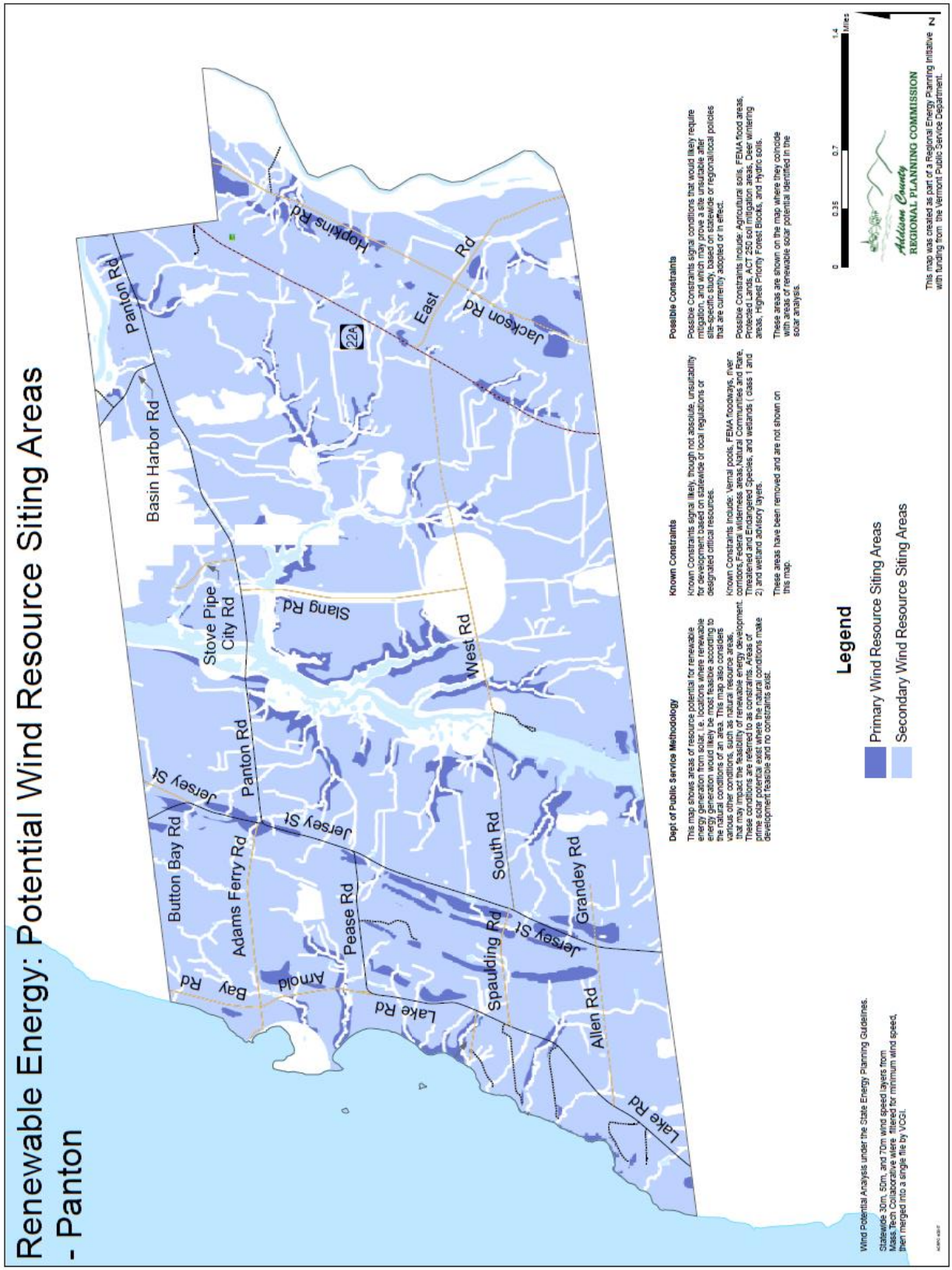


Map 8. Scenic Value Areas

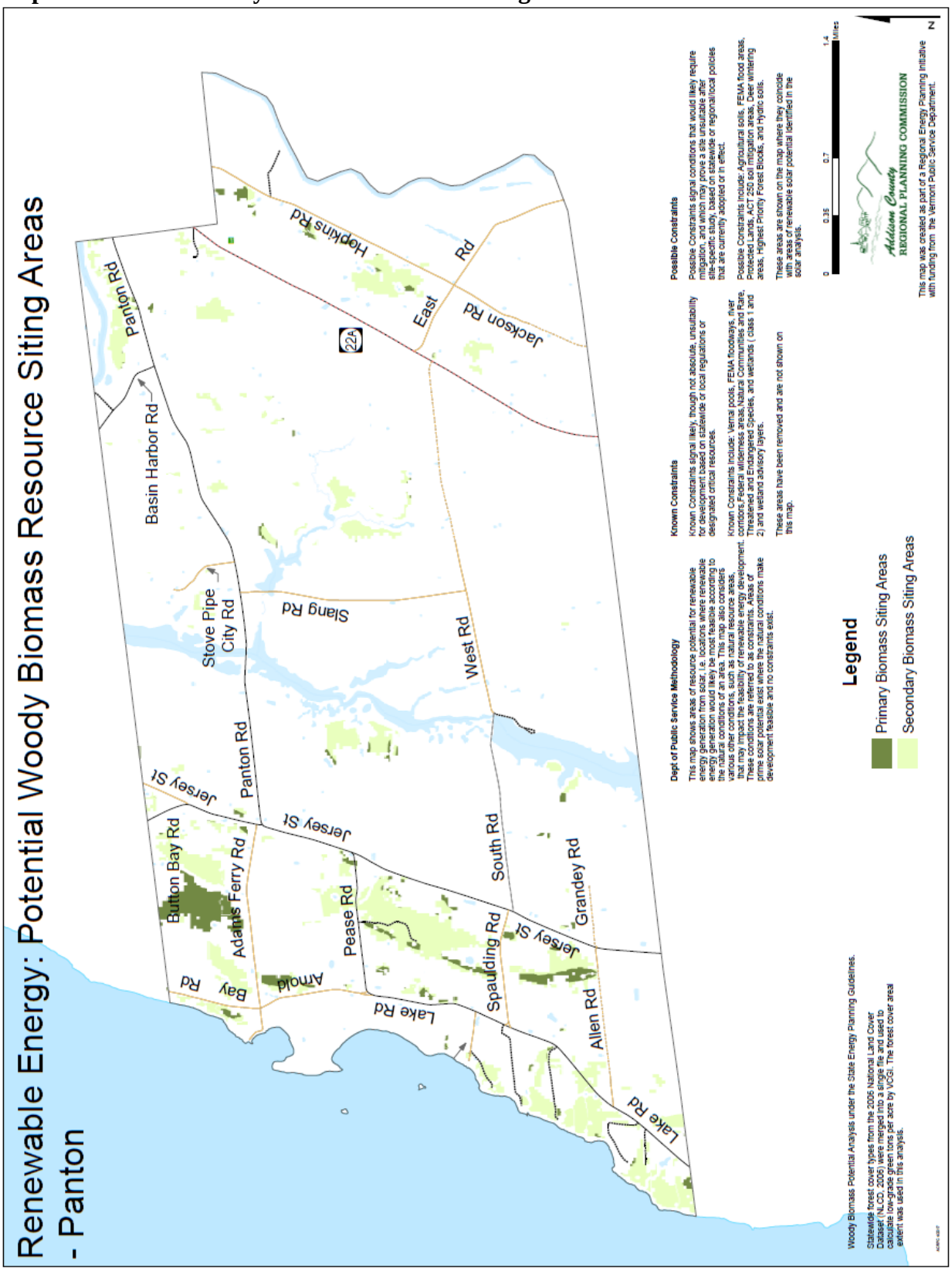
Map 9. Potential Solar Resource Siting Areas



Map 10. Potential Wind Resource Siting Areas



Map 11. Potential Woody Biomass Resource Siting Areas



Map 12. Preferred Energy Area