

IRASBURG TOWN PLAN

2018 - 2026

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Common Ground

What sort of town is Irasburg, Vermont 05845?

This Irasburg Town Plan describes a historic village center with a handsome Common, set in a classic Northeast Kingdom landscape of fields and forests, hills and ridgelines, with a history dating back to the days of Ira and Jerusha Allen in 1781. The Plan considers agriculture and forestry and tells of dozens of small businesses and hardworking families whose roots often go back for generations. The Plan outlines the challenge of preparing for development in a changing economic and energy environment while preserving the unique natural and historic resources that Irasburg citizens hold dear.

All of these elements paint part of the picture of 21st-century Irasburg, but they leave out the most important piece. Above all, Irasburg is a town of neighbors helping neighbors. Living as we do among people we know and trust, we see examples of mutual help and cooperation every day:

- We pull each other's cars out of snowbanks.
- We drive each other to the doctor's office and the grocery store.
- We all turn out for the Church Fair on the Common on the third Saturday in July.
- We bake the "Cookie of the Week" for story hour at the library.
- We spread sand on the icy driveway of an elderly neighbor.
- We open the doors of our Town Hall for a free Thanksgiving dinner for one and all.
- We feed the neighbors' chickens when they (the neighbors, not the chickens) go on vacation.
- We share our shower when a neighbor's well runs dry.
- We welcome newcomers, while at the same time we treasure friendships that go back to Mrs. Hilliker's third grade in the schoolhouse that is now the Town Clerk's Office.
- We take each other's recycling to the recycling center.
- We don't charge fines for overdue library books.
- We serve home-made corn chowder at the blood drive.
- We coach Little League and turn out to watch each other's six-year-olds pick dandelions in right field.
- We share overflow tomatoes and squash and apples from our gardens and orchards.
- We hold fundraisers to help when catastrophe strikes.
- On third Thursdays, the ladies and gentlemen of the church make lunch for seniors.
- After school, our enrichment program ensures that our kids can go to cooking class, pottery class, dinosaur class, circus tricks class....
- We invite our neighbor's little girls to dinner so that their mom can attend the meetings of the Planning Commission.
- We spend a few minutes to catch up on the news when we meet at Ray's Market or the Post Office.

Any citizen of Irasburg could add to this list. With all of these actions, and many more that go unrecognized, we weave a network of community trust and cooperation that is Irasburg's greatest strength.

We are fortunate to live in such a community. In other parts of the nation, trust and cooperation are on the decline. A [recent survey](#) of more than 15,000 Vermonters found that Vermonters

know and trust each other at more than double the national average. Seventy-eight percent of the Vermonters surveyed said that their neighbors trust each other versus only 38 percent of Americans that say they trust their neighbors. The survey also showed that 89 percent of Vermont respondents say their neighbors help others, and 79 percent say that their neighbors pitch in on community projects.

Not surprisingly, the survey also showed that 85 percent of survey respondents in Vermont are optimistic about the future of the community where they live versus 44 percent of Americans who feel hopeful about the future of their neighborhoods. That makes sense, because experience and research show that the best predictor of the success of a community is the strength of its citizens' relationships of trust, mutual help and cooperation.

Far away from Irasburg, a famous study of the regions of Italy makes this case very clearly. Beginning in 1970, the Italians established a nationwide set of regional governments. These 20 new institutions were essentially identical, but the social, economic, political, and cultural contexts of each region differed. Now, almost 50 years later, some of these regions have prospered, while others have been dismal failures. What accounts for the difference? Researchers have found that it is not politics, demographics, economics, ideology, or affluence. Instead, the best predictor turned out to be the level of civic engagement, the quality of interactions of citizens with each other. In areas where citizens trust one another to act fairly and obey the law, where they value solidarity, civic participation, and integrity, democracy works and the regions prospered. Regions at the other end of the spectrum, where civic engagement, trust and cooperation are lacking, failed to thrive and still lag far behind.

Back home in Irasburg, we have our differences. We often look at issues from different points of view and advocate different approaches to dealing with them. But our ability to work together cooperatively and respectfully for the common good of Irasburg, despite our differences, is our greatest resource.

What will Irasburg look like in 20, 30, 50 years? With the best of intentions and the most careful planning, we cannot predict all of the opportunities and challenges that will come our way. The effects of climate, the national economy, technology, state and national politics—all of these will inevitably affect Irasburg, but we have little influence on the direction they will take. However, we do know that our most important resource in confronting an unpredictable future is our network of relationships of trust, cooperation, respect and mutual help—and those we *can* influence. As a community, we can collectively act to strengthen our common ground.

This Town Plan considers the various elements of town planning according to the criteria of respect for the environment, sound economics and regard for community values, as expressed in the planning process, in a survey of Irasburg residents¹, by a petition and at the ballot box. The Plan also looks at Irasburg's future from the perspective of community trust, cooperation, and respect. It encourages and supports policies, practices and activities that strengthen trust and cooperation among our citizens and discourages directions and developments that threaten to fracture and divide. It attempts to provide a context in which citizens can work together despite their differences—the best predictor for the common good of Irasburg, now and 50 years from now.

¹ See Appendix A, Community Survey

Chapter 2 DRAFT LAND USE PLAN

Purpose of the Land Use Plan

The nature of a town—its particular character, what makes it different from other towns—comes from the land itself—its geography—and from how the town’s unique group of citizens use and develop the land within its borders. A Land Use Plan characterizes the relationship between the town’s landscape and the citizens who live there.

The Land Use Plan is the most direct expression of a town’s vision for itself and its future. All the elements of a town plan—economic development, natural resources, utilities and facilities, energy, transportation, housing, even education—come together in the Land Use Plan. The same principles of respect for the environment, sound economics and regard for community values that guide all Irasburg town planning also define the town’s vision for land use in the future.

Land use planning forces citizens to confront directly the central dilemma of town planning: how to reconcile the needs and wishes of the community, to which every citizen belongs, with the freedom of individuals to do as they choose with their own property, within the constraints of state and federal law and with respect for their fellow citizens.

A town plan is not prescriptive or proscriptive. It provides a vision, but it does not dictate the course of development within the town. However, Act 250 criterion 10 establishes that development proposals triggering Act 250 jurisdiction must comply with all duly adopted local and regional plans.

The effects of land use planning are personal for many Irasburg residents. Property constitutes a significant fraction of the net worth of many citizens. Their economic well-being may depend on their ability to use and develop their property. Families often live and work on land where their grandparents and great-grandparents lived and worked—home places that shape their sense of who they are and where they come from. Successive generations often build homes of their own on acreage of the original family farm.

In a March 2016 survey², Irasburg residents expressed strong support for preserving Irasburg’s historic character, rural setting, and natural resources. A historic Common unites the village center. Unbroken tracts of forest support a traditional forest industry, provide wildlife habitat and promote wildlife diversity, and play a key role in preserving air and water quality. Acres of fertile farmland produce crops of grass, hay and corn for dairy farms. The water quality is high in the rivers and streams of the Black River basin. Ridgelines surround the village and define the landscape character and quality of the community for both residents and visitors. Future development should take place in ways that enable a future of strengthened economic opportunity in a context that preserves the qualities citizens most value in the town where they have chosen to make their home.

Irasburg’s economic future is closely linked to the town’s identity as an iconic Northeast Kingdom village. As relentless development overtakes the rest of the nation, and even the rest of Vermont, the appeal of this beautiful and largely undeveloped part of the world as a tourist

² See Appendix X, Survey

and retirement destination—and simply as a good place to live and raise a family—becomes an ever more important economic asset.

The Land Use Plan must also support a secure, stable, resilient supply of energy to sustain the development and quality of life that citizens envision for Irasburg’s future.

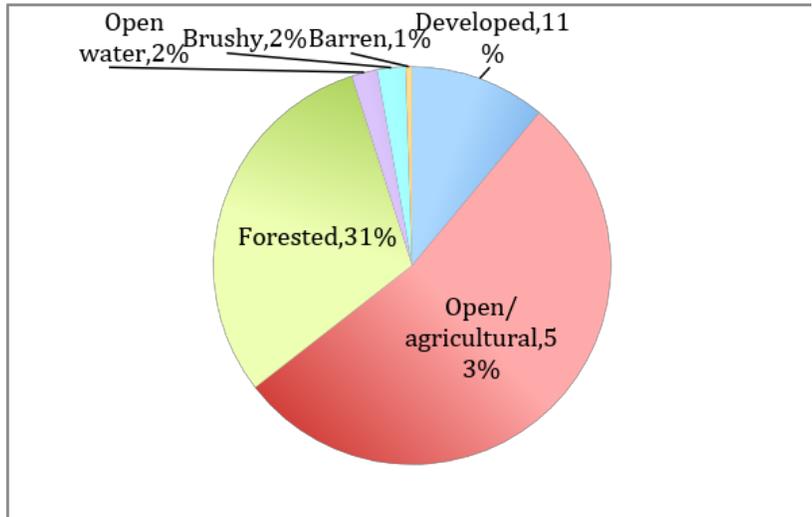
All these factors and more must inform an effective Land Use Plan that encourages orderly growth and economic development while preserving the natural resources, historic character and sense of community that give residents the quality of life that they value.

Existing Land Use

A distinctive topography places the heart of the town of Irasburg and its historic village Common in a bowl, rimmed by the surrounding ridgelines. The bottom of the bowl (elevation 940 feet) is itself 140 feet above the Black River that skirts the village. There exists a particular harmony between the built structures and the natural landscape that shapes the community’s identity. This geographic and historic heritage provides the foundation for Irasburg’s long-term economic, environmental and human well-being. The overwhelming majority of respondents to the 2016 Irasburg Community Survey regard Irasburg’s rural setting (95.4 percent) and historic buildings (77.1 percent) as reasons to make Irasburg their home.³

No one could describe Irasburg as an isolated hamlet. Vermont Routes 58 and 14, as well as two much-used town roads, meet at Irasburg’s town center, placing the historic village at the intersection of well-traveled thoroughfares and making it a lively meeting place. These roads outline the Common, laid out in 1815, that is Irasburg’s most recognizable feature.

Irasburg’s topographic and geographic characteristics and its roots as an agricultural community have engendered a rural residential development pattern throughout its 12,632 acres. Much of the land (85 percent) is open or used for agriculture and silviculture. The historic pattern of development places many of the town’s commercial and municipal services in the village center, while much of the population dwells along the state and local roads that radiate from the town center. Figure 2.1 shows land cover in Irasburg in 2016. This pattern of development varies little from Irasburg’s historic development patterns.



³ See Appendix A, Survey

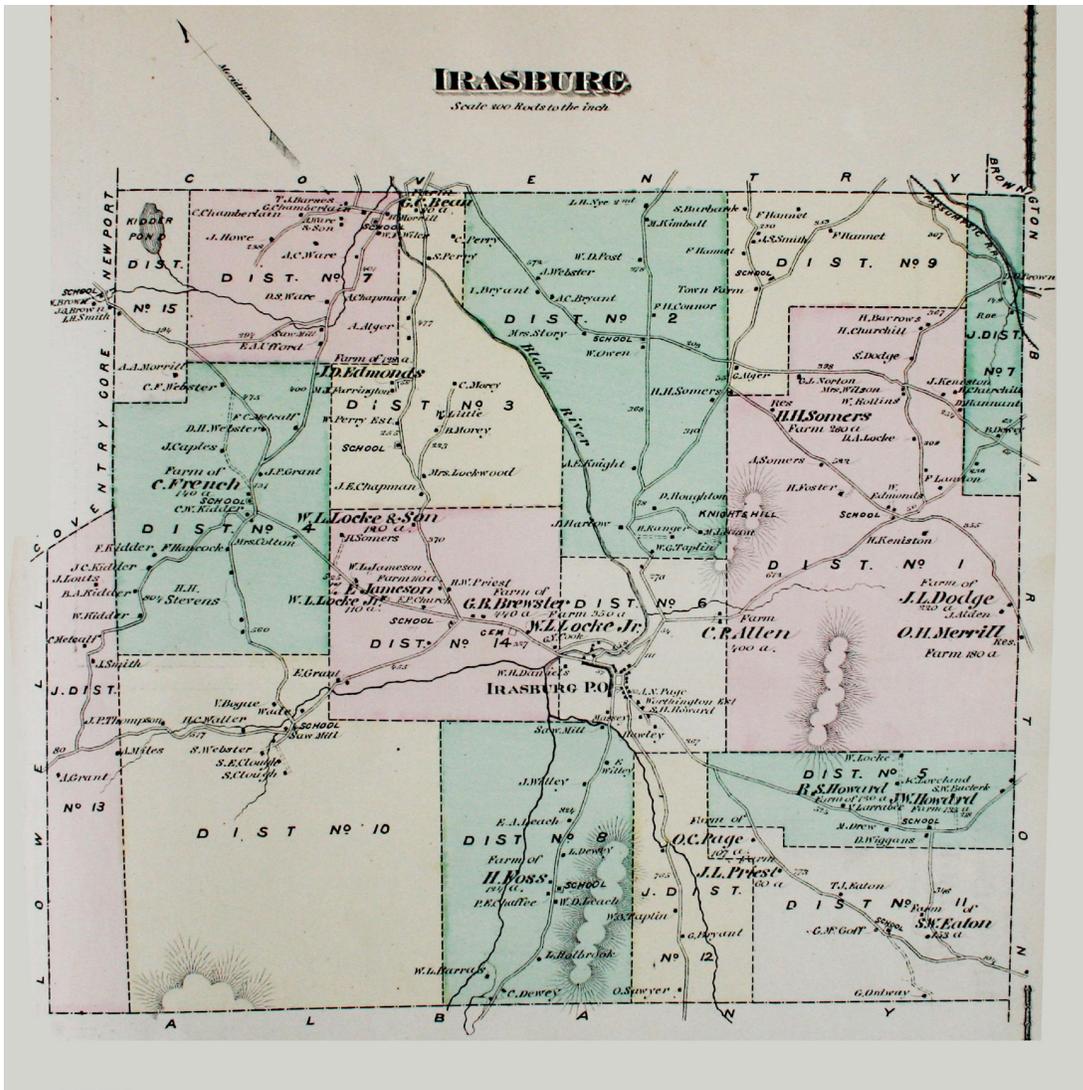


Figure 2.2 Map showing residential development in Irasburg in 1878. Note the presence of 11 district schools. Except for school consolidation, twenty-first-century development in Irasburg follows essentially the same pattern of residential dwellings located along the principal routes radiating from the concentrated Village Center. *From Atlas of Lamoille and Orleans Counties VT, F.W. Beers & Co., New York 1878.*

Patterns of Development

Compact, mixed-use development in village centers has much to recommend it. Such “smart growth” can conserve energy by reducing vehicle miles traveled; reduce costs associated with maintaining roads and infrastructure; and preserve forest blocks and agricultural land. Economic and residential growth within areas intended for concentrated development allows people to walk to their destinations and makes public transit services between growth centers more economically feasible. Further, growth begets growth, and the concentrated presence of civic and commercial activity encourages further development with accompanying economic and social opportunity. While “smart growth” principles are worthy goals for Irasburg, they remain in many ways aspirational, due to a number of practical land-use, economic and socio-political constraints.

Irasburg's existing Village Center provides limited opportunities for development. With little available undeveloped real estate, the area lacks access to a wastewater system, and its dense clay soils are ill suited for septic systems. The village water system has limited additional capacity.

It is a fact of life that most Irasburg citizens must commute elsewhere to work. The village center cannot now or in any foreseeable future provide enough jobs for citizens to support themselves and their families. They must also travel beyond Irasburg to carry out most of the business of daily life: health care, education, grocery shopping, and so on.

One person's "sprawl" beyond the Village Center is another person's vision of peace, privacy and rural living. Respondents to the 2016 Community Survey cited quiet and privacy (70.2 percent) the small-town atmosphere (65.6 percent), the beautiful setting (62.6 percent), and the town's rural nature (62.6 percent) as valued Irasburg attributes.

An analysis of development trends in Irasburg, based on town records for new construction over the past 30 years,⁴ shows that market demands favor the characteristic settlement pattern that has persisted since at least 1878. (See figure 2.2) As always, cost is a factor. Real estate in the Village Center generally commands higher prices than properties farther away. As noted above, families often provide building lots to successive generations on the family farm, even when the farm is no longer in operation. All of these factors tend to favor Irasburg's historic pattern of settlement along principal radiating roadways.

Irasburg's citizens are wary of land use regulations to drive development toward the Village Center. Nevertheless, a number of current and planned measures show evidence of renewed vitality and interest in Irasburg's Village Center.

- A vibrant after-school enrichment program, operated through the Leach Public Library, brings Irasburg schoolchildren to the library, the Town Hall, and other historic buildings after school every weekday—and brings their parents to pick them up.
- The United Church is conducting an active fundraising campaign to restore its steeple to its traditional white color.
- A historic country schoolhouse has been moved to the village center and repurposed as the Town Clerk's office.
- A refurbished and redecorated Town Hall attracts an increasing number of wedding receptions and other social events to this graceful building, and efforts have begun to market the space more widely.
- The second annual free Thanksgiving dinner brought more than 200 local people to the Town Hall in 2017.
- Sports teams of all ages play baseball on the Common every spring, and Christmas lights sparkle on the spruce tree each December.
- Volunteers plant annuals around the gazebo and tend young trees along the Common's perimeter.
- A fledgling farmers' market has sprouted.
- The volume of traffic that passes through Irasburg's town center each day represents a potential customer base for retail and service business development.

⁴ See Appendix B, listers' records on home construction since 1988.

Irasburg intends to seek Village Center Designation, with the recognition that such a designation will help to provide incentives for additional Village Center reinvestment, increase population density, and economic and civic activity in the Village Center.

Timing and Intensity of Growth

Future development in Irasburg should not exceed the town's ability to provide public services. Irasburg does not have a municipal wastewater treatment facility, so development should occur on those soils best suited for septic capacity. Small-scale shared septic facilities are encouraged. The most intensive growth is encouraged in the Village Center.

Future Land Use

Growth and development in Irasburg have been slow. Twenty-first-century development in Irasburg is likely to follow the pattern that has historically characterized Irasburg's development: a concentrated Village Center, with residential dwellings and small businesses located along the principal routes radiating from the center. This historic pattern of development along the roadways protects and preserves the integrity of the forests and agricultural lands that Irasburg citizens value. Given the value and importance of working lands, this plan encourages agriculture and silviculture throughout Irasburg.

The ridgelines that surround the village should remain protected, given their importance to the distinctive landscape character and quality of this rural Vermont town, their harmony with the scale of the built environment, their value to the forest economy, their key role in the long-term protection of upland headwaters of the Black River basin, their importance in conserving wildlife habitat and diversity, and their key role in climate resilience. In October 2015, 421 Irasburg voters petitioned the Selectboard to develop a Town Plan to protect all of the town's ridgelines from development.

In keeping with a strong tradition of self-determination, Irasburg has not elected to adopt any land use regulations for future growth and development. A town plan is not prescriptive or proscriptive. It provides a vision, but it does not dictate the course of development within the town. However, Act 250 criterion 10 establishes that development proposals triggering Act 250 jurisdiction⁵ must comply with all duly adopted local and regional plans. Accordingly, this

⁵ Act 250 Jurisdiction There are 12 inclusion and five exclusion criteria for Act 250 jurisdiction. Act 250 criteria are more restrictive if a town does not have permanent zoning or subdivision bylaws, which is the case for Irasburg. For Irasburg inclusion criteria are: non-residential development on more than 1 acre, 10 residential units, 10 mobile homes within a 5 mile radius, subdivision of 6 lots within 5 years, government projects over 10 acres, any changes to existing developments that would require permit if initiated today, primary communication structures above 50 feet or 20 feet above an existing building, exploration for radioactive material, oil/gas well, land tract fragmentation of 5 lots within 5 miles or within 10 years, any withdrawal of more than 340,000 gallons of groundwater per day. Exclusion criteria are farming, logging, forestry, electric generation, electric transmission, agricultural fairs, horse shows, composting. This description is not intended for precise determination of jurisdiction. See <http://nrb.vermont.gov/sites/nrb/files/documents/Act%20250%20Jurisdiction%20Categories.pdf>

chapter draws on widely shared Irasburg community values to broadly characterize the types and scales of development appropriate in different areas of town.

This Irasburg Town Plan establishes the following five land use areas as delineated on the map on page xx:

Village Center

- *Description:* The Village Center at the hub of Irasburg includes commercial and civic enterprises, dense single family and multi-family housing, and the town Common. Route 14 borders the Common to the west and Route 58 to the north, the Creek Road to the east, and Park Avenue to the south.
- *Purpose:* As the historic and business focus, the Village Center is the core of activity in Irasburg. It provides for a mix of commercial, residential and public uses while maintaining the historic heritage of the village.
- *Present Land Uses:* The Village Center is the site of the Irasburg Village School, Town Hall, the Irasburg Common, the Leach Public Library, the U.S. Post Office, and the Town Clerk's Office. A general store, a locksmith and a foam-insulation service are located here, as well as artisans, churches, a low-income housing development, and home-based occupations. Many single and multi-family residences occupy this area and considerable foot traffic traverses it throughout the day. It is a busy transportation corridor and a lively center for neighbor-to-neighbor interaction.
- *Future Land Uses:* Future development should complement the historic village, with a dense variety of business, public, and residential buildings that preserve and strengthen the historic character and provide amenities to the community. Future buildings should be of a compatible size, character, and scale with existing buildings. People of all ages frequent the area, so it should be walkable, bikable, skiable, and should provide safe transportation connectivity. It should provide space for community and civic activities. Recreation facilities and public facilities are encouraged here. Irasburg should request Village Center Designation for this area from the Vermont Department of Housing and Community Development.

Village Center Designation

The Vermont Department of Housing and Community Development oversees the Village Center Designation program to encourage and recognize local efforts to revitalize Vermont's traditional village centers. Irasburg supports applying to this program for its Village Center area to become a Designated Village Center. This designation will achieve the goals of the plan by encouraging mixed-use development and revitalization in the historic Village Center while preserving the surrounding landscape. This area is characterized by commercial, civic, religious, and residential uses. It maintains the historic look and feel of an earlier century.

The Designation will give business owners and municipal bodies access to financial opportunities to re-invest into their properties to maintain the historic look and to implement needed safety and accessibility improvements. The Designation will also encourage a healthier, safer, and more walkable Village Center for people of all ages by increasing investments in these locations and reducing the combined cost of housing and transportation. The Designation will enhance the livability of this popular and unique place. Irasburg will make good use of the funding, training, and resources available to communities with this designation.

Forests

- *Description:* Irasburg's forests make up 31 percent of the town's area and comprise about 75 percent hardwood (maple, ash, beech, poplar, birch) and 25 percent softwood (spruce, cedar and pine). Forests include steep slopes, high elevations, and abundant wildlife. Forests encircle the town and largely follow the town's topography. Steep slopes, the presence of significant statewide soils, and the threat of erosion discourage development in these areas. The forests are a key element in Irasburg's traditional rural way of life: timber, pulp and firewood harvesting, sugaring, hunting, fishing, camping, and foraging.
- *Purpose:* Forests are a significant part of Irasburg's working landscape. Large unbroken blocks of forest are critical for maintaining wildlife habitat and species diversity. Forests provide economic opportunities as well as an affordable, renewable heat source for 40 percent of Irasburg homes. Woody biomass has significant potential as a clean, local, renewable source of energy in the form of wood chips and pellets. Forests have a key role to play in climate resilience, the ability to respond to climate change. Irasburg's forests sequester about 2.6 metric tons of carbon per acre per year, for an annual total of 12,400 tons of carbon, equal to the annual emissions of 2,610 vehicles. This plan strongly encourages the protection and preservation of these forests and the siting of all new development so as to minimize impacts to this significant resource. Currently, Irasburg has 30 parcels enrolled in the forestland category of the Current Use Program. These parcels total 4,366 acres. This means that the majority of forested land is under forest management within the Current Use Programs. This plan strongly encourages continuing this exemplary practice.
- *Present Land Uses:* Forests comprise almost a third of Irasburg's land area. These areas are currently used for silvicultural practices including sugaring, timber harvesting, firewood, and Christmas tree operations. Many Irasburg citizens earn their livings in forest-related activities. This area has some single-family residences.
- *Future Land Uses:* This plan strongly encourages the protection and preservation of Irasburg's forests and discourages large developments in forested areas. Planning for climate resilience is key to 21st-century forest management, according to Orleans County Forester Jared Nunery. "One of the most important goals is keeping forests forests," he says. "This means maintaining working forests, promoting healthy forests, and maintaining diversity within forests." Utility-scale and commercial-scale renewable energy projects are discouraged in these areas. Appropriate uses include silvicultural practices, sugaring, woodlots, wildlife habitat conservation, recreation, and primitive camps. Permanent road construction (with the exception of truck roads used in forestry operations) is discouraged in forest tracts. Any new roads built here must be built to avoid causing soil erosion, disturbing habitat, increasing runoff, degrading water sources or fragmenting blocks of forestland.

Rural/ Agriculture

- *Description:* The largest share of Irasburg's acreage is devoted to agriculture and rural development. Besides agriculture, this area supports small forest operations, housing, light industry, some commercial activities, home-based businesses, and recreation. The agricultural areas are open and largely dedicated to dairy farming. Some 14 farms of varying scale contribute to the economy, employ workers in Irasburg, and act as land stewards, enhancing the beauty and defining the rural nature of the community.

- *Purpose:* The Rural/ Agriculture Area accommodates a historical pattern of low-density rural residential development, agriculture, and forestry. The purpose of this area is to provide land for housing, small businesses, and agricultural enterprises, such as haying, dairying, raising beef cattle and other livestock, beekeeping, and other diversified agricultural operations. Agriculture areas are part of Irasburg's working landscape. This plan strongly encourages the protection of the traditional development pattern and the preservation of the resources this area contains.
- *Present Land Uses:* Uses in this area include agriculture, single-family and multi-family housing, forestry, light industry, commercial activities, home-based businesses, and recreation. The area includes a number of active dairy and vegetable farms, comprising houses, accessory structures, and barns. Recreation also occurs here.
- *Future Land Uses:* Survey results suggest that current land use patterns will likely continue. Future growth in this area should not alter Irasburg's traditional settlement pattern and should not outpace the town's ability to provide services. As farmers find innovative ways to remain financially viable, diversified uses are encouraged so long as deleterious impacts to traffic, noise, and natural resources are minimal. Preservation of agricultural and open space areas has a high priority. This area is appropriate for residential- and commercial-scale energy projects. Appropriately sited community-based solar energy projects might be located here. Utility-scale solar energy projects are discouraged in these areas unless co-located on existing structures (solar arrays on existing roofs, for example), although marginal agricultural land might be suitable for projects of 500 kW or less. Large farms are potential candidates for methane digesters.

Mountains, Hills and Ridgelines

- *Description:* The village of Irasburg is surrounded by ridgelines, outlined against the sky. Lowell Mountain and Kidder Hill define the ridgeline west of the village center; Round Hill to the south and west; Butternut Hill and Allen Hill to the north and east; and Burton Hill to the south. Irasburg's rivers and streams have their upland headwaters on these hills and ridgelines, which have steep slopes, many of 20 percent or greater, making them susceptible to erosion. Lowell Mountain, Butternut Hill and Allen Hill contain large forest blocks, much of it conserved forestland and essential habitat for a wide range of wildlife. Generations of Irasburg citizens have hunted and fished along these ridgelines. Kidder Hill has both forests and open land, with widely spaced residences, camps and a farm along Kidder Hill Ridge Road. Burton Hill has forests and agricultural fields, with farms and residences along Burton Hill Road, a well-traveled road linking Irasburg and Barton.
- *Purpose:* The form, line, color, texture, dominance, scale and continuity of Irasburg's unspoiled ridgelines serve to define the visual *character* of Irasburg's landscape. These ridgelines are visible from most points in Irasburg, and from all points in Irasburg's historic village center. The town's built environment has developed over the centuries at a scale and in a pattern that is in harmony with mountain, hills and ridgelines. The resulting vividness, intactness and unity define the visual *quality* of Irasburg's landscape. As development overtakes much of the nation and the state, the unspoiled silhouettes of Irasburg's ridgelines become increasingly important in making the town a desirable destination for tourists, businesses and residents, all important to Irasburg's economic future. As the upland sources of Irasburg's rivers and streams, the ridgelines play a key role in flood prevention and the protection of water quality.

Because of their defining role in the visual character and quality of Irasburg’s landscape, their unique ecosystems, their upland headwaters, and the potential for significant visual and environmental impacts by development, the mountain, hills and ridgelines are considered intrinsic to the character of Irasburg and must be protected from future development.

- *Present land use:* As described above, current land use of Irasburg’s mountains, hills and ridgelines comprises forestry, including conserved forestland; small-scale agriculture; recreation—principally hunting and fishing, but also hiking, snowmobiling, snowshoeing, cross-country skiing--and, increasingly, nature study. Residential dwellings, including camps, are largely confined to the areas along existing roads. Current development does not rise above the tops of the trees on the ridgelines.
- *Future land use:* The surrounding mountain, hills and ridgelines make an irreplaceable contribution to the character and quality of Irasburg’s natural and working landscape and should be treated as a whole, rather than as a series of separate viewsheds. These areas are largely undeveloped and must be preserved and protected. This plan strongly opposes development in these areas. Appropriate uses include forestry, sugaring, woodlots, hunting camps, and recreation. Utility-scale renewable energy projects and all similarly-scaled development are prohibited in these areas. All development projects that trigger Act 250 review and permitting, any Section 248 proceeding related to a Certificate of Public Good, and all construction projects occurring in the Mountain, Hills, and Ridgelines Area (see map on p. xx) that change the visual character and quality of Irasburg must be evaluated by a Visual Impact Assessment, carried out according to best professional practice as described in the “Aesthetics” section below.

Barren Land

- *Description:* Land-intensive operations, such as earth extraction and a landfill, have left these areas barren. It will take many years for future re-vegetation. Many barren areas are near transmission lines and often have road access.
- *Purpose:* Barren land areas are appropriate locations for larger renewable energy projects, such as large-scale solar arrays. They have limited functional capability for other purposes.
- *Present Land Uses:* These areas include a former landfill and former gravel pits.
- *Future Land Uses:* These areas are not suitable for residential development. Future uses of these areas include utility-scale solar energy projects or other earth extraction operations. Commercial developments of an appropriate nature—sawmills, gravel pits, and other enterprises that don’t require significant resources—may be sited here, but on-site septic capacity is minimal. Proposed projects that trigger an Act 250 review or a Section 248 proceeding require a Visual Impact Assessment.

Flood Hazard Areas Overlay

- *Description:* Overlay areas are intended to provide additional protections on land to which they apply without changing the characteristics of the underlying area. Flood Hazard Areas are those susceptible to flood inundation as delineated on Flood Hazard Boundary Maps from FEMA
- *Purpose:* This area is intended to provide increased safety and security to protect life, property, and infrastructure from risk of flooding. This plan strongly discourages

residential or commercial development in these areas. Appropriate uses of flood hazard areas include agriculture, recreation, and open space.

Aesthetics

Citizens cite the beauty of the town's rural setting as a primary reason for living in Irasburg. More than 95 percent of surveyed residents cited Irasburg's beautiful rural setting as an asset, the highest percentage for any town attribute. They believe these aesthetic qualities should be preserved.⁶ Visual aesthetics are also protected by Vermont statute, as set forth in 30 V.S.A. § 248: and 10 V.S.A. § 6086 (a) (8)⁷ which provides that a board, agency or court must determine whether a proposed project has an "undue adverse effect on the scenic or natural beauty of the area, aesthetics."

While we do not mean to suggest that other impacts of development projects, cited elsewhere throughout this plan—most notably impacts on natural resources, water quality, wildlife, economics and social fabric—are of any less concern, we do find that aesthetic impacts on landscape and scenic resources need to be addressed on their own merits.

Irasburg citizens place a high value on the visual character and quality of Irasburg's landscape. Development along Irasburg's ridgelines, for example, would likely have a high visual impact. Well-respected and widely used systematic procedures and methods, outlined below, exist to objectively assess potential impacts to a scenic and visual resource.

Therefore this plan requires that all development projects that trigger Act 250 review and permitting, any Section 248 proceeding related to a Certificate of Public Good, and all construction projects occurring in the Mountain, Hills, and Ridgelines Area (see map) that change the visual character and quality of Irasburg be evaluated by a Visual Impact Assessment, carried out according to best professional practice. The VIA standards set forth in this section of the plan and the results of the VIA will constitute a clear written community standard intended to preserve the aesthetics and scenic beauty of Irasburg.

Visual Impact Assessment

⁶ See Appendix A, "Survey Results"

⁷ From 30 V.S.A. § 248:

b. Before the Public Utility Commission issues a certificate of public good as required under subsection (a) of this section it shall find that purchase, investment or construction:

(5) With respect to an in-state facility, will not have an undue adverse effect on *aesthetics*, historic sites, air and water purity, the natural environment, the use of natural resources and the public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A § § 1424 a(d) and 6086(a)(1) through (8) and (9)(K), impacts to primary agricultural soils as defined in 10 V.S.A. § 6001, and greenhouse gas impacts.

From 10 V.S.A. § 6086 (a)

Before granting a permit, the District Commission shall find that the subdivision or development:

(8) Will not have an undue adverse effect on the *scenic or natural beauty of the area, aesthetics*, historic sites or rare and irreplaceable natural areas.

Visual aesthetics often have a lower priority than other criteria in development review and siting decisions, perhaps because they are assumed to be based on subjective factors. However, investigation reveals that this is not the case:

"(Those) who may have little knowledge or experience in the field of scenic conservation... may falsely assume that scenery is simply 'in the eye of the beholder' and lacks measurable objective criteria. This is not the case....Beginning primarily in the 1960s, landscape architects in the UK, US, Canada and Australia began developing the modern system of scenic resource assessment, which later became folded into environmental impact analysis. This has become a largely objective technical field, albeit with some subjective judgment applied strategically. These systems are rooted in a deeper history of aesthetics including both cultural and scientific analysis that shed light on how people view landscape and why. Though imperfect, they provide a good basis for understanding scenery and scenic impacts."⁸

How can we determine what constitutes an undue adverse effect on the "...scenic or natural beauty of the area, aesthetics"? Research reveals well-respected and widely used systematic procedures and methods to consistently assess potential impacts to a scenic and visual resource. Collectively, these procedures and methods constitute a Visual Impact Assessment. A VIA is not subjective but rather is based on a set of objective methods that have been in use for over 30 years⁹ and that courts have determined to be a valid approach to determining visual impacts.

Visual Impact Assessment uses methodology^{10, 11} summarized below to assess the visual impact of proposed projects:

Visual resources are defined by assessing *visual character* and *visual quality*. Resource change evaluates the visual character and quality of a landscape before and after proposed project construction.

⁸ Apostol, Dean, James Palmer, Martin Pasqualetti, Richard Smardon and Robert Sullivan. 2017. *The Renewable Energy Landscape: Preserving Scenic Values in our sustainable future*. 1:11 Routledge, New York and London

⁹ The National Environmental Policy Act (NEPA) of 1969 establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically and culturally pleasing* surroundings. For decades, the Bureau of Land Management of the US Department of the Interior, the Federal Highway Authority of the Department of Transportation, and the Department of Energy, among other federal agencies, have used the tools of Visual Impact Assessment to yield consistent results in characterizing the visual impacts of proposed federally funded projects.

¹⁰ National Research Council (NRC). 2007. *Environmental Impacts of Wind-Energy Projects. Appendix D, A Visual Impact Assessment Process for Evaluating Wind-Energy Projects*. Washington, DC: National Academy Press.

¹¹ Apostol, Dean, James Palmer, Martin Pasqualetti, Richard Smardon and Robert Sullivan. 2017. *The Renewable Energy Landscape: Preserving Scenic Values in our sustainable future*. 1:11 Routledge, New York and London

Changes in **visual character** are determined by how visually compatible a proposed project would be with existing conditions by using the following visual attributes as indicators:

- **Form:** Visual mass or shape (hill, mountain, lake)
- **Line:** Edges or linear definition (horizon, ridgeline)
- **Color:** Reflective brightness and hue
- **Texture:** Surface coarseness
- **Dominance:** Position, size, or contrast
- **Scale:** Apparent size as it relates to its surroundings
- **Diversity:** A variety of visual patterns
- **Continuity:** Uninterrupted flow of form, line, color, or textural pattern

The degree of **visual quality** in a scenic resource is evaluated by:

- **Vividness:** The power or memorability of landscape components as they combine in distinctive visual patterns.
- **Intactness:** The visual integrity of the natural and built landscape and its freedom from encroaching elements.
- **Unity:** The visual coherence and harmony of the landscape considered as a whole.

Viewer response measures viewers' reaction to changes in the visual environment based on *viewer exposure* and *viewer sensitivity*.

Viewer exposure measures the viewer's ability to see a project, based on location, quantity and duration.

- **Location** relates the position of the viewer to the project.
- **Quantity** means how many people see a project.
- **Duration** describes how long a viewer can keep a project in view.

In general, the closer the position of the viewer to the project, the more people who see it, and the longer it can be kept in view, the greater the exposure.

Viewer sensitivity has three components: activity, awareness and local values.

- **Activity** measures how closely a viewer observes the surroundings.
- **Awareness** relates to the focus of the view
- **Local values** predict how sensitive viewers will be to visible changes.

Visual Impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes: **Resource Change + Viewer Response = Visual Impact.**

The levels of visual impact are:

Low: Minor adverse changes to the existing visual resource with low viewer response to a change to visual environment

Moderate Low: Moderate adverse change to the visual resource, low viewer response to a change to visual environment

Moderate: Moderate adverse change to the visual resource with moderate viewer response

Moderate High: Moderate adverse change to the existing visual resource with high viewer response, or high adverse change with moderate viewer response

High: Excessive adverse visual change to the existing visual resource or a high level of viewer response to change in the visual environment such that architectural design and landscape treatment cannot mitigate the impacts.

Aesthetic Impact in Irasburg

It is not within the scope of a Town Plan to carry out a Visual Impact Assessment. However, even a brief consideration of the visual impact of development along Irasburg’s ridgelines, for example, according to the above criteria, makes clear that such development would very likely have a high visual impact.

The Vermont Supreme Court has adopted the three-part “Quechee” test to determine whether a proposed project as an undue adverse effect on aesthetics.

The “Quechee Test” asks:

- Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
- Does the Project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?
- Has the Applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings?

The first prong of the Quechee test asks, “Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?” This Plan intends the Visual Impact Assessment process as outlined above to serve as a “clear written community standard to preserve the aesthetics or scenic beauty” of Irasburg’s landscape.

Land Use Goals

In accord with the principles of respect for the environment, sound economics and regard for community values, Irasburg retains and strengthens its distinctive character as an iconic Northeast Kingdom village:

- A lively and prosperous historic Village Center attracts and serves not only Irasburg residents but neighbors and visitors.
- Healthy intact forests support wildlife, silviculture, sugaring, clean air and water, and recreation.
- Strong and diversified agriculture supports a resilient local economy and food security.
- Development preserves historic settlement patterns; keeps pace with municipal services; and conserves ridgelines, forests, and agricultural land.
- Development preserves Irasburg’s unique landscape character and landscape quality.
- Renewable energy generation makes productive use of unused landfills, gravel pits and barren lands.

Actions

Encourage a Vibrant Village center:

- Pursue Irasburg’s designation as a Designated Village Center
- Support Fire District #1, the municipal organization that operates and maintains the water supply for the village center

- Continue to encourage and support a strong program of after-school educational enrichment activities held in historic buildings in the Village Center
- Promote the use of the refurbished Town Hall for social and civic functions
- Encourage wider use of the Common, e.g. for a farmers' market, skating rink, band concerts, festivals...
- Collaborate with the Selectboard to develop a Village-Center Park & Ride location
- Work with the Vermont Preservation Trust, the Council for the Arts and other organizations to gain support for renovation projects for historic buildings.
- Work with citizens to devise and develop events and programs (an annual Howard Mosher Literary Festival, a pop-up University of Irasburg....) to bring Irasburg citizens and tourists to the village center.
- Make the Kingdom County Forum a biennial debate for gubernatorial candidates.

Protect and preserve ridgelines, forests, and agricultural lands:

- Encourage growth that preserves traditional settlement patterns in the historic center and along routes radiating from the center; and that preserves forests, ridgelines, water sources and agricultural lands.
- Continue and strengthen the exemplary practice of the Current Use Program that currently enrolls the majority of forested land in Irasburg under forest management
- Use tools such as the Vermont Land Trust, the Vermont Housing and Conservation Board, and similar tools and programs to preserve undeveloped land.
- Prohibit utility-scale energy projects in the Forest or Rural/ Agriculture Areas. At the same time, encourage the development of renewable energy projects in areas such as on existing structures, on closed landfills or in gravel pits. Work with Efficiency Vermont and others to strongly promote energy efficiency and conservation to meet energy goals without the need for development on ridgelines, forests or agricultural lands. Work with the Vermont Electric Coop and other utilities to increase distributed generation.
- Encourage silvicultural practices that promote climate resilience. Keep forests healthy by maintaining working forests, promoting healthy forests and maintaining diversity within forests. Working with Efficiency Vermont and the Department of Forests, Parks and Recreation, promote the use of Advanced Wood Heat (wood pellets and wood chips) as a renewable energy source.
- Discourage road construction (with the exception of truck roads used in forestry operations) in forest tracts.
- Develop a culture of appreciation and respect for Irasburg's geology, wildlife, forests, rivers and streams, wetlands and other natural resources through the Irasburg student enrichment program and the Lake Region Vocational Agricultural Program. Work with organizations such as the Vermont River Conservancy; the Memphremagog Watershed; the Department of Forests, Parks and Recreation; Fish and Wildlife to develop other community-wide programs and activities (e.g. Summer on Kidder Hill...)
- Promote "Made in Irasburg" maple syrup.
- Protect and preserve Irasburg's landscape character and landscape quality by requiring an independent Visual Impact Assessment carried out according to best professional practice, for any development that triggers an Act 250 or Section 248 process and all construction projects occurring in the Mountain, Hills, and Ridgelines Area (see map) that change the visual character and quality of Irasburg.

Make productive use of barren lands

- Encourage the development of renewable energy projects on closed landfills, in gravel pits or other barren lands.

Chapter 3: Transportation

Purpose of the Transportation Plan

In accord with Irasburg’s planning principles of respect for the environment, sound economics and regard for community values, the Transportation Plan outlines a path to achieve safe, cost-effective and energy-efficient transportation for Irasburg residents to commute to work and to meet the needs of daily life. It prioritizes the improvement of safe options for walking and biking in the Village Center and along Irasburg’s roadways, and it minimizes the impact of road construction on natural resources.

Existing Transportation

Currently, most transportation in Irasburg is by single-person automobile. Census data indicate that 77 percent of Irasburg’s workforce commutes to work by automobile.

Drive alone	67.90%
Carpool	9.60%
Walk	4.10%
Work at Home	13.90%
Other	4.60%

Source: American Community Survey

The chart at right shows how residents travel to work.

According to NVDA’s Energy Profile, Irasburg residents collectively drive almost 14 million miles annually, at a cost of \$1.4 million. Irasburg’s greatest single use of energy, 42.4 percent, is for transportation.

The main highways to and through Irasburg are Vermont State Highway Routes 14 and 58, U.S. Route 5, and Interstate 91. Interstate 91 links the town with Newport to the north and Lyndonville and St. Johnsbury to the south. Route 14 links the town with Albany and Montpelier to the south and Coventry and Newport Center to the north. Route 58 provides access to Barton and Orleans to the east and Lowell to the west. VTrans District 9 out of Derby maintains state Highways.

The town of Irasburg maintains 8.09 miles of Class 2 Town Highways; 27.44 miles of Class 3 Town Highways; and has 8.48 miles of Class 4 Town Highways or ‘legal trails’. The town is in the process of completing a Road Erosion Inventory with NVDA. When complete, this plan will enable Irasburg to schedule improvements. Combined with their Bridge and Culvert Inventory, the information will enable simplified capital budgeting for highway expenditures. The town has signed Town Highway and Bridge Standards from the VTrans Orange Book.

Railroad tracks carrying freight trains run through Irasburg with the nearest freight facility located in the village of Orleans. The operator of the line is the Connecticut River Subdivision of the Washington County Railroad. The rail right-of-way is owned by the State of Vermont. There are currently no rail sidings located in Irasburg.

There are no fixed public transit routes in Irasburg. However, Rural Community Transportation (RCT) operates an on-demand transit service through its Elderly and Disabled Transportation Program, a volunteer driver service that is available to residents of Irasburg. There is an informal Park and Ride lot in the village of Orleans at the intersection of U.S. Route 5 and VT Route 58 for carpooling.

The nearest airport is the Northeast Kingdom International Airport (formerly the Newport State Airport) in Coventry. There is currently no scheduled passenger air service at this facility.

Irasburg participates regularly in the regional Road Foreman Meetings, facilitated by NVDA and VTrans District 9. These meetings provide training to assist the highway department in providing the town with cost-effective best-management practices. The Road Foreman should continue to attend these meetings.

Irasburg has limited sidewalks and multi-use paths. Residents use road shoulders and the path around the Common for jogging, biking, walking, and getting around town on foot.

Proposed Transportation

Irasburg's roads are upgraded and maintained to meet standards commensurate with the classification of highways by state statute (VSA Title 19, Chapter 3, subchapter 302).

In the 2016 Community Survey, residents indicated dissatisfaction with available transportation options and 29 percent indicated a need for improved bicycling and walking facilities.

The Vermont Legislature passed a "Complete Streets" bill in 2011 as part of its transportation policy. Complete Streets is the concept that all users are considered in transportation projects, including pedestrians, bicyclists, motorists, public transportation users, and those of any age and ability. Implementing Complete Streets in rural communities can be challenging but not impossible. When State Highways are repaved or widened, shoulders should be added to accommodate pedestrians. Crosswalks, signage, and additional opportunities for footpaths or trails are encouraged with other state road improvements. Irasburg intends to pursue Village Center designation. One goal of such a designation will be to improve options for pedestrians and bicyclists within the Village Center.

Two of the biggest transportation problems in Irasburg are the heavy truck use of Routes 14 and 58 through town and lack of a safe pedestrian/bicycle route to the elementary school from the Common. The heavy flow of traffic, especially at peak morning and afternoon times, makes it difficult for pedestrians to cross the state highway. There are no designated pedestrian crossings. A sidewalk ends in front of Leach Public Library, and there is no formal path from the town Common to the Irasburg Village School. A 2003 sidewalk study assessed current conditions and challenges to building a five-foot-wide sidewalk to the school. The sidewalk would require storm drainage infrastructure, but grants could help the town defray costs of construction. The town is considering exploring options for a multi-use trail to connect the school to the library and the Village Center.

Providing adequate Park & Ride spaces for carpoolers is key to reducing the energy impacts of commuting. With more than 75 percent of Irasburg's population working out of town, this plan encourages the development of new and creative options to share driving. Over the past few

years, many commuters have begun using areas around the Common as an informal Park & Ride principally opposite Ray’s Market and the Post Office, but increasingly along the south side of the Common. While carpooling is encouraged, this use of spaces around the Common creates a number of challenges. At peak hours, commuters’ parked cars leave limited spaces for daytime use by people who need to park around the Common; parked cars interfere with snowplowing, and create an increased need for maintenance. The town should pursue development of an official Park & Ride location supported by the Vermont Agency of Transportation. Any proposed Park & Ride location should be safe, central, easily accessible, well lit, visually appealing and able to accommodate eight to 10 cars. A goal of Village Center Designation will be to develop a dedicated Park & Ride facility.

Irasburg can achieve further reductions in transportation energy use by fuel switching during the coming decades by the increased use of plug-in electric vehicles. As in all other areas, the cost of fuel switching will be an important factor in achieving these efficiencies. State- and utility-sponsored incentives, as well as technological advances that help to lower costs, will help to make these targets achievable.

Table 3.2 Fuel Switching Targets for Transportation

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,115	1,254	1,411
Number of vehicles powered by electricity	117	372	801
% Of vehicles powered by electricity	10%	30%	57%
Number of vehicles using bio-fuel blends	793	545	95
% of vehicles using bio-fuel blends	71%	43%	7%

Source: Irasburg Energy Profile from NVDA

The projected number of vehicles in the area is estimated to be roughly commensurate with projections of population and households. Estimates assume a gradual increase in EV fuel economy from 3 miles per kWh to 4 miles per kWh by 2050. The switch to EVs in Irasburg will be challenging, requiring performance improvements on steep and often wintry terrain and improved battery storage for long distances between charging stations. Currently, the paucity of plug-in charging stations in the Northeast Kingdom is one deterrent to the spread of EVs. The confluence of heavily traveled state and local routes in Irasburg’s village center makes it a promising potential location for a charging station.

Goals

Irasburg residents have safe, affordable and energy-efficient transportation for commuting to work and to meet the needs of daily life. Irasburg has safe and accessible routes for pedestrians and bicyclists.

Any new roads are built according to most recently adopted town standards and have minimal adverse impacts on forests, wildlife habitat, water sources and other natural resources

identified throughout this plan. Logging roads use Best Management Practices to minimize erosion and effects on wildlife habitat.

Actions:

- Pursue Village Center Designation and Vermont Agency of Transportation grants as a means to: facilitate improved pedestrian and bicycle access including a walking/ bike path from the Village Center to the Irasburg Village School; develop a designated Park & Ride facility; and investigate a vehicle charging station.
- Maintain all roads to their current classification as represented in the most recent Town Highway Mileage Certificate submitted to VTrans and shown in the most recent Town Highway map provided by VTrans Mapping unit.
- Build any new roads to meet all town standards and specifications and minimize impact on natural and scenic resources identified throughout this plan.
- The Road Commissioner and the Selectboard continue to maintain the priority list and repair schedule for roads most in need of repair or upgrade.
- Continue to participate in Road Foreman Meetings. The town should also monitor via email and participate in person when appropriate in the regional Transportation Advisory Committee (TAC). All towns are members and representatives are appointed by the Selectboard to represent the interests of the town as well as provide regional feedback from the town's perspective.
- Continue town budget support for Rural Community Transportation.
- Ensure that Irasburg's single sidewalk, from Ray's Market past the Town Hall to the Leach Library, is kept clear of snow and ice.
- With the Selectboard, pursue methods to slow down traffic through the Village Center, including school zone signage, designated crosswalks, or other engineering solutions including the use of deterrence technology such as stand-alone speed monitors.

Chapter 4 Utilities and Facilities

Purpose of the Utilities and Facilities chapter

The Utilities and Facilities chapter outlines policies and actions to ensure that Irasburg's public infrastructure, utilities and services continue to meet the needs of the town's citizens, in accord with the Irasburg planning principles of respect for the environment, sound economics and regard for community values.

Community efforts by volunteer groups are integral to maintaining and improving many of the town's facilities, such as the Leach Library, the village water system and the Fire Department. The Selectboard, along with town employees and volunteer support, oversees the maintenance and improvement of other facilities such as the Town Hall, the Town Clerk's office, and the Town Garage.

Community Facilities

The town of Irasburg owns several facilities in the Village Center. Many of these buildings are historic structures. Chapter 5, Natural, Historic and Scenic Resources, provides more detailed information about their history. Here, the plan addresses the condition and future needs of public buildings.

A 2011 professional Energy Audit funded by NVDA identified needed improvements in energy efficiency and conservation in the Town Hall, the Town Garage, the Leach Public Library, and the Town Clerk's office.

Buildings owned by the faith community include the Irasburg United Church and the St. John Vianney Catholic Church, both in the center of Irasburg; and the New Hope Bible Church on Route 14. The United Church serves some semi-public functions, including monthly "senior meals." A Masonic temple sits on the north side of the Common.

Besides the buildings listed below, the town owns the Fire Department radio shed and a landfill, which is currently closed, locked and brush hogged. The town also owns the Partlow Lot, a green space by the Black River. Appointed sextons oversee Irasburg's two cemeteries. One of the cemeteries, the Catholic Cemetery, has no more plots available.

Town Common

Irasburg grew around the Town Common in the center of the historic village. Four cannonballs marked the corners of the common when it was laid out in 1816. Two are still in place. Today, the Common is the site of many community activities and events, among them the annual Irasburg Church Fair on the third Saturday in July, culminating in one of America's briefest parades, and fireworks. Walkers, joggers, bicyclists and, in winter, cross-country skiers make daily use of the path that encircles the Common's perimeter. Little League baseball teams use the ball field in the southwest corner.

The Common includes a seldom-used bandstand for summer events. A combination of local volunteers and hired contractors takes care of landscaping. The Selectboard plans to make structural improvements to the bandstand to increase its utility. Irasburg Fire District #1, the village water board, has installed a dry hydrant water connection in the northeast corner of the Common, for use during the Church Fair and, potentially, for a farmer's market.

Leach Library

The library has an extensive collection of children's books, recently enhanced by the start of a dedicated "Farm to Story" collection funded by the Children's Literacy Foundation. In 2016, well-known Irasburg author Howard Mosher dedicated his personal book collection to the library. Dedicated bookshelves house the collection. The library's free Wi-Fi and free computer access are an important service to residents in an area where high-speed internet access is problematic at best. A 2015 architect's report, funded in part by a grant from the Sincerbeaux Foundation of the Vermont Preservation Trust, found the library building to be in generally good condition. Repairs in Fall 2017 fixed the leaky slate roof. However, the library does not meet ADA requirements and requires significant upgrades to permit universal access. The library trustees are currently working with the Preservation Trust to investigate options for making the building accessible while respecting its architectural and historic integrity.

Town Hall

The Town Hall, completed in 1912, not only houses Irasburg's annual town meeting, but rents its gracious space for social events such as wedding receptions, anniversaries, fundraisers and other gatherings. The Leach Library's after-school enrichment program for Irasburg students holds classes at the Town Hall. The building received a new roof and repairs to the fire sprinkling system in 2015. An energy audit identified desirable efficiency improvements, including upgrading insulation in all the walls. Energy-efficient lighting upgrades were partially funded through a grant in 2015, with future cost savings expected. To the extent allowed by the budget, the Selectboard plans for future energy improvements, including replacing the heating system, replacing inefficient windows, and further insulating the building to increase energy efficiency and conservation and lower long-term operating costs.

Recent improvements to the town hall include flooring refinishing and interior paint, as well as a new locking system. Further improvements to this center of community activity are a high priority for the Selectboard. In 1994, the Town Hall was added to the National Register of Historic Places.

Town Clerk's Office

Formerly part of a historic school, the town office is located on Route 58. It houses the Town Clerk's office and is the site for meetings of the Selectboard, planning commission, and listers. The listers use the lower level for office space. Recent improvements include a downstairs safe, basement renovations, an ADA-accessible bathroom, a new roof, windows and doors; video surveillance, flooring, and paint. The septic system has received a "temporary fix" and needs to be upgraded with a system that meets regulations. Notwithstanding these improvements and despite attempts to save space, a larger or additional safe may be needed to store required records. A larger meeting room would better suit the many boards and groups that use the office. There is currently no place for a private conversation; those must take place outside. Plans call for addition to allow for a larger meeting room and a small lobby for posting materials. The addition would allow for the separation of the bathroom and kitchen, currently co-located. A modular storage system has been installed in the safe and will be augmented as needed.

Town Shed & Fire Department

The town shed houses the Fire Department and the town garage. Recently, the roof was replaced and insulation added to the roof for increased thermal energy efficiency. A video

surveillance system was installed for added security. A new salt shed is slated for construction in 2018 to allow easier access for town equipment and better containment to reduce loss of salt and protect water quality in the nearby Black River. The Fire Department recently partitioned off a small meeting room and office space within the existing building.

Public Services and Utilities

Electricity

Chapter 9, Energy, provides information about the three electric utilities that provide electricity to Irasburg. Several homeowners have installed residential-scale renewable energy infrastructure. The Energy chapter discusses in more detail Irasburg's network of distribution and transmission lines as well as a VELCO substation located on Route 14.

Wastewater

Irasburg does not have a municipal wastewater treatment facility. Homes and public buildings use on-site septic systems permitted by the Vermont Agency of Natural Resources.

Water

The central village of Irasburg comprises a municipal water district operated by a three-person "Prudential Committee of Irasburg Fire District #1," commonly known as the Irasburg village water system. The system serves approximately 100 residential connections, or about 250 users. The system comprises two wells and a control house/ treatment plant and covered reservoirs. The system supplies about 15,000 – 17,000 gallons per day, or 4,500 gallons per month per household (less than the average Vermont usage). The committee is considering expanding its board to five members, developing a long-range plan, and raising funds for improvements such as replacing old pipe sections and valves, pumps, and pressure tanks. At this time, there is limited potential for expanding the system.

Properties not connected to the municipal water system use artesian and spring wells as their water supply.

Refuse

Irasburg and Albany have a joint agreement for solid waste and recycling disposal. The town operates a metal recycling facility. Most residents use local haulers for refuse disposal and for recycling.

Casella Waste Management operates Vermont's only landfill in neighboring Coventry. Residents take their refuse here, but so does the rest of the state and even communities from outside Vermont. To reach the landfill, 15 to 20 tractor trailers pass directly through Irasburg on Vermont Routes 14, 58, or 5. Trucks hauling waste to the landfill cause extensive damage to the roads and add significantly to vehicle miles traveled in Irasburg, especially since Vermont's other landfill in Moretown was closed in 2013. The truck traffic is noisy and disruptive to village life. Many trucks exceed the 30-mile-an-hour speed limit through the Village Center, creating a hazard for pedestrians and children.

Stormwater

There are four state-installed storm drains in Irasburg, all near the Village Center. They drain down Mill Hill ultimately into the Black River.

Portland-Montreal Pipe Line

With lines traversing Irasburg since the 1940's, the Portland-Montreal Pipe Line was built to carry crude oil underground from Portland, Maine to Montreal, Quebec. In 2014, the Portland Pipeline began floating plans to reverse the flow of oil, in order to ship tar sands oil from Alberta, Canada to Maine. This proposal engendered significant concern and opposition in Irasburg. One pipeline passes within 100 yards of the water system, making the village water system vulnerable in case of a pipeline leak. A drop in the demand for oil has silenced the talk of reversing the oil flow for the time being. Currently, a 12-inch pipeline is no longer used; two pipelines are "operational," an 18-inch and a 24-inch. The 18-inch pipeline has been out of service since November 2010. The 24-inch is currently being used for oil. The town of Irasburg receives \$55,000 annually in taxes from the pipelines. Pipelines are aging, leading to concerns about possible leaking and ruptures.

Public Safety

The Irasburg Fire Department provides fire protection service. In 2015, voters approved purchasing a new fire truck tanker for the department. The Fire Department has future ideas to expand, either by an addition or purchase of nearby property. The Orleans County Sheriff's Department and the Vermont State Police provide law enforcement services. The 2016 Irasburg community survey showed satisfaction with fire service (78 percent) but revealed concerns about adequate ambulance / rescue service (51 percent). Respondents indicated police protection is lacking, with only 31 percent saying it is adequate.

The town's emergency management director is the Selectboard chair. Irasburg maintains a local emergency operations plan, an annually updated document that identifies local points of contact, shelters, and high-risk populations for emergencies and natural disasters. As flooding can be a concern to Irasburg residents, the town may want to consider developing a hazard mitigation plan to reduce the risk from natural disasters.

Orleans Emergency Unit provides 911 Emergency Medical Services to Irasburg residents.

Telecommunications

Telecommunication capability is integral to life in the 21st century. Essential services, businesses and public safety require fast, reliable and affordable telecommunications service, from phones to the internet. Vermont's dispersed, rural population presents challenges to providing universal coverage. However, Irasburg residents strongly support efforts to increase cellular and broadband internet coverage throughout all parts of town.

In the 2016 community survey, only 17 percent of respondents said Irasburg's telecommunications were adequate. Improving telecommunications was a highly-rated priority for town consideration. It is common for traditional, hard-wired landline phones to be integrated in one device that offers internet. Television, internet and phone service can be delivered through one medium. Additionally, wireless fidelity (or "Wi-Fi") provides "hotspots" for mobile connectivity. A Wi-Fi router is essentially a telecommunication network provided from a single router. Wi-Fi is currently available in Irasburg at the Leach Public Library, the Town Hall, the Town Clerk's office and the Irasburg Village School.

Much of Irasburg is served by Comcast or Consolidated Communications (formerly Fairpoint) for television, internet, and phone service. DirecTV and Dish Network offer satellite service. VTel

Wireless service is available for other residents. Nevertheless, many parts of town have no service. Drop zones for cellular phones are common throughout the Village Center. The town should give consideration to identifying key locations of tall structures that might host an antenna. A switching station is housed in a brick building on the eastern border of Irasburg off Route 14 on Telephone Lane.

Recreation Facilities

Recreation is a part of daily life in Irasburg, with a playground essentially in residents' backyards. Residents ski and snowshoe in winter; canoe, kayak and swim in nearby lakes in summer; hunt and fish in season; run road races; ride bicycles; play baseball and basketball. In winter, snowmobilers hold a charity "poker" event. The United Church hosts a senior lunch on the third Thursday of each month. Organized bicycle tours pass through Irasburg and stop at the common for lunch in summer. People use both paved and dirt roads for jogging, biking, and other forms of recreation. The annual Kingdom Run, a benefit road race that begins and ends in Irasburg in August, draws runners from across the country.

However, in the 2016 survey, residents rated facilities for recreation activities very low, with only 8 percent finding them adequate. The town may wish to consider developing a community recreation area with opportunities for children and adults. It might include a covered area for picnics, playground equipment, and nature trails, for example.

For formal recreation facilities, trails on the Vermont Association of Snow Travelers (VAST) system traverse private property connecting trail networks and destinations and facilities. The VAST trails require membership to use. A new Vermont ATV Sportsman's Association (VASA) trail has recently been developed and will be expanded. The town should investigate the feasibility of developing hiking trails, perhaps in conjunction with existing logging roads.

Publicly available recreation spaces include the town Common and the Irasburg Village School. There are some organized sports activities for both young people and adults. Tree Corners Campground operates a swimming pool that is open to the public. The River of Life Church conducts a summer camp for children and young people and operates a corn maze in autumn.

Health Care

The closest health care center is in Barton. Irasburg residents use North Country Hospital in Newport, about 20 minutes away, for emergency and other medical services, including kidney dialysis. Dartmouth-Hitchcock Medical Center in Lebanon, NH and Fletcher-Allen Medical Center in Burlington serve more critical or complex medical needs. The Rural Community Transit (RCT) system provides some transportation to and from medical facilities. Otherwise, transportation is by private vehicle.

Northern Counties Health Care, a federally qualified health center, operates a dental clinic in Orleans.

Goal

Irasburg's public infrastructure, utilities and services continue to meet the needs of the town's citizens, in accord with the Irasburg planning principles of respect for the environment, sound economics and regard for community values. Irasburg protects maintains and preserves the Common and historic buildings for future generations.

Actions

- Pursue Village Center Designation for Irasburg's Village Center. Such a designation will enable the town to seek state and other financial support for needed infrastructure improvements, including those identified in the following recommended actions.
- Ensure that all public buildings in Irasburg meet ADA standards for accessibility to all members of the public.
- To the maximum extent that budgets permit, ensure that all offices and public buildings meet the highest standards of energy efficiency and conservation. Use the results of the 2011 energy audits of the Town Hall, the Town Garage, the Leach Public Library and the Town Clerk's office to prioritize efficiency and conservation measures.
- Give continuing priority to the preservation, maintenance and improvements to the Town Hall as a center of community life. Form a Town Hall Committee to coordinate volunteer support.
- Maintain the Irasburg Common in good condition as a center of community life, open to all.
- Encourage improved telecommunications facilities to support personal, commercial and civic communication. Communication towers should be sited and designed to blend into the landscape as much as possible. To achieve aesthetic and other goals, Irasburg should seek party status in the permitting process for new and expanded telecommunication and other facilities.
- Support efforts by Irasburg Fire District #1 to maintain and improve the village water system.
- Encourage a weekly farmers' market on the Common to provide access to locally produced food.
- Encourage formation of a citizens' Recreation Committee to address the need for improved recreation facilities.
- Hold educational seminars on steps to strengthen home security.
- Assess the future need for increased cemetery capacity.

Chapter 5: Natural, Historic, and Scenic Resources

Purpose of the Natural, Historic, and Scenic Resources Plan

This chapter outlines policies and actions to protect and preserve the natural, historic and scenic resources that Irasburg residents value, in keeping with the town's planning principles of respect for the environment, sound economics and regard for community values. In a 2016 community survey¹², residents gave priority to protecting historic structures (77 percent), promoting local agriculture (73 percent) and protecting the environment/ridgelines/steep slopes (69 percent). Irasburg's strong connections to the town's natural and historic resources shape its physical, economic, and cultural identity. As Irasburg develops, this plan charts a path to conserving forests, agricultural land, wildlife habitat, hills and ridgelines, water sources, historic buildings, and scenic views to maintain the town's essential character for future generations.

Natural and Fragile Areas

The northeasternmost portion of Irasburg forms part of the Willoughby Falls Wildlife Management Area. The 610 acres of the WMA, including the 122 acres in Irasburg, are owned by the State of Vermont and managed by the Department of Forests, Parks, and Recreation. Meandering floodplain, wetlands, and beaver habitat characterize this area. It provides valuable habitat for muskrat, mink, otter, raccoon, bobcat, coyote, fisher, red fox, weasel, and white-tailed deer. Its primary attraction is the steelhead fishery. Each April, when trout season opens, anglers and wildlife lovers line the banks of Willoughby Falls in neighboring Orleans to watch migratory trout leaping up the falls.

Vermont's Department of Fish and Wildlife manages a strip of riparian land adjacent to the Black River. This area allows the river to flood and flow in its natural state without damaging property or other investments.

Locally, the oxbow formed by the Black River just west of the Village Center is an area frequented by wildlife year round. It offers seasonal recreation activities and is a source of beauty and contemplation for residents. It is adjacent to a property conserved through an easement, offering long-term protection of this natural area.

There are two areas of threatened or endangered and rare species in Irasburg. A group of threatened or endangered species is found just west of Route 14 and east of the Back Coventry Road and a rare species area is identified southwest of the same area. A significant natural community is found just at the end of Gage Road, between Routes 14 and 58. All of these areas have different levels of state and federal protections because of their intrinsic natural value. This plan encourages property owners to treat these areas respectfully to preserve their viability.

Mountains, Hills, and Ridgelines

Because of their unique ecosystems, their sources of clean water, their defining role in the identity of the town, and the potential for significant visual and environmental impacts by development, the mountain, ridgelines, and hilltops are considered intrinsic to the character of Irasburg and should be protected from future development. The area's distinctive topography makes maintaining the integrity of Irasburg's ridgelines especially important. The core of the town, including the central Common, is virtually enclosed on all sides by ridgelines.

¹² See Appendix A, Community Survey

Lowell Mountain, elevation 2,400 feet, is detached from the range of Lowell Mountains and lies almost entirely in the Town of Irasburg. Allen Hill, elevation 1,600 feet, was named for Ira Allen. The view from Burton Hill, elevation 1,500 feet, commands Kidder Hill, the Black River Valley, and Jay Peak. From Butternut Hill, elevation 1,400 feet, located north of Allen Hill, the view extends north to Owl's Head in Quebec. Kidder Hill, elevation 1,800 feet, just west of Irasburg and north of Lowell Mountain, dominates the view from the Common.

All of these ridgelines are highly visible from the lower elevations and from other ridgelines, leaving the town particularly vulnerable to adverse impacts of ridgeline development. The ridgelines themselves afford access to a multitude of spectacular views, with three-quarters of the town seeing ridgelines from any one point. This asset is at the core of the community's identity and is critical to its long-term economic health and sustainability. Irasburg's ridgelines therefore must be treated as a whole, rather than as a series of viewsheds. Much of Lowell Mountain has been conserved. This plan encourages other ridgeline property owners to consider their holdings as candidates for conservation, for example through the Vermont Land Trust or through current-use programs.

Mountainous areas have a key role in Irasburg's ecosystem: the trees provide clean air, soil stability, and water retention; unfragmented blocks of land provide for wildlife habitat and wildlife crossings; undeveloped forests, ridgelines, and mountains provide an environment for low-intensity recreation; town headwaters that supply much of the drinking water are sourced here; and the economic opportunity afforded Irasburg residents is invaluable. They make an irreplaceable contribution to Irasburg's natural and working landscape. As the climate warms, they will play a key role in Irasburg's resilience as a community. Property values and the town's economic future depend on preserving its identity as an iconic Vermont village. Irasburg's mountains and ridgelines are steep. Most of the ridges that surround the town have a 20 percent or greater slope. Steep slopes are susceptible to erosion. The presence of headwaters on many of the mountains, especially Kidder Hill, increases the likelihood of erosion. Downstream impacts are not just the washing away of the hillside but increased sedimentation that ends up in rivers draining to Lake Memphremagog. Without trees and other vegetation to hold the soil in place, the risk of flooding increases. Potential impacts to groundwater, and thus the wells that provide Irasburg residents with drinking water, are grave. Parts of the existing road network along the Kidder Hill Ridge rank as having a moderate to high risk of erosion, based on data from the Vermont Natural Resources Atlas.

Significant Views

Significant views surround Irasburg both of and from every ridgeline. Specifically, significant views are:

- Lowell Mountain
- Allen Hill
- Burton Hill
- Kidder Hill
- Butternut Hill
- Round Hill

These ridgelines should be protected for the aesthetic characteristics Irasburg residents cherish and that provide the community with its distinctive identity. These areas are largely

undeveloped and should stay that way. As discussed elsewhere in this Plan, appropriate uses for ridgelines include forestry operations, primitive hunting camps, and low-intensity recreation. This plan strongly encourages the preservation and protection from development of these significant, undisturbed and characteristic views. (See the “Aesthetics” section of Chapter 2, Land Use.)

Scenic Roads

There are six road sections that offer iconic views of Irasburg’s scenery. Future development should preserve and protect the views from these six roads. Protections include limiting developments that obstruct or degrade the views.

- Airport Road offers a 360-degree panorama of Irasburg, Brownington, Coventry, Newport, and Canada.
- Burton Hill Road provides views of Lowell Mountain, Jay Peak, Kidder Ridge, Irasburg Village and valley, and Mt. Washington.
- Kidder Ridge Road gives viewers a 180-degree view of Irasburg, Barton, Newport, and Brownington. From some locations, Mt. Washington is visible on cloudless days.
- From Houston Road on Lowell Mountain, the panorama of Montgomery, Jay Peak, and Newport Center is stunning.
- Alexander Lane provides vistas on all of Lowell Mountain as well as Newport, Derby, Holland, and Irasburg, with views out to West Charleston.
- Back Coventry Road, which includes a covered bridge, offers a fine display from Tree Corners to Lowell Mountain and Kidder Ridge.

Working Landscape

Originally founded as an agricultural community, Irasburg is fortunate to retain agricultural and forest-products industries. Its abundant natural resources, dispersed settlement patterns, and rural nature make it ideal for these operations. Irasburg’s agrarian heritage continues to flourish in the rolling fields of today, creating a classic Northeast Kingdom visual landscape, surrounded by working forestland.

The landscape is at work in a variety of ways: its beauty contributes to tourism, its ecological function is critical, it provides recreational opportunities for visitors and residents alike, it is the source of inspiration for creative endeavors such as photography and literature¹³, and it provides income and a way of life for citizens in the agricultural and forestry industries.

Agriculture

Much of Irasburg’s agricultural land lies on the valley floor, with scattered hilltop farms. The number of farms in Orleans County increased from 2007 to 2012 with the total sales produced on Orleans County farms increasing during the same time. Trends from the 2012 Agricultural Census indicate farms are becoming smaller in size, with more diversity in production. According to the [2016 Northeast Kingdom Food System Plan](#), contrary to statewide agricultural trends, agriculture (which includes maple sugaring) in Orleans County is a growing economic sector. However, in 2018, declining milk prices have resulted in great uncertainty for the future of dairy farming in Vermont, and for farmers in Irasburg.

¹³ Longtime Irasburg resident Howard Mosher, one of Vermont’s best-known and most beloved authors, died in January 2017. The inspiration for his books comes directly from the people and landscapes of Irasburg, or “Kingdom Common,” as he called it in his fiction.

Today, Irasburg citizens operate at least 14 active farms for beekeeping, livestock (beef, buffalo, elk, goats), hay and dairy. Maple sugaring provides significant primary and secondary income for residents.

Beyond the crops and livestock they grow, farmers in Irasburg carry on a tradition of conserving and stewarding the land to produce food. Farms serve a secondary purpose for recreation and natural resource management. As agriculture continues to diversify, as new markets emerge and farmers struggle with farm viability, it is important to encourage new opportunities for farming enterprises, along with local markets for sale of goods. Climate change will bring new agricultural opportunities as well as challenges.

Agricultural soils are a vital resource for all farmers. Changes to Vermont's Required Agricultural Practices are intended to maintain and improve soil and water quality. New development projects should avoid impacts to agricultural soils of state and federal significance, including those designated as soils of statewide significance, prime agricultural soils (a Vermont classification), and primary agricultural soils (a federal classification). The best use of agricultural soils is for agriculture, so energy generation projects and other development should avoid short- and long-term impacts to these soils. Barns, silos, and existing impervious surfaces should be used for energy generation infrastructure before undeveloped land is used.

Forests

As in the case of agriculture, the components of a forest or woodlot serve multiple functions. Residents of Irasburg, which is 31 percent forested, use the forests for firewood, timber, wood chips, and other timber operations. Forests are home to wildlife; they foster biological diversity and serve a critical function in maintaining air and water quality. Upland forests provide flood control and water retention capacity.

Vermont's 21st-century forests face significant challenges: aging landowners, increasing rates of development (new buildings and roads), rising land prices, climate change, and invasive pests. The average age of an Irasburg resident is 43 (American Community Survey 2012 – 2016). As the population ages and land costs increase, subdividing or selling land becomes an attractive option for many residents.

Yet the forests have great community value to citizens for their natural beauty, their role in promoting clean air and clean water, their habitat for wildlife, their value for tourism and recreational opportunities. Forested mountains, ridgelines, and hilltops distinguish Irasburg's landscape and shape its culture. Ensuring the viability of the forest-products industry and the continued existence of forests and woodlots is important for Irasburg's future.

Wildlife

Hunting and fishing are a way of life for many in Irasburg, not only as recreation but to put food on the table and to pass on age-old skills and a love of nature from generation to generation. These activities are cultural and economic drivers for residents and visitors. Wildlife requires certain conditions, including unfragmented forest blocks and clean rivers and streams, to survive and thrive. Planning to maintain or improve these conditions may be challenging, but it is far from impossible.

Habitat

Irasburg's large blocks of unfragmented land provide ample opportunity for wildlife habitat and travel. Fragmentation occurs when human settlement segments large blocks of land into smaller and smaller areas. By creating gaps between blocks, fragmentation results in the direct loss of habitat. The smaller the habitat block, the smaller the number and diversity of species that can survive there.

Natural connections (or corridors) between habitats allow safe access within habitat range for many species. The western side of Irasburg in particular has abundant land identified as highly suitable for wildlife habitat, with wide swathes of suitable habitat. Irasburg has many high-use wildlife crossings.

Bears require large areas of uninterrupted forestland for breeding and travel between seasonal habitats. The Vermont Department of Fish and Wildlife has mapped one such bear crossing in Irasburg. Bear find protection from highway and residential development in areas rich with American beech stands, high elevations, or wetlands, such as the bear feeding area west of Round Hill. Black bear, fisher cat, moose and bobcat, all found in Irasburg, need migration corridors to travel between habitats, according to the season.

Deer herds require protected habitat to endure severe winter weather and heavy snowfall. Deer wintering areas provide two important features to white-tailed deer survival: shelter and food. Wintering areas, while a small fraction of a yearly range, can be used by generations of deer over several decades if appropriate habitat conditions are maintained. Without this habitat, the deer population would virtually die off. Mapped deer areas in Irasburg are largely found in the northern corner of the town, but this does not mean deer are only found in this location. Common features of deer ranges include edges between fields and forests, wetlands, and broadleaf and coniferous forests.

Animals of all sizes need other protections to support their populations. Noise and sound can force re-routing of migratory routes for birds and game. Noise has a significant impact on many birds. Animal sensitivity to certain noises and frequencies has been linked to birth defects, breeding complications, physiological effects, and other disturbances to wildlife and livestock. Noise is also a barrier to the movement of many reptiles, amphibians, and mammals. Development that adversely affects birds and other animals through sound are strongly discouraged. More information is available at the Federal Highways Administration website: http://www.fhwa.dot.gov/environment/noise/noise_effect_on_wildlife/effects/effects.pdf.

Air Quality

Vermont's air quality has historically been very good. Air quality is most often adversely affected by emissions from residential, industrial, and transportation uses. In addition to managing the health of fields and forests for air quality, the Housing, Utilities and Facilities, Energy and Transportation chapters of this Plan identify opportunities for maintaining air quality through efficiency and conservation and through the development of community and residential-scale renewable energy sources.

Water Resources

(Add water map from BioFinder.)

Water Quality

Irasburg is included in the St. Francis Watershed, encompassing Lake Memphremagog. Irasburg's rivers and streams flow into the Black River and Barton River, which meet before draining into Lake Memphremagog. Vermont's Agency of Natural Resources (ANR) defines a watershed, which includes large river basins, as a distinct land area that drains into a particular waterbody from channelized flow or surface runoff. This means that the water quality in Irasburg influences the quality of water in Lake Memphremagog, an international body of water.

In 2015, the Vermont Legislature passed Vermont's Clean Water Act to maintain and improve the quality of all waters in the state. Looking at water quality through a watershed or basin-level lens means all communities in the state are responsible for their part in water quality.

Much of the impact to water quality in Vermont is caused by "non-point sources," or water runoff from pavement, agricultural fields, gravel roads, or mining operations. Point sources include contamination from underground storage tanks or failed septic systems, where the "point" of contamination is traced to a source.

To reduce the impact of non-point source pollution, farmers use the Required Agricultural Practices. Forestry operations follow a set of Best Management Practices (BMPs). Town roads follow guidelines from the Vermont Agency of Transportation and the Better Back Roads manual. Other types of industries or activities follow other guidelines and BMPs. These guides are all useful for reducing the runoff of pollution into waterways. Avoiding development in floodplains and on ridgelines and maintaining vegetated riparian and stream banks also reduces the pollution of waterways.

Lakes, ponds, and streams

Irasburg has an abundance of water bodies, from lakes and ponds (Kidder Pond, Mud Pond, Potter Pond) to the Barton and Black Rivers; and many streams, including Lord's Creek, Brighton Brook, Ware Brook, Allen Brook, and Lanphear Brook. Water bodies are important contributors to Irasburg's landscape and integral to supporting wildlife. The Black River is 26 miles long and originates at Eligo Lake in Craftsbury, flowing out to South Bay in Newport. It passes through three-quarters of Irasburg with numerous tributaries.

Near the center of Irasburg, off Route 58, the Black River makes a large oxbow, a haven for waterfowl, frogs, deer, moose, otter and all manner of water-dwelling wildlife. On a spring evening, the sound of spring peepers from the oxbow is deafening.

A portion of the eastern half of town is part of the Barton River Watershed. The Barton River is 22 miles long and passes through extensive wetlands. It originates at Crystal Lake in Barton and Shadow Lake in Glover and ends at South Bay.

The water quality in these rivers is generally very high, with exceptional fisheries. Many sections of both rivers in Irasburg are classified as "very good" or "good" for macroinvertebrates (animals without a backbone). Some streams throughout both watersheds are more stressed, so care should be taken along all waterbodies to protect the water quality.

Wetlands

Wetlands are defined as areas that are inundated by surface or groundwater often enough to support plants and animals that depend on saturated or seasonally saturated soil conditions for growth and reproduction. These areas are commonly known as ponds, bogs, fens, marshes, wet meadows, shrub swamps, and wooded swamps. To be classified as a wetland under Vermont law, an area must have wetland soils and wetland plants, in addition to at least seasonal water.

Wetlands serve important ecological functions, including flood and erosion control and providing habitat for fish and wildlife. They aid in the maintenance of water supplies by trapping nutrients and sediments and recharging groundwater, and they provide recreational and educational opportunities.

Wetlands were once considered wastelands and were often drained and filled. As a result, nearly half of Vermont's original wetland resources have been lost, and hundreds of acres are lost annually. There are 1,217 acres of mapped wetland in Irasburg, including high elevation wetlands that provide important wildlife habitat and ecosystem functionality. Wetlands in Irasburg should be protected from development or degradation.

Water Habitat and Aquatic Organisms

Some of Vermont's most celebrated fishing areas are in the Memphremagog watershed. Rainbow trout, brown trout, and steelhead are popular fish in both rivers, but undersized or damaged culverts can often block their passage. Irasburg is in a priority area for improving aquatic organism passage. Stream crossings where aquatic organism passage is critical also affect amphibians, reptiles, and other wildlife that rely on streams for habitat, movement, or sustenance.

Lord's Creek is a high priority area for vegetative plantings and voluntary river corridor easements. This area is highly susceptible to erosion, which threatens infrastructure and property and increases the amount of sediment carried to Lake Memphremagog. Improving the aquatic habitat and water quality will help maintain fish stocks and prevent water degradation.

Water bodies and wetlands provide vital habitat for fowl and other animals. Mud Pond on the eastern side of Burton Hill was home to a bald eagle nesting area. Herons are commonly found in wetlands around the Lowell Mountain area. Beavers, otter, and other animals that rely on lakes and ponds are common in Irasburg. All contribute to a diverse and active ecosystem.

Groundwater protection area

Irasburg Fire District #1, the municipality that owns and operates Irasburg's village water system, has a source protection plan approved in 2009 and updated for 2016. It provides for a groundwater protection area near the center of Irasburg in the area surrounding Well #1 and Well #2, the sources of water for village water customers.

Water Recreation

Irasburg's waterbodies provide ample opportunities for recreation. The Barton River is popular for boating, with a put-in at the River Road Bridge and the take-out at the South Bay VFWD boat launch. Fishing is popular along the Barton and Black Rivers and along local brooks and creeks. Local swimming holes are popular in the summer for all ages. These areas should be protected for future use. The flat land along the Black River near Route 5 is prime fiddlehead foraging territory.

Other popular water-based recreation activities occur year-round, such as canoeing, river floats, fishing and kayaking in the summer and ice skating in the winter.

The 1992 report *Whitewater Rivers of Vermont: Their Biology, Geography, and Recreational Use* identified a whitewater stretch of the Black River north of Irasburg, below the Route 14 crossing. There are about 20 – 30 miles of flatwater or whitewater paddling. This area, which flows through forest and some farmland, is rated as Class III waves and ledges and Class III – IV waterfall, which is a “difficult” classification on a scale of I – VI.

Flood Hazard Areas and Flood Resiliency

The Federal Emergency Management Agency (FEMA) identifies flood hazard areas as those areas along streams and rivers that are inundated on a recurring basis. FEMA maps flood hazard areas according to a “100-year flood event” frequency, which is a 1 percent chance of flooding during any given 100-years. Irasburg has not elected to adopt flood hazard regulations; therefore it does not have officially mapped floodplains.

However, the Floodplain Map identifies unofficial flood hazard boundary areas. Development should be limited in flood-prone areas to prevent damage to property and reduce risk of loss of life while allowing floodplains to function as they should. Preventive measures, such as avoiding development in flood-prone areas, enlarging and maintaining culverts to allow floodwaters to pass, and providing adequate floodwater control along roads can reduce risks.

Developing or filling in wetlands should also be avoided. Wetlands act as sponges, soaking up excess water. Altering wetlands increases the potential for flooding along rivers and streams. Upland forests provide important flood resiliency protections. Development, clearing, and overharvesting of upland forests are strongly discouraged.

Most flooding in Vermont is due to “fluvial erosion,” which happens when a river meanders out of its channel. The Vermont Agency of Natural Resources (ANR) developed a river corridor protection area that expands protection of flood-prone areas to include these meanders along most streams and rivers. Mapped river corridor areas were done at a coarse, high level so there may be inconsistencies with on-ground conditions. As a result, some areas may be represented as overly susceptible to erosion while others may be under-represented. However, Irasburg will adopt the State maps but encourages ANR to continue refining these maps to improve accuracy.

Development in river corridor areas should be limited to protect infrastructure investments, property, and ecosystem health. At this time, Irasburg has not chosen to adopt river corridor regulations.

Irasburg can achieve flood resilience even without land use regulations. For example, public buildings and historic structures should use appropriate techniques to mitigate the risks of flooding, such as elevation and dry floodproofing. Roads, bridges, and culverts should be built according to best practices and guidelines for resiliency. Floodplains, land adjacent to streams, and river corridors should not be developed. Appropriate uses for these areas include recreation, agriculture, and open space. While they are not required to do so, property owners are encouraged to follow similar practices.

Non-native Invasive Species

Flora and fauna not native to a particular ecosystem can wreak havoc, often spreading uncontrollably. These invasive species, brought here either intentionally or unintentionally, often lack predators or natural constraints that limit their ability to spread. They often compete with native species and can result in reducing genetic diversity among native species. In Irasburg, Japanese knotweed, purple loosestrife, goutweed, and honeysuckle have all taken root along the Black River and in many other areas throughout Irasburg. They proliferate vigorously, and to say that they are difficult to eradicate is an understatement.

Other invasive species to be aware of include the Asian Longhorn Beetle and the Emerald Ash Borer, recently found in Vermont. These insects attack trees. There is no predator for the ash borer so it has the potential to threaten ash, a species found abundantly in Irasburg. This insect is often spread through firewood. Given the summer seasonal population at Irasburg campgrounds, bringing firewood into Irasburg from outside should be prevented.

Earth Extraction

Earth extraction activities, such as mining, gravel, or sand pits, are necessary for economic growth and development in Irasburg. Gravel and sand deposits are remnants from glacial melting. They play an important role in groundwater infiltration; too much disturbance of these areas can lead to problems with water runoff or contamination of water resources. Accessing these deposits often requires permitting through the State Act 250 process, however the Town's pits do not if they are under 10 acres. Many private businesses and farms operate small-scale extraction operations.

While necessary to Irasburg, these activities may have the potential for negative consequences. Large extraction operations are required to follow the Act 250 process to minimize unintended consequences, such as sediment runoff, aesthetic issues, and noise impacts from large equipment, or damage to roads from truck traffic. Projects permitted through Act 250 are required to develop reclamation or rehabilitation plans once work is completed. For those projects that pre-date permitting, or those that do not undergo permitting, operators are strongly encouraged to develop reclamation or rehabilitation plans for the site once operations cease. Solar arrays and recreation are often appropriate uses for these sites.

Historic Structures and Sites

Irasburg's long and eventful history is evident in the character of the built environment today. Resourcefulness and respect for the past are cultural values many residents hold in high regard. These values are exemplified in the care and concern the town and its residents have taken to protect and preserve historic buildings. In the 2016 Community Survey, protecting historic resources ranked as a high priority for 77 percent of respondents, and the presence of historic structures was cited by 89 percent of respondents to explain why they live in Irasburg.

Irasburg presently has two buildings, the Town Hall and the Orne Covered Bridge, that are on the National Register of Historic Places. Properties that meet eligibility criteria, such as age, integrity, and significance, can be added to the Register through a listing process occurring at the state level. The benefits of being on the Register include financial incentives and tourism marketing. There is no regulation attached to the designation.

Irasburg plans to apply for Vermont Village Center Designation, a designation that would provide eligibility for tax credits for historic preserving and improving structures in the Village Center. Tax credits can be used for façade improvements or structural improvements to bring historic buildings up to modern safety standards, giving them new and expanded use and life.

The history of Irasburg is told in the many buildings, monuments, and relics found across the community. Some of the more notable sites and structures are listed below. A room dedicated to Irasburg at the Old Stone House Museum in Brownington provides additional information about Irasburg's history.

Bandstand

A wooden bandstand, built in the 1870s stands at the north end of the Common. It hosted band concerts of the Irasburg Cornet Band, organized before 1880 and continuing until World War I, as well many visiting bands.

The Brick Block

The brick block that now comprises Ray's Market and the Irasburg Post Office was built to replace several large buildings on the east side of the Common that burned in a great conflagration of 1886. Among the buildings that burned was the jailhouse, which had also housed the post office. The builders of the new brick block incorporated a few jail components into the new building. Shoppers at Ray's market cross a metal plate that was once a door to the jail. The rear of the store has two windows with iron gratings.

Cemeteries

In 1828, Samuel and George Nye conveyed land to the town of Irasburg for burial purposes. More land has since been added to make the present large cemetery north of town. Many early settlers are buried here, including five Revolutionary War veterans. Jerusha Allen is buried here, along with many descendants of Ira and Jerusha. The cemetery contains a monument to Ira Allen, although he is buried in Philadelphia.

In 1915, Alex Sanville purchased land for St. John's Cemetery, on a knoll just north of the village. One lot is kept for a large white cross to stand above the gravestones. In some winters, a snowy owl perches on the St. John's Cemetery cross.

Many vantage points in Irasburg afford a two-cemetery view.

Churches

St. John Vianney Catholic Church was built as a Methodist church in 1836. In 1839, the Congregationalists built their meetinghouse on the southeast corner of the common, adding a second story to the original building in 1872. In 1930, the Methodists sold their church to the Catholic diocese and joined forces with the Congregationalists, moving into the building in that same year to form the United Church of Irasburg. For many years, they alternated between ministers of the two denominations each time the pulpit became vacant. The Catholics moved into the former Methodist Church in 1930.

Leach Public Library

Beside the Town Hall on the east side of the Common stands the small brick Leach Public Library of architectural and historic merit. It was built in 1926, a gift from Orrin A. Leach, who spent his boyhood in Irasburg and went on to make his fortune in North Dakota in the wholesale grocery

business. Mr. Leach donated \$1200 to the town of Irasburg for construction of the library, with the stipulation that the town would appropriate five percent of the cost, \$60, annually to operate the library.

Little building next to United Church

The small white building next to the United Church was an apothecary shop in 1850; later it served as a law office and the Town Clerk's Office.

Common

The Irasburg Common was laid out in 1816, "five chains and fifty links wide, by seven chains and fifty links long." (A chain contains 66 feet, a link 7.92 inches, making the Common 363 by 495 feet.) Its corners were marked with cast iron balls, two of which remain.

Orne Bridge

Originally built around 1879 or 1881, this Paddleford truss bridge is 86' long and spans the Black River on Back Coventry Road, connecting Irasburg with Coventry. The original bridge was built either by E.P. Colton or J.D. Colton, or both. It has fourteen trusses, the same number as the number of counties in Vermont (Vermont was the 14th state admitted to the Union). In 1997, the bridge was lost due to arson. In 2000, it was rebuilt using sturdier timber and fireproof chemicals. The Bridge is on the National Historic Register.

Town Hall

Following a fire in early February 1911 that destroyed homes, stores and the courthouse that had previously occupied the east side of the Common, citizens at a special town meeting voted to build a new town hall, forty by forty-eight feet. "The glory of the place was its upper hall," wrote Marjorie Orcutt in *A History of Irasburg Vermont*, "seventeen feet high, lighted by twenty windows, with an arched paneled ceiling finished in hard pine, four-foot wainscoting and hardwood floors." The Town Hall's second floor is still "the glory of the place," and Irasburg citizens still meet there to exercise small-town democracy. Charles H. Andrus, a famous Vermont curtain painter, painted the stage curtains. His view of Willoughby Lake has been familiar to many generations of Irasburg audiences. In 1994, the Town Hall was added to the National Register of Historic Places.

Goal

Stewardship of Irasburg's forests, agricultural lands, wildlife habitat, hills and ridgelines, water sources, historic buildings, and scenic views protects and preserves the town's essential character for future generations, in accord with the planning principles of respect for the environment, sound economics and regard for community values.

Actions

- Strongly encourage development patterns, land uses, and land management strategies, including the development of energy-generating facilities, that protect and preserve intact forest blocks and wildlife corridors; primary agricultural soils¹⁴; river corridors and

¹⁴ And other soils designated as significant by the Vermont Agency of Natural Resources or the U.S. Natural Resources Conservation Service (NRCS)

wetlands; mountain, hills and ridgelines¹⁵; water sources; historic areas and scenic views.

- Support and encourage Current Use and Land Trust programs that conserve Irasburg's ridgelines, forests and agricultural lands.
- Avoid "energy sprawl" by following the standards for the siting, maximum height and maximum energy of energy facilities, as established in Chapter 7, Energy. Identify suitable sites for residential- and commercial-scale energy installations to allow Irasburg to meet energy goals without the need for ridgeline wind turbines.
- Encourage silvicultural operations that follow best forest management practices as developed by the Agency of Natural Resources.
- Support increased access such as farmstands, farmers' markets, Farm-to-School and Farm-to-Plate programs to locally produced agricultural products.
- Encourage the removal of invasive species to prevent spreading. Prevent the transport of firewood into Irasburg from outside the town.
- Discourage development in flood-prone areas. Mitigate risks to buildings, historic structures, critical infrastructure and municipal investments subject to flooding. Construct road infrastructure to withstand floods and reduce water runoff.
- The effects of ridgeline development on Irasburg's groundwater require better characterization. Irasburg supports further studies on the effects of ridgeline development on downstream water quality and erosion.
- Work closely with the Selectboard, NVDA, adjoining towns, and elected state representatives to preserve natural and historic resources.
- Encourage the Selectboard's active participation in Act 250 and Section 248 proceedings to promote and support the Town's planning goals.
- Continue and strengthen programs of education and outreach to raise awareness and appreciation of Irasburg's natural resources and historic heritage and their importance for climate resilience, aesthetics, economic development, water and air quality, biodiversity and wildlife protection, and the preservation of Irasburg's fundamental character.

¹⁵ In fulfilling the purpose of articulating and advancing the vision of the citizens of Irasburg for the future of their town, this Plan can have no more important goal than protecting and preserving Irasburg's ridgelines. Indeed, it is this goal that impelled the development of this first Town Plan in a municipality that had hitherto functioned for 234 years without one. On October 1, 2015, the citizens of Irasburg voted 274 to 9—ninety-seven percent—not to allow the use of the town's ridgelines for development by industrial wind turbine projects. Also on October 1, 2015, the Irasburg Selectboard received a petition signed by 421 of Irasburg's 700 voters asking the Selectboard "To oppose the proposed Kidder Hill Community Wind project by all means possible; and to develop a town plan that protects all of Irasburg's ridgelines from industrial wind development."

Just as Act 250 has for five decades preserved and protected Vermont's iconic natural and working landscape from the blight of unchecked development, so this Plan protects and preserves Irasburg's ridgelines from future development and renewable energy siting that would alter and degrade their essential character. We single out energy siting because in Irasburg all other types of ridgeline development of over one acre would be subject to Act 250 regulation. Only energy siting is exempt.

- Apply for Village Center designation to facilitate repairs and upgrades to historic structures while preserving their architectural, structural and historical integrity.
- Encourage sustainable stewardship of earth extraction activities, such as mining, sand and gravel pits, through state permitting; the Act 250 process; and the development of rehabilitation and reclamation plans for vacant, closed or unused earth extraction sites.

Chapter 6: Education

Purpose of the Education Plan

In accord with the principles of respect for the environment, sound economics and regard for community values, this plan describes policies and actions to support the highest possible quality education for Irasburg students from pre-kindergarten through grade 12, to prepare students for successive levels of education and employment, and to provide special educational opportunities for students with special needs. It supports lifelong learning opportunities for Irasburg citizens.

The Education Landscape

As it is for many Vermonters, education is a priority for Irasburg residents. And like towns throughout the state, Irasburg confronts the challenge of educating students to reach their highest potential in a context of declining enrollment, high cost per pupil, changing educational expectations, and societal stresses—all while preserving the town’s identity and meeting the evolving requirements established by the Vermont legislature.

Educational resources in Irasburg include a pre-school program, the Irasburg Village School, the After-School Enrichment Program, and Lake Region High School. Northern Vermont University, the Community College of Vermont and Craftsbury’s Sterling College provide local postsecondary and adult-education opportunities. The Irasburg Village School is part of the Orleans Central Supervisory Union, which includes six elementary school districts with pre-K through Grade 8 classes. The Lake Region Union High School in Orleans serves as the high school for the Supervisory Union.

Pre-school

A free public pre-school program offers excellent early education opportunities for Irasburg’s three-to-five-year olds. Held four days a week for full or half days, in two locations (Albany and Barton), the program incorporates Head Start and Early Head Start services and provides an exceptional resource for educational, social and emotional development.

K-8

The Irasburg Village School, located on VT Route 58 near the village Common, serves kindergarten through Grade 8 students. In May 2017, enrollment was 127. The school strives to provide a quality education for the students in a structured, caring educational environment. The school provides three seasons of inter-mural sports for the upper grades, as well as winter activities for all grades. The school encourages a culture of respect for all. Students participate in an active Farm-to-School program.

Private K-8 educational options include St. Paul’s School in Barton and United Christian Academy in Newport.

The Village School was built in 1973 using the “open classroom” concept. Over the past five years, walls and doors have been added to the nine classrooms. Nevertheless, the current layout is not always conducive to learning. The gym and lunchroom are the same room, the one place that all students pass through to reach classrooms. The only shower facility is located in the nurse’s office bathroom. The school uses an all-purpose room for music and art classes; it also serves as a teacher lunchroom and meeting space. The Resource Room houses Special

Education classes but affords no privacy for students and staff, a challenge for this population. The technology support station is at the end of the supply closet, and bathrooms separate the secretary's and principal's offices.

A Fall 2017 energy audit (a "Button-Up Irasburg" project sponsored by Efficiency Vermont) determined that the building's HVAC control system has reached the end of its useful life and needs replacement. Plans are in place to carry out that work, which will save energy, increase air quality and improve temperature control. The library, currently located in a windowless room on the second level, only accessible via stairs, will move to new space.

Long-term improvements for the building that will need future financing include:

- Separate gym
- Additional classrooms and meeting rooms
- A new phone system
- An emergency generator for electrical backup
- Paved driveway

The lack of a generator and limited bathing facilities make the building problematic as an emergency shelter, despite its size as the biggest building in town.

After-School and Summer Enrichment

Sponsored by the Leach Public Library and led and staffed by Irasburg educators, the Enrichment Program has quickly become established as a key contributor to the educational opportunities for Irasburg students. From its inception in 2015, the Enrichment Program has offered after-school activities and classes in subjects as diverse as dinosaurs, pottery, cooking, African art, circus tricks, mathematics, tumbling, French, Spanish, animals, and disaster response, among others. Summer camps have presented classes in African drumming and dance, as well as art, gardening and storytelling. Students pay a modest tuition fee for each class. Generous support from the Town of Irasburg's budget and from many local and state granting institutions provides the financial base for the Enrichment Program. Limited scholarships are available for Irasburg students. Classes are always full (or oversubscribed), meaning that applicants from other towns must be turned away.

Secondary Education

Students entering high school (9th grade) attend Lake Region Union High School in Orleans, which offers a full academic and extra-curricular schedule as well as hands-on career training. In 2017-18, 54 Irasburg students attended LRUHS. There are a number of private options for high school in communities surrounding Irasburg, such as Burke Mountain Academy, St. Johnsbury Academy and the United Christian Academy in Newport.

Career and Technical Education Centers

Northeast Kingdom options for hands-on secondary and post-secondary education and career training. Include the North Country Career Center in Newport, which offers a variety of technical programs, including skills such as agriculture and forestry. The Lyndon Institute offers adult education programs with in-person, online, and off-site courses.

Post-Secondary Education

Nearby colleges and universities include Northern Vermont University with campuses in Johnson and Lyndonville, as well as Sterling College in Craftsbury. They offer a range of bachelor's and master's degree programs and opportunities for continuing adult education. The Community College of Vermont has a Newport campus. The CCV mission is to support and challenge all students in meeting their educational goals through an abiding commitment to access, affordability and student success. Following up on the success of the After School Enrichment Program for Irasburg elementary school students, the Leach Library Board of Trustees is investigating ways to expand educational and enrichment opportunities for adults in the community.

Goal

In accord with Irasburg's planning principles of respect for the environment, sound economics and regard for community values, all of Irasburg's students receive the highest possible quality education from pre-kindergarten through grade 12 through programs that meet or exceed federal and state standards, that prepare students for successive levels of education and employment, and that provide special educational opportunities for students with special needs. Irasburg citizens have lifelong opportunities for learning.

Actions

- Achieve an energy-efficient Village School by following the recommendations of the 2017 energy audit, to the maximum extent that budgets permit, including replacement of HVAC controls, installation of energy-efficient lighting, and, where feasible, onsite renewable energy generation. Use the energy-efficiency improvement process as a learning opportunity for students, staff and the community.
- Continue to pursue workable cost-effective enhancements to adapt the IVS building to support educational goals.
- Apply for Village Center Designation. Such a designation will permit Irasburg to pursue improved pedestrian and bicycle transportation options, including development of a multi-use path from the Village Center to the Irasburg Village School.
- Continue strong town support for the After-School and Summer Enrichment Program, sponsored by the Leach Public Library.
- Encourage the widest possible community participation in educational policy- and decision-making at all levels, from state to local school board.
- Seek out and publicize opportunities to bring adult education and enrichment programs to Irasburg, for example, Efficiency Vermont's seminars on energy conservation, and the Old Stone House's Irasburg history resources. With the Leach Public Library, pursue the development of a "University of Irasburg" pop-up community university modeled on "Bethel University" in Bethel.

Chapter 7: Adjacent Towns and the Region

Purpose of the Adjacent Towns and Region Chapter

This chapter describes how the Irasburg Town Plan relates to the plans and trends for adjacent towns and the Northeast Vermont region of Vermont. The town of Irasburg lies within Orleans County in Vermont's Northeast Kingdom, comprising Caledonia, Orleans, and Essex Counties. Six towns border the community: Coventry, Newport Town, Lowell, Albany, Barton, and Brownington.

Albany

The town of Albany, located south of Irasburg, finished developing its town plan in late 2016. The primary roads connecting Irasburg to Albany are VT Route 14 and the Creek Road. These roads follow the Black River and Lords Creek, respectively. Development along both sides of the shared town line with Albany is primarily rural residential in nature, with working farms in the river valleys and forested uplands. Irasburg and Albany share solid waste facilities. Citizens of Albany have formed the Albany Community Foundation to strengthen the economic and social well-being of the town. A primary goal is to rebuild the Albany General Store as a center for community life.

Lowell

The town of Lowell, located east of Irasburg, has both an adopted Town Plan in effect (August 31, 2014) and a Zoning Bylaw (March 4, 2003). Lands bordering Irasburg under Lowell's zoning bylaw are designated as "Conservation – Mountain" (primarily forested lands 2,000 ft. or higher in elevation) or "Rural – Residential." The latter district includes scattered residential development, farms, and forests. The primary road connecting Lowell with Irasburg is VT Route 58. North of, and paralleling the highway, is an electric transmission line. Watershed drainage from the Lowell Mountains flows into to the Black River. Irasburg and Lowell share the Kidder Hill ridgeline. While Irasburg voters have overwhelmingly rejected utility-scale wind turbines on the town's ridgelines, Lowell has supported ridgeline wind on Lowell Mountain.

Newport

The town of Newport borders Irasburg's northwest corner. Poutre Road, a Class 3 town highway, is the only road connecting the two towns. The town of Newport has an adopted Town Plan (June 2015) and a Zoning Bylaw (Feb. 2, 2006) in effect. The area of Newport adjacent to Irasburg is known as South Newport (also known as Coventry Gore). This area is mostly uninhabited, but with some scattered residential development and some agriculture.

Coventry

The town of Coventry borders Irasburg to the north. The main roads connecting the two communities are U.S. Route 5 and VT Route 14, intersecting near the town line. A significant number of trucks use these highways to travel to and from the Waste USA landfill in Coventry, the only such facility in operation in Vermont. The truck traffic tears up the roads, in particular Route 14, in Irasburg. Additionally, there are many trips through Irasburg to reach the city of Newport and Jay Peak Resort – both north of Irasburg--and then returning. Near the Route 5 and 14 intersection are a church, a mini-mart/gas station, a Post Office, the elementary school, the Post Office and the town offices. The Coventry Town Plan (adopted July 8, 2013) identifies this area as one that could become a focal point for future development. There are also Class 3

roads connecting the towns – Hillandale Road, the Back Coventry Road, River Road, and Covered Bridge Road.

Brownington

The town of Brownington adopted its Town Plan in September 2015. The two towns share no direct road connections. Land uses are rural on both sides of the town line, and Brownington is isolated from Irasburg by the Interstate 91 right of way.

Barton

The town of Barton and village of Orleans border Irasburg to the east. Barton's Town Plan was approved by the voters in 2018 and recommended by the NVDA review committee for regional approval. A Zoning Bylaw (March 27, 2006) in effect, with updates being drafted. The Joint Plan and Bylaw apply to the Town and the incorporated Villages of Barton and Orleans. Barton is connected to Irasburg by U.S. Route 5 and VT Route 58, by Burton Hill Road, and also by Lake Region Road (serving the union high school and connecting to Route 58). Irasburg students are part of the Orleans County Supervisory Union and attend Lake Region Union High School. There is some limited commercial development along Route 5 in Irasburg to the northwest of Orleans Village and Interstate 91 at exit 26. Barton's plan is that Lake Region Road is residential in nature and should remain so into the future. The Willoughby River joins the Barton River near the shared town line, flowing north to Lake Memphremagog.

Northeastern Vermont Regional Plan

The Northeastern Vermont Development Association (NVDA) is the regional planning and development organization for Caledonia, Essex, and Orleans Counties. NVDA is required to maintain a regional plan for the three-county area, and also provide a classification of communities within the region based on their levels of development (i.e. size, public facilities and services offered, etc.):

Service Centers: Historically, a number of sub-regional service centers in the Northeast Kingdom met the everyday needs of residents, farmers and loggers in the surrounding rural areas. While the function of these service centers has changed somewhat over the years, these communities remain important centers for commerce, services, employment and community. The adjacent Town of Barton, with its two villages, is considered a regional service center.

Village Centers: The Northeast Kingdom has retained many of its small, traditional New England villages located in rural settings. These continue to provide convenient access to basic goods and amenities for the local population in the form of general stores, dining, and fuel. Villages also usually have some small-lot residential housing, and such community buildings as libraries, schools, town halls, clubs, and churches. Many villages offer services for visitors from outside of the region, including inns, bed and breakfasts, dining, and access to recreational activities. The Regional Plan considers the village area of Irasburg to be a Village Center.

Irasburg is confident this town plan is compatible with the formal and informal plans of its neighboring communities. Irasburg strongly supports NVDA's policies and recommendations on the development and siting of future energy facilities. Irasburg does not anticipate rapid growth within its borders in the coming years. The Irasburg Selectboard maintains communication with its neighbors and with NVDA. In particular, the Irasburg Planning Commission has developed this Town Plan in close collaboration and with the help of NVDA.

Chapter 8: Energy

Purpose of the Energy Plan

This Energy Plan outlines a path to a secure, stable, resilient supply of energy to sustain the development and quality of life that our citizens envision for Irasburg's future, in accord with the fundamental Irasburg planning principles of respect for the environment, sound economics and regard for community values. It aligns with the Regional Energy Plan of the Northeastern Vermont Development Association and the goals of the 2016 Vermont Comprehensive Energy Plan.

Irasburg's Energy Plan endeavors to incorporate all of the available and emerging tools to meet municipal, regional and state energy goals: conservation, efficiency, advances in energy technology, fuel switching and the development of appropriate community- and residential-scale renewable energy generation. The Plan considers a robust community where citizens work together to achieve common goals to be a key component of a workable energy plan.

Irasburg's Energy Plan has been developed with the aim of seeking "substantial deference" in Section 248 proceedings. This is not an academic exercise for Irasburg. With a developer's 2015 announcement of the proposed construction of utility-scale wind turbines on the town's dominant ridgeline, Irasburg has been forced to consider the potential effects of such development on our community. In response, Irasburg citizens have expressed deep concerns regarding the siting of large-scale renewable-energy facilities.

In October 2015, Irasburg citizens voted 274-9 not to allow the development of utility-scale wind projects on the town's ridgelines. At the same time, the citizens presented to the Selectboard a petition, signed by 421 of Irasburg's voters, asking the Selectboard to oppose the proposed ridgeline wind turbine project "by all means possible" and "To develop a town plan that protects all of Irasburg's ridgelines from industrial wind development." In a very real sense, the initial impetus for this Town Plan, Irasburg's first, comes directly from our citizens. This Plan expresses Irasburg's intent to seek a stronger voice in determining energy policy for our town.

Irasburg's Energy Plan also responds to citizens' values expressed in a March 2016 community survey¹⁶: preserving Irasburg's rural setting and historic character, supporting agriculture and forestry; and protecting wildlife habitat, water resources, ridgelines and steep slopes; and enabling a future of strengthened economic opportunity within a context that preserves the qualities they most value in the town they have chosen to make their home.

Energy generation and transmission systems that connect to the electrical grid are exempted from local land use regulation by 24 V.S.A. §4413(b). They are instead regulated by the Vermont Public Utility Commission under 30 V.S.A §248. These systems include net-metered distributed energy installations, as well as more utility-scale generation, transmission and distribution facilities. The town of Irasburg encourages the PUC to consider project conformance with regional and municipal plans before issuing a Certificate of Public Good for any proposed energy project whether located within Irasburg, or neighboring towns pursuant to Act 174.

¹⁶ Appendix A, Community Survey

The Town enjoys statutory party status in §248 proceedings, pursuant to 30 V.S.A. §248(a)(4)(F) and receives notice of applications before the PUC. The Town may participate informally by providing comments on a proposed project or may request more formal status as an intervener with rights to participate and appeal. Should the Town choose to intervene, it recognizes that it still must submit comments within the established timeframe in the application provided through the PUC’s website. Town participation in the state’s review process, based on the Community Renewable Energy Siting Guidelines, is one way to ensure that local conservation and development objectives are given consideration and weight by the PUC.

Until recently, the PUC has been obligated only to give “due consideration” to the recommendations of the municipal plan when determining if a proposed project will not “unduly interfere” with the orderly development of the region. Vermont statute does not define “due consideration,” nor does it indicate who shall determine what constitutes “due consideration.”

Act 174 of 2016 established a new set of energy-planning standards. If they meet these standards, regional and municipal plans may carry greater weight—“substantial deference”—in the §248 process. Unlike “due consideration,” “substantial deference is codified to mean:”

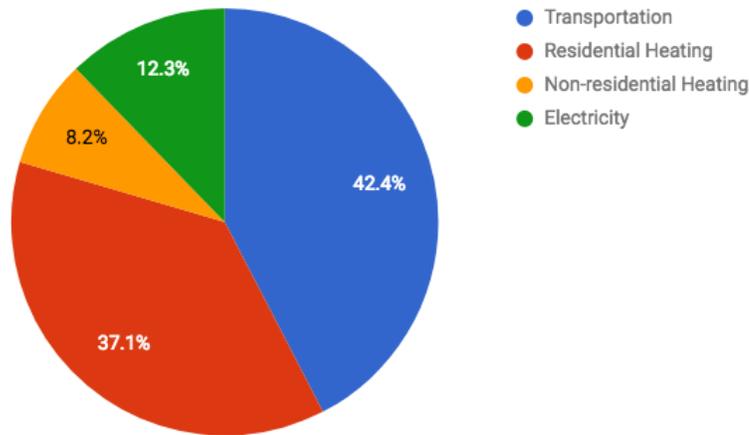
“...that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy.”

The Town of Irasburg has developed this Energy Plan to receive substantial deference under Act 174 in order to have a greater say in the siting of renewable energy projects in our community.

Energy Use

NVDA estimates that thermal energy for heating space and hot water accounts for the largest share of energy use in Irasburg, closely followed by transportation.

Figure 8.1 Irasburg's Current Energy Use



Source: Irasburg Energy Profile from NVDA

Thermal

NVDA developed its residential thermal estimates using American Community Survey 5-Year Estimates for primary heating sources. Average household square footages were developed from ACS estimates as well as American Housing Survey estimates. Although this calculation uses best available data, it clearly has some limitations. Like most Northeast Kingdom residents, Irasburg residents are likely to use multiple heating sources. The NVDA estimate accounted for the age of housing stock, since pre-1940 housing structures are likely to be poorly insulated and leaky. In Irasburg, 20 percent of owner-occupied housing and 15 percent of renter-occupied housing dates from before 1940. The NVDA estimate assumed 80,000 BTUs per square foot for pre-1940 housing stock, 45,000 BTUs for housing built later than 1940. Total thermal usage for occupied housing is estimated at 64,562 MMBTUs at a total cost of \$696,499¹⁷.

Table 8.01 Residential Heating by Fuel Source

Fuel Type: Space Heating	House -holds	Total avg. use (Annual)		% Use: (All HHs)	% Use: Owner	% Use: Renter	% Cost (All HHs)
Tank/LP/etc. Gas	36	32,599	gallons	6.9%	3.9%	22.1%	11.9%
Electricity	7	188,068	kWh	1.3%	1.6%	0.0%	4.1%
Fuel Oil	276	175,666	gallons	53.0%	51.5%	60.5%	56.2%
Wood	189	854	cords	36.3%	40.0%	17.4%	27.8%
Coal/Coke	0	0	tons	0.0%	0.0%	0.0%	0.0%
Other	13	0		2.5%	3.0%	0	0

Source: Irasburg Energy Profile from NVDA

No information is available on heating sources for non-occupied seasonal housing units, but Department of Public Service guidelines suggest that it is reasonable to assume that they account for about five percent of the average owner-occupied unit. Using this assumption, Irasburg’s 71 seasonal housing units account for another 465 MMBTUs annually.

Non-residential thermal estimates were developed using data from the Department of Public Service and the Vermont Department of Labor’s Economic and Labor Market Information. The Census does not have estimates of non-residential heating sources, but the DPS is able to estimate average heating loads on types of business. (Note: this method does not work for industrial uses, which are highly specific to the type of operation. However, Irasburg does not have any heavy industrial uses.)

Table 8.02: Non-Residential Heating Uses

Estimated number of commercial buildings, per VT. Dept. of Labor:	16
Average annual heating load per building:	897 MMBTUs

¹⁷ Refer to the NVDA Regional Plan for methodology used to determine these figures.

Estimated total heat energy consumption:	14,347 MMBTUs
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Source: Irasburg Energy Profile from NVDA

Irasburg residents have begun a shift toward more efficient heating systems over the past five years. They include wood and wood pellets as well as heat pumps, particularly for heating water. Many residents have a secondary, back-up heating source, for example wood heat backed up by oil.

Table 8.03 Cost of Fuels 2011-2016

Types of Energy	BTU/ Unit	November 2011			November 2016				
		Adj. Effic.	\$/ Unit	\$/ MMBTU	Typical Effic.	\$/ Unit	\$/ MMBTU	High Effic.*	High Effic. \$/ MMBTU
Fuel Oil, gallon	138,200	80%	\$4.08	\$36.89	80%	\$2.23	\$20.14	95%	\$16.96
Kerosene, gallon	136,600	80%	\$4.45	\$40.71	80%	\$2.80	\$25.65		
Propane, gallon	91,600	80%	\$3.37	\$46.05	80%	\$2.54	\$34.64	95%	\$29.17
Electricity, kWh (resistive)	3,412	100%	\$0.16	\$46.37	100%	\$0.15	\$43.46		
Electricity, kWh (heat pump)**	n/a					\$0.15	##	240%	\$18.32
Wood (cord-green)	22,000,000	60%	\$192.03	\$14.55	60%	\$227.00	\$17.21		
Pellets (ton)	16,400,000	80%	\$263.51	\$20.09	80%	\$275.00	\$20.96		

Source: Department of Public Service, Vermont Fuel Price Report (2011 Adjusted for Inflation)

Table 8.03 shows the various costs of heating sources available to Irasburg residents. When oil prices were high, many NEK residents turned to alternative fuels, especially wood pellets, which are cleaner burning and more efficient than cord wood and are relatively easy to use, since, unlike traditional wood stoves, pellet stoves and furnaces can be thermostatically controlled. Wood pellet prices have remained relatively stable in recent years, although some heating seasons have seen shortages in supply. Wood pellet stoves and furnaces may be a significant investment for most homeowners, so they have continued to use pellets even after the price of heating oil dropped. In 2018, Vermont Electric Co-op will be offering an on-bill credit of \$150 for wood pellet stoves. To qualify they must be installed in a building using an existing fossil fuel-fired heating system, and have <2g/hr of PM^{2.5}.

In 2015, the Vermont Fuel Price Report was amended to account for “high efficiency” ratings of furnaces that are manufactured to meet higher efficiency standards and can result in savings on energy for customers.

Heat Pump Technologies

The Vermont Fuel Price Report has also begun including information on electric-powered heat pump technologies, which deliver more heat than can be derived from traditional resistance heating. This high return rate, called a coefficient of performance, or COP, offsets the increased electricity use.

Geothermal, or “ground source heat pumps,” extract low-temperature thermal energy from the ground during colder months for heating and transfer thermal energy from the building to the ground in warm months for cooling. A geothermal system in Vermont can save roughly \$1,000 to \$2,000 annually in heating costs and have a “simple payback time” of 10-20 years. This technology operates much like a refrigerator, using a heat pump, heat exchanger and refrigerant. While geothermal systems do require electricity to operate the pumps, the systems generally deliver three to five times more heat than the electrical energy they consume, depending on the type of system.

In recent years, manufacturers have developed air-source heat pumps that operate more consistently over Vermont’s vast temperature ranges, thanks to new refrigerants and more advanced air compressors. Also called “cold-climate heat pumps” or “mini-splits,” these units also have a high COP allowing users to significantly reduce traditional, primarily fossil-fuel, sources. Unlike geothermal units, they do not require excavation or duct work and are therefore less expensive to install. Typically, one pump per room, or a multi-zone setup is required, which may pose a challenge for large older homes with multiple wings or ells. Despite recent improvements in effectiveness, sub-zero temperatures require a back-up heating source. Despite these considerations, cold climate heat pumps may be particularly useful in Irasburg as an effective supplemental heat source. In addition, heat pumps can be paired with net-metering systems to further offset energy costs, and reduce carbon-sourced power.

For many Irasburg households (average income \$48,393), cost is a barrier to transformation to heat-pump technology. However, market acceptance of cold-climate heat pumps appears to have reduced their costs since inception of the technology. Through the Cold-Climate Heat Pump Incentives of the Vermont Electric Co-op, Irasburg’s major electric utility, VEC members can work through Efficiency Vermont’s program to receive a \$600-800 discount on the initial purchase of a qualifying cold-climate heat pump. Once the cold-climate heat pump is installed, VEC members can receive an additional \$150 VEC bill credit for each heat pump installed. In 2018 the same TIER III program, which is tied to the state energy goals will expand to include heat pump water heaters.

Transportation

The development pattern of the Northeast Kingdom strongly influences energy use in transportation. Long commutes and incidental trips for the necessities of daily life require NEK residents to drive an average of 14,000 miles per year. Collectively, Irasburg residents drive almost 14 million miles annually, at a cost of over \$1.4 million. As Table 8.4 indicates, nearly all of this energy is non-renewable. Ethanol currently accounts for nearly all renewable

transportation energy use—about 6.5 percent—while electricity accounts for a minuscule .02 percent. As of January 2017, Irasburg has a grand total of two registered electric vehicles. Still, the selection and availability of EVs and plug-in hybrids is continually evolving and market acceptance statewide is growing. (According to Drive Electric VT, per capita Vermont is 6th in the nation for EVs.)

Approximately 15 trash-filled tractor-trailer trucks per day make two round trips through Irasburg on their way to and from Vermont’s only landfill, in neighboring Coventry, for a total of more than 58,000 annual VMTs within Irasburg’s boundaries. Since these large trucks consume significantly more fuel and produce more emissions than smaller personal vehicles, the effect on energy consumption and carbon emissions within Irasburg—and of course throughout Vermont—is considerable. New England Waste Services of Vermont has recently applied for an expansion permit to add capacity to the landfill. If approved, the landfill will last an additional 22 years at the present rate of waste deposit. Irasburg’s citizens appear to have few options for reducing this significant use of energy within the town’s borders. Opening more landfills in other locations and switching to rail transportation of garbage to reduce VMTs for garbage hauling are options that state and regional officials should investigate.

Table 8.04 Transportation Energy Use in Irasburg

Total vehicles:	Avg. annual vehicle miles travelled (VMTs) per vehicle:	Total annual VMTs:
989	14,000	13,846,000
Fossil Fuel Use	Ethanol Use	Total
572,721 gallons 69,448 MMBTUs	56,643 gallons 4,798 MMBTUs	74,246 MMBTUs \$1,416,068

Source: Irasburg Energy Profile from NVDA

Plug-in electric vehicles have the greatest potential to reduce Vermont’s statewide greenhouse gas emissions. Refueling by plugging into an electric outlet costs the equivalent of about \$1.00 per gallon of fossil fuel.

Currently, there are two types of EVs:

- All-Electric Vehicles: An AEV can range as far as 80 miles on a single charge, but on very cold days this range can be cut in half. In the NEK climate, AEVs are therefore best used as a second car.
- Plug-in Hybrid Evs: A PHEV generally does not range as far as an AEV, but they can switch over to gasoline when the battery charge runs low, making this a more practical option for those with longer drives and greater distance from public charging stations. About 75 percent of EVs registered in Vermont are PHEVs.

Not surprisingly, Chittenden County has the highest concentration of EVs on the road—about one-third of all EVs in the state. Nevertheless, Northeast Kingdom drivers are beginning to use them as well. As noted, in January 2017, there were two EVs registered in Irasburg and 134 in the entire Northeast Kingdom. The highest use occurs in the region’s population centers: St.

Johnsbury, Lyndon, Hardwick, Derby and Newport. The nearest dealership is Lamoille Valley Ford in Hardwick. A number of public charging stations have been established around the NEK. Barton’s is the nearest to Irasburg. More charging stations may be needed to support expanded EV use; the confluence of heavily used state and local highways in Irasburg’s village center suggests its potential as a site for an EV charging station. To date, however, EV/PHEV users garner most of their “fill-ups” at home charge stations.

Table 8.05 Public Charging Stations for EVs in the Northeast Kingdom

Town	Location
Barton	Barton Village Offices
Danville	Marty's First Stop
Derby Line	Derby Line Unitarian Universalist Church
Hardwick	Lamoille Valley Ford
St. Johnsbury	Twin State Ford
St. Johnsbury	Pearl Street Parking Lot
St. Johnsbury	Northeastern Vermont Regional Hospital

Source: US Department of Energy's Alternative Fuel Locator

For many Irasburg residents, cost is a barrier to the transformation to EVs. Through Vermont Electric Co-op’s Electric Vehicle and Plug-In Hybrid Electric Vehicle Bill Credit, VEC members who purchase or lease a plug-in hybrid electric vehicle, can receive a bill credit of \$250 for the purchase of a new or used \$50 for each year of a vehicle lease (up to \$250). Customers of VEC who purchase full electric vehicles (EVs) will receive \$500, or \$100/year for leased EVs. State and federal tax credits, as well as manufacturers’ rebates, have the potential to increase the use of electric vehicles in rural areas with economic challenges.

Price volatility of gasoline in the first half of the past decade helped to spur an interest in the development of alternative fuels. Biodiesel is commonly made from soybeans, rapeseed (canola) and sunflowers, which can all be grown in Vermont. Biodiesel can be blended with diesel up to five percent for on-road vehicle use. Higher blends, up to pure biodiesel, can be used in off-road equipment and farm vehicles.

Research has shown that oilseed crops, when grown in rotation with other crops, can help to support sustainable, diversified and profitable agricultural enterprises. The Vermont Bioenergy Initiative, a program of the Vermont Sustainable Jobs Fund, provides early-stage grant funding, technical assistance and loans to producers. Currently, North Hardwick Dairy produces oilseed crops for use as fuel and food. Although the recent drop in fuel prices has somewhat reduced the incentive for farmers to enter biofuel production, NVDA encourages further innovation and research into this area as a long-range economic opportunity.

Electricity

Use

Irasburg’s electric utility data is collected by Vermont Energy Investment Corporation.

Customers are primarily residential; there are about 460 housing units in Irasburg and an estimated 16 commercial buildings. Thanks to efficiency and conservation measures, Irasburg residents have reduced their average electricity use in recent years.

Table 8.06 Annual Electricity Use in Irasburg, in KWh

	2014	2015	2016	Total
Commercial & Industrial	3,200,790	3,344,811	3,469,569	10,015,170
Residential	3,507,445	3,491,795	3,498,840	10,498,080
Total (2014-2016)	6,710,249	6,838,621	6,970,425	20,513,250

Source: Irasburg Energy Profile from NVDA

Irasburg’s residents have begun the process of improving energy efficiency; there remains considerable potential for improvement. During the drafting of this plan, the Planning Commission organized a workshop led by Efficiency Vermont and participated in the 2017 “Button-Up Vermont” initiative. These efforts provided information on the impact of local energy-saving efforts and led several citizens to make efficiency-related improvements.

Generation and Distribution

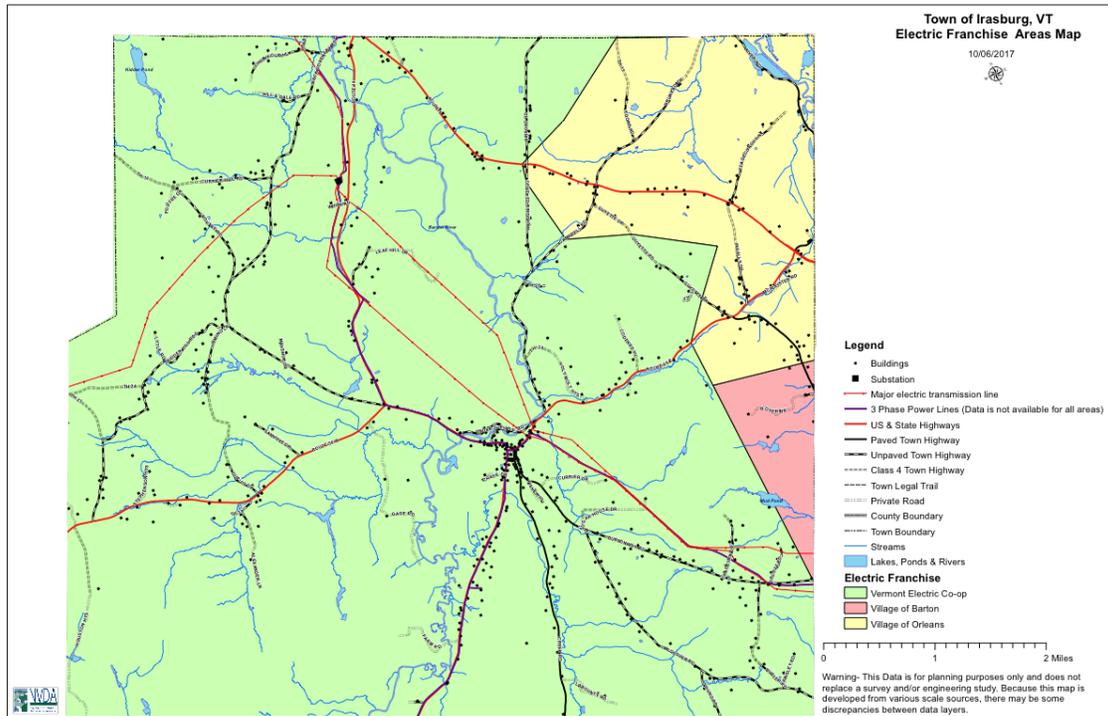
Irasburg is served by three electric utilities: Vermont Electric Co-op, Barton Electric and Orleans Electric. By far the dominant provider is VEC, which obtains 95 percent of its power supply from renewable sources. VEC is a member-owned electric distribution facility.

Table 8.07 Power Supply for Barton Electric, Orleans Electric and VEC

Barton Electric		Orleans Electric		Vermont Electric Coop	
%	Source	%	Source	%	Source
74.7	Hydro	54.5	Residual Mix	59.6	Hydro
13.2	Residual Mix	41.8	Hydro	19.4	Wind/Solar/Farm Methane/Wood
8.9	Landfill Gas	2.6	Biomass	17.9	Nuclear
2.5	Biomass	0.8	Standard Offer	3.2	Natural Gas/Oil
0.7	Standard Offer	0.3	Fossil		
0.1	Fossil				

Source: Irasburg Energy Profile from NVDA

Figure 8.2 Map of Irasburg showing utility coverage.



Barton Electric and Orleans Electric, like all municipal utilities in Vermont, are represented by the Vermont Public Power Supply Authority, which has broad authority to buy and sell wholesale power on behalf of all the municipalities. All the utilities obtain hydropower from various sources including Hydro Quebec and New York Power Authority. Biomass production includes the McNeil plant in Burlington and Ryegate Power Station, which distributes power through Vermont’s Standard Offer Program.¹⁸

All three utilities are expanding solar capacity. In late 2016, VEC opened a “community solar project” in Alburgh, which allows VEC customers to sponsor solar panels in exchange for a credit on their monthly utility bills. Two more VEC community solar projects were constructed in Grand Isle and Hinesburg in 2017. In 2015, VPPSA was awarded two standard offer contracts for solar projects in Lyndon, sized at 475 kW and 500 kW.

Two major legislative initiatives, Act 56 and Act 99, will drive the development and use of renewable energy in the coming years.

Act 56

This initiative establishes a Renewable Energy Standard for the portfolios of Vermont’s electric utilities:

¹⁸ Standard Offer is a program created by the Vermont General Assembly that allows developers of renewable projects to negotiate a multi-year contract to sell power at a fixed rate to utilities. The rates are set in an annual bidding process.

Tier I: Starting in 2017, existing total renewable energy will rise four percent every three years to reach 75 percent in 2032. A utility can meet this requirement by owning renewable energy or renewable energy credits from any plant as long as the plant's energy can be delivered in New England.

Tier II: Utilities now have a distributed generator requirement connected to Vermont's electric grid. Starting in 2017, one percent of the utility's portfolio must be distributed renewable generation, rising six-tenths percent each year to reach 10 percent in 2032. Utilities can reach this requirement by renewable energy or RECs that have come into service after June 30, 2015, are 5 MW or less, and are directly connected to Vermont's grid (in-state generation).

Tier III: This is an energy transformation requirement that starts from two percent in 2017 and rises to 12 percent in 2032. Utilities meet this requirement either through additional distributed renewable generation or "transformation projects" that replace or reduce fossil fuel consumption. Such projects include home weatherization, installation of heat pumps, the use of biofuels, the retirement of propane or diesel generators, or incentives to purchase EVs. As smaller utilities, Orleans Electric and Barton Electric are exempt from this requirement until 2019, but VPPSA's program will likely include weatherization and heat pumps, biofuels, energy and storage and EVs and charging infrastructure.

Act 99

Net-metering—an arrangement whereby utility customers receive a credit for energy they generate that exceeds what they use—has been very popular in Vermont. Net-metering systems are capped at 500 kW. Act 99, which became effective in 2017, removed the cap on Vermont's utilities. Under early versions of the rule, PSB Rule 5.100, a utility program cap had been raised from four percent to 15 percent, meaning that the utilities have to take on net-metered systems on a first-come, first-served basis to all its customers until the cumulative generating capacity of all net-metered systems equals 15 percent of the utility's peak demand. Previously, solar generators received a "solar adder" for net metering. Act 99 eliminated the solar adder and replaced it with a REC adder, or penalty, and series of adjustments for siting solar on defined preferred sites that have already been disturbed: rooftops, parking lot canopies, brownfields and gravel pits. There is no site adjustment for installations of 150 kW or more, so the new net-metering rule tends to incentivize small developments away from open fields and other undeveloped areas. Notwithstanding the influences of the siting adjusters, net metering projects of up to 500 kW require attention to a series of siting concerns including set-backs, screening, storm water run-off and interconnection, and conformance with the overarching objectives of the Town and Regional Plans.

Irasburg currently has four net metering projects totaling 38 kW and an off-grid installation of 3 kW PV & 2.5 wind.

Table 8.08 Federal Subsidies for Renewable Energy Development

Program Name	Applicable Technology
Business Investment Tax Credit (ITC)	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Wind, Biomass, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, CHP/Cogeneration, Solar Hybrid Lighting, Fuel Cells using Renewable Fuels, Microturbines, Geothermal Direct-Use. This credit has been amended several times, most notably in 2015 in the Consolidated Appropriations Act, when the expiration date for these technologies was extended with a gradual step-down of the credits between 2019 and 2022. An investment tax credit is also available to homeowners (such as for solar installations) through 2021.
Modified Accelerated Cost Recovery System (MARCS)	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, Municipal Solid Waste, CHP/Cogeneration, Solar Hybrid Lighting, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines, Geothermal Direct-Use. Also amended in the Consolidated Appropriations Act, the “placed in service” deadline for bonus depreciation was extended to January 2018.
Renewable Energy Production Tax Credit (PTC)	Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power (i.e., Flowing Water), Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal. This credit phases down for wind commencing construction after December 2016 and expires for other technologies.

Source: NVDA Regional Plan

There are currently two community-scale solar projects under consideration in Irasburg. The Edlund Solar Project would occupy about one acre of land off Route 58 east and consist of approximately 144 kW of solar modules. Another installation in an expanding gravel pit, proposed by Boardwalk LLC Irasburg Northeast Sand and Gravel would occupy two to three acres and contain 500 kW of solar modules. For many reasons, renewable-energy generation has been slow to develop in Irasburg, but shows potential for carefully considered growth to ensure that respect for the environment, sound economics and regard for community values are maintained while encouraging appropriate renewable energy generation.

Getting to 2050: Irasburg’s Plan for Meeting Statewide Energy Goals

Irasburg’s energy plan support Vermont’s 2016 Comprehensive Energy Plan, which contains the following goals:

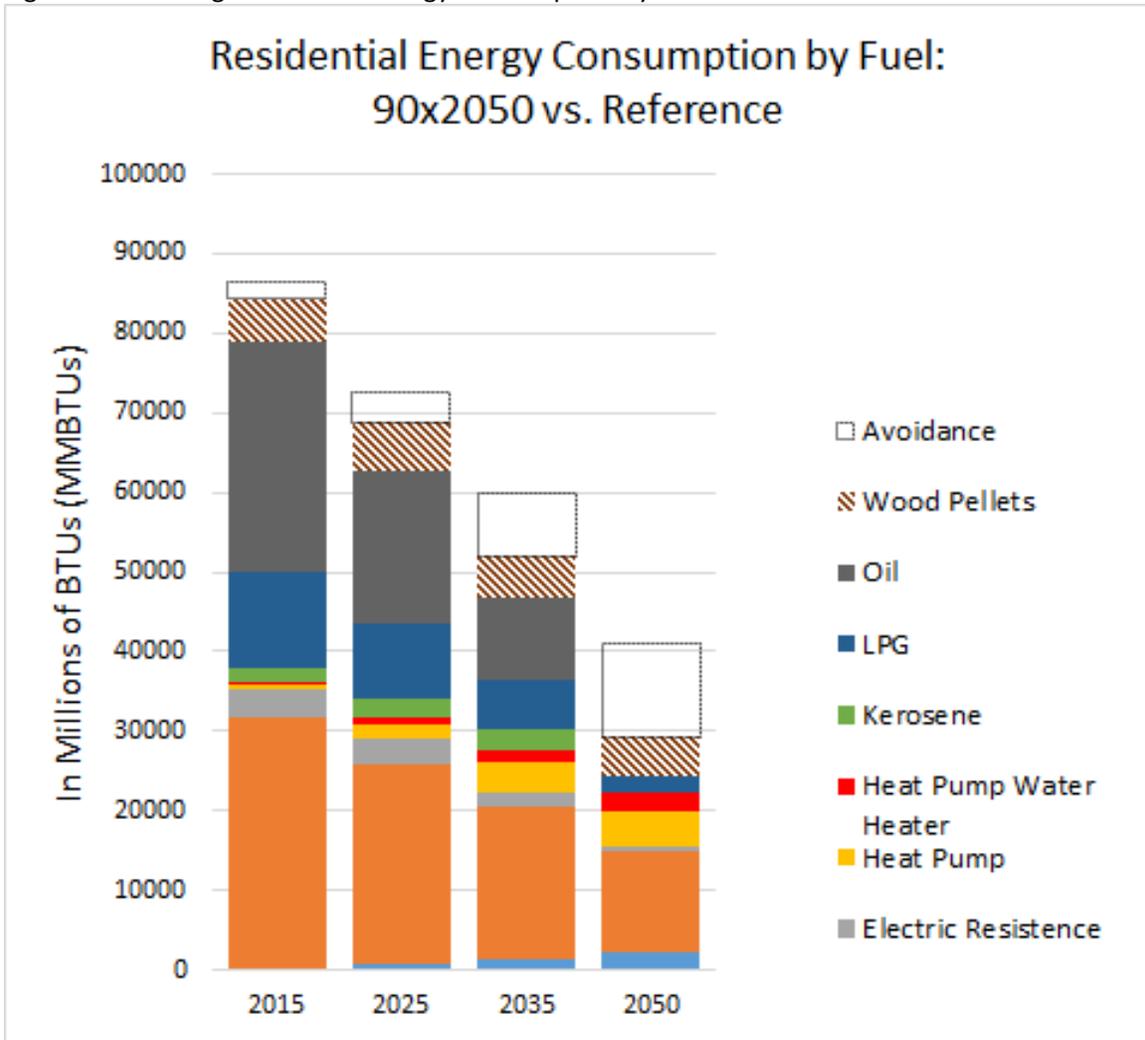
- Reduce the total energy consumption per capita by 15 percent by 2025 and by more than one-third by 2050.

- Meet 25 percent of the remaining energy need from renewable sources by 2025, 40 percent by 2035, and 90 percent by 2050.
- Achieve three renewable end-use sector goals for 2025: 10 percent transportation, 30 percent buildings and 67 percent electric power.

The chart below shows what the region total end use of ALL fuels might look like if the region met the “90 by 50” CEP goals. This scenario is based on Long-Range Energy Alternatives Planning, an integrated modeling that can estimate and track consumption across all sectors based on a set of assumptions, such as population growth. This LEAP scenario reduces demand enough to make 90 percent renewable energy possible. This scenario makes use of wood energy, but there is more growth in electric heating and transportation to lower total energy demand. Where the graphs show “Avoided vs. Reference,” that is the portion of energy that is no longer needed because of the efficiency improvements through weatherization, equipment upgrades and fuel switching. Despite a modest growth rate of population and economy, energy use declines because of efficiency and electrification. Electrification of heating and transportation has a large effect on the total demand, because the electric end uses are three to four times more efficient than the combustion versions they replace. This explains why even though wood heating (including cord wood) continues to play an important part in the area’s energy use, growth in electric heating reduces overall energy use.

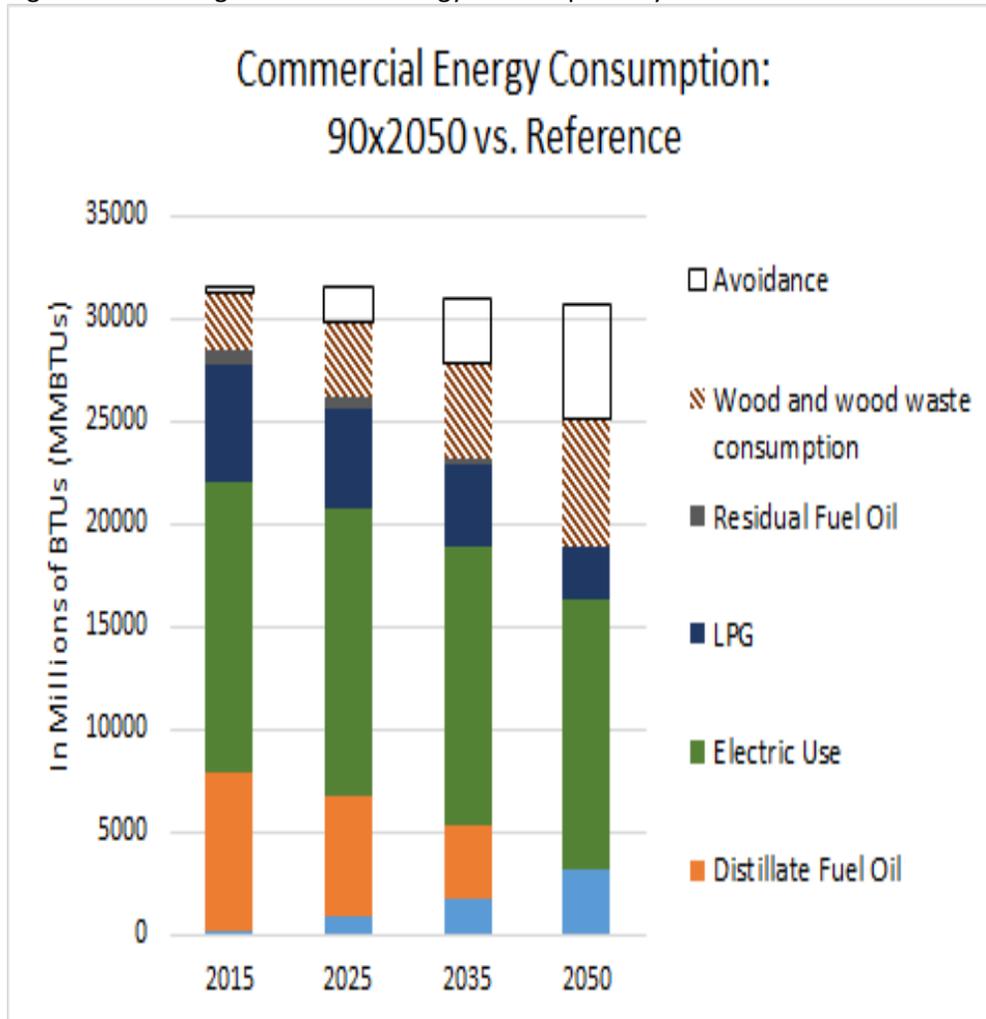
Energy efficiency is, generally, the most cost-effective method of saving energy and reducing the town’s carbon footprint. Therefore, pursuing energy-efficiency solutions such as home energy audits and energy efficiency retrofits should generally take first priority before the investment in the installation of renewable energy systems. The 2016 CEP states that efficiency will help to ensure an affordable and stable cost of doing business in the state, improve labor market conditions, drive production and drive improvement in demand-side thermal and electric efficiency and conservation. Vermont towns all have a role in helping their citizens achieve energy efficiencies and promoting emerging technologies that prove cost-effective.

Figure 8.3 Irasburg Residential Energy Consumption by Fuel



Source: Long-Range Energy Alternatives Planning model from Vermont Energy Investment Corporation (VEIC)

Figure 8.4 Irasburg Commercial Energy Consumption by Fuel



Source: Long-Range Energy Alternatives Planning model from VEIC

Thermal Efficiency Improvements

Regional thermal efficiency and weatherization efforts are spearheaded through two organizations: Efficiency Vermont and Northeast Employment and Training Organization. Northeast Employment & Training Organization, Inc. In the past decade, NETO has provided weatherization services to 39 homes in the town of Irasburg.; Efficiency Vermont has undertaken two such projects. In 2010, NVDA carried out an energy audit of all of Irasburg’s municipal buildings. Year by year, as funds allow, the town has carried out the recommended improvements, including window replacement, improved insulation and switching to LED lighting. The Town Clerk’s Office is next on the list. The Irasburg Village School carried out an energy audit, with student participation, in November 2017. Students will also take part in carrying out the resulting efficiency improvements recommended by the energy audit. The IVS has applied for a weatherization grant from Vermont Electric Co-op.

Below are targets for reducing heat energy demand, an essential component of meeting 90x50 goals. Increased fuel switching from non-renewables to renewables will not compensate for

lower weatherization targets. Conversely, more aggressive weatherization strategies will lower fuel-switching targets.

Table 8.09 Residential and Commercial Thermal Efficiency Targets

	2025	2035	2050
Estimated number of households	552	585	621
% of households to be weatherized	20%	33%	34%
# of households to be weatherized	112	195	208
Estimated number of commercial establishments	17	18	19
% of commercial establishments to be weatherized	5%	8%	14%
# of commercial establishments to be weatherized	1	1	3

Source: Irasburg Energy Profile from NVDA

These projections estimate a six percent increase in number of housing units/commercial establishments over each period. Weatherization projects are assumed to achieve an average of 25 percent reductions in MMBTUs for residential units and 20 percent for commercial establishments over each period, although some weatherization projects can achieve greater savings. Increasing the average savings will decrease the number of weatherization targets.

Electricity Efficiency Improvements

A small number of Irasburg residents have already made efficiency improvements by taking such measures as installing LED lighting and more efficient appliances. Below are targets for further reducing electrical energy demand. These targets are based on the projected number of households through 2050 multiplied by 1.5 (generally there are more utility customers than households). They assume an average savings of 400 kWh.

Table 8.10 Electricity Efficiency Improvements

	2025	2035	2050
Estimated number of residential customers	828	878	931
% of residential customers to upgrade electrical equipment	24%	36%	49%
# of residential customers to upgrade electrical equipment	200	314	460

Source: Irasburg Energy Profile from NVDA

Fuel Switching

Irasburg can achieve further reductions in energy use by fuel switching during the coming decades, for example by the installation of efficient wood heat systems and heat pumps as alternatives to fossil-fuel technology and by the increased use of plug-in electric vehicles. As in all other areas, the cost of fuel switching will be an important factor in achieving these efficiencies. State- and utility-sponsored incentives, as well as technological advances, that help to lower costs will help to make these targets achievable.

The tables below show Irasburg’s targets for thermal and transportation fuel switching.

Table 8.11 Thermal Fuel Switching Targets for Residential and Commercial Buildings

	2025	2035	2050
New Efficient Wood Heat Systems in Residences	287	236	171
% of households with Wood Heat Systems	52%	40%	28%
New Efficient Wood Heat Systems in Commercial Establishments	2	3	4
% commercial establishments with wood heat systems	14%	17%	22%
New Heat Pumps in Residential Units	85	180	228
% of households with Heat Pumps	15%	31%	37%
Estimated commercial establishments with Heat Pumps	1	2	2
% of commercial establishments with Heat Pumps	5%	9%	13%

Source: Irasburg Energy Profile from NVDA

Table 8.12 Fuel Switching Targets for Transportation

	2025	2035	2050
Projected number of light-duty vehicles in the area, by year	1,115	1,254	1,411
Number of vehicles powered by electricity	117	372	801
% of vehicles powered by electricity	10%	30%	57%
Number of vehicles using bio-fuel blends	793	545	95
% of vehicles using bio-fuel blends	71%	43%	7%

Source: Irasburg Energy Profile from NVDA

The projected number of vehicles in the area is estimated to be roughly commensurate with projections of population and households. Estimates assume a gradual increase in EV fuel economy from 3 miles per kWh to 4 miles per kWh by 2050. The switch to EVs in Irasburg will be challenging, requiring performance improvements on steep and often wintry terrain and

improved battery storage for long distances between charging stations. Currently, the paucity of plug-in charging stations in the Northeast Kingdom is one deterrent to the spread of EVs. The confluence of heavily traveled state and local routes in Irasburg’s village center makes it a promising potential location for a charging station.

Irassburg’s Energy Portfolio

The table below shows estimates of energy generation from existing renewable energy generation in Irassburg.

Table 8.13 Existing generation

Renewable Type	Capacity in MegaWatts (MW)	Capacity in MegaWatt Hours (MWh)
Solar	0.017	20.8
Wind	0.02	54.9
Hydro	0.0	0.0
Biomass	0.0	0.0
Other	0.0	0.0
Total Generation	0.037	75.7

Source: Irassburg Energy Profile from NVDA

Irassburg’s new net generation target in support of 2050 goals is 328 MWh. This target is based on Irassburg’s share of the regional population. Existing generation in Irassburg does not count toward the target, but the region already has a low net generation target because of the utility-scale wind production in Sheffield and Lowell. The region’s net generation target for new solar ranges from 246 MW to 377 MW There is no regional net generation target for wind.

There are three area farm methane digesters in Coventry, Newport Center, and Berkshire, and three in-state hydro producers in Troy and North Troy, and West Charleston generating power through the Standard Offer program (aka SPEED). While not located in Irassburg, they are part of a shared generation asset and the local economy. While there are no known SPEED projects in Irassburg, there are several agri-business scale farms, some who have explored system economics.

Irassburg has sufficient land for the orderly development of solar and residential and commercial-scale wind generation, according to NVDA’s mapping analysis. The maps shown here, **which are to be used to gauge overall siting potential rather than as a definitive siting tool**, identify known constraints as well as possible constraints:

- Known constraints are areas not likely to be developed for renewable energy because they contain one or more of the following: vernal pools; river corridors; FEMA floodways; significant natural communities; rare, threatened and endangered species; national wildlife areas; wetlands (Class 1 and Class 2); and elevations above 1200’.

- Possible constraints are areas that would likely require mitigation because they contain one or more of the following: agricultural soils; special flood hazard areas (outside of the floodway); protected and conserved lands; deer wintering areas; Act 250 mitigated agricultural soils; hydric soils and high-priority forest blocks.
- Areas not identified on the maps are not suitable for solar or residential and commercial-scale wind generation.
- These maps are for planning purposes only. They show potential areas where state and town constraints would not prohibit development of certain energy facilities. In the absence of state and town constraints, individual landowners, of course, may or may not choose to pursue such development.

Scale of Renewable Energy Facilities

This plan adopts the definitions of residential, commercial, net-metered and utility scale energy development illustrated below. (Source: Vermont Department of Public Service).

Figure 8.5 Energy-scale definitions

Solar

Using conservative estimates of prime solar acreage alone (i.e. no constraints) Irasburg has 1,277 acres with potential for solar development. About ten acres are required to produce 1 MW of solar power, according to VEC's CEO Christine Hallquist. Obviously, not every prime acre in Irasburg is actually available for solar development. Property owners may not wish to lease their land; interconnection costs may be too high; the electric grid may lack capacity; and certain sites may be unsuitable due to setback requirements, neighbor concerns or other factors. The plan therefore assumes a more conservative estimate of 1 MW for every 60 acres.

Rooftop solar—now a preferred site under Act 99—also offers development potential. While not every rooftop is a viable site, encouraging the maximum number of residential rooftop solar installations could produce considerable output by 2050. Rooftop commercial, which might include barns and other outdoor structures, also offers some limited potential for solar development, but can be at odds with larger, more cost-effective renewable projects.

For residential rooftop solar, NVDA had calculated about 10% of all residential structures (60), with an average capacity of 4KW, and a total MWh capacity of 296. NVDA estimated nearly 40 kWh in solar from two small commercial structures.

Wind

It is the position of the NVDA that no further development of utility-scale wind turbines should take place in the Northeast Kingdom. It is the position of the citizens of Irasburg, expressed by vote and by petition, that no development of utility-scale wind takes place on the town's ridgelines. Any future new wind generation will be residential- and commercial-scaled with a maximum height of 150 feet and a maximum energy of 100 kW with a setback of 10 times the height of the facility from full-time or part-time residences. Our analysis assumes about 9.5 kW (typical of a small-scale turbine) for every 25 acres of Irasburg's 838 acres of prime wind areas. This conservative scenario yields an estimate of nearly 14 MW in potential output, with a total output of 17,128 MWh.

Hydro

Irasburg has no areas identified as suitable for hydro generation. It is highly unlikely that the town could establish a hydro facility of any scale. Nevertheless, hydro should be considered an important part of Irasburg's energy portfolio, because of hydro's important contribution to the energy portfolios of the utilities that serve the town. While it is true that hydro power facilities can alter the ecosystem of a waterway, causing stress to fish populations and riparian-habitat wildlife, the existing FERC relicensing requirements may reduce or even eliminate some of the in-state hydro facilities that currently serve our region and utilities.

Biomass and Methane

Irasburg has a high proportion of forested and agricultural land. Our own extensive woody biomass holds significant potential to reduce the town's consumption of fossil fuel. Wood chips and wood pellets offer the greatest opportunity for transition to these fuels, while giving much-needed support to Irasburg's traditional forest economy and stabilizing fuel costs. Particularly if fossil fuel prices climb, the ease of handling, local availability, low emissions and general low costs of wood resources will promote an opportunity to expand this resource.

Methane, a common gas found in the environment, can be burned to produce electricity. Large amounts of methane are produced through the anaerobic digestion of manure, agricultural wastes, and other organic wastes. Large farms, of which Irasburg has two, have the potential to use this resource. However, on-site systems are costly. If state and federal grants, tax credits and incentives were sufficient to bring the costs within reach, manure-methane generation could have a place in Irasburg's energy-generation mix.

Depending on fuel costs and other market forces, the agricultural production of oilseed crops for biodiesel could also offer potential for Irasburg.

Combined, Irasburg has an estimated generation potential of 40 MW and 210,240 MWh from biomass and methane.

Opportunities and Challenges

Land Use and Development

Compact, mixed-use development can reduce residents' reliance on the automobile, vehicle miles traveled, and inherent system energy costs, including costs associated with maintaining roads and infrastructure. Targeting economic and residential growth within areas intended for more concentrated development allows people to walk to their destinations and makes public transit services between growth centers more economically feasible. At the site level, a south-facing building orientation and landscaping can effectively reduce energy demand. Energy-efficient development patterns should be encouraged.

While smart-growth principles are worthy goals for Irasburg, they remain in many ways aspirational, with a number of land-use, economic and socio-political constraints. Irasburg's existing village center provides few opportunities for development. With little undeveloped real estate, the area lacks access to a waste water system and its dense clay soils are ill suited for septic systems. Adding a wastewater treatment plant would be cost-prohibitive for Irasburg. The village water system has limited additional capacity. An analysis of long-term development

trends in Irasburg shows that market demands favor scattered and dispersed development; and, as always, cost is a factor. While Irasburg is wary of land-use regulations to drive development, some planned measures could provide incentives for village-center reinvestment. Irasburg intends to seek Village Center Designation, and existing residences and commercial establishments have the potential to increase population density in the village center.

Transmission Constraints and Electricity Demand

Irasburg is served by severely constrained Northeast Kingdom transmission lines, which already carry the significant outputs from Kingdom Community Wind and Sheffield Wind projects. The NEK already generates far more power than it consumes. As a result, renewable projects sometimes have to be shut down because there isn't enough room on the grid for the energy being generated, according to a draft June report from the Vermont Electric Power Company (VELCO), which manages Vermont's electric grid. Both NEK wind generation sites have faced transmission challenges and shutdowns, leading to financial losses to the developers and utilities.

A 46 kilovolt (KV) line runs from Alburgh east to Sheffield. On that line are both the Sheffield and Kingdom Community wind projects. The line is referred to as the Sheffield-Highgate Export Interface (SHEI).

According to Vermont Electric Co-op's CEO, with all of the generators on the line running at capacity, there would be 350MW of electricity moving across the line, but the line only holds 250MW. All the power for Vermont from Hydro-Quebec also flows across that SHEI interface. In northern Vermont, nearly all of the energy already on the grid is renewable. Thus, adding more renewables to a full grid means shutting other renewable sources down. Upgrading the transmission grid to accommodate more power would be extremely expensive, a cost that would be borne by ratepayers. In addition, efficiency measures have further driven down local demand for electricity. As a result, both VEC and Green Mountain Power oppose a number of recently proposed renewable projects in the area, including the proposed Kidder Hill utility-scale wind project in Irasburg.

Energy storage would allow energy to be stored and used when, and where, needed. As battery technologies advance and costs come down, energy storage will offer another option.

The long-range solution to transmission constraints is beneficial electrification, the replacement of traditional fossil-fuel sources with electricity. Fuel switching, as in the installation of heat pumps and increased use of EVs, will reduce greenhouse gases and, ultimately, reduce costs to users.

The utility companies' Tier II credits required under the new Renewable Energy Standard will be helpful. As noted earlier, Vermont Electric Co-op already offers financial incentives to VEC members who purchase EVs. Additionally, VEC's Clean Air Program offers customized service to under-served and off-grid customers, such as maple syrup producers who require three-phase power to switch from fuel-burning operations. The VPPSA, which represents Barton Electric and Orleans Electric, is weighing a variety of options to meet the Tier III requirement. These programs offer a significant opportunity for Irasburg residents.

Siting Policy

The purpose of Irasburg’s municipal energy policies is to encourage a secure, stable, resilient supply of energy to sustain the development and quality of life that our citizens envision for Irasburg’s future, in accord with the fundamental Irasburg planning principles of respect for the environment, sound economics and regard for community values.

Irasburg’s energy policies support the development of renewable energy resources and facilities in Irasburg, while limiting the adverse impacts of such development on public health, safety and welfare; on Irasburg’s historic and planned pattern of development; on environmentally sensitive areas; and on our most highly valued natural, historic and scenic resources. These policies are consistent with related development, resource protection, and land conservation policies set forth elsewhere in this plan. These policies are to be considered in undertaking municipal energy projects and programs and in the review of new or upgraded energy facilities by the Town and by the PSB under 30 V.S.A. §248.

General Standards

1. In-place upgrades of existing facilities, including existing transmission lines, distribution lines and substations as needed to serve the town and the region: To the extent physically and functionally feasible, existing utility systems, including transmission lines, distribution lines and substations, should be upgraded or expanded on site or within existing utility corridors before new facilities or corridors are considered. This Plan does not support infrastructure upgrades for the sole purpose of exporting energy from new renewable energy facilities out of the Northeast Kingdom.
2. Irasburg supports appropriately sized¹⁹ and sited renewable energy development where the energy is largely consumed on site, or on contiguous property such as a large farm, school or business, to offset usage; and discourages large utility-scale installations where the developer seeks to sell power or generate credits for unrelated entities, at the cost, to Irasburg, of disruptive and disproportionate development.
3. The location of individual and net-metered renewable energy projects, community-based projects and other small-scale distributed –energy systems serving individual users should be carefully evaluated according to the criteria of respect for the environment, sound economics and regard for community values. Residential- scale wind generation facilities should have a maximum energy of 10 kW and a setback of 10 times the height of the facility from full-time or part-time residences. Farm and commercial- scale wind generation facilities should have a maximum energy of 100 kW, a maximum height of 150 feet, and a setback of 10 times the height of the facility from full-time or part-time residences. Solar energy installations, including solar trackers and roof mounts, should be sited so as to not to detract from the historic aesthetic of Irasburg’s central village square.
4. The Northeast Kingdom has experienced a sharp increase in the number of applications for renewable energy installations, which will worsen already congested transmission, especially at the Sheffield Highgate Export Interface where existing generation is frequently

¹⁹ See Figure 8.5, Energy-scale definitions for solar and wind facilities

curtailed. While Irasburg supports appropriately scaled and sited renewable energy development, the town has a commitment to ensure that such development is sustainable and feasible. Irasburg supports energy development that is consistent with land use and conservation measures contained in this plan, with long-range transmission plans and integrated resource plans in order to ensure grid stability and to minimize expense to ratepayers. To this end, Irasburg will collaborate with other municipalities, utilities, NVDA, and local and state officials to achieve energy development that is mutually beneficial to utilities and customers.

5. The location height, setbacks and access of renewable energy projects must not impair the pristine, iconic nature of the viewshed. They must minimize the visual and sound impacts to neighboring landowners; as well as the impact on wildlife crossings and habitat; erosion; and the conservation of natural and historic resources. Siting must avoid hazard areas such as floodplains and steep slopes, conservation areas where there will be adverse impacts on surface waters, primary agricultural land as mapped by the USDA Natural Resource Conservation Service for the state, and significant wildlife habitat. Impacts to forestland should be minimized by using existing roads and locating along existing forest boundaries to avoid forest fragmentation. Any project that requires a Section 248 proceeding must include an independent Visual Impact Analysis carried out according to best professional practice.
6. Because of Irasburg's central position in the Black River Basin, with a multitude of brooks and streams flowing into the Black River and thence into the international waters of Lake Memphremagog, the siting of energy facilities must give particular emphasis to flood prevention and the preservation of water quality. To prevent sediment from washing down the hillsides in extreme weather events, causing flooding and diminished water quality, energy siting must conserve and protect upland headwaters.
7. From the outset, siting decisions should involve all affected stakeholders to the greatest extent possible. Among the stakeholders represented should be property owners and residents of adjacent properties; developers; seasonal residents; business owners; state and municipal officials; interested citizens; and the Agencies of Natural Resources and Agriculture, Farms, and Markets.
8. As new technologies emerge to generate, transmit and store energy, Irasburg will apply the same siting criteria—based on respect for the environment, sound economics and regard for community values—that the town currently applies to existing technologies.
9. Siting for utility-scale wind projects merits particular consideration in Irasburg, because of the utility-scale wind project proposed for the town's dominant ridgeline. Irasburg's citizens have had ample first-hand opportunity to observe the effects of such projects in neighboring NEK communities; and the citizens of Irasburg have voted overwhelmingly against the development of utility-scale wind projects on the town's ridgelines. Irasburg has paid close attention to the divisiveness that has accompanied such projects and the damage that they visit upon communities. Because of the importance of this issue for our town, Irasburg's Energy Plan reiterates here the position of the NVDA on utility-scale wind energy:

The NVDA sees one clear benefit to industrial wind energy, one clear problem, and a host of troubling questions. The clear benefit is the tax relief that industrial-scale wind turbines bring

to their host towns. The clear problem is the bitter divisions that wind brings to our communities. The troubling questions involve the unreliability of wind energy, the amount of energy produced versus the social and environmental disruption, the costliness of the electricity, and the dubiousness of the claims of environmental benefit. We are even more troubled by the potential impacts on human health, essential wildlife habitat, water quality, aesthetics, property values, and our tourism industry. We are also troubled by the state's energy policies, the state's permitting process, and the ease with which the public good as expressed in our municipal and regional plans can be overridden by people who may never have even visited our region.

It is the position of the NVDA that no further development of industrial-scale wind turbines should take place in the Northeast Kingdom.

For all of these reasons, and because of the 274-9 vote of the citizens of Irasburg to oppose the development of utility-scale wind, this plan takes the position that no development of utility-scale wind should take place in the town of Irasburg or within a distance of 10 times the height of a facility from Irasburg's borders, as specified in 30 V.S.A. §248, subsection 4(H), which reads:

H) The legislative body and the planning commission for the municipality in which a facility is located shall have the right to appear as a party in any proceedings held under this subsection. The legislative body and planning commission of an adjacent municipality shall have the same right if the distance of the facility's nearest component to the boundary of that adjacent municipality is within 500 feet or 10 times the height of the facility's tallest component, whichever is greater.

Energy Planning

The preparation and adoption of this plan represents the beginning of formal energy planning in the town of Irasburg. When the task of completing the Town Plan is accomplished, this plan recommends the formation of an Irasburg Energy Committee, taking advantage of the offers of support and guidance from Energy Committees from neighboring communities and from other organizations. The Energy Committee would strengthen Irasburg's efforts to increase efficiency in energy use and to increase the proportion of existing needs met by renewable energy while improving the general quality of life in terms of cost, comfort and convenience.

Goals

- To achieve a secure, stable, resilient supply of energy to sustain the development and quality of life that our citizens envision for Irasburg's future, through a combination of efficiency, conservation and generation, in accord with Irasburg's principles of respect for the environment, sound economics and regard for community values.
- To support Vermont's Comprehensive Energy Plan by meeting or exceeding the standards and targets set forth in this plan for energy use, efficiency, conservation and generation.

Actions

- Upon Town Plan completion, form an Irasburg Energy Committee to strengthen Irasburg's efforts to increase efficiency in energy use and to increase the proportion of

- existing needs met by renewable energy. Work with existing Energy Committees in neighboring towns to learn from their experience in developing best practices.
- Encourage weatherization of existing commercial and residential structures and energy-efficient construction practices for new construction. Participate in Efficiency Vermont's Button-Up Vermont initiative.
 - Support and publicize energy audit of Irasburg Village School and subsequent energy-efficiency improvements. Support and publicize student involvement in these efforts. Irasburg Village School will annually participate in the "Way-to Go Challenge," with the goal of reducing the school's carbon emissions and raising awareness of energy-related issues among students.
 - Encourage energy efficiency in sugaring operations, making use of dedicated programs offered by Efficiency Vermont and electric utilities.
 - In partnership with the Selectboard, develop an Energy Communication Plan (with goals, key messages, target audiences, strategy and tactics) to build robust community awareness of available resources, opportunities and ongoing activities in energy efficiency, conservation and generation.
 - Continue to work in close collaboration and consultation with NVDA, the regional planning commission, to ensure that regional energy policy addresses Irasburg's needs and concerns and to influence energy-related policy at the state level.
 - In partnership with the Selectboard, develop improved Park & Ride facilities in close proximity to the Village Center to encourage car-pooling and reduce single-occupancy vehicle trips.
 - Pursue Village Center Designation to encourage development and redevelopment in the historic Village Center; to access grant funding and training opportunities; to encourage improved pedestrian and bicycle access within the Village Center; to develop a dedicated Park & Ride facility; and to investigate the feasibility of installing an EV charging station.
 - Increase presence of rooftop solar on residential structures in keeping with the General Standards outlined elsewhere in this chapter. Ensure that all firefighters have current training for roof-mounted solar installations and wind installations.
 - Consult with the owners of large Irasburg dairy farms to investigate the feasibility of methane digesters. If feasible, Irasburg supports the installation of methane digesters on appropriately sized farms.
 - Work with electric utilities to identify and publicize opportunities to encourage fuel switching, including the potential location of a plug-in charging station for EV's in Irasburg's village center.
 - Irasburg supports state and federal "swap out" programs to update older models of outdoor wood boilers as well as incentives that encourage home and commercial owners of older wood boilers to upgrade to newer, more efficient models.
 - Complete actions recommended by 2010 energy audits of town buildings, as budgets permit, and publicize resulting energy savings, to serve as a model for cost-effective energy efficiency.
 - In collaboration with the Selectboard, consider developing an Irasburg website to support community awareness and engagement on energy-related issues and opportunities (among other purposes); and to develop more complete baseline data on energy usage.
 - Work with Leach Library after-school enrichment program to introduce energy- and environmentally-related program offerings for Irasburg elementary-school students.

Strengthen energy-related educational opportunities for adults through “Button-Up Vermont” and other Efficiency Vermont Programs and the potential University of Irasburg.

- Encourage the further development of a weekly farmers’ market on the Irasburg Common to promote local food consumption and to conserve fuel that would be otherwise used to transport food from long distances.
- Support the NEK Food Cycle Coalition and NVDA in efforts to implement Vermont’s Universal Recycling Law, Act 148, to reduce truck traffic driving to the Coventry Landfill.
- Complete and gain approval for Irasburg’s first Town Plan!
- Build a robust sense of community among Irasburg’s citizens, recognizing that a culture of trust and mutual support is key to the preservation and enhancement of the quality of life that Irasburg citizens value.

Chapter 9: Housing

Purpose of the Housing Plan

The Housing Plan outlines policies and actions to support safe, affordable, energy-efficient housing for the residents of Irasburg at all stages of life, in line with Irasburg's planning principles of respect for the environment, sound economics and regard for community values.

Irasburg is a largely residential community where residential development follows the pattern that has historically characterized the town's development: a concentrated Village Center of dense business, civic, and residential uses, with residential dwellings and small businesses located along the principal routes radiating from the center. (See Figure 2.1, map of Irasburg in 1878.) This historic pattern of development in the Village Center and along the roadways protects and preserves the integrity of the forests and agricultural lands that Irasburg citizens value. Future development is likely to follow a similar pattern.

Trends

Irasburg's population reached the highest level measured to date in 2010, with 1,163 residents. The population declined in the mid-1900s but has been steadily increasing since. Housing data for Irasburg dates back to 1940. As the population increased, so did the number of housing units. In the 2010 - 2014 American Community Survey, Irasburg had 541 housing units containing 462 households. From 2000 to 2010, the number of housing units in Irasburg increased 9.74 percent, faster than the 8 percent population change.

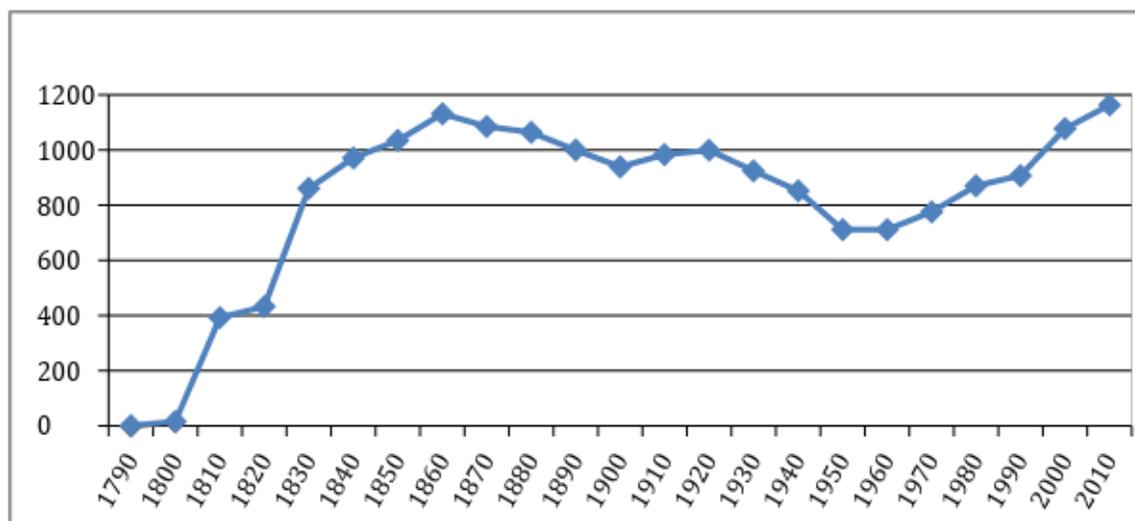


Figure 9.1 Irasburg Population

Housing Supply

The majority of Irasburg's residents live in owner-occupied single-family homes. Half of Irasburg's residences were built before 1979. Changes to fire codes and asbestos and lead laws since 1980 mean that many residences may be unsafe or out of compliance with today's safe housing standards.

Family sizes have shrunk substantially since 1979, with Irasburg's average family size down to 2.85 people compared to 3.24 people in 1990 or 7.00 in the 19th century. Larger homes were built to accommodate large families, often including extended-family members. Maintaining a

large old home can present challenges. Homes built before 1970 often fail to meet modern construction and efficiency standards and, without renovation, can be expensive to maintain.

The vacancy rate is fairly low, about 15 percent, making this a tight housing market for residents looking to move to Irasburg or within Irasburg.

	Owner Occupied	Renter Occupied	Vacant
Total	395	83	74
Buildings with 1 unit	339	29	Unknown
Buildings with 2 units	0	18	Unknown
Buildings with 3+ units	0	17	Unknown
Mobile Homes, other	56	19	Unknown

Source: 2010- 2014 American Community Survey

Just 10 percent of Irasburg’s housing supply is seasonal. In other Northeast Kingdom communities, seasonal housing can present complications, as the sale price of seasonal units is consistently higher than the cost of other housing. That trend does not seem to carry through to Irasburg. Should property owners choose to become permanent residents, converting seasonal units to year-round units offers benefits and challenges. Upgrading housing for year-round use can incur significant costs, such as the cost of installing appropriate septic systems or weatherizing, but improvements to these units may benefit the town’s grand list.

	2010	#	2012	#	2013	#	2015	#
Residential <6 acres	\$131,087	10	\$123,666	14	\$63,483	16	\$123,129	15
Residential >6 acres	\$122,500	11	\$168,536	22	\$205,166	25	\$117,571	16
Seasonal	\$98,000	1	\$60,000*	2	\$20,725	4	\$42,500*	3
Mobile homes w/o land	\$25,000	1	\$32,025	3	\$993	1	\$20,000	1
Mobile homes w/ land	\$14,000	3	\$55,000	5	\$38,360	8	\$66,000	2
Farms	*	1	\$180,000	3	0	0		1

*Incomplete data

Source: Vermont Dept. of Taxes

Trends in Irasburg indicate that sale prices here are below the Orleans County average. For example, in 2014, the average cost of a single family home in Irasburg was \$141,668 while the average single-family home in Orleans County sold for \$158,049. Interestingly, the value of homes in Irasburg is higher than the value of the average Orleans County home, a difference of \$172,600 to \$156,300. An owner-occupied home in Irasburg appears to be worth more here than in other towns in the county (see tables below for a comparison of household characteristics in Irasburg and Orleans County).

People move to Irasburg, buy their own homes, and stay for a long time. Compared to residents of other Orleans County towns, Irasburg residents tend to have somewhat higher incomes.

Town	Population (2010)	Median Household Income (2009 – 2013)	Owner Occupied Housing Units (2010)	Median value of owner-occupied housing units (2009-2013)	Median monthly owner costs (2009-2013)	Median price of primary residences sold (2015)	Renter occupied Housing Units, 2010	Median Gross Rent (2009 – 2013)
Irasburg	1,163	\$48,393	381	\$172,600	\$910	\$95,000	81	\$688
Albany	941	\$38,125	325	\$148,300	\$784	\$143,750	70	\$633
Craftsbury	1,206	\$48,125	408	\$162,000	\$871	\$155,750	94	\$675
Lowell	879	\$48,875	282	\$142,700	\$975	\$115,000	58	\$1,029
Orleans		\$41,953		\$156,300	\$881	\$134,000		\$692
Vermont		\$54,267		\$216,800	\$1,208	\$198,000		\$875

Source: VTHousingData.org

	Irasburg	Orleans County	Vermont
% Owner occupied housing units	70.4%	52.9%	56.2%
% Renter occupied housing units	15.0%	17.1%	23.3%
% Vacant housing units	14.6%	30.0%	20.5%
Average household size	2.52 people	2.33 people	2.34 people
Median household income, all units	\$48,393	\$41,953	\$54,267
Median household income, owner-occupied	\$49,773	\$47,026	\$64,771
Median household income, renter-occupied	\$31,750	\$23,216	\$30,943
Median year householder moved into unit	1998	2001	2002

Source: Vermont Housing Data

Housing Affordability

Housing in rural communities varies widely in cost and condition. The State of Vermont classifies housing as affordable when the costs (such as rent and utilities or mortgage payments and taxes) are no more than 30 percent of income for a household earning 80 percent of the county median. The data showed in Table 9.5 estimates the median household income in Orleans County to be \$41,953. At 80 percent of this value, \$33,562, an affordable monthly housing payment for Orleans County households is approximately \$839 per month. As demonstrated in Table 9.5 both homeowners and renters are paying more than this amount for housing each month.

Renters are often in more unaffordable housing situations than homeowners. The average Irasburg renter spends 35 percent of his/her income on rent, a slightly higher amount than

other Orleans County or Vermont renters. The necessary hourly wage for a householder to rent “affordably” in Orleans County ranges from \$12.25 for a one-bedroom unit to \$18.35 for a three-bedroom unit. Vermont’s minimum wage is \$10.50 an hour, creating an affordability gap for renters, particularly those with children or households with only one wage earner.

While these costs include utilities, taxes, and insurance, they exclude one important factor: transportation. While no specific measures yet calculate the cost of housing and transportation, these two expenses are often the greatest expenses for households. Collectively, Irasburg residents drive almost 14 million miles annually, at a cost of over \$1.4 million. The development of a dedicated Park & Ride facility is one way to address both the energy use and the cost of transportation. Likewise, measures to improve energy conservation and efficiency not only reduce energy use but also have the potential to reduce the high cost of home heating.

There is one low-income housing option available in Irasburg. Rural Edge, a non-profit housing organization, owns and manages a low-income rental housing complex for elderly and disabled tenants.

	Irasburg	Orleans County
Median monthly homeowner costs	\$910	\$881
... with mortgage	\$1,295	\$1,210
... without mortgage	\$421	\$525
... as percentage of household income	21.50%	23.10%
Owner-occupied housing units at or above 30% of household income	34.60%	34.30%
Owner-occupied housing units at or above 50% of household income	16.80%	13.50%
Median gross rent	\$688	\$692
Fair market rent (2-bedroom unit)	\$767	\$767
Rental housing units at or above 30% of household income	56.20%	54.90%
Rental housing units at or above 50% of household income	25%	27%

Source: Vermont Housing Data using American Community Survey data from 2009 – 2013

The Housing Continuum

The “housing continuum” refers to the concept that people need different types of housing throughout their lives. Remaining part of the Irasburg community throughout their lives matters to many residents. Many grew up in the area, and 53 percent of respondents to the community survey said they stayed here, or moved back, because of family ties. Roughly one-third of Irasburg’s homeowners have lived in their houses since 2000, one-third moved in between 1980 and 1999, and another third moved into their houses in 1979 or earlier.

For residents to stay in Irasburg throughout their lives, requires a variety of housing options. The average age of an Irasburg resident is 37. The State of Vermont’s 2013 Population Projections report projects Irasburg’s population to grow anywhere from 4.5 percent to 14.1 percent between 2010 and 2030. These numbers indicate the need for housing a variety of people.

Senior citizens (65 and older), who currently make up 16 percent of Irasburg's population, may require special services, such as assisted living or nursing care. Many older residents may find it difficult to remain in the community because of lack of services. Often living on fixed incomes, seniors may struggle to pay housing costs. Twelve percent of Irasburg residents 65 and older live below the federal poverty threshold.

While it is difficult to quantify the number of residents with disabilities, it is estimated that 16 percent of the population has disabilities. However, there are no facilities in Irasburg that offer assistance.

Many Irasburg families also struggle financially. For single mothers, poverty is very real: of families headed by women, half of these struggled below the poverty level. Seventeen percent of all residents had incomes below the poverty level, according to the 2010 – 2014 American Community Survey.

Housing Strategies

The 2016 Irasburg Community Survey indicated that most respondents would like to see more single-family residential housing in Irasburg.²⁰ Providing more rental housing was rated high on the list of priorities for the next 10 years. To that end, Irasburg encourages property owners with available space to consider construction of energy-efficient, cost-effective housing units, adding more affordable options to the town's housing stock and providing income to property owners who have space available. Modular homes may offer an avenue to affordable housing that meets modern construction and efficiency standards.

Irasburg could consider partnering with existing housing organizations, such as Rural Edge, to locate, construct, and manage additional low-income or elderly housing. By receiving Village Center Designation, Irasburg would become eligible for Low-Income Housing Tax Credits. Applying to certain grant programs to support affordable housing construction or to conduct a housing needs study are other activities the town can take to address affordable housing. Qualified Irasburg residents benefit from income-related state property tax-abatements and similar state tax abatements for disabled veterans. The town of Irasburg offers property-tax abatement to disabled veterans.

Goal

At all stages of life, Irasburg's residents have access to safe, affordable, energy-efficient housing, in accord with the principles of respect for the environment, sound economics and regard for community values.

Actions

- Apply for Village Center Designation to obtain eligibility for tax credits and other programs aimed at preserving Irasburg's existing housing stock located in the village.
- Support partnerships with housing organizations, developers, utilities and government agencies, such as Efficiency Vermont, the Weatherization Program, VLCT, Vermont Electric Co-op and others, to support energy-efficient housing, both through high-efficiency new construction or through energy upgrades for existing housing.
- Continue participation in Efficiency Vermont's Button Up Vermont Program.

²⁰ See Appendix A, Community Survey

- Support efforts of NVDA and other regional organizations to address the need for a variety of housing to meet the needs of the housing continuum. Encourage the development of accessory apartments and modular homes as options to increase the supply of low- and moderate-income housing.
- New housing and improvements to existing housing in the Village Center should preserve Irasburg's historical architectural context.

Chapter 10: Economic Development

Purpose of the Economic Development Plan

This plan describes policies and actions to maintain and strengthen economic opportunity for the citizens of Irasburg, in keeping with the planning principles of respect for the environment, sound economics and regard for community values. It recognizes the importance of local economic resilience within a national and global context over which Irasburg has little control.

Much of Irasburg's local economy derives from the fields, forests, rivers and streams that characterize the landscape. Many residents work outside the town but choose to live in Irasburg for its quality of life. Future economic development should occur within the constraints of available municipal services. In line with community values expressed in the 2016 Community Survey²¹ and in community meetings, this plan encourages economic development that preserves the town's essential character.

Economic conditions today

Irasburg residents carry on a remarkable number and variety of commercial activities. Existing commercial enterprises, some of which are carried on as home-based businesses, include the following sectors:

Services

A small grocery store and deli; a convenience store/deli/gas station/weight station; a real estate agency; a meatcutter; a barbershop; three hair salons; several house-cleaning services; a video store and gun shop; a locksmith and security company; a purveyor of specialty foods and baked goods; a processor of hemp oil; a registered day-care center

Working Lands

Farms; a farm service business; a farm-equipment business; a sawmill; two cedar fence companies; two taxidermists; a sharpening service; a dairy supply business; logging and firewood operations; maple sugaring; a yoghurt producer; a bulk milk transport business

Travel / Tourism

A B&B; a campground; a summer camp

Industrial / Mechanical / Construction

Several building and excavation contractors; a concrete company; a stonemason; a foam insulation installer; several trucking companies; a small engine repair shop; a collision-repair shop; several vehicle repair, parts and maintenance shops; a gravel pit and asphalt plant

Besides these enterprises, Irasburg is the home of writers, painters, potters, woodworkers and other artisans who sell their work online, at craft shows and from their homes. Irasburg's small commercial center, located on the Common, includes Ray's Market and the U.S. Post Office.

The average annual unemployment rate in Irasburg was 4.8 percent in 2017, down from 5.1 percent in 2015. Almost three-quarters of residents (73.5 percent) work outside the town; 20 percent work outside Orleans County.

²¹See Appendix A, Community Survey

Safe, reliable and affordable childcare is an important resource for Irasburg’s economic and social well-being. The lack of sufficient childcare facilities poses a particular hardship to single parents and low-income families. The Vermont Department for Children and Families Bright Futures Child Care Information System lists one licensed child-care center in Irasburg. Independent day-care homes and relative care are other possible options. A free public pre-school program offers excellent early education opportunities for Irasburg’s three-to-five-year olds. Held five days a week for full or half days, in two locations (Albany and Barton), the program incorporates Head Start and Early Head Start services and provides an exceptional resource for educational, social and emotional development.

Regional agencies and organizations that offer child care programs or provide referrals to programs include Northeast Kingdom Community Action, Inc. (NEKCA), which oversees the Headstart and Early Headstart programs in the region; and Umbrella, Inc., which operates the Kingdom Childcare Connection program.

Working lands have a dominant role in Irasburg’s economy. Farms and forestry operations, plus support systems from mechanics and machinists, to equipment supply, contribute to the tax base and to employment opportunities. Industry-wide trends in dairying, forestry and maple sugaring have significant current and future implications for these industries. In particular, continuing low milk prices and uncertain global markets cast a shadow on the future of dairy farming throughout Vermont, with significant implications for Irasburg farms.

There are approximately 14 active dairy farms in Irasburg, of which two are classified as large (499 cows and up), two as medium (199- 499), and the rest as small (1-199). These farms, scattered throughout the town, have a significant impact on the community and the surrounding area as contributors to the economy, employers, and stewards of open space. They enhance the beauty and define the rural character of the community, as they have done for generations. Another farm raises buffalo and elk for their restaurant. There is one Community Supported Agriculture enterprise and a farm that raises rare breeds of poultry, goats and pigs. There are at least two commercial beekeepers.

Maple sugaring is an important economic activity in Irasburg, with 23 sugaring operations making more than 70,000 taps and producing some 25,000 gallons of maple syrup annually. Maple sugaring is a million-dollar-plus(!) economic activity for Irasburg. Canadian domination of the maple-sugar market strongly affects the price of US-produced maple products.

Forestry—cedar logs, pine and hardwood lumber, and greens for the Christmas holiday market—is an important economic generator. The town is one of the remaining few in Vermont with an operating sawmill. Quantifying the economic role of forestry in Irasburg is difficult, since many residents harvest timber from their property for construction, handcrafting, or firewood, and dollar values are not calculated for these secondary sources of income.

Economic development

Irasburg intends to change and grow within its means and in harmony with its character. Future commercial enterprises are encouraged to locate near existing infrastructure, such as power lines and roads, and to be compatible with neighboring uses. For both economic and environmental reasons, current businesses and future development should incorporate best

practices in energy efficiency and conservation, making use of resources and incentives from state programs such as Efficiency Vermont and electric utilities. Irasburg intends to apply for Village Center Designation. Such a designation would help to support energy efficiency and conservation initiatives.

Irasburg's residents support encouraging diverse economic development. The 2016 Community Survey²² showed strong support for home-based businesses, agriculture and forestry, value-added processing, professional services, day care centers, and tourism/ hospitality. The Survey showed strong opposition to large-scale retail business, such as "big box" stores, office/ business parks, and manufacturing/ industrial business.

This plan encourages agricultural and forestry enterprises throughout all of Irasburg, along with activities that provide value-added opportunities for these businesses: cheesemaking, wool products, a farmers' market and agritourism; and activities and events, such as Kingdom Farm and Food Days, Maple Open House Weekend and Open Farm Week, that bring visitors to farms and forests.

This plan encourages the development of commercial businesses including small convenience stores and grocery stores and enterprises that support tourism and hospitality, such as inns and cafes. Re-use of existing structures is a way to encourage redevelopment of Irasburg's historic buildings. Village Center Designation would play a key role.

Improving some of the town's amenities could help foster the type of development favored by Irasburg's residents. Reducing the speed and volume of traffic around the Village Center and Common and improving telecommunications infrastructure are examples. Improved telecommunications infrastructure would support home-based enterprises and allow workers to telecommute from home, saving time and energy. Reliable high-speed internet would give the many artisans in Irasburg critical access to online platforms for selling their products. It could also be used for home visits by physicians via Skype or similar platforms. Increasing the number of safe and affordable child-care options would help parents find and keep employment.

This plan encourages innovative and creative opportunities for economic development, particularly in efforts to make Irasburg a destination for Vermonters and visitors alike. In June 2016, Irasburg hosted a debate of Vermont gubernatorial candidates that drew an audience of some 300 people. Might that event mark the start of a series of Irasburg events that engage Vermont citizens in the discussion of civic and political issues of the times? The Irasburg Common is the crossroads for a growing volume of traffic at the intersections of Routes 14, 5, and 58. How might existing and future enterprises offer goods and services to attract the people passing through? How could Irasburg develop a "town brand," perhaps incorporating our Ira Allen heritage that would add value to new and existing businesses?

Goal

Irasburg's strong and resilient local economy provides a future of economic opportunity for the town's citizens, in accord with the planning principles of respect for the environment, sound economics and regard for community values. Development keeps pace with the ability of the town to provide services, incorporates best practices of energy efficiency and conservation, and

²² Ibid.

preserves Irasburg's natural and historic character.

Actions

- Apply for Village Center Designation.
- Encourage and support strong and diversified agriculture and silviculture.
- Support state and regional efforts to improve telecommunications so that all residents have access to affordable high-speed internet and mobile telephone service.
- Work with state legislators, agencies, NVDA, providers and other entities to increase the availability of safe, affordable childcare.
- Support the efforts of the NVDA, employers, and young adults to improve young people's access to meaningful employment; and to ensure that they are exposed to a broad range of future careers and have the ability to learn the skills needed for post-high-school employment.
- Seek out and encourage commercial ventures that match the village's scale and rural character, including home-based businesses and a farmers' market showcasing locally produced food.. This plan strongly discourages the development of box stores or similarly-scaled businesses in Irasburg.
- Create a business directory of home-based occupations in town to advertise and promote local businesses and assist residents and visitors in finding local businesses that meet their needs.
- Encourage innovative and creative approaches to using the town's natural, historic and human resources in support of a strong economic future. Develop an "Irasburg brand."
- Use every opportunity to strengthen trust and cooperation among Irasburg citizens, and discourage directions and developments that threaten to fracture and divide, in order to provide a context for citizens to work together despite their differences, for the common good.