VERMONT
LAND USE REVIEW BOARD
Application #:
RPC07-0001
Exhibit #: 003
Date Received: 5/26/26

EXECUTIVE SUMMARY

Under state statute, Municipal and Regional Planning and Development (24 V.S.A 4302), Northeastern Vermont Development Association (NVDA) follows a series of fifteen planning goals to encourage appropriate land use planning throughout the Northeast Kingdom (NEK). NVDA uses these guiding principles to assist towns in developing plans and creating our own Regional Plan. These planning goals encourage citizens to be part of the planning process, consider the consequences of growth and development, preserve important natural and historic resources, maintain and improve land resources make efficient use of energy, enhance recreational opportunities, ensure housing for all, improve access to childcare, encourage flood resilient communities, and equitably distribute environmental benefits and burdens.

PLAN PRINCIPLES & RECOMMENDATIONS

As previously mentioned, one of the planning goals considered is the 15th state planning goal, to equitably distribute environmental benefits and burdens as described in 3 V.S.A chapter 72. The intention of this planning goal is to improve environmental justice throughout the state of Vermont by identifying, reducing, and eliminating environmental disparities. Environmental benefits refer to assets and services that improve the function of communities and individuals. Environmental burdens refer to negative impacts to natural resources such as air, water, or land. Environmental benefits and burdens are considered in every chapter of this plan to demonstrate how citizens are impacted and provide avenues for improving quality of life in the NEK, especially for those that are considered vulnerable communities. The 15th planning goal is especially important to consider in a region that has regularly flooded and is facing the impact of climate change in recent years.

NVDA's planning team identified three additional principles that guide our planning process: equity, sustainability, and community empowerment.



Figure 1. Principles that guided our planning process.

In rural environments such as the NEK, there is an acute need to ensure that residents have equitable access to their essential needs, including housing, healthcare, education, transportation, and food. Sustainability refers to the thoughtful stewardship of resources for future generations. Support for sustainability in all its dimensions is critical to maintaining traditional ways of life in the NEK, a region made up of villages, waterways, working landscapes, and open space. NVDA's mission is to serve and empower

the 55 towns, gores and city; and three counties in the NEK. With the inclusion of clear action items, local case studies, existing conditions, regional policy statements, goals and community resources, this plan is intended to be relevant and useful to communities and individuals throughout the region.

VERMONT STATE PLANNING GOALS:

24 V.S.A. § 4302 establishes overarching planning goals that all plans (regional and municipal) should pursue:

1. To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.
2. To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.
3. To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.
4. To provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers.
5. To identify, protect, and preserve important natural and historic features of the Vermont landscape, including significant natural and fragile areas; outstanding water resources, including lakes, rivers, aquifers, shorelands and wetlands; significant scenic roads, waterways, and views; important historic structures, sites, or districts, archaeological sites, and archaeologically sensitive areas.
6. To maintain and improve the quality of air, water, wildlife, and land resources.
7. To make efficient use of energy, provide for the development of renewable energy resources, and reduce emissions of greenhouse gases.
8. To maintain and enhance recreational opportunities for Vermont residents and visitors.
9. To encourage and strengthen agricultural and forest industries.
10. To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.
11. To ensure the availability of safe and affordable housing for all Vermonters.
12. To plan for, finance and provide an efficient system of public facilities and services to meet future needs.
13. To ensure the availability of safe and affordable childcare and to integrate childcare issues into the planning process, including childcare financing, infrastructure, business assistance for childcare providers, and childcare work force development.
14. To encourage flood resilient communities.
15. To equitably distribute environmental benefits and burdens as described in 3 V.S.A. chapter 72.

Many of the above goals have policy statements that provide further definition. Regional plans (and municipal plans) are required to be consistent with these planning goals. For a plan to be considered "consistent" is actually defined in statute: it must make substantial progress toward attainment of the goals. This Plan been written with that statutory requirement in mind.

Regional Profile

NVDA's region is defined by the municipalities and villages that make up the NEK within Caledonia, Essex, and Orleans Counties. To the east of the region lies the Connecticut River and state of New Hampshire, while to the north of our region is Canada. Bordering our region to the west and south are additional Regional Planning Commissions, including Northwest Regional Planning Commission, Lamoille County Regional Commission, Central Vermont Regional Planning Commission, and Two Rivers-Ottauquechee Regional Commission.

People of the NEK

Although NVDA's region is the largest in terms of land area, it is the smallest in population. Caledonia County has the greatest population in the region of 30,233, according to 2023 U.S. Census Bureau data, as it contains three of the region's largest towns, Saint Johnsbury, Lyndon, and Hardwick. Orleans County is close behind with 27,393 residents and contains the regionally large municipalities of Newport and Derby. Also large in land mass, but small in population is Essex County with 5,920 residents, many small towns and the Unified Towns and Gores.

County	Population
Caledonia County	30,233
Essex County	5,920
Orleans County	27,393

Figure 2. Population per county. Source: U.S. Census Bureau, ACS 5-Year Estimates, 2024.

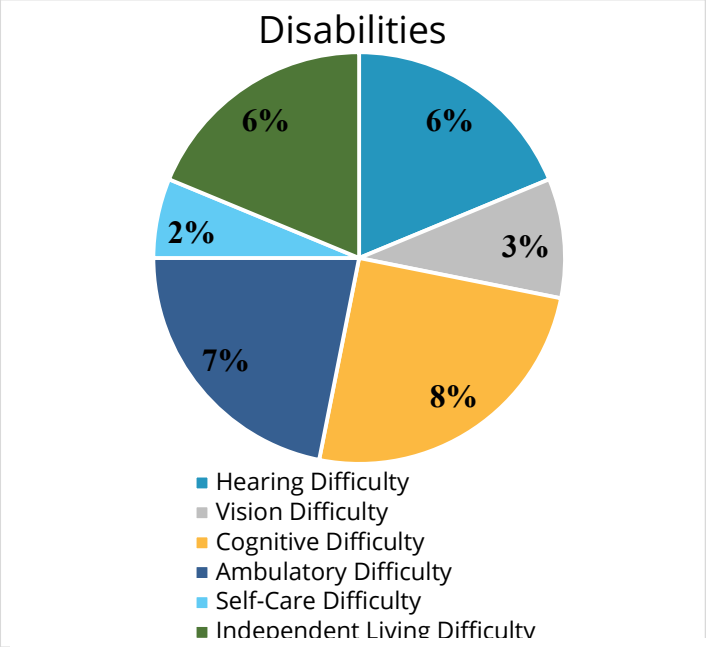


Figure 3. Disabilities.

Historically, the NEK is not a diverse community when it comes to race. The population is primarily white; however, the population of non-white community members has been growing over the last two decades. In comparing the 2010 and 2020 U.S. Census, Caledonia County has seen the greatest change in race as the non-white population has grown from 4.2 percent to 9.2 percent.

Of the NEK, approximately 18 percent of residents have a disability, and this is predominately seen in those age 65 and older. The categories in which disabilities are grouped by the U.S. Census include hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty. Of these disability categories, cognitive, ambulatory, and independent living difficulty are the most common.

Income and Affordability

The median household income in the three counties that make up the NEK are significantly lower than the statewide median household income, according to the 2024 U.S. Census ACS 5-Year

Estimates. The statewide household income for Vermont is $81,203. Orleans and Caledonia County have a median household income of $71,103 and $69,970, respectively. Essex County represents a slightly lower median household income of $59,294.

Although there are significant differences in the median household income between the state and region, there is less discrepancy in housing costs. The median monthly housing cost, across all unit types, is $1,373 for the state of Vermont. Similar in cost, the median monthly housing cost in Orleans and Caledonia County are $1,079 and $1,057, respectively. Essex County's median monthly housing cost is slightly less at $906.

Given the data provided, it is unsurprising that each county in the region has a higher rate of poverty than the state. The percentage of people living in poverty for the state of Vermont as of 2024, was 10.1 percent. Caledonia and Orleans Counties share the same percentage of the population living in poverty of 11.7 percent. Essex County's level of poverty is a bit higher, 13.8 percent.

Environmental Benefits & Burdens

The 15th statewide planning goal is new with the passage of Act 181. The need to equitably distribute environmental benefit and burden across our vast region has challenged us to think about our plan goals and strategies, and we have worked hard to integrate these principals through the plan.

This plan also identifies some larger recurrent themes, all of which are in some way related to the rural poverty and geographic isolation that characterizes the NEK.
When assessing the distribution of environmental benefit and burden, we must identify and consider the needs of environmental justice populations, which are defined in statute as any Census block with the following characteristics:

- The annual median household income is not more than 80 percent of the State median household income;
- Persons of Color and Indigenous Peoples comprise at least six percent or more of the populations; or
- At least one percent or more of households have limited English proficiency.

Census data, whether it's from the decennial Census or American Community Survey (ACS), is never entirely reliable when analyzing blocks in low population areas. ACS data is based on a sampling, so margins for error can be as high as 100 percent. ACS data on race does not align with the most recent decennial Census. However, a significant portion of our region qualifies as an environmental justice population from the income lens. (map) These patterns of long-term rural poverty also closely align with New Market Tax Credit eligible areas. The NMTC program exists to incentivize development in economically distressed communities.

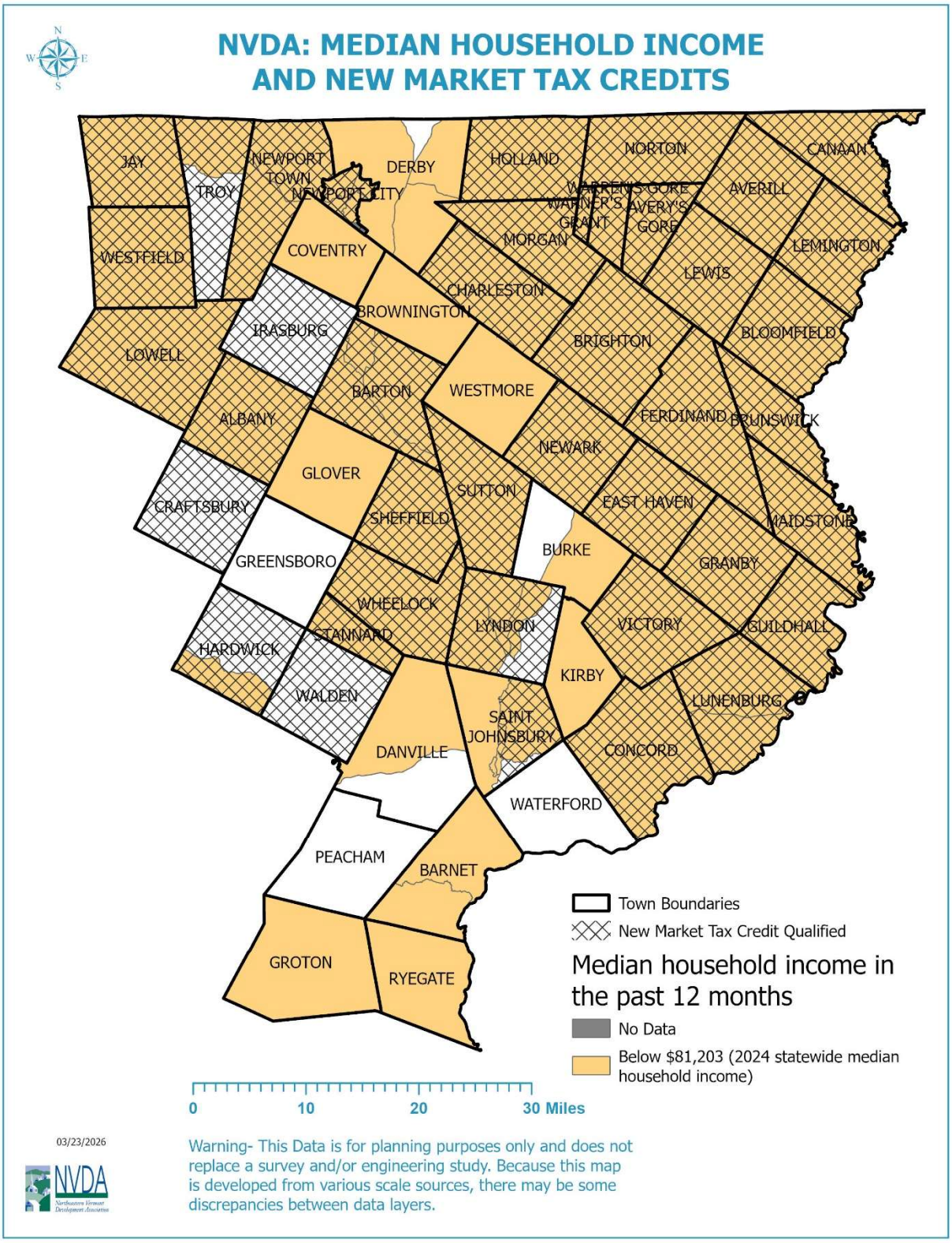


Figure 4. Median household income and New Market Tax Credit Qualified.

Long-term poverty, when exacerbated by rural isolation, heightens the following factors when evaluating environmental benefit and burden:

Natural and scenic resources-benefit vs. burden: NEK residents have access to a vast area of open spaces with unparalleled environmental integrity and scenic beauty. Although iconic natural viewsheds can be found in every one of our counties, this is especially true in Essex County, which has the one of highest concentration of interior forest blocks in the State. Residents directly benefit from countless opportunities for passive recreation and hunting.

Conversely many of our smallest towns are constrained by direct land conservation. Brunswick, for example, is more than 50% conserved through direct acquisition by state and federal government. In Victory, nearly three-quarters of its lands are directly conserved. Future acquisitions must be balanced against potential for lost tax revenue as well as limited developability that may contribute to long-term population decline. *(See Natural Resources).*

Regulatory burden of our natural assets may hamper employment activity, where self- employment, small-scale industrial and cottage industry is often an economic reality and a necessity. Such enterprises may involve intensive unenclosed uses, outdoor storage, and heavy equipment. While preservation of rural character is a worthy ideal to which we all aspire, self- employed persons cannot be expected to carry the biggest economic burden through disproportionately high permitting costs. When contemplating regulatory practices, municipal and state entities must consider income sensitivity. *(See Land Use, Planning and Policy Considerations for Rural Lands)*

In recent decades, our most rural assets have been considered (and sometimes used) for energy generation, much of which is exported out of the region. Lands with an elevation of 2,000 feet or more merit consideration as a special class of rural lands that should be protected from any large-scale commercial or industrial development characterized by a constructed height of 100 feet or more, and an acre or more of permanent site disturbance, such as clear-cutting. High elevation forest cover must be kept unfragmented for the attenuation of flood flows, carbon storage/sequestration potential, the benefit of wildlife habitat and linkage, and public enjoyment through recreation. Further, it is NVDA's position that no further development of commercial or utility-scale wind turbines should take place in the NEK. *(See Land Use, Planning Policy Considerations for Rural Lands and Energy)*

Agricultural assets benefit vs. burden: The NEK has a long-standing agricultural tradition. Although many dairy farms have disappeared from our working landscape, our region has experienced a renaissance in diversified production and value-added processing. There is a high degree of local food production in the Craftsbury, Hardwick, Greensboro, Glover, and Albany area. As evidenced in a recent New Yorker article, our corner of the state has attracted the national media coverage as a "foodie" destination. Nevertheless, dairy farming remains the heart of the region's working lands economy. According to the 2025 Vermont Dairy Report, dairy generates $5.4 billion annually, accounting for 58% of all agricultural sales, providing thousands of jobs, and contributing to a vital working landscape.

Our population, however, does not equally enjoy the abundance of local food. All three counties experience food insecurity rates that exceed the statewide average. Lagging household incomes is a persistent barrier to accessing local and healthy food. NVDA will continue to support efforts to aggregate and distribute local food through our expanding food hubs, such as the Food Hub at the Yellow Barn and Green Mountain Farm to School. *(See Social Infrastructure)*

Solid Waste benefit vs. burden: Our region is home to the only active landfill in the Vermont. Our solid waste infrastructure and services—such as transfer stations, recycling centers, and reuse shops—provide both environmental benefits and meaningful employment, as well as business opportunities with methane recapture or radiant heating for a greenhouse complex. Nevertheless, the uncertainty of waste management beyond the landfill's limited capacity is frustrating and concerning to many residents. NVDA supports a proactive and active dialog with the State of Vermont to identify equitable waste solutions before the landfill is at capacity *(See Physical Infrastructure).*

Introduction

The Northeastern Vermont Development Association (NVDA), the regional planning and development organization for the northeast region of Vermont, strives to assist and promote the interests of all municipalities in Caledonia, Essex, and Orleans Counties; and to support economic development initiatives that provide quality job opportunities in this region. The Association is enabled under the Vermont Municipal and Regional Planning and Development Act (24 V.S.A., 117, Section 4341).

Vermont's rural traditions have been better preserved in the Northeast Kingdom (NEK) than in other areas of the state. Respect for individual rights and a genuine neighborliness toward others are values that continue as part of the social fabric here. The physical landscape has essentially remained unchanged with compact village centers surrounded by working farms and productive forests. However, several towns now have strip development and scattered residential development outside of village centers. When one examines local town plans throughout the region, one quickly gets the sense that most people in this region prefer gradual change over rapid growth. Nevertheless, most NEK residents stand firmly behind development that promotes job creation and sustained economic development.

The beloved title "Northeast Kingdom" originates from former Governor George Aiken during a political appearance in Lyndonville in 1949. Aiken created this term in reference to his love for a beautiful, rugged region of the state with humble community members. The natural beauty and wholesome quality of life experienced in the Kingdom are things no longer enjoyed exclusively by the region's residents. With the NEK within a day's drive of more than 70 million people, the region has become a recreational playground for many out-of-area visitors. Others are seeking to permanently escape the rigors of urban life elsewhere and relocate to the region. Such outside interest in the region presents both opportunities and problems.

While some towns appreciate the additional revenue associated with seasonal residents and visitors, a large influx of new, year-round residents can strain local infrastructures and services. New residents sometimes seem to have unreasonable expectations, but they often bring fresh perspectives and new ideas. With longtime and new residents alike, the communities of this region are encouraged to plan for their future, so that growth is expected and welcome. In both regional and local planning processes, we need to retain and strengthen existing businesses while creating new economic and employment opportunities for residents from all walks of life. We must provide

quality educational opportunities and skills training for all job seekers to make the region's workforce more attractive to employers. With an economy that is to a great extent linked to our natural resource base, the region and its municipalities should also embrace strategies to protect the environmental quality in the NEK.

The availability of quality, affordable housing is a regional goal also shared by every local community, and upgrading existing, substandard housing is a particularly urgent priority. NEK residents are also encouraged to work with their local, regional, and state agencies and officials to revitalize downtowns, village centers, and cultural institutions to preserve our cherished way of life. Local communities and state agencies must continue to upgrade public infrastructure in a coordinated manner, in order to protect the health, safety, and welfare of local residents. As a region, we must strive to provide a reliable and safe transportation system with improved access to destinations within and outside the region for a greater number of people. Achieving these broad goals will ensure that the residents of the NEK will prosper and live satisfying lives in communities of their own making.

WHAT IS A REGIONAL PLAN?

NVDA is the NEK's regional planning commission and economic development agency. Every eight years, NVDA updates the Regional Plan to better reflect and guide the three counties and 55 communities it serves. The NVDA Regional Plan is a collaborative guide to shape a sustainable, equitable, and community-empowered NEK. The 2026 Regional Plan has ten primary focus areas including land use, community infrastructure, social infrastructure, housing, economic development, natural resources, water resources and flood resilience, transportation, energy, and historical and cultural resources.

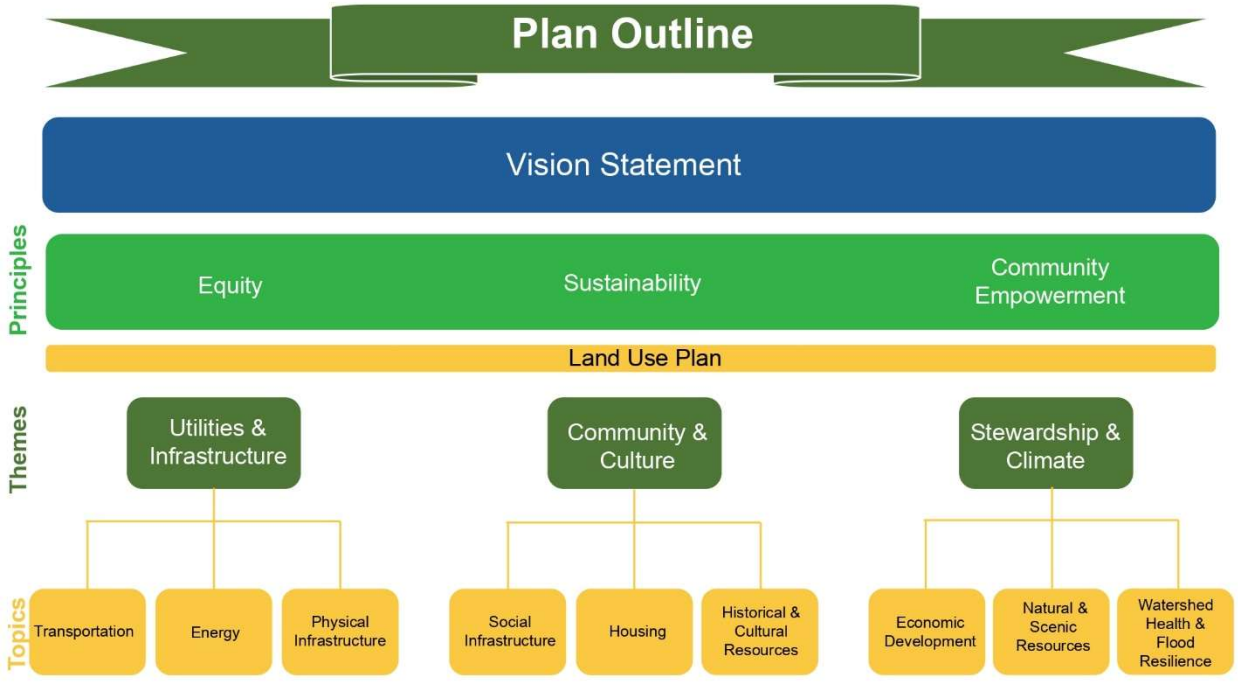


Figure 5. Regional Plan outline.

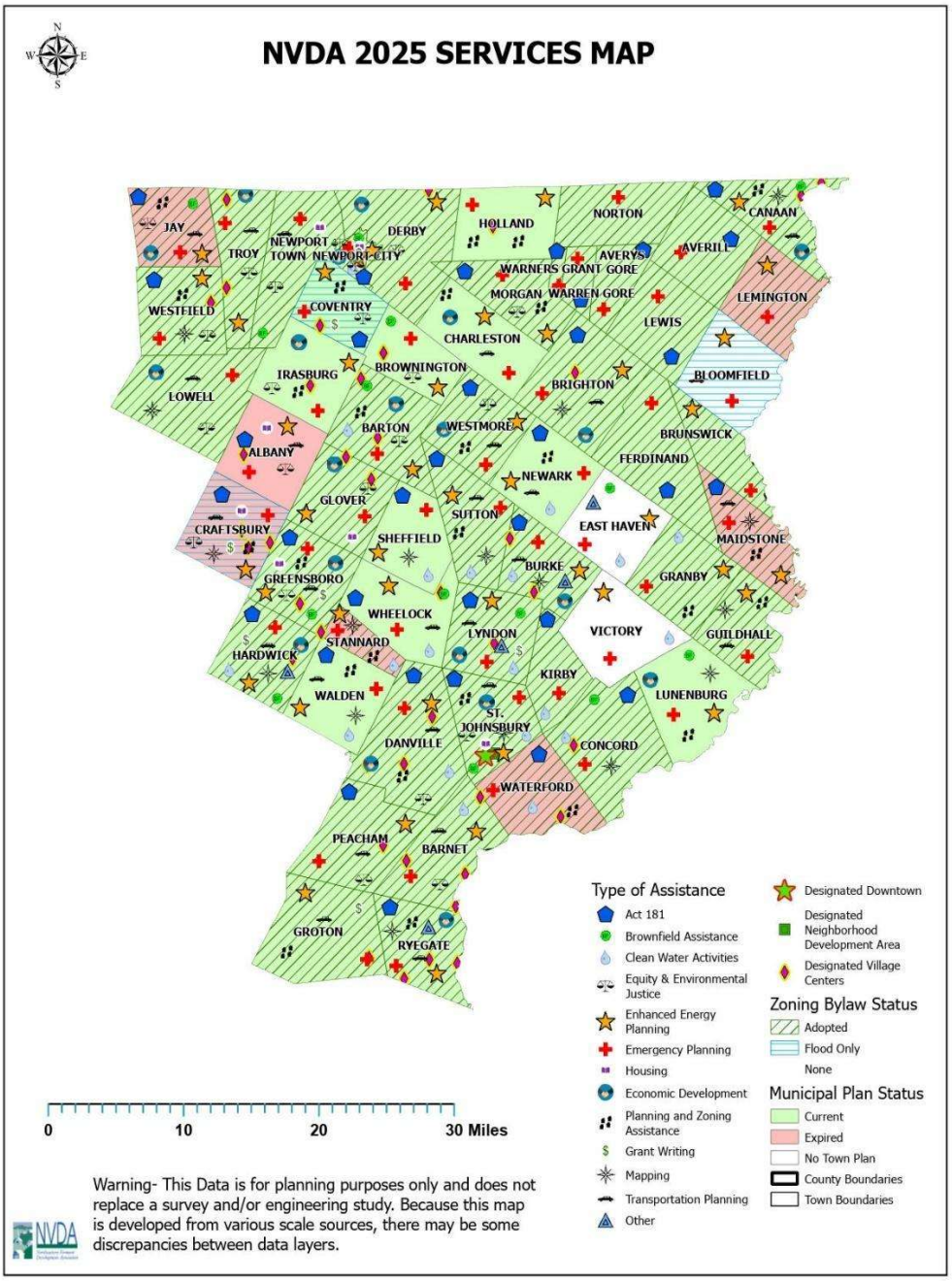


Figure 6. Services provided.

OUTREACH

NVDA's outreach efforts for this regional plan update were two-fold, meeting with municipalities to review Act 181 Future Land Use maps and attending community events for public input on regional goals. NVDA developed our first draft of our Act 181 Future Land Use map between January

and September 2025. Staff met with 49 of 50 municipalities (excluding villages, as our region's villages do not do their own planning or zoning) to solicit local input. NVDA incorporated local input when feasible. For example, some towns wanted no rural conservation or no village centers, even when they had areas qualifying as such under state statute and VAPDA mapping methodology. The desire to not have a village center is linked to a desire to prevent their community from changing.

Throughout the summer and fall of 2025, NVDA attended several community events to collect community input to inform our goals and priorities for the next eight years within the Regional Plan. NVDA aimed to attend community events throughout Essex, Caledonia, and Orleans Counties, to reach as many locals as possible. Events attended included Wednesday on the Waterfront in Newport, Jay Oktoberfest in Jay, Barton Burgers and Brews in Barton, Final Friday in St. Johnsbury, Hardwick Farmers Market in Hardwick, and the Moose Festival in Canaan. At each tabling event, NVDA passed out postcards that included information on what a regional plan is, timeline of the update, plan focus areas, and an opportunity to access our survey. Additionally, we had two posters to collect input through answering questions and drawing important places on a regional map. As NVDA has progressed through updating the Regional Plan, resources, information, and timeline updates were hosted on our Regional Plan webpage.

At the beginning of August 2025, NVDA released the Regional Plan Community Values survey. This survey was open to the public through the end of October, was shared on social media, shared through NVDA's monthly newsletter, and was hosted on our Regional Plan webpage. In total, 124 survey responses were collected from those that live, work, and recreate in the NEK. Survey results and input collected through outreach events were analyzed and used to inform the Regional Plan's goals and priorities. Additionally, the key findings were presented in a webinar, shared online and through a watch party at the St. Johnsbury Community Hub in effort to reach more community members that would not usually see this presentation.

Survey responders indicated their most valued places in the region and what makes them important, community challenges, and hopes for the future of the region. The most valued places included libraries, general stores, community centers, recreation areas, schools, and more. People find value in these community spots due to the ruralness, sense of community and local identity they provide, and access to culture and education. Community members were fairly consistent and in agreement on a handful of challenges the region is facing. Major challenge areas include the housing crisis, employment, food security, climate change, access to healthcare and substance use, the region's aging population, and public transportation.

Survey responders also shared their hopes for the future for the region. Residents want to see balanced growth, economic vitality while taking care of the environment. Access to affordable and quality housing was a consistent topic brought up by survey respondents and those we spoke to at community events. Residents are overly aware of the high housing costs, matched with the low incomes of the region, and the limited supply of units. In connection, people expressed interest in future redevelopment and reuse of old buildings into housing units or community centers. Respondents would also like to see improved access to healthcare and wellness centers. It also became obvious that the people of the NEK love the rural landscape and want to preserve the rural identity for the future.

Land Use

WE REMAIN COMMITTED TO PRESERVING TRADITIONAL SETTLEMENT PATTERNS IN THE FACE OF INCREMENTAL LOW-DENSITY DEVELOPMENT.

Development patterns in northeastern Vermont have historically followed the valleys and waterways of the region. Early European settlers farmed the fertile soils of Orleans and Caledonia Counties, and the Connecticut River valley in Essex County, using the rivers for moving logs and power mills. Through the years, Caledonia and Orleans Counties received the bulk of development, particularly around St. Johnsbury and Lyndon in the south, Newport and Derby in the north, and Hardwick to the west. Smaller populations and commercial centers also dotted the region. Development historically occurred in the form of compact village centers surrounded by a working landscape of farms and forestland. Though much of the old farmland has reverted to forest, this traditional Vermont landscape has been the dominant pattern of land use in the region. Maintaining that historic pattern of compact development separated by open countryside remains the overarching goal of this plan.

Our region is anchored by three main hubs: **St. Johnsbury/Lyndon**, which serves the southern section of the region; **Newport City/Derby**, which serves the north; and **Hardwick**, which serves multiple towns in Caledonia and Orleans, as well as communities in Washington and Lamoille. Transportation infrastructure plays an important role in their dominance. St. Johnsbury/Lyndon is located at the nexus of Interstates 91 and 93, Route 5, Route 114, and Route 2. Newport City/Derby is also on Interstate 91 and Route 5, as well as Route 105. There are active railyards in both St. Johnsbury and Newport City. Caledonia County Airport is in Lyndon, and the Northeast Kingdom International Airport is just outside of the Newport City limits in Coventry. In Hardwick, Routes 14 and 15 converge in the center of the downtown area, and the southern terminus of Route 16 intersects Route 15 in the eastern part of town. Collectively, our regional hubs provide more than 60 percent of the region's covered employment. All have industrial parks and dense commercial development. Similarly, all accommodate the highest housing densities in the region, incorporating a range of housing types from single-family to multi-units and mixed-use.

Historically, a number of subregional 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 life. Barton (with its incorporated villages of Barton and Orleans) in Orleans County, Brighton-Island Pond in Essex are two of the more significant service centers, providing about 8 percent of covered employment in the region. Canaan-Beecher Falls, North Troy, East Burke, and Danville are also prominent service centers. Generally, service centers don't provide enough employment and services to be completely self-contained. As a result, many residents still drive outside of the community for work or errands. However, the expanded availability of high-speed internet, coupled with virtual work options that increased during the pandemic, may be reducing daily commutes.

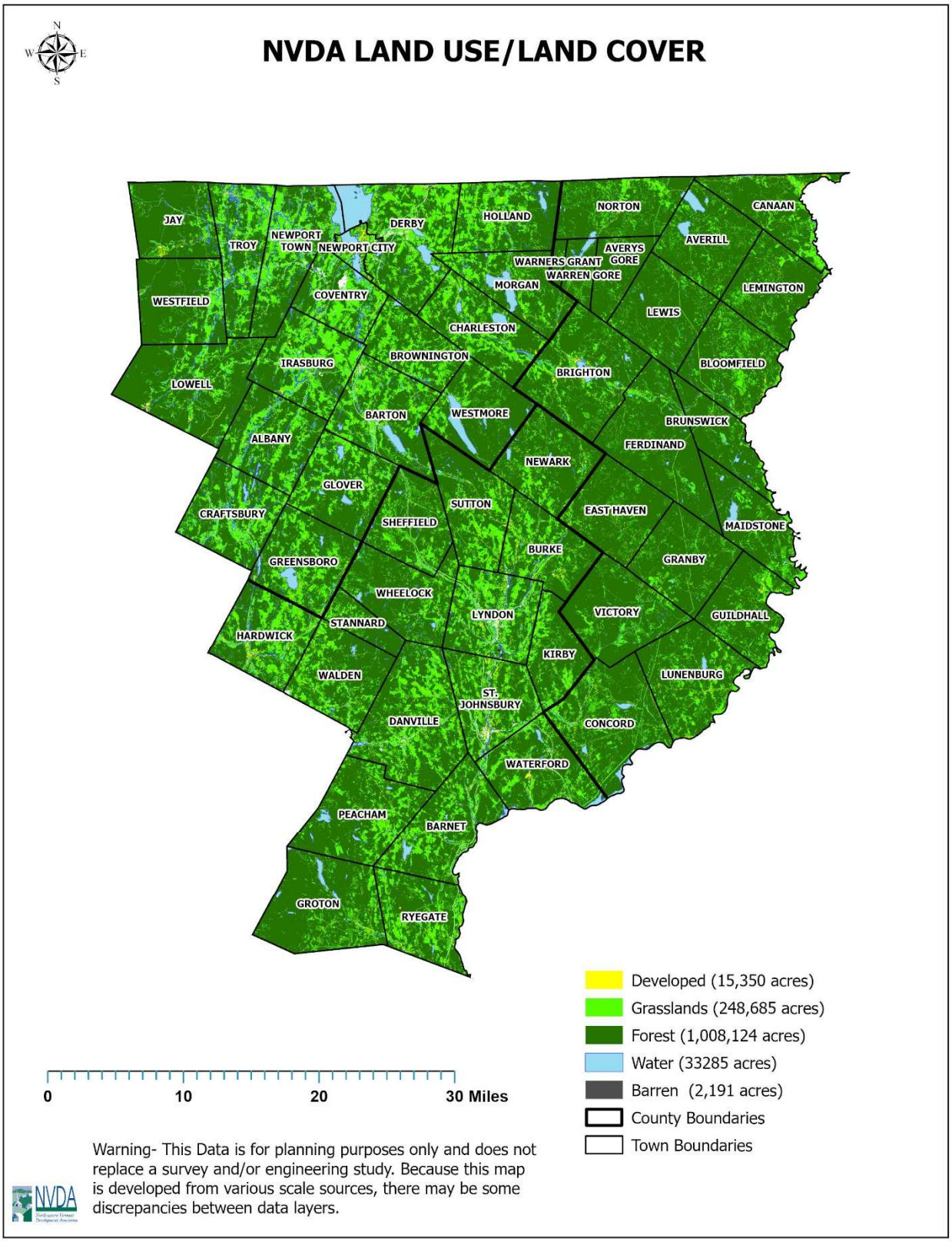


Figure 1. Map of Land Cover

The Northeast Kingdom has also retained many of its small, historic villages located in rural settings. Many provide convenient access to basic goods and amenities for the local rural population in the form of general stores, dining, and fuel. They also usually have some small-lot residential housing, and community buildings as libraries, schools, town halls, clubs, and churches.

The vast majority of region's land lies outside of these traditional centers of development and mainly consists of forestry and agriculture with pockets of low-density development. This plan is committed to maintaining traditional development patterns and smart growth goals (see inset).

REGIONAL PLANS MUST SUPPORT DEVELOPMENT THAT IS UNDERTAKEN WITH *SMART GROWTH* PRINCIPLES. THESE PRINCIPLES ARE DEFINED IN 24 V.S.A. § 2791(13):

- Maintains the historic development pattern of compact village and urban centers separated by rural countryside.
- Develops compact mixed-use centers at a scale appropriate for the community and the region.
- Enables choice in modes of transportation.
- Protects the State's important environmental, natural, and historic features, including natural areas, water quality, scenic resources, and historic sites and districts.
- Serves to strengthen agricultural and forest industries and minimizes conflicts of development with these industries.
- Balances growth with the availability of economic and efficient public utilities and services.
- Supports a diversity of viable businesses in downtowns and villages.
- Provides for housing that meets the needs of a diversity of social and income groups in each community.
- Reflects a settlement pattern that, at full build-out, is not characterized by:
    - scattered development located outside compact urban and village centers that is excessively land consumptive;
    - development that limits transportation options, especially for pedestrians;
    - the fragmentation of farmland and forestland;
    - development that is not serviced by municipal infrastructure or that requires the extension of municipal infrastructure across undeveloped lands in a manner that would extend service to lands located outside compact village and urban centers;
    - linear development along well-traveled roads and highways that lacks depth, as measured from the highway.

Nevertheless, the region's outlying areas have experienced the bulk of development in recent decades, primarily from scattered rural residential development. While forest cover continues to be our predominant land cover, the region has experienced a significant level of forest fragmentation, particularly in Caledonia and Orleans Counties. Both counties have seen at least a 30 percent drop in grand list woodland acreage since 2005, in Essex County 16 percent. What's more troubling is nearly every one of our traditional centers of development has experienced a corresponding loss in population and a long-term decline of existing housing stock.

According to the 2022 Census of Agriculture, farming accounts for 244,416 acres, marking a 2 percent increase in acreage from the 2007 Census. Agriculture is still the second most predominant land use in the region, but the number of farms in the region has dropped from 1,260 in 2007 to 1,130 in 2022. The state has lost more than 400 dairy farms over the previous decade, with fewer larger consolidated operations remaining. That trend is reflected in the NEK. According to the Census of Agriculture, the average farm size increased by 22 percent from 2007 to 2022, from 214 acres to 261. Many farms in our region are attempting to counter the loss of dairy farming through diversification: vegetable and meat production, value-added processing, and agritourism practices. Yet access to land for agricultural diversification is a challenge. The attributes that make land desirable for farming (well-drained and little slope) also make the land desirable for commercial development and large lot residential development. The region's farmlands can be highly attractive to non-farmers with the financial means to establish rural residential properties, sometimes driving up land prices for even the most experienced farmers.

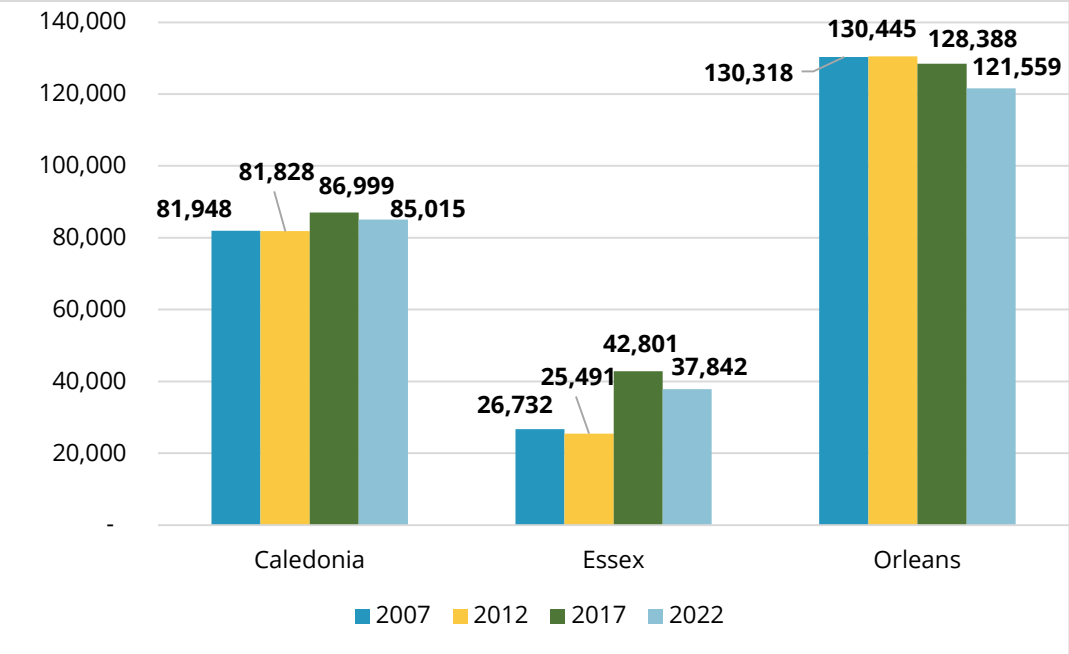


Figure 2. Acreages in Farming.

Low-density development, even when incremental, poses long-term sustainability challenges. When residential development occurs in remote areas, driving becomes necessary for most trips, increasing demands on road infrastructure. The cost of associated improvement of roads, and increased demand for services including fire, ambulance, and law enforcement, are often not covered by the tax revenues generated by these developments. This is particularly true when resulting disinvestment occurs in the traditional downtowns and village centers, thus lowering property values and the grand list.

These shifting development patterns reflect market demand. While a "place in the country" certainly has its appeal, maintaining that bucolic bliss is land-consumptive. A 2022 survey by Angi (formerly Angie's list) found that Vermont has the largest lot sizes in the country – 78,408 sq. ft. Towns with zoning

overwhelmingly favor single-family home development with large lot minimum requirements, resulting in a low-vacancy market with few affordable options for working families or seniors who wish to age in place. Similarly, decades of disinvestment in traditional centers of development have left few desirable options, either for rent or for purchase.

This plan reflects significant development and permitting reform taking place in Vermont.

Recent legislative reform has far-reaching initiatives to spur on production of "missing middle" housing. The Home Act of 2023, for example, banned exclusionary single-family zoning. Duplexes must now be permitted wherever single-family homes are permitted. Areas served by off-site water and sewer must allow densities of at least five units per acre.

In 2024, the legislature passed Act 181, ushering in a complex set of reforms to Act 250, Vermont's statewide land use and development law. While the purpose of Act 250 has always been to ~~prevent sprawl,~~ protect natural resources~~,~~ and promote sustainable development, the 2024 legislation establishes "location-based" jurisdictional thresholds. Areas that are suited for density – like downtowns, village centers, and historically dense neighborhoods – may eligible for Act 250 exemption to spur on housing production, if the town has adopted local land use regulations. These areas are called "Tier 1" areas. All other areas may be subjected to further protections, such as the "Road Rule."

Under Act 181, our regional Future Land Use Map now has to achieve the following:

- identify areas eligible for Tier 1 eligibility, which will provide either full or partial exemption of Act 250 regulation. Exemption is strictly "opt-in," i.e. at the request of the municipality.
- identify Center and Neighborhood designations, areas that benefit from incentives such as tax credits for rehabilitation of existing properties.

NVDA's 2018 regional Future Land Use map consisted solely of dots indicating regional urban centers (large centers of development), service centers (medium sized centers of development), village centers (small centers of development), and industrial parks. Because we are required to identify potential Tier 1 areas, that approach will no longer work. Our 2026 Future Land Use map must use standardized land use classifications identified in statute and similar to other regions of Vermont.

The purpose of the Future Land Use maps, however, remains unchanged: to provide guidance and support for municipal planning initiatives, which will inevitably be more focused and more site specific. Zoning and subdivision regulations remain a local prerogative, not a regional one. This map does not supersede or override zoning, nor does it invalidate deed restrictions or conservation easements.

Future Land Use Mapping Considerations:

- The Future Land Use Map provides a landscape-level filter for supporting and guiding local land use policies. It does not give site-specific detail on developability. For example, some parcels may contain smaller areas with wet soil or flood risks. Such site-specific characteristics cannot be mapped at such a granular level but are more effectively addressed by land use policies.
- Some land use areas are eligible for Tier 1 status, which means a full or partial exemption of Act 250 regulation (this is "opt-in"). All other land use areas may be subject to the Act 250 Road Rule, yet to be implemented. Otherwise, there is no implied increase or reduction on land use restriction. Those are determined at the local level through local land use policies.

- This map is not a determination of Tier 3 lands, which will increase Act 250 jurisdiction. That is a separate undertaking by the Land Use Review Board, and this map does not play a role in determining Tier 3 status.
- Local municipal plans have always been required to contain a future land use map. Municipalities can choose to use the same categories as this map — but it's not required. Local maps will be reviewed to make sure they're generally in line with the regional plans and statewide planning goals, even if the categories are a little different.

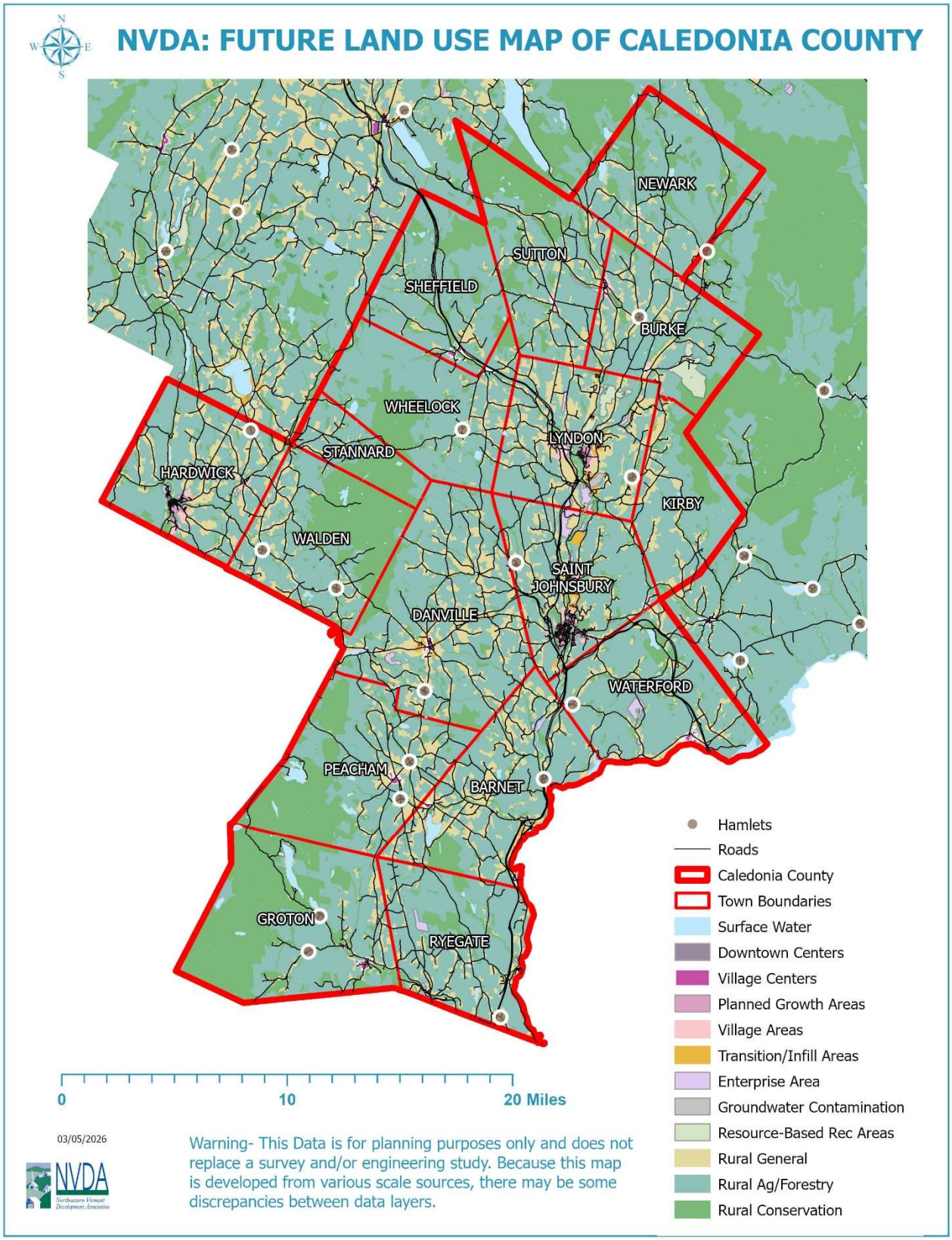


Figure 3. Future Land Use Map of Caledonia County

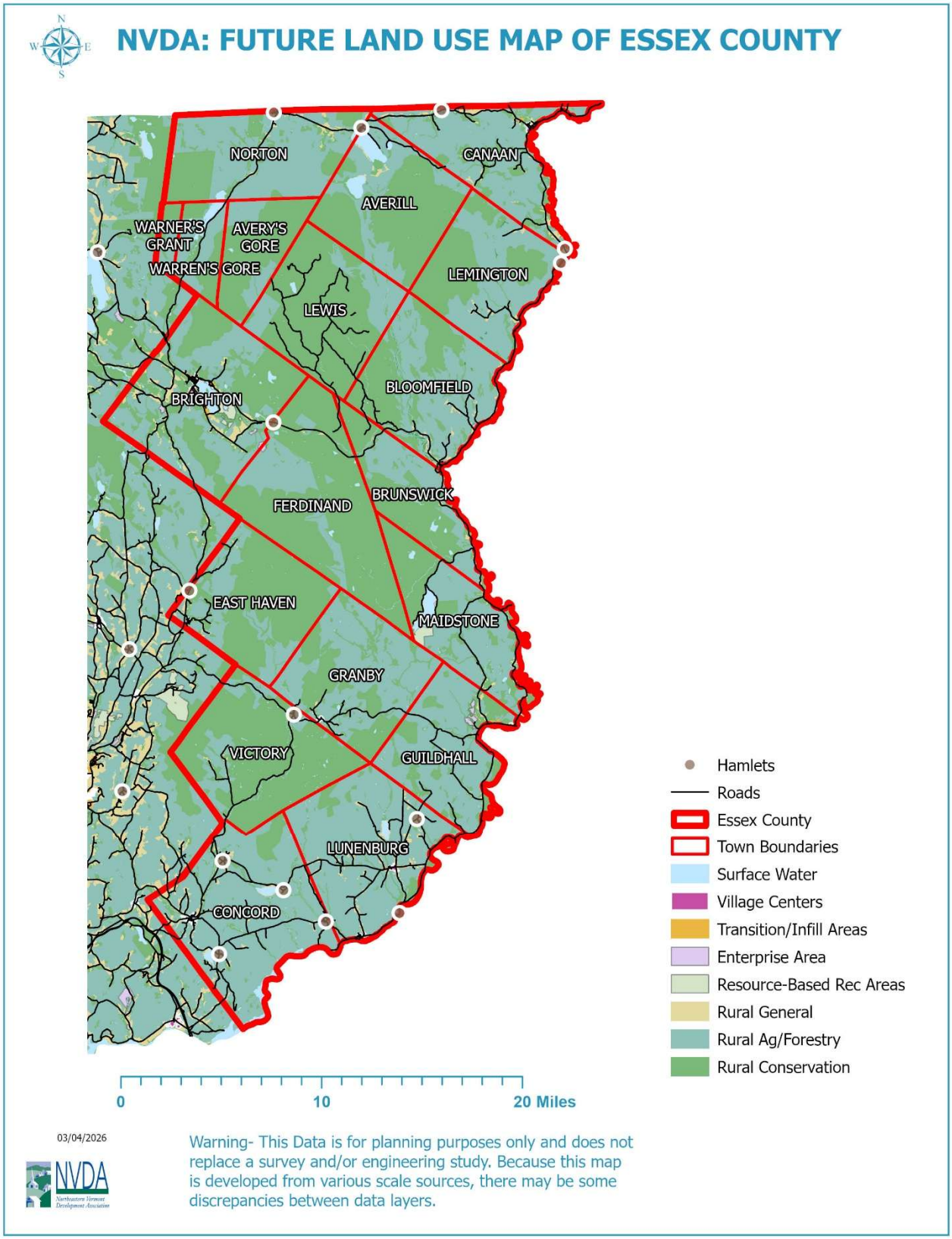


Figure 4. Future Land Use Map of Essex County

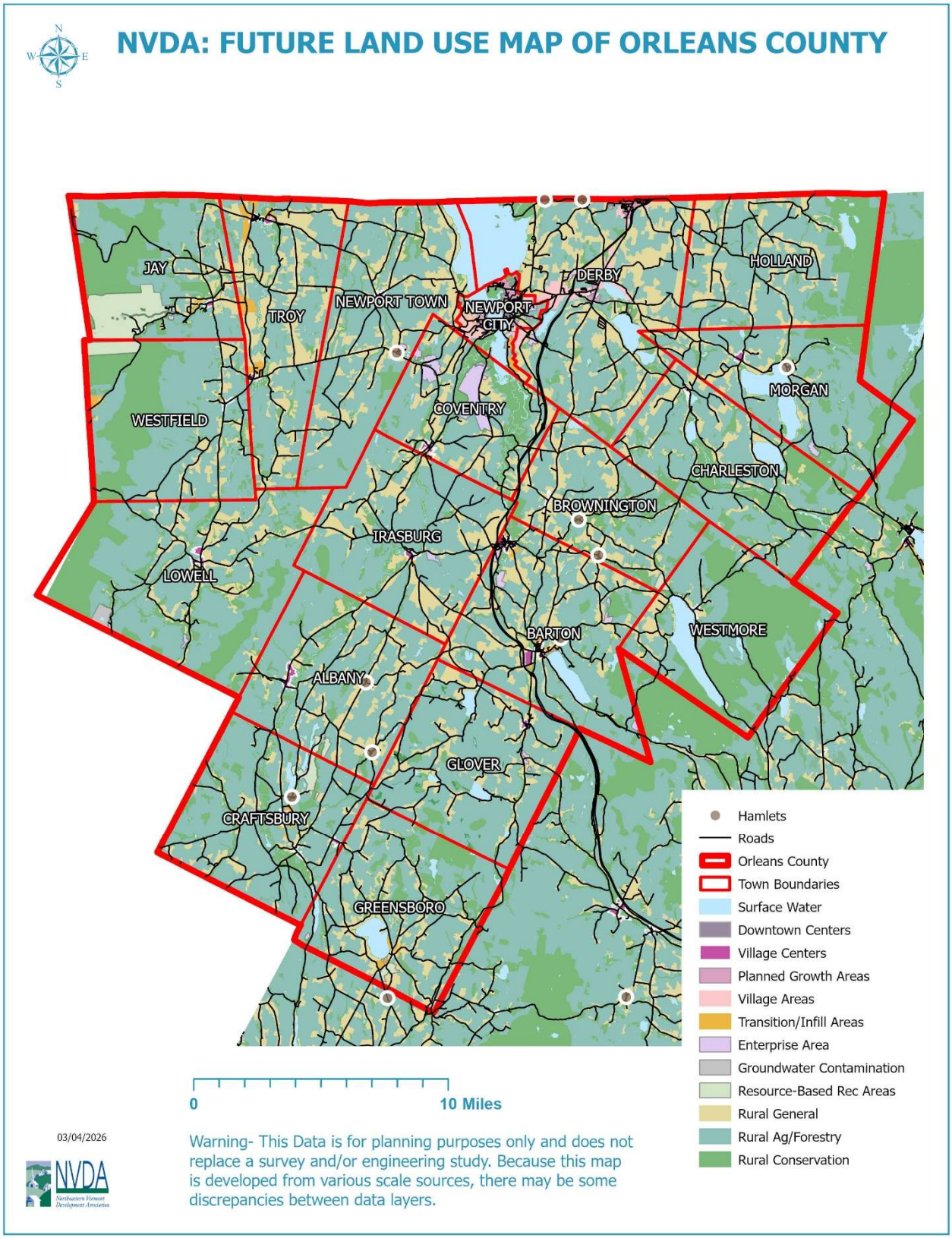


Figure 5. Future Land Use Map of Orleans County

THE PINKS AREAS ARE INTENDED TO ACCOMMODATE THE BULK OF HOUSING TARGETS FOR OUR REGION.

These areas consist of Downtown Centers, Village Centers, Planned Growth Areas, and Village Areas. Collectively, they account for less than 1 percent of our region's land mass, but are intended to accommodate a substantial majority of our region's housing targets. Nearly all of our municipalities have a center on our Future Land Use map, with the exception of Kirby, Maidstone, Lemington, Victory, as well as the Unified Towns and Gores of Essex County, as they have no concentrated and historic development patterns or mixed-use areas.

DOWNTOWN CENTERS (0.02 PERCENT OF THE REGION'S LAND AREA)

These are the highest density areas with a high level of concentrated development that provide the core support services and employment for multiple communities. Higher capacity road infrastructure, municipal sewer and water, energy infrastructure, and emergency services are in place to support heavier development. Nevertheless, substantial investment in infrastructure upgrades and essential services will be required to support -- and even sustain -- desired development patterns that support a broad array of housing types. *Downtown Centers* include "legacy" designated downtowns in St. Johnsbury, Newport, and Hardwick. These designations existed prior to the creation of our Future Land Use map.

All Downtown Centers have zoning and subdivision regulations and support ongoing downtown revitalization efforts. All Downtown Centers contain or overlap with historic districts, so these communities will need to rely on local regulatory tools to preserve their architectural and cultural integrity. Tools may include historic design control overlays (St. Johnsbury), form-based code (Newport City), or Certified Local Government, which is currently not deployed by any of our communities. While smart-growth regulations in downtown centers can and should incorporate access to transportation alternatives, traditional fixed route transit is limited and, in Hardwick, non-existent.

VILLAGE CENTERS (0.34 PERCENT OF THE REGION'S LAND AREA)

Village Centers are smaller than Downtown Centers yet still reflect historic patterns of mixed residential and civic uses. Our Future Land Use map identifies 42 "legacy" Village Centers and 24 new Village Centers. For new Village Center designations, NVDA requires at least three civic or commercial uses plus some residences, or if the town has fewer than 300 residents, two civic or commercial uses plus some residences.

Act 181 does not require a community to have local development regulations, offsite water and sewer, or even a municipal plan to be considered a Village Center. Due to the low thresholds for designation, Village Centers vary significantly in size, scale, character, and capacity. At the smallest end of the scale, we have a small clustered settlement around the Holland Community Church and the Holland Town Garage. At the larger end, we have downtown Island Pond, which is almost entirely served by off-site water and sewer, as well as a robust mix of residential, civic, cultural, and commercial uses. Only West Danville, Danville Village, West Danville, St. Johnsbury Center, Lyndon Corner, and Lyndon Center, Lyndonville, Derby Center, and Derby Line are served by daily transit services. All Village Centers have the ability to incorporate some degree of incremental missing middle housing, but that ability *is entirely contextual and dependent on form and scale, as well as the availability (or, in many cases, complete absence) of off-site water or sewer*. Communities that do have zoning and subdivision regulations will need to be mindful of context, scale, as well as the architectural integrity of their historic assets when planning for density in Village Centers.

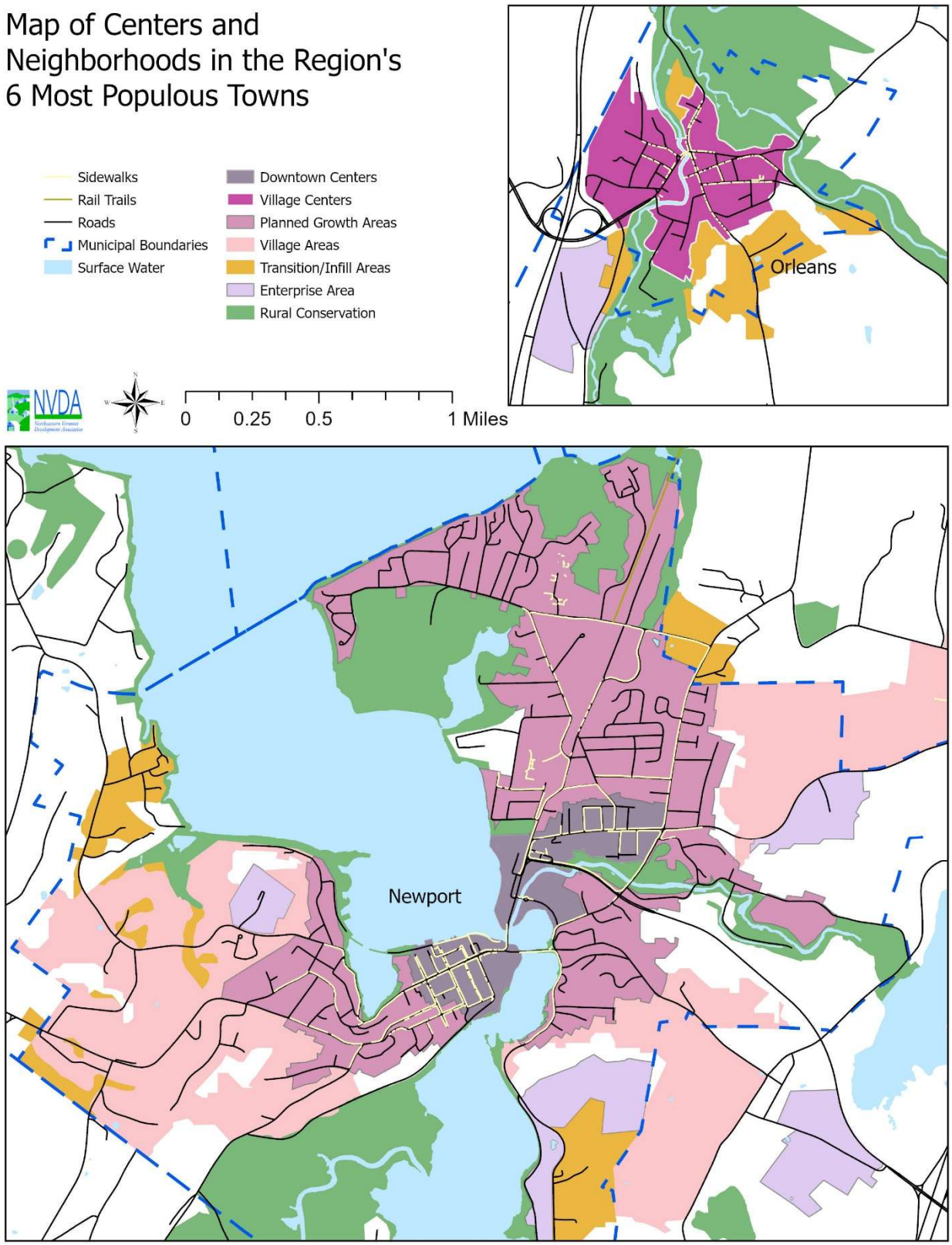


Figure 6. Future Land Use Maps of Newport City and Orleans Village

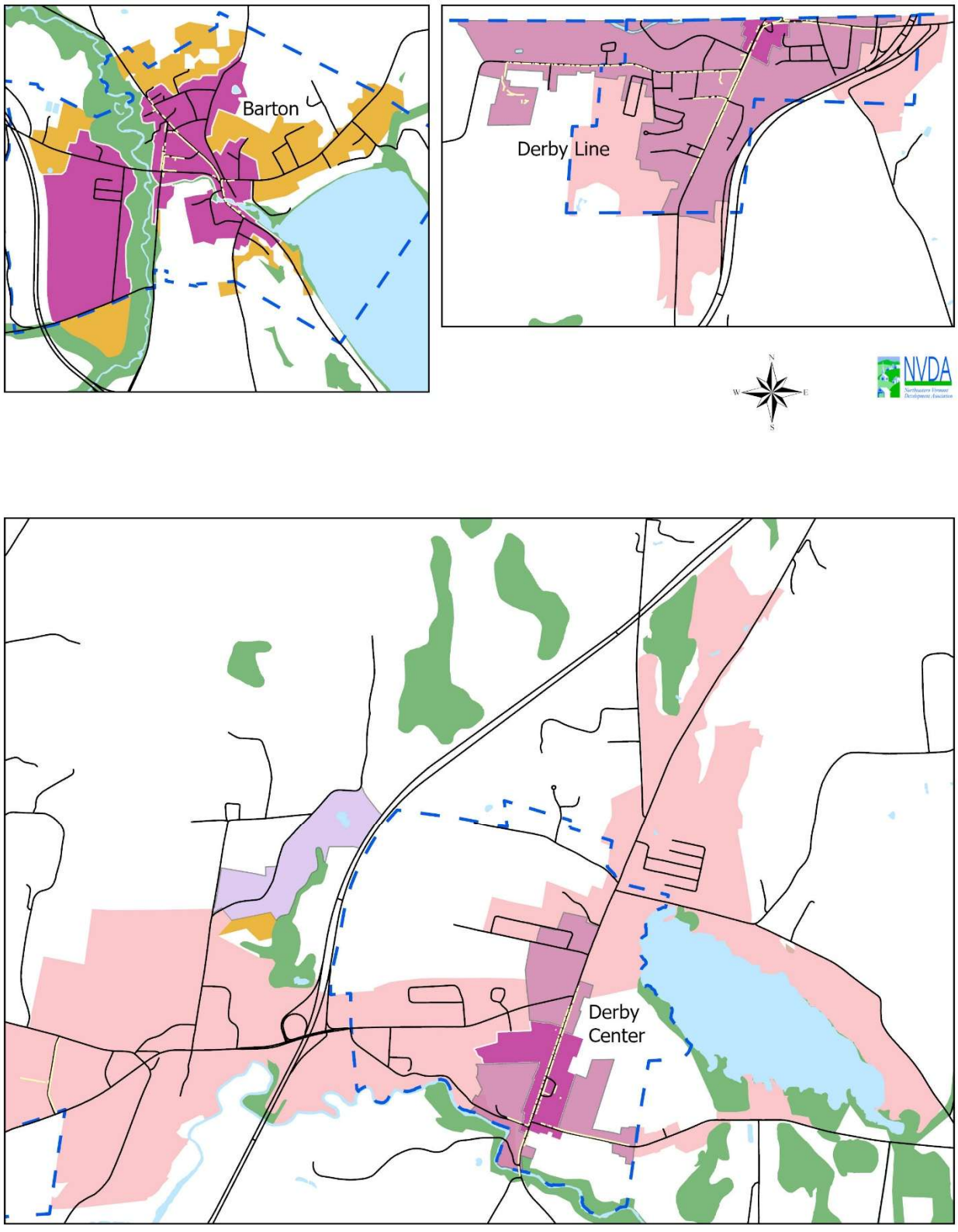


Figure 7. Future Land Use Maps of Barton Village, Derby Center, and Derby Line

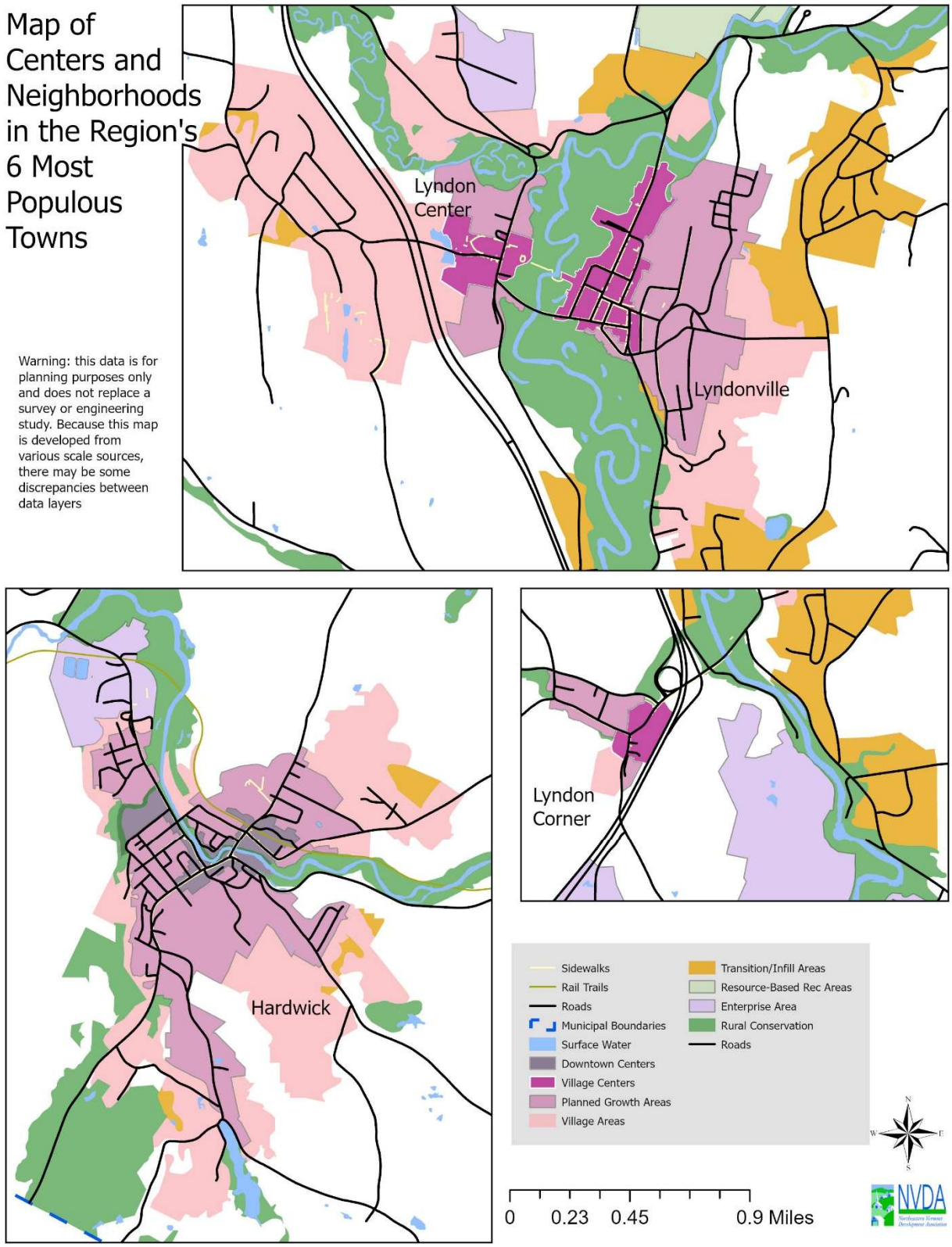


Figure 8. Future Land Use Maps of Lyndonville, Lyndon Center, Lyndon Corner, and Hardwick village



Figure 9. Future Land Use Maps of St. Johnsbury urban compact, St. Johnsbury Center, East St. Johnsbury, East Hardwick

Neighborhoods (Planned Growth Areas and Village Areas, 0.21 percent and .36 percent of Region's Land Area, respectively)

These are areas adjacent to centers in communities with zoning and subdivision regulations. *Planned Growth Areas* are dense, yet largely residential, with sidewalks, water and wastewater, as well as regulations that allow for dense housing. The five most populous towns in the region have Planned Growth Areas: St. Johnsbury (St. Johnsbury urban compact, St. Johnsbury Center), Lyndon (Lyndonville, Lyndon Corner, Lyndon Center), Derby (Derby Center, Derby Line), Newport City, Hardwick (Hardwick village, East Hardwick). These areas are already built up and, and the majority of structures are within a quarter mile of sidewalks or multi-use paths. While these areas are served by water and sewer as well as sidewalks and pedestrian amenities, this designation implies no warranties regarding the condition or capacity of its infrastructure.

Village Areas are in communities with zoning and subdivision regulations that allow for medium to high density residential areas. Some are already built up, while others have potential to accommodate more housing. Future residential development in these areas might rely on extension of infrastructure, such as water and sewer. Seven communities in our region have village areas: St. Johnsbury (St. Johnsbury urban compact, St. Johnsbury Center, East St. Johnsbury), Lyndon (Lyndonville, Lyndon Corner, Lyndon Center), Derby (contiguous with Derby Center, Derby Line, Newport City), Newport City, Hardwick (Hardwick village, East Hardwick), Burke (West Burke, East Burke), and Sutton.

Planning Considerations for the Pink Areas (Centers and Neighborhoods)

- The pink areas align with a significant overhaul of the state designation process, realigned five designations into two: Centers and Neighborhoods. Designation is permanent and determined by the regional plan. All designation areas are eligible to receive tax credits for investment in income-producing and mixed used properties built before 1983. The community's level of planning commitment will determine grants, various smart growth incentives, as well as regulatory relief. Some communities will require technical assistance to access these additional benefits.

- Housing units in centers and neighborhoods tend to be older, in need of upgrade or repair, and remain on the market longer than housing units in rural areas. Market conditions have favored incremental low-density development in rural outlying areas instead, often leading to a decrease in population and housing units in these areas. Targeted reinvestment and availability of incentives (such as tax credits) will be essential in reversing this long-term trend.

- Centers and neighborhoods are home to regional cultural centers (e.g. Catamount Arts, Hardwick Town House, St. Johnsbury Atheneum, Fairbanks Museum & Planetarium, MacArts, Do North Coworking). Continued investment in this vital social infrastructure will help to ensure vibrant neighborhoods.

- Centers have limited access to transit, and in Hardwick transit is limited to Medicaid rides and the Older Adults and Persons with Disabilities (O&D).

- Most of our region's legacy designations have been expanded. Four village centers have been expanded across town lines: Troy village center into Westfield, Wheelock village center into Sheffield, South Ryegate village center into Newbury, and Wells River village center into Ryegate. The last 2 centers now straddle the border between NVDA and Two Rivers-Ottauquechee Regional Commission (TRORC) and were developed in conjunction with TRORC. The boundaries of centers were the focus of most local input as many planning commissions feel strongly about where should and should not be considered their villages, as well as where they would like growth concentrated.

In towns without zoning, or without a village zoning district, town officials may not previously have considered where they would like growth in their community.

Transition Areas (0.36 percent of Region's Land Area)

Transition Areas have capacity for infill development, but could be better defined through local planning policies and initiatives. The vast majority of our region is not served by off-site water or wastewater. Those areas that *are* served by one or both don't belong in a Rural Lands category, but in accordance with statute and mapping methodology, they can't be considered Centers or Neighborhoods either. Essentially, Transition Areas are an "in-between" category. Many are largely residential and adjacent to centers, but they lack multimodal infrastructure like sidewalks for walking and biking. In other instances, they are largely neighborhood residential areas in communities that lack zoning and subdivision regulations and are therefore ineligible for Village Area status. Our region also has a few stand-alone medium density residential neighborhoods with off-site water, such as Alpine Haven (Westfield), Lyn Haven (Lyndon), and Mt Pleasant Associates (St. Johnsbury); as well as stand-alone areas where towns wish to encourage medium-density mixed use development (such as the intersection of Routes 101 and 242 in Troy).

Planning considerations for Transition Areas

- The name of the land use classification is somewhat misleading. Transition Areas simply allow for some degree of higher density infill development, but they are not considered Centers or Neighborhoods. As with other Future Land Use classifications, Transition Areas do not supersede local land use regulations, which will ultimately determine the type and intensity of development that can occur there.
- Some Transition Areas could be considered Village Areas, if the community were to adopt zoning or subdivision regulations. This could potentially create new areas with Tier 1 exemptions to remove barriers to new housing development. This may be an effective strategy for communities looking to expand their tax base without accelerating low-density development or parcelization of rural resources. The Towns of Troy and Brighton are currently working on or considering subdivision regulations for this purpose.

Planning Policies for Transition Areas

- There may be some instances where land-consumptive commercial uses, such as heavy equipment yards, warehouses, or even light industrial development may be appropriate for Transition Areas. Nevertheless, such uses should not have an undue adverse impact on the livability or walkability of nearby residential areas. Communities with local land use regulations should carefully consider scale and intensity when siting commercial uses in Transition Areas.
- Transition Areas should not follow roadways, allowing infill development that occurs over time to contribute to fragmentation of rural resources.

Enterprise Areas (0.42 percent of Region's Land Area)

Enterprise Areas denote areas of high levels of intense economic activity or employment. In accordance with the future land use mapping methodology and statute, Enterprise Areas are not adjacent to Planned Growth Areas. They encompass large areas that accommodate existing intensive activity that cannot be adapted to accommodate other non-commercial or non-industrial uses without substantial remediation. Such uses may be more appropriately located outside of any Centers, Neighborhoods, or Transition Areas because they:

1. would be incompatible with nearby residential areas,
2. require immediate access to a major railroad or highway, or
3. need substantial amounts of land.

In many cases, clustering these uses in industrial parks can have the multiple benefits of efficient use of land and efficient provision of required infrastructure.

Our map identifies 58 Enterprise Areas across 27 towns: several industrial parks, gravel pits and quarries that cover more than 20 acres, mines, two former paper mills proposed for redevelopment, a biomass plant, a pump station for the Montreal to Portland pipeline, factories, and the region's two largest airports, Caledonia County and Northeast Kingdom International. The state's only permitted landfill in Coventry is also identified as an Enterprise Area.

Planning Policies for Enterprise Areas:

- Enterprise areas generally have ready access to water supply, sewage disposal, electricity, and freight transportation networks. While local plans and zoning districts may designate other areas with infrastructure access as appropriate for industrial development, our Future Land Use Map only identifies *existing* uses of an intense scale. Locally designated lands for potential industrial development tend be sited along major transportation routes in Rural General areas. As this Future Land Use map does not supersede local zoning, we strongly encourage communities to implement performance standards with specific regard to the following factors when siting industrial and commercial uses:
    - smoke, odors, and noises detectable at the edge of a lot,
    - light trespass onto neighboring residential uses,
    - impervious surface coverage;
    - hours of operation; and
    - generation of excess traffic on roadways, with special consideration given to areas near or approaching Neighborhoods and Centers.
- Sand and gravel deposits are a limited but important local resource, used primarily for road maintenance, construction, and public works. Gravel pits and quarries with a footprint of 20 acres or more have been mapped as Enterprise Areas on our Future Land Use map. These deposits, often found along river valleys and eskers (like those in the Passumpsic River corridor), also provide essential groundwater recharge and filtration functions. As mineral resource extractions and their transport have the potential to be damaging to the environment and public infrastructure if carried out improperly, NVDA recommends that local mitigation policies consider negative impacts such as:
    - excessive dust and noise which may result in unreasonable nuisance to neighboring properties and create air quality issues;
    - improper site management which may lead to excessive soil erosion, soil compaction, water quality impacts, or inadequate site restoration;
    - site degradation which may result in aesthetically unpleasing conditions in the immediate vicinity of the project and/or the community, and
    - deterioration of town and state highways or other public infrastructure due to frequent truck traffic.

  Many local zoning bylaws contain special provisions designed to minimize the environmental impacts of earth resources extraction, and to assure reclamation or restoration of the site once work is completed. This is desirable. However, there are large sand and gravel pits and formerly mined sites that pre-date local and state regulations that require rehabilitation. Towns should

consider connecting the owners of these pits and the Natural Resource Conservation Service (or other state agencies or organizations) to develop reclamation or rehabilitation plans that will stabilize the sites and minimize impacts. While former extraction sites can be thoughtfully reclaimed for solar energy generation, community recreation, or ecological restoration, active extraction operations can have considerable deleterious impacts. Towns should identify such opportunities in their local plans and development regulations, especially in underserved, environmental justice areas.

RURAL LANDS ACCOUNT FOR THE VAST MAJORITY OF THE REGION'S LAND MASS.

Rural Lands include three sub-categories: Rural Agriculture and Forestry, Rural Conservation, and Rural General. Despite some of the differences between them, no one sub-category is inherently more restrictive or permissive than the other. Rather, Rural Lands collectively depict the desired overall low-density and scattered patterns of land uses that surround our traditional centers of development.

All Rural Lands have the capacity to provide scenic beauty, opportunities for passive recreation and enjoyment, as well as critical ecological function. While all define our region's rural character, tools for protecting them are primarily implemented at the local level through conservation efforts, enrollment in the Use Value Appraisal Program, and through zoning and subdivision regulation. As with all lands outside of Tier 1 areas, they may eventually be subjected to the Act 250 "Road Rule." Some land uses within Tier 3 designated areas (which are not depicted on this map) may be subject to further levels of Act 250 regulation. This Future Land Use map does not determine which lands will be considered Tier 3 lands.

PLANNING POLICIES FOR RURAL LANDS AREAS

- As a rule, Rural Lands are not intended for intensive commercial or industrial development unless that development occurs in an area specifically designated in a local zoning bylaw or identified in a local municipal plan as being well suited to such uses. Nevertheless, this regional plan considers any Rural Lands, regardless of its sub-category, to be inappropriate for commercial or industrial development that is not directly related to the region's lands-based economy (i.e. forestry, agriculture, and recreation), if the land contains one or more of the following conservation attributes:
  - State natural areas and fragile areas: The region has two such areas, which are both designated as National Natural Landmarks, the Willoughby Cliffs area and the Barton River Marsh.
  - Lands managed by the Agency of Natural Resources
  - Highest priority interior forest habitat blocks
  - Forested coverage of Site Class 1, 2, and 3 soils of 25 acres or more
  - Mapped agricultural soils (prime and statewide importance) that have not lost their agricultural potential due to impacts of previous development, presence of Class I or II wetlands, or physical or topographical barriers to use or access
  - Headwaters
  - Upland areas of 2,000 feet elevation or higher

  Sensitive Rural Lands (containing one or more of the above attributes) shall not be developed, as their best uses are a combination of forest and conservation purposes. Appropriate uses include sustainable forestry and logging practices, maple syrup production, wildlife habitat, and passive recreation. Maintaining forest and vegetation coverage on upland areas is particularly important in

that it provides natural floodwater attenuation and minimizes contribution to flash flooding in downslope areas, as well as increased sediment loads to headwaters. Ridgelines in Sensitive Rural Lands are a particular concern as developments can be seen from multiple locations including neighboring communities. From our experience, distance is not an effective strategy to mitigate impacts to such viewsheds.

- NVDA will not support proposed development or re-designation of Sensitive Rural Lands that include any of the following impacts from intensive commercial or industrial development:
    - Loss of forest cover and introduction of impervious surface coverage that is out of scale with existing development patterns
    - Encroachment into source protection areas
    - Incursion of roads intended for uses other than resource-based activities (i.e. sustainable wood harvesting and recreation) that result in the fragmentation of habitat
    - Loss of mapped agricultural soils that exceed a de minimis impact unless development is to support agrivoltaics or diversified production for a farming enterprise
    - Uses that introduce smoke or other emissions
    - Uses that introduce light trespass or sustained noise

Any existing impacts in Sensitive Rural Lands shall be considered non-conformities with this Regional Plan and shall not be expanded.

- Of the more than 250,000 acres of potentially prime agricultural soils in the NEK, a significant portion remains underutilized or vulnerable to development in our region's Rural Areas. To preserve future food security and regional economic opportunity, these soils must be protected from fragmentation and degradation. This includes prioritizing:

    - Soil conservation and regenerative farming practices.
    - Access to land, best management practices training, and resources for beginning and historically marginalized farmers.
    - Support for agricultural land protection tools, including easements, development rights transfers, and climate-smart farmer assistance programs.
    - Farming operations that improve soil health to strengthen the integrity of food systems and boost employment, especially in underserved areas of our region.

  Soil stewardship must also be addressed in relation to land development, as compacted or disturbed soils lose their ability to retain water and nutrients—contributing to flooding, water pollution, and erosion.

- Notwithstanding the above considerations, this Plan recognizes the economic realities of the rural NEK, where self-employment – which often entails small-scale industry, cottage industry, and unenclosed uses such as heavy equipment yards – is prevalent. Future regulatory and permitting considerations from state and local entities must be balanced with income sensitivity.

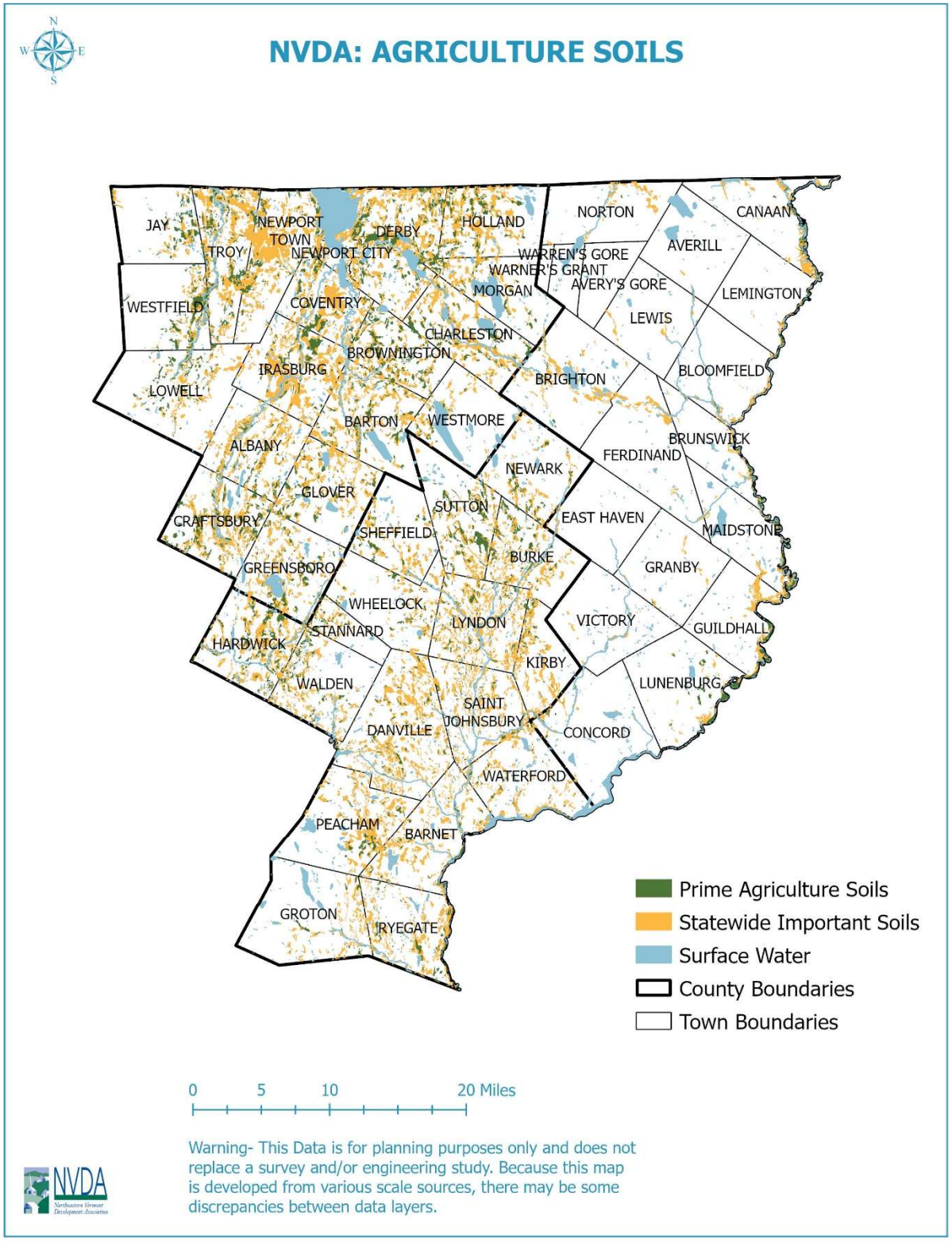


Figure 10. Agriculture soils.

Rural Agriculture and Forestry (55.6 percent of the Region's Land Area)

Our region values our working lands, and their associated uses, including cultivation of crops, logging, sugaring, haying, grazing, and other traditional uses of the land. While many of our region's agricultural and forestry uses are enrolled in the Current Use program or protected with conservation easements, we have also included areas where working lands practices, such as grazing or haying could be confirmed. It is still likely that there are smaller tracts of forests, farms, and open fields that included in another Rural Land sub-category. Regardless of a land's subcategory, this regional plan does not support the conversion and fragmentation of working lands to other forms of development. When residential development occurs in these areas, it should not result in the fragmentation of forestland or agricultural assets in a way that jeopardizes the economic feasibility of land-based enterprises. NVDA is concerned about the conversion of much of the region's farmland forest lands into other uses, particularly low-density residential development. However, this regional plan has limited influence, since its policies are applied in only limited permit proceedings, such as Act 250 and Section 248. Incremental low-density rural residential development, what is primarily fragmenting our working lands, rarely triggers these review processes. More effective tools, such as zoning and subdivision regulations, conservation easements, and participation in the Current Use program, must be initiated at the local level.

Planning considerations for Rural Agriculture and Forestry

- Local land use regulations can be an effective way to protect agricultural and forestry resources, but the traditional focus on five to ten-acre minimum lot sizes does little to prevent fragmentation. Low density zoning coupled with clustering or density-based zoning can assure that working lands are preserved while property owners can develop their property in an efficient manner for other uses, including residential or commercial development. In 2017, the Town of Sutton became the first town in the region to adopt a density-based working lands zoning district, which includes forested tracts as well as farmlands.
- The NEK has seen millions of dollars of federal, state, and private foundation invested in agricultural infrastructure to support value-added processing, co-packing, and aggregation and distribution. This investment has in turn leveraged millions of dollars of private investment. Much of this investment is concentrated in Hardwick, which has become an agricultural hub. Maintaining and expanding this infrastructure will continue to unlock opportunity for local producers.
- In 2016, NVDA, in partnership with the Center for an Agricultural Economy, published the state's only regional food system plan to support the viability and diversification of agriculture. The plan is based on a "soil-to-soil" food system model that engages with all individuals and organizations with a stake in the wellbeing of the food system, from the cultivation and production of food, through consumption and waste.
- In 2025 a Supreme Court decision ruled that not all farming and outdoor cannabis cultivation are exempt from zoning, reversing decades of general exemption from municipal regulation.
- Accessory on-farm businesses that support farming (such as education events and tasting rooms) are not exempt from zoning, but municipalities cannot prohibit them.

Rural Conservation (29.4 percent of region's Land Area)

Rural Conservation areas include many of the aforementioned "Sensitive Rural Lands": elevations of 2,000 feet or higher, wetlands, undeveloped floodplains, upland forested areas that can attenuate flood flows, and highest priority interior forest blocks. That latter must remain unfragmented to allow for the safe movement

of wildlife. Many of these areas remain unfragmented by roads. Rural Conservation lands are intended to accommodate very limited development, and only in a manner that does not harm irreplaceable scenic and natural assets.

Planning considerations for Rural Conservation Lands

- Unless already developed (industrial park, center), river corridors and FEMA-mapped floodplains are placed in Rural Conservation, unless the municipality has adopted river corridor and flood hazard areas that are consistent with the model flood regulation standards developed by the Vermont Department of Environmental Conservation. If a town has these more stringent regulations, then NVDA has included the flood hazards in other areas -- except that none of them are included in Rural General or Transition Areas.
- Despite the name of this land use category, not all of these lands are actually conserved, either by easement or direct acquisition. Many communities in our region allow for limited low-density rural development – and some communities have no zoning at all. While mapped Rural Conservation Lands may help direct and inform local conservation efforts, this regional Future Land Use map will have limited regulatory effect except for projects that come under Act 250 review or in a Section 248 or 248a proceeding.
- Mapped Rural Conservation Areas do not determine the eventual creation of "Tier 3" areas by the Land Use Review Board. This regional plan and accompanying maps do not influence Tier 3 rulemaking.

Planning Policies for Rural Conservation Lands

- Communities with land use regulations should consider incorporating conservation design principles, such as provisions for careful placement of building envelopes and flexible dimensional standards to allow for clustering lots away from open spaces.
- Conservation through direct acquisition must be balanced with the need for a sustainable tax base. NVDA supports conservation efforts in these areas that align with our conservation policies in the Natural and Scenic Resources chapter.

Rural General (12.6 percent of region's Land Area)

Rural General Lands are low-density areas with limited pockets of development that do not neatly fit into the other Rural Lands subcategories. While still rural in nature, Rural General lands do not contain significantly primarily active tracts of working lands, nor do they have access to off-site water or sewer. There may be some parcels that are already too undersized to support agriculture or forestry uses.

Planning considerations for Rural General Lands

- Rural General Lands still have areas that are scenic and contribute significantly to the rural character of the area. Many areas also contain natural resource constraints. Because this Future Land Use map has limited regulatory effect, municipalities with zoning and subdivision regulations should provide siting provisions for low-density residential and light commercial development.
- Development in these areas should minimize the proliferation of private roads or accesses onto public roadways. Development on dirt roads that would require paving should not be permitted.
- Rural General Lands might include small farming operations or open fields. Development of more than five acres should be sited as to avoid fragmentation of open spaces and prime and state agricultural soils.

- Development should not obstruct locally identified scenic viewsheds.
- There are some instances where more intensive non-residential uses, such as light industry, warehouses, heavy equipment yards, sawmills, and cottage industries may be appropriate, especially when such uses are not compatible in other areas, such as Centers, Neighborhoods, or Transition Areas. Nevertheless, such uses should not unduly conflict with neighboring residential, forestry, or agricultural uses. Traffic impacts of such uses shall not degrade public roadways.
- Large-scale industrial development is inappropriate in any Rural Lands with the characteristics of Sensitive Rural Lands.

Hamlets (37 points only – these do not cover land areas)

Hamlets also represent historic development patterns, yet on a smaller scale. NVDA's Future Land Use map has 37 dots to represent small historic development clusters, none of which are served by offsite water or sewer. Many of these are tiny villages that used to have a store and schoolhouse but now are entirely residential. Other hamlets have always been small clusters of residential development.

What many of our hamlets have in common is the presence of historic assets – many of which are in need of reinvestment or rehabilitation. There are limited funds available for historic preservation and community development, and what funds that are available are likely to be prioritized for assets in Centers and Neighborhoods, making revitalization of hamlets more challenging.

Planning Policies for Hamlets:

- Despite the lack of benefits, such as tax credits and reinvestment incentives, Hamlets are still historic assets that define a community and give it a unique sense of place. When feasible, technical assistance and funding should be made available for revitalization efforts.
- Some Hamlets are located along major roadways and can benefit from traffic calming.
  While this land use classification implies no land use restrictions, communities that do have zoning and subdivision regulations should consider scale and intensity of future development, as well as impacts on vehicular traffic and walkability.

Resource-based Recreation Areas (0.64 percent of Land Area)

These areas, generally situated around mountains, lakes, or forests, are recreation destinations that generate visitor tourism. *Resource-Based Recreation Areas* are generally associated with long-range vehicular trips, and many include seasonal residences. Our region has 16 mapped Resource-Based Recreation areas across 18 towns. Burke Mountain and Jay Peak are alpine ski resorts. Kingdom Trails and the Craftsbury Outdoors Center are year-round recreation destinations with extensive trail networks, plus lodging and dining amenities on-site or close by. The remainder of our Resource-Based Recreation areas are on lakeshores that have some sort of commercial or recreational development, such as summer camps, state parks, campgrounds, cabin rentals, or golf courses.

Planning Policies for Resource-Based Recreation Areas

- The NEK has a strong nexus between visitor tourism and the natural environment. For the long-term sustainability of these areas, it is essential that the high environmental quality of these resources be maintained.
- Recreation-based destinations can strain local roads from visitor tourism. This has been noted in Village Centers in Westmore and Craftsbury. Technical assistance and traffic calming should be

available to communities experiencing such impacts. It is a regional priority to keep Centers, Neighborhoods, and Transition Areas walkable.

Groundwater Contamination Areas (0.04 percent of Region's Land Area)

NVDA's custom "groundwater contamination" area covers 3 highly contaminated areas: the former asbestos mine in Lowell, the former (unlined) Parker landfill in Lyndon - a superfund site, and a 1970s era unlined landfill in a wetland, in Coventry. This last site lies between the current, modern landfill and the Black River. NVDA has determined that these areas are so unsuitable for redevelopment that they should be classified separately. Lyndon's zoning prohibits any development in the town's groundwater contamination area, as the area has almost identical boundaries to the town's "institutional control" zoning district. Coventry does not have zoning, while Lowell zones the asbestos mine as industrial.

Developments of Substantial Regional Impact

For the purposes of this plan, Developments of Substantial Regional Impact are defined by NVDA as:

- Projects that would have substantial and ongoing impact on two or more municipalities, including the host municipality.
- Projects that would likely have substantial impact on a resource within the region that is widely used by people outside of the municipality in which it is located.
- Projects that may affect development patterns to the extent that the character or identity of neighboring municipalities is significantly affected.

In the past, major expansions at Burke Mountain and Jay Peak resorts and an expansion of Northeast Kingdom International Airport have been considered to be Developments of Substantial Regional Impact. Also, qualifying as a Development of Substantial Regional Impact is the Casella Waste USA Landfill located in Coventry. This landfill currently accepts most of the solid waste generated in the State of Vermont. Trucks traveling to and from the facility from all parts of Vermont are a common sight. Other developments having a substantial regional impact are the industrial-scale wind facilities located in Sheffield and Lowell. These facilities have impacted the viewsheds in a number of adjoining communities.

Adjacent Regions

The Northeast Kingdom is surrounded by five different planning regions in Vermont and New Hampshire and one Canadian Province. Four of these regions are located to the south and west and include the Northwest Regional Planning Commission (NRPC), the Lamoille County Planning Commission (LCPC), the Central Vermont Regional Planning Commission (CVRPC), and the Two-Rivers-Ottauquechee Regional Commission (TRORC). Across the Connecticut River, New Hampshire's North Country Council abuts our region. Finally, the Province of Quebec is to the north. In creating our Region's Future Land Use maps, we worked closely with adjoining regional planning commissions to ensure consistent transitions across municipal boundaries. This coordination includes virtual one-on-one meetings with GIS planners from TRORC and CVRPC, as well as email chains with staff at LCPC and NRPC. As previously mentioned, some traditional centers of development straddle town boundaries. Alpine Haven, which is identified as a Transition Area in our map, is identified as a Resource-Based Recreation Resource Area in the Northwest Regional Planning Commission map. We do not feel these differences to be incompatible, since the community in question incorporates a variety of recreation trails, enhancing the livability of the area.

Given the size of our very rural region, we have a very mobile workforce. According to latest Census data on covered employment (2023), just over half of Caledonia County residents travel outside of the county for work, and in Orleans County, just over 40 percent. In Essex County, our most rural region, more than 87 percent of workers are employed outside of the county. From working with our communities, we know that NH towns along the Connecticut River attract our residents for employment, tax-free goods, and services. We also know that communities in the outer reaches of our region find it easier to travel to communities in adjacent regions like Morrisville and White River Junction. The cities of Montpelier and Burlington also draw significant numbers of travelers from the NEK to access employment, state government and agencies, larger cultural events, and expanded goods and services. Growth in any of these adjacent or nearby areas has the potential to impact the NEK.

Caledonia and Orleans Counties also draw employment activity from outside of the region. According to the most recent Census data, about 30 percent of covered jobs in Caledonia County are held by people outside of the NEK. In Orleans County, people from outside of the region account for about 24 percent of all covered employment activity.

Substantial developments in the Northeast Kingdom that have likely land use impacts on adjoining regions include: The Waste USA Landfill in Coventry (transportation and solid waste impacts); The Lamoille Valley Rail Trail (economic development and transportation impacts); And the VAG Asbestos Mine (hazardous site in the communities of Lowell and Eden). Watershed boundaries also do not correspond to regional and municipal geopolitical boundaries, so activities affecting a waterway in one community have the potential to impact the water resource in another region.

Goals, Objectives, & Strategies

Goal 1: Revitalize Downtowns and Village Centers

Objective: Help our communities identify and implement strategies that reverse the long-term trend of disinvestment.

- Provide technical assistance to update local land use regulations to accommodate context-sensitive infill development and a vibrant mix of uses.
- Assist municipalities seeking Tier 1 exemptions.
- Assist municipalities who wish to maximize benefits under the State Designation Program (i.e. Step 2 and Step 3 designations).
- Support municipalities in assessing capacity for infill development (e.g. build-out analyses, site suitability studies).
- Direct public investment and create financial incentives for the development of a balanced mix of low-income, workforce, and upper-income housing in and adjacent to village centers and downtowns, with the goal of allowing all communities to develop into high-opportunity areas.

Goal 2: Establish vibrant, walkable neighborhoods.

Objective: Increase an inclusive range of housing opportunities in areas near traditional centers of development reinforce compact development patterns and improve walkability.

- Provide technical support to communities to remove unnecessary barriers to housing through zoning reform.
- Provide regional and local trainings on land use regulation and statutory reform.
- Collaborate with communities and other regional planning commissions to develop best practices in subdivision regulations that promote walkability in Neighborhoods and Transition Areas.
- Assist municipalities seeking to establish Planned Growth Areas and Village Areas.
- Assist communities who are seeking to establish or expand Tier 1 exemptions in Neighborhoods.

OBJECTIVE: ENCOURAGE DESIRED NEIGHBORHOOD DEVELOPMENT PATTERNS THROUGH INVESTMENT, MAINTENANCE, AND EXPANSION OF APPROPRIATE INFRASTRUCTURE (SIDEWALKS, WATER AND SEWER, PARKING, PUBLIC SPACES, ETC.).

- Work with communities to identify and scope transportation projects that improve walkability and safe multi-modal circulation.
- Support local planning efforts to visualize context-sensitive density through design charrettes and other public outreach tools.

GOAL 3: PROMOTE EFFICIENT USE OF LAND AND INFRASTRUCTURE FOR COMMERCIAL AND INDUSTRIAL USES

OBJECTIVE: MINIMIZE IMPACTS TO RESIDENTIAL AREAS THROUGH CAREFUL SITING AND DEVELOPMENT PRACTICES.

- Assist municipalities in identifying appropriate areas for the development of industrial or manufacturing uses, based on the location of natural resources and existing transportation and utility infrastructure.
- Assist municipalities with the assessment and remediation of brownfields to revitalize and re-use existing industrial infrastructure where appropriate.

GOAL 4: SUPPORT THE VIABILITY OF OUR REGION'S WORKING LANDS

OBJECTIVE: PROTECT PRIME FARMLAND AND AGRICULTURAL SOILS

- Encourage municipalities to identify and map prime agricultural soils and integrate them into local land use planning.
- Promote the use of farmland conservation easements and voluntary tools to reduce farmland conversion.
- Support land access programs and strategies for long-term farmland retention.
- Assist municipalities who wish to integrate clustering and conservation design practices into local regulations.

OBJECTIVE: STRENGTHEN FARM RESILIENCE AND INNOVATION

- Promote diversified agricultural enterprises such as agritourism, value-added processing, agrivoltaics, agroforestry, and regenerative farming, including small-acreage and multi-parcel production models.
- Coordinate regional planning with agricultural infrastructure needs, including local food hubs and distribution systems.
- Connect farmers to technical assistance, business planning, and succession support.
- Update the NEK Regional Food System Plan.

- Help communities update local regulations to support agriculture and accessory agricultural businesses.
- Identify funding sources for, and market existing and new food ventures in the region.

OBJECTIVE: STRENGTHEN THE ECONOMIC VIABILITY OF SUSTAINABLE FORESTRY.

- Connect municipalities with appropriate agencies and resources providing management assistance with municipal forests.
- Direct management, financial, and technical resources to local forest product industries, including wood product manufacturers, sawmills, paper mills, log yards, and wood-powered electrical generators (cogeneration).
- Support the development and marketing of distinctive wood products identifiable with Vermont and/or the Northeast Kingdom.
- Support owners of forestland who implement sustainable forestry practices to market their wood and wood products.
- Expand use of existing rail infrastructure for shipping and interface with trucking. Explore the creation of forest-related industrial zones (i.e. rail sidings for sawmills)

TRANSPORTATION

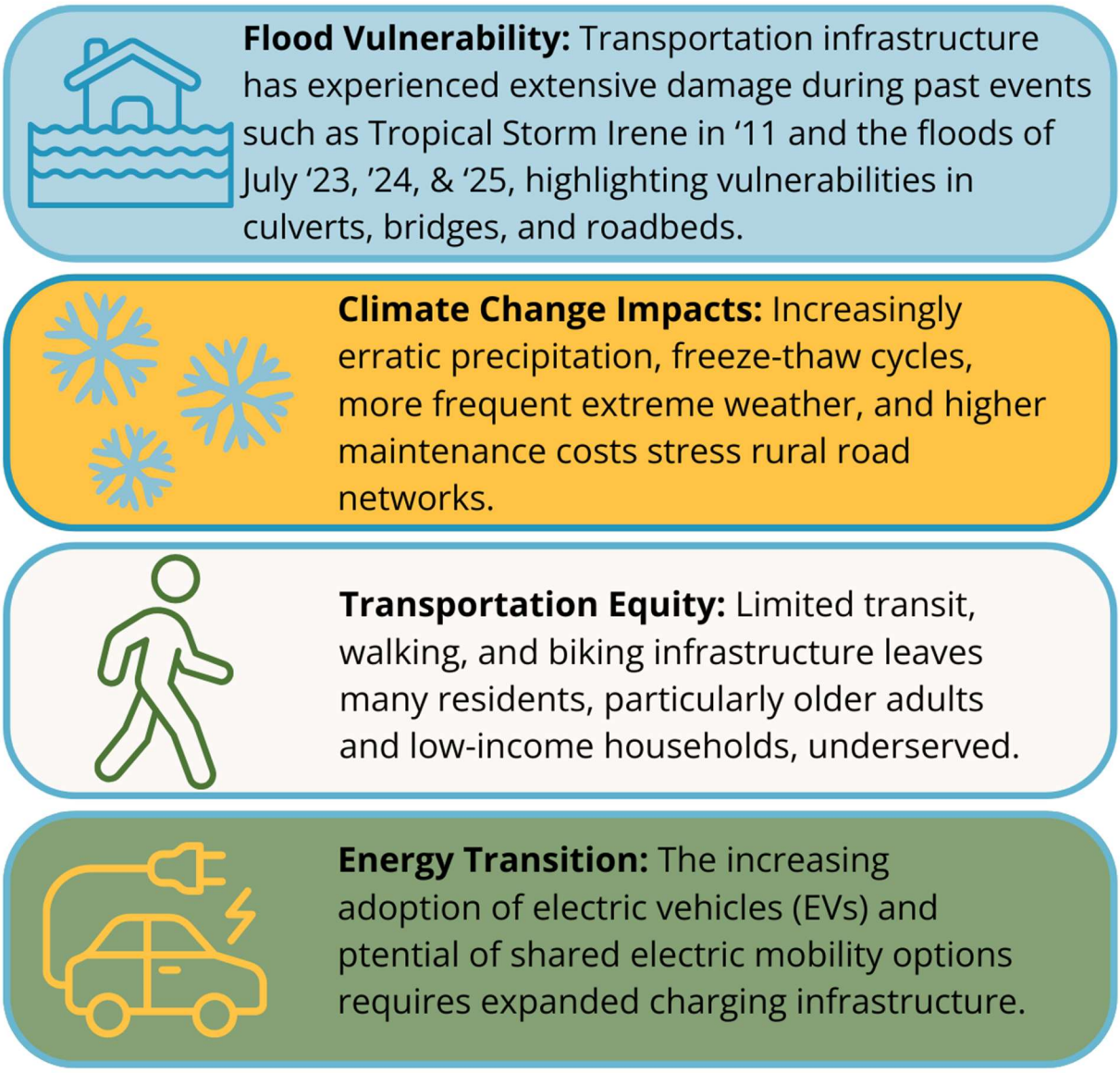
The Northeast Kingdom (NEK) relies on a multi-modal transportation network that includes paved and unpaved (dirt/gravel) roads, freight rail, small general aviation airports, sidewalks, multi-use trails, and public transit provided by Rural Community Transportation (RCT). This system supports daily mobility, connects rural communities to essential services and employment, and sustains key economic sectors, including manufacturing, agriculture, forestry, and tourism.

The NEK's transportation system is shaped by rural land use patterns, limited transit, and an aging population heavily reliant on personal vehicles. Growth in remote work has decreased commuting demand, while larger and heavier vehicles increase road maintenance costs. Rail trails provide recreation and general transportation options for those living near these corridors, requiring maintenance and infrastructure investments. State initiatives such as Vermont Local Roads, Complete Streets, Municipal Roads General Permit (MRGP) influence roadway design, and are promoting multimodal use and environmental protection by reducing stormwater runoff and phosphorus loading into major regional waterways. While these state programs do not meet all the needs of NEK towns, they contribute to towns' efforts to improve roadway design and stormwater management.



Figure 1. Lake Willoughby

The NEK transportation network also faces significant challenges:



This chapter identifies regional policies and priorities, outlines environmental benefits and burdens, and presents key takeaways and existing conditions to guide municipalities, NVDA, and partners in transportation planning and investment. This chapter also contains a variety of information that can assist communities and groups seeking Transportation Alternatives Grants, Municipal Planning Grants, Bicycle and Pedestrian Grants, and Northern Borders Regional Commission funding for transportation. The Community Resources section of this chapter contains traffic impact information to inform transportation improvements in the NEK, as well as a 2014 NEK infrastructure assessment highlighting vulnerabilities and investment needs.

Key Takeaways & Existing Conditions

NEK roads are vital but vulnerable due to maintenance, access and climate challenges.

Roads in the NEK are essential for connecting communities, supporting local economies, and providing access to public lands and services—but they face significant challenges. State and US Numbered Highways roads are maintained by the Vermont Agency of Transportation (VTrans), while all other roads fall under municipal responsibility. A small number of roads are managed by incorporated villages, including Derby Line, North Troy, Orleans Village, and Barton Village. Many town road crews are small, typically 1–2 staff, which limits the speed of road maintenance and adds to their stress. Towns with greater budgets have more options in equipment and treatments thus having better outcomes. Smaller towns with limited tax bases are challenged to provide the necessary components that are needed to satisfy state standards around bridge and road standards and the Municipal Roads General Permit.

NEK municipalities often operate with stagnant tax bases. To manage costs, some towns have reduced regular maintenance on certain segments, reclassified Class 3 roads to Class 4 roads (which have lower required standards), or transferred portions of their road networks to private ownership. While these strategies help manage budgets, they can restrict access to public lands and recreational areas.

In total, the region contains approximately 77 miles of paved, state-maintained controlled-access highways, including Interstates I-91 (~66 miles) and I-93 (~11.1 miles). Town Roads in Vermont are classified into four categories: Class 1 (Town highways that convey State or US Numbered Routes), Class 2 (town highways that serve a regional function), Class 3 (considered local roads), and Class 4 (unimproved town highways). VTrans maintains all State and US Numbered routes, while municipalities maintain the majority of remaining roads.

Aging roads and roads in flood-prone areas create safety hazards, increase maintenance demands, and can contribute to environmental degradation through sediment runoff into nearby water bodies. The NEK's unpaved roads are particularly vulnerable during mud season, when thawing ground and spring rains exacerbate wear and make maintenance more challenging. Owing to uncertain climate change, the region is experiencing more frequent and intense mud seasons and extreme weather events, which increase the amount of road damage. Rising gravel and fuel costs and potential supply constraints further strain municipal budgets, highlighting the need for strategic planning and investment to maintain safe and reliable road networks. Investing in Stamat (crushed ledge) can be a worthwhile investment to reduce both sediment runoff and frequent road maintenance.

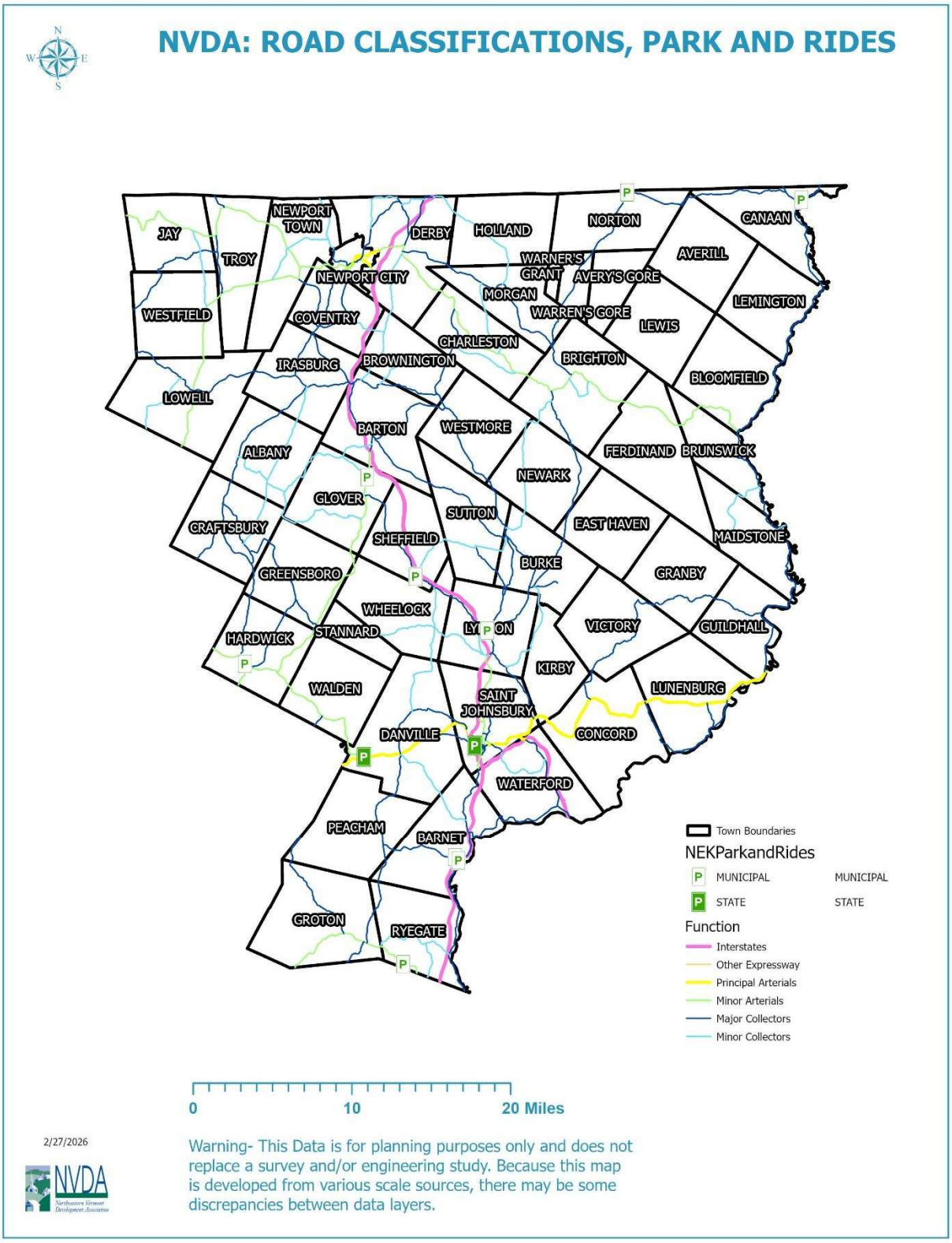


Figure 2. Road classifications and park and rides.

Investments in resilient infrastructure, including upgraded bridges, culverts, and road segments, not only reduce maintenance costs but also protect surrounding ecosystems by managing stormwater and mitigating flood impacts. Expanding electric vehicle infrastructure and supporting low-emission transportation options can reduce greenhouse gas emissions, complementing broader regional energy and climate goals. Partnerships between municipalities, transit providers, employers, and regional organizations empower communities to implement projects reflecting local priorities while strengthening regional connectivity. Collectively, these benefits support a safer, more accessible, and environmentally sustainable transportation system.

PUBLIC TRANSIT OPTIONS IN THE NEK ARE LIMITED, AND MOST TRAVEL CURRENTLY RELIES ON A PERSONAL VEHICLE.

Public transit in the NEK is provided by RCT, but service remains limited and most residents still depend on personal vehicles. Fixed-route options include weekday buses along the St. Johnsbury–Lyndonville corridor, a commuter route between St. Johnsbury, West Danville, and Montpelier (primarily serving first-shift workers), and a shopping route that runs twice monthly from Lyndonville to Woodsville, NH, via Danville, Peacham, and Groton. RCT also operates micro transit in Newport City and northwestern Derby, offering flexible short-distance trips that can be arranged by phone or online app. In addition, RCT provides demand-response rides for older adults, people with disabilities, and other eligible residents. While the RCT public transportation services are currently limited, they aim to alleviate the social and environmental burdens associated with living in a rural area without a personal vehicle.

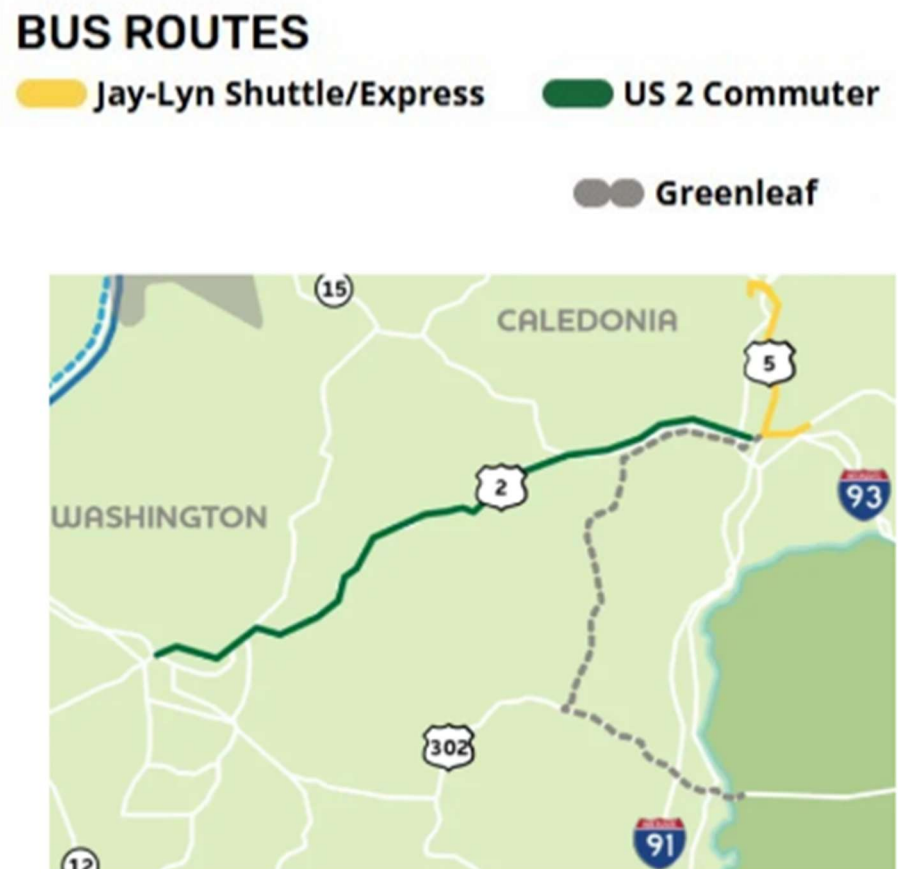
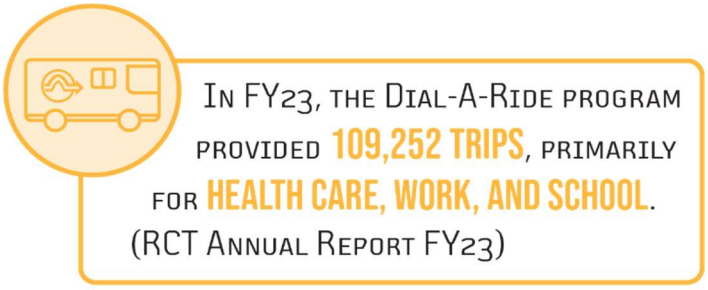


Figure 3. Bus route map.



Figure 4. RCT Rides Orleans service area.

To support shared travel, seven NEK towns maintain one Park-and-Ride facility each, supplemented by two regional lots operated by VTrans in St. Johnsbury and West Danville. Informal Park-and-Ride locations also exist in Orleans Village (US 5 and VT 58) and East St. Johnsbury (US 2 and VT 18). These facilities encourage carpooling and provide parking and improved access to public transit. Despite these resources, the NEK has no commercial intercity bus service (such as Greyhound), besides connecting from St. Johnsbury to Montpelier via the commuter bus, which links to Amtrak and regional bus services.



Despite these services, low ridership on commuter routes has led to discontinued service in some areas, reinforcing dependence on private vehicles. Communities also face limited authority over state highways and rail corridors, complicating efforts to manage traffic, reducing noise, and improving safety in downtowns. Expanding transit through employer partnerships, micro-transit pilots, flexible scheduling, and public education campaigns could improve accessibility, reduce reliance on personal vehicles, and support equitable mobility for seniors, youth, and people with disabilities.

Another form of transportation in the NEK is school buses. Some school districts and schools hire a private school bus operator, such as Butler's Bus Service, while others including Lyndon Institute own and operate their own buses. Schools face an increasingly hard time of finding bus drivers to fill these part time roles.

RESILIENT ROADWAYS AND EV INFRASTRUCTURE POSITIONS THE NEK FOR A SAFER, CLEANER, AND MORE CONNECTED FUTURE.

Transportation has been one of Vermont's largest contributors to greenhouse gas (GHG) emissions after thermal heating, and reducing its impacts is essential for meeting statewide climate and energy goals. For the NEK, this creates both challenges and opportunities. Roads in the region have suffered significant damage during flooding events, underscoring the vulnerability of the transportation system to climate change. Improving resilience will require upgrading culverts and drainage, raising roadways above flood-prone areas, or relocating them further from streams and rivers. At the same time, the region has an opportunity to expand its electric vehicle charging network in downtowns, tourist destinations, and along major highways. Introducing more electric mobility options to downtowns (such as e-bikes and e-scooters) could further reduce emissions while attracting visitors and supporting the NEK's clean energy transition.

There is an opportunity to foster partnerships with local employers such as organizing a Commuter Co-op (Van Pooling) through Go Vermont to promote transit ridership and increase public awareness of transportation options. The NEK's rural landscape often necessitates long commutes, and increased transit ridership can play a pivotal role in reducing traffic congestion and carbon emissions. Siting key services in centers of development reduces the transportation barriers to access these services. When NEK Human Services moved from Railroad Street in Downtown St. Johnsbury out to Route 2 East, across from Fairbanks scales, a need arose for RCT to service this new location because folks could no longer walk to NEK Human Services due to the isolation of their new location. Similarly, to save money, the new homeless shelter in St. Johnsbury was built 800 feet southwest of the Human Services building, rather than downtown. Homeless individuals frequently lack their own vehicles so building the shelter away from jobs, grocery stores, and other essential goods and services made the shelter less attractive to potential users.

Employers can incentivize employees to use public transit through subsidies, flexible work arrangements, or initiatives like transit passes. Simultaneously, public education campaigns can inform residents about the benefits of public transportation, its environmental impact, and the cost-saving advantages compared to commuting via personal vehicle. These partnerships would improve the physical connectivity of the NEK and bolster the region's environmental stewardship. Transportation's role in both emissions reduction and climate resilience also connects to broader regional goals—learn more in the Energy and Economic Development chapters.

NVDA is supportive of transportation infrastructure that increases the quality and types of available transportation choices, referred to as Transportation Demand Management (TDM). TDM is also a priority of the Vermont Comprehensive Energy Plan and its strategies are explored more deeply in the *NVDA Energy Chapter*. Multi-modal transportation that connects people to jobs and services (affordably and conveniently) has the potential to reduce single-occupancy trips, lower transportation costs and fossil fuel pollution, while improving health and economic opportunities in the NEK.

NEK WALKING AND BIKING INFRASTRUCTURE IS FRAGMENTED AND OFTEN INACCESSIBLE.

SIDEWALKS ARE CONCENTRATED IN **THE NEK'S LARGER COMMUNITIES,** WITH **APPROXIMATELY 15 MILES** IN THE ST. JOHNSBURY URBAN COMPACT, **10 MILES** IN NEWPORT CITY, **JUST OVER 2 MILES** IN LYNDONVILLE, AND **2.5 MILES** IN DERBY LINE.

SMALLER VILLAGES TYPICALLY MAINTAIN **BETWEEN 0.1 AND 1.7 MILES OF SIDEWALKS.** MANY OF THESE FACILITIES, HOWEVER, ARE IN **POOR CONDITION**; CRACKED AND DISINTEGRATING SURFACES MAKE THEM DIFFICULT TO NAVIGATE FOR PEOPLE WITH WHEELCHAIRS, CANES, STROLLERS, OR OTHER MOBILITY NEEDS.

Vehicle dependence and dispersed land use patterns produce carbon-intensive travel, while state highways running through downtowns generate noise, air pollution, and safety risks for pedestrians and cyclists. Beyond sidewalks, the region's most extensive bicycle infrastructure is designed primarily for recreation. This includes the Kingdom Trails network, the state-owned Lamoille Valley Rail Trail (LVRT), and the Beebe Spur Rail Trail. These facilities also provide opportunities for local transportation, particularly in warmer months, though additional signage and parking improvements are needed to balance resident and visitor use. The LVRT was officially completed from South Main Street in St. Johnsbury to Swanton in June 2023, with an extension to the Bay Street Pavilion in downtown St. Johnsbury scheduled to open in 2026, creating a vital connection to Railroad Street.



Figure 5. Mountain biking in the NEK.

Outside of designated sidewalks and trails, walking and biking along state highways is often unsafe. While some stretches include paved or unpaved shoulders, others do not. Notable gaps exist along US 2 between St. Johnsbury and Danville, on US 5 from Lyndonville to St. Johnsbury, and on US 5 Newport City to Derby Center, where sidewalks end at Blanchard Avenue. Expanding pedestrian and bicycle networks to connect communities along corridors such as Route 5, enhancing signage, parking, and trailhead facilities, and improving downtown streetscapes through grants such as Better Connections and Safe Routes to School, could improve mobility, safety, and economic

development in the region. Funding constraints at the municipal level can limit the implementation of these critical improvements, such as sidewalks, crosswalks, and traffic-calming measures, slowing progress toward a safer and more sustainable system.

Remote work, vehicle size growth, and rail trail use are reshaping transportation needs.
Like the rest of Vermont, the NEK has seen strong growth in remote work, which reduces commuting demand and creates opportunities to rethink transportation investments. Expanding broadband access and public Wi-Fi can make remote work more feasible for residents in rural communities, reducing pressure on roads while supporting local economic development. Other important trends include larger and heavier vehicles increasing wear on roads, and growing popularity of rail trails (LVRT, Beebe Spur), which require ongoing maintenance. Maintenance costs for all types of infrastructure, including transportation, have increased, and a limited contractor base in the NEK makes infrastructure projects harder to implement. Historic underinvestment in pedestrian and bicycle infrastructure further exacerbates disparities, leaving some communities underserved.

SPEEDING IS A PERVASIVE THREAT TO THE VIBRANCE OF OUR RURAL COMMUNITIES.

Local residents have numerous concerns about speeding—on dirt roads, city streets, and state highways alike. Since the mid-20th century, many roads have been straightened and or widened to improve sightlines and perceived safety. However, such changes to road design typically make drivers feel more inclined to drive faster than they would on a windy and narrow road. This can make the roads slightly more dangerous for vehicles, but significantly more dangerous for pedestrians, cyclists, pets, and wildlife.

While lowering speed limits can be a good starting point to encourage drivers to slow down, without enforcement or traffic calming/road design, lowering speed limits by itself is unlikely to have much of an impact on average vehicle speeds in an area. Speeding countermeasures, such as narrow lanes, neighborhood circles, bumpouts, chokepoints, removal of the center line, road diets, speed bumps, raised intersections—have proven effective but can be costly and controversial. The first raised intersections in Vermont have recently been installed at several intersections in Burlington, including at Pine and Howards Streets. Speed bumps remain relatively rare in the NEK, but there are several bumpouts, along Route 2 in Danville, Railroad Street in St. Johnsbury, Main Street in Newport, and South Main Street in Hardwick. Bumpouts can make crosswalks feel safer than they do crossing the entire width of a busy main drag. NVDA assists our members by conducting Speed studies throughout the region. We work collaboratively with municipal and state staff where appropriate to arrive at a variety of solutions to address the real safety issues created by speeding. NVDA annually conducts 5-10 of speed studies.



Figure 6. An example of traffic calming in Danville, Vermont through lateral shift. Photo courtesy of Vermont Agency of Transportation, Traffic Safety Toolbox.

Enforcement remains a challenge when only four towns in the region (St. Johnsbury, Lyndon, Hardwick, Newport City) have municipal police departments. Local sheriffs can be hired to do traffic stops but their capacity to additional traffic enforcement remains limited due to other responsibilities and limited staff. Towns can appoint traffic constables, but that can be controversial locally and requires that the constable attend 80 hours of training on their own time.

EXISTING PROGRAMS CAN IMPROVE AND INFLUENCE NEK ROADWAY DESIGN AND ENVIRONMENTAL PROTECTION.

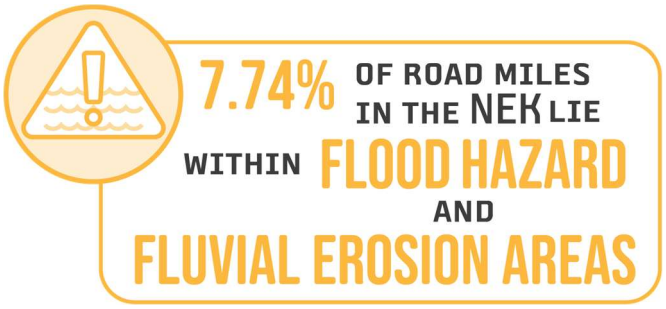
Through the state Better Connections grants, federal Safe Routes to School grants, and other funding sources, NEK communities have the opportunity to promote more walkable, vibrant, and safe downtown street environments. By investing in cohesive design elements, such as decorative streetlamps, public art installations, and well-maintained green spaces, NEK communities can create an attractive, welcoming atmosphere for both residents and visitors. Additionally, Vermont's Complete Streets law (Act 34) requires that new or reconstructed roads accommodate all users, not just vehicles. One potential use of subdivision bylaws is to require that new roads, sidewalks, and multi-use paths complement and tie into the existing and planned multi-modal network in the surrounding area.

The Municipal Roads General Permit (MRGP) is also required annually by all municipalities that own and maintain roads in an effort to monitor and reduce stormwater runoff from roadways (gravel and other sediments). Road runoff is a source of phosphorus pollution in the NEK. Under the Clean Water Act, the EPA requires Vermont to reduce phosphorus loads in impaired waters, including Lake Memphremagog and Lake Champlain. In the NEK, transportation infrastructure plays a direct role as poorly managed road drainage, eroding ditches, and undersized culverts can contribute to nutrient pollution in streams and lakes. This pollution threatens local economies through reduced tourism and property values, public health through harmful algal blooms, and municipal budgets through costly compliance and infrastructure upgrades. For example, 7.74 percent of road miles in the NEK lie within flood hazard and fluvial erosion areas, underscoring the scale of the challenge. By

integrating stormwater management, erosion control, and multimodal access into every roadway project, NEK towns can turn regulatory requirements into opportunities for improved resilience.

THE NEK OFFERS A UNIQUE AND PROMISING LANDSCAPE FOR LARGE-SCALE BIKE CONNECTIVITY.

The area's pristine natural beauty and rural character make it an ideal region for creating extensive biking networks that cater to both recreational cyclists and commuters. With a growing interest in eco-friendly transportation options and a strong outdoor culture, there is a significant opportunity to establish a comprehensive system of interconnected biking routes and trails throughout the region. By investing in infrastructure development, signage, and community engagement, the NEK can become a haven for cyclists, fostering healthier lifestyles, tourism, and economic growth while reducing the region's carbon emissions associated with transportation. The LVRT itself is complete and is poised to support businesses in St Johnsbury, Danville Village, West Danville, Greensboro Bend, and downtown Hardwick. However, lodging options for a multi-day trip remain limited, including convenient hotels and campgrounds. With added lodging and amenities, the LVRT and other regional rail trails could become strong drivers of local business and downtown vibrancy. *Learn more about the potential regional benefits of trails in the Economic Development chapter.*



Transportation investments in the NEK have the potential to enhance mobility, accessibility, and sustainability. Expanding TDM best-practices, micro-mobility, pedestrian, and bicycle infrastructure in downtowns and village centers can increase travel options for residents without personal vehicles, supporting equitable access to jobs, healthcare, and daily needs. Enhanced trail connections, such as Kingdom Trails and the Lamoille Valley Rail Trail (LVRT), create opportunities for both recreation and active transportation, fostering healthier lifestyles while connecting communities.

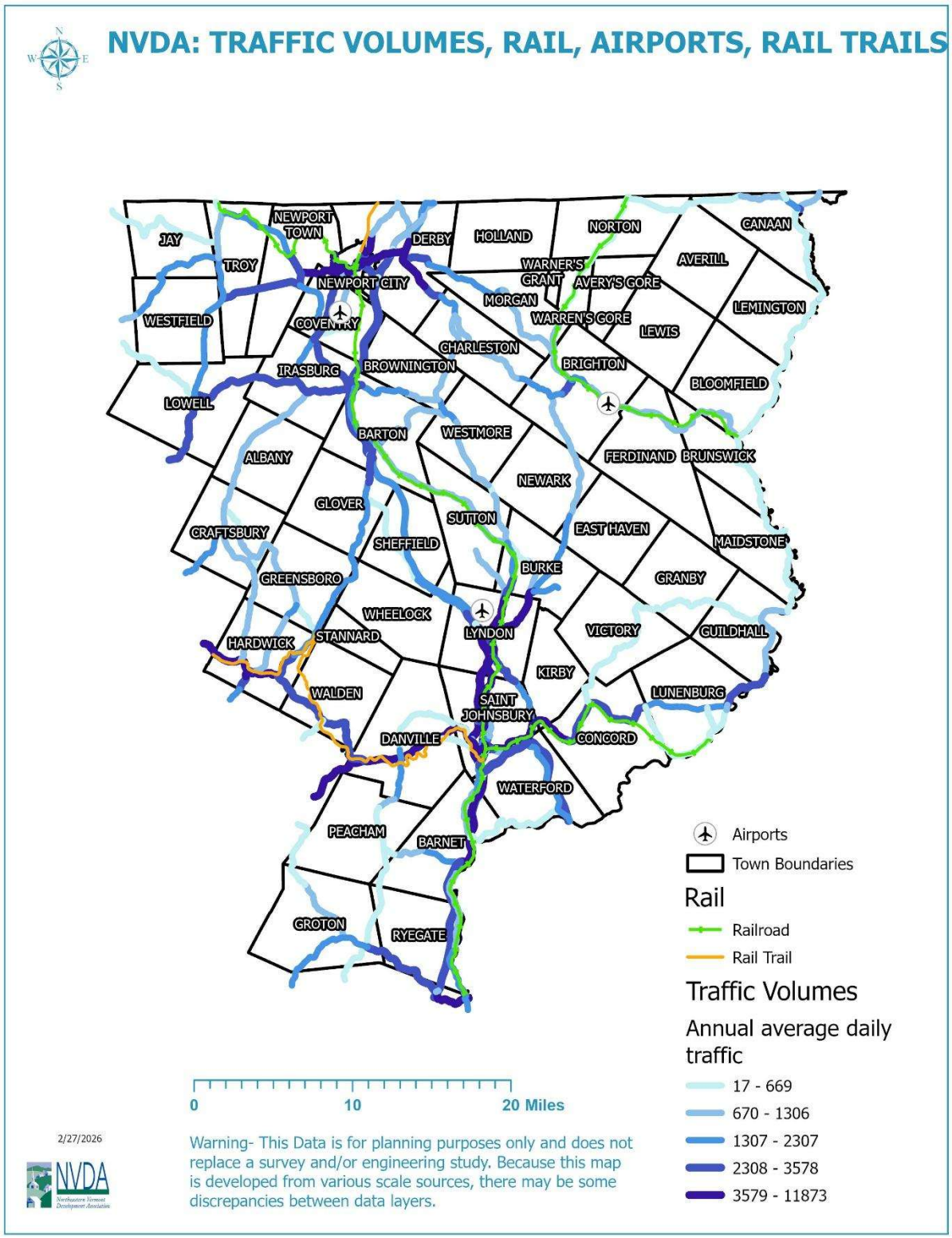


Figure 7. Traffic volumes, rail, airports, and rail trails throughout the region.

FREIGHT RAIL REMAINS ACTIVE BUT NEEDS INVESTMENT, WHILE PASSENGER RAIL HAS BEEN ABSENT AND MISSING SINCE 1965.



Figure 8. Freight travels along Washington County Railroad's Connecticut River Line

The NEK is served by three active freight railroads. The St. Lawrence and Atlantic Railroad runs from the U.S.–Canadian border in Norton to the Connecticut River in Bloomfield via Island Pond. This line primarily carries through-traffic as part of a longer corridor connecting Montreal with Portland, Maine. The Washington County Railroad Connecticut River line extends from White River Junction to the southern edge of Newport City, with typically two trains per weekday—one northbound and one southbound—and access to transload facilities in Orleans, Barton, Lyndonville, and St. Johnsbury. The third line, operated by Canadian Pacific, runs from Newport City to Farnham, Quebec, crossing the Vermont–Quebec border three times. There is an opportunity to support additional freight traffic on the WACR Connecticut River Line/CP line and a state program that enables cost-sharing of building new freight rail sidings. Increased reliance on freight would help to decrease reliance on large trucks, which cause considerable wear and tear on the region's roads and can endanger others on the road.

Passenger rail service has been absent from the NEK since 1965. However, the region still contains dormant infrastructure with potential future value. The Twin State Railroad, running east from St. Johnsbury to the Connecticut River in South Lunenburg, has been unused since the mid-1990s but remains privately owned by CSX. NVDA supports preserving this right-of-way for future freight opportunities; however, acknowledges that limited local control over rail rights-of-way and state highways affects safety and connectivity in downtowns.

THREE GENERAL AVIATION AIRPORTS SERVE THE NEK, WITH LIMITED COMMERCIAL FUNCTION.

The Northeast Kingdom International Airport is the most developed of the three regional airports and has approximately 100-acres of land (some pre-permitted) available for future aviation development, while John H. Boylan Airport in Island Pond has only a grass runway and is not maintained in winter. The Caledonia County Airport is under consideration for sale to Beta Technologies, an electric aircraft manufacturer, which may expand its future role in advanced aviation.

REGIONAL POLICIES & PRIORITIES

NVDA's transportation priorities are informed by municipal plans, the Vermont Agency of Transportation Long-Range Transportation Plan, and stakeholder input, including road foremen meetings, monthly Transportation Planning Initiative (TPI) meetings, and the Transportation

Advisory Committee (TAC). These policies and priorities support a shared vision for a safe, resilient, accessible, and sustainable transportation system in the NEK.

- **NVDA supports traditional settlement patterns** by maintaining compact downtowns and villages surrounded by productive agricultural and forest lands.
- **NVDA discourages year-round residential or commercial development on Class 4 roads** where it would create undue burdens on public services or emergency access, or result in significant environmental impacts such as erosion or forest fragmentation. NVDA will **oppose such development when it rises to the level of Act 250 jurisdiction.**
- **NVDA strongly encourages municipalities to adopt safe road policies** that define maintenance expectations, emergency access standards, and development limits on Class 4 roads. Where communities have land-use regulations, these road policies should align with those regulations.
- **NVDA supports investment in transportation infrastructure** that increases the quality and types of available transportation choices, referred to as Transportation Demand Management (TDM).
- **NVDA encourages walkability and bikeability** by promoting sidewalks or paved shoulders (minimum five feet) along paved roads, especially in downtowns, village centers, as well as village areas that provide critical linkage to downtowns and village cores. *See NVDA Future Land Use (FLU) mapping*.
- **NVDA prioritizes pedestrian and cyclist safety over vehicle speed** by encouraging multi-modal master planning in designated centers of development and by assisting communities in integrating Complete Streets principles into their local regulations and capital planning.
- **NVDA promotes public transit and shared mobility** by supporting RCT services, microtransit, park-and-ride facilities, and carpool/rideshare initiatives.
- **NVDA encourages low-carbon transportation** and expanding EV charging infrastructure in key village centers, downtowns and along major corridors.
- **NVDA supports maintenance and access for freight, agriculture, and forestry** by preserving and upgrading roads and bridges critical to these regional economic sectors.
- **NVDA supports the development of Rail Trail networks** such as the Lamoille Valley Rail Trail (LVRT) and Beebe Spur, including associated trailhead projects, to enhance tourism and regional connectivity.
- **NVDA prioritizes investments and planning efforts that improve the climate resilience of the regional transportation system.** NVDA works with municipalities and VTrans to ensure that road, bridge, and culvert upgrades are designed to withstand flooding, erosion, and other extreme weather impacts, reducing long-term maintenance costs and improving public safety.
- **NVDA supports the protection of large, contiguous forest blocks by discouraging new road construction that would fragment high-priority interior habitats and habitat corridors.** NVDA encourages communities to focus transportation investments on maintaining and improving existing road networks, while minimizing impacts to wildlife corridors, water quality, and carbon storage.

Goals, Objectives, & Strategies

Goal 1. Expand equitable transportation access for everyone in the NEK.

Objectives: Increase rural mobility, improve affordability, and provide reliable options for seniors, youth, and people with disabilities.

Strategies:

- Partner with transit providers to expand regional bus and demand-response services, including the Dial-A-Ride Program, which has provided over one hundred thousand trips in past years.
- Support community ride-share, volunteer driver, and vanpool programs, and promote accessible infrastructure at bus stops, sidewalks, and crossings, particularly in downtown hubs such as St. Johnsbury, Lyndon, Newport City, and Hardwick.
- Explore re-establishing long-distance transit connections linking Newport or St. Johnsbury with Boston, Montreal, and other urban centers to provide residents alternatives to single-occupancy vehicle travel. Extending the Concord Coach lines route from Littleton to St. J or establishing a train shuttle from White River Junction to St. Johnsbury could be two options to tie into existing bus or train routes.

Goal 2. Promote the design and maintenance of safer, better-connected streets.

Objectives: Reduce serious crashes, improve pedestrian and cyclist safety, and strengthen local and regional roadway connectivity.

Strategies:

- Encourage Complete Streets principles in all new or upgraded road projects.
- Assist towns in seeking funding for sidewalks, crosswalks, bike lanes, and shared-use paths, prioritizing gap closures in downtowns and village centers, including Lyndonville, Newport, Derby Line, and smaller villages.
- Support traffic calming and speed management through bumpouts, such as those along Railroad Street in St. Johnsbury, Main Street in Newport City, and Route 2 in Danville.
- Promote advisory bike lanes or other low-cost measures where sidewalks are infeasible. Advisory bike lanes have three lanes: one narrow two-way travel lane in the center flanked by two one-way bike lanes. Vehicles stay in the center travel lane and pass each other using the bike lanes when the bike lanes are empty.
- Encourage planning and enforcement strategies that improve pedestrian and cyclist safety.
- Educate towns about the potential for zoning and subdivision bylaws to incorporate Complete Streets considerations.

Goal 3. Strengthen regional transit and shared mobility.

OBJECTIVES: IMPROVE ACCESS TO JOBS, HEALTH CARE, AND EDUCATION; EXPAND COVERAGE TO UNDERSERVED AREAS; REDUCE RELIANCE ON SINGLE-OCCUPANCY VEHICLES.

STRATEGIES:

- Coordinate with transit providers to expand service frequency and coverage, including RCT microtransit in Newport City and northwestern Derby, commuter service connecting St. Johnsbury and West Danville to Montpelier, and the local shuttle route between St. Johnsbury and Lyndonville.
- Explore flexible rural transit schedules that serve shift workers and other off-peak commuters. Develop a survey for the larger employers in the region about where their employees' origin and destination points of transportation trips. Use this survey to inform RCT of possible opportunities for expansion of service.
- Support integration of more ride-hailing, car-share, and vanpool programs where feasible, especially electric options.

GOAL 4. FOSTER VIBRANT TOWN CENTERS THROUGH SMART TRANSPORTATION INVESTMENT.

OBJECTIVES: REINFORCE WALKABLE AND BIKEABLE DOWNTOWNS AND VILLAGE CENTERS, REDUCE LONG COMMUTES, AND IMPROVE ACCESS TO LOCAL BUSINESSES AND SERVICES.

STRATEGIES:

- Prioritize planning and funding for sidewalks, streetscapes, and streetscape enhancements in designated centers, using AARP walkability audits and local planning studies (such as the Route 5 Corridor Plan in Lyndon) to guide projects.
- Support connections from trails to downtowns, including LVRT extensions to the Bay Street Pavilion in St. Johnsbury and on- or off-road links from Kingdom Trails to Lyndon. Encourage towns to embrace the trails' opportunities for economic development.
- Promote trailhead amenities, parking, and hospitality infrastructure to support recreational and commuter use.
- Coordinate land use and transportation planning to limit dispersed development that results in fragmentation and expands need for transportation infrastructure. Encourage parking management strategies that balance access, commerce, and village character.

GOAL 5. BUILD RESILIENT INFRASTRUCTURE FOR A CHANGING CLIMATE.

OBJECTIVES: REDUCE ROAD AND BRIDGE VULNERABILITY TO FLOODING AND EROSION, IMPROVE STORMWATER MANAGEMENT, AND INTEGRATE RESILIENCE PLANNING INTO MUNICIPAL CAPITAL PROGRAMS.

STRATEGIES:

- Support towns and VTrans in upgrading culverts, bridges, and drainage systems to higher flood standards, including consideration for amphibian and reptile passage where feasible.
- Promote green stormwater infrastructure along roadways and encourage realignment of road segments repeatedly damaged by flooding.

- Assist municipalities in identifying vulnerable transportation assets and pursuing grant funding for resiliency improvements through VTrans District 7 and 9 programs.

Goal 6. Advance clean and future-ready mobility.

Objectives: Support electric and low-emission vehicle adoption, expand regional EV charging infrastructure, and encourage alternative modes that reduce vehicle miles traveled.

Strategies:

- Work with utilities, businesses, and municipalities to install EV charging stations in downtowns, village centers, and along major corridors, including Hardwick, Newport City, Lyndon, and St. Johnsbury.
- Support electric transit and school bus pilot projects.
- Promote e-bike adoption and safe cycling networks, including secure bike parking at trailheads and in downtowns to link micro-mobility with active transportation infrastructure.

Goal 7. Encourage efficient freight movement that supports the regional economy.

Objectives: Promote the maintenance of reliable freight corridors, improve road conditions for safe goods transport, and minimize impacts on communities and natural resources.

Strategies:

- Coordinate with VTrans and freight carriers to identify priority routes and support bridge and pavement improvements along key corridors.
- Preserve rail rights-of-way, including the St. Lawrence & Atlantic, Washington County Railroad, Canadian Pacific, and Twin State lines, and support transload facilities in Orleans, Barton, Lyndonville, and St. Johnsbury.
- Assist towns in balancing freight access with community character and safety concerns.

Goal 8. Empower NEK communities through continued engagement and collaboration.

Objectives: Strengthen Transportation Advisory Committees (TAC), ensure transparency in project selection, and build regional partnerships.

Strategies:

- Provide technical support and training for municipal officials and TAC members.
- Gather input from residents using public meetings, surveys, and digital tools, and encourage locally led planning initiatives, including corridor studies, trail connections, and walkability audits.
- Coordinate with state agencies, transit providers, and local organizations to implement joint initiatives and shared solutions across the region.

Community Resources

- **Rural Community Transportation (RCT)** — riderct.org: Fixed-route bus service, Dial-A-Ride, and other programs supporting regional mobility.
- **Park & Ride Facilities** — vtrans.vermont.gov/highway/parkandrides: Statewide maps and details, including sites in St. Johnsbury and West Danville.
- **State Rail Trails** — railtrails.vermont.gov: The Lamoille Valley Rail Trail and Beebe Spur Rail Trail provide year-round active transportation options.
- **Complete Streets** — vtrans.vermont.gov/highway/complete-streets: Promotes safe, multimodal road design.
- **Sidewalk and Crosswalk Map** — nvda.maps.arcgis.com/apps/instant/basic/index.html: Regionwide map of sidewalks and crosswalks
- **AARP Walk Audit Guide** — Walk Audit Toolkit (VT DOH): Tool for assessing community walkability.
- **ACEEE Walk Audit Toolkit** — aceee.org/toolkit/2025/06/walk-audit-toolkit: National guide for improving pedestrian infrastructure.
- **Drive Electric Vermont** — driveelectricvt.com: Information and incentives for EV adoption and charging.
- **Vermont Local Roads** — localroads.vermont.gov: Training and technical assistance for town road crews.
- **Better Connections Program** — vtrans.vermont.gov/planning/projects-programs/better-connections: Grants linking transportation, land use, and revitalization.
- **Safe Routes to School** — saferoutes.vermont.gov: Supports infrastructure and education for safe student travel.
- **NVDA's Studies & Reports** — https://nvda.net/studies-reports.php: Archive of Scoping, Feasibility, and Alternative Reports from across the Northeast Kingdom
- **Municipal Roads General Permit (MRGP)** — dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/municipal-roads-program: Reduces erosion and protects water quality.
- **Transportation Resilience Planning Tool (TRPT)** — vtrans.vermont.gov/planning/transportation-resilience: Identifies road segments vulnerable to flooding.
- **Vermont Planning Manual, Module 3** — https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/CD/CPR/Planning-Your-Towns-Future/CPR-PlanningManual_Module_3-Bylaws.pdf: *Enabling Better Places Through Incremental Local Bylaw Reform*—guidance for walkable, compact communities.

Energy

The 2026 Northeastern Vermont Development Association (NVDA) Regional Energy Plan provides a practical roadmap for reducing energy costs, strengthening local resilience, and helping communities in the Northeast Kingdom (NEK) make informed choices about their energy future. This plan meets the Department of Public Service's Energy Planning Standards for Regions (Act 174) and qualifies NVDA for substantial deference in Section 248 proceedings. It also attempts to regionally align with the 2025 Climate Action Plan (CAP), 2025 Resilience Implementation Strategy (RIS), and 2022 Comprehensive Energy Plan (CEP).

NVDA's approach emphasizes affordability, access, and local participation—ensuring that every community, regardless of income or location, can benefit from Vermont's clean energy transition. The NEK Energy Plan serves both as a data-informed roadmap and a call to action for coordinated local leadership across transportation, heating, and electricity sectors.

The CAP and RIS underscore that Vermont's energy transformation is also a resilience strategy—reducing dependence on imported fuels, improving the health and comfort of homes, and strengthening communities against disruptions. NVDA supports these goals by integrating energy planning with climate adaptation, disaster preparedness, and community well-being. This includes advancing distributed renewable generation, energy storage, and resilience hubs that ensure reliable access to power and essential services during emergencies.

Recognizing the NEK's higher-than-average energy burden, aging housing, and limited infrastructure, NVDA's energy planning and partnerships focus on solutions that are locally driven, economically sound, and socially equitable. The region's clean energy transition will not happen overnight, but each weatherized home, upgraded heating system, and new electric vehicle charging station represents progress toward a more comfortable, affordable and resilient energy future.

Key Takeaways & Existing Conditions

Current Energy Use in the Northeast Kingdom

Heating buildings and water (the **thermal sector**) accounts for nearly **half of all energy use in the NEK—about 47 percent**. **Transportation** is the next largest use at **38 percent**, followed by **electricity at 15 percent**. Together, these three sectors reflect where most households and businesses spend their energy dollars.

The chart below shows NVDA's regional energy use estimates, measured in million British thermal units (MMBTUs). Data includes both residential and commercial energy consumption, except for transportation, which covers light-duty vehicles only (commercial and freight data are not available at the regional scale). Estimates were developed using 2023 data from multiple sources, including the Vermont Department of Public Service, Efficiency Vermont, the U.S. Census American Community Survey, and the Vermont Department of Labor.

WHY BTUS?

"A British thermal unit (Btu) is a measure of the heat content of fuels or energy sources. One Btu is the quantity of heat required to raise the temperature of one pound of liquid water by 1° Fahrenheit (F) at the temperature that water has its greatest density (approximately 39° F). You can use heat content to equally compare energy sources or fuels. Fuels can be converted from physical units of measure (such as weight or volume) to a common unit of measurement of the energy or heat content of each fuel. The U.S. Energy Information Administration uses Btu as a unit of energy content."

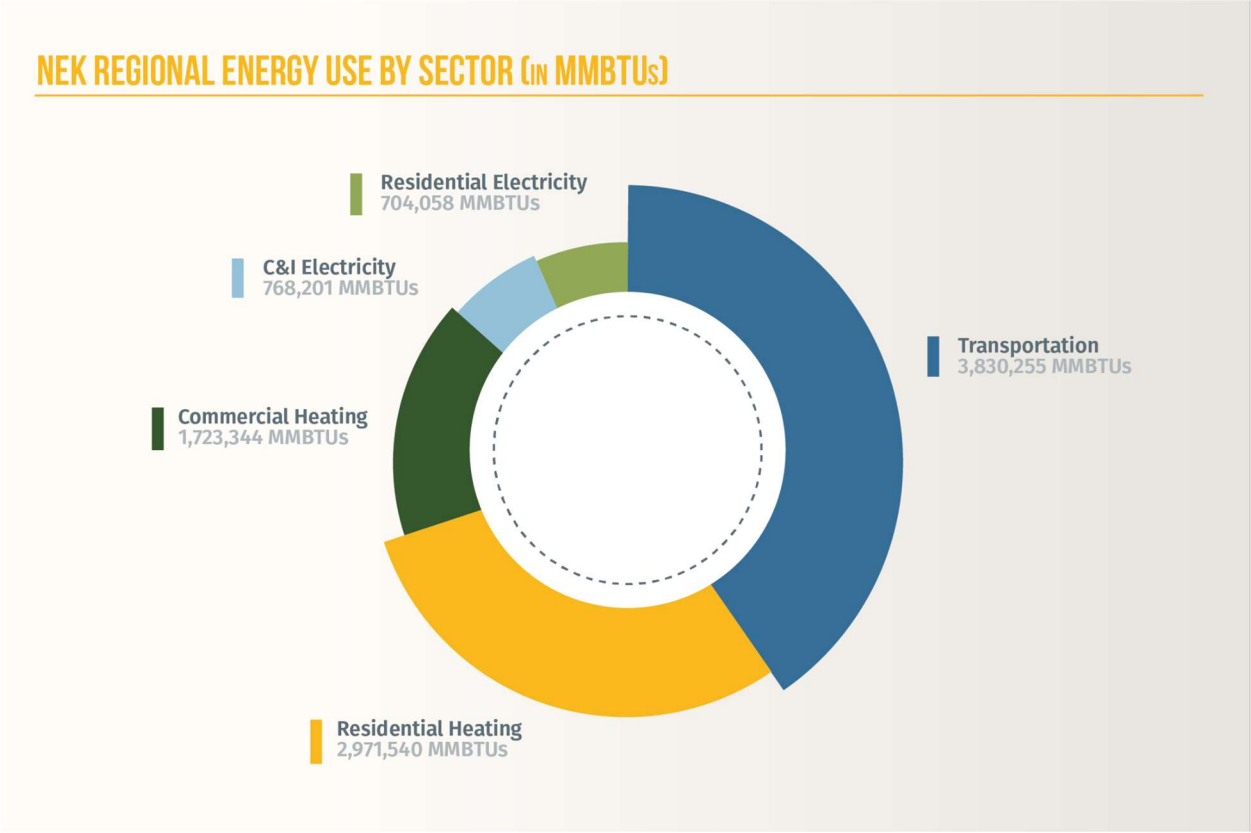
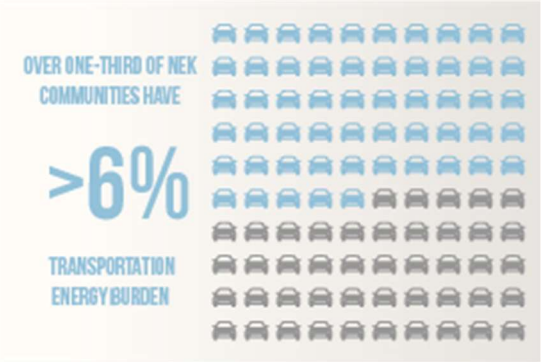


Figure 1. NEK regional energy use by sector. Sources: NVDA analysis from Vermont Department of Public Service, Efficiency Vermont, the U.S. Census American Community Survey, and Vermont Department of Labor 2023 data.

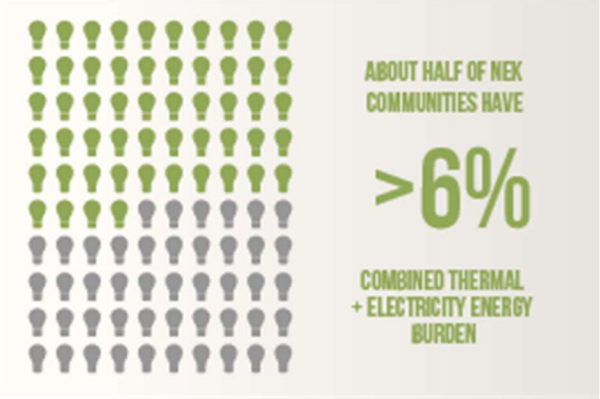
THE NORTHEAST KINGDOM FACES THE HIGHEST ENERGY BURDEN IN VERMONT.

Energy costs remain one of the biggest financial challenges for NEK households. *Energy burden* refers to the proportion of household income spent on energy costs like heating, electricity, and transportation. While Vermont's average energy burden is 11 percent, the NEK experiences some of the highest energy burdens ranging from 7-19 percent – adding up to around **$7,000 in household energy**



spending annually. Essex County, at 14 percent, has the highest total energy burden in the NEK, followed by Orleans County and Caledonia County both at 12 percent. This is a concern for the region because when too much household income goes toward energy costs, it limits what families can spend on other essentials and makes it harder to stay comfortable and secure through Vermont's long winters.

The latest energy burden data was compiled by Efficiency Vermont in 2023 and combines transportation burden with thermal (heating) and electricity burden. Many Vermonters spend a larger share of their income on energy than the state average, especially for heating and transportation in rural areas. These higher costs can strain family budgets and limit spending on other essentials, but they also highlight where the greatest opportunities for savings exist. Improving home efficiency and heating systems not only lowers bills—it makes homes more comfortable and healthier year-round.



Nationally, an energy burden above **6 percent is considered high** and is linked to increased financial stress and greater challenges maintaining long-term health and stability. Reducing energy burden is one way to improve quality of life and economic stability in the region. Weatherization, energy efficiency, and clean heating investments are key strategies for cutting these costs. When programs are affordable and easy to access, NEK residents participate—demonstrating that Vermonters are willing to make practical upgrades when the savings and comfort are clear.

HEATING IS THE REGION'S LARGEST ENERGY USE (47 PERCENT) AND THE GREATEST OPPORTUNITY FOR SAVINGS.

Heating homes and buildings consumes nearly half of all energy used in the NEK. The main reasons: older housing stock, long, cold winters, and a continued reliance on fossil fuels. Most of the region's commercial and industrial energy usage can be attributed to space heating and process heating. Heating loads vary significantly and may be highly specific to the type of industrial processes. For example, types of businesses that tend to employ more workers per establishment can be expected to be the larger consumers of heat energy – such as schools, hospitals and clinics, hotels, and

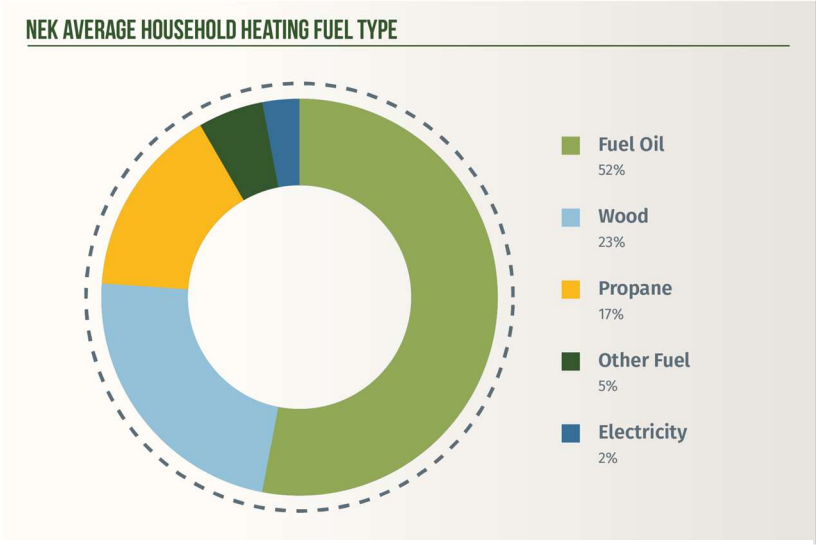


Figure 2.NEK household heating fuel type. Source: ACS 2023.

restaurants. On the other hand, businesses that have few on-site employees – like real estate agencies – use significantly less. NVDA's thermal estimates were developed using data from the Department of Public Service, Efficiency Vermont and assumptions about business patterns from the Vermont Department of Labor. Weatherization data is accumulated from Efficiency Vermont, the state Weatherization Assistance Program (WAP), and 3E Thermal. About **52 percent of homes heat with fuel oil**, 23 percent with wood or biomass, 17 percent with propane, and only 2 percent with electricity.

Roughly **30 percent of NEK homes were built before 1940**, many lacking insulation and air sealing. These buildings lose heat quickly and cost far more to keep comfortable. Outdated heating systems and high fuel prices compound the problem, contributing to the region's high energy burden.

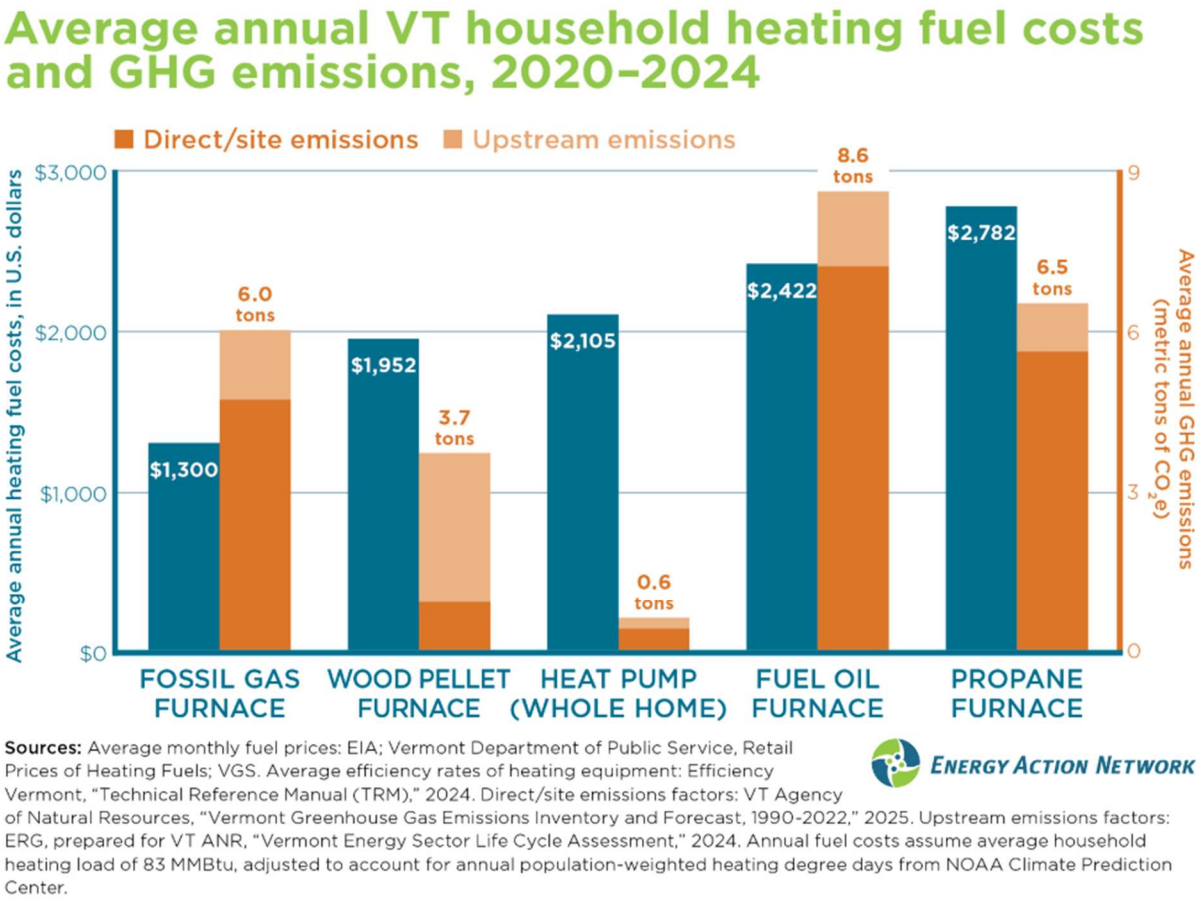


Figure 3. Heating fuel costs and GHG emissions, 2020-2024. Source: *EAN 2025 Annual Report, EAN-APR-2025_graphs-logo_50*

While clean-heat technologies continue to advance, large-scale networked systems remain an emerging opportunity for the NEK. **Networked geothermal systems** and Thermal Energy Networks (TENs)—shared underground loops that circulate ambient-temperature water for heating and cooling—are already operational on college campuses and in several communities across the country, including pilot efforts underway in Vermont. In the Northeast Kingdom, St. Johnsbury and Newport have begun exploring whether district-scale or campus-style systems could someday serve clusters of buildings. These systems can reduce fossil-fuel dependence and stabilize long-term energy costs, but their feasibility depends on site conditions, upfront capital, and coordinated

participation. For most NEK municipalities, such projects will likely unfold gradually, as local planning, workforce capacity, and state or federal incentives align.

In the meantime, the most immediate and cost-effective pathway for reducing thermal energy use in the NEK remains **weatherization and cold-climate heat pump adoption**, which together lower household fuel costs, improve comfort, and lay the groundwork for broader clean-heat transitions in the future.

Thousands of homes still need weatherization. Of approximately 27,000 occupied homes in the NEK, only about 4,600 have been weatherized since 2010—roughly 17 percent. NVDA and partners estimate that at least **8,000 older homes** would see immediate benefits from insulation, air sealing, and clean heating upgrades. Efficiency Vermont, NETO (the regional provider of the state Weatherization Assistance Program), and NEKCA continue to expand weatherization capacity and incentives.

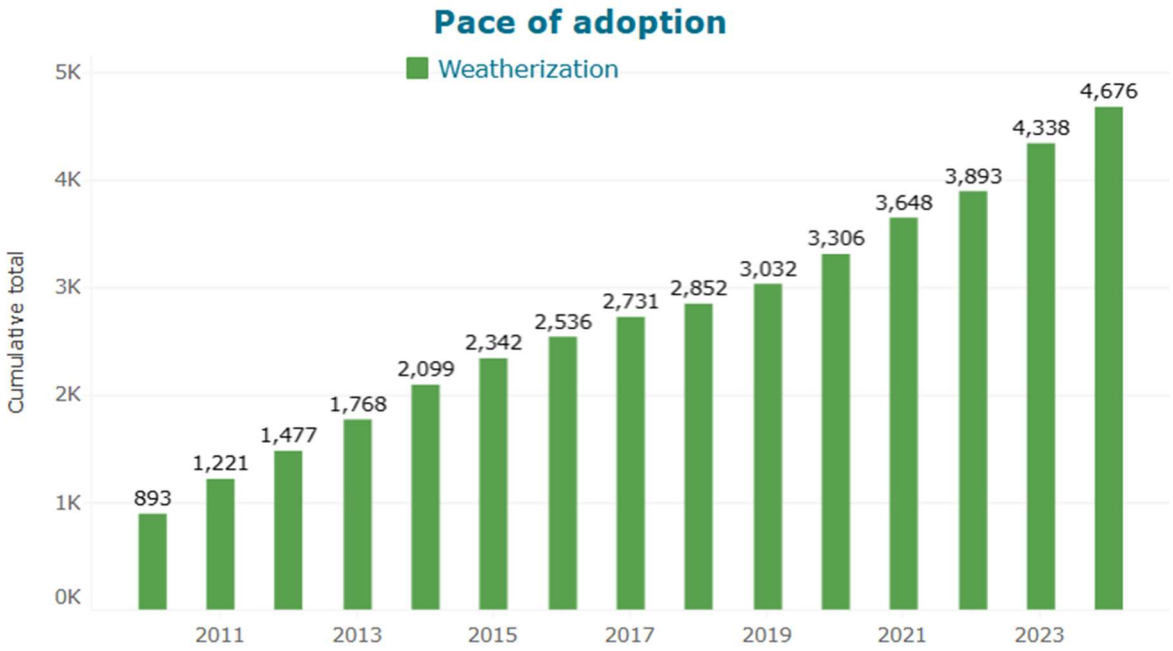


Figure 4. Pace of adoption of weatherization in the NVDA region/ NEK. Source: EAN Energy Dashboard

Renters face additional barriers since most incentive programs target homeowners. Nearly 75 percent of people who rent homes in Vermont have incomes under the median household income of approximately $63,500. Often renters cannot weatherize their homes because it is cost-prohibitive, but also because major structural changes to a building must include a willing landlord to participate. NVDA supports expanding *renter-inclusive* programs that share benefits between tenants and landlords, improving both housing quality and affordability.

FOR TOO MANY NEK HOUSEHOLDS, WEATHERIZATION AND CLEAN-ENERGY PROGRAMS REMAIN OUT OF REACH.

Many residents remain unable to access the benefits of Vermont's clean-energy transition. Renters, mobile-home owners, low-income households, people with disabilities, and residents without reliable internet, transportation, or time to navigate programs face persistent barriers. The result is

that those who could benefit most from lower energy costs and healthier homes are often the last to receive them. As described by NETO, local weatherization teams now spend more time repairing homes than insulating them. Common "deferral" causes include roofs or foundations needing repair, vermiculite or asbestos abatement, wiring issues, and the absence of available contractors. As of 2025, only two companies in the NEK perform vermiculite abatement for NETO weatherization projects, and contractor shortages routinely delay projects or force deferrals. For mobile-home residents, the best option is often full replacement—an unaffordable dream for most families. These barriers highlight that energy inequity in the NEK is not only about fuel cost but about capacity: the ability to make homes safe and eligible for efficiency programs, the availability of local labor, and the time, connectivity, and transportation required to access assistance. Without targeted solutions, statewide goals for "zero deferrals" and lower energy burden will remain out of reach in the Kingdom. Addressing these systemic gaps will require expanded repair funds, workforce incentives, and outreach designed specifically for remote rural locations.

TRANSPORTATION IS THE SECOND-LARGEST ENERGY USE (38 PERCENT)—AND A SIGNIFICANT DAILY EXPENSE.

Because most residents drive long distances for work, services, and childcare, transportation is both essential and expensive. On average, NEK drivers travel up to **20,000 miles per year**, often in older vehicles that rely on gasoline or diesel. The result: high fuel costs, higher maintenance costs, and greater exposure to price volatility.

NVDA is supportive of transportation infrastructure that increases the quality and types of available transportation choices, referred to as **Transportation Demand Management (TDM)**. TDM is also a priority of the Vermont Comprehensive Energy Plan. Multi-modal transportation that connects people to jobs and services (affordably and conveniently) has the potential to reduce single-occupancy trips, lower transportation costs and fossil fuel pollution, while improving health and economic opportunities in the NEK.

The region has made measurable progress. The number of public electric vehicle (EV) charging stations in the NEK has nearly tripled since 2018, and there are now more than **600 registered electric vehicles**—most charged at home. It is also encouraging to see RCT has been purchasing EV buses for public transit. RCT currently operates 23 electrified or hybrid vehicles and has 11 more on order, significantly expanding low-emission public transit capacity in the region. As of 2025, there are over 400 public electric vehicle (EV) charging stations listed on the Drive Electric Vermont website. To meet state targets, roughly 4,500 EVs would need to be on NEK roads by 2030.

According to the Vermont Department of Health, the NEK has some of the highest percentages of the state population aged 60 years or older, as well as individuals with a disability. Lack of transit and safe walking infrastructure makes it harder for older adults to stop driving, even if they want to. Long travel distances in the NEK amplify the challenges of aging. Transportation is the top concern of people who want to age in place. Low-income people, children, older adults, people with a disability and those who can't or choose not to own a car benefit most from safer streets and other mobility options. Infrastructure for walking, biking, and rolling makes rural communities more attractive places for young people to live, work, and start businesses.

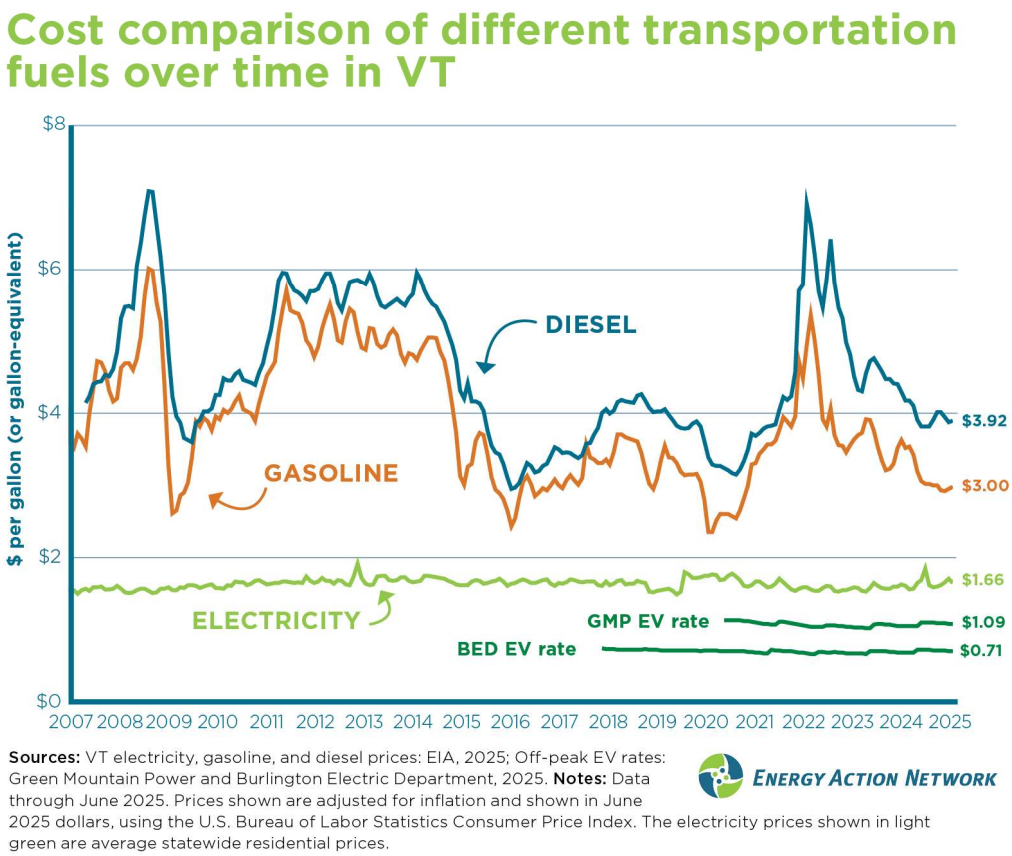


Figure 5. Cost of transportation fuels from 2007 to 2025 in Vermont. Source: EAN 2025 Annual Report *EAN-APR-2025_graphs-logo_26, https://eanvt.org/apr-graphics/*

Electric vehicles and e-bikes can dramatically reduce fuel and maintenance costs, often equating to about **$1.50 per gallon** when compared to gas. However, many residents still lack access to charging or affordable vehicle options. Expanding *public charging stations* in village centers, workplaces, and key travel corridors will be critical. As EV technology continues to advance, prices are expected to drop and more used models will become available, making EV ownership increasingly feasible for rural Vermonters. Resources like Drive Electric Vermont, Efficiency Vermont and the electric utilities continue to offer guidance, incentives and local support.

Transportation strategies that fit NEK life include:

- Expanding **shared (electric) mobility options** (vanpools, car-shares, and park-and-rides)
- Supporting **Complete Streets** design for safer walking and biking
- Encouraging **public EV charging equipment** in regional downtowns, village centers, and opportunity zones, as well as along key interstate and state highway corridors
- Improving **public transit access** through Rural Community Transit (RCT) partnerships
- Encouraging **employers to support telework and carpooling**

Together, these efforts can reduce transportation costs, extend vehicle life, and make travel safer and more efficient—without limiting personal freedom or mobility. As transportation and land use policies are considered for the NEK, it will be important to closely work and plan with, not just for, our most impacted community members. This will help ensure that NEK transportation energy

burden, the highest in the state, is reduced equitably and that people with low incomes, disabilities, older Vermonters, and renters do not struggle to afford electric vehicles, electric bikes/scooters, charging equipment, and other desired mobility options.

Electricity use is relatively low (15 percent) but will grow with heating and vehicle electrification.

The average NEK home uses about **6,300 kWh per year**—lower than the U.S. average but expected to rise as more homes switch to electric heating and vehicles. Between 2021 and 2023, total regional electricity demand increased by roughly **10 percent**, likely reflecting both economic activity and early electrification trends.

NEK Electric Utility Data	**(KWH Usage by Year)**		
Sector	**2021**	**2022**	**2023**
Commercial & Industrial	220,346,240	226,420,814	257,349,699
Residential	214,000,488	215,179,079	220,472,424
Total	434,346,728	441,599,893	477,822,123
Average Residential Usage	**6,290**	**6,294**	**6,427**

Figure 6. Efficiency Vermont Report provided to NVDA, 2024.

Taking the "LEAP" - NEK Energy & Emissions Forecasting

Comparing the 2015 NVDA Regional Energy Plan and current total energy use estimates across sectors shows an overall increase of about 3.5 percent. This slight energy growth might indicate that early efficiency and weatherization gains have largely offset modest growth in electric and transportation demand. Continued progress on electrification and renewable supply will be needed to drive meaningful long-term reductions.

Sector	***2015 Regional Plan***	***2026 Regional Plan***	***Change in MMBTUs***
Transportation	3,720,262	3,830,255	+109,993
Residential Thermal	3,197,621	2,971,540	-226,081
Commercial Thermal	1,239,174	1,723,344	+484,170
Residential Electricity	737,135	704,058	-33,077
Commercial Electricity	751,710	768,201	+16,491
Total	***9,645,902***	***9,997,398***	***+351,496***

Figure 7. NVDA Regional Plan energy use estimates by sector (MMBTUs) 2015 vs. 2026.

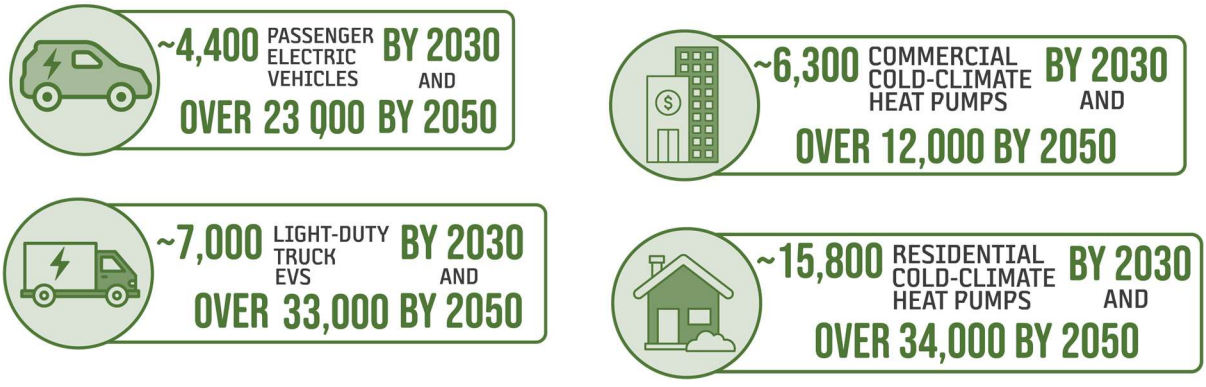
NEK LEAP Projections at a Glance

Vermont's Low Emissions Analysis Platform (LEAP) projections can help the NEK (and its communities) understand the potential pace of adoption of energy-efficient technologies and electric vehicles and how regional actions could align with Vermont's long-term climate goals. These are not binding requirements but shared regional aspirations, intended for planning inspiration and public conversation. To help meet state climate goals, the NEK region might attempt to transition to:

NVDA Regional LEAP Hypotheticals	*2025*	*2035*	*2050*
Weatherized Homes	6,221	13,446	27,752
Heat Pump Water Heaters (Res)	5,650	18,817	25,819
Residential Heat Pumps	8,597	23,112	34,060
Commercial Heat Pumps	3,201	9,680	12,380
Passenger Electric Vehicles	1,172	10,303	23,959
Light-Duty Truck Electric Vehicles	1,280	16,378	33,113

Figure 8. NVDA Regional LEAP Hypotheticals for 2025, 2035, and 2050.

Perhaps this is not so hard to imagine when looking at current regional adoption trends from 2015-2024 (EAN VT Energy Dashboard, 2024). In about 10 years, NEK registered EVs grew from 127 to 889, weatherized homes from 2,342 to 4,676, heat pump water heaters from 211 to 2,023, and cold-climate heat pumps from 31 to 2,415. These shifts show steady progress is already underway, all across the region and Vermont. By continuing to voluntarily adopt these technologies, residents can save on fuel and maintenance costs, increase energy resilience during storms, keep energy dollars local and reduce fossil fuel pollution — all while making their own choices about what works best for their households.



According to LEAP modeling, the region would need to cut greenhouse gas (GHG) emissions by approximately 89 percent, from 570 to 65 thousand metric tons of CO_2e between 2015 and 2050, to meet the state's Climate Action Plan (CAP) targets. By comparison, baseline ("business as usual") projections show emissions declining only to 406 thousand metric tons by 2050, a reduction of roughly 29 percent, highlighting a substantial gap between current trajectories and the level of action required to meet state climate goals. However, this gap also represents opportunity: through

expanded energy efficiency, building and transportation electrification, strategic renewable energy deployment, and supportive local policies, the region can accelerate emissions reductions and move closer to alignment with state targets. See the energy chapter's Goals section for more specific strategies and benchmarks designed to help close this gap and put the region on a more ambitious and achievable climate pathway.

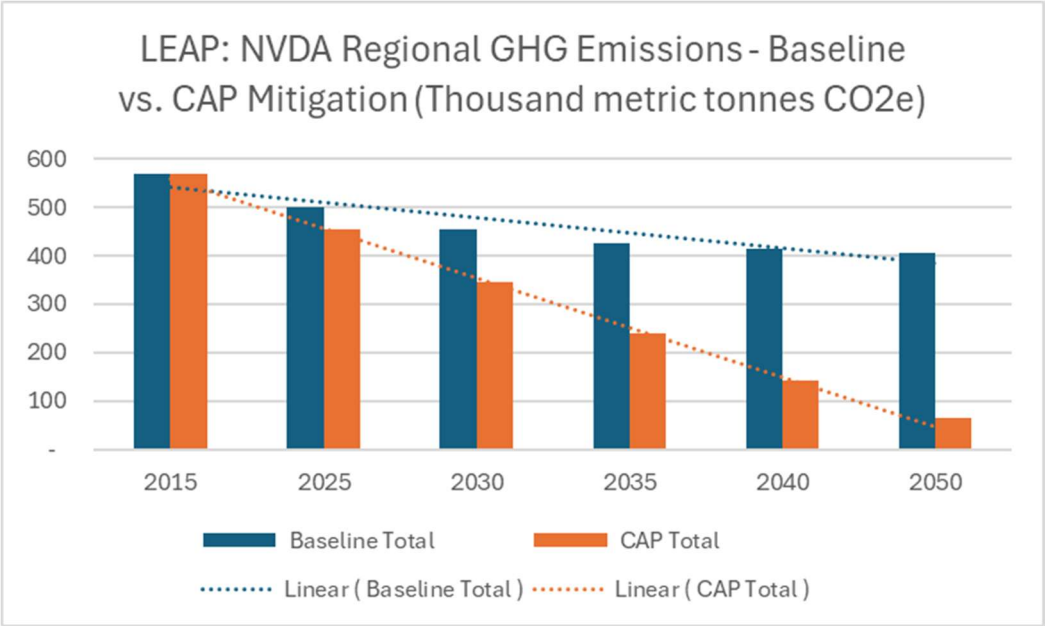
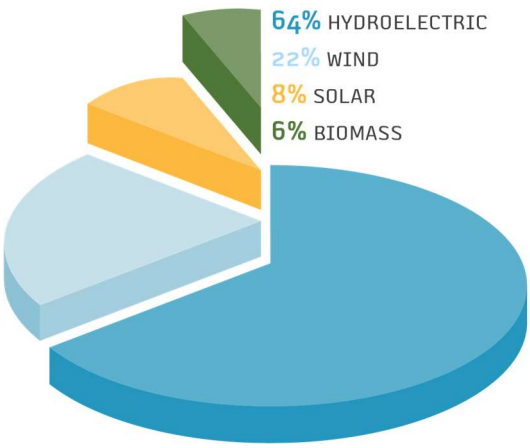


Figure 9. NVDA Regional greenhouse gas emissions, baseline vs. mitigation.

THE NEK ALREADY PRODUCES ABOUT A THIRD OF THE RENEWABLE ELECTRICITY THAT VERMONT ASPIRES TO GENERATE IN-STATE BY 2050.

This NVDA infographic shows the NEK's total energy demand across all sectors (transportation, thermal, and electricity), compared to current renewable energy generation located within the region. While demand is rising, the NEK already hosts a substantial amount of existing renewables and not much load (relative to other regions)—totaling 1,757,8882 MWH in annual electricity production.



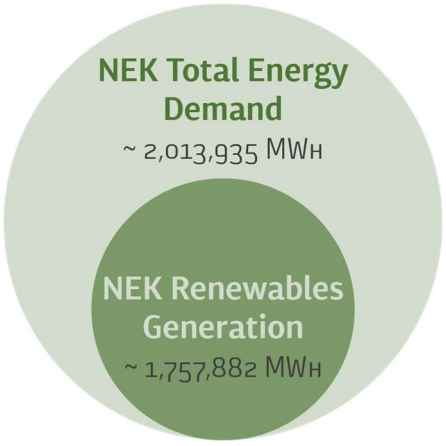


Figure 10. NEK renewable generation capacity.

In 2023, the NEK generated approximately 1.76 million MWh of renewable electricity, accounting for roughly 30 percent of Vermont's modeled 2050 in-state renewable generation goal under the 50 percent scenario. Even relative to nearer-term benchmarks, the NEK already exceeds twice the generation required under a 10 percent in-state scenario for 2032 and meets nearly 90 percent of a 25 percent scenario. This demonstrates the region's outsized contribution to Vermont's renewable-energy supply and underscores its importance as a statewide clean-energy exporter, despite the NEK hosting only 8 percent of the state population.

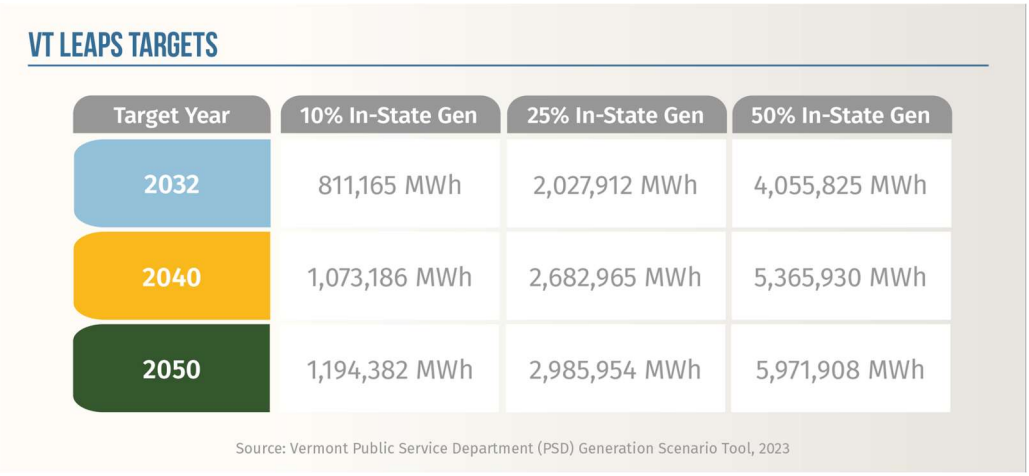


Figure 11. VT LEAPS targets.

The NEK produces more renewable electricity relative to its population than any other region in the state—and there is room for more. NVDA's updated energy mapping identifies over **13,000 acres** of land with potential for solar generation, including around **5,200 acres** suitable for *agrivoltaics*—dual-use solar that maintains active farming, and over 587,000 MWh/year of rooftop solar potential.

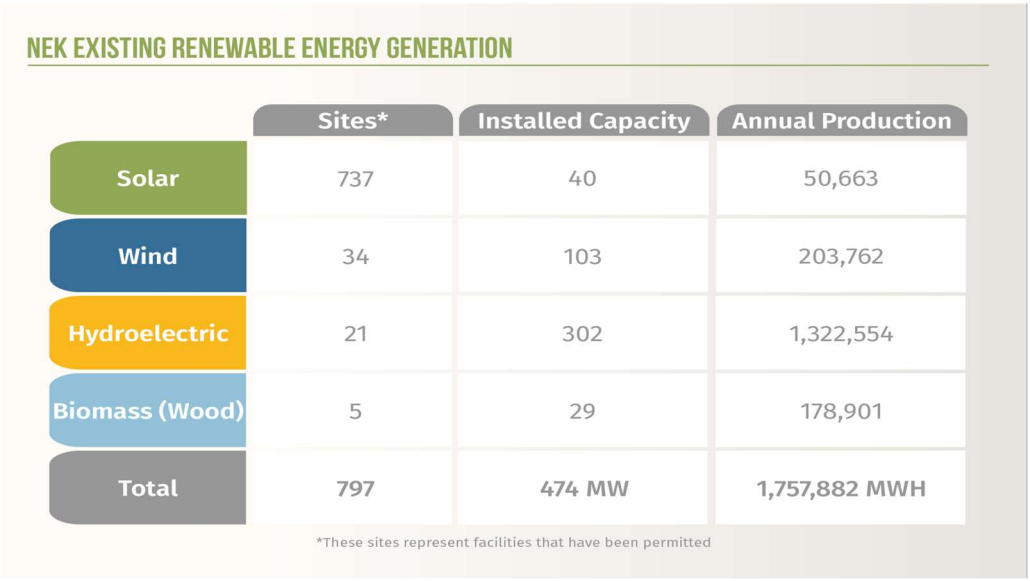


Figure 12. NEK existing renewable energy generation. Source: VT Public Service Department.

As energy use and generation evolve across the NEK, thoughtful siting becomes increasingly important. The region's renewable resources—such as wind, solar, and geothermal—offer opportunities for local investment and energy independence, but large-scale development must be balanced with protection of the working landscape, scenic character, and community values. NVDA's siting policies

and mapping tools guide this balance, helping municipalities identify where renewable energy can be responsibly located to meet regional needs while preserving the qualities that make the NEK unique.

NVDA Policy on the Development of Renewable Energy Resources

This region has a responsibility to plan for adequate supply of energy to meet local energy demand and reduce energy burden. Planning activities may include the production, storage, siting, and distribution of energy. Individuals, businesses, organizations, and communities are encouraged to explore emerging energy supply, efficiency, and distributed energy resource (DER) opportunities that meet accepted environmental and social standards and contribute to Vermont's climate and energy goals.

New renewable energy development shall meet the highest standards required by law, while prioritizing safety, reliability, grid stability, affordability, equity, and environmental stewardship**. In determining whether a project advances the orderly development of the region, NVDA will consider current and historical land use patterns, regional culture, community input, economic and health impacts, and landowner rights, consistent with 30 V.S.A. § 248.** Any development shall, to the extent possible be done to mitigate adverse impacts to the region. Renewable generation project size categories are defined in this plan as follows.

	Solar	Wind
Residential to Community-scale	< 150 kW	< 20 kW
Large-scale/Commercial	150-999 kW	20-999 kW
Utility-scale	≥ 1 MW	≥ 1 MW

Figure 13. Renewable Generation Project Size Categories.

This plan aims to balance environmental quality and important natural resources with energy production, with special emphasis on the value of forest lands in sequestering and storing carbon. Proposals should demonstrate robust community engagement and measurable local and regional benefits, particularly with respect to affordability, accessibility, and resilience. **Project developers shall demonstrate that proposed energy projects provide tangible local and regional benefits, including projected municipal tax revenue and binding host-community payments; measurable improvements to grid resilience, such as battery storage or other load-balancing capacity where feasible; documented evidence of stable or reduced long-term energy costs for local residents; and meaningful opportunities for community participation or ownership.** Long-term maintenance, safety issues, decommissioning, and land reclamation procedures required at the end of the energy project's life must also be included in the project plan. This is especially relevant when siting large-scale, commercial or utility-scale facilities, which could have impacts on neighboring communities. See NVDA's *Standard for Renewable Energy Projects ≥150 kW* detailed below.

NVDA has a commitment to ensure that such renewable energy development is equitable, affordable, feasible and ideally results in additionality. NVDA supports energy development that will not worsen already congested transmission, particularly in the Sheffield-Highgate Export Interface (SHEI) area, where several existing generators are frequently curtailed by ISO New England. It is unlikely that any single solution will solve congestion within the SHEI area and, as such, it is anticipated that incremental progress will be achieved as partial solutions are implemented. In the meantime, NVDA will support projects that are consistent with the land use and conservation measures in this plan and in duly adopted plans of impacted municipalities.



Figure 14. A 150-kW solar array in the NEK.

Additionally, NVDA will expect project developers to work with utilities and other stakeholders to explore innovative strategies that shift generation away from the hours when generation exceeds load within the SHEI area or otherwise avoids exacerbating congestion on the grid. An example of such a project would pair battery storage with a solar system to control when the project's power is exported to the grid. In determining support for such a measure, NVDA will seek guidance from the long-range Transmission Plan and Integrated Resource Plans in the region and will consult with utilities, VELCO, and other stakeholders.

NVDA Siting Guidelines for Renewable Energy Generation

NVDA Energy Maps have been updated to be consistent with the Climate Action Plan and Act 174 standards, with an emphasis on the value of forest lands for sequestering and storing carbon. NVDA Energy Maps can be used to identify areas unsuitable for development, but more importantly guide decision-making around identified potential (and preferred) areas for renewable energy development to meet regional energy demand, reduce energy burden, and contribute to the state energy and climate goals.

Underlying assumptions were made about suitability factors, such as slope and direction of land, elevation, wind speeds, and access and proximity to grid-related infrastructure. Additional statewide layers identified include known constraints, possible constraints, and a third layer has identified regional 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 wilderness areas, wetlands (Class 1 and Class 2).

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 (conserved) lands, deer wintering areas, Act 250 mitigated agricultural soils, hydric soils, highest priority forest, connectivity, and physical landscape blocks, and highest priority surface water and riparian areas.

Regional constraints: NVDA's regional plan has long held that rural areas should receive very little commercial or utility-scale development unless it occurs in an established industrial park, or in an area specifically designated in the local bylaw or plan as being well suited to such uses. Lands with an elevation of 2,000 feet or more merit consideration as a special class of rural lands that should be protected from any large-scale commercial or industrial development characterized by a constructed height of 100 feet or more, and an acre or more of permanent site disturbance, such as clear-cutting. These lands, as indicated on NVDA's renewable energy maps, contain one or a combination of factors that make them unsuitable to such development; contiguous forest cover, sensitive wildlife and plant habitat, conservation lands and recreational assets, managed forestland, and headwaters and ephemeral surface waters, which are highly vulnerable to erosion and man-made disturbance. High elevation forest cover must be kept unfragmented for the attenuation of flood flows, carbon storage/sequestration potential, the benefit of wildlife habitat and linkage, and public enjoyment through passive recreation. It is NVDA's position that no further development of commercial or utility-scale wind turbines should take place in the NEK *(see the 2015 NVDA Wind Study for more details).*

The maps accompanying this plan do not carry the weight of zoning, and the siting of renewables on prime acreages (i.e., without known constraints) is not a foregone conclusion. Rather regional maps should be viewed as a starting point for our member municipalities to determine suitable and unsuitable locations for renewable energy development. NVDA strongly encourages municipalities to conduct additional site investigations to identify local constraints (as well as preferred sites in addition to existing statewide preferred sites) in order to address the environmental, aesthetic, civic, economic, and cultural concerns unique to each community. **Municipalities are encouraged to develop local siting and project criteria through the municipal enhanced energy planning process.**

NVDA Preferred Siting Policies

Solar - NVDA has determined that the following types of locations in the region should be prioritized for future solar generation:

- **Built Environment and Previously Disturbed Lands -** Solar development is preferred within the built environment and on previously disturbed lands where impacts to forests, prime agricultural soils, and habitat connectivity are avoided. Such areas include:
    - Rooftops of existing residential, commercial, institutional, and industrial structures;
    - Parking lot canopies and surface parking lots;
    - Brownfield sites not located within designated downtowns or village centers; and
    - Earth extraction sites, including active or abandoned gravel pits and quarries.

- **Agrivoltaics and On-Farm Solar -** Solar development on farms is preferred when the system is designed to primarily offset local, agricultural energy demand and/or is integrated with active agricultural uses such as grazing, pollinator habitat, or installation on existing structures.
- **Industrial Parks -** Solar development is preferred within industrial parks when systems are sized to primarily serve local energy demand rather than bulk export to the grid. Priority should be given to rooftops, parking areas, and undersized or otherwise constrained parcels that are not reasonably suitable for commercial or industrial building development.

Wind - It is NVDA's position that no further development of large-scale, commercial or utility-scale wind turbines should take place in the NEK.

- Existing small turbines in the region are sited in very low-density areas and on farmland. NVDA strongly urges municipalities to consider density in their specifications, as even small wind turbines can produce noise that is incompatible with many residential areas. This can be established through the use of noise ordinances or through required distances from nearby residential uses, as specified in a locally adopted municipal plan with Substantial Deference.

Hydro - NVDA views hydropower as a long-term, relatively secure, and stable resource, with a focus on maintaining and upgrading existing infrastructure while pursuing new facilities only where practical, due to limited opportunities and high costs associated with development and permitting.

Methane - NVDA supports expanding manure methane generation in the region's energy mix, encouraging municipalities and farmers to utilize technical assistance, incentives, and grants, while promoting cost-effective technologies and energy recovery from food scraps in alignment with Act 148's mandatory waste diversion requirements.

Biomass - NVDA recognizes that appropriately scaled biomass can support local energy needs, forest management, and regional economic activity. Residential, farm, school, and municipal thermal systems that displace fossil fuels and rely on responsibly managed local wood resources are generally compatible with surrounding land uses and are supported where consistent with forest stewardship goals.

- Utility-scale (≥1 MW) biomass generation, particularly facilities that export electricity to the grid and operate on a continuous basis, presents greater siting challenges. Such facilities may involve sustained truck traffic, fuel storage, emissions controls, noise, and visual impacts that extend beyond the host parcel or municipality. Municipalities are encouraged to adopt performance standards for utility-scale energy facilities and to protect long-term forest productivity through forestry overlays, enrollment in Vermont's Current Use Program, conservation easements, and use of Forestry Land Evaluation and Site Analysis (FLESA). Biomass development should not contribute to forest fragmentation or undermine the region's forest-based economy.

Geothermal - NVDA sees significant potential for geothermal expansion in the NEK, particularly open-loop well systems and networked Thermal Energy Networks (TENs), as a way to reduce fossil-fuel dependence, lower long-term energy costs, and support both new and existing construction,

with implementation dependent on site conditions, local planning, workforce capacity, and available incentives.

Overview of Section 248 and Act 174

The approval process for siting energy generation projects is largely under the jurisdiction of Section 248 of Title 30. The Vermont Supreme Court has expressly exempted projects subject to Section 248 from local permitting. At this time municipalities have only the power to regulate “off-grid” renewables – and must do so in accordance with Vermont Statute. In accordance with Section 248, energy developers must obtain a Certificate of Public Good (CPG) from the Public Utility Commission (PUC) before beginning site preparation or construction of electric transmission facilities, electric generation facilities, and certain gas pipelines within Vermont. Prior to issuance, the PUC takes into account the environmental, economic, and social impacts of a proposed facility. Municipalities and other groups are allowed to participate in the Section 248 review process, but many find doing so to be difficult and expensive.

Regional and municipal plans currently receive "Due Consideration" in the Section 248 siting process. Act 174 was passed in 2016, establishing a set of energy planning standards for municipal and regional plans, which if met, allow those plans to carry greater weight in the Section 248 siting process for energy generation. Act 174 provides an opportunity for regions and municipalities – from the planning commission and selectboard to energy committees and citizens – to shape and inform their energy future. Plans that meet these standards will be given an affirmative "determination of energy compliance" and will receive "Substantial Deference" in the Public Service Board's Section 248 siting process. Meeting these standards is entirely voluntary; if municipalities do not wish to update their plans, they will continue to receive "Due Consideration" in the Section 248 process.

For more information, please visit the Vermont Department of Public Service (DPS) website.

NVDA Standard for Renewable Energy Projects ≥150 kW

For renewable energy projects with a nameplate capacity of 150 kW or greater, and particularly those 1 MW or greater, NVDA shall evaluate whether a proposed project advances the orderly development of the region by demonstrating meaningful community engagement, equitable benefit distribution, and tangible contributions to regional affordability and resilience.

This standard guides NVDA’s determination of regional support and is not intended to supersede the jurisdiction of the Vermont Public Utility Commission (PUC).

I. Scale-Based Applicability
A. Projects 150–999 kW
Developers shall demonstrate proportional compliance with Sections II and III below.

B. Projects ≥1 MW
Developers shall fully demonstrate compliance with Sections II, III, and IV below, reflecting the broader land use, grid, and community impacts of utility-scale facilities.

II. Meaningful Pre-Application Engagement
Engagement shall occur prior to filing a petition under 30 V.S.A. § 248 and while project design remains materially adaptable. At minimum, developers shall demonstrate:

1. Early consultation (3–6 months pre-filing) with:
    - Host municipality planning commission
    - Selectboard
    - Regional planning commission (if requested)
2. At least one publicly warned informational meeting held 60–90 days prior to filing.
3. Direct notice to abutting landowners and affected stakeholders.
4. A written Community Engagement Report that:
    - Identifies concerns raised;
    - Documents specific design or mitigation changes made;
    - Explains why certain requested modifications were not feasible.

Documented design adaptation shall be given substantial weight in determining whether a project contributes to orderly development.
Engagement conducted only after filing shall be afforded limited weight.

III. Energy Democracy and Direct Local Benefit
NVDA recognizes that renewable energy development must contribute not only to statewide generation targets, but also to affordability, equity, and host-community resilience. For **projects ≥150 kW**, developers shall demonstrate good-faith exploration of mechanisms that provide tangible, measurable local benefit.

For **projects ≥1 MW**, developers shall demonstrate at least one of the following binding mechanisms:

A. Direct Ratepayer Benefit

- Allocation of a defined portion of generation to local subscription at stable or discounted rates;
- Long-term price stabilization agreements benefiting local ratepayers;
- Community solar participation opportunities targeted to host-town residents.

Preference shall be given to structures that measurably reduce long-term energy burden for low- and moderate-income households and/or environmental justice populations as defined by Vermont's Environmental Justice Law (3 V.S.A. § 6002).

B. Binding Host Community Agreements

- Annual payments or stabilization agreements proportional to documented project impacts;
- Contributions to municipal resilience infrastructure (e.g., emergency backup power, cooling centers);
- Long-term municipal energy offset arrangements.

Such agreements shall be transparent and legally enforceable.

C. Community Ownership or Shared Equity

- Cooperative ownership structures;
- Partial municipal equity participation;

- Revenue-sharing mechanisms;
- Local investment subscription opportunities.

Projects incorporating community ownership shall be viewed as strongly advancing regional equity objectives.

D. Grid Resilience and Congestion Mitigation
Particularly within constrained transmission areas such as the Sheffield-Highgate Export Interface (SHEI) area, developers shall demonstrate that the project:

- Does not materially exacerbate congestion; or
- Incorporates load-shifting, storage, curtailment management, or other operational controls that improve regional grid stability.

Projects that integrate battery storage, demand response, or dispatch coordination shall be viewed more favorably.

IV. Demonstrated Net Regional Benefit (≥1 MW)
For utility-scale projects, NVDA shall evaluate whether the project provides net regional benefit beyond statewide renewable credit contribution. This may include:

- Documented contribution to municipal tax base;
- Reduction in regional energy burden;
- Increased local workforce participation;
- Enhancement of grid resilience for host communities;
- Long-term land stewardship commitments exceeding minimum regulatory standards.

Projects exporting bulk energy with minimal local benefit may be determined to provide limited contribution to orderly regional development.

V. Legal Clarification
This policy:

- Does not create municipal veto authority;
- Does not impose additional permitting requirements beyond Vermont statute;
- Establishes the criteria by which NVDA will determine whether a project merits affirmative regional support under Act 174.

Failure to demonstrate the elements above may result in a determination that a project does not advance the orderly development of the region.

How to Request a Preferred Site Determination with NVDA:

A Preferred Site Determination is a formal recognition by NVDA, based on regional and local planning criteria, that an energy project site is suitable and supported within the region's adopted planning framework and applicable constraints. Municipalities/developers should submit a structured request to NVDA that includes:

1) Site Information: parcel location, land use context, and infrastructure details, etc.

2) Letters of support from the municipal legislative body (e.g., Selectboard) and municipal Planning Commission.

NVDA will not issue a final Preferred Site Determination without a joint letter of support confirming that local approval has been granted.

NVDA Review and Determination Process:

Once NVDA receives a complete request, NVDA evaluates the site against known, possible, and regional constraints based on:

- The Regional Plan's energy and land-use policies,
- Existing mapped features, and
- Municipal plan consistency.

If **NVDA finds no known or possible constraints** relevant to the site under the applicable regional policies, NVDA will grant the Preferred Site Determination.

If **possible constraints are identified**, NVDA notifies the municipality of these possible constraints. If the municipality's Selectboard and Planning Commission endorse the site despite possible constraints and have provided a joint letter of support, NVDA will grant the determination.

If **known constraints or regional constraints** are present that conflict with plan policies, **NVDA will not grant the Preferred Site Determination**.

Regional Policies & Priorities

NVDA supports energy and resilience policies that help NEK communities lower costs, strengthen reliability, and protect the region's working landscapes and rural character. NVDA advances actions that build local capacity, keep investment in the region, and give municipalities more control over how and where energy development occurs.

NVDA's Energy Plan supports Vermont's statutory goals and planning standards, including:

- **Act 174** for substantial deference in regional and municipal energy planning
- **10 V.S.A. §578(a):** Greenhouse gas (GHG) reduction targets:
  - 40 percent below 1990 levels by 2030
  - 80 percent by 2050
- **10 V.S.A. §580–581:** Renewable and efficiency goals, including reducing fossil fuel use across all buildings
- **30 V.S.A. §§202a, 202b:** Encouraging efficient energy use and responsible renewable development
- **30 V.S.A. §§8004–8005:** Renewable Energy Standard for distributed renewable generation and energy transformation

In Support of Energy Independence and Affordability, NVDA:

- **Supports** strategies that lower household and business energy costs through weatherization, energy efficiency, and clean heating technologies.

- **Promotes** voluntary, incentive-based programs that make energy upgrades affordable and accessible to homeowners, renters, and small businesses.
- **Collaborates** with Efficiency Vermont, NETO, NEKCA, and other partners, to expand no-cost retrofit and weatherization programs across all three NEK counties.
- **Encourages** local reinvestment by promoting renewable energy projects that keep energy dollars circulating within the region.

In Support of Resilience and Preparedness and Consistent with the 2025 Resilience Implementation Strategy, NVDA:

- **Encourages** nature-based solutions and forest conservation that reduce flood and heat impacts while preserving the region's capacity for carbon sequestration.
- **Supports** municipalities in identifying critical facilities (town halls, schools, shelters) for backup power and renewable resilience upgrades.
- **Promotes** the development of community-scale "Resilience Hubs" that combine solar, storage, and communications to provide essential services during power outages.
- **Collaborates** with regional emergency management, hospitals, and utilities to strengthen preparedness throughout the NEK and statewide.
- **Encourages** energy and hazard planning that maintains public safety and reduces recovery costs from future disasters.

In Support of Energy Equity and Just Transition, and Consistent with the Vermont Climate Council's Guiding Principles for a Just Transition and the Energy Equity Project (EEP) framework, NVDA:

- **Prioritizes** investments that reduce energy burden among low-income households, renters, older adults, and people with disabilities.
- **Ensures** those most impacted by the energy transition have meaningful participation in local decision-making and equitable access to benefits.
- **Advocates** for fair access to energy incentives, funding, and technical assistance for renters, working families, and older residents.
- **Supports** workforce development programs that build local capacity in weatherization, clean heat, and renewable energy maintenance.

In Support of Regional Implementation and Collaboration, NVDA:

- **Advances** education and clean energy adoption through the **NEK Energy Network**, helping municipalities and energy committees share best practices, access funding, collaborate with utilities and state partners, and implement local energy actions.
- **Tracks** regional energy metrics—such as energy burden, renewable generation, and resilience investments—to measure outcomes and adjust strategies.
- **Supports** municipal energy planning consistent with Act 174 standards, providing technical assistance and mapping tools to help municipalities gain substantial deference in state permitting.
- **Advocates** for policies that recognize rural Vermont's contributions to statewide energy goals and ensure that local communities share in the benefits of cleaner, more reliable energy systems.

Goals, Objectives, and Strategies

The following goals outline NVDA's recommended regional priorities and leadership actions for advancing energy affordability, equity, and resilience across the NEK through 2034. Each goal reflects NVDA's role as a convener, technical resource, and advocate for practical, community-based energy solutions.

Goal 1. Lower Energy Costs and Make NEK Homes Healthier

Objective: Reduce regional energy burden and improve comfort, safety, and affordability for all residents, especially those most impacted by high heating and transportation costs.

Strategies:

- Track energy burden data changes over time to identify high-burden communities and guide program opportunities and funding priorities that reduce energy burden to less than 6 percent for each sector (electricity, thermal, and transportation).
- Work with energy partners, such as NETO, NEKCA, Efficiency Vermont, and others to expand weatherization and "no-cost" retrofit programs.
- Advocate for renter-inclusive energy programs and incentives that support both tenants and landlords.
- Promote health and comfort benefits of energy efficiency via the NEK Energy Network best-practice sharing and collaboration.
- Support municipal and school building retrofits through technical assistance and funding identification.

Objective: Promote climate-ready and resilient buildings and communities.

Strategies:

- Promote Vermont's residential and commercial building energy standards (RBES/CBES) for new construction and existing buildings, including additions, alterations, renovations, and repairs.
    - Host and facilitate building science/standards training and education opportunities for local officials, zoning administrators, and relevant workforce development groups. Encourage communities with zoning to require Certificates of Occupancy. Encourage the local adoption of "stretch energy codes."
    - Review local zoning bylaws and offer technical assistance to development review boards when evaluating the energy, climate, and health implications of site plans for proposed developments.
    - Work with housing and energy efficiency organizations to promote and improve the regional supply of affordable, high efficiency manufactured housing, such as Zero Energy Modular homes.
- Continue collaborations with key partners, such as Vermont Department of Health, state and regional emergency management, regional hospitals and community groups; identify buildings and facilities that serve critical community functions, including as emergency heating and cooling sites.

- Pilot Community-led Resilience Hubs in the NEK to advance climate and energy resilience, emergency management, and social equity while providing expanded opportunities for communities to be successful before, during, and after disruptions.

Goal 2. Help Communities Lead the Shift to Clean, Local Energy

Objective: Support municipalities, farms, and local businesses in developing renewable and resilient energy projects that keep energy dollars circulating locally.

Strategies:

- Maintain and update NVDA's renewable siting and resource maps to guide equitable and environmentally responsible development.
- Assist municipalities in identifying and designating preferred sites for solar, microgrid, and agrivoltaic projects consistent with Act 174 standards.
- Support community-scale renewable or microgrid projects that benefit multiple users (e.g., schools, farms, libraries).
- Provide guidance to municipalities and developers on drafting community benefit agreements and ensuring local input in siting processes.
- Explore community-scale geothermal and thermal-energy-network opportunities.

Goal 3. Make Travel More Affordable, Accessible, and Less Polluting

Objective: Expand affordable, low-emission mobility options and reduce reliance on fossil fuels for transportation. For more details on local transit, sidewalks, trails, and EV infrastructure opportunities, see the Transportation and Utilities & Facilities chapter.

Strategies:

- Collaborate with RCT, VTrans, and municipalities to increase access to shared mobility options such as vanpools, car-shares, and e-bikes.
- Support the installation of public electric vehicle (EV) charging in every NEK downtown and village center.
- Encourage "Complete Streets" design in local road and infrastructure projects to improve pedestrian and bike safety.
- Assist municipalities in pursuing transportation and EV infrastructure funding through federal and state grants.
- Advocate for expanded public transit coverage and integration with key employment and service destinations.
- Support school districts in pursuing cost-effective electrification of school bus fleets.

Goal 4. Strengthen Energy Resilience and Community Readiness

Objective: Ensure every NEK community can maintain essential energy services during outages, emergencies, and extreme weather events.

Strategies:

- Identify and map critical community facilities (shelters, town halls, clinics) for potential backup power and energy resilience upgrades.
- Support municipalities in developing and funding "Resilience Hubs" that combine renewable energy, battery storage, and community preparedness resources.
- Integrate energy resilience into Local Emergency Management Plans, Hazard Mitigation Plans, and infrastructure projects.
- Convene regional partners—utilities, hospitals, emergency management, and nonprofits—to share best practices through the NEK Energy Network.
- Promote public awareness of resilience strategies for households and small businesses.

Goal 5. Grow the Local Energy Workforce and Strengthen the NEK Economy

Objective: Build the regional capacity and workforce needed to achieve Vermont's energy and climate goals while keeping new jobs and opportunities local.

Strategies:

- Partner with local schools, career centers, and colleges to expand training in weatherization, clean heat, EV infrastructure, and renewable energy systems.
- Connect businesses and municipalities with state and federal workforce development grants tied to clean energy projects.
- Highlight local businesses and workforce success stories in NVDA communications and outreach.
- Advocate for sustained investment in rural job creation through energy and resilience funding streams.

Goal 6. Build Lasting Partnerships for a Realistic and Equitable NEK Energy Transition

Objective: Ensure that energy and climate programs reach every corner of the NEK through collaboration, communication, and data sharing.

Strategies:

- Convene the NEK Energy Network quarterly to exchange updates, funding opportunities, and best practices.
- Promote accessible online dashboards and GIS tools for municipal and regional energy planning.
- Facilitate inclusive public engagement to ensure that the voices of renters, seniors, working families, and vulnerable communities are represented in energy decisions.
- Advocate for equitable policy and funding changes at the state level that recognize rural challenges and costs.

Community Resources

- **Act 174 Recommendations and Determination Standards** — publicservice.vermont.gov: Aligns regional and municipal energy plans with statewide renewable and conservation goals.
- **Vermont Comprehensive Energy Plan** — publicservice.vermont.gov/content/comprehensive-energy-plan: Long-range roadmap toward 90 percent renewable energy by 2050.
- **Vermont 2025 Climate Action Plan** — climatechange.vermont.gov: Framework for emissions reduction, resilience, and just transition priorities.
- **Vermont Resilience Implementation Strategy** — anr.vermont.gov: Outlines coordinated state actions for climate adaptation and infrastructure resilience.
- **Vermont Municipal Vulnerability Indicators (MVI) Toolkit** — https://climatechange.vermont.gov/mvi: a mapping tool to help municipalities understand their vulnerabilities to climate change.
- **Efficiency Vermont** — efficiencyvermont.com: Statewide energy efficiency utility offering audits, incentives, and technical support.
- **Energy Action Network (EAN) Dashboards** — vtenergydashboard.org: Tracks local renewable generation, energy use, and progress toward state goals.
- **Vermont Community Thermal Networks (VCTN)** — vermontthermalnetworks.org: Supports development of community-scale geothermal and thermal-energy networks.
- **Weatherization Programs** — NEK's NETO, HEAT Squad, USDA Rural Development Home Repair, and NEKCA Community Action: Programs include home energy audits, energy coaching, repairs, funding and technical assistance for households.
- **VTrans NEVI Program** — vtrans.vermont.gov/planning/nevi: Deploys federal funding for EV charging infrastructure along rural corridors.
- **U.S. DOT Rural Electric Mobility Toolkit** — transportation.gov/rural/ev: Guidance for planning and funding electric mobility in rural areas.
- **Drive Electric Vermont** — driveelectricvt.com: Consumer and fleet resources on EV incentives, cost savings, and charging stations.
- **Vermont's Guiding Principles for a Just Transition** — climatechange.vermont.gov: Rubric ensuring energy and climate programs advance equity and shared benefits.
- **Energy Equity Project** — energyequityproject.com: Tools for measuring equity outcomes in energy programs and investments.
- **Initiative for Energy Justice Scorecard** — iejusa.org: Framework for evaluating fairness, inclusion, and accountability in energy policy.

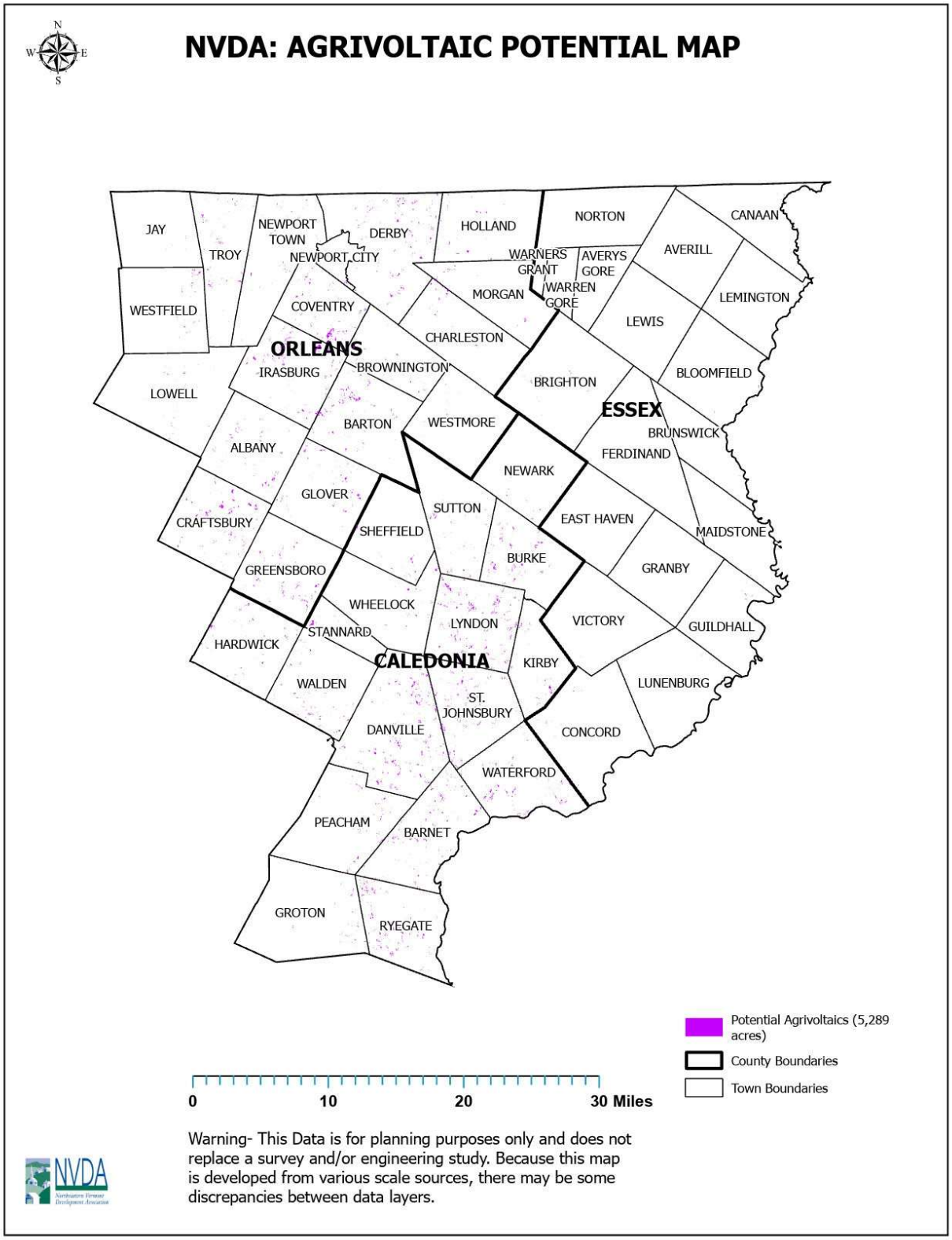


Figure 15. Agrivoltaic potential map.

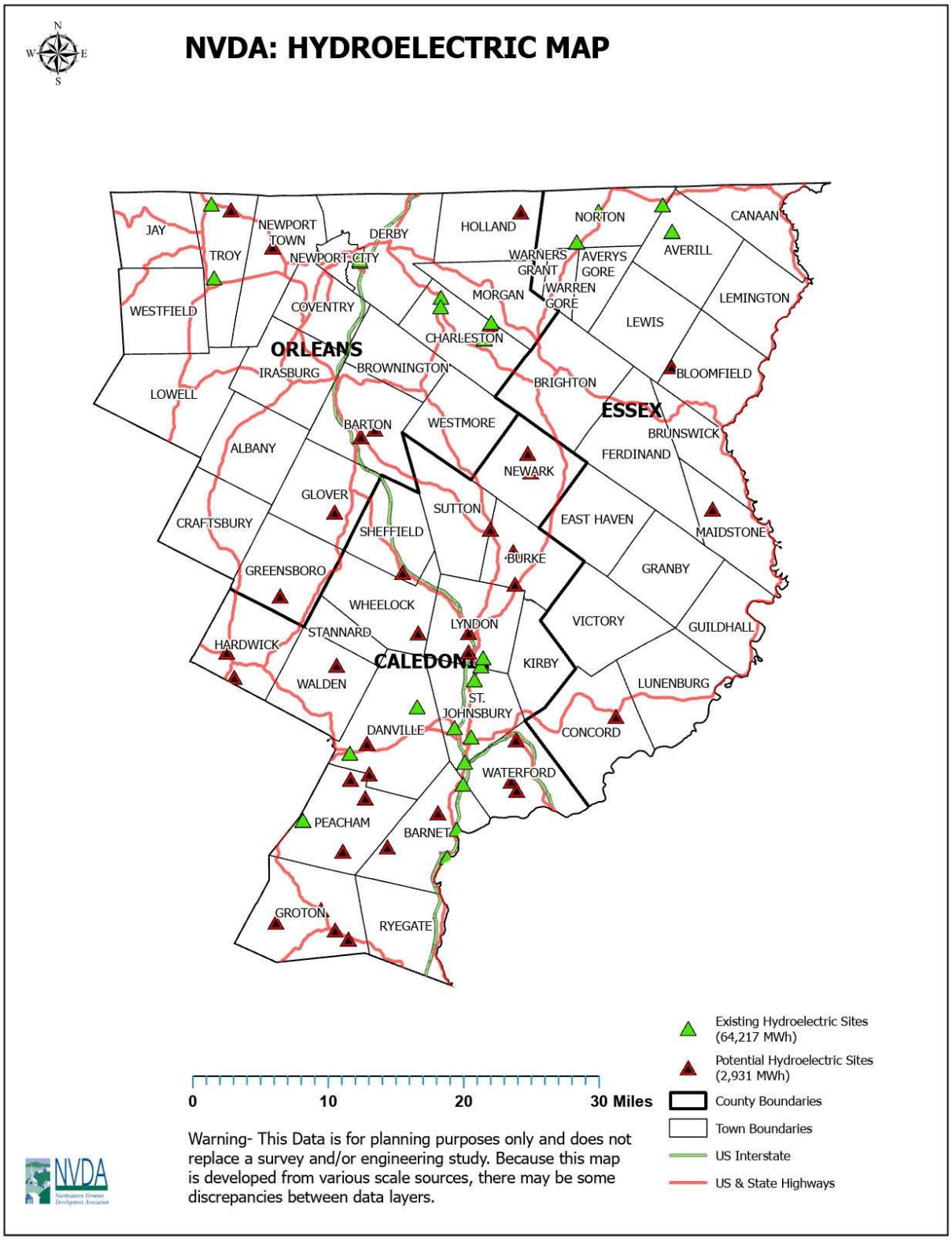


Figure 16. Hydroelectric map.

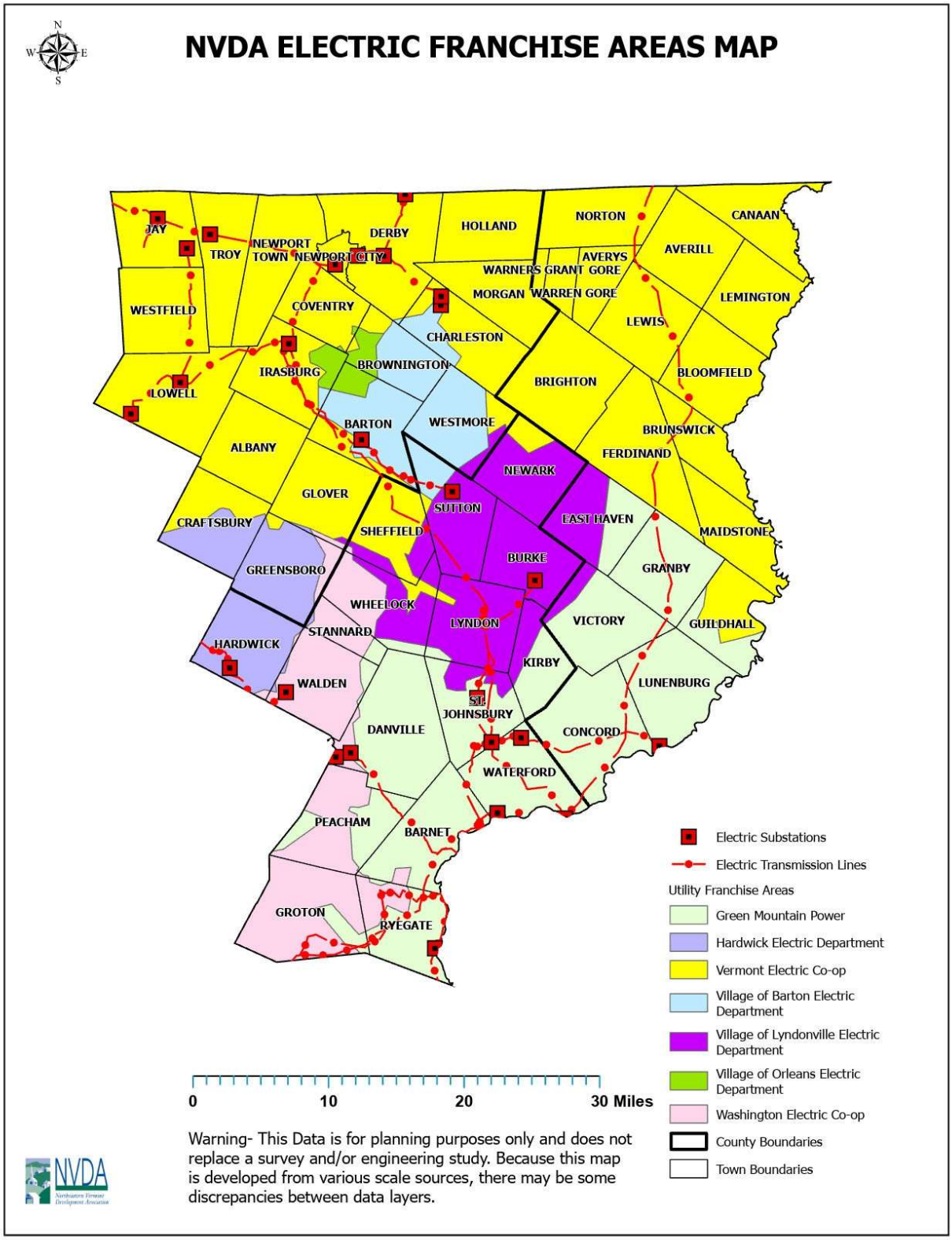


Figure 17. Electric franchise areas map.

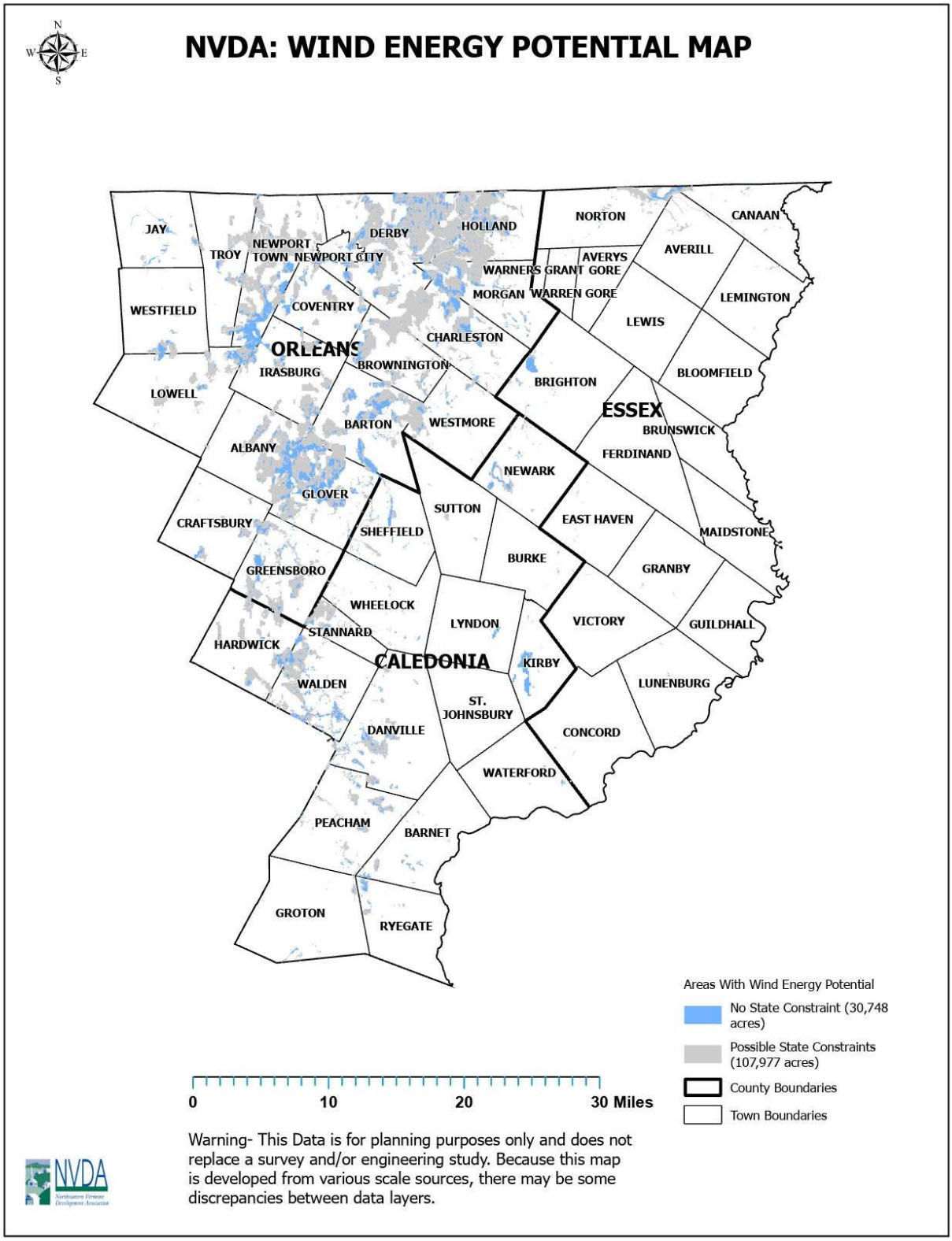


Figure 18. Wind energy potential map.

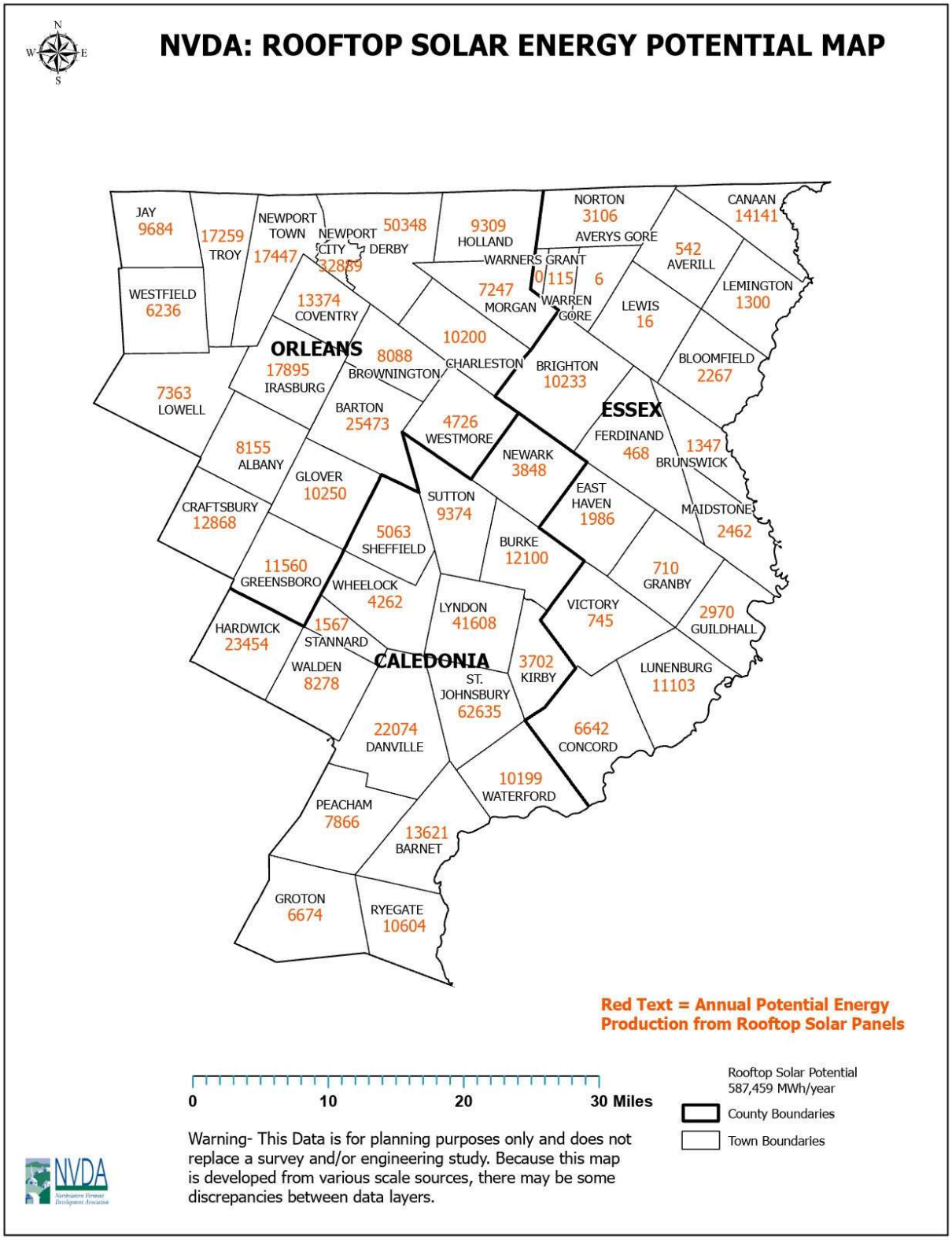


Figure 19. Rooftop solar energy potential map.

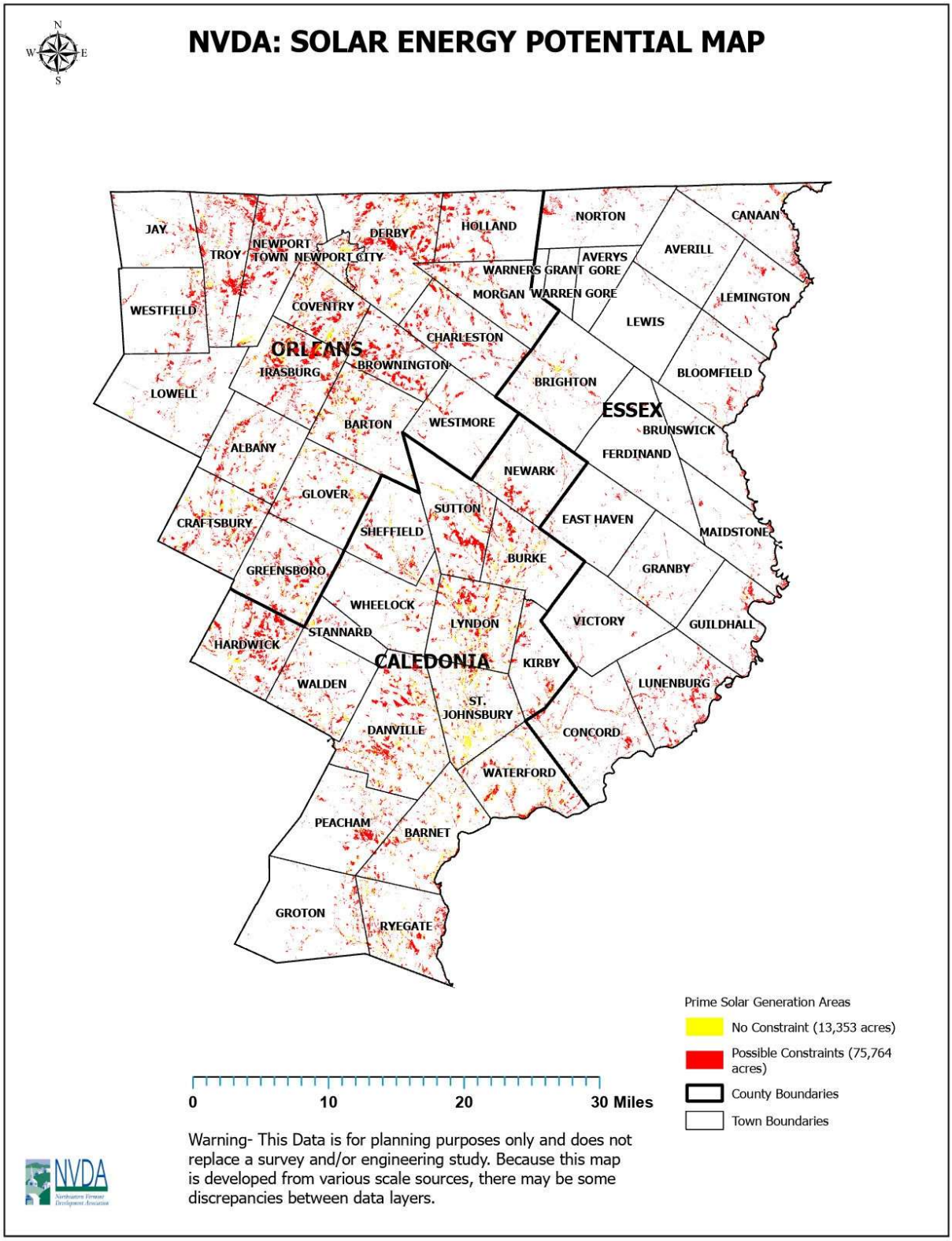


Figure 20. Solar energy potential map.

Physical Infrastructure

Infrastructure is the backbone of thriving communities—and in the Northeast Kingdom (NEK), where distances are great and resources can be limited (*as explored in the Transportation and Energy Chapters)*, the strength of that backbone determines everything from economic opportunity to public safety and environmental health. This Physical Infrastructure chapter of the Regional Plan addresses the essential systems that keep the region functioning: water and sewer, safety, energy, telecommunications, solid waste, and other public assets.

In recent years, NEK municipalities have made measurable progress upgrading critical systems, improving efficiency, and securing new federal and state investments. Yet as one-time pandemic-era funding winds down and construction costs rise, sustaining that progress will depend on local innovation, cross-sector coordination, and regional collaboration.

As the NEK adapts to changing climate conditions, shifting demographics, and economic transition, the need for resilient, efficient, and equitable infrastructure is paramount. Whether it's upgrading flood-prone public works garages, expanding broadband access for remote work and education, or ensuring that downtowns and village centers have the water capacity to support new housing, infrastructure decisions will shape the region's future.

Many small municipalities in the NEK are stretched thin, tasked with more responsibilities than ever, yet facing aging facilities, limited staff capacity, and scarce funding. In this rural region where distances are long and populations are sparse, the condition, distribution, and accessibility of facilities and utilities directly shape equity, resilience, and growth potential. At the same time, transformative opportunities are emerging: re-investment in water and wastewater resources, regional collaboration, adaptive reuse of underutilized civic spaces, NEK Broadband's progress toward universal access, and growing support for climate-ready infrastructure.

Community assets such as town offices and emergency facilities do more than provide basic services—they anchor daily life and strengthen resilience during disruptions. By viewing these public facilities as a unified regional network rather than isolated local resources, communities can better coordinate investments, improve accessibility and energy performance, and ensure that essential services reach residents equitably.

Key Takeaways & Existing Conditions

Water, Wastewater, and Stormwater Infrastructure

Limited wastewater capacity limits development capacity, even in traditional centers of development.

In our region, traditional on-site septic systems are by far the most prevalent form of wastewater treatment. Poor siting, installation, or maintenance of these systems can contribute to their failure, resulting in health risks and contamination of surface or ground water supplies. Residential on-site wastewater systems (e.g. with design-flows of fewer than 6,500 gallons per day) are regulated by the

Agency of Natural Resources. In general, it takes about an acre of land to properly site a wastewater system, but specific factors such as distance from water supplies and property lines, slope, and soil quality will determine how much land is required. Smaller lots and lots with poor or shallow soils might require alternatives to conventional wastewater systems, (such as mound, at grade, or sand filter systems), but the alternative designs can escalate development costs. Villages not served by sewer systems will therefore likely face some significant constraints to maintaining traditional compact development patterns, even if dense development is allowed through zoning.

Connections are typically managed by local sewer ordinances, but the Agency of Natural Resources also regulates connections to sewer systems and issues operating discharge permits. Wastewater treatment facilities have five classifications, with 1 being the simplest with low design flows and 5 being the most complex. Most of the sewage systems in our region are class 1 or 2. Our three largest systems – St. Johnsbury, Newport City, and Lyndonville are class 3.

While official reports show adequate wastewater treatment capacity for current populations, many systems are constrained by aging infrastructure, discharge permit limits, and operator shortages. These constraints limit real development potential despite "on paper" capacity. Decentralized treatment options like constructed wetlands and package plants may be promising solutions for small communities, while inter-municipal agreements can maximize system efficiency and support regional growth goals.

Siting logistics for wastewater systems can be a multi-year process, but wastewater planning funds are available through the Clean Water State Revolving Fund. Planning funds are available at 0 percent interest and are typically paid back at implementation. Construction and upgrades are usually funded by a bond repaid by user fees, so smaller systems may face a higher burden due to economies of scale. Grants can help defray the costs, but since the 1980s, funding opportunities have largely shifted to low-interest loans. As with much of the state, our region's sparsely settled and often fiscally conservative culture also makes funding systems a challenge. Some opponents also cite impacts to "rural character" by enabling compact, dense development. This was the case in West Burke.

West Burke Wastewater Project — A Case Study in Rural Scale and Local Constraints

The Village of West Burke has pursued wastewater infrastructure for more than two decades to address public-health and development needs in its compact village center. Early concepts envisioned a village-wide collection and treatment system, but cost, site constraints, and community preferences led to a scaled-down approach.

As of 2025, the proposed system is significantly smaller than originally planned, designed to serve roughly two dozen homes and businesses near the village center. It will rely on a small, decentralized collection network and a community leach field or package treatment unit, rather than a full municipal plant.

Funding and technical assistance have come from VT DEC's Village Wastewater Solutions Initiative, USDA Rural Development, and the Northern Borders Regional Commission. Community discussions reflected both strong support for resolving long-standing water-quality challenges and some cautiousness about potential growth and cost implications—factors that often influence infrastructure decisions in small rural towns.

When completed, West Burke's system will be one of the only new wastewater facilities constructed in the NEK in more than two decades, demonstrating the region's continued effort to balance affordability, environmental protection, and community character while improving public infrastructure.

Combined sewer overflows (CSOs) can pose a serious risk to environmental and public health.

Older wastewater systems are often combined, meaning that they convey wastewater and stormwater to the treatment facility in the same pipe. In a small rainstorm, the treatment can usually handle all the sewage and stormwater. In a heavy rainfall, however, the treatment facility can be overwhelmed, and the combined system – by design – releases some of the untreated water directly into streams and lakes to prevent it from backing up into homes or onto roads. St. Johnsbury and Newport City have both experienced overflows in recent years. Modernizing the structure, which may involve separating the sewage and stormwater infrastructure or adding storage capacity, is a costly endeavor. Both St. Johnsbury and Newport received ARPA funds ($5.5 million and $784,000 respectively) to improve their facilities. Infrastructure upgrades, however, are not a singular solution and must be supported by a holistic approach to reducing stormwater flows on site. "Green infrastructure" refers to a range of plant- and soil-based measures that soak up rainwater where it falls, including but not limited to swales, raingardens, and permeable surfaces. St. Johnsbury was the first community in Vermont to implement a neighborhood-scale green stormwater management program. In 2019 St. Johnsbury's Oak Street Neighborhood Project received an Engineering Excellence Award from the American Council of Engineering Companies of Vermont.

Stormwater runoff from agriculture and development contributes roughly 40 percent of phosphorus pollution in NEK surface waters, directly impacting lakes and rivers that support tourism and natural resource economies. Aging combined sewer systems in areas like Newport and Hardwick result in periodic untreated discharges during heavy rain events. Many communities lack capacity and funding to meet increasingly stringent Municipal Roads General Permit requirements, making improved stormwater management a pressing need.

Many of our region's water systems are aging and lack the capacity to keep pace with current needs

While many NEK municipalities operate small-scale water systems, over 75 percent of these systems are over 30 years old, facing increased risk of failure and costly upgrades. Emerging contaminants such as PFAS have been detected in multiple NEK water sources, prompting state advisories and necessitating investment in filtration technologies. Watershed protection and comprehensive source water mapping remain vital to securing long-term water quality and availability.

Groundwater Protection

Approximately 60 percent of Vermont's population, and nearly all rural households in the NEK, depend on groundwater for drinking and domestic use. While comprehensive studies are limited, the Vermont Water Quality Division describes groundwater quality as generally excellent. However, this resource is highly vulnerable to contamination from both point (e.g., septic systems, landfills) and non-point sources (e.g., agricultural and urban runoff and road salt). PFAS contaminated the wells for Craftsbury Common village and the Morgan school, while Uranium contaminated a well for a Derby restaurant. Nitrates contaminated Sutton village's well.

Prevention is more cost-effective than remediation. The VT Source Water Protection Program and local source protection planning are essential tools for safeguarding aquifers. Development pressures and inadequate septic systems remain ongoing risks in many municipalities, especially as seasonal dwellings convert to year-round use.

Our region stands to benefit from significant investment opportunities to improve infrastructure in support of housing development.

In 2024, the Vermont legislature created the Community Housing Improvement Program. CHIP can invest $2 billion between now and 2035 in essential infrastructure like water, sewer, roads and stormwater. Because the program is a statewide tax increment financing tool, municipalities can participate without raising local property taxes, making CHIP one of the most significant housing-linked infrastructure investments in Vermont's history.

In September 2025, the Vermont Bond Bank and Addison County Regional Planning Commission (ACRPC) initiated the collaborative Small Systems Capacity and Resiliency Program (SCRP) aimed at providing additional support for small water systems. Through the SCRP, these entities contracted the help of each Vermont regional planning commission (RPC) with the intent of contacting all eligible small water systems (serving <10,000 people) in their region and learning more about the systems through an initial "Information and Discovery" phase. Both fire districts and municipally-owned water systems are included in this program. Each RPC will compile information into a comprehensive spreadsheet to act as a central data hub for our regional water systems. This first phase will help RPCs understand the best way to support the systems with mapping, succession planning, financial planning, and record keeping. Additionally, a deeper understanding and connection to regional water systems will help identify system problems prior to failure and more efficiently connect the systems to available grant and loan funding.

Successful implementation of both initiatives will rely heavily on accessible, accurate, and up-to-date data. At present, data on local water and wastewater systems is not consistently maintained or readily accessible, and NVDA often encounters gaps or delays when seeking this information. By

working collaboratively with state agencies and their member municipalities, RPCs have an opportunity to fill long-standing data gaps, improve the accuracy of regional infrastructure inventories, and ensure that future investments are based on clear, shared information. Enhanced coordination among DEC, the Bond Bank, and RPCs will be key to achieving equitable, transparent, and efficient funding outcomes.

Critical Public & Municipal Facilities

Public and municipal facilities are the backbone of vibrant centers of development.

Most town-owned facilities in the NEK, such as offices, garages, and fire stations, were built before 1980 and often lack ADA accessibility, energy efficiency, or reliable digital infrastructure. Many of these buildings, particularly those in village centers, face mounting risks from flooding, deferred maintenance, or outdated systems. Yet public and municipal buildings remain critical to community life and resilience: doubling as emergency shelters, offering free wi-fi, and childcare programs.

Investing in modernization and adaptive reuse of civic buildings can improve accessibility, reduce operating costs, and strengthen local resilience. Programs such as the Municipal Energy Resilience Program (MERP) are starting to help towns begin this work, but funding gaps persist. Shared-service models, such as cooperative personnel arrangements or joint departments, offer practical alternatives for under-resourced communities; for example, Sheffield and Wheelock's shared fire department provides a successful example of collaboration that maintains service coverage while reducing costs.

Because municipal buildings often serve as emergency shelters or local command centers, redundant communications systems, reliable broadband, and backup power supplies are essential for public safety during outages or disasters. Modernizing these civic spaces not only safeguards vital services but also maximizes their potential as flexible, multi-purpose assets that can adapt to evolving community needs. Libraries also play a key role in supporting and enhancing community services—offering Wi-Fi, meeting space, and multi-generational programming. Coordinated investments in accessibility, energy efficiency, and resilience upgrades can extend the lifespan of municipality and public facilities, enhance regional emergency readiness, and strengthen civic infrastructure across the NEK.

When asked to identify favorite "gathering spaces" during 2025 NVDA public engagement efforts, NEK residents cited a variety of venues, including libraries, historic buildings, stores, and even beaches. Despite the variety of responses, it is clear that residents value gathering spaces and value their role in their respective communities. The NEK has an opportunity to repurpose underused spaces such as churches, for early childcare and intergenerational care, as well as civic and cultural programming, to strengthen community ties. Successful examples of adaptive reuse include the North Danville school and McIndoes Academy Community Center in Barnet. McIndoes recently acquired the former Congregational Church and is restoring the structure to accommodate additional cultural and community programming. In Norton, the historic schoolhouse has been adapted to house the town office and a tri-town historical society serving Norton, Averill, and Stanhope, Québec. In Peacham, the Congregational Church also operates a childcare center.

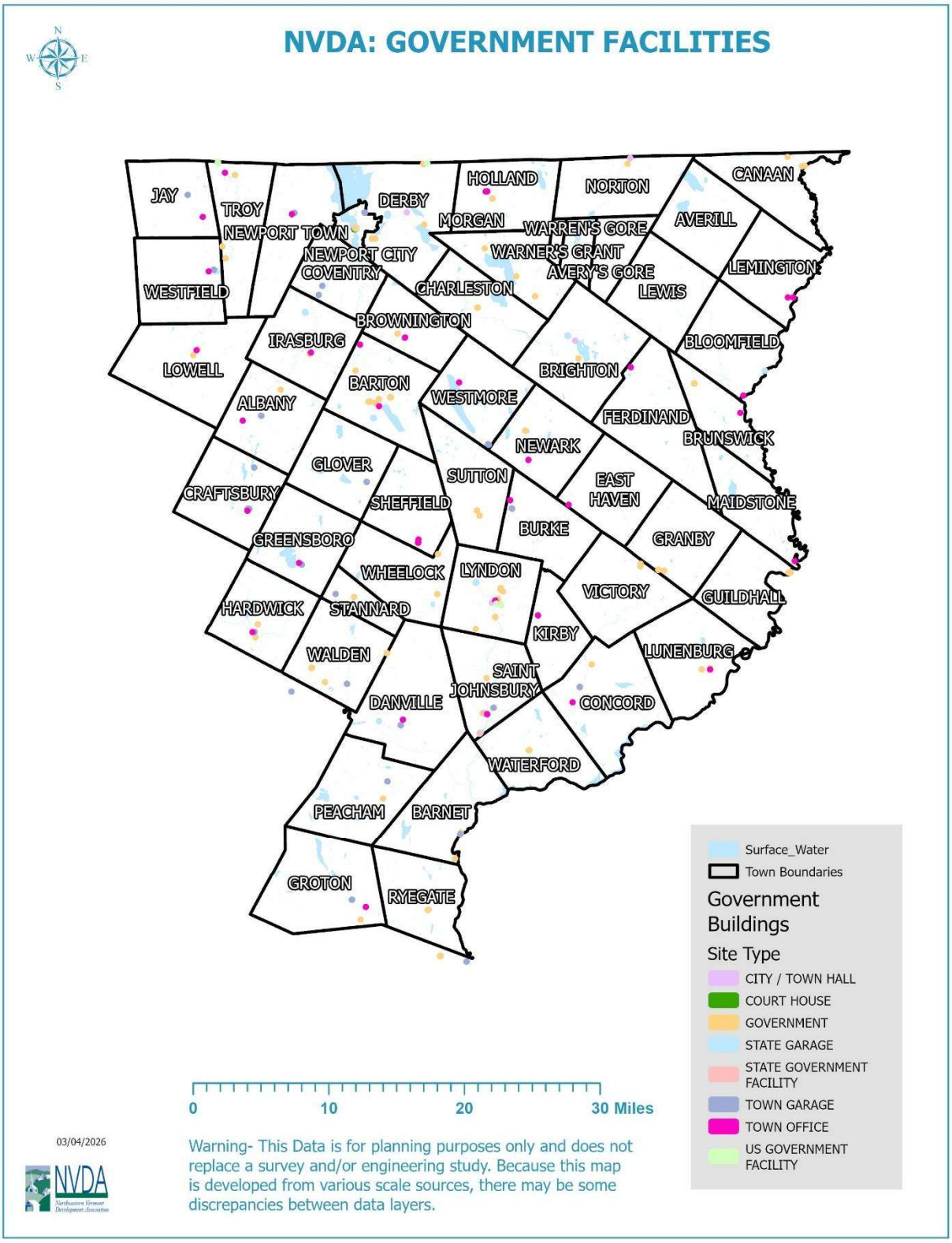


Figure 1. Government buildings throughout the region including town halls, court houses, town garages, and more.

POLICE AND FIRE DEPARTMENTS ARE STRUGGLING TO MAINTAIN ENOUGH STAFF AND VOLUNTEERS.

Maintaining police and fire services remains a growing regional challenge. There are only four municipal police departments in the NEK: St. Johnsbury, Lyndonville, Hardwick, Newport, and each department struggles with vacancies, housing barriers for recruits, or overtime costs. Municipalities without police departments typically rely on a combination of state police and county sheriffs. These municipalities have sparse police coverage. Many municipalities choose to pay the sheriff for a contract with a specified number of hours for certain tasks such as traffic stops. Due to how far most of Essex County is from the state police barracks in Derby & St. Johnsbury, the state police's presence in Vermont's least populous county is typically low.

St. Johnsbury has a professional fire department, while most other fire departments in the region are predominantly or entirely volunteer organizations; some fire depts have a paid chief but the rest of the positions are volunteer. Particularly as more frequent droughts increase the demand for firefighting, having adequate firefighting capacity is essential for protecting public and private property from smoke and flames.

EMERGENCY SERVICES

Reliable emergency services are vital to community resilience, yet many local fire, EMS, and police departments remain volunteer-run and under-resourced. Equipment replacement, recruitment, and training are ongoing challenges. Regional collaboration models—such as the shared fire department between Sheffield and Wheelock—demonstrate how service sharing can reduce costs and improve coverage. During widespread emergencies such as floods or winter storms, service delivery to homebound seniors, people with disabilities, or residents without vehicles remains a critical concern. Emerging shared-service and regional planning models offer a scalable path to maintaining coverage, building efficiency, and reducing costs for small towns. *Reference the Social Infrastructure chapter to review a map of Emergency Responders.*

EMERGENCY COMMUNICATIONS SYSTEMS ARE ESSENTIAL FOR PUBLIC SAFETY COORDINATION.

Effective communication and dispatch systems are the foundation of public safety and emergency response in the NEK. The region continues to rely on Vermont's Enhanced 9-1-1 system, which routes emergency calls to the appropriate Public Safety Answering Point (PSAP) and provides dispatchers with automatic location and contact information. This system has significantly reduced response times for first responders and improved coordination among fire, EMS, and law enforcement agencies.

In 2018, dispatching responsibilities were shifting from the Derby PSAP to larger, consolidated call centers. While that change aimed to improve efficiency, it raised concerns among local responders about maintaining local knowledge and ensuring quick rural response. Today, local emergency agencies continue to depend on statewide dispatch infrastructure, mutual aid communication channels, and GIS-based addressing systems for timely response.

Since 2013, Vermont has used VT Alert to allow state and local responders to notify the public of emergency situations via SMS/TEXT, E-Mail, Mobile Phone, Work or Home Phone, and TTY/TDD Devices. In partnership with Everbridge, a critical event management software company, responders can connect with residents in a variety of ways, yet this system still encounters limitations due to

connectivity and service-based issues. Some of our communities have implemented emergency notification and mass texting systems such as Text My Gov.

Volunteer EMS networks face rising costs and workforce shortages across the NEK.

The NEK's emergency response network—composed of volunteer fire departments, small municipal agencies, and regional rescue organizations—faces increasing operational and staffing challenges. Many departments are volunteer-run and rely on aging facilities, limited budgets, and outdated equipment. Costs for contracted emergency medical services (EMS) have also risen sharply, placing additional strain on small towns. CALEX Ambulance, which serves more than a dozen towns across Caledonia and Essex Counties, has seen significant increases in service costs, while Hardwick Rescue is seeking funding for a new facility to maintain regional coverage.

Traffic Safety Infrastructure Requires Local Capacity and Investment

Managing vehicle speeds and ensuring safe roads is both an infrastructure and enforcement challenge. Rural towns in the NEK often lack the technical and financial capacity to design and install physical speed-management tools such as raised crosswalks, neighborhood circles, or drainage-compatible bump-outs. These measures require engineering design, construction oversight, and ongoing maintenance—costs that exceed most municipal road budgets. Even modest projects, like radar feedback signs or curb extensions, typically require coordination with the Vermont Agency of Transportation (VTrans) when located on state highways—which often serve as the main streets of NEK villages.

While lowering posted speed limits can help set expectations, it rarely changes driver behavior without supportive design or enforcement. Physical countermeasures, such as narrowed lanes or raised intersections, are proven to reduce vehicle speeds but can be costly or controversial for small towns. Within the NEK, recent examples include bump-outs along Route 2 in Danville, Railroad Street in St. Johnsbury, Main Street in Newport, and South Main Street in Hardwick.

Enforcement capacity is also limited with so few municipal police departments. Other communities rely on sheriff's offices or the Vermont State Police, both of which face personnel and budget constraints. To strengthen capacity, NVDA supports coordinated regional approaches—such as shared traffic-safety officers, mobile enforcement partnerships with county sheriffs, and joint grant applications for infrastructure improvements under VTrans' Transportation Alternatives and Better Roads programs. Integrating speed-management priorities into Capital Improvement Plans and village center reinvestment projects can ensure that safety measures are planned alongside drainage, sidewalk, and stormwater upgrades rather than treated as isolated projects. *See the Transportation Chapter for more about roadway safety and speed management.*

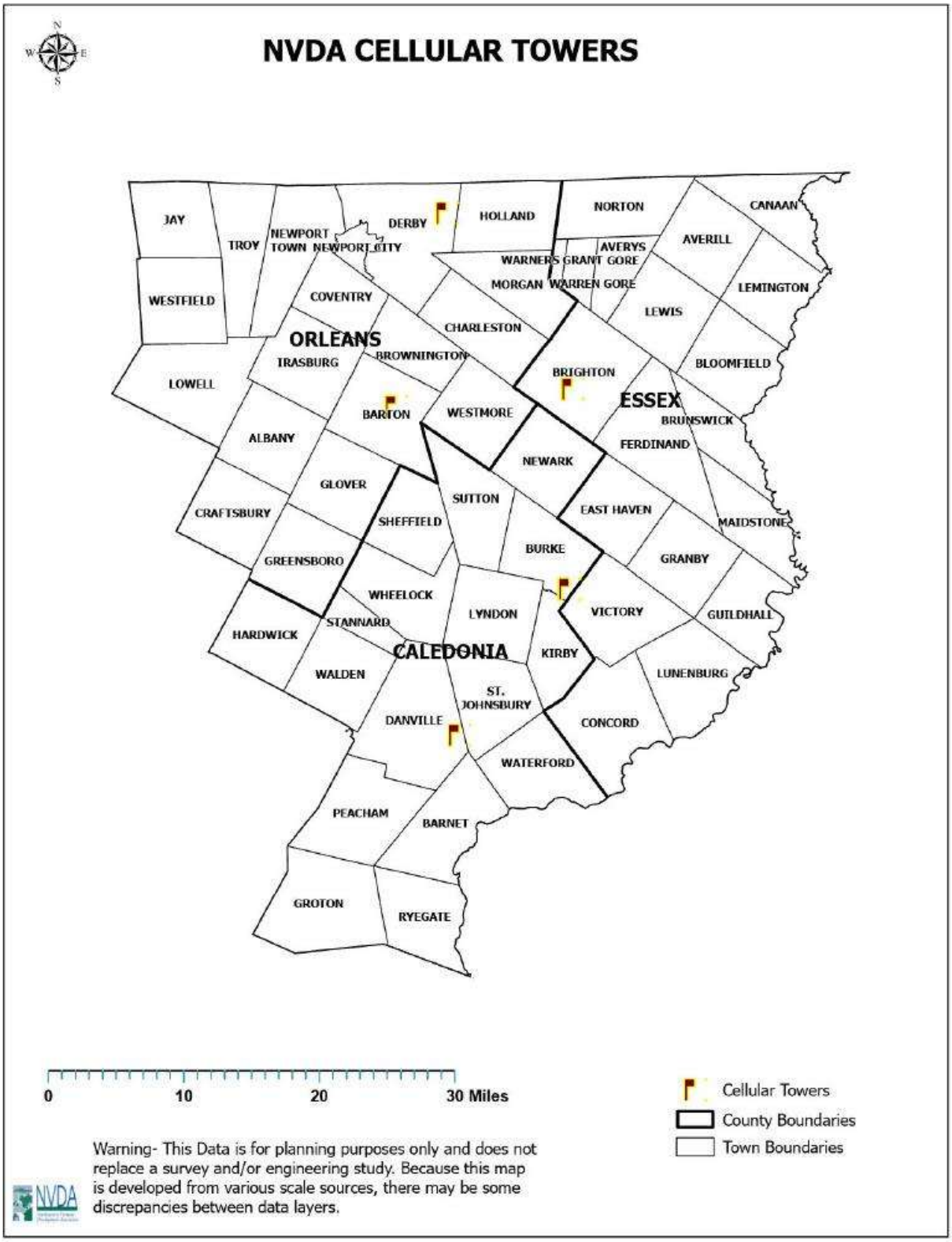


Figure 2. Cell Towers

Telecommunications & Broadband Infrastructure

NEK Broadband is a Communications Union District (CUD) that includes every municipality in the NEK of Vermont. As a CUD and with board representation from every municipality in the NEK, they are building public infrastructure to help ensure that every address that has existing electric utility service will have access to affordable, reliable, and high-speed broadband internet. On August 16, 2024, NEK Broadband merged with Central Vermont Fiber (which covers most of Washington County). Now serving 71 towns, this organization is working hard to expand broadband access.

As of late 2024, less than half of NEK addresses lacked adequate service. NEK Broadband is actively building out its network backbone to deliver high-speed internet across the entire NEK of Vermont. The initiative has been compared to rural electrification, aiming to ensure access to high-speed internet for all residents, no matter how remote. With this infrastructure, NEK Broadband is laying the foundation for long-term connectivity and digital inclusion. Stable funding, a fully-staffed team, and strategic regional partnerships are driving a major transformation in the region's internet access, especially for underserved communities. Continued NEK Broadband build-out is critical for telehealth, remote education, and digital equity.

Waste Management

The NEK plays a unique and essential role in Vermont's waste system—hosting the only active landfill in the state, located in Coventry. This facility receives approximately 70–80 percent of Vermont's municipal solid waste, handling up to 600,000 tons annually. As such, it functions as critical infrastructure for the entire state, but it also places a disproportionate environmental and logistical burden on the surrounding communities.

While the Coventry landfill supports local jobs and includes a gas-to-energy facility that powers 7,000-8,000 homes, it is nearing its expanded capacity—despite a 2019 Act 250 permit allowing for an additional 51 acres of disposal area. The State of Vermont will likely face major system-wide impacts if the site reaches full capacity within the next 18 years, or earlier if waste generation continues at current rates. This underscores a pressing need for regional contingency planning, stronger waste diversion strategies, and equitable access to waste services.

Where We Stand: Mandates and Gaps

In 2012, Vermont passed the Universal Recycling Law (Act 148), mandating phased-in bans on landfill disposal of recyclables, leaf and yard waste, and food scraps—with full food scrap bans implemented statewide in 2020. The law set a statewide waste diversion goal of 50 percent, yet as of 2023, Vermont's actual diversion rate remains closer to 36 percent, and per capita waste generation has increased by roughly 8 percent since 2014.

Despite Act 148's goals, food waste still makes up nearly 20 percent of landfill-bound material, signaling an urgent need for better education, infrastructure, and local capacity for composting. Moreover, not all residents have equal access to the infrastructure required to comply with the law—especially in remote or lower-income communities where transfer stations are distant and composting options are limited.

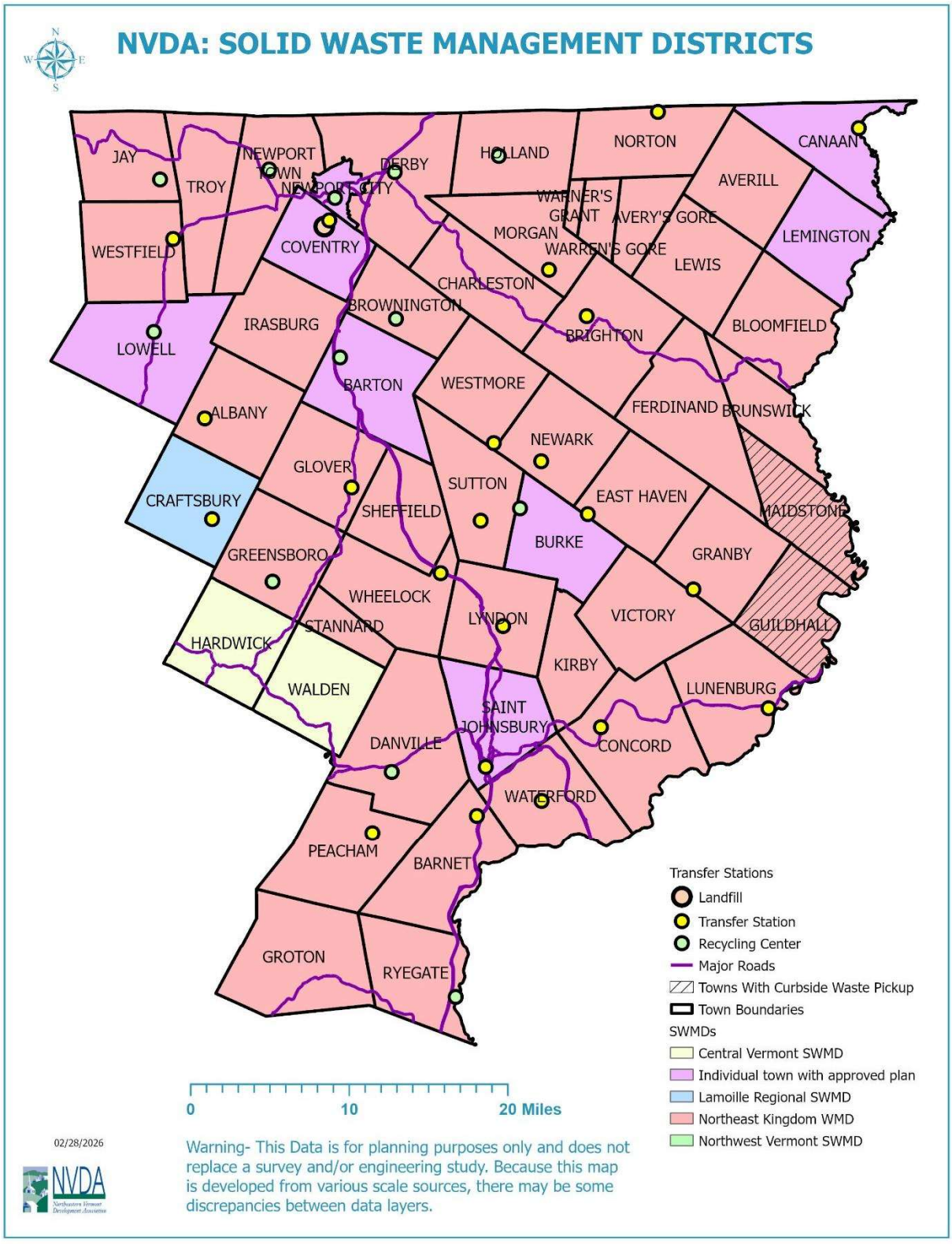


Figure 3. Solid waste facilities and waste management districts.

Environmental and Equity Implications

The Coventry landfill's expansion process raised significant concerns about odors, PFAS in leachate, truck traffic, and potential risks to nearby waterways such as the Black River. These impacts are borne primarily by a small number of municipalities, raising questions of environmental justice and regional fairness. NVDA acknowledges that some residents and communities have expressed frustration about the NEK region hosting the only active landfill in Vermont. At the same time, the infrastructure and services associated with solid waste—such as transfer stations, recycling centers, and reuse shops—provide both environmental benefits and meaningful employment, as well as business opportunities with methane recapture or radiant heating for a greenhouse complex.

However, access to these facilities varies widely across the NEK, especially for households without transportation. This highlights a need for greater coordination and investment in mobile collection programs, decentralized composting solutions, and regional reuse partnerships.

Looking Ahead: Planning for a Circular, Equitable Future

While the challenges are real, so are the opportunities. The NEK is already home to a growing network of community composters and reuse innovators working to reduce waste and build resilience from the ground up.

To build on this momentum, the region must:

- Review and share progress toward state and local diversion goals.
- Support education and outreach around Act 148 compliance, especially for food scrap and bulky waste disposal.
- Improve access to transfer stations and composting options for all residents, particularly in underserved rural areas.
- Encourage local reuse systems and small-scale composting initiatives to reduce transport costs and emissions.
- Coordinate regionally to share infrastructure, data, and emergency planning in the event of landfill disruption or closure.

This is not just about trash—it's about resilience, equity, public health, and environmental stewardship. With strategic leadership, local innovation, and cross-town collaboration, the NEK can lead the way in demonstrating what a truly sustainable, circular waste economy looks like—one that lightens the load for future generations while protecting the communities carrying it now.

Regional Policies & Priorities

NVDA recognizes that resilient, affordable, and equitable infrastructure is central to the NEK's future. To guide partners and communities, NVDA sets forth the following regional policy priorities:

- NVDA supports investments in critical public infrastructure (e.g., moving undersized culverts and town garages out of floodplains) that reduce long-term costs, enhance the planned growth patterns of our region, minimize geographic isolation, strengthen climate resilience, and improve access for vulnerable populations.

- NVDA encourages municipalities to collaborate regionally on public works, emergency services, and shared facilities to stretch limited resources and build capacity.
- NVDA supports expansion and upgrades of water, sewer, and stormwater systems in village centers and downtowns to enable compact development, affordable housing, and economic growth.
- NVDA encourages adaptive reuse of underutilized civic and cultural buildings for childcare, community services, and multi-generational uses that enhance livability.
- NVDA supports universal, affordable broadband access as essential 21st-century infrastructure for education, health, economic opportunity, safety, and civic engagement, so all NEK residents have access regardless of geography or income. This can contribute to emissions from broadband-enabled remote work and telehealth.
- NVDA encourages investments in waste reduction, reuse, and composting, while advocating for a transparent, statewide plan to ensure that the NEK does not remain solely responsible for our state's solid waste. Composting can also contribute to improved soil health. The landfill in Coventry generates air and water pollution that is borne by the residents of Orleans County and their neighbors to the north. Although to date the Black River has not positively tested for contamination, water quality is still a concern.
- NVDA supports inclusive emergency services planning that recognizes the cross-border realities of Essex County communities, ensuring that all residents, regardless of state lines, can access timely emergency services.
- NVDA advocates for improved energy efficiency heating systems to improve air quality and save all parties money on fuel costs. NVDA also notices the air pollution from the biomass facility at the southern end of our region.

Goals, Objectives, and Strategies

Goal 1: Expand Access to Water, Sewer, and Stormwater Infrastructure to Support Economic Development and Housing

Objective: Address barriers to water and sewer infrastructure upgrades, with attention to affordability and long-term sustainability.

- **Strategy**: Increase awareness of the Vermont Clean Water Revolving Fund, CHIP, Vermont Bond Bank, and similar programs, especially in underserved municipalities.
- **Strategy**: Assist communities in conducting engineering studies, user rate evaluations, and system mapping, by connecting communities with qualified engineering firms.
- **Strategy**: Facilitate technical assistance in financing and utility rate structures that build adequate reserves for future needs without overburdening low-income users.
- **Strategy:** Working closely with municipalities, establish reliable data on sewer and water capacity to inform strategic investments in infrastructure.

Objective: Promote equitable development by reinvesting in existing infrastructure in Centers and Neighborhoods.

- **Strategy**: Encourage municipalities to update their zoning bylaws to comply with recent statutory changes, thereby allowing dense build-out in areas with off-site water and sewer access.

- **Strategy**: Identify underutilized water/wastewater capacity and prioritize infill, redevelopment, and affordable housing in those areas.
- **Strategy**: Incorporate green stormwater infrastructure where it is feasible to improve water quality and reduce flood risk. Learn more in the *Flood Resilience* chapter.
- **Strategy:** Provide technical assistance to communities seeking to integrate low-impact development standards into development regulations.

GOAL 2: STRENGTHEN THE RESILIENCE AND AFFORDABILITY OF CRITICAL PUBLIC INFRASTRUCTURE

OBJECTIVE : SUPPORT MUNICIPALITIES IN MAINTAINING, UPGRADING, OR REPLACING AGING PUBLIC WORKS, PUBLIC SAFETY, AND UTILITY INFRASTRUCTURE IN WAYS THAT REDUCE ENVIRONMENTAL VULNERABILITY AND COST BURDENS.

- **Strategy**: Provide technical assistance on capital improvement planning, asset management, and resilience-focused grant writing.
- **Strategy**: Partner with the State and federal agencies to identify and promote additional funding streams for rural infrastructure resilience.
- **Strategy**: Encourage shared services and regional models (e.g., for emergency response and planning staff) to reduce duplication and cost strain.

OBJECTIVE: IMPROVE THE CLIMATE RESILIENCE AND ENERGY EFFICIENCY OF CRITICAL INFRASTRUCTURE.

- **Strategy**: Promote the use of resilient siting, flood-proofing, and elevation standards for new and retrofitted public facilities.
- **Strategy**: Support municipalities in installing renewable energy and backup power systems (e.g., solar + battery) for emergency functions.
- **Strategy**: Encourage energy audits and retrofits of town halls, fire stations, and other civic buildings to lower operating costs and carbon emissions.

OBJECTIVE: ALIGN INFRASTRUCTURE INVESTMENTS WITH COMPACT, VILLAGE-STYLE DEVELOPMENT PATTERNS.

- **Strategy**: Prioritize funding in centers and neighborhoods to maximize the cost efficiency of existing infrastructure.
- **Strategy**: Promote adaptive reuse of historic civic structures in partnership with Preservation Trust of Vermont.
- **Strategy**: Encourage zoning updates that allow flexible public facility reuse and infill development.

GOAL 3: ENSURE UNIVERSAL, AFFORDABLE ACCESS TO TELECOMMUNICATIONS AND BROADBAND

OBJECTIVE : CLOSE THE DIGITAL DIVIDE TO SUPPORT REMOTE WORK, EDUCATION, PUBLIC PARTICIPATION, AND ECONOMIC DEVELOPMENT.

- **Strategy**: Collaborate with Communications Union Districts (CUDs) and other providers to expand high-speed, fiber-based broadband coverage.
- **Strategy**: Promote hybrid meeting infrastructure for towns to ensure public access, participation, and transparency.

- **Strategy**: Advocate for affordability programs and subsidies to ensure broadband is accessible to all income levels.

OBJECTIVE: IMPROVE SYSTEM REDUNDANCY AND CLIMATE RESILIENCE OF TELECOMMUNICATIONS INFRASTRUCTURE.

- **Strategy**: Support siting and design of broadband infrastructure to withstand extreme weather.
- **Strategy**: Promote energy-resilient facilities that support communication in emergencies (e.g., shelters, towers with backup power).

GOAL 4: IMPROVE REGIONAL WASTE DIVERSION AND PREPARE FOR LONG-TERM SOLID WASTE MANAGEMENT

OBJECTIVE: PLAN FOR EQUITABLE AND ENVIRONMENTALLY RESPONSIBLE WASTE DISPOSAL AS THE COVENTRY LANDFILL APPROACHES CAPACITY.

- **Strategy**: Advocate for a state-led, transparent process to identify alternative landfill sites outside of the NEK or alternative waste disposal technologies.
- **Strategy**: Collaborate with Casella and solid waste districts on long-term capacity planning and public engagement.

OBJECTIVE: INCREASE WASTE DIVERSION THROUGH EDUCATION, INFRASTRUCTURE, AND LOCAL REUSE EFFORTS.

- **Strategy:** Support local composting infrastructure and food scrap collection services in rural towns.
- **Strategy**: Promote food rescue and composting partnerships with schools, farms, and nonprofits.
- **Strategy**: Foster community reuse efforts—such as repair cafés, tool libraries, and textile workshops—to reduce landfill burden and support local skills.

Community Resources

- **Community Housing Improvement Program**: https://accd.vermont.gov/economic-development/programs/chip Set to launch in 2026, this is a statewide tax increment financing tool to help communities unlock housing opportunities by investing in critical infrastructure.
- **Clean Water State Revolving Fund:** https://dec.vermont.gov/water-investment/water-financing/clean-water-state-revolving-fund offers no- to low-interest loans to communities for planning, constructing, or reinvesting in infrastructure such as wastewater systems, stormwater management, and CSO abatement.
- **Northern Border Regional Commission**: https://www.nbrc.gov/content/Catalyst NBRC's catalyst program is a competitive grant program that supports economic initiatives through investment in infrastructure, including but not limited to wastewater systems, childcare, roads, and housing.
- **Small System Capacity & Resiliency Program:** https://www.vtbondbank.org/resource/small-system-capacity-resiliency-program-tier-ii VT Bond Bank aims to help small municipal drinking water systems (all municipal drinking water systems in the NEK are considered small) replace infrastructure at risk of failure. This can include work on preliminary engineering evaluations, Engineering design, bids specification, permitting, administrative work, and succession planning.
- **Vermont Community Development Program:** administers US Housing and Urban Development block grant funding. A competitive grant program, funds can be used to plan or invest in community facilities, and to make accessibility modifications to community facilities. https://accd.vermont.gov/community-development/funding-incentives/vcdp
- **USDA Rural Development:** offers low-interest loans and grants to support critical community infrastructure. https://www.rd.usda.gov/vt-nh
- **Vermont Rural Water Association:** Provides technical assistance and training for drinking water and wastewater systems. https://vtruralwater.org/
- **RCAP Solutions:** Supports rural & underserved communities/municipalities, water & wastewater operators, schools & children, and private well & septic system owners. https://www.rcapsolutions.org/

Social Infrastructure

The NEK's social infrastructure supports education, health, and well-being. This network of services is essential to community resilience, but it is frequently challenged by geographic remoteness, shifting demographics, and even climate-related stress. If we want our communities to truly thrive, we must ensure equitable and reliable access to lifelong education opportunities, a full array of healthcare services (including mental health), as well as healthy lifestyles, physical activity, and nourishing and affordable food. Finally, social interaction contributes not only to our emotional and mental well-being, but also fosters accountability and a sense of connection to the community.

Where you live has profound implications for life experience and life expectancy. Strategic investment, regional collaboration, and innovation in our social infrastructure are therefore paramount.

Key Takeaways & Existing Conditions

Education and Early Childcare

The region's aging demographic is placing stress on our education system.

Our schools form the backbone of the region's social infrastructure. They serve as vital community hubs that often double as emergency shelters, broadband access points, and civic gathering spaces. Maintaining their function and social relevance is therefore essential to the health and resilience of the Northeast Kingdom (NEK).

Public schools in the NEK are currently organized with eight supervisory unions and districts: North Country, Essex North, Orleans Central, Orleans Southwest, Kingdom East, St. Johnsbury School District, Caledonia Central, and Orange East. Districts and supervisory unions remain subject to change based on the state's policies. However, Vermont is currently engaged in ongoing statewide conversations about education transformation and governance restructuring, and the future configuration of supervisory unions and districts remains uncertain as policies and proposals continue to evolve.

The main public high schools include Canaan Memorial High School, North Country Union High School, Lakes Region Union High School, Craftsbury Academy, Hazen Union School, Danville High School, Blue Mountain Union School, St. Johnsbury Academy, and Lyndon Institute. The last two are private schools but serve many publicly tuitioned students in the region.

Many towns are home to a local elementary school, particularly in Caledonia and Orleans Counties. In Essex County, there are only four elementary schools: Canaan, Brighton, Concord, and Lunenburg. There are also a few shared public elementary schools, such as Jay Westfield in Orleans County, Miller's Run (Sheffield/Wheelock) in Caledonia County, and Blue Mountain Union (Wells River/Ryegate/Groton) in Orange County. Orleans Central Supervisory Union has recently switched from operating six K-8 schools to running three K-4 elementary schools and three 5-8 middle

schools. Similarly, Greensboro's school was changed to only house preschool-aged children across the local school district with elementary-aged students now sent to Hardwick. Over the past 20+ years, many smaller communities such as Guildhall, Granby, Norton, East Haven, Holland, and Morgan have seen their local elementary schools close. Concord and Lunenburg have seen the loss of their high school and middle school, respectively. School closures represent a difficult and emotional journey for many communities. The loss of a social institution requires serious consideration of adaptive reuse options – ones that can rarely replace the level of daily use found in a public school.

Although Universal Pre-K has boosted early-grade participation since 2017 *(Figure 2)*, overall enrollment has dropped by roughly 14 percent over the past ten years. Between 2013 and 2023, the region's overall school-age population (ages 5-19) declined by more than 1,300 children. According to state education data, Vermont public schools have lost more than 25% of their K-12 students in the past two decades. The result has been a steep rise in per-pupil cost.

Region	Year	Ages 5–9	Ages 10–14	Ages 15–19	Total Ages
Caledonia	2013	1,837	1,940	2,274	6,051
	2023	1,496	1,760	1,987	5,243
Change		-341	-180	-287	-808
% Change		-18.56%	-9.28%	-12.62%	-13.4%
Essex	2013	320	369	362	1,051
	2023	255	331	293	879
Change		-65	-38	-69	-172
% Change		-20.30%	-10.30%	-19.10%	-16.40%
Orleans	2013	1,441	1,794	1,685	4,920
	2023	1,698	1,341	1,515	4,554
Change		257	-453	-170	-366
% Change		17.80%	-25.20%	-10.10%	-7.40%
Region-wide	2013	3,598	4,103	4,321	12,022
	2023	3,449	3,432	3,795	10,676
Change		-149	-671	-526	-1,346
% Change		-4.1%	-16.4%	-12.2%	-11.2%

Figure 1. Population of school-aged children, ages 5-19 in 2013 vs. 2023. Source: ACS 5-Year Estimates, 2013 and 2023.

NEK Pre-K through Grade 12 Enrollment Trends

Act 73 (2025) proposes a substantive realignment of school districts, a weighted student funding formula, and a statewide tax rate. Act 73 also mandates a minimum class size that must be maintained over three years. Failure to do so could mean closure. This situation is actively evolving in the legislature and has received significant pushback from some residents, especially those in rural settings who would be unduly affected by school closures. Schools facing closure may claim an exemption through "geographic isolation," which is subject to rule-making by the State Board of Education.

Category	2017	2023	%Change	Trend / Storyline
Total PK–12* Enrollment	6,478	8,765	+35%	Growth largely from Pre-K expansion and improved data reporting after Act 46
Pre-K Enrollment	637	911	+43%	Universal Pre-K participation rising
K–12 Enrollment (excl. PK)	5,841	7,854	+34%	Stable since 2021; modest rebound post-COVID

Figure 2. Total primary school enrollment in 2017 compared to 2023. Sources: Vermont Agency of Education 2024; U.S. Census ACS 5-Year Estimates 2023; AOE Dual Enrollment Report 2023; Let's Grow Kids 2023 Status Report.

**It should be noted that the numbers include students from Blue Mountain Union School which serves Groton and Ryegate, but also Wells River which is outside of our region. Total Pre-K-12 at Blue Mountain is 436 and the difference based on town attendance is marginal.*

PUBLIC SCHOOLS AND EARLY GRADES ARE NECESSARY COMMUNITY ANCHORS.

During NVDA's Regional Plan outreach, a recurring concern raised by residents has been the potential loss of local schools. Vermont continues to evaluate education governance, funding, and delivery models. Yet these discussions occur within a complex context. Vermont faces an aging and declining population, shrinking student enrollment, rising education costs, and the operational challenges associated with maintaining many small rural schools across a geographically dispersed landscape. At the same time, schools often serve functions beyond education, acting as community gathering places and contributing to local identity and civic life in village centers.

These dynamics create a series of tensions that policymakers and communities are working to balance: sustaining education quality and financial sustainability, maintaining access to educational opportunities for students in geographically isolated areas, and recognizing the role schools play in community vitality. In many rural communities, schools are closely tied to broader planning goals, including maintaining vibrant village centers that support local services, civic life, and housing options that attract and retain workforce families.

As state and local districts consider school mergers, closures, or governance restructuring, several geographic and community factors may warrant consideration alongside fiscal and educational outcomes, including:

- Travel distances and impacts on state and local road systems resulting from longer student transportation routes;
- Transportation costs and how these costs interact with overall housing affordability in rural areas;
- The relationship between the presence of a local school and a community's ability to attract and retain families with school-aged children.

While the current education funding structure is widely acknowledged to face significant pressures, decisions related to school consolidation or closure need to occur within a broader set of considerations.

DESPITE AN AGING DEMOGRAPHIC, AFFORDABLE CHILDCARE REMAINS A PRESSING NEED.

Nearly half of children under six (1,664 across the NEK, 48 percent) live in households where all available parents/guardians are working, highlighting the essential role childcare plays in supporting families and the local workforce.

Licensed childcare capacity in the NEK totals 2,937 slots, an increase of about two-thirds from five years earlier (Let's Grow Kids, 2023). Compared to children under 12 with all parents working (3,529 kids), this means the region meets 83 percent of current demand. Caledonia County has enough licensed slots to meet current demand, but Essex meets only three-quarters of its need, and Orleans serves just two-thirds of working families.

County	Children < 6	Children < 6, Both Parents Work	Children < 12	Children < 12, Both Parents Work	Licensed Capacity	% of Need Met (U12 Both Parents)
Caledonia	1,592	745	3,400	1,590	1,650	103.8%
Essex	316	93	646	190	145	76.3%
Orleans	1,591	826	3,370	1,749	1,142	65.3%
NEK Total	3,499	1,664	7,416	3,529	2,937	83.2%

Figure 3. The breakdown of children per county that are in need of childcare and the licensed capacity of childcare providers. Sources: U.S. Census Bureau ACS 5-Year Estimates 2023; Let's Grow Kids 2023 Child Care Capacity Report; DCF Bright Futures Database.

Region	Total Children <6	Living w/ Two Parents	Both Parents in Labor Force	Father Only in Labor Force	Mother Only in Labor Force	Neither Parent in Labor Force
Caledonia	1,592	1,022	745	221	43	13
Essex	316	184	93	73	18	0
Orleans	1,591	1,058	826	201	25	6
NEK Total	**3,499**	**2,264**	**1,664**	**495**	**86**	**19**

Figure 4. The breakdown of children in the region under the age of six, that may need childcare, and parental employment status. Source: Children Under Age 6 and Parental Employment Status, 2023 ACS 5-Year Estimates.

Several municipalities—including Lyndon, Craftsbury, Greensboro, and Peacham—are reusing existing community buildings to co-locate childcare, adult learning, and library programs that strengthen intergenerational learning and improve community access. Expanding childcare options in these underserved areas—through new providers, repurposed facilities, and workforce investment—represents a critical opportunity to strengthen family stability, economic vitality, and long-term resilience in the NEK. Public–private collaboration and flexible facility use will be essential to close the remaining childcare gap, especially in remote areas of Essex County.

Craftsbury Saplings

Founded in 2017, Craftsbury Saplings provides childcare and high-quality early education for children 15 months to 5 years. The non-profit currently has the capacity to serve 19 children daily and more than 30 families annually from various municipalities in Northern Vermont. There is a long wait list. The center has embarked on a major facility expansion that can serve up to 42 children and provide infant care. The expansion is supported by a $1 million Catalyst Grant from the Northern Border Regional Commission, and additional fundraising from donations and foundation grants is upwards of $850,000. While the expansion was originally planned at their existing site in East Craftsbury, the project team is now exploring a potentially more cost-effective renovation of the Sterling College Alder Dorm in Craftsbury Common.

Career and technical centers prepare students for the region's workforce.

The NEK's five technical centers provide direct links between education and employment to equip students and adults with hands-on skills in renewable energy, construction, forestry, healthcare, and manufacturing—all central to the NEK's economic and climate goals.

Regional Technical Centers:

- **Canaan Technical Center** – Serves remote Essex County communities with cross-border industry partnerships, including welding and LNA (nursing) programs.
- **Lyndon Institute Technical Education** – Focuses on renewable energy, trades, and digital media.
- **St. Johnsbury Academy Technical Education Division** – Includes the Applied Technology Center, offering engineering, manufacturing, and culinary arts.
- **North Country Career Center (Newport)** – Serves northern Orleans County, strong programs in healthcare, construction, automotive technology, and sustainable agriculture.
- **Green Mountain Tech & Career Center (Hyde Park)** – Serves parts of southern Orleans, western Caledonia, including Hardwick, as well as eastern Lamoille counties with an emphasis on environmental technology and building trades.

Technical centers are key to the NEK's economic resilience and energy transition. These centers anchor grades 11–12 programming, dual-credit courses, and adult re-skilling opportunities through partnerships with CCV and Vermont State University–Lyndon. Continued investment in equipment, instructor training, and transportation will ensure rural students and workers can access these essential programs.

Higher education institutions sustain local opportunity and workforce development.

The NEK maintains a strong network of small higher-education campuses that anchor local workforce training and lifelong learning.

- **Sterling College** in Craftsbury will complete its final academic year in Spring 2026. The college has been nationally recognized for its focus on environmental stewardship, regenerative food systems, and sustainable agriculture, attracting students committed to

place-based learning. Plans for what will become of the facilities and land are still forthcoming.

- **Vermont State University–Lyndon** serves as the region's higher-education hub, offering degrees in several subjects. Amid the ongoing reorganization of Vermont State University (VTSU), the exact programs offered in Lyndon remain subject to change. Nonetheless, Lyndon benefits from the numerous cultural and economic offerings by VTSU. Due to decreased enrollment, VSU is experiencing an over-capacity of space. As a result, they are pursuing innovative measures to ensure continued vibrancy on their campuses including a partnership that will bring Kingdom East School District offices into an underutilized academic building.
- **Vermont State University–Johnson,** in neighboring Lamoille County, provides complementary programs, accessible to many NEK students through flexible hybrid and online formats.
- **Community College of Vermont (CCV)** operates small campuses in St. Johnsbury and Newport, offering accessible pathways for 200-300 students per campus to pursue associate degrees, workforce certifications, and Dual Enrollment opportunities for high school students.

Together, these institutions provide affordable, flexible, and locally relevant post-secondary education that supports both traditional students and adult learners. By expanding access to degree and career pathways close to home, these institutions strengthen the NEK's workforce, community leadership, and long-term economic potential.

Regional learning hubs support age-inclusive comprehensive learning opportunities.

Northeast Kingdom Learning Services is a 501(c)(3) that operates five hubs in St. Johnsbury, Newport, Hardwick, Island Pond, and Canaan. Services include K-12 tutoring, daycare, as well as adult education, a cornerstone of the NEK's equity and workforce resilience strategy. NEK Learning Services (NEKLS) served 194 adult education and literacy (AEL) learners in FY2023, delivering 9,140 AEL instructional hours, and 27 students obtained high school credentials. Expanding adult learning strengthens economic mobility and community resilience. Programs in GED preparation, ESOL, and workforce re-entry can help residents overcome employment barriers, particularly in communities with limited broadband or public transportation. NVDA will continue to support partnerships among NEKLS, VSU, CCV, and local employers to align adult education and training programs with regional workforce needs.

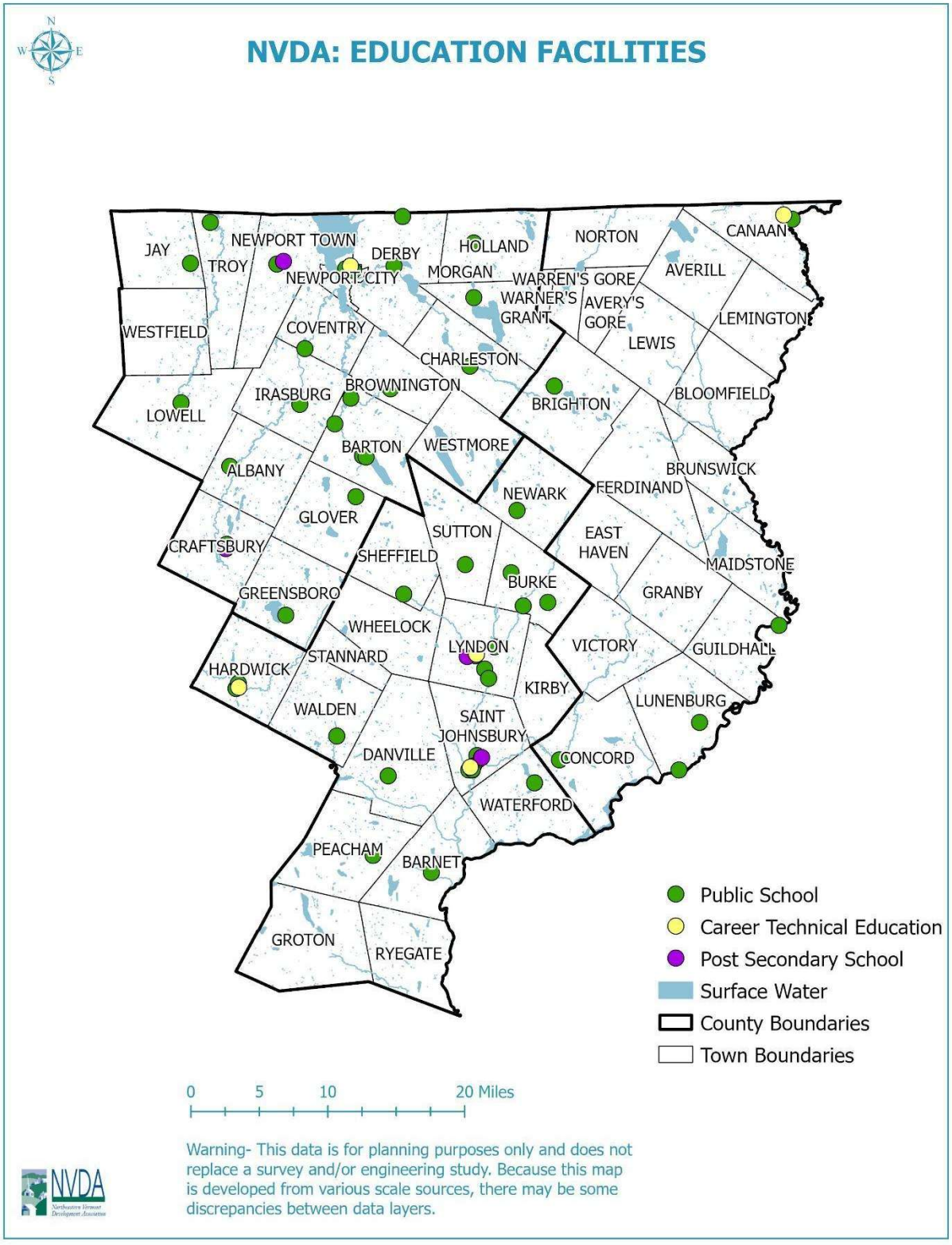


Figure 5. Public schools grades K-12, post-secondary schools, and Career Technical Education (CTE) programs. Note: Some education facility points are not at the actual location within a municipality for visibility reasons.

Community Health

Rural healthcare access is uneven, with gaps in primary care, pharmacy, and mental health services.

The NEK is served by two critical access hospitals (CAH), North Country Hospital in Newport and Northeastern Vermont Regional Hospital (NVRH) in St. Johnsbury. Copley Hospital in Morrisville is a CAH hospital serving the western portion of our region, especially Hardwick. "CAH" is a designation for hospitals that ensure rural communities have reliable access to emergency and routine medical care, provided they meet the following conditions:

- Located no less than 35 miles from each other;
- Provide 24/7 emergency services; and
- Have no more than 25 inpatient beds.

Facilities that offer more specialized and complex medical care (also known as "tertiary care facilities") are further away. UVM Medical Center in Burlington and Dartmouth–Hitchcock Medical Center in Lebanon, NH, are both considered tertiary care facilities and have hundreds of inpatient beds.

Northern Counties Health Care (NCHC) offers primary care, dental care, mental health, home & hospice, and pharmacy services through locations in St. Johnsbury, Newport, Danville, Hardwick, Island Pond, Orleans Village, and Concord although not all services are available at each location. NCHC also operates two "Express Care" locations in St. Johnsbury and Newport. North Country Hospital also operates a primary care facility in Barton.

Caplan's Building

Survey respondents indicated a desire for more healthcare, dental services, and specialized care in their downtowns. In 2020 the Caplan's Army Store closed its doors after 98 years in business. The store, located in the heart of downtown St. Johnsbury, was a community staple and operated out of one of the many historic buildings lining Railroad Street. While its closing was a disappointment for many, the building would not stay vacant for long in part because of funds received through a Downtown and Village Center Tax Credit as well as a Preservation Trust Grant. The Tax Credit aided in the redevelopment of the Caplan's Building into two commercial units, one of which is occupied by a Northern Counties Health Care Express Clinic, which provides walk-in primary care in an accessible location to many residents. Previously located elsewhere in St. Johnsbury, the renovated Caplan's Building provides Northern Express Care, doubling the space they previously occupied. On top of this, $50,000 awarded via a Preservation Trust Grant ensured that historic features of the building, such as the store's façade, vintage signage, and hardwood floors were kept, allowing the building to maintain its unique character.

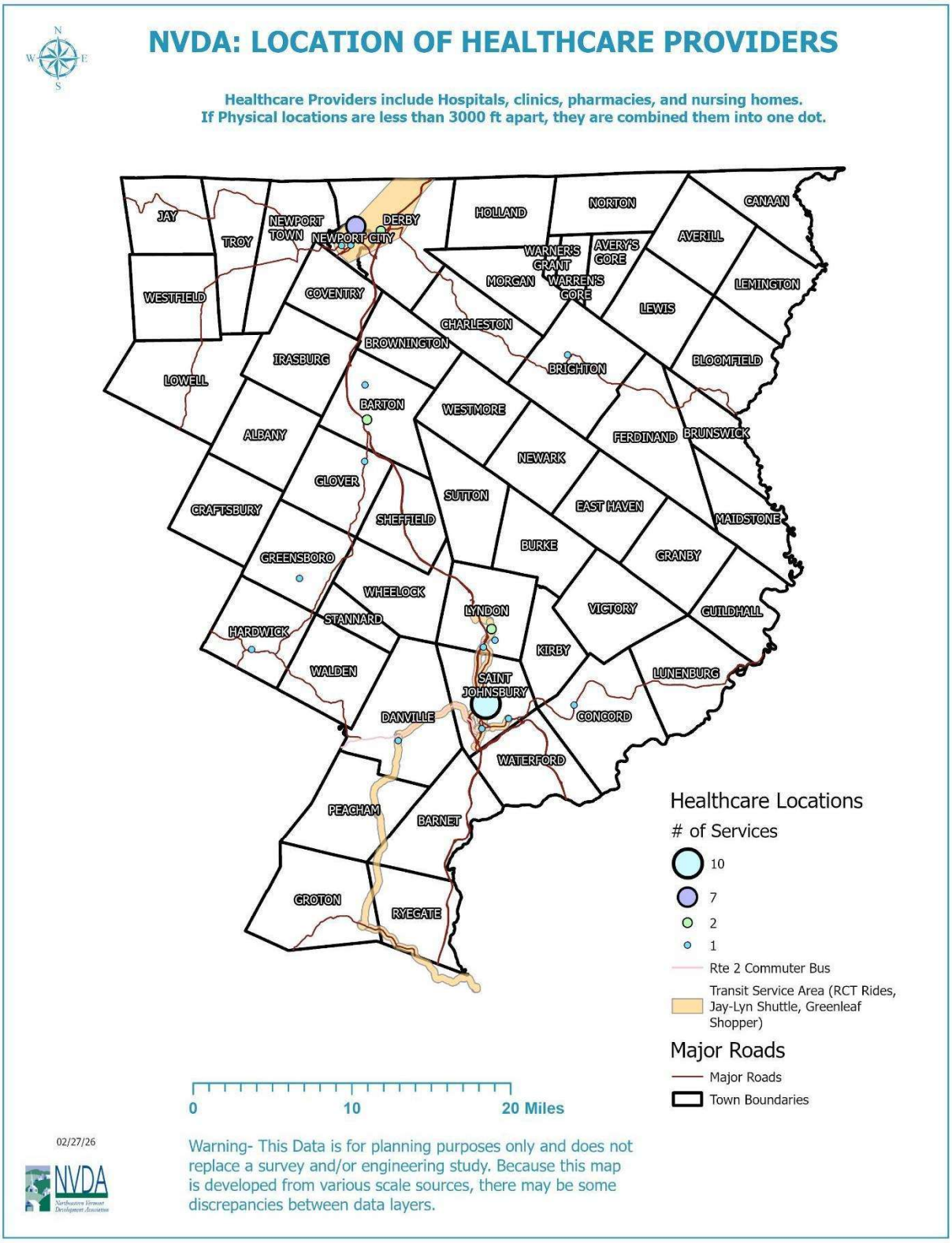


Figure 6. Healthcare locations throughout the region.

Transportation, cost, and availability are significant barriers for accessing healthcare. The Vermont Department of Health considers Hardwick, Brighton, and Newport "Governor-Certified Rural Shortage Areas." The designation takes into account the ratio of providers to population, as well as poverty rates and premature mortality rates.

In the eastern part of the NEK (Essex County) residents often rely on health providers across the Connecticut River in New Hampshire—such as Upper Connecticut Valley Hospital, Weeks Medical Center, and Littleton Regional Healthcare—for routine and emergency care. This cross-border reality highlights the need for coordination between Vermont and New Hampshire agencies to ensure seamless access to essential health services for border communities.

Recent pharmacy closures have increased the travel distance to meet essential needs. The closure of the Walgreens in downtown St. Johnsbury, along with the loss of the only pharmacies in Newport and Hardwick, underscores the challenges of maintaining healthcare access across the NEK. Residents in "pharmacy deserts" often rely on mail-order or delivery services, but these options cannot replace the in-person access to vaccines, health advice, and emergency prescriptions that local pharmacies once provided. Many residents now travel to pharmacies in towns outside the region.

Behavioral and mental health services are a critical component of the NEK's healthcare system, supporting residents through challenges that include substance use, depression, anxiety, and trauma. Access to care continues to be constrained by limited workforce capacity, transportation barriers, and long wait times for specialized services. Northeast Kingdom Human Services (NKHS) remains the primary regional provider, offering outpatient counseling, substance use and crisis intervention, case management, and community support programs across Caledonia, Essex, and Orleans counties. In 2025, NKHS opened the state's first 24/7 urgent care facility in Newport.

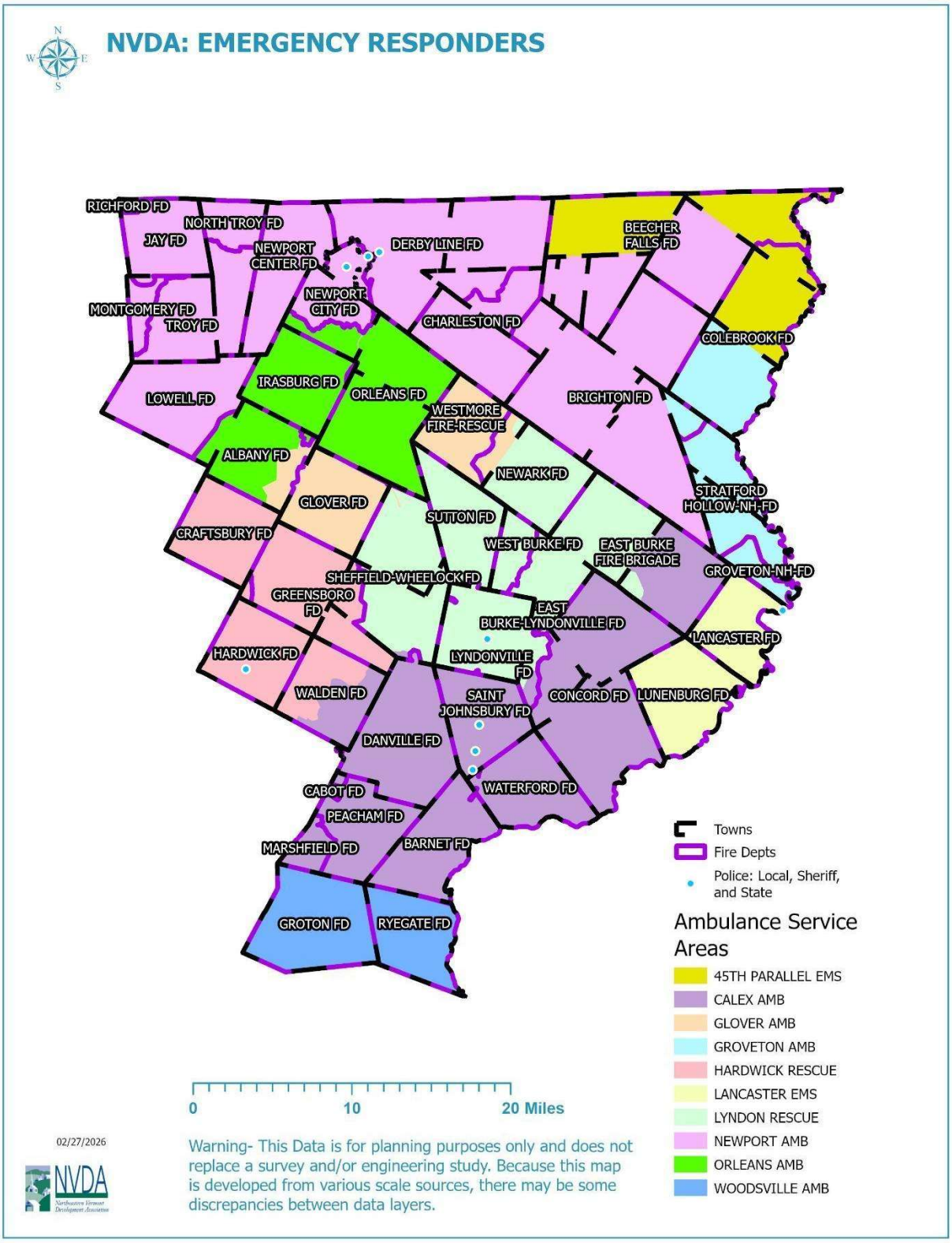


Figure 7. Emergency services including police, fire, and ambulance.

Mental health services can be a critical partner with law enforcement, hospitals, and schools. Law enforcement officers, for example, regularly respond to individuals in severe moments of crisis such as domestic violence or substance abuse. They rely on embedded mental health services, although distance and coverage gaps can hinder a positive outcome. While local law enforcement receives a large number of mental health crisis calls annually, about 80 percent are from repeat callers, suggesting that our most vulnerable residents are not receiving the wraparound support services they need. This plan suggests the need for tighter integration between mental health services and local first responders.

In addition to NKHS, several primary care and community health centers integrate behavioral health screening and treatment into their practices, helping to expand access in rural areas. Partnerships between healthcare providers, recovery centers, and peer-support networks play an increasingly significant role in prevention and long-term recovery.

The region's first Community Health Needs Assessment underscores a nexus of rural isolation and poverty with health and wellbeing.

In 2024, the NEK launched its first Coordinated Community Health Needs Assessment. The effort brought together NVRH, North Country Hospital, NKHS, NCHC, as well as Northeast Kingdom Community Action, the Northeast Kingdom Council on Aging, and the Vermont Department of Health to assess health needs of NEK residents using a data-driven approach. The assessment identified the following key priority areas that will shape planning and policy:

Mental health: Only 28 percent of survey respondents reported that they could get the mental health services they needed. While mental health is directly affected by community connection, fewer than half of the respondents reported feeling connected to their community. Rural distance and isolation were frequently cited as barriers to well-being.

Social determinants of health: The NEK fares worse than the rest of the state across a number of factors that affect health and well-being, including poverty, food security, employment status, household income, leisure time, and obesity.

Chronic disease morbidity and mortality: Life expectancies in the region are lower, with mortality rates from cardiovascular disease, cancer, and respiratory diseases outpace statewide rates. Survey respondents cited difficulty finding the services they needed, as well as long wait times.

Substance and alcohol abuse: The rate of opioid use in the NEK, specifically Essex and Orleans Counties (50.6 and 43.6 per 100,000), is vastly higher compared to the state.

Selected Socio-Economic and Health Status Indicators

	Vermont	Caledonia	Essex	Orleans
Median household income by county	$73,991	$62,964	$55,247	$63,981
% of people in poverty	10.4%	11.8%	13.2%	9.8%
High school graduate or higher, percent of persons age 25+	94.5%	93.7%	88.5%	91.9%
% of adults aged 20+ who are obese (BMI >=30)	27%	28%	45%	36%
% of adults aged 18+ with no leisure time aerobic physical activity	20%	22%	24%	26%
Child food insecurity rate	14.7%	17.1%	22.7%	18.0%
Deaths due to major cardiovascular disease, age-adjusted rate per 100,000	316.6	336.5	396.4	464.2

Figure 8. Northeast Kingdom Comprehensive Community Health Assessment, citing numerous sources, including ACS Community Survey 5-year estimates (2022); Vermont Behavioral Risk Factor Surveillance System (BRFSS); Youth Risk Behavior Survey (YRBS), Community Health Rankings, Feeding America (2021), and Vermont Vital Statistics.

RECREATION AND OPPORTUNITIES FOR SOCIAL INTERACTIONS ARE VITAL TO COMMUNITY HEALTH.

Even though the NEK is a destination for outdoor recreation and visitor tourism, not all residents reap the benefits. In the Community Health Needs Assessment, adults aged 18 and above reported higher rates of physical inactivity, a known contributor to numerous health conditions, including obesity, heart disease, and high blood pressure. Recreational assets like trails, parks, and community centers anchor public health and civic life, but not everyone has equal access, largely due to lack of sidewalks or connecting paths. Assets like the Lamoille Valley Rail Trail (LVRT) and the Cross Vermont Trail are connecting towns, and efforts to better link trail access to centers of development can help to improve equal access and health benefits. Public community centers, such as libraries, provide safe spaces during extreme weather, offering heating, cooling, and access to vital services. At the same time, recreational places like lakes, ponds, and swimming holes play an important role in helping residents cool off during hot weather.

Gathering and community programming spaces define our rural way of life. When asked to identify favorite “gathering spaces” during 2025 NVDA public engagement NEK residents cited a variety of

venues, including libraries, historic buildings, stores, and even beaches. Despite the variety of responses, it is clear that residents value opportunities for human interaction in their respective communities. The NEK has an opportunity to repurpose underused spaces such as churches, for early childcare and intergenerational care, as well as civic and cultural programming, to strengthen community ties. Successful examples of adaptive reuse include the North Danville school and McIndoes Academy Community Center in Barnet. McIndoes recently acquired the former Congregational Church and is restoring the structure to accommodate additional cultural and community programming. In Norton, the historic schoolhouse has been adapted to house the town office and a tri-town historical society serving Norton, Averill, and Stanhope, Québec. In Peacham, the Congregational Church also operates a childcare center.

Libraries also play a key role in supporting and enhancing community services—offering Wi-Fi, meeting space, and multi-generational programming. Coordinated investments in accessibility, energy efficiency, and resilience upgrades can extend the lifespan of municipal and public facilities, enhance regional emergency readiness, and strengthen civic infrastructure across the NEK.

Food Access

Food insecurity, as defined by USDA is a household-level economic and social condition of limited or uncertain access to adequate food. It is often felt more acutely in rural areas, and the NEK is no exception. Despite our strong agricultural roots, all three counties experience food insecurity rates that exceed the statewide average. Persistent transportation barriers, lagging household incomes, distance to grocery stores in many areas, and the closure of local food shelves have deepened inequities in rural access. In 2025 alone, two NEK food shelves have closed due to loss of federal funding.

	Food Insecurity Rate	Est. Eligibility among Food Insecure	Avg. Cost of Meal
Caledonia	13.9%	40% above SNAP threshold/ 60% below	$4.25
Essex	15.9%	27% above SNAP threshold/ 73% below	$3.72
Orleans	13.9%	36% above SNAP threshold/ 46% below	$3.72
Vermont	12.2%	50% above SNAP threshold/ 50% below	$3.73

Figure 9. Rates of food insecurity in the NEK, percent of food insecure eligible for SNAP benefits, and the average cost of a meal in the region and state. Source: Feeding America, 2023.

Community-driven solutions such as Veggie Van Go, mobile markets, farm-to-school programs, and local food shelves remain essential, but they need greater capacity, coordination, and sustainable funding to meet demand. A nimble, distributed food system is part of the solution—but without robust, long-term funding mechanisms, more community food access points will be at risk.

The Vermont *Farm to Plate Network's Food Security Roadmap (2023)* provides a framework for statewide action, emphasizing regional resilience, supply chain coordination, and local leadership. NVDA supports advancing this work at the regional level by helping municipalities, nonprofits, and producers secure funding for food access infrastructure, especially in remote and underserved communities. In 2016, NVDA became the first regional planning commission to adopt a regional food system plan. Since that time, the region has seen significant investments in our food hubs.

Green Mountain Farm to School (GMFTS) was founded in 2008 and has a mission to "strengthen local food systems in Vermont by promoting positive economic relationships, education, and access between schools, farms, and communities". They carry out their mission with a three-program approach including their Farm to School program, Farm Direct food hub, and Lunchbox program. Their efforts have provided over 30,000 pounds of nutrient dense foods to local schools and food shelves, and their food hub has facilitated over $4 million in sales for local producers.

The Hardwick-based Center for an Agricultural Economy (CAE) has been operating the Vermont Food Venture Center for more than a decade, and its programming takes a strong focus on food sovereignty. Their Just Cut Program purchases local produce to be washed, minimally processed, and delivered to institutional markets. With the opening of the adjacent Food Hub at the Yellow Barn, *(see the Economic Development chapter for more details)* the CAE has been able to increase their storage capacity of their Just Cut products, enabling them to increase purchases from local farms. In a similar vein, the CAE's Produce to Pantries program works with the Hardwick Area Food Pantry and its satellite locations to distribute quality local produce to more households.

While the pandemic revealed structural weaknesses in our industrial food system, these smaller regional food hubs established nimble and adaptive local food networks that met the needs of their communities. They highlight a growing opportunity to invest in our local farmers and producers, and have the potential to create an equitable food landscape with the help of clear vision and collaboration. In the face of decreased federal funding our food hubs will have to build stronger local alliances to support their programming.

Connections to Transportation & Housing

Many of these systems, particularly health, food, recreation, and emergency response, are directly shaped by the region's transportation network. For example, the ability to access healthcare, cooling shelters, or grocery stores is often dependent on car ownership. Likewise, infrastructure limitations (like water access and wastewater capacity) directly affect the ability to site new housing. These interconnections are explored further in the Transportation and Housing chapters.

Regional Policies & Priorities

Equal and affordable access to vital social infrastructure ensures that everyone has an opportunity to improve quality of life and life expectancy. NVDA will work with communities, state agencies, and funders to prioritize investments that improve societal, public health, and environmental outcomes across the region. To guide partners and communities, NVDA sets forth the following regional policy priorities:

- NVDA supports investments in critical public infrastructure that reduce long-term costs, strengthen climate resilience, and improve access for historically marginalized and

vulnerable populations, including but not limited to low-income households, unhoused individuals, people without access to personal transportation, people with chronic physical and mental health challenges.

- NVDA encourages adaptive reuse of underutilized civic and cultural buildings for childcare, community services, and multi-generational uses that enhance livability.
- NVDA supports inclusive community health planning that recognizes the cross-border communities, ensuring that all residents—regardless of state or county lines—can access timely care and emergency support.
- NVDA supports regional collaboration and long-term funding strategies to expand community food access infrastructure, aligning with NEK Regional Food System Plan and the Vermont Farm to Plate Food Security Roadmap.
- NVDA advocates for investment and maintenance of community facilities and infrastructure that enhance the planned growth patterns of our region and minimize geographic isolation.
- NVDA recognizes the value of age-inclusive lifelong learning opportunities are critical in building a reliable workforce and supporting economic autonomy of its residents. We will prioritize investment in educational facilities and programming that are accessible and affordable.

Goals, Objectives, and Strategies

Goal 1: Support Access to Community Facilities that Enhance Livability, Childcare, and Learning

Objective: Maintain relevant local schools in rural communities.

- **Strategy:** Identify and prioritize investments that maintain school buildings that are safe and healthy learning environments.
- **Strategy:** Ensure that local planning efforts identify and evaluate the broader civic, community, and cultural significance of local schools.
- **Strategy:** Ensure that local technical and career centers offer an array of education options, including paths that meet local needs such as construction trades, weatherization and local water/wastewater operators.

Objective: Repurpose underutilized educational, cultural, and religious facilities for community benefit.

- **Strategy**: Provide planning and permitting assistance for adaptive reuse projects that meet current needs (e.g., coworking, civic, arts, childcare).
- **Strategy**: Work with local zoning officials to allow multi-use or transitional uses of community buildings.
- **Strategy**: Partner with community trusts, housing trusts, and other nonprofit organizations to steward reuse projects in ways that reflect community priorities.
- **Strategy:** Work with local officials to identify an appropriate reuse of the Sterling College campus.

Objective: Expand access to licensed childcare across the region.

- **Strategy**: Identify and prioritize infrastructure investments that enable home- and center-based childcare facilities.

- **Strategy**: Integrate childcare facility needs into housing and workforce development planning.

GOAL 2: PROMOTE A HIGH QUALITY OF LIFE AMONG NEK RESIDENTS.

OBJECTIVE: IMPROVE AND SUPPORT ACCESS TO CRITICAL CARE, INCLUDING MENTAL HEALTH RESOURCES.

- **Strategy:** Sustain and expand the availability of local health centers in centers of development.
- **Strategy:** Integrate transit routes with healthcare destinations.
- **Strategy:** Encourage the Regional Emergency Management Committees to include mental health services as part of training and tabletop exercises.
- **Strategy:** Support communities in their efforts to site group homes and recovery houses, a use that is protected in Fair Housing law.

OBJECTIVE: ENSURE ALL RESIDENTS ENJOY EQUITABLE ACCESS TO RECREATION.

- **Strategy:** Support efforts to integrate public recreation opportunities and social programming into centers of development.

OBJECTIVE: ACHIEVE FOOD SOVEREIGNTY, PROVIDING RESIDENTS WITH ECONOMIC ACCESS TO FRESH, HEALTHY AND LOCAL FOODS, AND FOOD-RELATED HEALTH OUTCOMES.

- **Strategy:** Sustain and expand the capacity of local food hubs to reach food insecure and underserved populations.
- **Strategy**: Update the NEK Regional Food System Plan
- **Strategy:** Support communities to expand or upgrade spaces for community meal sites and food shelves.
- **Strategy:** Assist service providers in expanding capacity for processing and distributing local produce.

Community Resources

- **Northern Border Regional Commission**: https://www.nbrc.gov/content/Catalyst NBRC's catalyst program is a competitive grant program that supports economic initiatives through investment in infrastructure, including but not limited to wastewater systems, childcare, roads, and housing.
- **Vermont Community Development Program:** administers US Housing and Urban Development block grant funding. A competitive grant program, funds can be used to plan or invest in community facilities, and to make accessibility modifications to community facilities.
- **USDA Rural Development:** offers low-interest loans and grants to support critical community infrastructure. https://www.rd.usda.gov/vt-nh
- **RCAP Solutions:** Supports rural & underserved communities/municipalities, water & wastewater operators, schools & children, and private well & septic system owners. https://www.rcapsolutions.org/

Recreation

- **Vermont Land Trust** — vlt.org: Expands trail access and conservation lands.
- **VOREC** — fpr.vermont.gov/VOREC: Grants and programs linking outdoor recreation and community development.

Education & Childcare

- **Vermont Agency of Education Dashboard** — education.vermont.gov: Data on schools and enrollment.
- **NEKCA** — nekcavt.org: Childcare, Head Start, and family support services.
- **Umbrella** — umbrellanek.org: Programs supporting families, youth, and education.
- **NEK Learning Services (NEKLS)** — neklsvt.org: Adult education and workforce training.
- **Center for an Agricultural Economy:** A 501(c)(3) that works to support a thriving local food system with equitable access to health food. Operates the Vermont Food Venture Center, which provides minimal processing of local produce, as a well as the Food Hub, both in Hardwick. Hardwickagriculture.org
- **Green Mountain Farm to School/Green Mountain Farm Direct:** Promotes positive economic relationships, education, and access between schools, farms, and communities. https://greenmountainfarmtoschool.org/mission/
- **NEK Regional Food System Plan:** Currently the only regional food system plan in Vermont: https://www.nvda.net/agriculture.php Vermont Farm to Plate maintains a statewide food system plan https://www.vtfarmtoplate.com/vermont-agriculture-food-system-plan-2021-2030

- **Health Equity Planning Tools:** The Vermont Healthcare Emergency Preparedness Coalition provides a toolkit for integrating health equity into local emergency planning https://www.vhepcoalition.org/vermont-health-equity-tool Vermont Department of Health offers a Health Equity Toolkit for integrating health equity considerations into local plans and bylaws https://www.lcpcvt.org/vertical/Sites/%7B3C01460C-7F49-40F5-B243-0CA7924F23AF%7D/uploads/HE_toolkit_revised_Jan.2023.pdf

Housing

Housing policy and planning directly shape the Northeast Kingdom's (NEK) communities, impacting where and how people live, the availability and affordability of homes, and access to jobs, schools, healthcare, and other essential services.

Planning decisions influence housing type, quality, and density, which in turn affect quality of life, utility efficiency, commerce, workforce availability, and the preservation of agricultural and forested lands. Housing planning is a critical component of regional development, with direct implications for economic opportunities, public health, social equity, and environmental sustainability in the NEK.

Northeastern Vermont Development Association (NVDA) is committed to local and regional policies that support an accessible and sustainable housing system that meets community needs and strengthens the NEK's future. At the same time, recent floods and extreme weather events across Vermont have made it clear that resilient housing and smart land use aren't just environmental priorities—they're essential to protecting private property, safeguarding public investment in infrastructure, and avoiding costly disaster recovery. Proactive community planning can help reduce long-term burdens on taxpayers and ensure that NEK's housing stock is



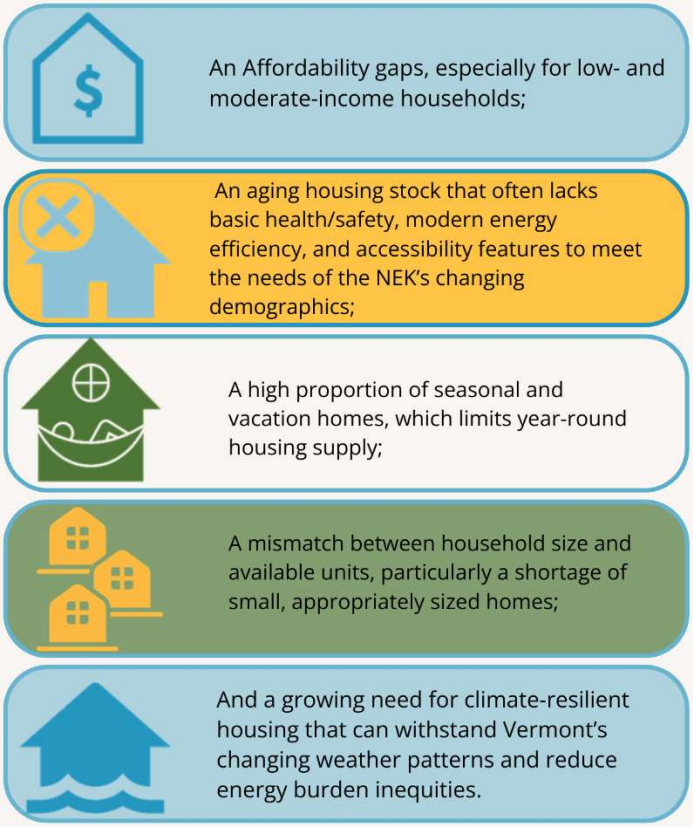
Figure 1. Recent construction of housing in the NEK by Rural Edge. Photos curtesy of Rural Edge.

safe, reliable, and affordable for future generations. At the same time, climate-smart planning reduces energy costs and makes homes more comfortable year-round—benefits that support all Vermonters, especially those with the greatest need.

NVDA believes that housing that is stable, safe, and affordable is a fundamental human need that helps families and individuals achieve their goals and be successful. Housing stability allows residents to become part of and contribute to a community. Stable housing encourages long-term employment, children to remain in local schools, and participation in community events.

NVDA is committed to helping the region meet its housing needs, ensuring that homes are safe, climate-resilient, energy-efficient, and affordable—with a goal of households spending no more than 30 percent of income on housing and 15 percent on transportation. Despite complex factors that often impede housing availability (explored below), NVDA is committed to planning and policy efforts that can help achieve stable, safe, and equitable housing for all communities in the NEK.

The NEK's housing landscape is shaped by several persistent challenges:



This chapter provides a clear framework to guide local and regional policies that shape the type, location, and affordability of housing in the region. It supports long-term planning efforts that address demographic shifts, as well as economic development and community resilience needs—particularly as the region faces increasing challenges and pressures.

Policy in Action: Building More Homes in the NEK

To tackle the NEK's housing shortage, Vermont must build more homes—and build them differently. Recent reforms like S.100 (2023) and Act 181 (2024) support this by allowing more density and easing permitting through Act 250 changes.

But construction costs are still high, especially for single-family homes. The region needs more multifamily housing—such as apartments, townhouses, and condominiums, which are more cost-effective and better suited to village-scale growth. We also need to embrace off-site construction, like modular, panelized, or manufactured homes—to lower costs and speed up production in rural areas. With the right policies and building methods, the NEK can meet its housing needs affordably, efficiently, and at scale.

Key Takeaways & Existing Conditions

Vermont needs more homes.

The 2025 Vermont Statewide Housing Needs Assessment estimated between 24,000 and 36,000 additional year-round homes are needed across the state between 2025 and 2029 to normalize vacancy rates and accommodate projected population growth. With fewer than 16,000 units built in the past five years, Vermont must increase its pace of construction by 50 percent to meet the low end of this projection—and by more than 100 percent to reach the high end. (VHFA, 2025)

To assist in reaching housing targets, municipalities within the NEK have increased access to participation in State Designation Programs, such as Centers and Neighborhoods. The designation program, which was significantly reformed by Act 181, ties designations to the regional plan so that even communities without a confirmed planning process can participate. Designations are indicated by "Steps." Step 1 offers tax credits for investments in income-producing properties. Steps 2 and 3 offer increased levels of funding and assistance that incentivize new development and redevelopment in areas with existing density.

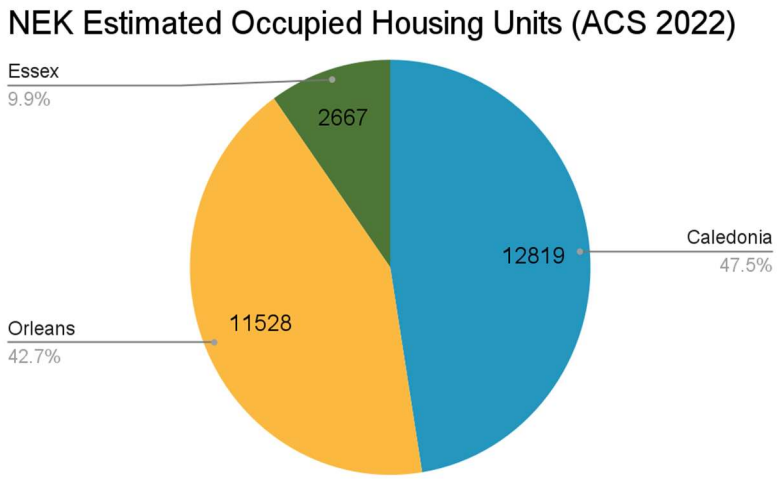


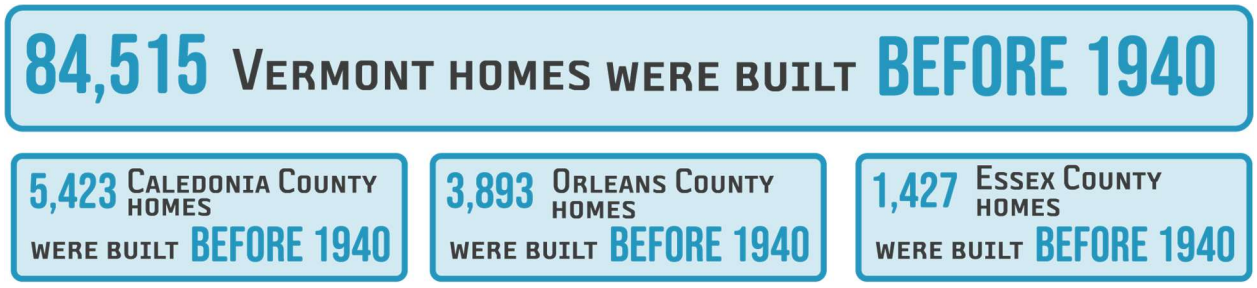
Figure 2. Estimated Occupied Housing Units. Source: U.S. Census Bureau, ACS 5-Year Estimates, 2022.

Nearly 30 percent of NEK housing was built before 1940.

Nearly 30 percent of all homes in the NEK were built before 1940, with many of these older structures concentrated in Census-Designated Places, densely settled areas such as St. Johnsbury and Newport City. Aging homes often suffer from deferred maintenance and outdated, inefficient systems, making them less appealing to buyers and less resilient to extreme weather. These conditions can contribute to weaker real estate performance and limited reinvestment in some areas.

In many NEK communities, low property values and high rehabilitation costs make it difficult for homeowners to finance major repairs or energy upgrades, slowing the renewal of existing housing stock. Combined with long commute distances and aging infrastructure, these challenges underscore the need to focus growth in compact, energy-efficient, and accessible housing.

Energy-efficient and climate-resilient housing development and updates should be particularly focused in designated centers and neighborhoods with existing services, to strengthen community resilience and regional competitiveness. Improvements and energy-efficient new builds lead to resilience against extreme weather, reduces heating and cooling energy use and costs, and lowers the region's greenhouse gas emissions.



NEK'S HOUSING STOCK DOES NOT FIT THE NEEDS OF THE REGION.

The region is aging rapidly: residents aged 65+ made up 25 percent of the population in 2021, up from 18 percent in 2010. Between 2019 and 2021, the NEK's population grew by 1.1 percent (681 people), though growth was uneven, Caledonia and Orleans Counties saw slight increases, while Essex County declined.

The NEK lacks sufficient housing for older residents looking to downsize and for the local workforce seeking quality, mid-market options. There is a shortage of smaller, affordable, and accessible (single-story, ADA-compliant) homes, particularly those located in village centers or near shops, services, and transportation options. Without more types of housing, the region risks losing aging residents and failing to attract community members who do not want or need larger single-family homes.

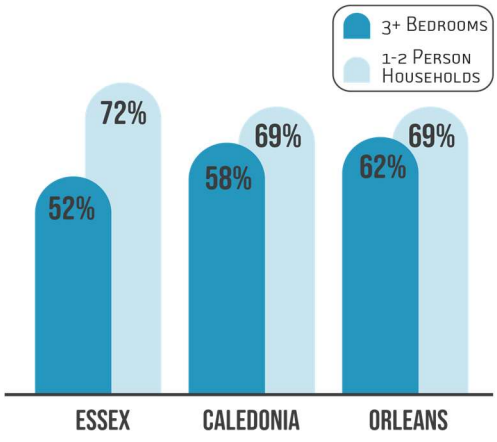


Figure 3. Percentage of one to two person households and three or more-bedroom homes by county.

The region's housing stock is dominated by single family units, even in urban downtowns like St. Johnsbury and Newport. Overall NEK occupied housing is approximately 75 percent single-family (20,304 units), 15 percent multi-family (4,243 units), and 10 percent mobile homes (1,096 units). Despite most households (69 percent) consisting of one or two people, only 37 percent of homes are studio, one-bedroom, or two-bedroom units—highlighting a mismatch between housing supply and household size. (ACS, 2022)

Over time, household composition has shifted from family to non-family households, with the vast majority of non-family households consisting of individuals living alone. Among these, residents aged 65 and older represent the fastest-growing group. This long-term trend reinforces the

need for smaller, accessible, and energy-efficient housing options, particularly in village centers where older adults can remain connected to services and community life.

The Cost of Housing – Renting vs. Owning

Rental housing remains a small share of the NEK's occupied housing, reflecting its rural character and the dominance of single-family homes. Yet there is a notable lack of market-rate rental units, underscoring the need for a more balanced mix of housing options.

Only 34 percent of rental units are studios or one-bedrooms, despite high demand among younger adults (ages 20–30). Regional rents are about 25 percent lower than the Vermont average, but vacancy rates have declined steadily since 2009. *(RuralEdge, 2023)*

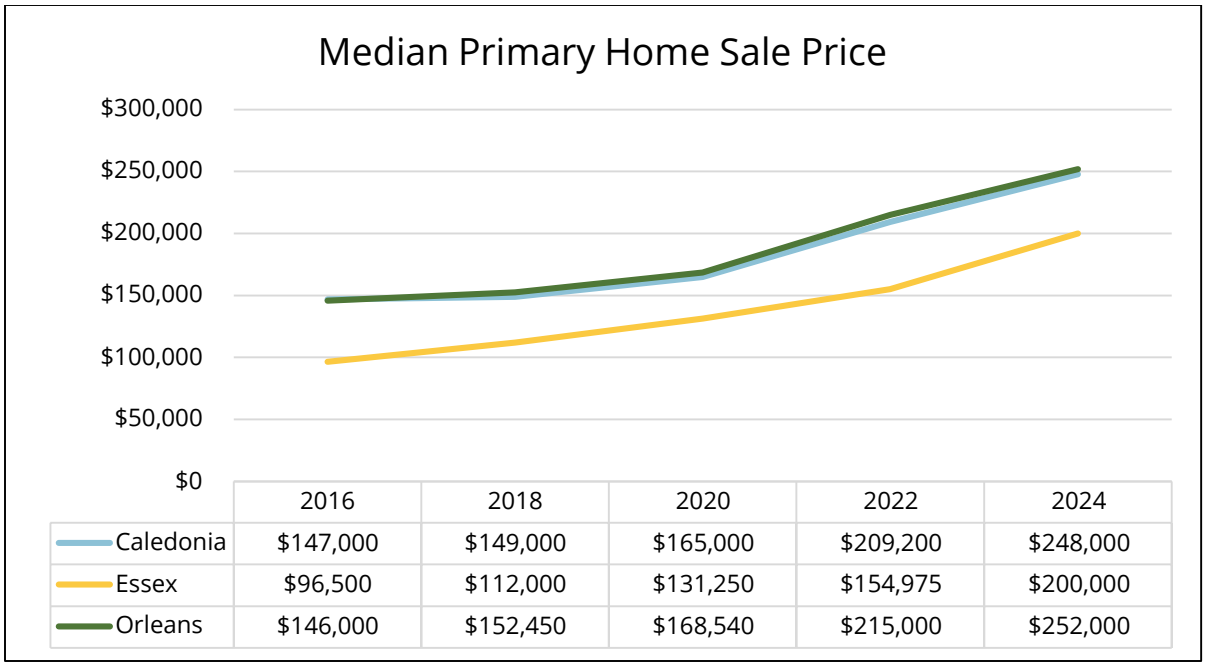
Economic challenges compound the problem. The median household income in the NEK is $55,671, well below the state median of $67,674. More than one-third of renters earn less than $20,000 annually, and nearly 12 percent of residents live in poverty. *(NEK Housing Needs Assessment, RuralEdge)*



NEK lacks affordable housing options.

The most significant demographic shift in the region will be the continued growth of senior households across all income levels. Additionally, the region faces a critical shortage of affordable housing for very low- and low-income residents, especially younger individuals in their twenties and thirties. Low-income residents face challenges of increasing housing and transportation costs, with long commutes and limited access to public transportation. This leads to continued economic and environmental strain.

RuralEdge's 2023 Housing Needs Assessment for the NEK indicates a pressing need for approximately 4,000 housing units over the next five years to accommodate households earning up to 120 percent of the area median income. This coincides with our regional housing target of 2,836 to 4,193 additional year-round homes by 2029. Demand is expected to be gradual, with around 750 households in this income range seeking new housing annually.



	2016	2018	2020	2022	2024
Caledonia	$147,000	$149,000	$165,000	$209,200	$248,000
Essex	$96,500	$112,000	$131,250	$154,975	$200,000
Orleans	$146,000	$152,450	$168,540	$215,000	$252,000

Figure 4. Primary home median sale price by county from 2016 to 2024. Source: Vermont Housing Finance Authority, Primary & Secondary Home Sales.

SEASONAL

HOUSING PLAYS A MAJOR ROLE IN THE NEK'S HOUSING LANDSCAPE.

The NEK has historically had a high proportion of seasonal and vacation homes. While approximately 17 percent of Vermont's housing is used seasonally, the figure rises to nearly 24 percent in the NEK, further constraining year-round housing availability and affordability.

Between 2000 and 2021, seasonal units in the region grew by 30 percent, compared to just 10 percent growth in year-round occupied housing. Seasonal housing classifications can also fluctuate, converting to full-time use over time, while the rise of short-term rentals (STRs) further blurs the lines between vacation and permanent housing in the NEK.

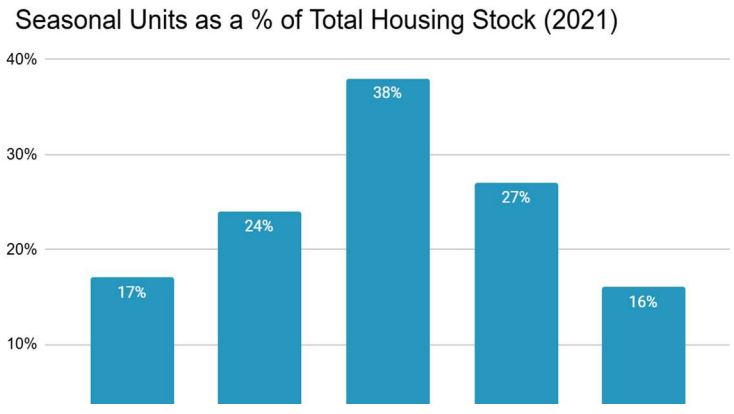


Figure 5. Seasonal units out of total housing stock. Source: Vermont Housing Finance Authority, Seasonal, Recreational & Occasional Use Homes

NEK vacation housing often takes the form of single-family units or 'camps' in less populated environments. Mountain resort communities like Jay and Burke have more condominiums. Seasonal housing accounts for more than 50 percent of the total housing stock in Newark, Ferdinand, Brunswick, Granby, Lemington, Greensboro, Jay, and Morgan. (RuralEdge, 2023)

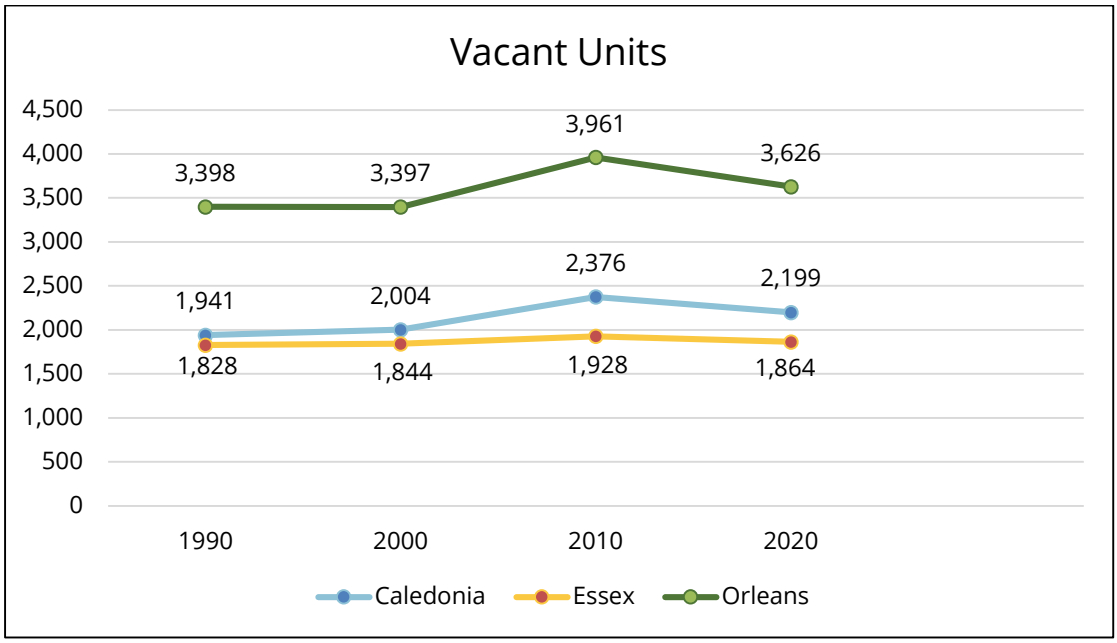


Figure 6. Vacant units for seasonal, recreational, or occasional use between 1990 and 2020. Source: U.S. Census Bureau 1980, 1990, 2000, 2020.

NEK AUTO DEPENDENCE AND LONG COMMUTES HINDER THE DEVELOPMENT OF AFFORDABLE AND SUSTAINABLE COMMUNITY-BUILDING.

With local employment opportunities focused in the regional hubs, many residents commute long distances—Essex, Orleans, and Caledonia Counties have some of the highest rates in Vermont of workers traveling over 50 miles one-way, reinforcing scattered rural development. *(See Transportation chapter).* In each of the NEK's counties, over 12 percent of workers travel over 50 miles to work. Still, the region is well positioned to explore solutions, such as remote-work infrastructure, small-scale job centers, public transit coordination, and building additional housing near existing services, that can reduce commuting burdens while strengthening NEK communities.

THE NEK'S HOUSING SHORTAGE POSES IMMEDIATE AND LONG-TERM IMPLICATIONS FOR REGIONAL PROSPERITY AND ECONOMIC DEVELOPMENT.

While the NEK's housing stock has grown faster than the state average in recent years, the region faces ongoing challenges. Most new construction occurred in Orleans County, which accounted for about 70 percent of all residential permits issued between 2015 and 2021—with more than 300 new homes permitted in 2021 alone. In contrast, Caledonia County faces a substantial housing shortfall. RuralEdge estimates a total need of roughly 1,800 additional households in Caledonia County, with the greatest demand among lower-income residents and older adults.

Like much of Vermont, the NEK has seen sharp increases in both rents and home prices. Although Caledonia's median home price in 2023 was lower than the statewide median ($232,000 vs.

$325,000), many residents continue to struggle with affordability due to lower average incomes and limited economic opportunities (RuralEdge; VHFA; VT Housing Data, 2025).

Meanwhile, the Vermont Futures Project projects a need for approximately 8,000 additional housing units in the NEK by 2035 to accommodate population and workforce growth needed to sustain a strong regional economy (Vermont Futures Project, 2024). Together, these findings highlight both the immediate and long-term urgency of addressing the NEK's housing shortage.

NEK HOUSING CRISIS DISPROPORTIONATELY IMPACTS THOSE IN NEED.

The NEK's most vulnerable residents, including low-income households, seniors, people with disabilities, and individuals experiencing homelessness, face persistent and compounding barriers to safe, affordable, and appropriate housing. These environmental justice populations are disproportionately impacted by outdated infrastructure, a lack of supportive housing, and limited access to services, especially in rural, remote areas without affordable transportation options. The region's rapidly aging population urgently needs more accessible housing options, such as single-story, ADA-compliant units in walkable locations or near essential services. However, there are no licensed assisted living facilities in the NEK, unlike other Vermont regions, and existing Residential Care and Nursing Homes offer limited capacity. People with disabilities of all ages face similar challenges, as accessible housing units are scarce and often located far from needed healthcare and social services.

Homelessness in the NEK is rising, worsened by the 2023 end of the Vermont Emergency Rental Assistance Program. As affordable housing options are limited, many individuals and households struggle with homelessness. Homelessness takes many forms, from vehicle dwelling and camping on public or private property, to staying with family or friends, or living in overcrowded conditions. Also important to note are those who choose to stay in dangerous or undesirable living conditions for fear of becoming homeless due to a lack of other housing options. The NEK has limited resources to assist individuals and households struggling with homelessness, such as emergency shelters, transitional residences, or motels.

The NEK has only one permanent homeless shelter, The Shelter at Moose River in St. Johnsbury. The lack of shelters in the region leaves many unhoused residents without a consistent safety net. According to the U.S. Department of Housing and Urban Development (HUD, 2024), Vermont has one of the highest per-capita homelessness rates in the country, and the NEK continues to experience rising levels of homelessness. The situation worsened with the end of the Vermont Emergency Rental Assistance Program (VERAP) in 2023, a critical COVID-era support. Organizations like RuralEdge, Northeast Kingdom Community Action (NEKCA), and Habitat for Humanity provide essential services, but with only a single permanent shelter, local capacity remains limited.

Zoning reform has helped enable both new housing and permanent shelter infrastructure in the NEK. The 2023 HOME Act includes provisions that make it more difficult for municipalities to block new shelters, creating new opportunities to address the region's unmet shelter needs. Additionally, duplexes must now be permitted wherever single-family two homes are allowed.

ZONING AND LAND USE BARRIERS PRESENT CHALLENGES FOR MORE HOUSING.

Many NEK communities either lack zoning altogether or operate under outdated or unenforced codes that unintentionally limit housing options. Minimum lot sizes, parking requirements, and unclear definitions for accessory dwelling units or multi-unit dwellings often make it difficult to build affordable, workforce, or accessible homes near existing centers. Traditional tools such as inclusionary zoning or density bonuses, which work in higher-demand markets, are less effective in this rural context. As a result, new homes are often built outside village centers—raising infrastructure costs and contributing to the loss of farmland and forests. Addressing these regulatory and capacity barriers will be essential to encourage smart growth (24 V.S.A. §2791) and meet the region's housing needs.

Low-density residential development not only fragments the NEK's rural landscapes, it introduces barriers for the region's most vulnerable populations. For example, many mobile home parks are located far from village centers, limiting residents' access to grocery stores, health care, and other essential services without a reliable vehicle. Although zoning bylaws vary by municipality, towns with large-lot zoning, such as 10-acre minimum, are generally not inclusive of mobile home parks, since under state law, more than two mobile homes constitute a park. To improve inclusivity of housing types, the region should explore cottage court standards and similar models that promote walkability, climate-safe locations, increased density, affordability, and a stronger sense of community. Encouraging mobile home parks, cottage courts, and other prefabricated housing options can expand accessible housing choices across income levels and enable faster, more cost-effective production to address the region's shortage.

Ensuring these developments are near centers of development is key to improving residents' quality of life through easy access to services, transit, and job locations. Not only will quality of life improve, but residents are able to spend less of their income on transportation, cut their miles traveled, and reduce contributions to fossil fuel emissions and air pollution. Other topic areas include exploring incremental zoning reform and the use of Vermont's Homes for All Toolkit as strategies to overcome local barriers and foster more inclusive housing opportunities.

INNOVATIVE STRATEGIES ARE NEEDED FOR SMART, INCLUSIVE HOUSING.

To meet the NEK's urgent housing needs, NVDA supports a wide range of strategies that go beyond traditional development models. Incremental zoning reform and tools like the *Homes for All Toolkit* can help communities overcome resistance to new housing types and support small-scale, neighborhood-friendly density. Resources such as *Enabling Better Places* offers practical examples that can guide towns in shifting from "NIMBY - Not in My Backyard" to "YIMBY - Yes in My Backyard." Regulatory incentives, such as Tier 1 status under Act 181, can help reduce permitting costs for new housing, churches, motels, and more. Similarly, Village Center and Neighborhood Designations offer more than just tax credits; communities that pursue further steps beyond initial designation unlock technical assistance and additional funding sources that can accelerate housing development. Focusing development on Village Centers and Neighborhood Designations through compact and infill development also reduces land consumption due to low-density dispersed development, therefore protecting forests, farmland, and other natural habitats.

Innovative housing solutions like the adaptive reuse of non-traditional buildings and prefabricated or mass timber construction, offer sustainable construction methods to reduce material waste and extraction of new materials. Case studies, such as the Northern Forest Center's 9-unit apartment development, illustrate the potential of creative, locally tailored approaches that can be replicated throughout the region. When developing housing, it is important to consider the requirements of "smart growth," including diverse housing options, access to multiple modes of transportation, and upholding historic patterns of development. Maintaining historic development in Vermont means having compact centers that are separated by rural countryside. This development pattern promotes walkable neighborhoods, helping everyone with better access to daily needs. Housing that is built in village or urban centers should be diverse to support the population and varying needs of diverse social groups and incomes.

KEY DEFINITIONS FOR INFILL

- **Gentil Infill:** Infill compatible with existing surroundings to achieve urban design goals. Many times, this type of new development goes largely unseen due to its location within or behind an existing structure.
- **Missing Middle:** House-scale residential building types that have multiple units that are compatible in scale and form with detached single-family homes.
- **Incremental:** Small-scale development that is primarily undertaken by developers who live in the community they are operating in.

Housing Targets & Distribution



The 2025 Vermont Housing Needs Assessment has determined that the Northeast Kingdom needs to provide an **estimated 2,836 to 4,193 additional year-round homes by the year 2 029** or an **estimated 9,014 to 17,768 year-round housing units by 2050.**

In other words, the NEK needs about **400-650 new homes every year between now and 2029**—enough to keep up with today's demand and adequately prepare for future demand.

Act 181 assigns housing target goals for each regional planning commission area in accordance with 24 V.S.A. § 4348a(a)(9). NVDA has distributed these targets among municipalities to ensure that a substantial majority of new housing is located within designated or planned growth areas—our downtowns, village centers, and neighborhood development areas—consistent with Vermont's historic settlement pattern.

NVDA has been assigned 2,826 to 4,193 additional housing units by 2030 and 9,014 to 17,768 additional units by 2050 by the Department of Housing and Community Development. These housing units have to be distributed throughout the municipalities within the region. The distribution has been determined through consideration of current housing density, economic centers, percentages of land use categories, capacity for growth, population and Tier 1 eligibility. Find additional housing targets and methodology in the A*ppendix***.** The housing targets are aspirational and there is no penalty for not reaching the target.

Town	2030, Low End	2030, High End	2050, Low End	2050, High End
St. Johnsbury	436	646	1387	2735
Lyndon	313	463	994	1959
Newport City	303	448	962	1895
Derby	284	420	902	1778
Hardwick	184	273	586	1156
Barton	169	250	536	1057
Troy	124	183	393	775
Danville	100	147	316	623
Burke	96	143	306	603

Figure 7. Housing targets for the regions nine largest towns, low and high end for 2030 and 2050.

ACT 181 – TIER 1A AND TIER 1B

Tier 1A: An area designated as Tier 1A is fully exempt from Act 250, under Vermont's Act 181. Tier 1A areas must align with "smart growth" principles, including having a compact settlement, pedestrian-oriented design, and adequate public water and sewer capacity.

Tier 1B: An area designated as Tier 1B is exempt from Act 250 for up to 50 housing units (including mixed-use) on 10 acres of land or less.

Both Tier designations are **"opt in"** meaning the municipality has to request it. To learn more visit NVDA's Act 181 information page.

Future Housing Breakdown

As discussed previously, family sizes are shrinking, the population is aging, and household needs are changing. Not only is there a shortage of housing in the region, but there is also a shortage on the correct type of housing. This includes a lack of unit type, size, and affordability that is desired in the region. Largely, the NEK's housing stock is of multi-bedroom, single family homes that are costly. Moving forward, the region needs greater housing diversity.

The following graphic highlights targets of how Future Land Use Areas were used to determine where future housing should be built, what unit types, what unit sizes, and how much homes should cost.



Figure 8. Housing Targets for 2025.

Goals, Objectives, & Strategies

Goal 1: Promote Mixed-Income and Affordable Housing Development

Objective: Increase access to affordable housing by supporting developments that serve a mix of income levels, especially in areas with low market rents.

Strategies:

- Increase public subsidies (state and federal) to offset construction costs in low-rent areas.
- Expand use of programs such as VHCB, LIHTC, and USDA Rural Development Housing.
- Support cross-subsidized projects that include both affordable and market-rate units through public-private partnerships.

Goal 2: Rehabilitate and Preserve Existing Housing Stock

Objective: Improve the quality, energy efficiency, and climate resilience of the NEK's aging housing inventory to support equitable access to safe and efficient homes.

Strategies:

- Promote programs that offer grants or low-interest loans for lead paint remediation, weatherization, and general rehab (e.g., NETO, USDA).
- Expand home repair assistance for low- and moderate-income homeowners and landlords.
- Establish and grow local housing trust funds to support small-scale property improvements and preserve affordability.

Goal 3: Expand Infrastructure Capacity to Support Housing

Objective: Improve public water and wastewater systems in targeted areas to enable new housing development, especially multi-family and alternative housing types.

Strategies:

- Invest in infrastructure upgrades and expansions in targeted growth areas.
- Consider the redevelopment of Brownfields to support new housing.
- Pursue federal and state funding to finance improvements.

Goal 4: Promote Infill Development and Downtown Revitalization

Objective: Encourage housing development in existing centers to support compact settlement patterns that reduce infrastructure costs and fragment of rural resources. *(See Land Use chapter for more details.)*

Strategies:

- Focus new development in designated centers and neighborhoods with existing infrastructure, jobs, healthcare, and other essential services.
- Implement form-based codes or zoning overlays that allow for higher-density or mixed-use development.
- Prioritize redevelopment of brownfields and underutilized sites with technical and financial support.

Goal 5: Support Alternative and Lower-Cost Housing Types

Objective: Diversify housing options in the region to ensure housing for all by including lower-cost, smaller-scale, and innovative models, including accessory dwelling units (ADUs), modular and manufactured homes, co-housing/shared living, as well as cottage courts, tiny home villages, shelters, transition units, and other clustered developments.

Strategies:

- Support incremental improvements to zoning bylaws to remove unnecessary restrictions and allow for these housing types more broadly and with fewer regulatory barriers.
- Support and facilitate downtown and village center collaboration sessions using the "Homes for All" Toolkit.
- Broaden awareness of opportunities to create new housing units, such as the Vermont Housing Improvement Program.
- Support the design and construction of prefabricated, modular, and mass timber housing to improve efficiency and reduce material waste.
- Support communities in their efforts to go beyond the State Designation Program's Step 1 and pursue Step 2 and Step 3 designations, which can unlock technical assistance and financial support to achieve more vibrant communities.
- Support communities in their efforts to achieve Act 181 Tier 1A and 1B status to help reduce the cost of new housing development.
- Support the addition of permanent shelters and transitional housing units to provide housing for all, including those experiencing homelessness.

GOAL 6: STRENGTHEN THE REGIONAL CONSTRUCTION WORKFORCE

OBJECTIVE: EXPAND THE LOCAL LABOR POOL TO MEET HOUSING DEVELOPMENT AND REHABILITATION NEEDS. *(SEE ECONOMIC DEVELOPMENT CHAPTER FOR MORE DETAILS.)*

STRATEGIES:

- Invest in vocational training and apprenticeships in the construction trades.
- Partner with regional technical centers and colleges to create career pathways in building and weatherization.
- Create local contractor incentives for taking on small or rural projects.

GOAL 7: UTILIZE REGIONAL AND STATEWIDE COLLABORATION

OBJECTIVE: IMPROVE COORDINATION, DATA-SHARING, AND JOINT PROBLEM-SOLVING AMONG HOUSING PARTNERS, MUNICIPALITIES, AND STATE AGENCIES TO ACCELERATE HOUSING SOLUTIONS IN THE NEK.

STRATEGIES:

- Strengthen partnerships with organizations such as RuralEdge, NEK Collaborative, and state housing agencies to align funding priorities and support project development.
- Host regional housing forums and peer learning sessions through NVDA to connect municipalities, developers, and service organizations around shared challenges and best practices.
- Support the formation and growth of community land trusts and other local housing initiatives that preserve affordability and promote community-led development.
- Leverage NVDA's data and technical capacity to analyze up-to-date housing needs assessments and use GIS-based tools that guide local and regional planning decisions.

- Coordinate regional input on state housing policy to ensure that rural needs and equity considerations in the NEK are represented in statewide housing initiatives.

Goal 8: Align Housing Strategies with Economic Development

Objective: Ensure housing supports workforce retention and business growth, especially in high-need sectors and designated growth areas.

Strategies:

- Coordinate housing planning with employer recruitment efforts.
- Support employer-assisted housing programs, such as employer-funded housing stipends or partnerships in development projects.

Goal 9: Expand Housing Options that Support Remote and Local Workers

Objective: Encourage housing types and neighborhood investments that make it easier for residents—whether remote or locally employed—to live and work affordably in the NEK.

Strategies:

- Promote flexible, affordable housing models such as live-work units, accessory dwelling units (ADUs), and mixed-use conversions of underutilized buildings in town centers.
- Support co-working and shared community spaces that make small towns more viable for telecommuters, entrepreneurs, and hybrid workers.
- Highlight remote work as part of resilience planning, emphasizing reduced commuting costs, lower transportation emissions, and the potential to attract year-round residents who strengthen local economies.
- Leverage broadband expansion to ensure that all communities, not just growth centers, can participate in remote work and education opportunities.

Community Resources

- **Vermont Housing Needs Assessment** — accd.vermont.gov/housing: Statewide data and analysis of housing supply, demand, and affordability trends.
- **Vermont Housing Finance Agency (VHFA)** — vhfa.org: Financing and policy leadership; *Opportunities to Utilize Off-Site Construction to Meet Vermont's Housing, Workforce, and Climate Goals (2024), Mobile Home Task Force Report (2024).*
- **Vermont Homes for All Toolkit** — accd.vermont.gov/homesforall: Practical strategies for expanding housing choice and affordability in every community.
- **Enabling Better Places through Incremental Zoning Reform** — https://accd.vermont.gov/community-development/town-future/municipal-planning-manual : Model bylaws and design standards to support walkable, inclusive neighborhoods.
- **Vermont Smart Growth Principles — 24 V.S.A. §2791:** legislature.vermont.gov/statutes/section/24/076A/02791: Framework guiding compact, mixed-use, and sustainable community design.
- **RuralEdge** — ruraledge.org: Regional nonprofit developer and housing service provider supporting affordable and supportive housing in the NEK.
- **Headwaters Community Land Trust** — headwatersclt.org: Expands permanently affordable homeownership opportunities in the NEK.
- **NEKCA Housing Support** — nekcavt.org: Housing stabilization, emergency assistance, and supportive services for low-income households.
- **Northeast Kingdom Organizing (NEKO)** — nekorganizing.org: Community-led housing and advocacy campaigns advancing equitable development.
- **Northeast Kingdom Collaborative** — nekcollaborative.org: Coordinates regional partnerships and funding alignment for housing and workforce initiatives.
- **NEK Together 2023 Report** — nektogether.org: Identifies shared priorities for housing, childcare, and community wellbeing.
- **NEK Recovery Action Plan** — nektogether.org/recovery: Framework for post-pandemic recovery emphasizing housing stability and economic resilience.

Historic & Cultural Resources

The preservation and advancement of arts, culture, and heritage throughout the Northeast Kingdom (NEK) is vital to the social and economic vitality of our rural communities. Historic, cultural, and scenic resources—such as museums, libraries, covered bridges, barns, archaeological sites, and iconic landscapes—form the fabric of the NEK's identity. They give residents a strong sense of place, foster democratic connection to shared histories, and enrich daily life. Preserving these assets not only honors tradition but also fuels tourism, boosts property values, and can strengthen long-term economic development.

The NEK is fortunate to have communities that have proactively identified and protected many heritage resources—from the Old Stone House Museum in Brownington and the Bread & Puppet Museum in Glover to architecturally significant libraries and covered bridges. However, many historic buildings, community halls, and meeting spaces still require restoration, adaptive reuse, and ongoing investment. Public libraries, in particular, serve as essential centers for learning and social interaction, and must be modernized to meet evolving technological and community needs.

Historic preservation carries its greatest impact when it is rooted in community purpose and planning. Projects that reconnect historic structures to everyday life—by fostering walkable, mixed-use patterns and supporting public benefit—inspire stronger civic engagement and build public trust. Many of the NEK's heritage buildings predate the automobile era, embedding walkability and pedestrian-scaled development into our landscapes. By safeguarding these structures, we also preserve fundamental elements of sustainable and connected community design.

Moving forward, the region must build on this strong foundation by ensuring equitable access to the NEK's rich historic and cultural resources. NVDA is committed to providing support and technical assistance to help all communities take advantage of federal and state programs—such as historic tax credits, the Vermont Downtown Program, and Certified Local Government designation. Many of these benefits are part of the New Community Investment Designations under Act 181. Areas designated as Centers or Neighborhoods, within Act 181 Future Land Use (FLU) mapping exercise, have access to additional benefits depending on various requirements. Centers fall into three categories referred to as Steps: Step 1 being a Beginner Center, Step 2 being an Intermediate Center, and Step 3 being an Advanced Center. As a center moves up in Steps, more benefits become available. Similarly, Neighborhoods have their own set of benefits related to funding.

Over the last decade, over $3 million has been allocated to the region in historic tax credits. This money has been invested into various projects and building types, including housing, commercial, mixed use, non-profits, a museum, a library, hotels and restaurants, and community buildings. These historic tax credits have contributed to 39 projects, throughout 14 towns within the NEK.



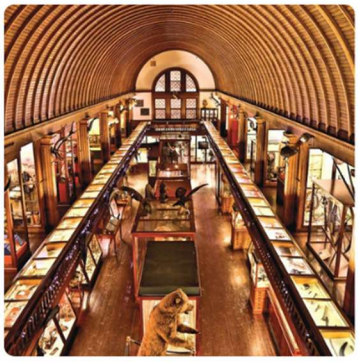






Figure 1. Museums throughout the NEK. Top: Art Gallery in St. Johnsbury Athenaeum, Bottom left to right: Fairbanks Museum, Ben's Mill, and Bread & Puppet. Photos curtesy of respective websites.

What Is a Historic Site in Vermont?

Under Vermont law (10 V.S.A § 6001(9)), a "historic site" is *"any site, structure, district or archaeological landmark which has been officially included in the National Register of Historic Places and/or the State Register of Historic Places, or which is established by the Vermont Advisory Council on Historic Preservation as being historically significant."*

This designation triggers Act 250's Criterion 8, offering protection for scenic, aesthetic, and historic resources.

Key Takeaways & Existing Conditions

The NEK is home to rich cultural traditions, historic downtowns, and unforgettable scenic landscape, but sustaining these assets takes people, resources, and planning. As the region grapples with an aging population and limited in-migration, many cultural institutions, nonprofits, and historical societies struggle to maintain leadership and operational capacity. Filling roles on nonprofit boards,

securing funding, and maintaining volunteer efforts has become increasingly difficult, even as demand for cultural engagement and tourism grows. Rebuilding this civic infrastructure starts with investing in people, especially those already rooted in the community, and creating accessible pathways for broader participation. Without technical assistance or new leadership, small communities risk losing the institutions that preserve their identity, undermining cultural equity and authentic storytelling.



Figure 2. Scenic fall view of Willoughby Gap. Photo curtesy of Northern Forest Center.

The NEK includes multiple properties and districts on the National Register of Historic Places. Historic sites include Ben's Mill in Barnet, Fairbanks Museum & Planetarium in St. Johnsbury, Old North Church in North Danville, and Old Stone House Museum in Brownington. There are also numerous Historical Societies throughout the region that have museums, archives of historic documents and artifacts, have historic markers throughout their respective towns, and much more on town history. Historical societies play a crucial role in the preservation of historic sites and community history.



Figure 3. Alice M. Ward Memorial Library in Canaan, VT. Photo curtesy of Alice M. Ward Memorial Library.

Cultural institutions such as public libraries, museums, and community-based learning centers, like the Canaan's Alex Ward Library, Glover's Museum of Everyday Life, Charleston's Northwoods Stewardship Center, and Craftsbury Outdoor Center, play a central role in local education and community life. In total there are 32 libraries scattered throughout the NEK in big towns and small villages,

providing a plethora of community resources (Figure 4). Libraries are a safe and free community space, where residents can learn, do activities, and build community. Residents have access to educational materials, digital resources, story time and afterschool programs for kids, activities such as pleasure reading materials, puzzles, audiobooks, and so much more. Not only do libraries play a vital role in their communities, but the building itself is often a historic building, that faces challenges that come with age. Structural upgrades, becoming ADA compliant, flood resilience, and energy efficiency are all costly updates that libraries are facing to ensure that they continue to stand as important educational, historical, and cultural pillars of communities.

Libraries, along with historical societies, chambers of commerce and civic organizations are often the backbone of cultural institutions. The St. Johnsbury Athenaeum is particularly unique as it received Federal designation in 1996 as a National Historic Landmark due to its architectural and historical significance. It is one of 18 National Historic Landmarks in the state but the only one in the These organizations are increasingly in need of support through funding or volunteering to ensure the continuation of cultural and community events to boost the NEK's sense of community. Many residents of the NEK determined the sense of community to be something they love about the NEK.

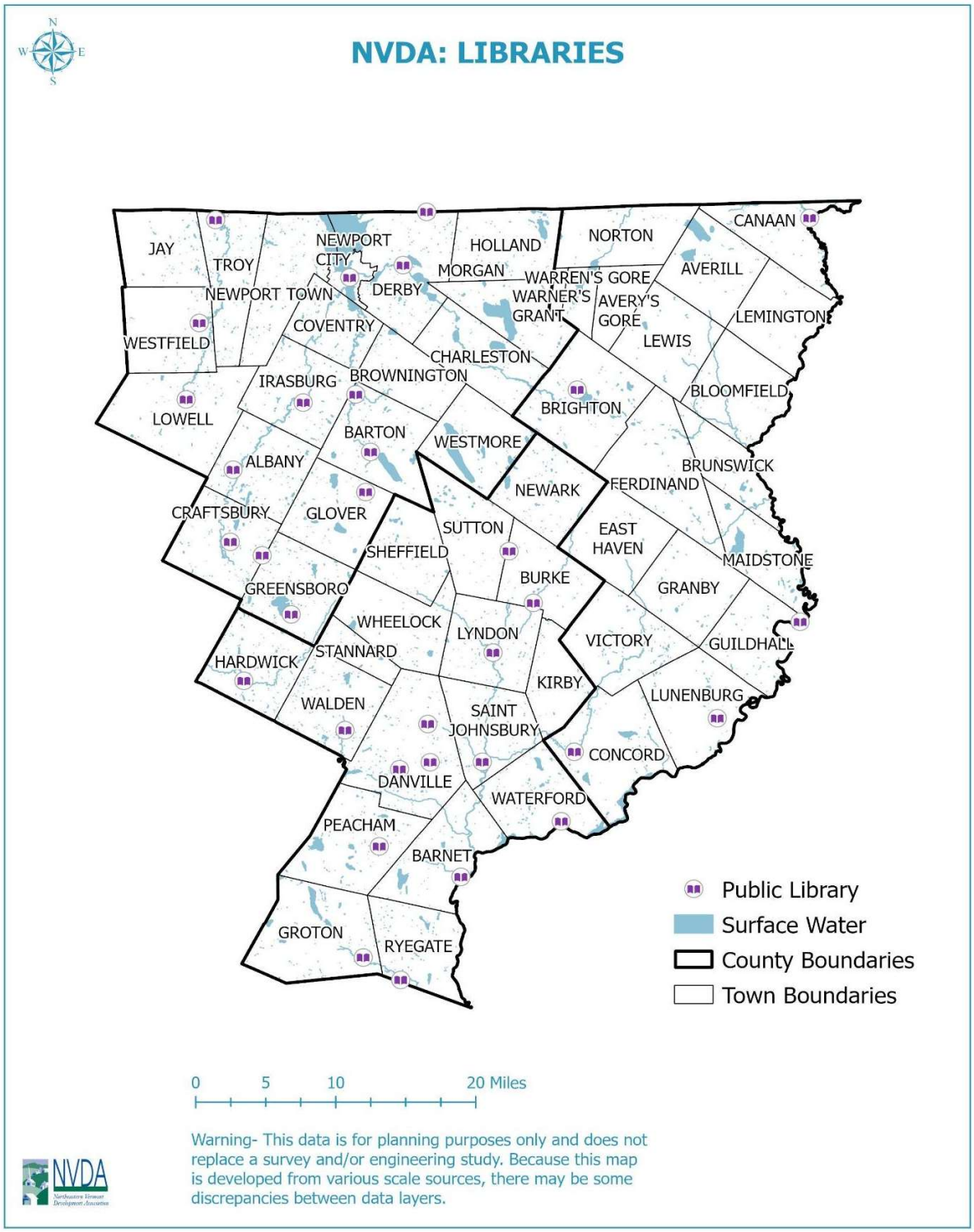


Figure 4. Public libraries throughout the NEK.

PRESERVATION IS MOST SUSTAINABLE WHEN IT SERVES A COMMUNITY PURPOSE.

Adaptive reuse should meet real local needs, whether that's for housing, job creation, or public gathering spaces. While performance and coworking spaces are popular uses, they don't always match community demand. Forward-looking examples from Vermont—like converting a church into housing, a childcare center, or a business (restaurant, brewery, etc.)—show that creative reuse can be both respectful of history while serving practical needs. The NEK has a chance to lead in models that combine preservation with affordability, accessibility, and community input.



Figure 5. Peacham Congregational Church. Photo curtesy of VT Preservation Trust.

A prime example of historic building reuse and meeting community needs is the Peacham Congregational Church. Built in 1806, the church continues to serve as a place of worship, but in more recent years, the lower level of the building now serves as a daily childcare center, Peacham Children's Academy. Reuse success stories are often made possible through grants, in this case, from the Preservation Trust of Vermont.

HISTORIC PRESERVATION CAN BE A POWERFUL TOOL FOR BOTH ECONOMIC DEVELOPMENT AND CLIMATE RESILIENCE.

Revitalizing downtowns and village centers do more than preserve local character, it limits land consumptive development patterns that shortens trips, and strengthens service-rich, connected communities aligned with climate-smart development goals. Many of the NEK's historic buildings are centrally located, making them strong candidates for adaptive reuse such as housing, community hubs, or small businesses. While upgrades like ADA access and energy retrofits are often needed to fully realize this potential, their location offers a built-in climate advantage by supporting walkable, transit-ready, and energy-efficient community design. Yet many towns lack the technical capacity to pursue historic tax credits or navigate complex preservation funding processes.

Improving economic development through historic development can be achieved through balancing historic preservation standards and developing sustainable community use for the building. Buildings being on the Historic Preservation list and meeting the standards of the Secretary of Interior has served us well up until this point, but there needs to be flexibility in how we approach preservation. Creating sustainable community use for the building such as housing, a community space, or place of business, not only creates community vibrance, but in tandem, those that use the space take on the role of stewards of the building. NVDA will continue to provide direct support, grant-writing assistance, and technical guidance to help bridge this gap and unlock currently untapped funding streams.

An example of adaptive reuse in the NEK is the Yellow Barn in the Town of Hardwick. This land parcel and associated barn was once used as a car body garage, leading to the leakage of hazardous substances for decades, becoming a Brownfield site. Through a Corrective Action Plan, the site was able to be cleaned up and become a historic building that is contributing to the local economy, by housing multiple employers.



Figure 6. Yellow Barn in Hardwick, VT before and after adaptive reuse. Photo curtesy of Seven Days.

Due to the nature of how many NEK village centers have been built, many historic buildings sit in flood prone village centers or along waterways, making them vulnerable to extreme weather. In addition to homes, facilities such as libraries, town halls, and emergency shelters face challenges including aging materials and limited maintenance budgets. Climate risk and deferred maintenance threaten the vitality of the historic buildings and community. Other historic structures, including covered bridges that have been in place for over 100 years and are a structure that is strongly associated with Vermont and New England, face similar challenges. These unique features are of importance to preserve, as they are a rich part of Vermont history and lie increasingly at risk due to changing weather patterns and frequent flooding in the NEK.

DESIGNATED VILLAGE CENTERS AND ACT 181 HAVE THE ABILITY TO HELP HISTORIC PRESERVATION.

Designated Village Centers also have the opportunity to be permanently or partially exempt from Act 250 through applying or opting in for Tier 1A or Tier 1B, respectively. Act 250 exemptions are possible when the Village Center meets a series of requirements, including but not limited to, a regionally approved municipal plan, flood hazard and river corridor bylaws, and access to public water and sewer. In the more specific context of historic preservation, Act 181 can support municipalities in their Village Centers through the benefits of DHCD-Assistance on Municipal Historic Preservation Regulations. Communities must also be equipped to conduct comprehensive resource inventories, develop adaptive reuse strategies, and apply for preservation and tourism funding.

Our cultural and historic resources are not just memories of what was, but foundations for what we can become. NVDA remains committed to investing in the people, places, and programs that bring this unique, regional history to life.

ENERGY EFFICIENCY AND SUSTAINABILITY UPGRADES MUST BE PART OF THE PRESERVATION CONVERSATION.

Many historic buildings are costly to heat, maintain, or retrofit, especially for nonprofits and small towns with tight budgets. Yet with the right guidance and incentives, these structures can be upgraded for long-term resilience while maintaining their character. Weatherization, solar integration, and climate-ready design can also reduce long-term costs and environmental impacts, especially when done with flexibility and support from programs that understand the complexities of older buildings. During the implementation phase of the Vermont Municipal Energy Resilience Program (MERP), Regional Planning Commissions like NVDA, along with Efficiency Vermont and the Vermont Department of Historic Preservation (VDHP) successfully worked together to upgrade nearly 50 historic, municipal buildings to 21st-century energy and comfort standards while preserving their historic character. The Granby Town Hall is an example of MERP in action to reduce costs and environmental impacts. Through the implementation of heat pumps, an efficient boiler, thermal insulation and envelope improvements, LED lighting, and ADA improvements.



Figure 7. Granby town center. Photo curtesy of Granby Town Plan.

COMMUNITY KNOWLEDGE OF LOCAL HISTORY IS UNEVEN—AND OFTEN INACCESSIBLE.

Most of the NEK's heritage has not been fully documented or shared in a user-friendly way, limiting local appreciation and use of these assets. Many residents are unaware of nearby cultural landmarks or the stories behind them, especially if those stories haven't been digitized or shared broadly. Without that awareness, preservation efforts can feel abstract and low priority. There is currently a gap in digital inventory of historic buildings and landmarks. This makes it difficult to map resources, communicate locations with the community, and understand vulnerability in relation to events such as flooding. Supporting regional cultural mapping, school partnerships, and digital storytelling will help communities reconnect with their histories, and with one another. Although there may be gaps in the digital inventory, there are active and passionate historic societies that are chronicling local histories. It is important to identify what support our historic societies need to carry this work forward. Additionally, there is a comprehensive catalog of preservation documents for the state from the Division of Historic Preservation.

Initiatives like **"**Get NEKed**"**, a partnership of regional Chambers of Commerce and community organizations promoting the NEK, illustrate how collaboration and creative outreach can celebrate local culture, amplify shared identity, and strengthen pride of place across the region. Additionally, the local historic commissions and societies are very active and are passionate about chronicling their town's history.

THERE IS SIGNIFICANT POTENTIAL IN DESIGNATIONS AND PARTNERSHIPS.

The NEK currently has no Certified Local Governments (CLGs), which means the region is missing out on access to federal preservation funds. Supporting communities through the CLG designation process could unlock new resources and raise the profile of local preservation efforts. Similarly, regional collaboration with partners like Catamount Arts, Vermont Humanities, and the Preservation Trust of Vermont can bring expertise, momentum, and funding to shared efforts across arts and history. NVDA is available to assist communities in connecting with partners and navigating through the possibilities. Currently, Hardwick is pursuing a CLGs, which could set the tone for other NEK communities in the future.

The following Environmental Burdens and Benefits summary highlights how the NEK's historic and cultural assets both shape and are shaped by social and environmental conditions, especially for residents most dependent on public and shared spaces.

DESIGN CONTROL STANDARDS NEED TO BALANCE PRETTY AND THE PRACTICAL.

Design control standards can help a town have a cohesive look to it, but standards need to be developed while keeping equity in mind. If not done properly, design control standards can lead to the gentrification of neighborhoods and make housing exclusive. To ensure that long-term residents and residents of all income levels are ensured housing, design control standards should focus on making housing that is inclusive, while not gentrifying neighborhoods. Standards should also be applied in a way that allows for compatible infill. Incremental and gentle infill offers a route to balance a consistent town appearance while increasing housing units that are affordable.

BARNS AND FARM STRUCTURES HAVE UNIQUE NEEDS.

They are part of our landscape, but they often cannot be used to support working lands operations without significant input. Many barns in our region predate tractors and other mechanical tools. Instead, horses were used to do the heavy lifting of manual labor. This now poses an issue for barns to house modern day equipment, as the first-floor ceilings are at a height to accommodate horses instead of tractors. Increasing the height of the first floor is no small task and is rather costly. The Robinson Barn in Barnet faced this issue as it was updated to store modern farming equipment and a produce washing station.

Although barns hold great significance in the NEK's history, it can be difficult to find funding to repair or transform them. Preservation Trust of Vermont offers a couple of options including a Barn Assessment Program and Emergency Barn Stabilization.

Goals, Objectives & Strategies

Historic, cultural, and scenic resources in the NEK offer a foundation for community identity, economic development, tourism, and climate resilience. These goals and strategies reflect a regional commitment to protecting and celebrating these assets in ways that serve both current and future generations.

Goal 1: Protect and Preserve Historic, Cultural, and Scenic Resources

Objective: Identify and safeguard significant historic, cultural, and scenic assets.

Strategies:

- Assist municipalities in conducting and maintaining local and regional inventories.
- Promote state and federal programs (e.g., CLG, historic tax credits) that support preservation.
- Partner with historical societies and local organizations to ensure access to accurate, up-to-date resource information.

Objective: Preserve and revitalize historic downtowns, village centers, and rural landscapes.

Strategies:

- Support participation in the Vermont Downtown Program and Neighborhood Development Areas.
- Provide technical assistance for grants, adaptive reuse, façade improvements, and structural stabilization.
- Encourage preservation strategies that prioritize walkability, affordability, and community benefit—especially for underserved populations.

Goal 2: Strengthen Economic Vitality Through Preservation and Tourism

Objective: Leverage heritage assets to support local and regional economies.

Strategies:

- Promote cultural and historic tourism as a key sector, highlighting local districts, barns, and scenic byways.
- Encourage the use of preservation funding to incentivize rehabilitation of historic homes and community facilities, when funding is available.
- Encourage creative reuse of historic structures for housing, businesses, cultural venues, and community access to broadband for.

Objective: Align preservation with creative economy development.

Strategies:

- Build on regional arts and culture initiatives to integrate preservation into economic development strategies.
- Collaborate with regional marketing and tourism campaigns to promote arts and heritage assets.

Goal 3: Support Local Arts, Culture, and Traditions

Objective: Communicate and celebrate local cultural identity and traditions.

Strategies:

- Promote local arts, craft industries, and cultural events that reflect the region's heritage.
- Raise awareness about the development of programs that connect schools and youth to community history.

Objective: Strengthen capacity of cultural institutions.

Strategies:

- Support public libraries, museums, and cultural centers with grant support for modernization and programming improvements.
- Continue partnerships with statewide organizations such as the Vermont Arts Council and Preservation Trust of Vermont.

Goal 4: Build Community Engagement and Local Capacity

Objective: Support enhanced public access to and appreciation of local heritage.

Strategies:

- Encourage the development of outreach tools, educational materials, and public tours—both in-person and digital.
- Promote improved accessibility and accuracy of online cultural and historical resource data.

Objective: Encourage local leadership and participation.

Strategies:

- Promote volunteer programs, civic engagement, and inclusive planning processes for preservation.
- Promote organizations and partners providing training and leadership development for community organizations and boards.

Goal 5: Promote Climate and Energy Resilience in Historic Structures

Objective: Modernize historic buildings to support sustainability without sacrificing character.

STRATEGIES

- Offer technical assistance for energy efficiency upgrades, weatherization, and renewable energy integration.
- Promote climate-resilient retrofits for community-serving buildings such as libraries and museums.
- Recognize compact, walkable historic development patterns as vital for sustainable land use and transportation planning.

COMMUNITY RESOURCES

- **Vermont Division for Historic Preservation (VDHP)** — accd.vermont.gov/historic-preservation: State agency offering grants, designations, and technical assistance for historic and cultural preservation.

- **Preservation Trust of Vermont** — ptvermont.org: Provides guidance, funding, and advocacy to protect historic community landmarks and strengthen local revitalization.

- **Vermont Humanities** — vermonthumanities.org: Offers programs, events, and grants to foster learning, storytelling, and cultural engagement across Vermont.

- **Northeast Kingdom Collaborative** — nekcollaborative.org: Coordinates regional initiatives supporting the creative economy, community vitality, and place-based development.

- **Catamount Arts** — catamountarts.org: Regional arts center promoting film, visual arts, music, and community events throughout the NEK.

- **Northeast Kingdom Chamber of Commerce** — nekchamber.com: Provides information on local businesses, attractions, and cultural destinations across NEK towns.

- **Get NEKed** — northeastkingdom.com: Regional tourism and events platform highlighting arts, heritage, and community experiences for residents and visitors.

- **Online Resource Center -** accd.vermont.gov/historic-preservation/identifying-resources/online-research-center: Online access to documents from the Division of Historic Preservation.

Economic Development

The Northeast Kingdom (NEK) represents a distinct corner of Vermont with unique economic challenges and opportunities. As a rural and largely resource-based economy, the region has long relied on industries such as forestry, agriculture, manufacturing, and tourism, while also seeking new ways to diversify and strengthen its economic base. The NEK is home to a community of entrepreneurs whose creativity, resilience, and deep connection to place are driving a more vibrant and diverse regional economy. From applied technologies in traditional industries like forestry to tradespeople, tech innovators, and service providers, local founders are building businesses that reflect community values and needs. However, rural entrepreneurship is often narrowly defined, overlooking the distinct challenges and strengths of place-based business development. In response, organizations and regional partners across the NEK are strengthening the entrepreneurial ecosystem by expanding access to capital, mentorship, training, and peer support.

The NEK is part of the Northern Vermont Economic Development District (NVEDD), a six-county collaboration of regional planning commissions and economic development corporations with a federal Economic Development District (EDD) designation. NVDA is both a regional planning commission and an economic development corporation. This structure supports a locally driven, multi-sector approach to regional economic development guided by the Comprehensive Economic Development Strategy (CEDS), which sets shared goals, identifies priorities, and coordinates resources to strengthen businesses, foster growth, and align economic development with housing, energy, transportation, and land use planning.

This chapter of NVDA's Regional Plan reflects regional goals while aligning local priorities within the broader NVEDD context. It helps the region access resources, leverage assets, support innovation, and build a sustainable, diversified economy. Additionally, it complies with 24 V.S.A. § 4347 by offering a coordinated, equitable framework for economic development in the NEK, addressing current conditions, policies, priorities, and strategies to balance growth with community and environmental preservation.

Key Takeaways & Existing Conditions

The creative economy in Vermont's Northeast Kingdom (NEK) is a growing and vital part of the region's identity and economic resilience. Artists, makers, designers, performers, and cultural organizations contribute not only to the area's rich cultural fabric but to local job creation, small business development, and tourism. From galleries and craft producers to creative entrepreneurs and community arts initiatives, the sector helps attract visitors, retains residents, and fosters vibrant downtowns. Flagship events, like the annual Rumble in the Kingdom business pitch competition harness the energy of the creative economy to showcase entrepreneurship in the region, highlighting innovative local startups and attracting investment to support their growth. Together, these efforts help diversify income streams and strengthen the NEK's long-term sustainability.

NEK ECONOMY FACES CHALLENGES LINKED TO AGING POPULATION, HOUSING, INCOME AND POVERTY.

The region's median age exceeds the national and state average in every NEK county, with Essex County reporting the oldest median age at 51.4 years. Median household incomes range from just under $59,000 in Essex County to around $66,000 in Orleans and Caledonia Counties. NEK incomes fall below both state and national averages. Poverty rates exceed both state and national averages.

While housing in the Northeast Kingdom remains somewhat more affordable than in much of Vermont, illustrated by Essex County's home values hovering just below 3 times the annual income for the County, the limited availability and aging housing stock severely constrain the region's ability to recruit and retain workers from outside the area. Nearly 30% of NEK homes were built before 1940, reflecting historic character but also significant reinvestment needs. Sharp price increases and a lack of suitable housing options increasingly challenge affordability and workforce attraction. Additional details on housing conditions, challenges, and strategies is provided in the Housing chapter.

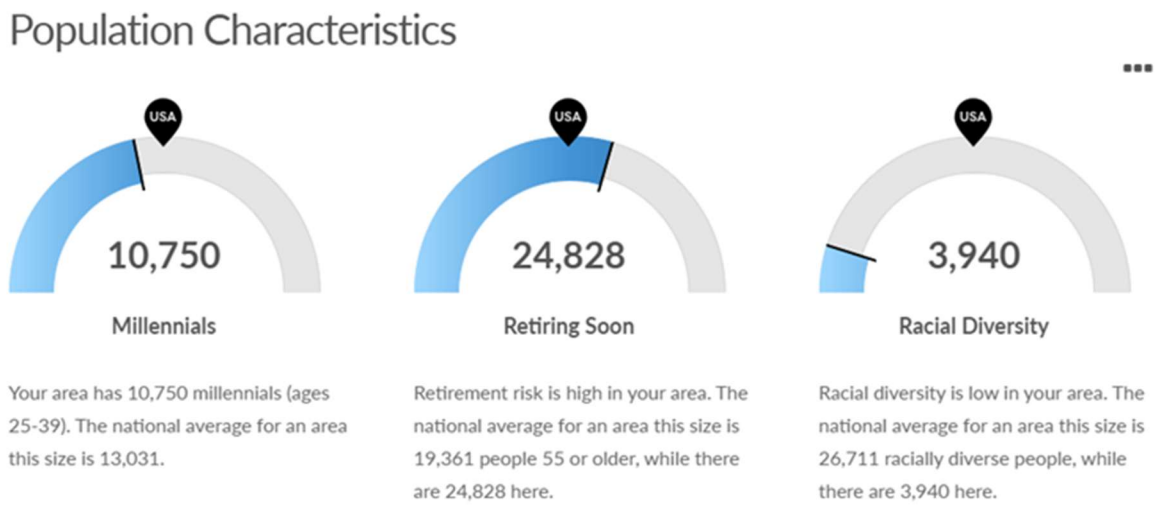


Figure 1. Population Characteristics. Source: Lightcast, Economy Overview: Northeast Kingdom, 2025.

LIMITED DIVERSITY SHAPES WORKFORCE AND MARKET OPPORTUNITIES IN THE NEK.

The Northeast Kingdom's population is over 90% White in every county, with minority populations—including Asian, Black, Hispanic, and multiracial residents—each making up less than 5%. While this demographic profile reflects broader rural trends in Vermont, it also has implications for economic development. Limited racial and cultural diversity can narrow the region's labor pool, reduce exposure to new ideas and networks, and make it harder to attract younger, more diverse workers and entrepreneurs. Expanding inclusivity and welcoming new residents from varied backgrounds will be important for sustaining a resilient workforce and vibrant communities across the NEK.

Healthcare, Education, and Social Assistance Are Key Economic Drivers

Healthcare, education, and social assistance employ about 22% of the regional workforce. These services reflect both the aging population and the region's public-service infrastructure. Retail trade, construction, and manufacturing are also key contributors, with manufacturing particularly prominent in Orleans and Caledonia Counties. Tourism-related sectors like accommodation and food services are relatively strong in the NEK, which benefits from recreational and seasonal traffic. The arts and entertainment sector has grown faster than any other industry over the same period, reflecting emerging opportunities, though it remains a small employer overall and lags behind the state in relative concentration.

NEK Workforce Data Highlights Strong Local Entrepreneurship

Approximately 14% of NEK workers are self-employed, exceeding the national average and underscoring a strong local entrepreneurial culture. Private companies remain the largest employer group, engaging just over half of the region's workforce, while government employment provides stability for roughly 21–22% of workers, helping sustain a balanced and resilient labor market.

NEK Industry by County				
Sector	**Essex**	**Orleans**	**Caledonia**	**Vermont**
Total Employment (16+)	2,613	11,890	15,547	332,000
Educational Services & Health Care & Social Assistance	21.5%	21.2%	22.0%	22.3%
Retail	11.4%	13.8%	13.6%	11.8%
Construction	10.5%	9.7%	8.0%	8.9%
Manufacturing	10.3%	11.2%	9.2%	10.5%
Accommodation & Food services	10.0%	9.4%	9.5%	10.1%
Public Admin.	8.2%	7.0%	6.8%	6.9%
Transportation & Utilities	7.4%	6.2%	6.0%	6.3%
Professional & Administrative Services	5.7%	5.6%	5.2%	5.8%
Other Services	4.8%	4.9%	5.0%	4.9%
Finance & Real Estate	4.1%	4.1%	4.3%	4.4%
Self-Employed	14.2%	14.1%	14.2%	13.9%

Figure 2. NEK Industry by County. Source: ACS 5-Year Estimates, 2023.

Region	Private Company Employees	Self-Employed (Incorporated)	Non-Profit Employees	Government Employees	Self-Employed (Unincorporated/ Unpaid Family)
Essex County	52.0%	4.9%	11.6%	21.2%	10.2%
Orleans County	51.0%	4.6%	10.3%	22.3%	11.2%
Caledonia County	50.5%	5.2%	10.8%	22.1%	11.4%
Vermont	52.8%	4.8%	10.9%	21.9%	9.6%

Figure 3. NEK employment type by county. Source: ACS 5-Year Estimates, 2023.

NEK Workers often Commute Outside the Region for Jobs

Many employers have unfilled positions in part due to the lack of available workforce housing in the region. Public health and workforce readiness are tied directly to environmental conditions. Limited access to healthcare in the NEK, especially for mental health and substance use treatment, undercuts labor force participation. Rising opioid use and untreated health conditions reduce economic productivity while straining community resources. The NEK's population is aging, youth often leave for more diverse and opportunity-rich areas, and the lack of racial and cultural diversity can make it harder to attract new workers and entrepreneurs. Parents without affordable childcare and people with disabilities face additional barriers to joining or staying in the workforce.

Many workers in the Northeast Kingdom travel outside their home counties—or even out of the region entirely—for employment. In 2022, fewer than 20% of Essex County residents both lived and worked in the same community. Additionally, all three NEK counties experienced a significant negative net job flow, meaning more residents leave the area for work than non-residents commute in. Essex County had the largest gap relative to its working population in 2022. Strengthening local job opportunities—through business retention, targeted workforce development, and support for emerging sectors like outdoor recreation, value-added agriculture, and the creative economy—could help more residents work closer to home. Expanding remote work infrastructure and improving transportation options could also reduce long commutes and keep economic benefits within the region.

County	Live in County	Work in County	Net Job Flow	Live & Work in County	Commute Out
Essex	2,259	915	-1,344	17.2%	82.8%
Orleans	11,909	10,588	-1,321	60.7%	39.3%
Caledonia	12,762	10,440	-2,322	50.4%	49.6%

Figure 4. Summary of County Commuting Metrics. Source: Northern Vermont Economic Development District, Comprehensive Economic Development Strategy 2021-2025.

INCREASED FLOOD RISKS TO THE ECONOMY REQUIRE A WATERSHED APPROACH TO RESILIENCY PLANNING

Flooding and climate change pose mounting risks to the NEK's economy. Severe storms in 2023 and 2024 caused long-term damage to businesses, farms, homes, and critical infrastructure. Recovery strains business and local budgets and disproportionately impacts households already struggling with poverty, seniors on fixed incomes, and people with disabilities who may lack mobility or resources to relocate. Agriculture, forestry, and tourism are increasingly disrupted by extreme weather, shifting growing conditions, and changing consumer patterns. Targeted investments in our economic infrastructure can help these sectors adapt to future shocks.

NVDA was recently part of a multi-regional effort to produce a Recovery and Resiliency Plan for the Northern Vermont Economic Development District. Spearheaded by the Lamoille County Planning Commission (LCPC), and joined by the Northwest Regional Planning Commission , Lamoille Economic Development Corporation, Franklin County Industrial Development Corporation, Lake Champlain Islands Economic Development Corporation, Lamoille County Conservation District Farm and Forestry Initiative, Vermont Emergency Management, and Vermont Department of Economic Development, this project focused on the communities along the main stem of the Lamoille River, including Hardwick. The project was funded by the Economic Development Administration.

Technical assistance included training on business continuity planning. A core deliverable was a science-based comprehensive vulnerability assessment that improved on LCPC's existing hydrologic model of the Lamoille main stem and key tributaries. The modelling identified potential measures to reduce flood risks and improve the resiliency of downtown and village center business districts. While most of these measures will require additional scoping, the modelling results provided each host community with an informed basis for project prioritization.

The Recovery and Resiliency Plan will contain specific recommendations for actions and next steps and be structured so that key elements can be incorporated into the Comprehensive Economic Development Strategy (CEDS), regional plans, and municipal plans. Although this project has just been completed, similar watershed-level planning efforts can empower our towns – and region – to evaluate risks and opportunities from a holistic standpoint that accounts for up- and downstream impacts.

OUTDOOR RECREATION: A GROWING NEK ECONOMIC DRIVER

The NEK's natural assets and working lands are not just scenic, they are economic drivers that shape our communities. Tourism, outdoor recreation, forestry, agriculture, and the creative economy rely on these landscapes to sustain local businesses and draw visitors. The NEK's environmental integrity supports both public health and the NEK's brand as a destination for outdoor recreation and small-town living.

Outdoor recreation has become one of the Northeast Kingdom's most promising sectors. Leveraging NEK outdoor recreational assets can increase visitor traffic to the region, increase consumer spending, create new jobs, promote healthier communities, and strengthen the stewardship and management of land and water resources that are the foundation of the outdoor recreation economy and the cornerstone of the region's identity. Outdoor recreation is a major economic

driver in the Northeast Kingdom and a defining part of the region's identity. Anchored by nationally recognized assets such as Kingdom Trails, Burke Mountain, Jay Peak, the Craftsbury Outdoor Center, and the Northern Forest Canoe Trail, the sector attracts visitors year-round and supports a growing ecosystem of small businesses. Continued investment in outdoor recreation infrastructure, stewardship, and business development presents a significant opportunity to expand tourism spending, support local entrepreneurship, create quality jobs, and strengthen the Northeast Kingdom's reputation as a premier four-season recreation destination.

The Lamoille Valley Rail Trail (LVRT) recently completed its 93-mile expansion, connecting 18 communities from St. Johnsbury to Swanton and stretching across Northern Vermont from the Connecticut River to within two miles of Lake Champlain. As New England's longest rail trail, the LVRT is projected to increase visitation by 25% for local users and 50% for non-local day and overnight visitors. Analysis shows that trail users could generate up to $4.7 million in sales, support over 75 jobs, and contribute up to $646,000 in federal, state, and local taxes through direct and indirect economic impacts.

HARDWICK'S YELLOW BARN REFLECTS A REGIONAL AND STATEWIDE COMMITMENT TO AGRICULTURAL INNOVATION.

Over the past decade plus, Hardwick has fully evolved into a center for agricultural businesses and producers. The Vermont Food Venture Center in Hardwick was developed in the late 2000s to support Vermont's growing value-added food and agricultural economy by providing shared commercial kitchen space and technical assistance for food entrepreneurs. Led by the Center for an Agricultural Economy in partnership with organizations including the Northern Vermont Development Association and the Vermont Agency of Agriculture, Food and Markets, the facility opened in 2011 as a USDA-inspected shared-use processing center. It has since helped launch and grow dozens of Vermont food businesses by providing access to equipment, regulatory guidance, and production space that small producers would not otherwise be able to afford. The VFVC facility is now about 15 years old and continues to play an important role in supporting food innovation, farm viability, and rural economic development in the Northeast Kingdom.

The Yellow Barn Business Accelerator & Corporate Campus (aka "Yellow Barn") consists of a new 25,000. ft. multi-purpose facility and an adaptive reuse of the historic 4,000 sq. ft. yellow barn, an iconic structure along Route 15 gateway to downtown Hardwick. The new construction is focused on aggregation and distribution and is home to the Center for an Agricultural Economy's Food Hub and Jasper Hill's direct fulfillment operations. Both businesses flourished during the pandemic, when supply chain disruption revealed significant structural weaknesses in traditional distributor relationships. The historic barn houses a retail destination operated by Cabot Cheese. The Yellow Barn is located directly on the Lamoille Valley Rail Trail, ensuring high visibility for Cabot-brands and local food producers. Adjacent to the Yellow Barn is the Vermont Food Venture Center, a shared-use business incubator designed to support emerging food entrepreneurs and farmers seeking to create and grow their business.

The CAE Food Hub, which moves about $15 MM worth of local food annually, uses a Co2-based refrigeration system to generate zero greenhouse gas emissions. The heat generated from the refrigeration system is recirculated as the primary source of heat for the space. High-efficiency wood pellet boilers and heat pump water heaters also help to meet thermal demand. All electrical usage is offset by a 400-panel array mounted on the roof of the new building.

The Yellow Barn was completed at the end of 2024, capping off a multi-year effort involving the Town of Hardwick, a private 501(c)(3), as well as a complex mix of federal, state, and private funding channeled through New Markets Tax Credit financing. The construction package alone totaled $11.8 MM. This initial investment has already leveraged millions of dollars in additional investment to secure access to markets and infrastructure for local agricultural producers.

The Creative Economy Builds NEK Talent and Growth Opportunities

The Northeast Kingdom has a rich heritage of craftsmanship, storytelling, and artistic expression that has too often been undervalued as a hobby or entertainment, rather than a true economic driver. Whether through woodworking, metalwork, textile and fiber work, in the performing arts of dance and music, or in the fine arts of architecture, sculpture, painting, literature, and film—creative enterprises are beginning to gain recognition as part of a broader creative economy. Regional organizations such as Catamount Arts play an important role in this ecosystem by supporting artists and helping communities develop local cultural programming and events that strengthen both community identity and local economies. Local organizations and regional initiatives are working to quantify the economic impact of these industries and provide the support systems—spaces, networks, and financing—that allow artists, makers, and cultural entrepreneurs to thrive. Across the NEK, where remoteness can be a barrier, online platforms and digital tools are increasingly bridging the gap between local creators and broader markets.

Brownfield Remediation and Redevelopment

Redevelopment of existing buildings, especially those in our region's larger downtown centers and industrial areas, are often complicated by the presence of unknown contaminants and potential instability of existing structures. These brownfield sites can pose a significant barrier to redevelopment along with other potential environmental and health concerns.

Since 2018, NVDA has applied for and received four separate EPA Brownfields Assessment Coalition Grants and one Revolving Loan Fund Grant to support the remediation and redevelopment of brownfield sites across our region. These five grants, totaling $4.4 million, have supported assessment and remediation activities across our region, helping to reduce the significant barrier to economic development caused by the potential presence of environmental contaminants. NVDA's 2023 Assessment Coalition Grant supported assessment activities across 37 sites comprising 42 unique parcels prior to funds running out in 2025. Due to the high demand for these funds in our region, NVDA applied for and received an additional $1.2 million worth of EPA assessment funds in 2025, which will continue to facilitate brownfield assessment, cleanup, and redevelopment in our region. The remediation of brownfield sites not only spurs economic development in our region, but also clears sites of contaminants that are potentially harmful to both the environment and public health.

As a result of NVDA's partnership with RuralEdge, a number of sites receiving brownfields funding are housing projects which prioritize affordable multi-family and senior housing in our region. Well over 100 units of housing are expected upon completion of priority projects located in Lyndon, Newport, and St. Johnsbury, all of which focus on infill development and revitalizing vacant and

underutilized properties. These priority housing projects and other brownfield sites with ongoing remediation activities, help to revitalize our communities by generating new business opportunities, enhancing recreational amenities, and addressing the housing crisis in our region, all while supporting flood resilience and climate adaptation.

Regional Policies & Priorities

- NVDA supports a resilient and diverse economy for the NEK by integrating new technologies into traditional industries, including forestry, dairy, and small-scale manufacturing, while also advancing emerging opportunities in renewable energy, outdoor recreation, and the creative economy.
- NVDA supports the cultivation of entrepreneurship and new business development, along with the development and implementation of resources that strengthen and sustain business development in the region.
- NVDA supports the region's efforts to address infrastructure gaps, prioritize housing, broadband, wastewater, and transportation improvements, particularly in under-resourced communities.
- NVDA supports workforce development and youth retention efforts that expand training pipelines and incentives to retain graduates and attract young families.
- NVDA strives for planning and policies that advance equity, ensuring economic benefits extend to low-income households, seniors, and historically underserved populations.
- NVDA promotes economic development that works in alignment with climate resilience, flood recovery, and natural resource stewardship.
- NVDA promotes the strengthening of village centers and downtowns and encourages concentrated growth where infrastructure exists, consistent with Vermont settlement pattern goals.
- NVDA works collaboratively within the broader NVEDD region to advance a shared vision of a thriving, resilient region with a diverse, sustainable economy, and to support region-wide development efforts that promote economic prosperity, sustainability, and resilience.

Goals, Objectives, & Strategies

Goal 1: Regional Economic Resilience

Create resilient communities that reduce the vulnerability of the regional economy to major disruptions such as economic shifts, natural disasters, climate change, and other shocks.

Objective: Strengthen Local and Regional Collaboration

Strategies:

- Develop and institutionalize cross-sector partnerships that align municipalities, businesses, and community organizations through coordinated planning, structured knowledge and resource sharing, and joint implementation of collaborative initiatives.

Objective: Diversify the Regional Economy and Strengthen Local Supply Chains

STRATEGIES:

- Identify and support emerging industry sectors to reduce dependence on a few dominant employers or industries.
- Encourage development of sectors that align with regional strengths (e.g. food systems, outdoor recreation, forest products, creative economy, advanced manufacturing, clean energy).
- Map and analyze critical regional supply chains to identify gaps and vulnerabilities.
- Support local sourcing initiatives that strengthen the circular economy by keeping materials, products, and capital in local circulation, reducing reliance on external suppliers, shortening supply chains, and promoting reuse, repair, remanufacturing, and regenerative production systems within the regional economy.

OBJECTIVE: SUPPORT COORDINATED BUSINESS CONTINUITY AND RECOVERY PLANNING

STRATEGIES:

- Integrate local economic recovery initiatives with broader disaster recovery programs (e.g., FEMA, HUD, SBA) to identify synergies and eliminate duplication.
- Pursue joint planning sessions and data sharing to align goals and maximize the impact of available resources.
- Provide training and tools for businesses to develop continuity plans to prepare for future disruptions.
- Establish regional rapid response teams to assist businesses during economic downturns or disaster events.

OBJECTIVE: LEVERAGE FEDERAL AND STATE RESILIENCE FUNDING

STRATEGIES:

- Actively pursue resilience-focused funding opportunities through EDA, USDA, FEMA, HUD, and other agencies.
- Align regional projects with federal resilience goals to increase competitiveness for grants and technical assistance.

GOAL 2: BUSINESS SUSTAINABILITY AND GROWTH

SUPPORT THE LAUNCH, GROWTH, AND LONG-TERM SUCCESS OF LOCALLY ROOTED BUSINESSES BY EXPANDING ACCESS TO CAPITAL, TECHNICAL ASSISTANCE, PEER NETWORKS, AND MARKET OPPORTUNITIES, ENSURING THAT ENTREPRENEURSHIP IS INCLUSIVE, RESILIENT, AND REFLECTIVE OF THE REGION'S UNIQUE ASSETS.

OBJECTIVE: EXPAND AND INCREASE AWARENESS OF BUSINESS SUPPORT SERVICES AND TECHNICAL ASSISTANCE.

STRATEGIES:

- Coordinate, collaborate, and consolidate the regional network of business advisors, mentors, and subject-matter experts.
- Provide cohort-based and one-on-one business development assistance tailored to rural challenges and industry needs.
- Develop tools for succession planning and business transition services.

Objective: Increase access to capital for early-stage and growth-stage businesses

Strategies:

- Partner with community banks, CDFIs, and state agencies to access, promote and create new flexible, place-based financing tools.
- Promote awareness of existing funding sources, including grants, loans, equity, and revenue-based financing, through workshops and targeted outreach.
- Develop networks of investors interested in supporting businesses in the NEK.
- Continue to implement and expand programs such as Brownfields redevelopment initiatives, regional revolving loan funds, technical assistance, etc. to support business growth.

Objective: Strengthen Entrepreneurial Networks and Peer Learning Opportunities

Strategies:

- Host regular networking events, founder roundtables, and innovation challenges that encourage relationship-building and knowledge exchange while promoting visibility.
- Amplify local entrepreneurial stories and through consistent storytelling through media partnerships, digital campaigns, and public recognition efforts and events, e.g. the Rumble in the Kingdom Business Pitch Competition, to celebrate local entrepreneurs and foster a strong culture of innovation.
- Establish intentional mentorship programs and peer networks that connect entrepreneurs to experienced advisors and to one another, providing guidance, accountability, and shared learning opportunities.

Objective: Increase Business Growth and Regional Investment

Strategies:

- Support locally driven economic growth by helping communities implement strategies to grow existing, locally owned businesses and attract new enterprises that align with regional priorities, including opportunities tied to cross-border markets in Canada and New Hampshire.
- Encourage export development by supporting the formation and expansion of export-oriented businesses that strengthen the region's economic base and increase competitiveness in broader markets, with a focus on strengthening trade relationships and market access across the Canadian and New Hampshire borders to increase competitiveness in broader markets.
- Enhance business retention and attraction efforts by partnering with local and regional economic development organizations to maintain strong employer relationships, respond to business needs, and promote investment-ready sites.
- Promote investment in Opportunity Zones across the region to attract private capital into underserved areas, aligning investments with community and economic development goals while leveraging proximity to major metropolitan areas like New York, Boston, and Montreal as a strategic advantage.

Goal 3: Robust Economic Infrastructure

Support the long-term resilience, livability, and growth of Northern Vermont communities through proactive and cost-effective investments in infrastructure, including water/wastewater systems, transportation, utilities, healthcare, childcare, and digital connectivity.

Objective: Expand Access to Infrastructure Funding and Planning Resources

Strategies:

- Identify, pursue, and coordinate state and federal funding opportunities (e.g., CDBG, EDA, NBRC) to support local and regional infrastructure investments.
- Increase municipal and regional capacity to compete for infrastructure funding by providing technical assistance with project scoping, capital planning, and grant application development.
- Leverage grants and loan programs to finance the development and expansion of industrial and business parks and the construction of new facilities that support business attraction and growth.
- Advance childcare as essential economic infrastructure by securing public and private funding to develop, renovate, and expand childcare facilities. Invest in the development and long-term sustainability of licensed childcare providers by connecting underserved communities to capital funding, operating support, and infrastructure-related resources.

Objective: Strengthen Municipal Infrastructure Planning and Investment

Strategies:

- Support municipalities in improving, expanding, or decommissioning infrastructure to meet evolving community needs.
- Increase water and wastewater capacity in villages, downtowns, and industrial/enterprise zones to support sustainable future development.
- Deliver hands-on capital budgeting and infrastructure planning training to municipalities, strengthening project readiness, long-term investment strategies, and competitiveness for state and federal funding.
- Promote and facilitate cooperative purchasing across the region to reduce costs and improve efficiency.

Objective: Expand Investment in Recreation, Cultural Assets, and Community Spaces

Strategies:

- Increase access to state, federal, and philanthropic funding by providing grant identification, writing, and application support to expand, upgrade, and maintain recreational infrastructure, including trails, parks, waterfronts, and community centers.
- Secure and leverage public and private investments to preserve and promote arts, culture, and heritage assets, supporting creative economy growth, tourism, and community development.
- Advance placemaking strategies that reflect local identity, activate public spaces, and strengthen community pride and engagement.

Goal 4: Skilled Sustainable Workforce

Provide current and future workers in the Northeast Kingdom with the skills, opportunities, and support they need to thrive in a changing economy, ensuring that talent development and recruitment is inclusive, locally grounded, and responsive to employer and community needs.

Objective: Align Education and Training with Regional Industry Needs and Increase Access to Workforce Participation for Underserved Populations.

Strategies:

- Address systemic barriers to employment, including transportation, childcare, and broadband access.
- Collaborate with regional/local employers, Career Technical Education (CTE) centers, higher education institutions, through initiatives like the NEK Chamber Manufacturing Consortium, to develop career pathways in high-demand sectors such as healthcare, trades, advanced manufacturing, forestry, agriculture, and clean energy.
- Expand access to credentialing and skills-based programs that offer alternative routes to employment beyond four-year degrees, including apprenticeships, internships, and on-the-job training opportunities in collaboration with local businesses, Career Technical Education (CTE) centers, higher education institutions, etc.
- Partner with regional workforce stakeholders, e.g. Vermont Department of Labor, to expand targeted industry training programs while providing comprehensive wraparound services, including career coaching, job placement assistance, and financial counseling, to support participant success.

Objective: Retain and Attract Talent to the Northeast Kingdom

Strategies:

- Promote the NEK as a place to live, work, and start a business by partnering with the NEK Chamber, NEK Young Professionals Network, Vermont Department of Tourism and Marketing, and other regional and statewide organizations, as well as out of state and Canadian tourism organizations, to attract young people, entrepreneurs, and remote workers.
- Develop quality-of-life initiatives (housing, recreation, arts, culture) that support long-term talent retention, e.g. Makemymove.com, VT relocation program, Vermont Welcome Wagon, etc.
- Partner with libraries, adult education centers, and employers to invest in digital literacy and continuous upskilling, ensuring workforce readiness for a remote and hybrid economy.

Community Resources

- **Northeast Kingdom Collaborative: https://www.nekcollaborative.org/**
  The Northeast Kingdom (NEK) Collaborative convenes stakeholders across sectors to coordinate, support, and advocate for the region's highest priorities.

- **Northeast Kingdom Chamber of Commerce (NEK Chamber): www.nekchamber.com/**
  The NEK Chamber promotes travel and tourism, fosters community and economic development, and supports regional businesses through advocacy and collaboration.

- **Vermont Small Business Development Center (VtSBDC): www.vtsbdc.org/**
  VtSBDC supports business owners and entrepreneurs statewide through regionally based business advisors, providing expert guidance at every stage to help Vermonters launch businesses, create jobs, secure capital, and strengthen the local economy.

- **Do North Coworking: www.donorthcoworking.com/**
  Do North is an innovation hub in downtown Lyndon that provides workspace, meeting areas, and entrepreneurship programming, including networking events, skill-building workshops, mentorship, pitch competitions, and business accelerators, to support entrepreneurs and innovators in the region.

- **Designated Downtown Organizations and Local Chambers:**
  The Northeast Kingdom is home to three Designated Downtowns and many local chambers of commerce working to strengthen the local economy by supporting local businesses, fostering sustainable growth, and enhancing the vitality of their communities.

- **Center for an Agricultural Economy (CAE): https://hardwickagriculture.org/**
  The Center for an Agricultural Economy (CAE) is a nonprofit working to build a healthy, regenerative food system by supporting food access, farm viability, and local producers.

- **Northern Vermont Economic Development District (NVEDD): www.nvedd.org/ and the NVEDD Comprehensive Economic Development Strategy (CEDS): www.nvedd.org/resources-data/**
  The NVEDD CEDS is a collaborative roadmap that unites communities, governments, and businesses to drive regional economic growth by aligning with broader planning efforts and leveraging diverse resources. It defines strategies to strengthen key industries and advance regional sustainability and resilience.

- **Vermont Agency of Commerce and Community Development (ACCD): www.accd.vermont.gov/**
  The Agency encompasses three major state departments and many programs that serve the Vermont public by enhancing the Vermont business climate, marketing Vermont to tourists and others, and strengthening our communities in a wide variety of ways.

- **Center on Rural Innovation (CORI): www.ruralinnovation.us/**
  The Center on Rural Innovation (CORI) is a Vermont-based, nonprofit organization that partners with rural leaders across the country to build tech economies that support scalable entrepreneurship and lead to more tech jobs in rural America. The Northeast Kingdom is a

member of CORI's Rural Innovation Network (RIN), which offers members a place to collaborate with peers across the country and leverage curated solutions, such as tech talent development programming, entrepreneurship support, and data insights.

- **Northern Borders Regional Commission (NBRC): www.nbrc.gov/**
  The Northern Border Regional Commission is a Federal-State partnership for economic and community development in northern Maine, New Hampshire, Vermont, and New York. Each year, the NBRC provides Federal funds for critical economic and community development projects throughout the northeast. These investments lead to new jobs being created and leverages substantial private sector investments.

- **USDA Rural Development: www.rd.usda.gov/**
  USDA Rural Development is a mission area within the United States Department of Agriculture which runs programs intended to improve the economy and quality of life in rural parts of the United States.

- **U.S. Economic Development Administration (EDA): www.eda.gov/**
  The U.S. Economic Development Administration (EDA) is an agency in the United States Department of Commerce that provides grants and technical assistance to economically distressed communities in order to generate new employment, help retain existing jobs, and stimulate industrial and commercial growth through a variety of investment programs.

- **Working Lands Enterprise Initiative (WLEI): www.workinglands.vermont.gov/**
  The Working Lands Enterprise Initiative (WLEI) makes strategic investments and develops policy recommendations that support a resilient and sustainable farm, food, and forest economy in Vermont.

- **NVDA Brownfields Program: www.nvda.net/brownfields.php**
  NVDA manages a Brownfield's Program that helps property owners revitalize underutilized, contaminated, or abandoned properties. Supported by EPA grants, this program provides funding for Phase I and II Environmental Site Assessments (ESAs), cleanup, and redevelopment planning to support community, housing, and economic development.

Natural & Scenic Resources

From the glacial beauty of Lake Willoughby to the sweeping crest of the Green Mountains, the wealth of natural resources in the Northeast Kingdom is a defining asset—but also a shared responsibility. Facing development pressure, climate threats, and rural infrastructure gaps, regional and municipal planning must prioritize ecosystem health, sustainable development, and community resilience to protect these valued resources for future generations.

This chapter serves as a comprehensive guide to the natural resources and working lands policies that support sustainable land use and conservation in the Northeast Kingdom (NEK). At its core, the NEK Regional Plan supports the idea of growing our compact village and town centers while keeping our forests, farms, and natural resource areas strong and connected. The maps and policies included here are grounded in ecosystem science and follow the principles of Vermont Conservation Design, while ensuring they reflect both ecological function and local and regional priorities.

Given the ecological, economic, and cultural importance of our natural resources, the overarching goal of natural resource planning in the NEK is to balance local economic development with the protection of natural systems. Planning policies must recognize and protect the interconnected values of ecosystem function, working lands, and community resilience.

The NEK's forests, farms, wetlands, and waterways are already experiencing the impacts of a changing climate—flooding, extreme weather, invasive species, and shifting seasons threaten ecosystems, infrastructure, and rural livelihoods. This chapter outlines strategies to protect and restore natural systems like riparian buffers, forests, and wetlands that reduce damage, support biodiversity, and build climate resilience. It also highlights approaches to land use, habitat conservation, and water quality protection that sustain traditional working land uses—such as farming, forestry, hunting, and recreation—while helping communities adapt to future challenges.

Key Takeaways & Existing Conditions

The NEK is rich in natural resources, with deep cultural ties that support land stewardship.

The Northeast Kingdom is home to some of Vermont's largest intact forest blocks, most diverse wetlands, and greatest number of inland lakes and ponds. These natural resources are vital to the region's identity and economy—providing clean water, wildlife habitat, recreation, and tourism opportunities—while also playing a key role in community resilience and ecosystem health.

The Northeast Kingdom's strong connection to the land is grounded in Indigenous heritage and generations of working lands traditions. The people of the Abenaki Nation have lived throughout the NEK and beyond for thousands of years prior to colonial settlers. The Nulhegan Abenaki tribe, one of the largest Abenaki tribes still in existence today, is headquartered within our region in Barton. As stated on their website, they "continue to respect and steward Nakina [Our Land] so that its uniqueness and beauty will be protected for the generations to come." This shared sense of place

fosters a deep stewardship ethic and offers a powerful foundation for collaboration across communities on conservation, land use planning, and climate adaptation.

Local conservation commissions, authorized by Vermont Statute since 1977, are citizen-led advisory boards, whose purpose is to promote the effective stewardship of natural and cultural resources in the community. Although they have no regulatory power, they are an invaluable resource to local selectboards and planning commissions when formulating land management policies. Ten of our communities have conservation commissions and some, such as Craftsbury, Burke, and Danville, have richly benefitted from active conservation commissions. Their successes in local leadership include land conservation, the establishment and stewardship of municipal forests, and the implementation of pilot projects to remediate invasives.



While local stewardship is a regional strength in the NEK, gaps remain between private land use practices and long-term ecological sustainability. Unregulated activities like clear-cutting or riverbank alteration can undermine conservation goals. At the same time, limited municipal infrastructure—such as water, sewer, and emergency services—places added pressure on rural landowners and complicates smart growth. Stronger alignment is needed between landowner practices, community planning, and climate resilience. This plan recognizes local conservation commissions as an effective way for communities to lead broader conversations about balancing the rights of individual landowners with conservation needs. We are committed to aligning technical support and resources to local conservation commissions to ensure their continued success.

THE NEK SPANS FOUR BIOPHYSICAL REGIONS, EACH CONTRIBUTING TO THE REGION'S NATURAL DIVERSITY AND LAND-USE PATTERNS.

The four Biophysical regions of the Northeast Kingdom are distinguished by vast forests, abundant water resources, diverse wildlife habitats, and largely undeveloped landscapes. These natural resources are exhibited in the maps and text throughout this chapter and provide our region with biological integrity, economic sustainability, and cultural identity.

- **Northeast Highlands**: Dominating Essex County and northern Caledonia County, this rugged, mountainous region is an extension of New Hampshire's White Mountains. It experiences the coldest temperatures and heaviest snow in the state, with growing seasons averaging fewer than 90 days. The region is composed of prolific granite bedrock and is home to large wetlands, remote mountains, lakes, and ponds. An evergreen cover of both spruce and fir is found at low and high elevations, while mid-elevations are composed mostly of mixed northern hardwood forests.
- **Northern Vermont Piedmont**: This area makes up the bulk of the NEK including most of Orleans County and parts of Caledonia County and is characterized by rolling hills, glacial deposits, and calcium-rich, fertile agricultural soils, offering good potential for farming and forestry. The relatively cool climate in this region provides an optimal climate for mixed forests, northern white cedar swamps, fens, and other unique natural communities. However, this cool climate also lends itself to a shorter growing season.
- **Northern Green Mountains**: This region makes up a small segment in the high elevations of the northwest portion of the NEK. The cool climate is home to abundant northern hardwoods on the eastern mid-level slopes of the Green Mountains. The high elevations are primarily spruce and fir along with beautiful alpine meadow communities.
- **Southern Vermont Piedmont:** Representing the smallest segment of a biophysical region, the far eastern reaches of Ryegate and Peacham stand out with calcium-rich soils and moderate hills that create a landscape prime for agriculture. Forests are primarily composed of northern hardwoods and red oak. This low-lying, southerly portion of the NEK enjoys the warmest climate and therefore allows for a longer growing season.

Healthy natural systems—wetlands, forests, riparian buffers, and resilient soils—help reduce flood damage, improve water quality, and sequester carbon. Supporting these systems strengthens climate resilience, public health, sustainable land use, and working economies that sustain our region. The NEK contains elevations ranging from around 400 feet to just under 4,000 feet. This broad elevation range represents what is known as an elevational gradient with notable changes in biodiversity and ecosystems occurring at different levels. It is of high importance to understand the conservation of unique ecosystems along the elevational gradient and be aware of any climate-change adaptation by species as they are forced to shift.

Our region is already feeling the effects of climate change—heavier rains, hotter summers, and prolonged mud seasons are impacting how the region manages forests, farms, and water. These shifts increase flood and erosion damage, strain aging infrastructure, and challenge agricultural productivity. Vulnerable populations, seniors, low-income residents, and those with health issues, face rising risks from extreme heat and wildfire smoke, underscoring the urgent need for climate-adaptive land use and resource planning. Our forests, soils, and wetlands help store carbon, making them essential natural allies in fighting climate change.

Forest Blocks – Highest Priority Interior Forest Blocks, Connecting Blocks, and Riparian Covers

Our region's extensive forest and wetland ecosystems provide vital flood mitigation, water filtration, and carbon storage. They also lay the foundation for biodiversity health, climate resilience, and economic opportunity. Northern hardwoods—maple, beech, and birch—dominate the landscape, alongside conifers like spruce, fir, hemlock, and cedar. Successional species like white pine and aspen are common in recently cleared or disturbed areas. These forests provide essential habitat for a wide range of wildlife and serve as critical corridors for species movement, especially in large, unfragmented blocks. Essex County contains more wetlands than any other county in Vermont, including some of the state's most significant bog complexes, including Victory Bog, Mollie Beattie Bog, and the Dennis Pond Wetlands.

Overall, our region holds vital habitat connectivity between the Green Mountains, Northern Forest, and White Mountains. These landscapes support diverse wildlife populations and are key to the region's cultural identity. Biofinder, a web-based mapping tool developed by the Vermont Agency of Natural Resources, focuses on Vermont Conservation Design and helps to better inform stewardship and effective conservation planning in maintaining an ecologically functional landscape. The core concept behind Vermont Conservation Design is a "habitat block," an unfragmented area of natural cover (including forest, wetland, shrubland, rivers, streams, lakes & ponds) of at least 20 acres bounded by roads and development.

At the landscape level of Biofinder we see how habitat blocks, connectivity blocks, riparian areas, and wildlife corridors support biodiversity across large regions. *Highest Priority Forest Blocks* are the largest forest blocks that provide the foundation for interior forest habitat and associated ecological functions. These are the largest and most ecologically intact forest areas that serve as primary habitat zones for wide-ranging and sensitive species.

- **Wildlife Examples:** Black bear, moose, barred owl, bobcat, spotted salamander
- **Function:** Breeding, denning, feeding, and long-term habitat for species with large home ranges.

***Connecting Blocks* are** smaller unfragmented forests that connect interior forest blocks. Think of them as "stepping stones" for wildlife moving between larger habitats. These areas are vital for species movement and help maintain genetic diversity.

- **Wildlife Examples:** Fisher, coyote, wood thrush, red fox
- **Function:** Support seasonal or life-stage-specific use.

Riparian and river corridor habitats also serve as key migration corridors, breeding grounds, and feeding areas for numerous species, including brook trout, wood turtles, river otters, and bald eagles. They also reduce flood risks, filter pollutants, and stabilize banks. Additionally, a robust canopy cover above streams and rivers provides cooling that is critical for temperature-sensitive, cold water species such as brook trout, frogs, and salamanders. Restoration and protection of riparian buffers are low-cost, high-impact resilience strategies that benefit both ecosystems and human communities, especially those in flood-prone areas.

At the species and community scale of Biofinder we can see the locations and habitat conditions required to support specific aquatic, terrestrial, and plant species, such as

- Rare, threatened and endangered species: The NEK provides habitat for several federally listed species, including the Indiana bat, Canada lynx, and Jesup's milk-vetch.
- Natural communities: an interacting assemblage of plants and animals, their physical environment, and the natural processes that affect them, including white Cedar swamps, northern hardwoods
- Rare and uncommon species: species are defined as facing a "moderate risk of extinction or extirpation due to restricted range, relatively few populations or occurrences;
- Wetlands

Biofinder offers multiple layers for meaningful analysis of local natural resources, empowering planning commissions, conversation commissions, and members of the general public to identify effective conservation strategies. Training on the mapping tool is available through the Community Wildlife Program of the Vermont Fish and Wildlife Department.



Figure 2. Moose River tributary located in Victory Bog. Photo curtesy of North Star Monthly.

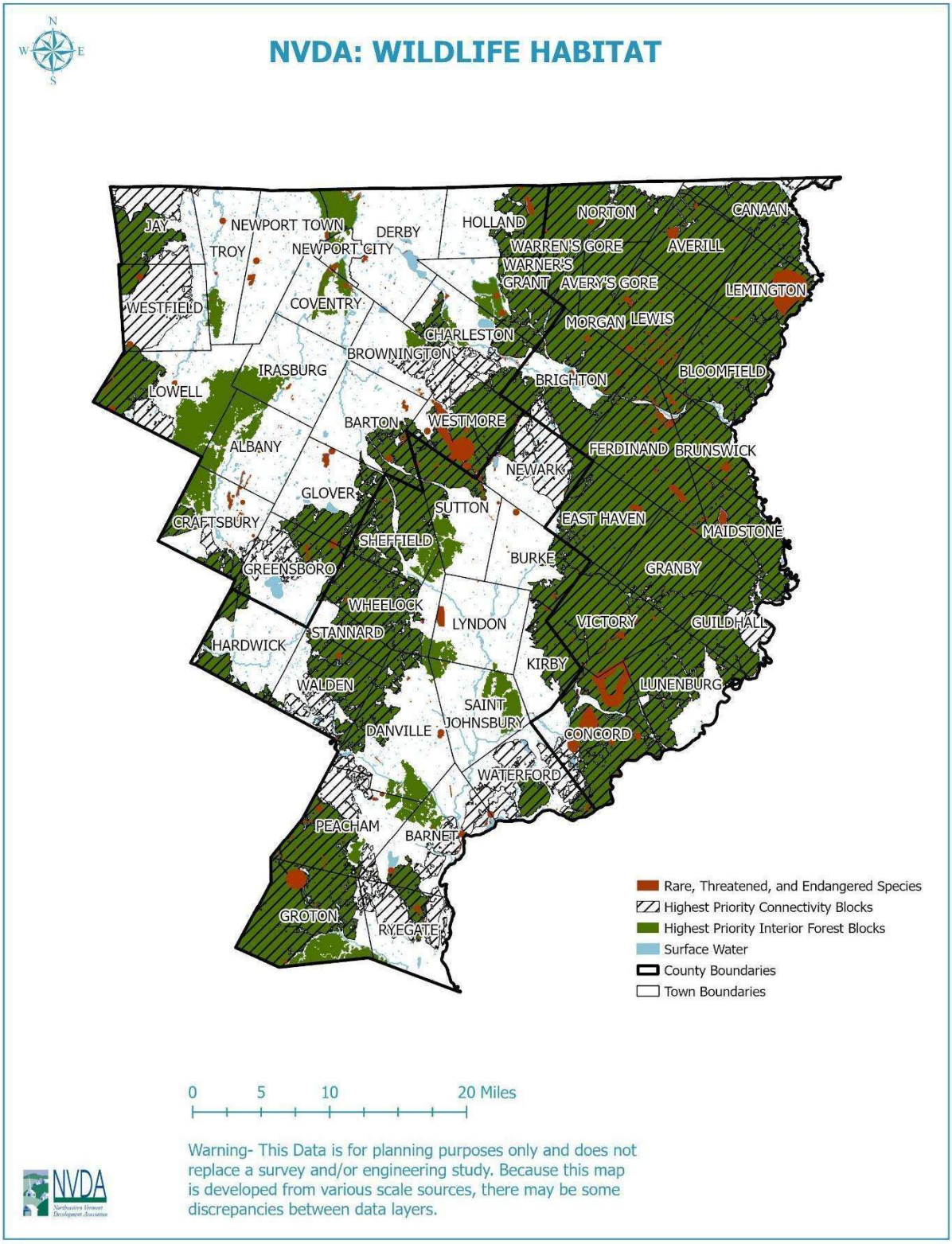


Figure 3. Wildlife habitats of the NEK.

FRAGMENTATION AND PARCELIZATION HAVE LONG-RANGE IMPLICATIONS FOR THE ECOLOGICAL FUNCTION OF OUR LANDSCAPE

Despite being heavily forested, Vermont is actually losing forest cover due to parcelization (the subdivision of land into smaller pieces of land. The NEK is no exception. Parcelization and ensuing development such as low-density rural residential development and roads, end up fragmenting the ecological and working landscape. A few of the adverse effects include a reduction of:

Deer Wintering Habitat: White-tailed deer are widespread in the NEK but depend on softwood shelter in winter months to survive cold and deep snow. These seasonal habitats are increasingly threatened by land conversion and logging practices that do not retain dense softwood cover. Wintering areas may represent just 10% of a deer's annual range but are essential for population stability.

Bear Habitat: The NEK contains some of Vermont's best remaining bear habitat. Black bears contribute to the NEK's hunting culture and outdoor recreation economy. Their protection is linked to both traditional use and non-consumptive recreation like wildlife photography and tracking. Black bears require large, connected forest tracts with seasonal food sources such as beech stands, wetlands, and mast-producing trees. While populations have rebounded, fragmentation and road expansion threaten their future. Unlike deer, bears don't adapt well to human proximity, so forest fragmentation can rapidly reduce their viable habitat.

Ecosystem services: The Vermont Climate Assessment notes that as our forests become increasingly fragmented through development, their ability to sequester and store carbon will be reduced.

In contrast, well-connected, unfragmented habitats increase climate resilience by:

- Supporting species adaptation and migration.
- Sequestering carbon in wetlands, forests, and soils.
- Reducing flood and erosion risks via healthy riparian corridors.
- These natural systems also support the region's recreation and hunting economy, cultural identity, and public health—especially important when designed to enhance access to nature, clean air, and water. Equitable resilience requires prioritizing habitat restoration in areas facing cumulative environmental burdens.

LAND OWNERSHIP IS SHIFTING: LARGE TO SMALL, FOREST TO RESIDENTIAL.

The VT Parcelization Website, run by the Vermont Natural Resources Council, aims to track parcelization of Vermont lands over time to allow for data-driven decision making on state, regional, and municipal levels. Using the Data Explorer tool from this resource, we can see that from 2005-2020 the NEK has experienced a 21.9% reduction in woodland acres and a 10.4% reduction in farmland. During the same timeframe residential land use saw a 13% increase and parcels ranging from 100-200+ acres saw a 6% decrease while parcels less than 100 acres saw a 6% increase. These numbers suggest that over the last 15 years there has been a trend of large acreages being subdivided into smaller parcels and the land use shifting from farm and forest to residential. It is likely that much of the land that shifted from forest to residential still maintains some amount of forest cover but has a higher likelihood of impacts associated with residential development

including roads, driveways, and septic systems that can degrade the natural landscape. Additionally, there were parcels that shifted from private forest land to public forest land that would not be represented clearly in the current data set but will be preserved as undeveloped forestland.

It should be noted that during the 2005-2020 time period the NEK saw a 38% increase of acres registered in Use Value Appraisal (UVA) program. Commonly known as the current use program, it allows landowners to pay taxes based on the productive use value rather than the development value. Lands in this program are categorized as either agricultural land, forest production land, or conservation land— each category requires unique requirements and terms such as forest or conservation plans. While individual parcel sizes are trending down in the UVA program, the number of parcels are trending up and the significant increase in overall acres highlights a growing interest for not just lower taxes, but a commitment to preservation of our open lands.

Rising demand for rural land—driven by climate migration, the housing shortage, and real estate speculation—is fragmenting critical forest and habitat areas in the NEK. Without compact development and essential infrastructure in town centers, growth is increasingly pushed into undeveloped forest and natural, scenic areas, threatening ecological integrity and long-term sustainability. *For more information on land use in our region see the Land Use Chapter.*

INVASIVES THREATEN THE HEALTH OF OUR FORESTS.

Currently 5% of Vermont forests are made up of green, black, and white ash trees– all of which are threatened by the emerald ash borer (EAB). While EAB has been identified in southern portions of Caledonia County and western portions of Orleans County, it is highly likely to be present in other places as well. Besides serving an important ecological purpose, ash trees are a major part of Abenaki cultural heritage, perhaps most notably in their renowned basket making. Their continued survival depends not on isolated protection zones, but on the broader preservation of intact, connected habitats; and early detection of outside threats and invasive species that can displace native species. The VT Urban and Community Forestry Program provides educational, financial, and technical assistance to help address overall forest health. Their strong focus on the early detection of emerald ash borer and necessary follow-up measures empowers municipalities to take action that is proactive, community-informed, and science based.

The balsam woolly adelgid, which probably arrived in the northeast more than a century ago on infected nursery stock, is particularly damaging to balsam firs. In recent years climate change appears to have contributed significantly to its spread by allowing the pest to overwinter and reproduce. While tree farmers can manage the pest with insecticides, there are no known effective controls in forested settings.

Balancing Land Rights with Recreation, Hunting, and Tradition: As Written in the Craftsbury Town Plan

"We respect access to recreation and the private property owners who make it possible. Recreation came up frequently in the Community Values mapping session. People appreciate being able to hike, fish, kayak, cycle, hunt, ski, and snowmobile. Historically, much of our recreation has occurred on privately-owned land. Craftsbury's emerging trail network also relies on access and cooperation from private property owners. Future development should not impede access to recreation. While posting land is a property owner's right, it jeopardizes an important local tradition. If recreation on private land is going to be part of our future, we can proactively discourage posting by showing respect for our neighbors. Always seek permission and take personal responsibility.

Hunting and fishing are time-honored traditions. Not everyone likes to hunt and fish, but it is part of our history and future. Again, this is a practice that can only continue by showing respect for neighbors and by behaving responsibly. Always seek permission. While general posting is problematic, posting hunter safety zones can ensure that this tradition continues safely."

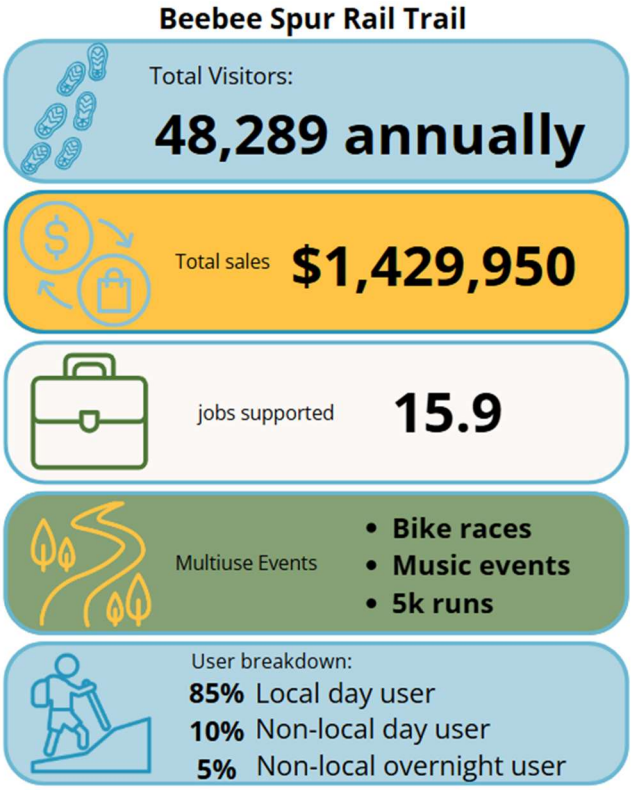
Open Space and Affordable Access to the Outdoors

The Northeast Kingdom is defined by its expansive forests, rolling hills, agricultural lands, winding rural roads, and compact centers of development—together forming a distinctive and cherished landscape. These open spaces offer more than scenic beauty and critical wildlife habitat: they are vital for the cultural, economic, and recreational life of the region. They support farming and forestry, provide natural climate buffers, and offer opportunities for outdoor recreation that are essential to the physical and mental well-being of residents and visitors alike.

The region encompasses over **1.3 million acres**, with **approximately 376,000 acres** publicly owned or covered by conservation easements. However, access to open space is not always equitably distributed. Many popular recreational activities, hiking, hunting, snowmobiling, biking, skiing, and more, depend on private landowners voluntarily allowing public access. With increasing land posting and changing land ownership patterns, outdoor access is becoming more fragmented, and harder to reach especially for those without private transportation. While Vermont law (12 V.S.A. §5793) limits landowner liability for recreational use, mutual respect and responsible recreation are essential for maintaining trust between landowners and the public. Still, land posting has risen dramatically reflecting not just concerns about liability, but also increased development pressures, absentee ownership, and conflicting land uses. *See Figure 5 for a map of our dynamic conserved lands.*

Despite this increase in private landowner posting, local organizations are strengthening networks of trails and relationships with landowners to allow for public access over private and public lands during all our varied seasons. The Kingdom Trails Association in Burke encompasses over 100 miles of trails that traverse public land and more than 100 private properties. They offer 58 miles of adaptive trails, fat /winter bike access, cross-country, and snowshoeing which provide year-round access to seasonal riders and riders with disabilities. In the winter months, the NEK enjoys abundant snowmobiling over the Vermont Area Snow Travelers (VAST) trail network. Similar to the Kingdom trails, this network relies on tight knit relationships with private landowners to maintain access and continuity for their riders. Statewide, 80% of the VAST network resides on private land. These organizations, among others, highlight the importance of clear communication, expectations, and respect when engaging in conversations with landowners about recreational access.

Our region is notable for public investment in trail networks as well, as illustrated in the portion of the Lamoille Valley Rail Trail (LVRT) in Orleans and Caledonia counties and the Beebe Spur Rail Trail (BSRT) in Newport City and Derby. These repurposed railroad lines meander through residential, commercial, and open space land to provide connection between our communities and environment; vital and accessible recreation opportunities; cultural event space; and economic benefits. They each have multiple unique qualities, but the BSRT stands out as part of an international bike, ski, and pedestrian route to Canada; while the LVRT holds claim to the longest rail trail in New England, spanning 93 miles in its entirety. *Detailed information about our regional rail trails can be found in the Transportation Chapter.*



Addressing recreational and open space disparities is central to Vermont's environmental justice goals outlined in Act 154 which, in part, outlines that all communities, regardless of income, geography, or identity should benefit from access to greenspace. These dynamic spaces are especially important for youth, isolated seniors, and people without access to private land. Bolstering public-private partnerships; minimizing effects of recreational use through trail design and maintenance; and improving access for all creates a system where forests and open lands support mental health, recreation, and community connection. *Please see the Economic Development chapter for more information on the intersection of outdoor recreation and our regional economy.*

Public Lands and Long-Term Stewardship

Significant portions of the NEK have been permanently conserved for public benefit. In 1998, Vermont's largest land conservation project secured **more than 132,000 acres** of remote forestland in Essex County from Champion International Paper Company. Through a unique process, the ownership of these lands was divided into three holdings. The State of Vermont acquired 22,000 acres located in Maidstone, Ferdinand, and Brunswick; to be conserved under the West Mountain Wildlife Management Area. US Fish and Wildlife purchased 26,000 acres located in Lewis, Ferdinand, Bloomfield, and Brunswick; and established the Nulhegan Basin division of the Silvio O. Conte National Wildlife Refuge. The remaining 84,000 acres were originally purchased by Essex Timber Company and are currently held by Weyerhaeuser.

The two smaller, publicly owned parcels are made up of the most ecologically significant lands while the larger, privately owned parcel contains easements that protect certain natural resources and will allow public access in perpetuity. Collectively, these lands host the Kingdom Heritage Trail. This trail

system covers over 20 miles and is managed by the Green Mountain Club. In 2022, the Climbing Resource Access Group of Vermont (CRAG-VT) drafted a corridor management proposal for the increasingly popular Black Mountain area. Beyond recreation, these lands serve multiple goals:

- Protect biodiversity and climate-resilient ecosystems.
- Maintain traditional uses such as hunting, fishing, and forestry.
- Uphold public access across generations.

Looking ahead, public and private land management must center equity, nature-based solutions, and climate resilience. This means expanding inclusive access to nature, promoting community co-stewardship models, and ensuring that working lands continue to provide livelihoods, carbon sequestration, water filtration, reduced flood risk, and ecological services in the face of intensifying climate impacts—particularly when maintained near homes, farms, and infrastructure vulnerable to climate change.



Figure 4. Beebe Spur Trail. Photo curtesy of VT Rail Trail System.

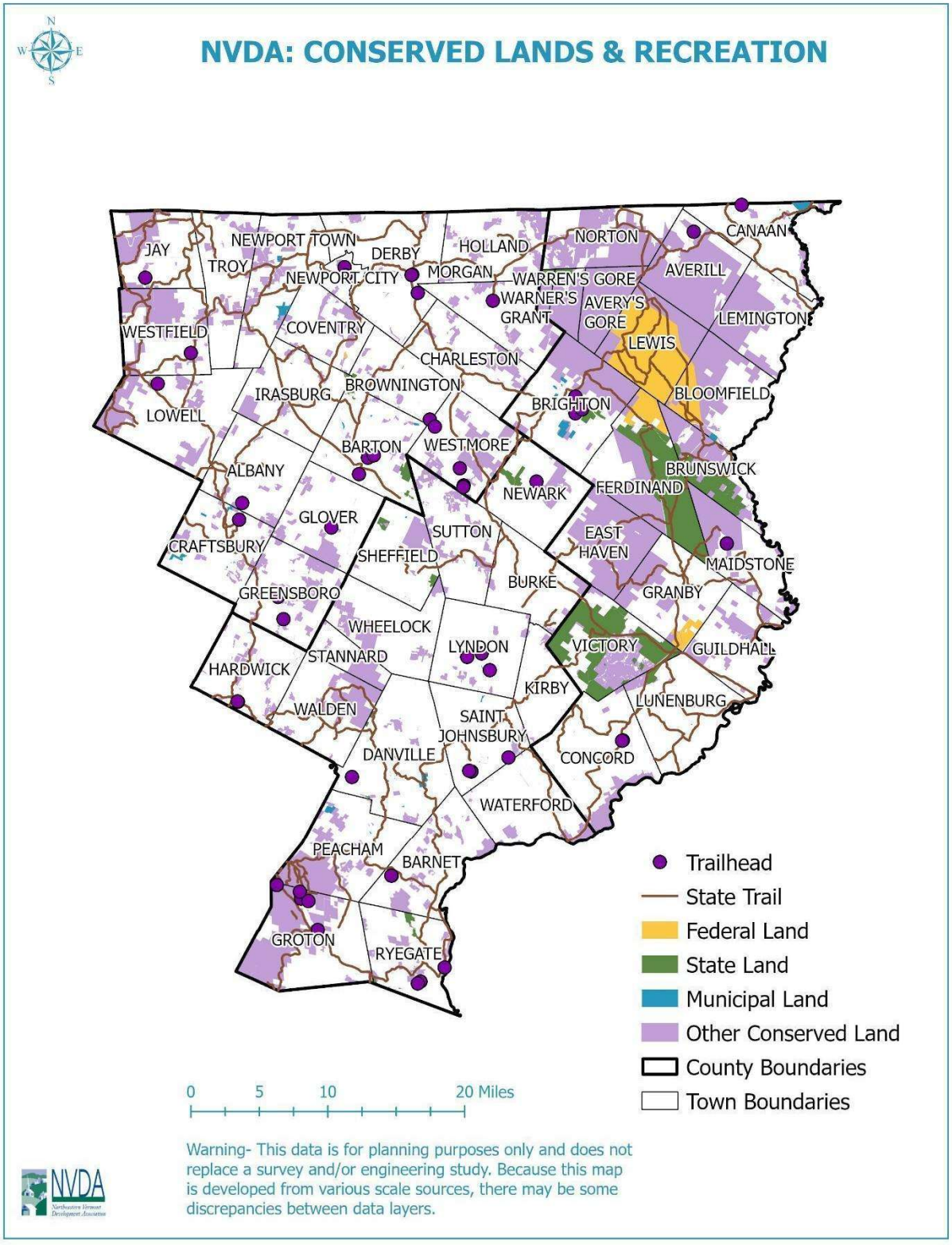


Figure 5. Conserved land and recreation.

Air Quality Impacts

The Northeast Kingdom faces air-quality challenges from both local and regional sources. The abundance of local wood fuel along with our cold winters creates an ideal scenario for the high use of wood for heating our homes. As a result, the EPA and the VT DEC have consistently found that residential wood heating, particularly from older, uncertified stoves, and uncertified outdoor hydronic heaters, remains a major contributor to fine particulate matter (PM 2.5) emissions, driving seasonal air-quality concerns.

Transportation adds additional pollutants, including nitrogen oxides and volatile organic compounds, which combine to form ground-level ozone and fine particles. In recent years, wildfire smoke from Canada and other regions has also reached the NEK, causing spikes in poor air quality and pushing Air Quality Index (AQI) levels into "unhealthy" ranges.

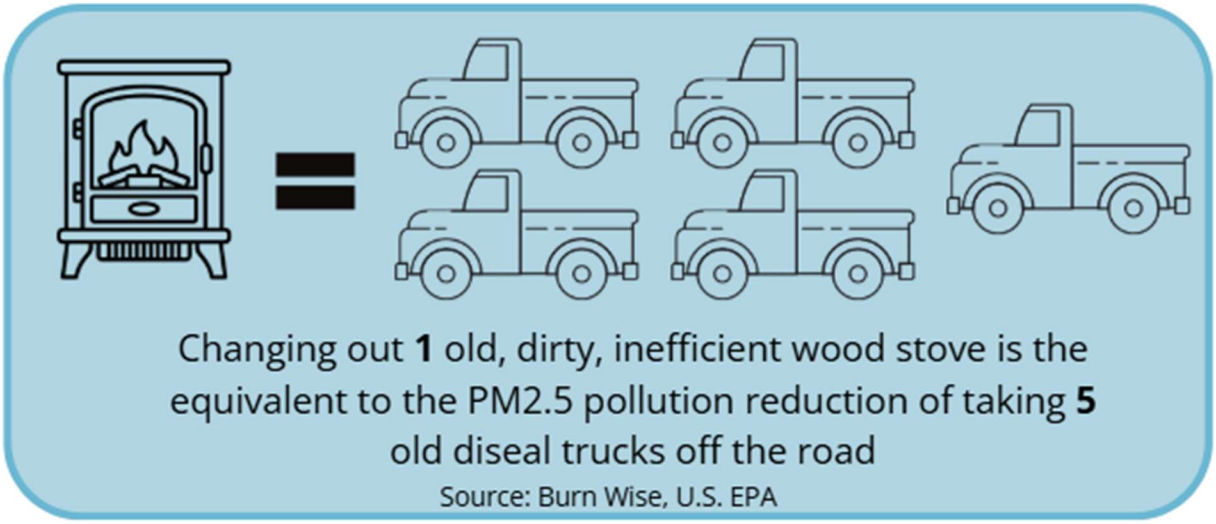
These pollutants affect everyone, but the health risks are greatest for children, seniors, outdoor workers, and individuals with pre-existing conditions such as asthma, heart disease, and diabetes. Fine particulate matter (PM 2.5) is especially concerning because the tiny particles can travel deep into the lungs and bloodstream, contributing to respiratory illness, cardiovascular disease, and other serious health problems. As a result, air quality is both an environmental and a public health issue that directly impacts the region's quality of life.

Wood Heating, Renewable Energy Goals, and Air Quality

The State of Vermont has set a goal of meeting 90% of total energy needs from renewables by 2050. Since thermal energy accounts for about one-third of the state's energy use, the **2022 Comprehensive Energy Plan (CEP) calls for increasing the share of space heating met with wood from 21% to 35% by 2030.**

- Vermont's forests currently grow twice as much new wood as is harvested, and studies suggest they could sustainably supply an additional 939,000 green tons of wood fuel per year, the energy equivalent of 50 million gallons of heating oil.
- Wood fuels are often more affordable than fossil fuels, helping households—especially lower-income Vermonters—manage heating costs.
- Expanded reliance on local wood fuel could strengthen energy security and resilience, especially as more homes and businesses shift toward electrification.
- Sustainable harvest and sale of firewood have the potential to create economic opportunities in our region- notably in rural and underserved areas.
- Equitable engagement in forestry, conservation, and environmental education empowers more residents to care for the land and build local leadership capacity.

At the same time, greater reliance on wood heating could increase particulate pollution if older or inefficient stoves remain in use. Achieving Vermont's renewable energy goals will therefore require balancing affordability and resilience with investment in cleaner-burning technologies and air-quality protections.



Water Resources & Watershed Health

The Northeast Kingdom's water resources—its lakes, rivers, wetlands, and groundwater—are essential to the region's environmental integrity, public health, and economic vitality. Clean water supports drinking water supplies, recreation, agriculture, and healthy aquatic ecosystems. However, the NEK faces water quality challenges from stormwater runoff, aging wastewater infrastructure, agricultural practices, and forest disturbance, which can introduce nutrients, pathogens, and sediments into waterways. These pollutants can degrade habitats, impair recreation, and threaten public health, particularly for communities relying on small or private water systems. Protecting and improving water quality is critical for sustaining the region's rural character, natural heritage, and quality of life.

The NEK has more surface water than any other region in Vermont (excluding Lake Champlain), including more than 130 lakes and ponds, high-value rivers like the Clyde and Barton, and extensive wetland complexes. The NEK hosts an extensive network of rivers and streams, and many of Vermont's largest and deepest bodies of water. These lakes support cold-water fisheries with species like brook trout, landlocked salmon, and lake trout that have thrived since the last glaciation (Vermont Fish & Wildlife Department, 2022).

The region's watersheds drain into three major basins:

- **Northward** into Quebec via the St. Francois River,
- **East and south** into the Connecticut River watershed,
- **West** into the Lake Champlain Basin.

These water resources are vital for drinking water, outdoor recreation, wildlife habitat, agriculture, and flood resilience. The protection of water resources depends on coordinated land management, especially in riparian corridors, agricultural lands, and upland forests, which influence both water quality and the severity of flood events. Intense rain events increase road washouts, streambank erosion, and property damage. These effects disproportionately harm those in mobile homes,

floodplains, or communities with limited resources to repair and rebuild. Additionally, extreme storms and runoff degrade water quality, posing risks for residents on private wells or failing septic systems, especially in remote areas where testing and mitigation are harder to afford. *Detailed information about regional flooding can be found in the Flood Resilience chapter.*

Water resources are typically thought of in an ecological or recreation sense, but with hotter summers raising the risk of heat-related illnesses—especially for seniors, low-income households without air conditioning, people with disabilities, and those living in older or poorly insulated housing—the cooling effect of our water resources can play an important role. Improving access to the multitude of water resources in the NEK will provide community members with a place to cool down during the increasingly hot summer months.

Invasive Aquatic Species: A Growing Threat to NEK Water Habitats

Invasive aquatic species such as zebra mussels, purple loosestrife, Japanese knotweed, and Eurasian watermilfoil reduce biodiversity and undermine habitat function. Without natural predators, they spread rapidly, choking wetlands, degrading water quality, and displacing native vegetation and wildlife. Managing invasives requires community-based education; early detection and response; and aquatic invasive transportation prevention, especially around high-use waterbodies like Lake Memphremagog and Lake Willoughby.



Figure 6. Eurasian Watermilfoil (top) and Zebra Mussels (bottom).

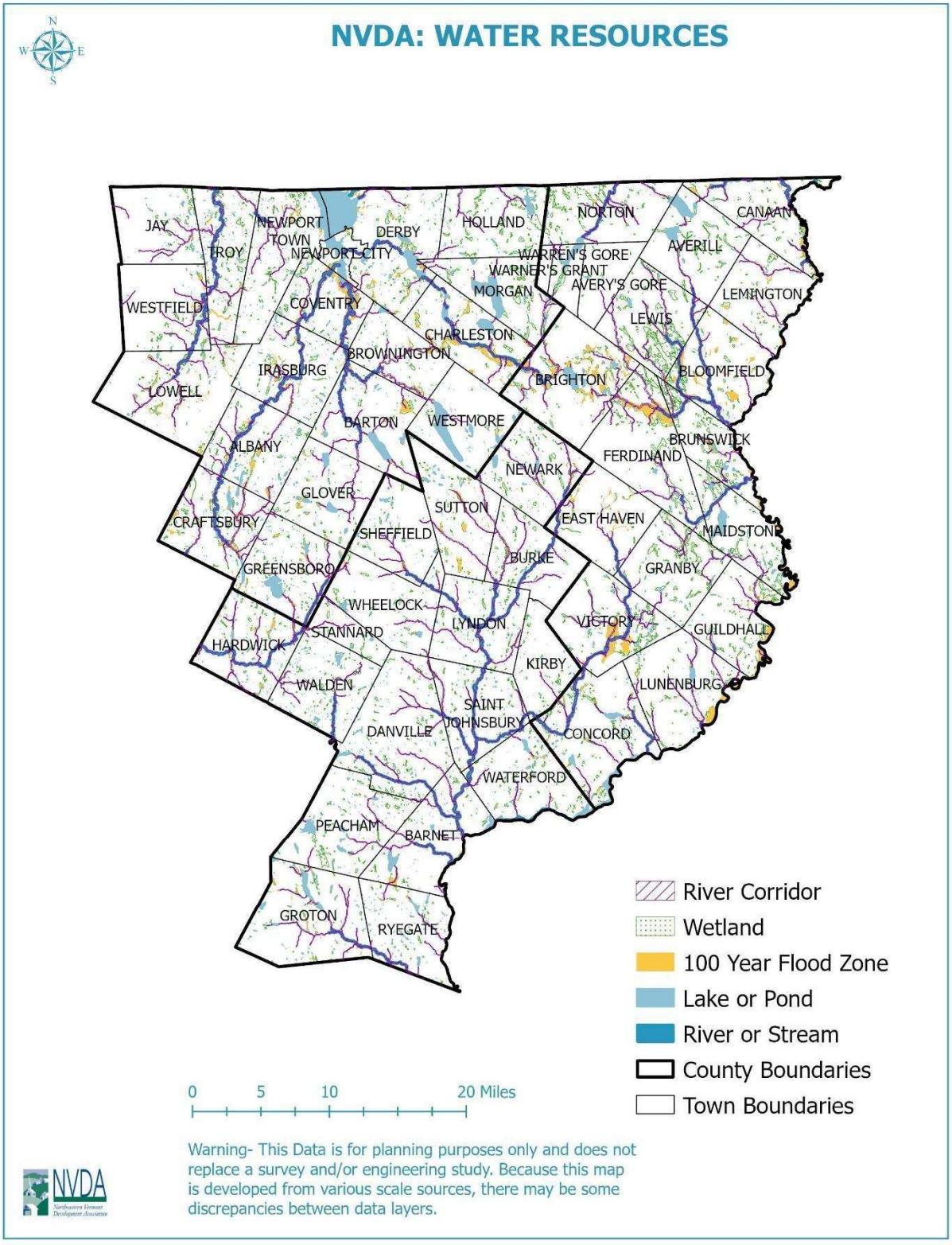


Figure 7. Water resources in the NEK.

Regional Policies & Priorities

The Northeast Kingdom's natural and scenic resource wealth is central to its identity, economy, and long-term resilience. NVDA is committed to the following regional policies, strategies, and partnerships to ensure that land, water, air, and ecological systems are not only protected, but actively managed to benefit current and future generations.

- Provide technical assistance to municipalities for land use planning, zoning updates, and natural resource inventories.
- Coordinate with state agencies, conservation districts, watershed groups, and land trusts to align local planning with state goals and basin plans.
- Develop model bylaws and overlay districts that incorporate mapped ecological, agricultural, and water resource features.
- Facilitate regional workshops and training on climate adaptation, natural resource protection, and sustainable land use.
- Promote inter-town and cross-border coordination for protecting regionally significant habitats and working lands.
- Track and share data on natural resource conditions, land use trends, and conservation outcomes to inform adaptive planning.
- Support conservation strategies that maximize ecological function of the region's highest priority interior forest blocks and corridors.
- NVDA supports balancing conservation priorities with the needs of a sustainable tax base. If proposed conservation through direct acquisition will put the percentage of directly conserved land in a municipality above 30 percent, NVDA will not support the acquisition unless approved by the voters of the municipality. Any subsequent proposals to directly conserve additional land in that municipality would also need voter approval before receiving support from NVDA.

Goals, Objectives, & Strategies

Goal 1: Conserve and Enhance the Northeast Kingdom's Natural Heritage

Protect the region's forests, waters, working lands, and ecological systems through voluntary conservation, informed planning, strengthened local capacity, and strong regional-municipal partnerships while supporting compact development, rural character, and community resilience.

Objective: Support the Identification and Protection of Significant Natural Areas

- Promote the use of Vermont Conservation Design, natural resource inventories, and regional datasets to identify wetlands, river corridors, forest blocks, wildlife corridors, and headwater areas.
- Encourage the incorporation of mapped ecological features into local plans, zoning bylaws, site review processes, and Act 250 proceedings.
- Assist local conservation commissions and planning commission with innovative mapping practices such as Community Values Mapping and iNaturalist.

- Assist towns in protecting high-value resources through overlays, conservation districts, and local ordinances that balance conservation and development.
- Encourage protection and restoration of riparian corridors and vegetation buffers as essential components of ecological health and flood resilience.

Objective: Maintain Forest and Habitat Connectivity Across the Region

- Encourage land use practices and planning that reduce forest fragmentation and support contiguous habitat.
- Coordinate across town and watershed boundaries to identify and prioritize important forest blocks and habitat linkages.
- Promote conservation tools such as easements, current use enrollment, and development rights transfers.

Objective: Promote Sustainable and Climate-Smart Forestry

- Support landowners and foresters in implementing practices that maintain ecological health, water quality, carbon storage, and long-term forest productivity.
- Encourage enrollment in programs that provide incentives for forest stewardship and carbon sequestration.
- Assist communities in planning for forest-based recreation and wood product economies that respect conservation goals.

Goal 2: Protect and Improve Water Resources and Watershed Health

Encourage coordinated watershed planning, local action, and education to protect surface and groundwater quality, aquatic ecosystems, and community drinking water supplies.

Objective: Align with Statewide Water Quality Goals

- Support municipal alignment with Tactical Basin Plans and Clean Water Act objectives.
- Promote regional awareness of water quality standards and non-regulatory tools for meeting them.

Objective: Conserve Riparian Buffers, Wetlands, and Floodplains for Water and Climate Resilience

- Encourage towns to adopt riparian vegetated buffer standards and consider stream setbacks in land use regulations.
- Promote conservation of wetlands, headwaters, upland forested areas, and floodplains to reduce flood risks and improve habitat.
- Discourage development in flood-prone and high erosion-risk areas through planning and education.
- Support conservation and landowner engagement in protecting riparian buffers and watersheds that contribute to floodwater storage, runoff reduction, and drinking water health.

Objective: Support Water Stewardship and Public Education

- Partner with local watershed groups, lake associations, and nonprofits on monitoring and restoration projects.
- Promote septic maintenance awareness, stormwater management, and erosion control.
- Support public education on watershed health and best practices for landowners.

Goal 3: Advance Climate Resilience and Air Quality Protection

Help communities prepare for climate impacts and reduce air pollution by promoting nature-based solutions, clean energy use, and sustainable development patterns.

Objective: Promote Climate-Smart Land Use and Conservation

- Encourage conservation of elevational gradients (ecosystems unique to specific elevations), large forest blocks, and climate-resilient landscapes.
- Promote climate-resilient land use by encouraging working land practices that reduce runoff, protect water-absorbing soils, increase infiltration in cropland soils, and offer carbon-storage functions.
- Support municipalities in integrating natural systems approaches into local hazard mitigation plans, especially protecting land that provides flood mitigation functions.

Objective: Reduce Emissions and Improve Air Quality

- Promote cleaner residential heating technologies and efficiency upgrades, particularly replacing old wood stoves and outdoor hydronic heaters.
- Encourage alternatives to single-occupancy vehicle travel, such as improved public transit, ridesharing, and compact village development.
- Support sustainable forestry as a carbon sink and air quality benefit.

Goal 4: Promote Outdoor Recreation, Scenic Resources, and Environmental Stewardship

Foster recreation, public access, and environmental education that support local economies while protecting the region's scenic beauty and ecological integrity.

Objective: Develop and Maintain Conservation-Aligned Recreation Infrastructure

- Assist communities in planning trails, parks, and recreation facilities that avoid ecologically sensitive areas.
- Promote recreation projects that align with long-term conservation goals and habitat protection.

Objective: Preserve Scenic and Cultural Landscapes

- Support town-level inventories of scenic viewsheds, historic landscapes, and natural landmarks.
- Encourage scenic protection through local planning and land use tools.

Objective: Strengthen Environmental Education and Public Engagement

- Partner with schools, libraries, and community groups to support the delivery of place-based environmental education.
- Promote citizen science, volunteer programs, and local stewardship of natural areas.

Goal 5: Manage and Prevent Invasive Species

Encourage coordinated prevention and long-term management of terrestrial and aquatic invasive species to protect ecosystem health and economic resources.

Objective: Foster Regional Collaboration on Invasive Management

- Coordinate with state agencies, local commissions, and associations to support invasive species monitoring and rapid response.
- Assist towns in identifying priority areas for control and restoration.

Objective: Expand Public Awareness and Prevention Efforts

- Promote identification, reporting, and prevention practices for landowners, recreational users, and landscapers.
- Encourage native species use in restoration, landscaping, and reforestation projects.

Goal 6: Support Equitable Access to Natural Resources and Community Resilience

Ensure that the benefits of clean air, water, forests, and farmland are available to all residents of the Northeast Kingdom—especially those most affected by environmental challenges. Recognize and address how climate impacts, natural hazards, and limited access to land and infrastructure affect public health and quality of life for vulnerable populations.

Objective: Recognize and Respond to Local Environmental Vulnerabilities

- Encourage towns to consider how flooding, heat, wildfire smoke, and road damage affect residents with limited mobility, low incomes, or health risks.
- Support outreach and education on well water testing, septic maintenance, and flood preparedness in rural areas with aging infrastructure.
- Coordinate with local emergency planning and public health efforts to address climate-related risks to vulnerable populations.

Objective: Promote Access to Clean Water, Green Space, and Healthy Land

- Encourage communities to maintain and expand public access to rivers, trails, and outdoor spaces that support recreation, health, and community gathering.
- Support community efforts to protect drinking water sources, manage erosion, and reduce runoff into lakes and streams.
- Promote land conservation and small-scale food production projects that improve access to local food and shared open space.
- Support shared land access models that allow new and small-scale producers to maintain open land for food production and flood resilience.

Objective: Build Local Stewardship and Community Engagement

- Support environmental education programs that engage youth, seniors, and underserved residents in land and water stewardship.
- Partner with conservation commissions, schools, and local organizations to increase awareness of natural resource issues and opportunities for volunteer action.
- Encourage inclusive community input on natural resource decisions by using accessible meeting formats and outreach methods.

Community Resources

- Vermont Agency of Natural Resources. *Wetland Inventory and Function Maps*. 2020.
- Vermont Fish & Wildlife Department. *State Wildlife Action Plan* - https://www.vtfishandwildlife.com/about-us/budget-and-planning/wildlife-action-plan
- Vermont Center for Geographic Information (VCGI). *Natural Resources Atlas*. 2023.
- Vermont Natural Resources Council: In addition to the Vermont Parcelization Database (https://vtforesttrends.vnrc.org/home) VNRC has a Smart Growth toolkit for common challenges such as preserving viable working forests: https://vnrc.org/
- Vermont Biofinder and Vermont Conservation Design: A mapping tool that identifies features at the landscape and community scale that are important for maintaining an ecologically functional landscape. https://anr.vermont.gov/maps/biofinder/creating-and-design
- Vermont County Forester Program: Regional resources for technical assistance in forest management and stewardship, as well as guidance to Vermont's Use Value Appraisal Program (aka "Current Use.") https://fpr.vermont.gov/CountyForesters
- Northern Forest Center: Provides programming and funding to tie economic vibrancy to the forested landscape. https://northernforest.org/
- VT Urban and Community Forestry: Provides educational, technical, and financial assistance to support urban and community forestry statewide. https://vtcommunityforestry.org/
- Working Lands Enterprise Initiative: Provides grants to working lands entrepreneurs and technical assistance organizations who work with entrepreneurs. https://workinglands.vermont.gov/
- Vermont Farm & Forest Viability Program: Provides technical assistance to eligible Vermont farm, food, forest, and other agriculturally related businesses, as well as forest landowners. https://vhcb.org/farm-forest-viability/
- Association of Vermont Conservation Commissions: Supports conservation efforts at the municipal level. https://vtconservation.com/

Watershed Health & Flood Resilience

The health of our watershed and the overall resilience of our communities are inextricably linked. Too little precipitation falls on our watershed, and communities and agricultural economies suffer. Too much precipitation on our watershed, and floodwaters rage, dumping pollutants, soils, and aquatic invasives into our streams. While we have experienced both drought and flooding in recent years, flooding is by far the most significant natural hazard our region faces. The topography of our watersheds, particularly the steep mountainous terrain punctuated by narrow developed valleys, often exacerbates flash flooding.

Our climate is getting warmer and wetter, and the Northeast Kingdom (NEK) has become exceptionally vulnerable to flooding. According to the Vermont Climate Assessment (2021), our region has experienced the largest increase in annual average precipitation since the early 1900s – 26 percent, representing 9.1inches. While conventional wisdom often cites the "spring thaw" as a significant flood risk period, annual summer precipitation is actually rising at the fastest rate. Ironically, this report predates the devastating July 10 floods of 2023, 2024, and 2025.

For decades, our region's overarching strategy has been at the municipal level through participation in the National Flood Insurance Program (NFIP), which allows residents and property owners to obtain flood insurance. Obviously, flood insurance is vital, but reliance on the NFIP's minimum standards – which are designed to protect the value of the insured structure, not the ecological function of the watershed – is insufficient. We need a watershed approach to floodplain management that incorporates No Adverse Impact principles into development standards and prioritizes the protection of natural floodplain protection.

Key challenges discussed in this chapter include the historic loss of wetlands, which are a finite, at-risk resource; pollution and sedimentation; erosion from steep slopes and road networks, and aging infrastructure. Improving flood resilience is a complex issue and necessitates a similarly complex strategy to implement change. NVDA supports a multi-faceted approach including regulatory changes, infrastructure upgrades, and hydrological studies that support science-based solutions. And, perhaps most importantly, we support comprehensive public education and outreach coordinated with our watershed partners to bring about meaningful change in our approach to mitigating future flood risks.

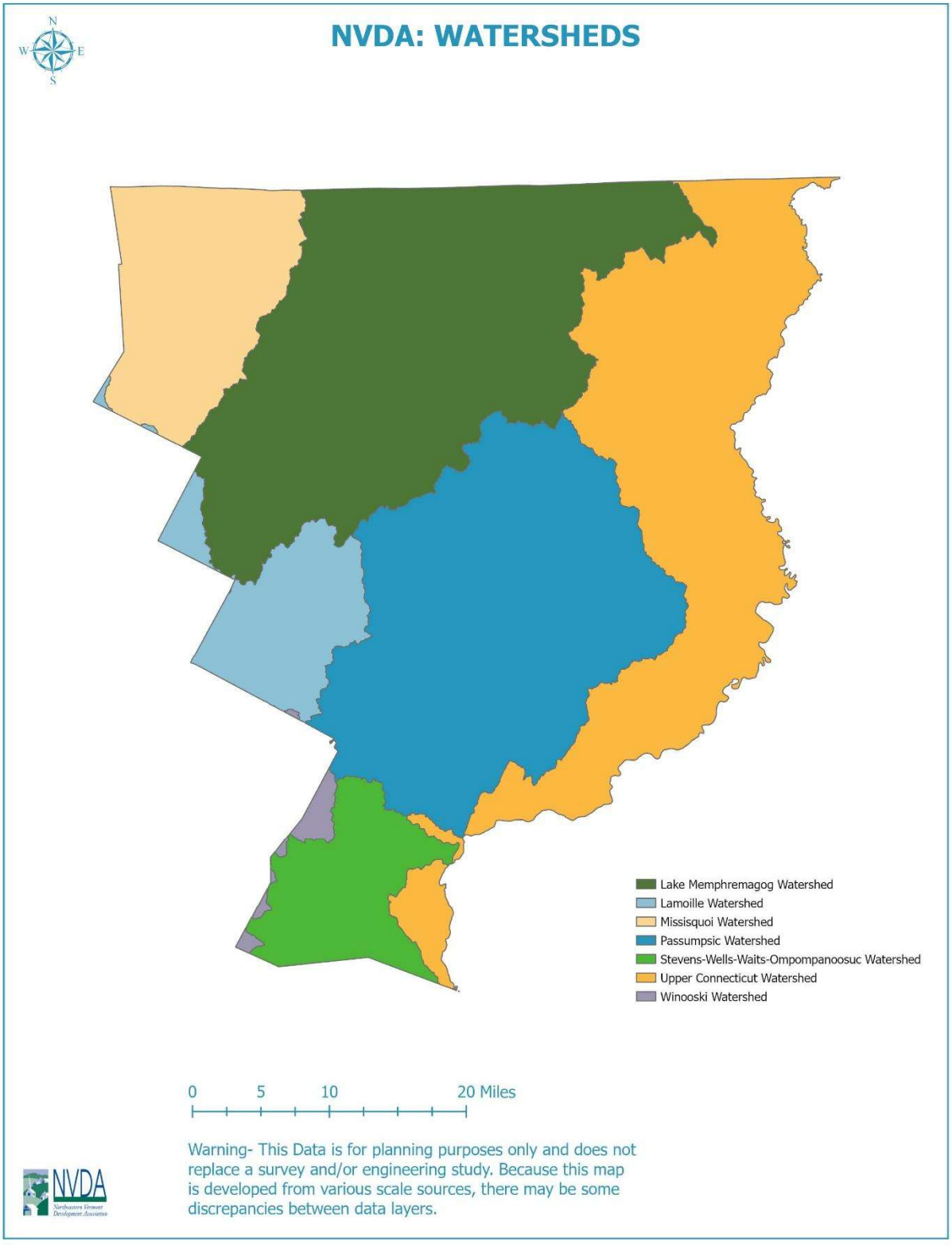


Figure 1. Watersheds that make up the NEK.

Key Takeaways & Existing Conditions

Flooding is the most common and most expensive natural hazard we face.

Vermont has a long and complicated history with flooding. Traditional centers of development, commerce, and industry have followed waterways, leaving us particularly vulnerable to damage from flooding. The earliest known floods date to the mid-19th century, and the Great Flood of 1927 was the deadliest, with 84 casualties statewide. While The Nature Conservancy estimates the average cost of a flood to be about $30M, damages from the back-to-back floods of July 2023 and 2024 were staggering. In the NEK, public assistance damages from the July 2023 flood exceeded $22M. This figure does not include requests for individual assistance, nor does it include losses to some critical facilities like the Hardwick wastewater treatment plant or fire station. Public assistance damages to NEK communities for the July 2024 flood (DR4810) were about $9.4M.

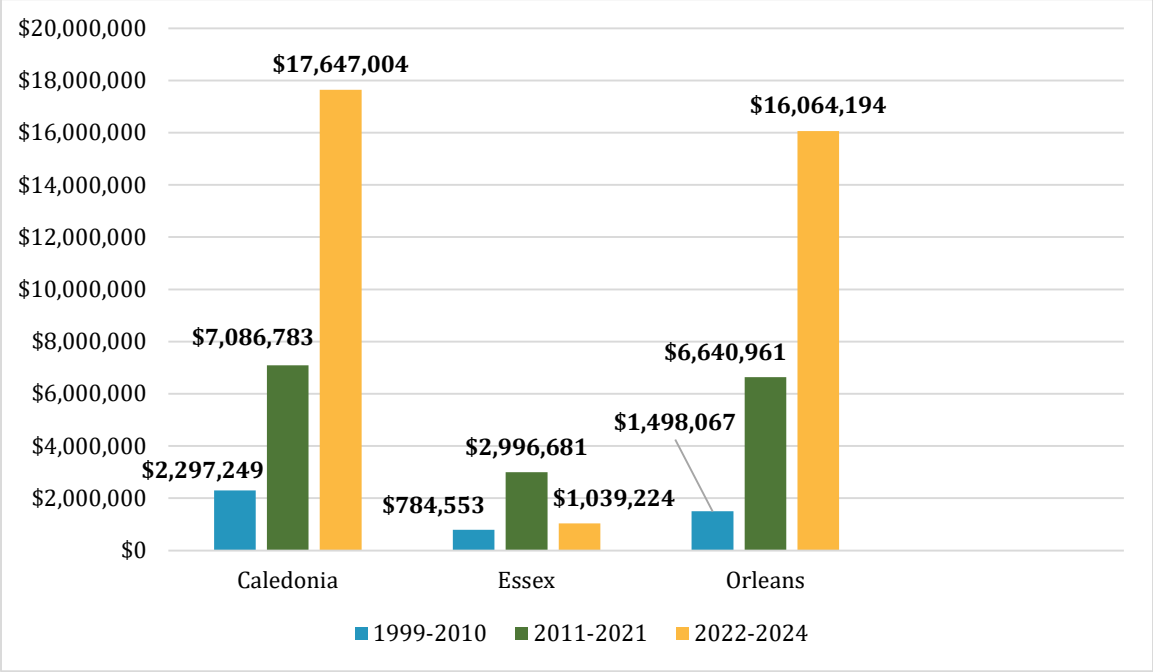


Figure 2. Public disaster damages from Federal Disasters Flood Declarations, 1999 to present. Source: Open FEMA, public assistance projects only.

The July 2025 storm did not result in a federal disaster declaration, despite our region experiencing more than $2M in damage to infrastructure, with more than half of those damages concentrated in the Town of Sutton alone. The Towns of Burke, Wheelock, Sheffield, and Sutton are now struggling to bear the financial impact. Recent changes to FEMA may mean fewer federal relief resources. Municipalities may have to begin building reserve funds for future disasters.

Natural defenses are critical for watershed health and flood resilience.

"Spread it, slow it, sink it," the mantra coined in the 1990s to describe best practices in stormwater management, is also highly relevant to flood resilience measures at the watershed level. Land use

patterns in upland and adjacent areas contribute to flood risk across the watershed. Unregulated upland areas, particularly forested land cover, play a critical role in storing water, slowing runoff, and reducing downstream flood severity. These landscapes, while not always protected by existing regulations, contribute significantly to watershed resilience and should be considered in local and regional strategies to minimize flood exposure. Floodplains, wetlands, upland forests, and riparian buffers naturally reduce flood damage by absorbing water, slowing runoff, and preventing erosion. These finite systems are irreplaceable and must be preserved, not degraded or fragmented. Reforesting streambanks, restoring wetlands, and protecting uplands not only reduce flood risk, but also enhance biodiversity, climate adaptation, and quality of life. *See Water Natural Resources Chapter for more information on the interplay between water and other natural resources.*

Floodplains

Floodplains are the areas adjacent to streams that receive floodwater when the water levels exceed bank capacity. They reduce the intensity and frequency of floods and help to reduce downstream damage. They also provide significant opportunities for groundwater recharge and provide exceptional natural aquatic and terrestrial habitat. Deposition of sediment in floodplains has contributed to some of our region's richest agricultural soils.

The absence of private-market flood insurance was the driving force behind the establishment of the National Flood Insurance Program. To participate, municipalities have to regulate development in floodplains with a 1 percent chance of becoming inundated in a flood in any given year. FEMA has produced floodplain maps that have served as a basis for regulating development. By adopting regulations that meet FEMA's minimum standards, our municipalities have been able to participate in the National Flood Insurance Program, allowing property owners to purchase flood insurance.

Wetlands

Wetlands in the NEK are diverse and widely distributed—bogs, fens, marshes, and wooded swamps are common across the region. These systems provide a range of ecological services, including water filtration and nutrient retention, flood mitigation, wildlife habitat, and recreational and educational value.

Vermont's Wetland Rules classify wetlands into Classes I, II (significant and protected), and III. Nearly every municipality in the region contains wetlands designated as Class II or higher. Land development and drainage historically reduced wetland coverage by nearly 50 percent; continued preservation is critical. Wetlands are protected under both **Act 250** and municipal zoning, with mapping and classification layers available on the Vermont Natural Resources Atlas. Buffer zones between agricultural uses and surface waters also provide essential functions for both flood mitigation and water quality.

The loss of wetlands and overdevelopment near waterways exacerbate flood risks. The Vermont Department of Fish and Wildlife estimates that nearly half of our historic wetlands have been lost or impaired due to dredging or draining for agriculture or development. Since 1995, the estimated rate of regulated wetlands loss has been about 20 acres a year. (Vermont Natural Resources Council) Wetlands are essential for absorbing floodwaters, reducing erosion, and filtering pollutants, but replacement is expensive and often infeasible, making preservation and restoration critical.

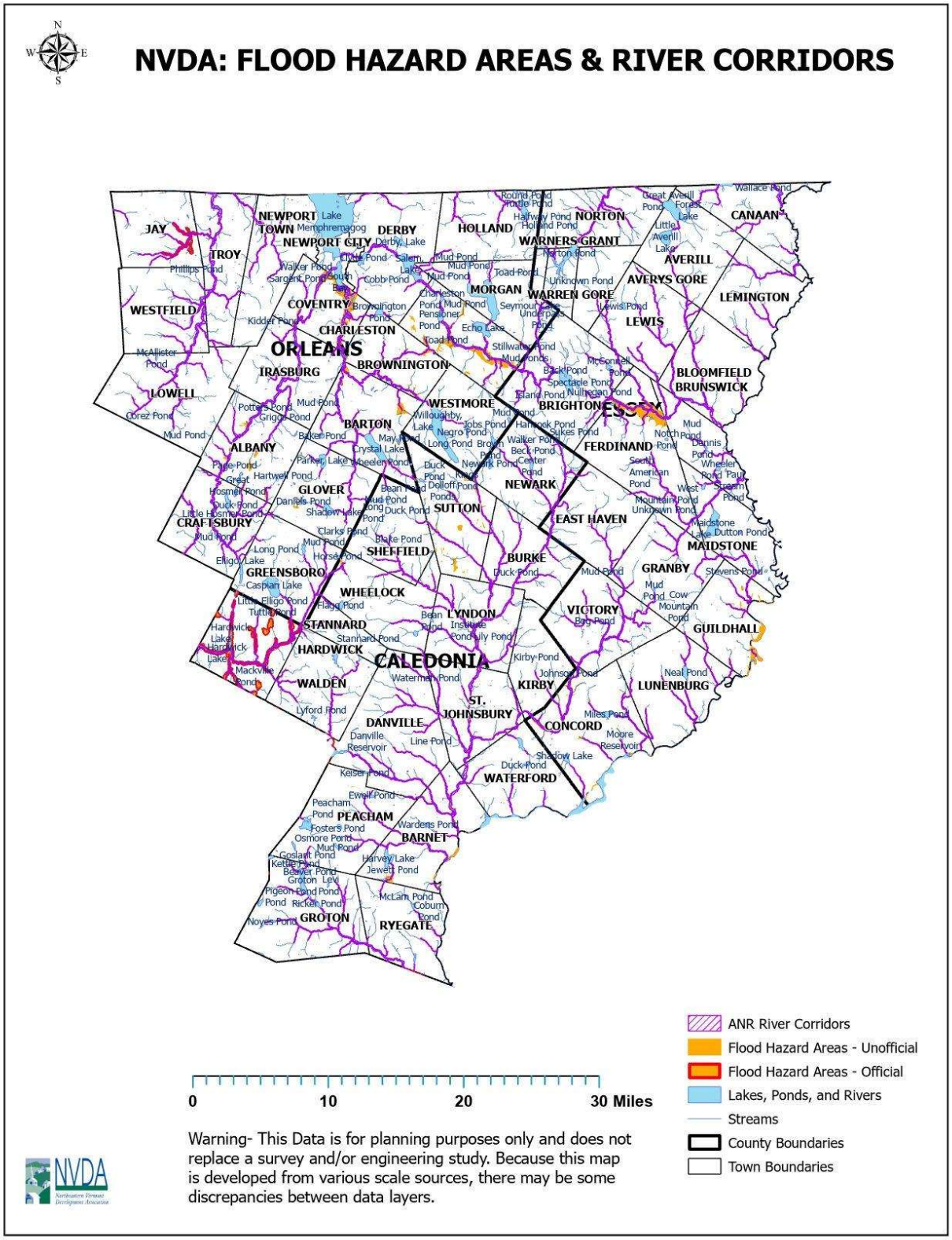


Figure 3. Flood hazard areas and river corridors.

River Corridors

According to the Vermont State Hazard Mitigation Plan, about 75 percent of monetary flooding damages are attributed to erosion of riverbanks as our streams attempt to reclaim their equilibrium. **Maintaining the meander path of a river is therefore our most critical flood resilience strategy.** Rivers need to meander to maintain their natural and stable equilibrium. Ongoing erosion and deposition create bends in a river, forming a snake-like formation that helps to lengthen the transport distance of the waters, reducing floodwater velocities, and maintaining access to adjacent floodplains.

For the past two centuries, Vermonters have been engaged in an ongoing battle with rivers, dynamiting, berming, dredging, and straightening them to protect development, agriculture, industry, and commerce. These efforts ultimately fail. A straightened path is also a shorter path that increases the slope and velocity of the stream channels, often causing them to become incised and disconnected from the floodplain. That increased water pressure ultimately causes banks to erode, sometimes gradually, but often in a single flood event.



Figure 4. Carter Road in East Burke, July 2025, courtesy of VT Dept of Environmental Conservation.

In our region, there are at least 657 miles of streams with "artificial paths" indicative of historic efforts to straighten, berm, or riprap. (See map)

The delineation of river corridors is helping us make room for rivers. "River corridors" are actually defined in statute, as the "land area adjacent to a river that is required to accommodate the dimensions, slope, landform, and buffer of the natural stable channel and that is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition". Streams with a drainage of more than two square miles are mapped by the Agency of Natural Resources. These areas include the minimal area of "wiggle room" to accommodate lateral movement of the stream channel, plus a 50-foot buffer for streambank stabilization. Smaller streams have not been mapped, but it is assumed that a 50-foot buffer on either side of the stream should be sufficient.



Figure 5. This figure shows the minimum space allowed for lateral movement of the stream channel that can occur over time, plus a 50-foot vegetation buffer delineated for streambank stability. Source Flood Ready Vermont.

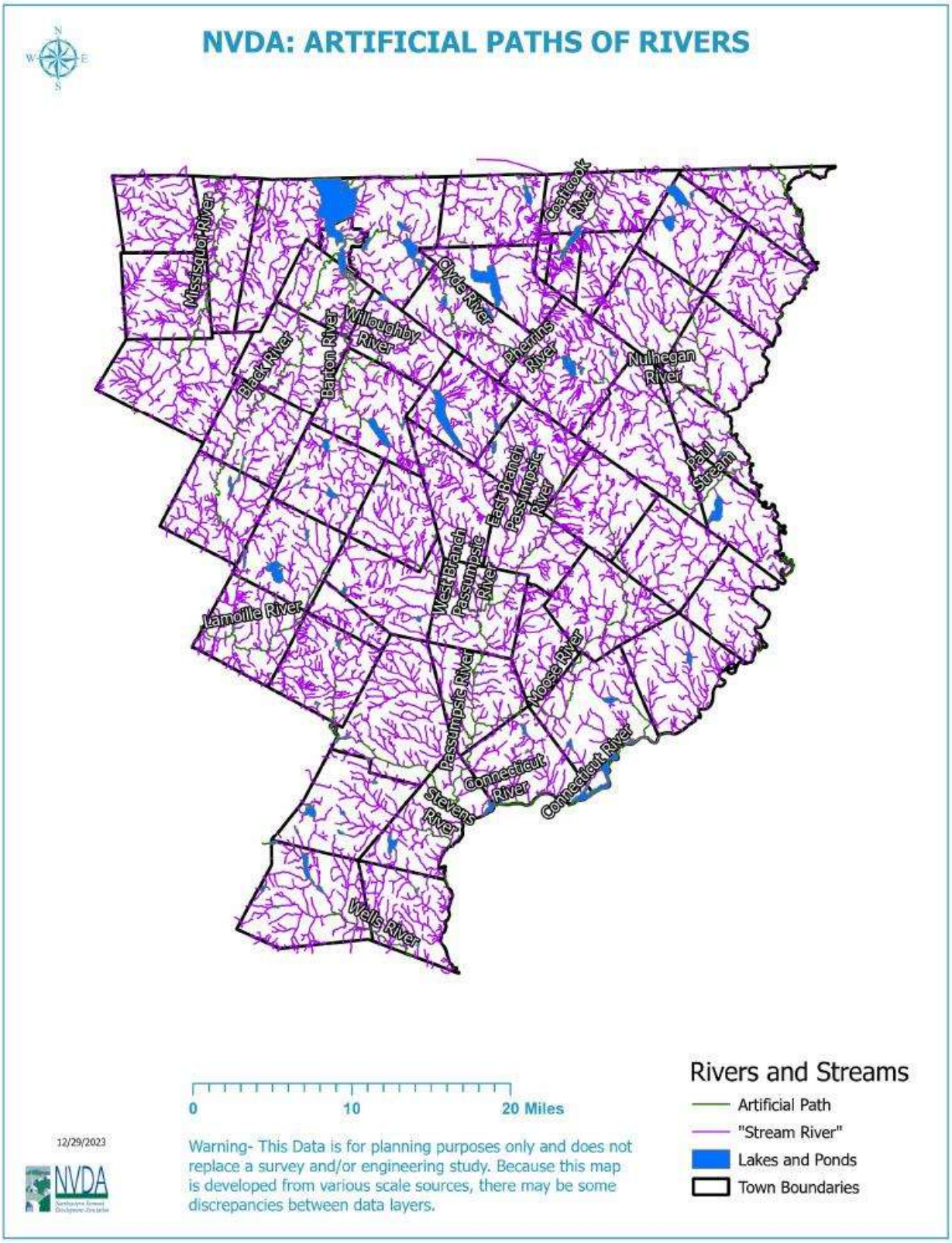


Figure 6. Artificial Paths of Rivers and Streams

DANCE IS THE MOST EFFECTIVE FLOOD MITIGATION STRATEGY.

The best way to avoid flood related losses is to keep new development out of flood prone areas. From a local policy standpoint, this means no new encroachments into floodplains (inundation hazards) or river corridors (erosion hazards). Any standards for "new" development would therefore pertain solely to repairs to substantially damaged structures. For damaged structures in an inundation hazard area, for example, remediation may entail elevation or floodproofing. However, many of our highest risk areas are erosion-related and are located outside of FEMA mapped floodplains. No degree of elevation or floodproofing will protect a structure from fluvial erosion. In this instance, if relocation of a structure on a less erosion-prone area is not possible, rebuilding should at the very least occur no closer to the top of the bank than what is already there.

Despite our best intentions for future development, many structures already exist in high-risk areas. Voluntary property acquisitions (aka "buyouts") therefore remain our region's core mitigation strategy. It's a relatively simple concept in theory: The owner sells the distressed property to a local government, who then agrees to convert the property into greenspace, wetland, or some other form of natural flood protection, thereby breaking the cycle of repeat flooding. In reality, the process may require considerable coordination and is entirely dependent on the availability of funding. If funding is available, the buyout process may take several months to a year. What's more, the process can be politically fraught: Property owners may be unwilling to sell or relocate, and local governments may be fearful of reducing the tax base. (Pew Charitable Trust 2021) To address the latter concern, the Vermont Department of Taxes recently established a tax stabilization program for flood-damaged town-acquired properties.

POLLUTION SOURCES & MITIGATION

It's important to view our region's flood resilience assets through the broader lens of water quality. Rivers in their natural state of equilibrium are able to remain connected to floodplains and wetlands, allowing for the attenuation of nutrients and sediment load. Conversely, unstable rivers contribute to downstream pollution, as seen in this photo, taken by a NASA satellite one week after Tropical Storm Irene.

Our historic approaches to channel management (like dredging and straightening) have resulted in extensive streambank instability. To heal, a stream must reestablish equilibrium through a complex sequential process of downcutting and aggrading. The majority of our streams are currently in some phase of channel incision or bank failure. (The Nature Conservancy) While a high-flow storm event might expedite this process, stream re-stabilization can take years – or even centuries – to occur.

Runoff from poorly maintained dirt roads, aging septic systems, and non-point agricultural and urban sources transport nutrients, heavy metals, PFAS, and pathogens into waterways. These pollutants degrade water quality and compound the impacts of flooding. The infrastructure that supports these systems—roads, culverts, and wastewater systems—was not built to handle today's climate-driven storm intensity and is increasingly vulnerable to failure.



Figure 7. Downstream pollution from Tropical Storm Irene. Photo curtesy of NASA.

Water pollution in the NEK stems from a mix of **point** (e.g., leaking tanks, failing septic systems) and **non-point** sources (e.g., fertilizer runoff, erosion). Both types of pollution are exacerbated by flooding. The Connecticut River Joint Commissions highlight that aquifer contamination often occurs far from the pollution source due to subsurface water movement. Local strategies include:

- Promoting **Best Management Practices (BMPs)** for agriculture, forestry, and construction, including practices that also contribute to flood mitigation (e.g., cover cropping, no-till, and riparian buffers),
- Educating landowners on proper **septic system** care,
- Supporting funding for **agricultural water quality programs**, and
- Preventing inappropriate development in **sensitive recharge areas**.

The region's surface water quality is assessed biannually, with impaired waters tracked through a statewide database. Major threats include:

- Agricultural runoff (addressed through local BMPs and basin planning),
- Stormwater from roads and development (regulated under the Municipal Roads General Permit since 2018),
- Increased severity of flooding that can transport invasive species, increase sedimentation, and increase risk of contamination,
- Failing septic systems, and
- Atmospheric deposition of mercury and PFAS/PFOA (requiring federal and multistate coordination).

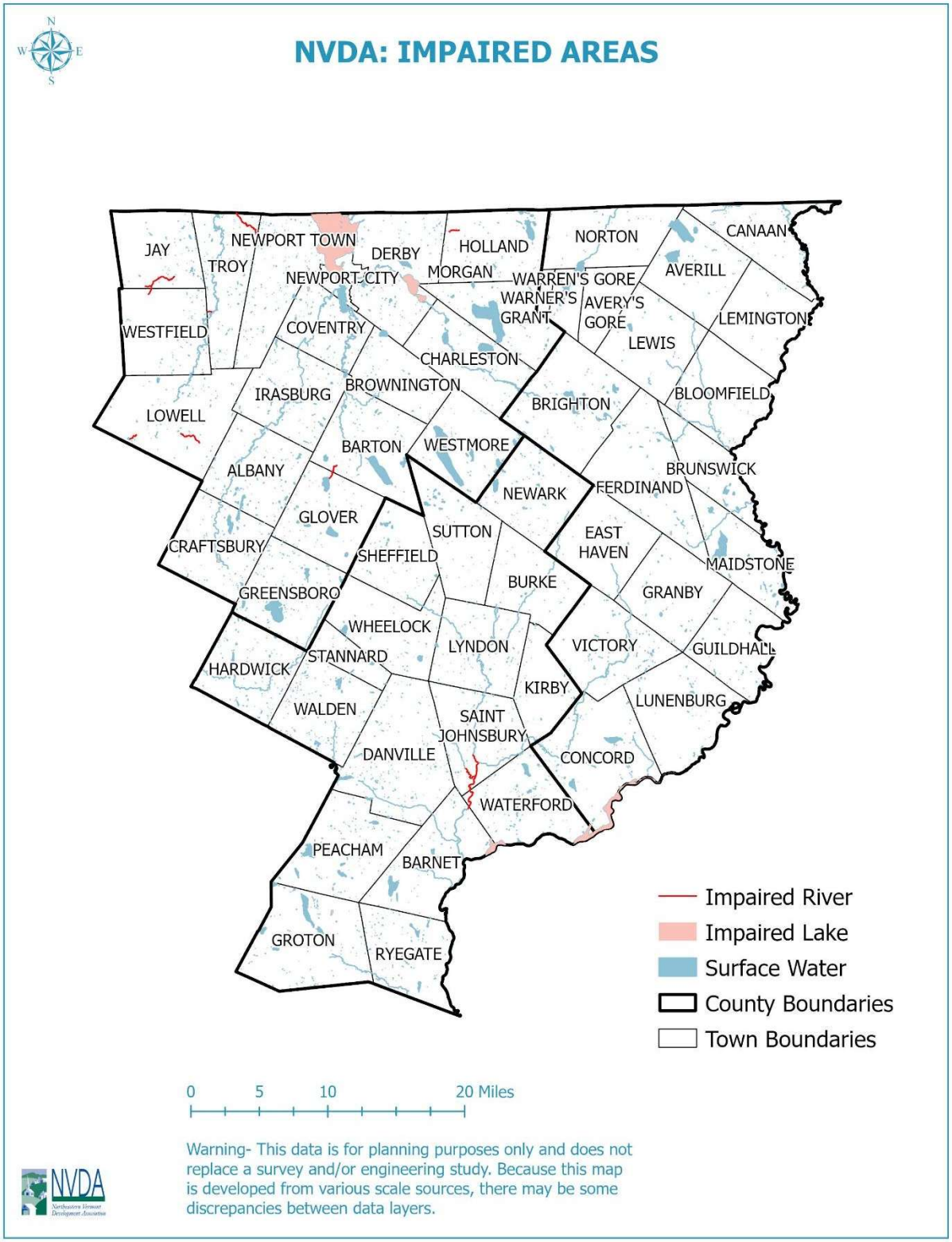


Figure 8. Map of impaired waterways.

Surface Water Quality & Management

Vermont's surface waters are classified by the Department of Environmental Conservation (DEC) into Class A or Class B, with subcategories reflecting use and ecological protection goals. All waters above 2,500 feet are designated Class A(1) (natural condition), while Class A(2) waters are managed for public water supply. Most waters in the NEK are Class B, suitable for swimming, fishing, and drinking (with treatment) (VT DEC, 2023).

Waterway	Type	Town	County
Harvey's	Lake	Ryegate, Barnet	Caledonia
Red Brook 0.2, 1.2	River	Peacham, Groton	Caledonia
Coles	Lake	Stannard, Walden	Caledonia
Caspian	Lake	Greensboro	Orleans
5 Rich Brook 0.1	River	Maidstone	Essex
Maidstone	Lake	Granby, Ferdinand, Maidstone	Essex
West Branch Moose River 0.1	River	East Haven	Essex
Shadow	Lake	Glover	Orleans
Calendar Brook Tributary 22 0.4	River	Sheffield	Caledonia
Newark	Lake	Westmore, Newark	Caledonia, Orleans
Shalney Branch 1.3	River	Albany Village, Albany, Lowell	Orleans
Willoughby	Lake	Brownington, Sutton, Westmore	Caledonia, Orleans
Echo	Lake	Holland, Charleston, Morgan	Orleans
Seymour	Lake	Holland, Charleston, Morgan	Orleans

Figure 9. Rivers and lakes throughout the region that are Class A(1) Candidates.

A small subset of NEK waters is classified as Outstanding Resource Waters (ORWs) due to their exceptional ecological, cultural, or scenic value. These classifications guide development, permitting, and conservation efforts in municipal and regional plans.

Groundwater needs protection too. Most NEK residents rely on wells or small water systems. Flooding can mobilize contaminants from septic systems, fuel tanks, and runoff—posing long-term threats to drinking water and public health. Prevention through planning is far more affordable than remediation. *More information on groundwater as it pertains to drinking water can be found in the Utilities and Facilities chapter.*

Act 121 is taking a watershed approach to flood resilience.

The region has long relied on participation in the National Flood Insurance Program (NFIP) to address flood resilience. Participation in the program – which occurs at the municipal level – requires the enforcement of local flood hazard regulations. Participation allows property owners

and renters to purchase flood insurance. Under the minimum standards set by FEMA, the NFIP is largely focused on minimizing damage to the insured structure. Development needs to be secured, anchored, and free from flotation to prevent downstream damage. New construction in the floodplain needs to be outside of the floodway, where the waters run the deepest and fastest and elevated to a certain height. Elevation generally entails filling floodplains, and the standards do allow for a certain amount of fill as long as the collective increase does not exceed one foot. Nevertheless, a one-foot increase in flood levels can have devastating implications for downstream communities.

Act 121, aka The Flood Safety Act, takes a watershed approach to minimizing flood risk. The legislation, which will become effective in 2028:

- Establishes state regulations of proposed development in mapped river corridors. Streams with a drainage of 2 square miles or greater will fall under state jurisdiction, and municipalities will have the opportunity to seek local delegation.
- Sets higher standards for local flood hazard regulation that incorporate No Adverse Impact principles, such as no net loss of floodplain storage. While new standards are currently in development, it's likely that they will reflect the standards in the model bylaw developed by the Vermont Department of Environmental Conservation.
- Increases floodwater storage by establishing a "net gain" rule of 2:1 for wetland restoration to wetland loss.
- Improves dam safety through increased oversight and maintenance requirements.

Successful implementation will rely heavily on extensive public outreach and education, which has already begun through the Nature Conservancy and the Lake Champlain Sea Grant. The regional planning commissions, including NVDA, will support these initiatives.

DAM REMOVALS CAN IMPROVE WATERSHED HEALTH AND FLOOD RESILIENCE.

Act 121 prioritizes dam safety and oversight, including strategic removal of obsolete structures. Vermont has more than 1,000 dams statewide, most of which are privately owned. Many date back to the 19th century, when they were used to power grist mills, sawmills, and factories. While these structures may have historic and aesthetic value for some, they also pose significant water quality and flood resilience risks. They block the passage of fish and wildlife. Given the deterioration of many of these aging structures, they pose a risk of failure in an intense storm, endangering both people and property downstream. The region has seen the removal of about a dozen dams since the 1990s, thanks to cooperative efforts of groups such as Connecticut River Conservancy, Vermont Land Trust, the Department of Environmental Conservation, and the region's Natural Resource Conservation Districts. Recent dam removals include the Sleepers Pond Dam in Newport and the Wyoming Paper Company Dam in Guildhall. The Caledonia County Natural Resources Conservation District is currently supporting a feasibility study for the removal of Jackson Dam in Hardwick.

While dam removal has proven benefits, it remains a complex issue in the NEK. To ensure removal projects support, rather than alienate, communities, regional implementation must:

- Prioritize community engagement and education about the risks and benefits of individual dam removals;
- Incorporate hydrologic assessments that take local flood behavior into account;

- Consider alternative risk mitigation strategies where dam removal is not feasible or broadly supported.

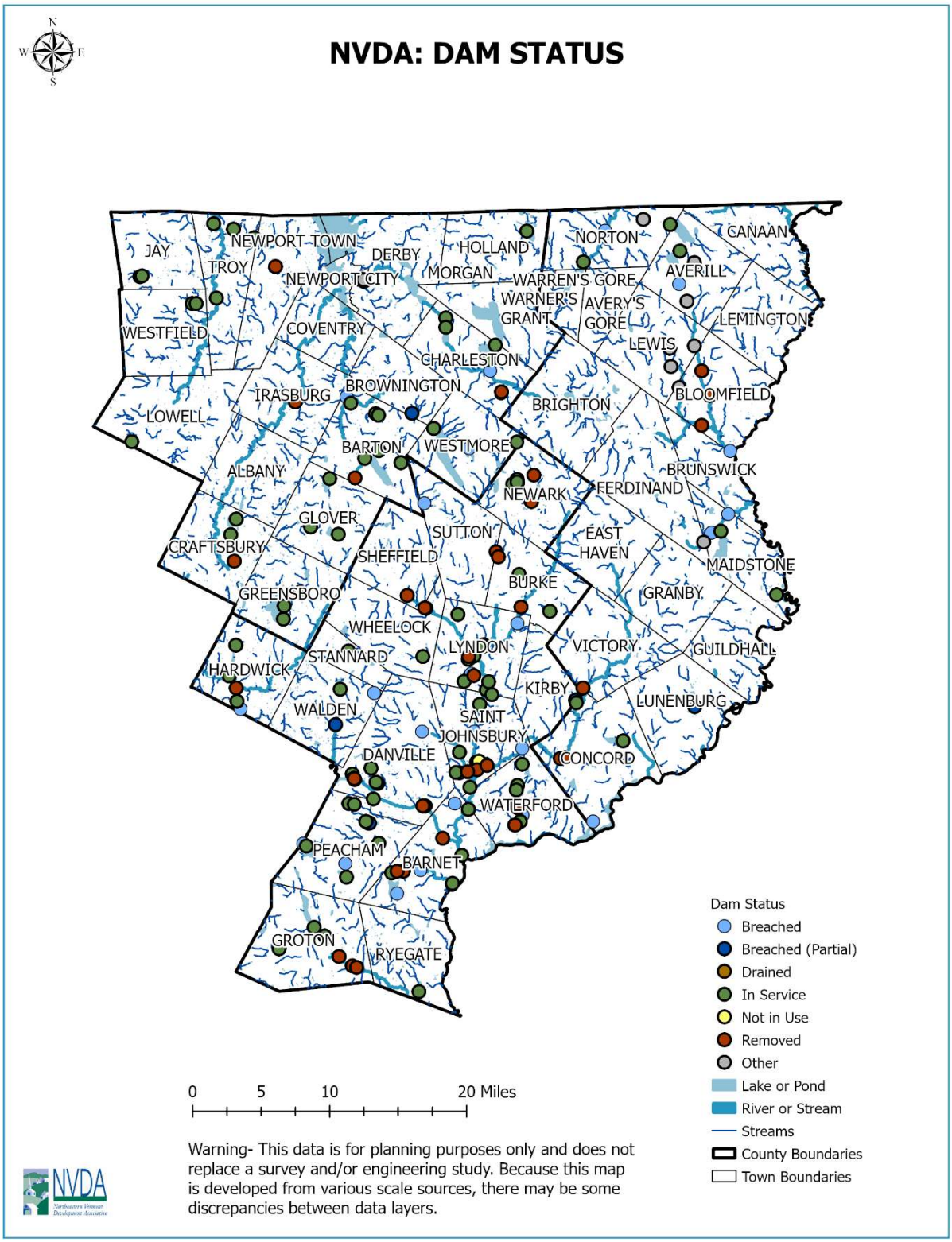


Figure 10. Status of dams throughout the NEK.

THE LOSS OF FEDERAL FUNDING SOURCES CREATES CHALLENGES FOR EFFECTIVE HAZARD MITIGATION.

Nature-based approaches to flood resilience are the most cost-effective in the long-run. Initiatives such as riparian plants, floodplain restoration, and acquisition of river corridor easements can attenuate downstream flood flows, stabilize stream banks to minimize erosion and sediment load. Nevertheless, nature-based solutions, such as floodplain restoration projects still rely on engineering and technical assistance that can easily outstrip local personnel and financial resources. Even in the face of greatly reduced federal funding, municipalities in our region still need funding to mitigate future flood losses.

Our municipalities cannot do this on their own, and they have traditionally relied on FEMA funding generally made available after a federally declared disaster. The recent declaration denial, combined with the loss of a popular FEMA hazard mitigation funding program, creates uncertainty for many of our municipalities. Some municipalities in our region have begun to budget for anticipated replacement of public infrastructure, but widespread flood damage can still be financially ruinous.

Our rural municipalities have neither the personnel nor deep pockets to engineer their way out of the next flood. Faced with drastic reductions in federal resources, a multi-town watershed approach to flood resilience, backed with the regional planning commission and statewide resources, can facilitate collaborative problem-solving and identify projects with the greatest level of impact to maximize limited mitigation funds.

WATER POLICY IMPLICATIONS FOR REGIONAL AND LOCAL PLANNING

- **Protecting water resources must be a priority** in municipal and regional plans through land use regulation, conservation planning, and hazard mitigation.
- The **integration of Tactical Basin Plans** into municipal planning ensures alignment with state water quality goals and unlocks access to clean water funding.
- **Mapping and regulatory tools** such as flood hazard overlays, wetland inventories, and aquifer protection zones should be routinely updated and used in land use decision-making.
- Collaborative groups like the **Lake Memphremagog Watershed Association**, **Lake Associations**, **Northwoods Stewardship Center, Natural Resource Conservation Districts (NRCDs)** and **Connecticut River Conservancy** offer models for **community-driven water stewardship**.
- Encourage integrated planning approaches that **align flood resilience with agricultural land protection and riparian corridor restoration**, especially in areas facing farmland fragmentation or considering solar development potential.
- **Planning on a watershed level** to improve regional water quality and flood resilience.
- **Timely rules and regulations,** such as the Wake Boat Rule that seek to protect our local waterways from emerging threats.

RESILIENCE BEGINS WITH EQUITY AND A GRASS-ROOTS APPROACH TO RECOVERY.

Flooding has an outsized impact on mobile home residents, older adults, and lower-income households who often lack the means to relocate, retrofit, or repair their homes. These environmental justice disparities are stark, yet the region's grassroots response remains a powerful asset: nonprofits, municipal leaders, and volunteers consistently step up when federal and state aid is delayed. Building true flood resilience in the NEK requires more than infrastructure—it demands sustained investment in the people, places, and local systems already leading recovery, planning, and adaptation efforts to ensure no one is left behind.

By centering equity, strengthening local leadership, and planning for those most at risk, the NEK can build a future where no one is left behind. NEK municipalities are demonstrating strong leadership. In July 2023 and 2024, local nonprofits and volunteers (e.g., NEKO, NEKCA, KURRVE, Local Socially Gives) led door-to-door muck-and-gut operations, distributed clean-up kits, and provided legal, food, and emotional support—often before FEMA or state aid arrived. Over a dozen municipalities in the NEK have formally established "Neighbor-to-Neighbor" mutual aid and volunteer groups.

To maintain this momentum, the NVDA region will continue to advocate for:

- Dedicated state funding streams for small-town infrastructure upgrades;
- Ongoing training and planning support for local officials and emergency managers.

As Vermont builds toward a more resilient future, the NEK must not be left behind. Ensuring regional alignment with state policy—while respecting local context—will be essential to protecting our communities from future flood events.

All municipalities are expected to adopt Local Emergency Management Plans (LEMPS), generally after Town Meeting Day. The strategic level of detail that goes into these plans can determine success in the immediate aftermath of a disaster. The Hardwick Plan, adopted in 2025, incorporates lived experiences of the floods of July 2023 and 2024 into a plan that "embraces a whole community approach" to emergency response. The resulting framework identifies four volunteer-led response areas and creates a model that could, and should, be replicated in other communities.

Regional Policies & Priorities

To build flood resilience, NVDA supports proactive strategies that protect people, infrastructure, and ecosystems before disaster strikes. NVDA is committed to empowering local communities—especially those most vulnerable—to prepare for, respond to, and recover from flooding through regional coordination, equitable investment, and locally-led solutions.

NVDA strives to align with initiatives at the state and local level. Together, these policies and strategies will help NEK communities reduce disaster costs, recover faster, and preserve the places we love for future generations.

- Flood Safety Act (Act 121)
- The 2023 Vermont State Hazard Mitigation Plan, adopted by Vermont Emergency Management and FEMA.

- Local Hazard Mitigation Plans (LHMP) and Local Emergency Management Plans (LEMP) supported by NVDA.
- The Tactical Basin Planning (TBP) program, coordinated by the DEC, helps municipalities and RPCs implement localized strategies to meet water quality goals. Seven of Vermont's 17 drainage basins are in the NEK, four of which are under EPA-approved or anticipated Total Maximum Daily Load (TMDL) regulations (e.g., Lake Champlain and Lake Memphremagog).

To protect critical NEK areas and reduce flood risk in our region, NVDA encourages:

- Limiting development in mapped and known flood areas, as well as river (riparian) corridors.
- Restoring floodplains, riparian (vegetated) buffers, and wetlands.
- Conserving upland forests that reduce runoff and erosion.
- Upgrading culverts and roads to withstand high flows.
- Supporting communities with hazard mitigation planning and implementation
- Assisting communities with emergency preparedness and response.

These strategies are designed to safeguard public safety, protect critical infrastructure, preserve historic structures, and avoid damage to public investments. NVDA also recommends that all new public investments—such as roads, buildings, and utilities—be located outside mapped hazard areas whenever possible.

Goals, Objectives & Strategies

Goal 1: Reduce Risk and Exposure to Flood Hazards Across the NEK

Objective: Minimize development in high-risk areas.

Strategies:

- Enforce and update local regulations to limit development in floodplains and river corridors using NAI principles.
- Support municipal adoption of flood hazard regulations.
- Provide technical assistance to maximize public assistance to communities impacted by flooding.

Objective: Integrate future climate risk into planning and siting.

Strategies:

- Incorporate climate change projections and increased storm intensity into local flood resilience plans
- Promote local planning and analysis using resources such as the Municipal Vulnerability Indicators (MVI) tool - https://climatechange.vermont.gov/mvi.

Goal 2: Protect and Restore Natural Systems That Mitigate Flooding

Objective: Promote nature-based and green infrastructure solutions.

STRATEGIES:

- Restore and conserve wetlands, floodplains, riparian corridors and vegetation buffers, and upland forests to reduce runoff and erosion. Recognize that actively managed agricultural lands—including hayfields and shared-use farms—can serve as critical floodwater absorption and sediment retention areas.
- Align regional flood resilience and farmland retention priorities by integrating climate-smart agricultural practices (e.g., buffer strips, no-till, field rotation) into restoration and hazard mitigation plans.
- Implement green infrastructure practices (e.g., rain gardens, bioswales, permeable pavement) in village centers and developed areas.
- Partner with land trusts, watershed groups, and Natural Resource Conservation Districts (NRCDs) to fund and manage ecological restoration projects.

GOAL 3: ENHANCE CLIMATE RESILIENCE IN INFRASTRUCTURE AND CRITICAL SERVICES

OBJECTIVE: MODERNIZE ROADS, CULVERTS, AND UTILITIES FOR CLIMATE RESILIENCE.

STRATEGIES:

- Upgrade transportation and drainage infrastructure to withstand higher flows using VTrans standards and Clean Water Block Grants.
- Relocate critical public infrastructure out of hazard areas.
- Assist municipalities in the developing and maintaining Local Hazard Mitigation Plans (LHMPs) to identify potential disasters and outline infrastructure projects that help reduce impacts.

OBJECTIVE: IMPROVE CONTINUITY OF OPERATIONS FOR PUBLIC SERVICES.

STRATEGIES:

- Assist municipalities in developing and maintaining Local Emergency Management Plans and assist municipalities in developing public facing annexes to Local Emergency Management Plans (LEMPs).
- Utilize Regional Emergency Management Committees (REMCs) to provide trainings and templates to local emergency managers, planning commissions, and other partners.
- Support community efforts to establish and maintain resilience hubs.

OBJECTIVE: ALIGN FLOOD RESILIENCE INFRASTRUCTURE WITH ENERGY EQUITY AND CLIMATE ADAPTATION.

STRATEGIES:

- Leverage funds from FEMA, USDA REAP, and Clean Energy Group's TA Fund to support equitable energy and flood resilience projects.

Goal 4: Strengthen Community-Driven Flood Resilience and Equity in the NEK

Objective: Support Vulnerable Populations in High-Risk Areas

Strategies:

- Identify and assess flood risks to mobile home parks, low-income housing, and isolated rural households. Prioritize these communities/populations for funding, outreach, and emergency planning support.
- Provide technical and financial assistance to small landowners, especially in rural and upland areas, who wish to reduce impervious surface coverage or restore natural drainage and vegetation buffers on their properties.

Objective: Sustain Community-Based Recovery Networks

Strategies:

- Align technical support to key local partners such as NEKCA and KURRVE that provide vital flood response and recovery services. Include representatives from such organizations in regional emergency planning initiatives.
- Facilitate and support multi-town flood preparedness response efforts.
- Strengthen regional mutual aid and volunteer systems to reduce reliance on delayed state or federal aid.
- Work with municipalities and regional, state, and federal partners to align technical resources to identify scope of damage and formulate sound decisions on repairing, replacing, or relocating damaged properties.

Objective: Build Local Capacity for Resilience Implementation

Strategies:

- Expand NVDA's support for town-level hazard mitigation planning, floodplain mapping, and zoning reform.
- Work with communities to ensure that vulnerable populations are represented and considered when developing local hazard mitigation plans.
- Provide training, workshops, and grant-writing assistance to empower local officials and volunteers.
- Support watershed-level planning and mitigation efforts, including flood modeling, training, education programming, and emergency response.

Community Resources

- **Flood Ready Vermont** https://floodready.vermont.gov/: Take stock of what your community has done and can do for disaster risk reduction. https://floodready.vermont.gov/update_plans

- **County Natural Resource Conservation Districts:** Partners in outreach and education, as well as flood mitigation and water quality projects: Caledonia: https://www.caledoniacountynrcd.org/about-us Essex: https://www.vacd.org/conservation-districts/essex-county/ Orleans: https://www.orleanscountynrcd.org/

- **Regional Emergency Management Committees (REMCs) -** https://nvda.net/emergency-management-committee.php**:** Cal-Essex and Orleans-Essex cover our region. Committees meet regularly to discuss regional emergency management and help find solutions for improved communication, regional resource inventory, and improved response. All are welcome to attend.

APPENDIX

HOUSING TARGETS

Town	2030 Low End Total	2030 High End Total	2050 Low End Total	2050 High End Total	*Total housing targets for each town are a sum of the Capacity, Tiers, and Land Use categories, each of which has been assigned an individual weighting.
Albany	32	48	102	202	
Barnet	50	74	160	315	
Barton	121	179	385	759	
Bloomfield	5	7	16	32	
Brighton	55	82	175	346	
Brownington	16	24	52	102	
Brunswick	1	2	4	7	
Burke	67	99	213	421	
Canaan	38	56	121	239	
Charleston	15	22	47	92	
Concord	16	24	51	100	
Coventry	31	46	98	194	
Craftsbury	40	59	127	250	
Danville	99	147	316	622	
Derby	327	484	1040	2051	
East Haven	6	9	18	36	
Glover	29	43	92	182	
Granby	3	5	10	20	
Greensboro	29	43	92	182	
Groton	17	26	56	110	
Guildhall	9	14	30	58	
Hardwick	185	274	589	1161	
Holland	10	15	32	63	
Irasburg	33	48	104	204	
Jay	17	25	53	105	
Kirby	7	9	21	41	
Lemington	1	2	3	7	

Lowell	19	28	60	119
Lunenburg	50	74	160	315
Lyndon	353	522	1123	2214
Maidstone	2	3	6	12
Morgan	12	17	37	73
Newark	7	10	22	43
Newport City	302	446	958	1889
Newport Town	58	85	184	362
Norton	4	6	13	26
Peacham	25	37	79	156
Ryegate	46	68	146	288
Sheffield	23	34	72	143
St. Johnsbury	435	644	1384	2727
Stannard	3	4	9	18
Sutton	22	33	71	140
Troy	136	201	432	852
UTG	0	0	1	2
Victory	0	0	1	1
Walden	11	16	34	67
Waterford	24	35	75	147
Westfield	20	29	62	123
Westmore	7	10	22	43
Wheelock	17	25	54	107
Sum	**2836**	**4193**	**9014**	**17768**
% of target to 6 largest towns				
60.79%				