



STUDY

ROUTE 5 SOUTH - RIVER ROAD

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1 executive summary

This Route 5 South – River Road Study is an effort to implement the sustainability goals of the Norwich Town Plan. The 2011 Town Plan calls upon Norwich to “*identify areas easily accessible to good roads, town services, schools, and public transportation to be considered for higher density energy efficient development.*”

The Route 5 South and River Road corridors were selected as the study area because they are easily accessible from major transportation corridors, Norwich Village and downtown Hanover, and because they are served by public transit. The study area encompasses 726 acres or approximately 2.5% of the town’s total land area.

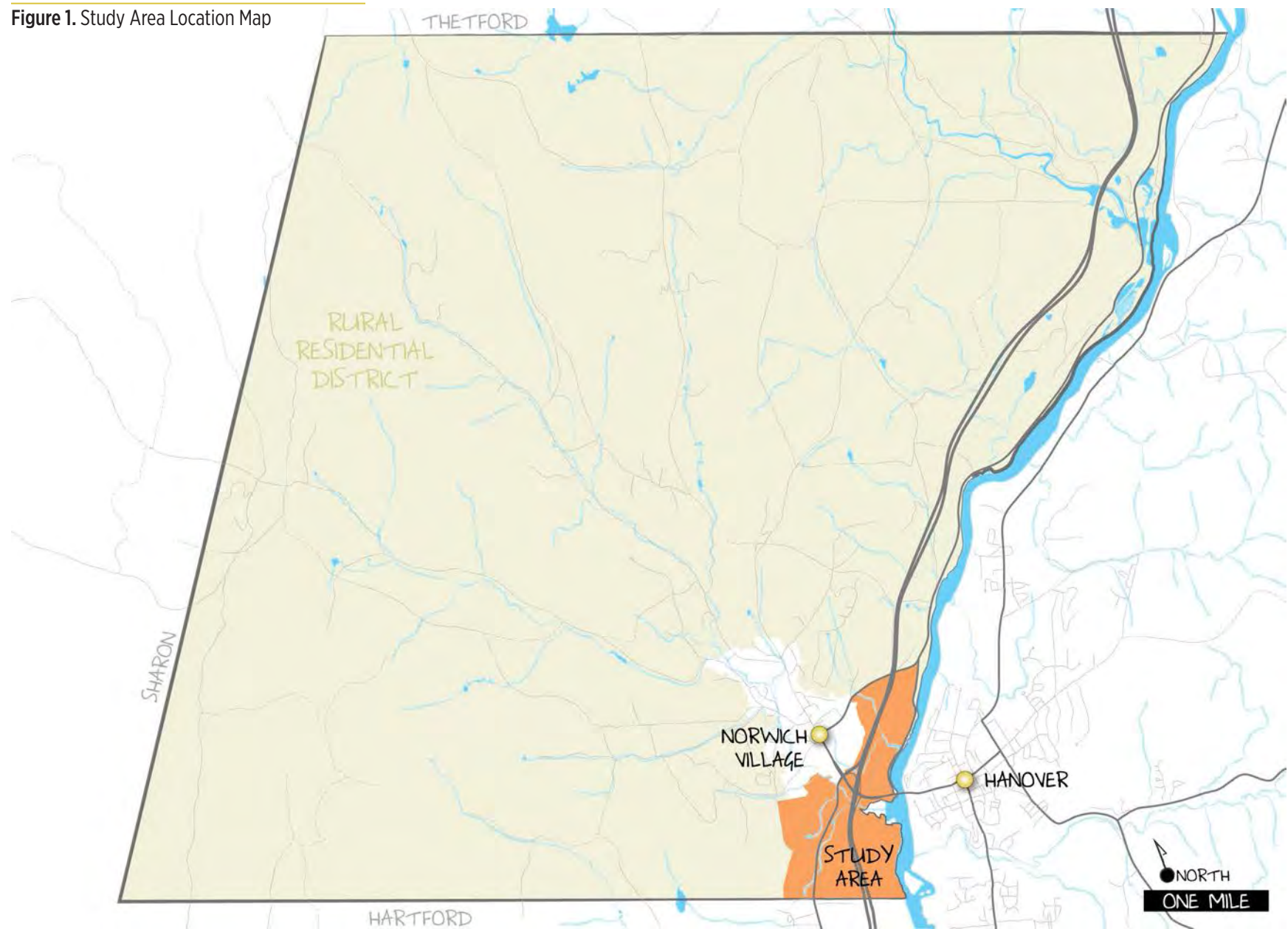
The 2011 Town Plan also recommends that Norwich “*begin implementation with community planning workshops to identify appropriate areas, densities, site plan and design patterns, etc. for future growth in these residential and mixed use areas.*” Accordingly, this Route 5 South – River Road Study involved:

1. Assessing the land within the study area to identify development constraints and opportunities.
2. Analyzing demographic and housing trends in the town and region to provide insight into what development may be necessary to meet the needs of current residents and future generations.
3. Exploring any potential future land use and development patterns on suitable sites within the study area.
4. Using a community survey and workshops to gather feedback on the preferred type, density, form and design of any potential future development within the study area.
5. Analyzing existing development potential under current zoning as compared to future scenarios for sustainable development within the study area.
6. Recommending options for furthering the sustainability goals and policies of the 2011 Town Plan.

Based on the assessments and public input, the following measures are recommended to further implement the sustainability goals of the 2011 Town Plan:

1. Maintain the town’s current site plan standards for reviewing development proposals, which have worked well in recent years to ensure that proposed development is high quality, pedestrian friendly and compatible with its surroundings.
2. Maintain the town’s current natural resource protection standards, which provide substantial protection for natural resources.
3. Establish a new Mixed Use zoning district that would:
 - a. Allow for a broader range of housing and nonresidential uses, and multiple principal uses within a building or site as a by-right use.
 - b. Allow for a somewhat higher density of housing and smaller lots than is allowed within the study area under current zoning.
 - c. Include appropriate standards to ensure compatibility with surrounding land uses.
 - d. Offer bonuses and incentives for affordable, workforce and senior housing, as well as for mixed use, compact, and efficient building and site designs.
 - e. Require sidewalks, bike lanes, internal walkways and connections to nearby paths, trails or development sites as appropriate to the site.
4. Continue efforts to promote alternative wastewater solutions within the study area. If the town pursues an option to provide wastewater capacity, it should adopt a wastewater policy that would allocate:
 - a. A percentage of the available capacity for affordable, workforce and/or senior housing to ensure that any investment in public infrastructure serves to further this priority planning goal.
 - b. The available capacity between residential, commercial, industrial and/or public uses in order to ensure that as any development proceeds over time, a mix of uses would emerge.

Figure 1. Study Area Location Map



2 introduction

SUSTAINABILITY

Norwich's 2011 Town Plan includes a strong focus on ensuring a sustainable future for Norwich. The plan defines sustainability *“as meeting our needs in the present without compromising the ability of future generations to meet their needs.”*

The 2011 Town Plan builds on the efforts of previous town plans and land use policies, which sought to reduce sprawl and preserve the Norwich's rural character by significantly reducing development potential on 97% of the town's land area. It recognizes that guiding development away from rural land was one of two essential components of a plan to promote sustainability. The other part of the sustainability formula – which has not yet been implemented – was the adoption of policies to guide such development as may be necessary to meet the needs of current residents and future generations towards existing settlement areas and major transportation corridors.

To achieve this second essential element of Norwich's sustainable future, the 2011 Town Plan recommends the following approach:

1. Identify areas easily accessible to good roads, town services, schools, and public transportation to be considered for higher density, energy efficient development.
2. Begin implementation with community planning workshops to identify appropriate areas, densities, site plan and design patterns, etc. for future growth in these residential and mixed use areas.
3. Create incentives for a diversity of housing types to meet the needs of all ages, financial situations, and lifestyles, including affordable and workforce housing.
4. Create new land use regulations and districts based on the plans developed that recognize and allow for a diversity of housing types to meet the needs of all ages, financial situations, and lifestyles.

5. Identify wastewater capacity, either on-site or off-site, that will support the proposed level of development in each area, and develop wastewater treatment for areas without adequate on-site wastewater treatment capacity that are otherwise suitable for higher density development.

This Route 5 South – River Road Study was initiated in direct response to the plan's sustainability goals, objectives and actions.

STUDY AREA

This Route 5 South – River Road Study focuses on a small portion of Norwich south and east of the village as shown in Figure 1. The 726 acres included in the study area accounts for approximately 2.5% of the town's total area, or about one out of every 40 acres. The study area includes:

1. The Route 5 South corridor, which extends approximately one mile from I-91 Exit 13 south to the Hartford town line. The Route 5 South corridor begins approximately ½ mile south of the village and is bounded to the north by Exit 13 and to the south by the Hartford town line.
2. The River Road corridor, which extends approximately one mile from Main Street (Route 10A) north to Church Street (Route 5). The River Road corridor is located approximately one mile east of the village and just across the Connecticut River from downtown Hanover.

In accordance with the recommendations of the 2011 Town Plan, this area of town is *“easily accessible to good roads, town services, and public transportation.”* The future land use element of the 2011 Town Plan includes this land in the Village/Route 5 South Planning Area. The plan states that *“the town should direct the majority of its growth and development to this [Village/Route 5 South] land use planning area.”*

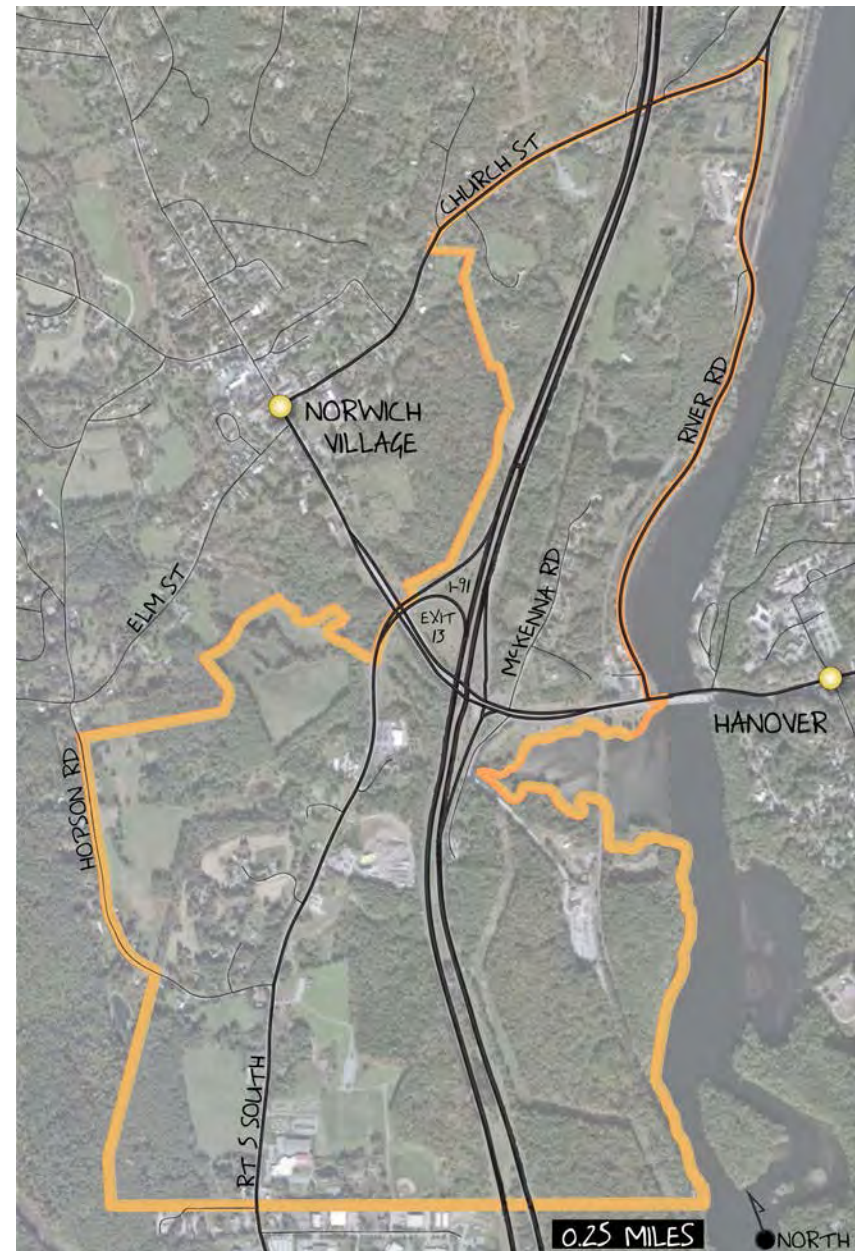
The study area is adjacent to Norwich village, downtown Hanover, and developed areas in Hartford. It is within the Upper Valley's core area in proximity to existing employment centers and major transportation corridors, which various state, regional and municipal plans, studies and initiatives recognize as a preferred location for any future growth and development in accordance with smart growth and sustainability principles.

PLANNING PROCESS

This Route 5 South – River Road Study consisted of the following elements:

1. Delineation of the study area guided by the goals, policies and recommendations of the 2011 Town Plan.
2. Assessment of the land within the study area to identify development constraints and opportunities.
3. Analysis of demographic and housing trends in the town and region to provide insight into what development may be necessary to meet the needs of current residents and future generations.
4. Exploration of any potential future land use and development patterns on suitable sites within the study area.
5. Community survey and workshops to gather feedback on the preferred type, density, form and design of any potential future development within the study area.
6. Analysis of existing development potential under current zoning as compared to future scenarios for sustainable development within the study area.
7. Recommendations for furthering the sustainability goals and policies of the 2011 Town Plan.

Figure 2. Study Area Detail Map



3 demographic and market trends

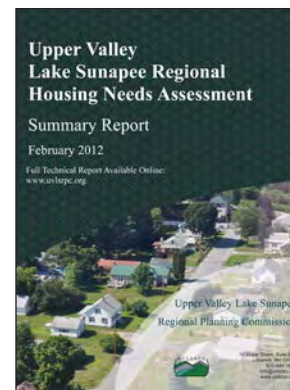
Numerous studies have shown that the region's housing needs and preferences are shifting. There are a growing number of households in the region whose housing needs are poorly met by single-family detached homes, which are the dominant type of housing available in the region. The mismatch of housing needs and housing supply is contributing to unsustainable development patterns (i.e., rural residential sprawl, inefficient transportation, high housing costs). Shifting lifestyle preferences and demographic trends are driving demand for alternative forms of housing in the region, particularly in convenient, central locations that also offer alternative transportation options.

Last year, the New Hampshire Center for Public Policy Studies released a statewide report, *Big Houses, Small Households: Perceptions, Preferences and Assessments*, which found:

- ◆ Overall homeownership demand is declining. This is due to multiple factors including a weaker economy, lower rates of in-migration, difficulties in obtaining financing, low levels of liquidity for older homeowners, and high levels of student debt and mediocre wage growth for younger generations.
- ◆ Current housing supply is poorly aligned with evolving housing preferences. The number of 3+ bedroom units is far greater than 1 and 2 bedroom units. This means that there are few options for older residents wanting to downsize, single adults and others living in small households. The demand for rental housing is greater than the supply in most markets. Younger age groups are less likely to be homeowners as compared to previous generations at the same age. They need/want the affordability, mobility and flexibility associated with renting.



- ◆ Seniors are occupying a growing proportion of housing units. By 2025, seniors will be living in one out of every three housing units. Many seniors want to “age in place” but they will face challenges because the homes they are occupying today may not meet their long-term accessibility, mobility and/or affordability needs. There is an inadequate supply of housing located, designed and priced to meet future demand.
- ◆ New construction is anticipated to be limited in an era of projected slower population growth. With less new construction, it will be necessary to rehabilitate and reconfigure the existing housing stock to better meet evolving housing needs and preferences.



The Upper Valley Lake Sunapee Regional Planning Commission completed a Housing Needs Assessment in 2012. Much of the data analyzed in the report is from the Lebanon-Hanover labor market area, which includes Norwich.

Some of the specific demographic, housing and economic trends highlighted in that assessment included:

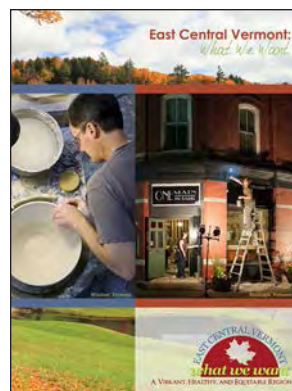
- ◆ More than one-third of the region's population will be age 65 or older by 2030 and nearly half of all households will be headed by someone age 65 or older.
- ◆ The region will need to attract younger workers at a greater rate to avoid a decline in the labor force.
- ◆ Nearly all the net growth in households during the past 20 years has occurred in one and two person households.
- ◆ Employment in the Lebanon-Hanover area has increased faster than housing during the past 20 years.
- ◆ Entry-level wages in some of the largest occupational sectors in the Lebanon-Hanover area range from about \$9 to \$20 per hour.

Rental housing affordable to single wage earners in this range is virtually non-existent in the private, unsubsidized market.

- ◆ More than 1 out of 3 households in the region have a high housing cost burden (more than 30% of their income) and nearly 1 out of 6 households have a severe housing cost burden (more than 50% of their income).
- ◆ The average travel time for a commuter has increased about 25% during the past 20 years as people are living further from their place of work, largely seeking more affordable housing. While housing further out from employment center may be less expensive, that savings is often offset by increased transportation costs.

The assessment also found that there is an extreme shortage of rental housing in the region. It concluded that a larger share of future housing construction will need to be rental and multi-family for the region to attract the necessary younger workers and to serve an increasing demand from seniors for down-sized, more affordable, or more accessible housing units. It may be possible to meet some of this need through conversion of the existing housing stock as discussed in *Big Houses, Small Households*.

The findings of those two New Hampshire assessments and other recent studies from around the region paint a clear picture of the regional housing market and the implications of the current imbalance between housing supply and demand on many other aspects of community and family life – economic development, transportation, childcare, energy consumption, climate change, civic engagement, education and more.



Those findings are also consistent with the issues identified in the just completed plan for East Central Vermont entitled *What We Want*, which emphasizes the need for affordable housing in the region.

That plan states that “*We must address the lack of affordable housing near jobs and service centers. By ‘affordable,’ we’re talking about more than subsidized housing for low-income residents; we’re also talking about housing for skilled workers and professionals whose talents we need for a thriving community.*”

It notes that more striking than the lack of supply of low-income housing in Eastern Central Vermont is that “*moderate-income households are priced out of the market in many locations. In addition, even in those locations where people might be able to afford a decent, energy-efficient house, very little, if any, inventory exists.*”

The plan recommends construction of new, energy-efficient housing stock that promotes compact development and the efficient use of resources. It calls upon towns to identify land in core areas and on transit routes that is suitable for development, and work with developers and existing property owners to highlight opportunities for affordable and mixed income housing – **exactly what this Route 5 South - River Road Study hopes to achieve.**

4 sustainable development

The 2011 Town Plan states that “*central to achieving a sustainable future is the need to change our land use development practices and patterns.*” The changes that Norwich’s plan recommends align with the findings of the studies and plans from around the region presented in Chapter 3. They are a continuation of the town’s 20-year effort to guide any future development away from rural areas and towards existing settlement areas and major transportation corridors.

The 2011 Town Plan calls for more than a change in the location of any future development; it outlines a number of changes in land development practices that will be necessary for Norwich to become a sustainable community. These sustainable development practices include:

- ◆ Offering a range of housing options and choices that fit people’s needs at different life stages and that are affordable to those at different income levels.
- ◆ Supporting a variety of transportation choices and creating walkable neighborhoods.
- ◆ Mixing land uses so that opportunities for people to live, work, shop and play are located within close proximity to another.
- ◆ Designing green, compact buildings and neighborhoods that use land, energy and other resources efficiently.
- ◆ Designing a distinctive and attractive built environment that contributes to the town’s character and sense of place.
- ◆ Preserving open space and protecting sensitive resources.

Many of these sustainable development practices are interdependent as shown in Figure 3, creating positive feedback loops and spin-off benefits for individual households, the immediate neighborhood and society in general.

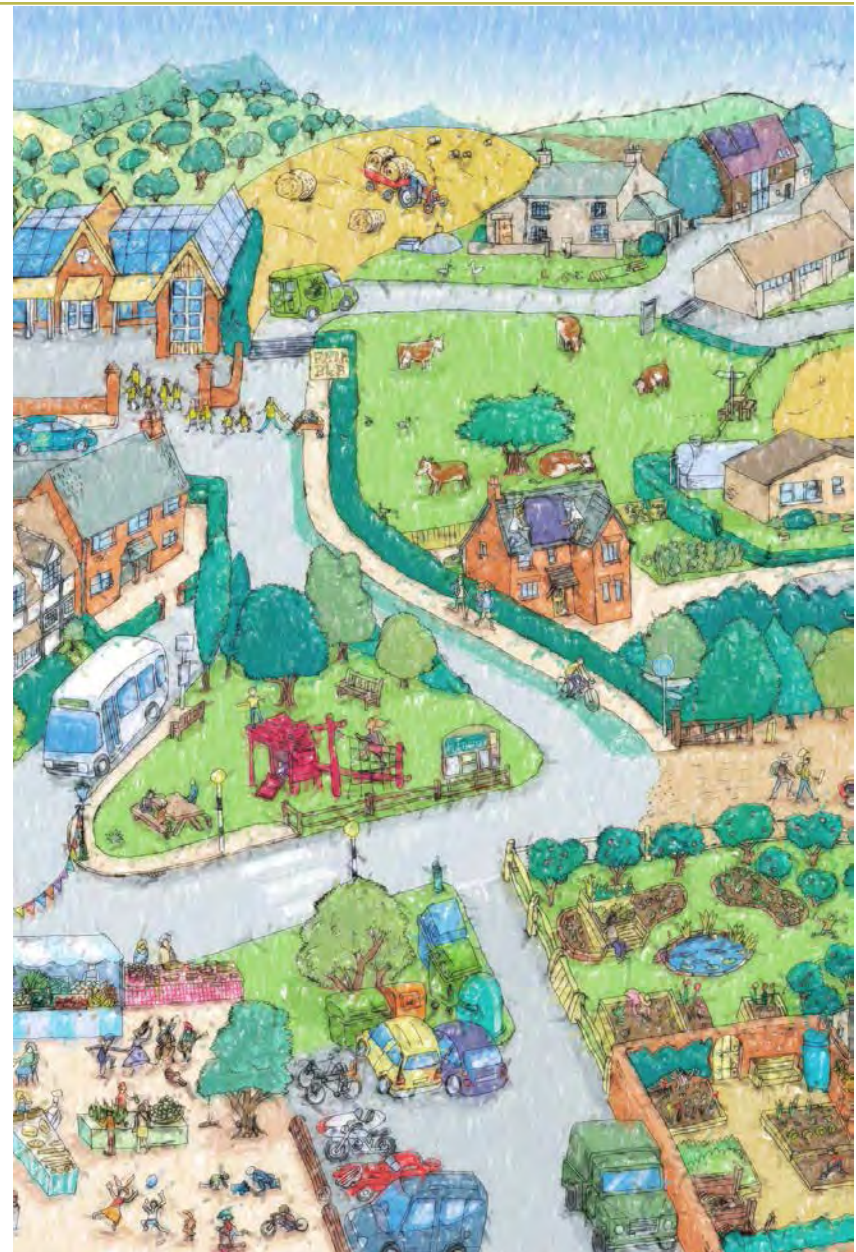
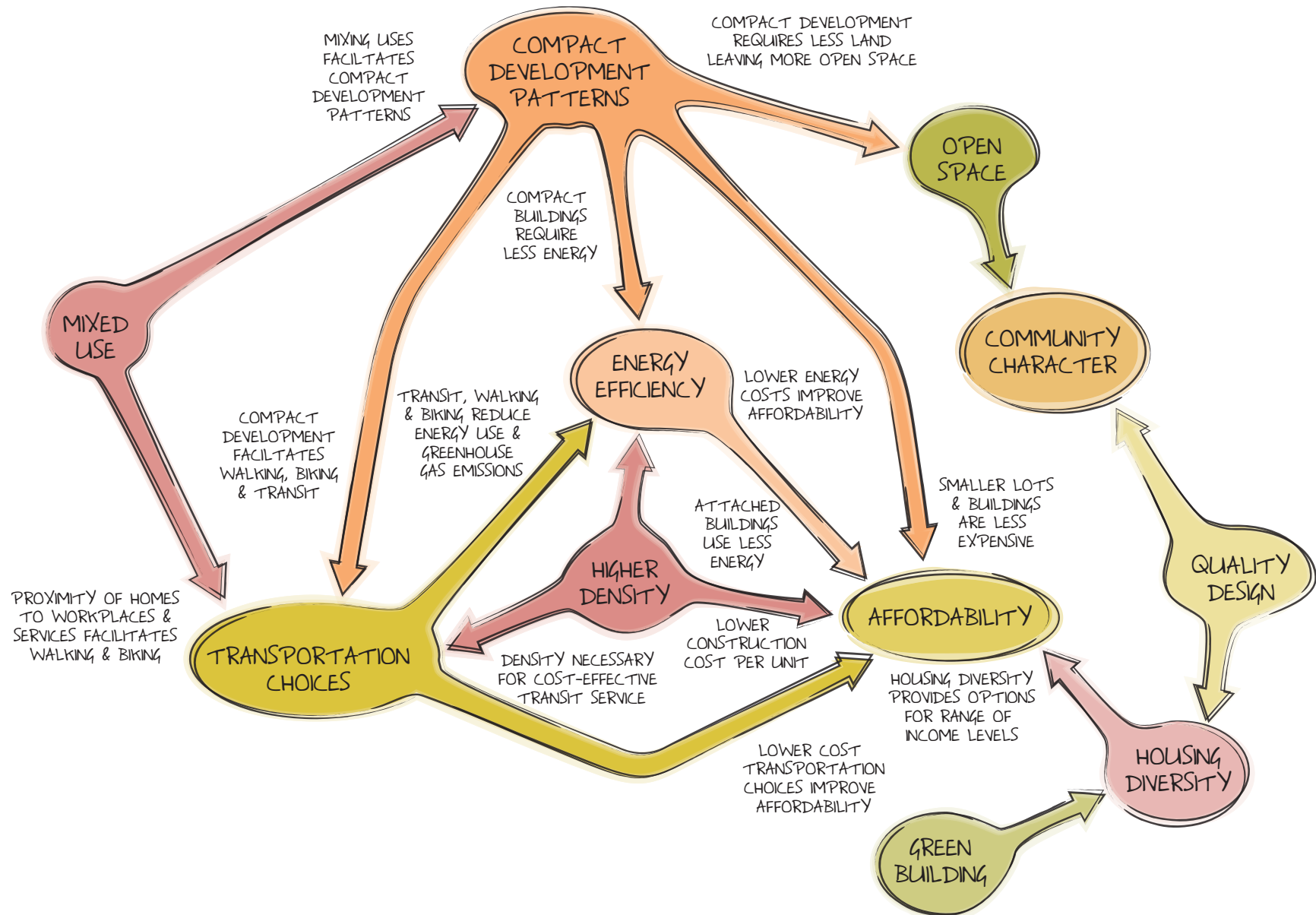


Figure 3. Sustainable Development Practices and Benefits



HOUSING DIVERSITY

The 2011 Town Plan calls “for a diversity of housing types” in Norwich. Currently, high-value, owner-occupied, single-family homes are the predominant type of housing available in town. The Census Bureau estimates that nearly 35% of Norwich households are spending more than 30% of their income on housing today – a level that is typically considered “unaffordable.” The median sale price of a primary residence in Norwich was \$448,000 in 2014, more than twice the county or state median.

Living in Norwich is simply not an option for a significant percentage of those working in the region, including in Norwich itself, because of the limited supply of housing affordable to low- and moderate-income households. As detailed in the 2011 Town Plan, there has been an awareness and concern about the high cost of housing in Norwich for many years. The town has an Affordable Housing Subcommittee charged with fostering affordable housing in town. The zoning and subdivision regulations have been

amended to create incentives and bonuses for affordable housing. However, these efforts have met with limited success to-date and Norwich remains one of the most expensive places to reside in the state.

High housing costs and limited housing choices are not only a concern in Norwich, but are a problem throughout the region. As summarized in Chapter 3, a number of housing studies from around the region have pointed to a need for affordable and workforce housing to sustain a healthy local economy. Without such housing, local businesses have greater difficulty attracting and retaining workers. Demand for affordable and workforce housing is coming from:

- ◆ Young professionals and students who prefer to rent in order to preserve their mobility. Many young people are looking for housing in walkable communities with access to transit where they can enjoy a less auto-dependent lifestyle. They value energy efficiency and green building features, and require broadband access.

Figure 4. Missing Middle Housing

Missing Middle Housing encompasses a range of clustered or multi-unit housing types compatible in scale with single-family homes that help meet the growing demand for walkable, compact living. It offers diverse housing options along a spectrum of affordability, including duplexes, fourplexes, and cottage clusters, to support walkable communities, neighborhood shops and services, and public transit. It addresses the mismatch between the available housing stock and shifting demographics combined with the growing demand for walkability.



There is very little housing in Norwich that meets the state's definition of affordable housing (24 V.S.A. § 4303 (1)). Based on the 2015 county median income, monthly housing costs could not exceed \$1,025 for a one-person household and \$1,464 for a four-person household to be affordable. That one-person household could affordably purchase a home priced at no more than \$138,500, while the four-person household could affordably purchase a home priced at no more than \$199,000 (based on Vermont Housing Finance Agency's home mortgage calculator). In 2014, the median sale price of a condominium unit exceeded \$200,000 and a single-family home exceeded \$400,000 in Norwich.

There is a limited supply of rental housing in Norwich with rentals comprising less than 20% of the total number of housing units in town. Less data is available on rental costs as compared to homeownership costs in Norwich, but the most recent Census Bureau estimates suggest that the median gross rent in town is approximately \$1,200 per month (American Community Survey 2009-2013).

For Norwich, discussion of "affordable housing" also includes what is referred to as workforce or moderate-income housing. This is housing that would be affordable to those working for median wages in the region. It is commonly considered housing that is affordable to households earning 80% to 120% of the county median income. It is more feasible that housing in this price range could be built in Norwich without the subsidies that would certainly be required to build "affordable housing."

- ◆ Moderate and low-income households (individuals and families) who cannot afford to purchase a home within proximity to the region's employment centers. Presently, many of these households have chosen to live further from where they work in order to find lower cost housing, but that benefit is offset by longer commutes and higher transportation costs. Housing that is in locations served by transit and that is energy efficient can significantly reduce total living costs.

The demographics of the town and region clearly point to a growing need for senior housing as well. By 2030, it is anticipated that someone age 65 or older will head half of all households in the region. Not only is there a significant resident population at or approaching retirement age, the educational, cultural and recreational amenities in the region are attracting younger retirees and empty-nesters to the Upper Valley. This need is evidenced by the level of interest in the Norwich Senior Housing project, which offers 24 units of affordable rental housing in the village. That project is an example of the scale and type of affordable, compact housing that could be provided in the study area.

Many older residents want to "age in place," which will require a continuum of housing options and support services so people can remain living in Norwich at all life stages. Seniors and other small households want smaller, low-maintenance homes. Units that offer universal design and accessibility features in locations served by transit are particularly important for elders who want to live independently without having to leave their community.

In considering how to address the town's housing needs, a sustainable approach would consider not only the up-front land and construction costs, but the annual operating costs of the units. Housing can be made more sustainable and affordable by:

- ◆ Locating units in walkable, mixed use areas where there is public transit service to minimize the need to own a car and/or the amount of travel required for daily living.
- ◆ Orienting and configuring buildings for passive solar to minimize the amount and cost of energy needed for heating and lighting, and to reduce associated greenhouse gas emissions.
- ◆ Building high performance buildings that are well insulated with efficient windows, heating and cooling systems, and lighting to minimize their energy use and operating costs, and associated greenhouse gas emissions.
- ◆ Using durable and low-maintenance construction materials and finishes to minimize maintenance and repair costs.

Clearly, Norwich will need to offer a broader range of housing options, including rental housing and senior housing, in order to attract and retain the diverse population of residents needed for a sustainable future. The Route 5 South – River Road area is one of the few places in town where such housing could feasibly be accommodated.

TRANSPORTATION CHOICES

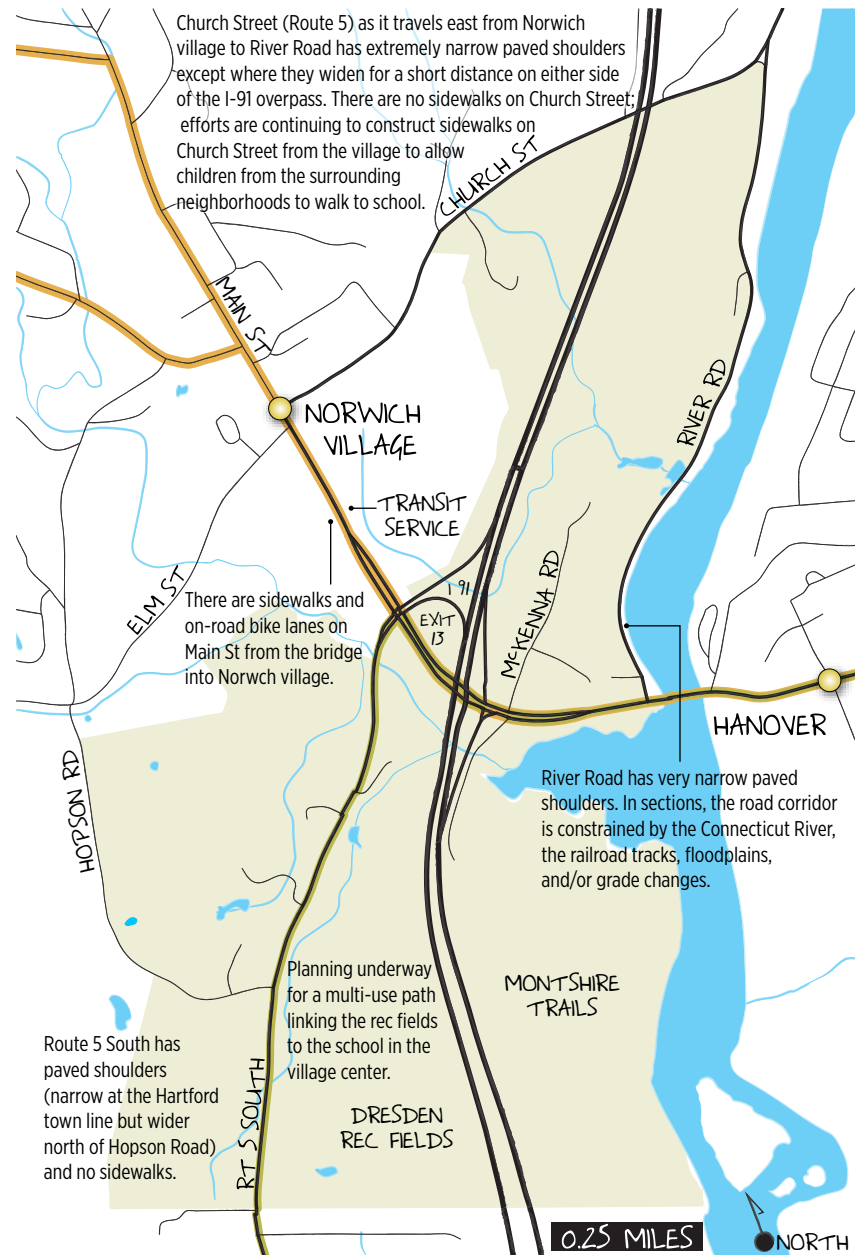
In accordance with the goals of the 2011 Town Plan, walkability and access to transit are essential elements of sustainable development. The Route 5 South – River Road is being considered as a location to focus any needed future growth and development in Norwich largely due to its proximity to major transportation corridors and existing settlement areas, and access to transit. The River Road corridor is within one mile and the Route 5 South corridor is within two miles of Norwich village and downtown Hanover.

Walkable places are comfortable, convenient, healthy and sustainable. They reduce unnecessary vehicle travel and the associated fuel costs, inconvenience of traffic congestion, and emissions of air pollution and greenhouse gases. A walkable community or neighborhood requires more than just sidewalks and pedestrian paths. The places that people are traveling between must be within a walkable distance of each other (commonly considered to be ¼ mile), necessitating compact, higher density, mixed use development patterns. Walkable places:

- ◆ Have frequent and densely interconnected pedestrian routes, which shorten both actual and perceived distances. This results from a development pattern with small blocks and frequent crosswalks. It can also be accomplished by creating public access through larger blocks such as alleys and pathways.
- ◆ Have a clear and continuous pedestrian network with frequent street crossings.
- ◆ Have complete streets that accommodate multiple modes of transportation. Streets are generally narrow to reinforce slow vehicle speeds.
- ◆ Are designed with buildings located relatively close to streets and public spaces rather than being set back far from the street behind expansive parking lots. This development pattern provides a sense of definition to streets and public spaces and allows easy pedestrian access to buildings.

Figure 5. Transportation Infrastructure within the Study Area

While the area's bicycle and pedestrian facilities are incomplete, they could reasonably be extended and improved incrementally in conjunction with any future development.



- ◆ Locate public spaces that generate the greatest activity, such as retail and dining, directly along pedestrian routes, and design them with pedestrian-oriented windows and displays. Auto-oriented and utility spaces are tucked away and largely hidden from pedestrian routes.
- ◆ Locate most off-street parking behind or below buildings where it will not disrupt pedestrian spaces. Parking needs to be connected to the pedestrian network, so that once people have parked they can easily walk to multiple destinations.
- ◆ Are human scaled. Buildings can use facade elements, awnings, lighting, signs, landscaping and other features designed to relate to pedestrians. The form of large buildings can be broken up or subdivided to reduce their perceived mass. Landscaping can be used to provide visual interest, screen utilitarian site features and shade walkways.

Even within a walkable community or neighborhood in Norwich, it is likely that many households will need or want to have a motor vehicle. However, the location, availability of transit and a more sustainable development pattern could make it feasible for households living within the study area who might otherwise require multiple vehicles to have only one. Reducing the number of vehicles per household has multiple positive benefits:

- ◆ Reducing household transportation costs.
- ◆ Reducing the number of vehicles on the roads (traffic congestion) and miles driven.
- ◆ Reducing the emission of climate changing greenhouse gases.
- ◆ Reducing the amount of land devoted to parking.
- ◆ Increasing transit ridership and carpooling, which lowers per passenger costs and energy use.
- ◆ Increasing travel by bike or foot, which also has health benefits, especially for an aging population.



MIXED USE

The 2011 Town Plan calls for “the creation of additional zoning districts allowing some level of commercial or mixed use activity on the west side of Route 5 South and along River Road.” Mixed use – the close physical integration of places for working, living and recreating – is an essential ingredient of a sustainable community. Mixed

use development is simply more practical. When the day-to-day things people need to do are in immediate proximity to each other less transportation is required, generating multiple benefits to individuals and the larger society.

“Mixed use” is a loosely defined term, but most definitions share common elements such as:

- ◆ Relating mixed use to higher density and/or more compact development patterns.
- ◆ Calling for a mix of uses within proximity to one another (often defined in terms of a 5- to 10-minute walk or ¼-mile radius).
- ◆ Emphasizing walkability between the uses and reduced auto-dependence.

For many, the image that may come immediately to mind when hearing the term “mixed use” is a traditional downtown building with ground floor retail and upper floor apartments. But that is only one of the possible forms and scales of mixed use. The term can encompass:

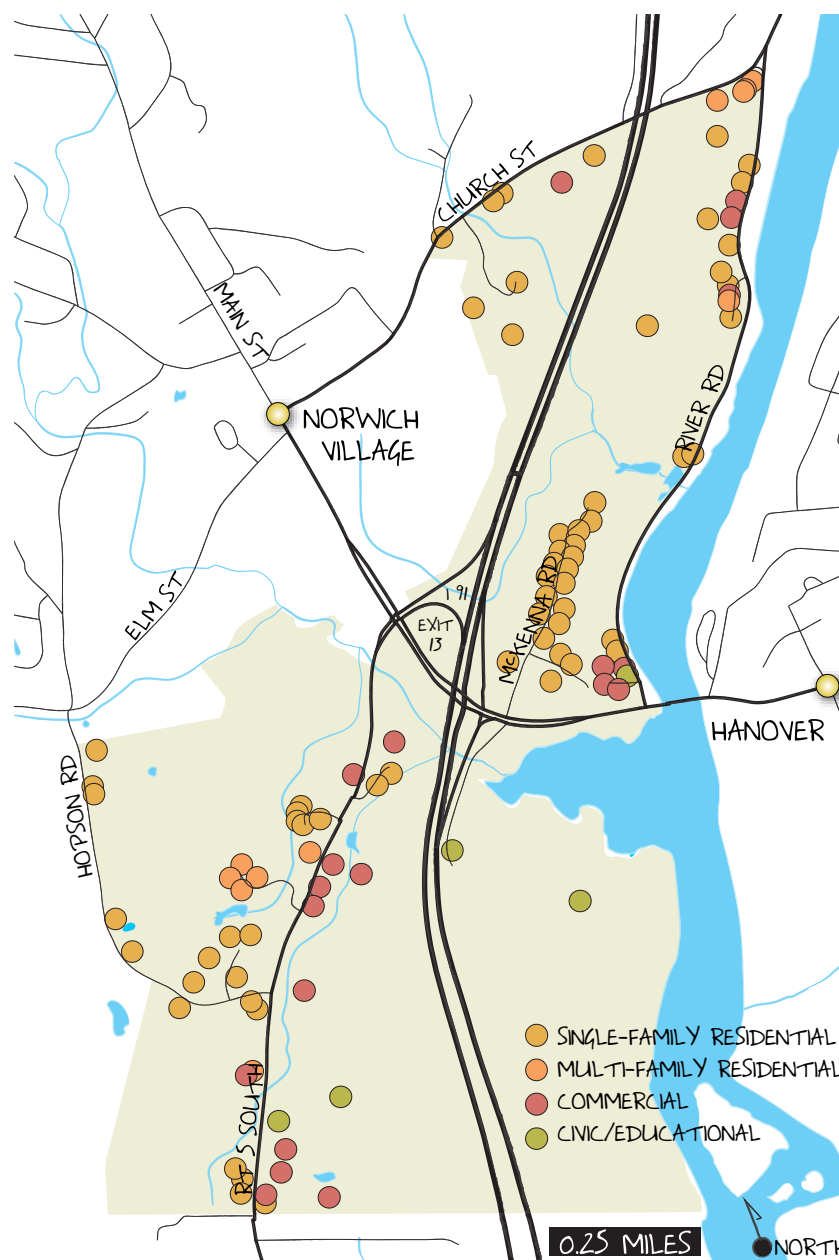
- ◆ **Mixed Use Buildings.** This approach combines different uses in the same building. The building is usually multi-story. Lower floors typically have more public uses (commercial) with more private uses (residential) on the upper floors. However, it is also possible

to mix uses horizontally within a single floor level. Mixed use buildings may pose greater construction (having to meet code requirements for multiple uses) and financing challenges than single use buildings.

- ◆ **Mixed Use Projects.** This approach combines different uses on a single development site, but within separate single use buildings. The plan for the site is unified and coordinated with the buildings in close proximity to one another and the uses functionally integrated often through shared vehicular and pedestrian access and parking. Typically, the higher intensity public uses (commercial) will be located closest to the street with more private uses (residential) located behind. This pattern is common along highway corridors. It is an effective way to create a transition in the intensity, density and scale of development, which can buffer established, adjoining neighborhoods from more intensive development.
- ◆ **Mixed Use Neighborhoods.** This approach looks beyond a single building or project to the broader neighborhood context. It would allow a diversity of uses within a neighborhood, but not require that an individual building or development project necessarily include a mix of uses. Typically the neighborhood is defined by a walkable distance (5-10 minutes, ¼ mile). A typical mixed use neighborhood may be primarily residential but include uses such as a corner market, a few professional offices or personal service businesses, and the like. It will also often include a mix of housing options - single-family homes, duplexes, accessory apartments, multi-family, etc. Sidewalks, paths and streets designed to allow neighborhood residents to safely access nearby businesses on foot or bicycle are an essential element of a mixed use neighborhood.

While there is a mix of residential and commercial uses existing along Route 5 South and River Road today, the corridors lack most of the elements characteristic of mixed use development. There is the potential for infill development to incorporate sustainable development principles such as walkability and higher density, and realize the benefits of mixed use within the study area.

Figure 6. Current Land Use within the Study Area



COMPACT DEVELOPMENT

The sustainable future envisioned in the 2011 Town Plan calls for discouraging sprawl by providing an alternative in the form of compact, higher density, mixed use neighborhoods in and around the village and major transportation corridors. It is also clear that higher density is the only viable means to provide more affordable and workforce housing in Norwich.

Compact development is a sustainable approach to development in which single- and multi-family housing is built at relatively higher densities to maximize the use of available land. It is a recognized strategy to reduce public infrastructure costs and protect open space by accommodating more development in less space. Compact neighborhoods often include a mix of uses so that residents can find goods and services without driving long distances. The higher level of density also facilitates a range of

transportation choices, including public transit, walking and biking. It also reduces household transportation and utility costs, which are directly tied to the price of fuel and energy, and to air pollution and greenhouse gas emissions.

Relatively higher densities are an essential component of compact development, but these densities are typically achieved through a combination of housing types such as townhouses, apartment buildings and single-family homes on small lots. Densities within compact residential neighborhoods typically range between six to twelve dwelling units per acre. Compact development does not simply imply larger buildings or smaller lots. Traditional neighborhood development is a form of compact, mixed use development that is based on the characteristics of pre-WWII neighborhoods in New England town and urban centers. Such walkable neighborhoods usually feature a diversity of housing types along with a few, relatively small retail, office and service uses.

Changing the negative connotations that many Norwich residents have of higher density development is one of the barriers that will need to be overcome to further the sustainability goals of the 2011 Town Plan. People's perception of density is complex and greatly influenced by design. For example, the current village center is an example of relatively high density development that, as evidenced by very high housing prices, is apparently attractive to many residents. Through appropriate siting and design many of the concerns about higher densities can be addressed. Design characteristics that affect the perception of density include:

- ◆ **Building Size.** Smaller buildings appear to be less dense than larger buildings.
- ◆ **Building Orientation.** Buildings with narrower facades along the street appear to be less dense than buildings with wider facades.
- ◆ **Building Articulation.** Buildings that have recesses, projections or other variations in the wall plane appear to be less dense than buildings with a solid, straight wall plane.



- ◆ **Building Height.** Buildings that are lower in height appear to be less dense than taller buildings.
- ◆ **Building Separation.** Buildings that are detached with space between them appear to be less dense than attached buildings.
- ◆ **Building Form.** Buildings that look like single-family homes (i.e., smaller footprint, detached, pitched roof) appear to be less dense than other building forms.
- ◆ **Trees and Landscaping.** Buildings with trees or other landscaping in front appear to be less dense than buildings with no trees or landscaping in front.

Compact development patterns provide an efficient use of land that not only allows more people to live in a smaller area, but also facilitate more effective mitigation of development impacts. For example, compact mixed use development is an efficient means to reduce impervious cover and stormwater runoff volume per dwelling unit. An EPA assessment in 2006 determined that the runoff rates within compact development were 74% less per house as compared to residential subdivision with a similar number of homes on one-acre lots.

The efficiencies gained from compact development patterns can be further enhanced through green building practices. Green buildings are designed to reduce the overall impact of the building on human health and the natural environment by efficiently using energy, water and other resources, incorporating sustainable, recycled and/or low-maintenance materials and finishes, and creating healthy indoor environments with minimal pollutants. Many green building practices can have minimal to no impact on initial construction costs, but can result in significantly lower operating costs over the life of the building.

Making use of solar energy is fundamental to sustainable, green buildings. How a building is oriented to the sun has a dramatic impact on its heating and cooling costs. Simply orienting a building and properly locating windows for passive solar gain can

reduce its energy costs and greenhouse gas emissions by 25% to 50%. A passive solar building is typically designed:

- ◆ With its longest dimension on a true east-west axis, although a variation of 15 to 30 degrees can still offer some benefits.
- ◆ So the south facade receives sunlight between 9 a.m. and 3 p.m. during the heating season.
- ◆ With shading to prevent summer sun from entering the interior through use of roof overhangs, awnings and/or landscaping.
- ◆ With many windows on the south facade and few on the north facade.
- ◆ With the most actively used interior spaces, and those that require the most heat and light, along the south facade (i.e. kitchens and living rooms) and with less used spaces along the north facade (i.e. bedrooms and utility spaces).
- ◆ With an open floor plan to optimize distribution of solar heat and light throughout the interior.

Basic passive solar design can be enhanced with the addition of thermal massing within the building to store heat and active solar systems to produce hot water or electricity.

As discussed in Chapter 3, there is documented a need for compact, conveniently located, energy-efficient, green homes in the region. Proximity to existing settlements and major transportation corridors, along with the availability of transit, makes the Route 5 South – River Road area the most feasible area of town for sustainable, compact development.



5 community input

As called for in the 2011 Town Plan, Norwich residents were invited to participate in this planning effort for the Route 5 South – River Road area. As part of this planning process, two community workshops were held and a preference survey was conducted. Complete notes and survey results are included in Appendix A. The common themes that emerged from the discussion and comments included:

- ◆ Concern about the desirability and/or necessity of any further development in Norwich. About 20% of the residents who took the online preference survey indicated that they would not support any additional development in town. Others questioned why opportunities for infill within the village were not being considered and thought that was a better option than the Route 5 South and River Road areas.
- ◆ Recognition that there is demand for housing in the core Upper Valley area and that the high cost of housing is an ongoing problem for Norwich. Some also noted that it isn't just the price of housing in town that is an issue, it is also the location and type of housing available.
- ◆ Identification of wastewater as the principal barrier to the planning goals for the study area.
- ◆ Concern that any future development could increase traffic congestion and increase the cost of providing municipal services.
- ◆ Discussion of the primary agricultural soils within the Route 5 South corridor. Some expressed concern about any development on agricultural soils and thought they should remain available for farming in the future. Others thought that other factors such as the size, configuration, location, traffic and surrounding land uses would likely limit the economic viability of agriculture on those soils. It was also noted that the agricultural soils would pose a significant challenge for any proposed development that required Act 250 approval.
- ◆ General consensus that the land south of Hopson Road on Route 5 was best suited for housing. It would be near the recreation fields and would likely have plenty of open space due to the natural constraints existing in that area. A few would prefer to see mixed use with some businesses since it is a high traffic area. There were concerns that this location is furthest from the village and would not be walkable. Others noted that there is transit service and a multi-use path is being planned to connect this area to the village.
- ◆ General consensus that it made little sense for the land north of Hopson Road on Route 5 to be zoned Rural Residential given the existing development pattern and location and that it would make sense for both sides of the highway to be commercial or mixed use.
- ◆ Desire to see Lewiston revitalized in a manner that would enhance its historic character and create a more attractive gateway into town.
- ◆ Lack of consensus about the River Road corridor. Some saw this area as having great potential due to its location (proximity to Hanover and the village) and river views for housing (particularly affordable rentals). Others noted that the interstate would generate noise and the visibility of any potential project from the interstate might pose problems if the project needed Act 250 approval.
- ◆ General consensus that the area east of the interstate and south of Church Street was best suited for housing. This area is closest to the village and could be walkable if there were sidewalks or a path.
- ◆ General preference for mixed use development over single use commercial development.
- ◆ More support for smaller-scale housing types like cottages and compact single-family homes than for larger multi-unit buildings.
- ◆ Affordability is a determining factor as to whether many residents would support any future housing development within the study area.

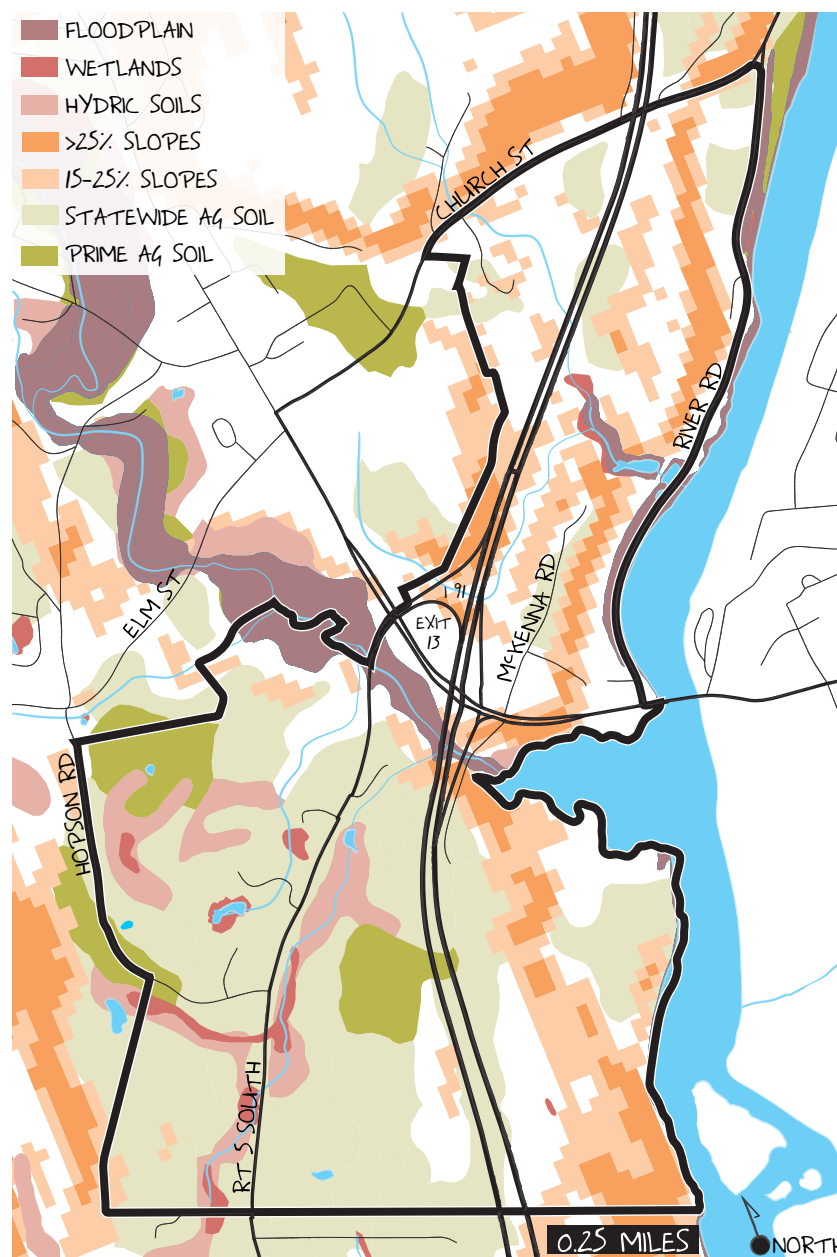
6 natural resource assessment

As a first step in this planning process, a natural resource assessment was completed to determine the amount of land within the study area that might be available and suitable for any future development. The findings are detailed in Appendix B and summarized here.

The natural resource assessment suggests that while there are opportunities for development within the study area, a significant amount of acreage is unlikely to be developed due to a combination of physical limitations or constraints and current land ownership and use. The analysis showed that more than 60% of the land within the study area is either not available or suitable for any future development. Of the remaining acreage, most has natural resource features that would likely reduce or influence how the land could potentially be used or developed.

The assessment suggests that the natural resource constraints within the study area will dictate that any future development be relatively small scale with ample open space.

Figure 7. Natural Resource Assessment Map



7 current zoning analysis

As part of this planning process, the amount, type and pattern of development that would be possible within the study area under Norwich's existing zoning and subdivision regulations was examined. The analysis is detailed in Appendix C and summarized here.

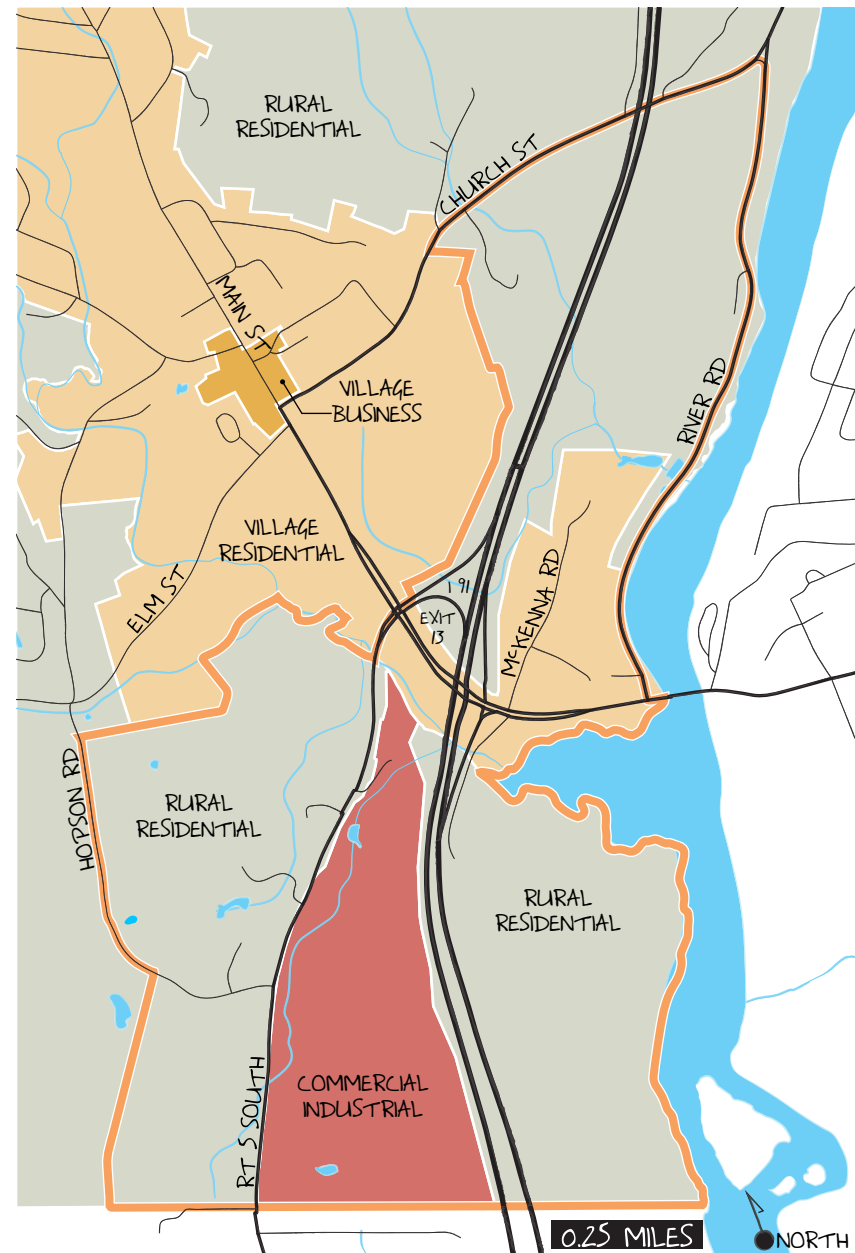
Most of the land in the study area is currently in the Rural Residential zoning district. Under current zoning, that portion of the study area currently has about 70 dwelling units built and the potential for about 320 additional homes. However, that density could not be achieved without some alternative to on-site septic systems. Wastewater capacity limits the amount of development likely to occur in the foreseeable future far more than the zoning regulations.

Norwich's Commercial/Industrial district is entirely located within the study area (east of Route 5 South). The analysis suggests that the developable (non-school) land in this district is nearly built-out. Even modest infill development or expansion of existing uses may be dependent on wastewater infrastructure becoming available within this district, which would free up the land currently required for on-site septic systems.

The previous studies and debates on the issue of municipal sewer in Norwich are evidence that wastewater needs to be addressed incrementally and at a neighborhood scale. A decentralized approach and short extensions of sewer from neighboring communities are the most viable options for providing wastewater treatment capacity in the study area as needed to support the sustainable development envisioned in the 2011 Town Plan.

Perhaps what is more critical at the present time than the allowed density is the form and pattern of development. If the vision for a sustainable future is to be realized, there needs to be a change in the form and pattern of any future development.

Figure 8. Current Zoning Map



8 recommendations

HOUSING DIVERSITY

To further the town's goal of encouraging housing diversity, Norwich should:

1. Establish a new Mixed Use zoning district in which:
 - a. A diversity of housing types (single-family, two-family, multi-family, townhomes, apartments, etc.) would be permitted uses.
 - b. A continuum of senior housing options (independent living, assisted living, nursing facilities) would be permitted uses.
 - c. The town's current accessory apartment provisions, which are more generous than required under state law, would remain unchanged.
 - d. Site plan review standards would require compatible transitions between infill housing and adjacent development. This should include consideration of landscaped buffers; proximity of outdoor lighting, parking, utilities, trash or other utilitarian site features to neighboring properties; stepping down the massing or height of buildings near property lines so that they are similar to neighboring buildings; and locating windows and outdoor spaces to maintain privacy and minimize overlook.
 - e. Offers incentives for affordable, workforce or senior housing similar to the current bonuses offered in the Village Residential district. Bonuses should be available to projects that include a mix of market rate and affordable units.
2. Implement an alternative approach to regulating residential density within a new Mixed Use zoning district by:
 - a. Eliminating the maximum residential density altogether and allowing as much housing to be built as the infrastructure and site are capable of accommodating;
 - b. Requiring a minimum residential density to ensure that any future housing will be compact and higher density (assuming that there is infrastructure to support it); and/or
 - c. Measuring residential density based on square footage of habitable space rather than total number of units to create an incentive for smaller dwellings.

3. Continue efforts to promote alternative wastewater solutions within the study area, which will be necessary to support a range of housing types. If the town pursues an option to provide wastewater capacity, it should:
 - a. Adopt a wastewater allocation policy that would set aside a percentage of the available capacity for affordable, workforce and/or senior housing to ensure that any investment in public infrastructure serves to further this priority planning goal.

TRANSPORTATION CHOICES

To further the town's goal of enabling transportation choices, Norwich should:

1. Continue to use the Transportation Checklist, which addresses pedestrian, bicycle, transit and vehicular transportation, circulation and access for proposed development, when reviewing development proposals.
2. Continue to support Advanced Transit efforts to increase transit ridership by providing comfortable, convenient, reliable, efficient and frequent service to major destinations throughout the region.
3. Prepare and adopt a pedestrian and bicycle master plan that would recommend complete streets improvements including sidewalks and bike lanes, connections between existing trail systems and greenways, and corridors for future multi-use paths and greenways.
4. Incorporate complete streets principles into town standards for any new or improved roads within private developments and upgrades to public roads, particularly within the village and study area including:
 - a. Sidewalks and bike lanes.
 - b. Narrow streets and travel lanes.
 - c. Transit stops and shelters.

5. Require any future development to contribute to improved walkability within the study area by:
 - a. Designing projects to be pedestrian-friendly with internal walkways that connect parking areas, building entrances and other site amenities, and that connect to sidewalks and pathways along streets and to surrounding properties.
 - b. Incrementally extending and connecting sidewalks and pedestrian pathways in accordance with the town's pedestrian and bicycle master plan.

MIXED USE

To further the town's goal of promoting mixed use development, Norwich should:

1. Establish a new Mixed Use zoning district that would:
 - a. Continue to apply the town's site plan criteria, which have worked well in recent years to ensure that proposed development is high quality and compatible with its surroundings.
 - b. Allow for a diversity of housing types as discussed above.
 - c. Use broad use categories (office, retail, dining, lodging, service, light industry, etc.) to define the range of uses that will be permitted or conditional.
 - d. Use design and performance standards to ensure that new development will be compatible with the envisioned purpose, character and development pattern for the area.
 - e. Allow multiple principal uses within a building or site as a by-right use provided that all applicable standards are met (impervious surface coverage, setbacks, residential densities, building size or floor area ratio, etc.).
 - f. Offer incentives for multi-story mixed use buildings such as reduced parking requirements, or additional building height or floor area.
2. Continue efforts to promote alternative wastewater solutions within the study area, which will be necessary to support mixed

use development. If the town pursues an option to provide wastewater capacity, it should:

- a. Adopt a wastewater policy that would allocate the available capacity between residential, commercial, industrial and/or public uses in order to ensure that as development proceeds over time, a mix of uses would emerge.

COMPACT DEVELOPMENT

To further the town's goal of promoting mixed use development, Norwich should:

1. Continue to apply the standards in Norwich's current regulations that provide substantial protection for natural resources and ensure that any new development proposal incorporates sensitive natural features into the site plan as an open space amenity or as part of green stormwater or low impact development practices.
2. Establish a new Mixed Use zoning district that would:
 - a. Allow for very small residential lots by right (currently possible through PUDs only) by reducing minimum residential lot size, frontage and setback requirements.
 - b. Offset reduced private yard space with increased requirements for common outdoor space and/or pedestrian access to nearby public lands and recreation facilities.
 - c. Require passive solar orientation unless applicant can demonstrate that it is not a feasible or beneficial option given the characteristics of the site or the proposed use.
3. Limit the amount of impervious surface that could be created within the study area as a whole by:
 - a. Establishing a maximum impervious surface coverage standard for development sites.
 - b. Reducing off-street parking requirements (requiring no more than one space per dwelling unit for smaller homes with transit service).
 - c. Allowing shared parking and off-site parking.
 - d. Encouraging on-street parking on private development roads and allowing that to count towards parking requirements.

APPENDICES

A community input

COMMUNITY WORKSHOP 1

Introduction. Three workshop sessions were held throughout the day on November 20, 2014. Phil Dechert and Brandy Saxton opened each workshop session with a brief presentation as summarized below:

- ◆ The town plan calls for consideration of a mixed use district in the areas south and east of the village along Route 5 and River Road. These areas are close to the village, Hanover and major transportation corridors, and transit service.
- ◆ The town plan recommendations related to reducing the density of development in the rural, outlying parts of town have been accomplished. This is the next phase of that effort – encouraging any future development that may be needed toward compact, higher density, mixed use patterns in appropriate, designated areas of town.
- ◆ There was a workshop in 2005 exploring similar issues. Given the amount of time that has passed, the Planning Commission wanted to get another round of input from town residents on these issues.
- ◆ Six areas have been identified for further consideration as shown in Figure 9.
- ◆ The natural constraints in those areas (wetlands, steep slopes, etc.) have been mapped to help determine what the development potential in these areas may be. Potential development sites within each area were identified. The results of the analysis in each area were presented.
- ◆ Wastewater is another constraint to development in these areas. This project is assuming that there will be another alternative to individual on-site, soil-based septic systems to support development in these areas. Alternatives could include extension of wastewater from neighboring towns or package, decentralized or shared wastewater or septic systems. The goal of this project is to determine what type, density, amount and form of development residents would find appropriate in these areas over time, and then work on how best to meet its wastewater needs.

Figure 9. Areas Selected for Further Consideration

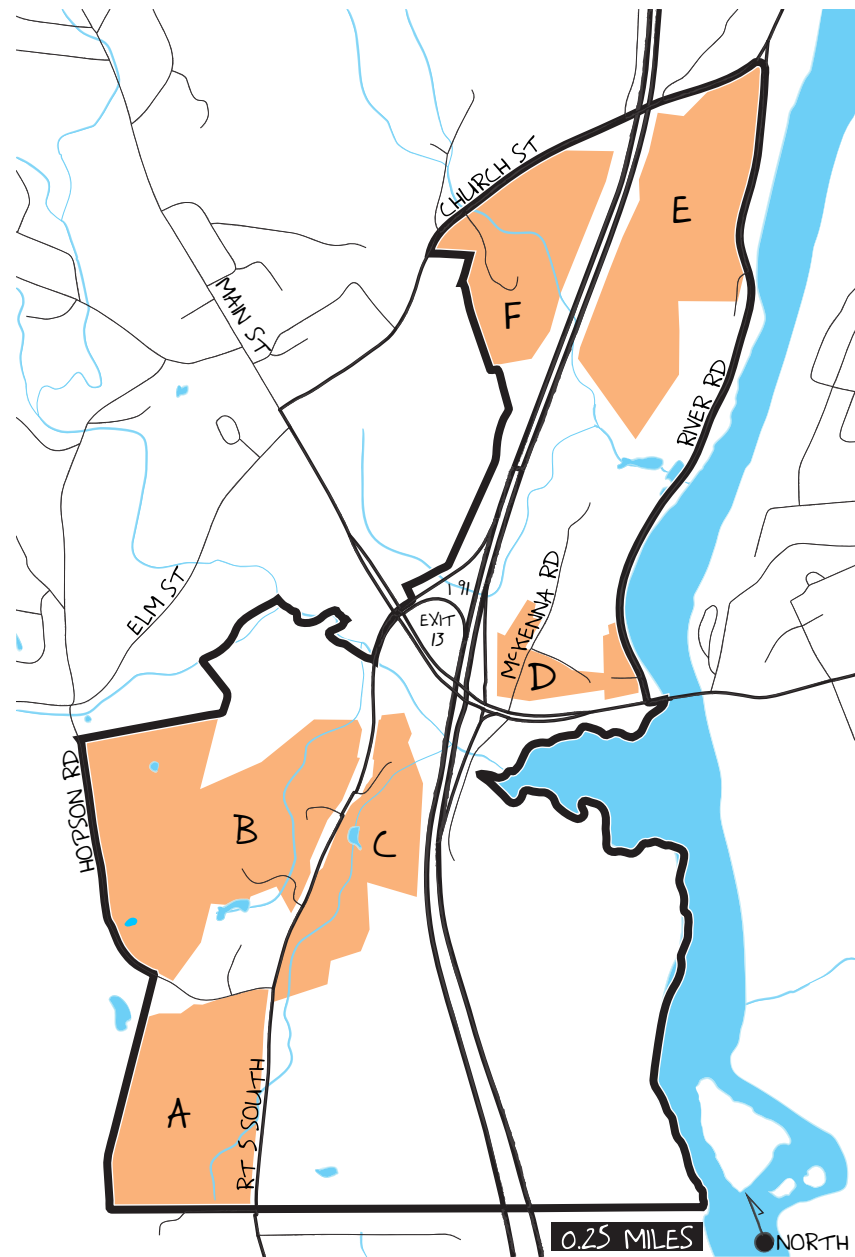


Figure 10. Area A Assessment

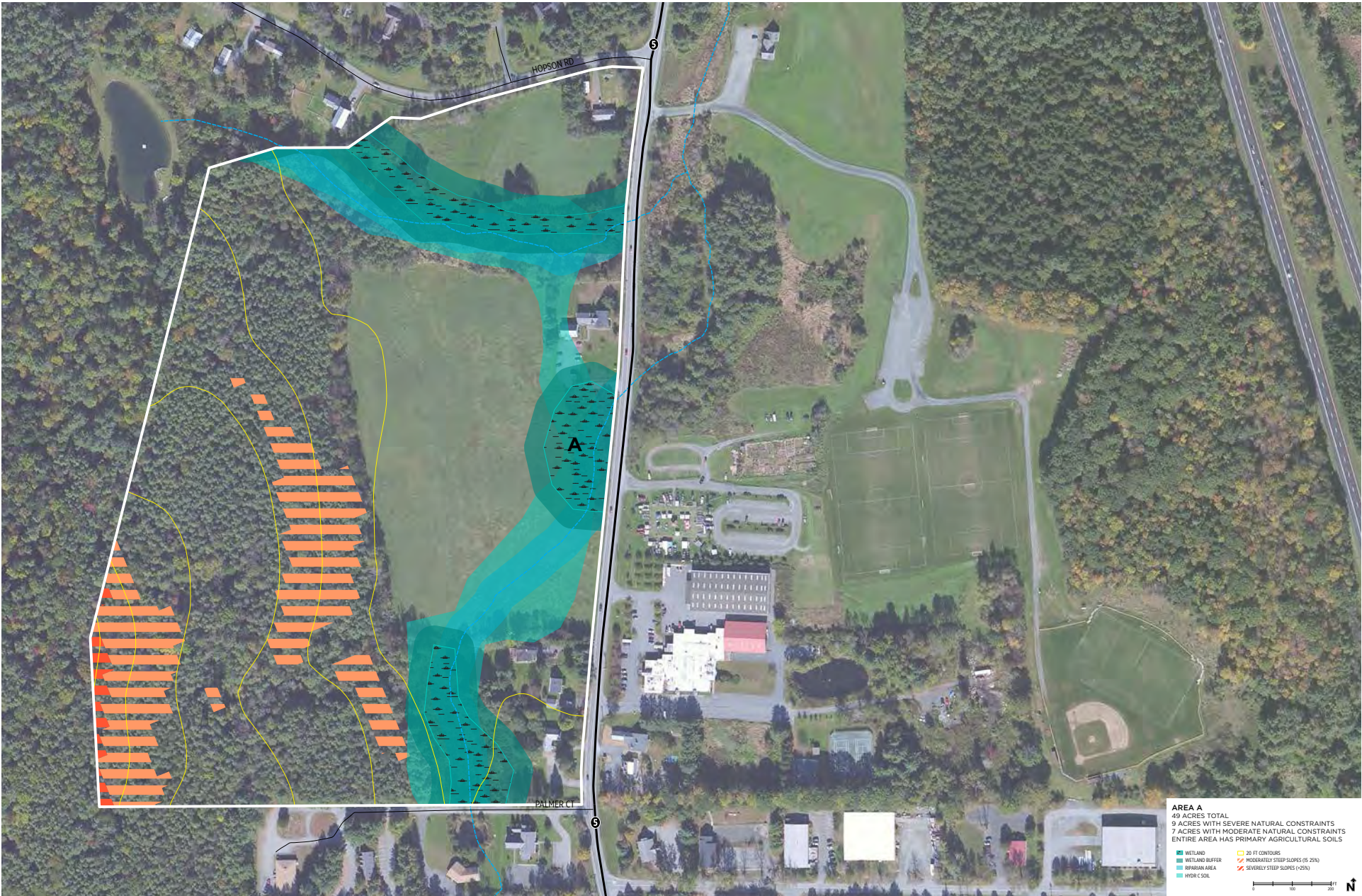


Figure 11. Area A Potentially Suitable Sites

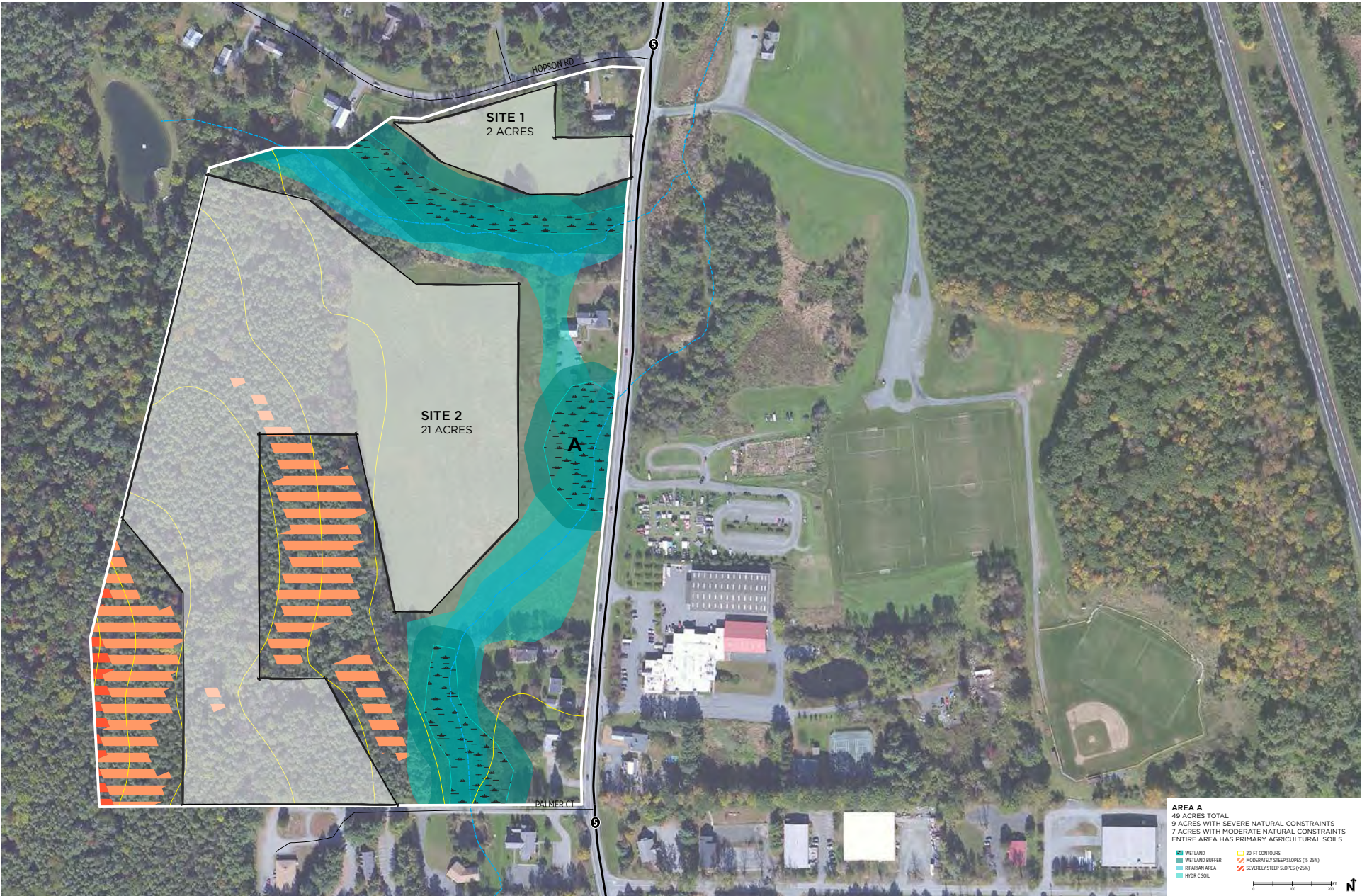


Figure 12. Areas B and C Assessment



Figure 13. Areas B and C Potentially Suitable Sites



Figure 14. Area D Assessment



Figure 15. Area D Potentially Suitable Sites

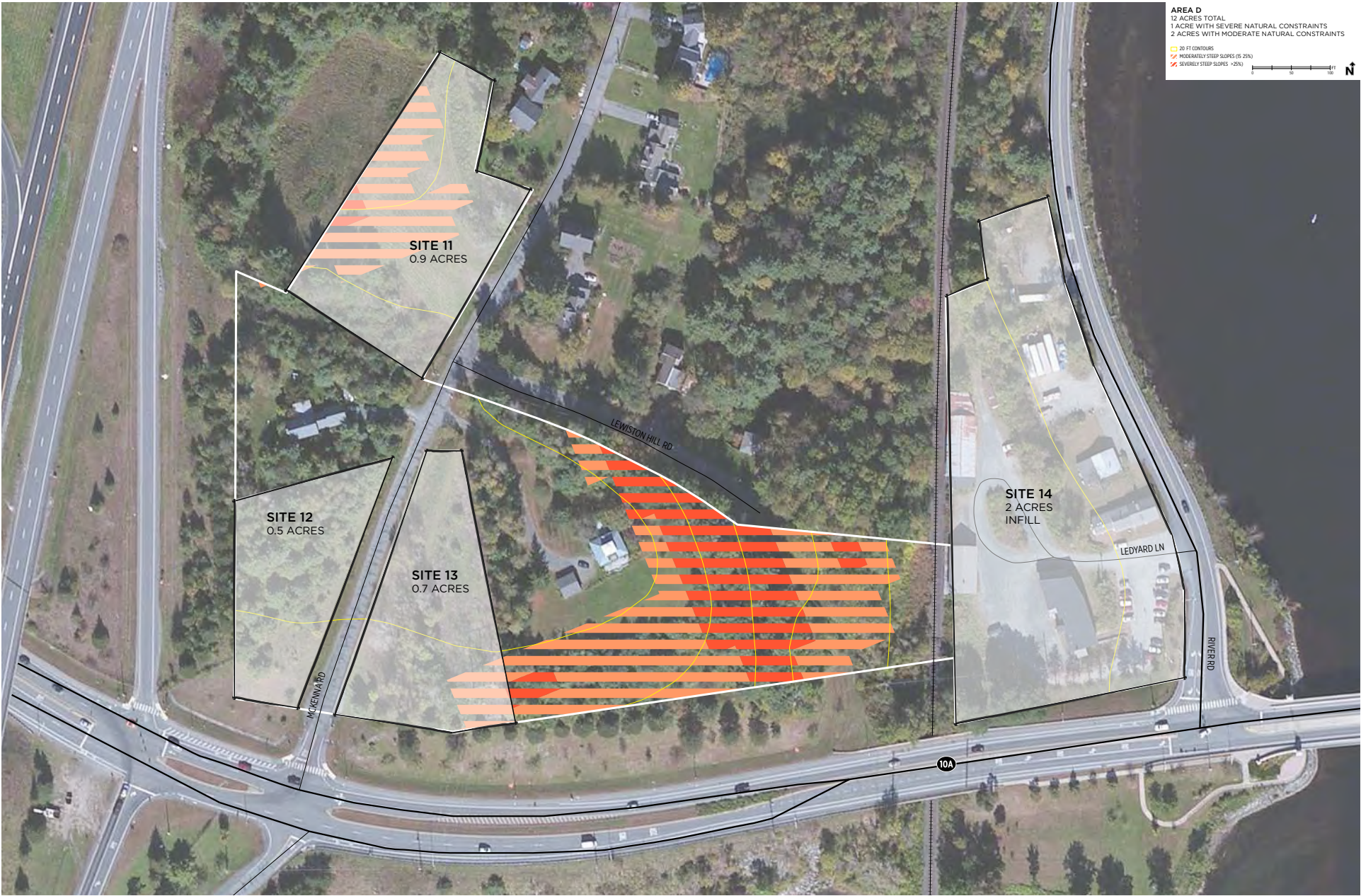


Figure 16. Areas E and F Assessment



Figure 17. Areas E and F Potentially Suitable Sites



General Discussion. After the presentation, there was a facilitated discussion of each area and what type, density, amount and form of development should be considered in that area. The discussions from all three sessions are summarized below.

- ◆ **General Comments.** Does Norwich need or want development? Is what we have now satisfactory?
- ◆ Why is study not looking at village and looking at infill opportunities there? That is allowed under zoning now and opportunities for significant growth are constrained by wastewater.
- ◆ It doesn't make sense for land on Route 5 to be zoned Rural Residential. It doesn't have rural character. It is an active area. Should be mixed use.
- ◆ Would rather see re-use of developed sites than greenfield development. Should be preserving wetlands and primary ag soils.
- ◆ Norwich doesn't need to do what everyone else has done. We should conserve features like wetlands and prime ag soils.
- ◆ **Agricultural Soils.** A lot of the land being looked at has primary agricultural soils. Concerned about developing on ag land – it should be kept for agriculture.
- ◆ There is protection for ag soils through Act 250 and for farmland through the town's regulations. Town regulations limit impact on farmland, but the definition of farmland takes into consideration more than just the quality of the soil – it considers whether it is really suitable and economically viable for farming (factors like size, location, whether it is currently farmed, etc.).
- ◆ Prime ag soils definition does not take into account the circumstances of individual parcels. We shouldn't worry about relatively small parcels of prime ag land. Area A, for example, isn't good for much of anything except hay.
- ◆ **Regional Housing Needs.** The region needs more housing near Hanover, where the jobs are. Particularly small housing – rental or ownership. There is strong demand now and will likely be in the future given demographic trends (smaller households, aging population, people starting families later and having fewer

children). There is also a desire to encourage more young people to remain in the area.

- ◆ Need to look at the big picture. Norwich is one of the region's four core towns. We have public transit. We need to be considering what type of development should be located in these areas.
- ◆ Norwich needs to offer a different housing product. There are a lot of homes on the market that aren't selling – they are not what buyers want and prices are too high for many buyers. There is demand for “green” housing and more affordable housing.
- ◆ There isn't growth in Norwich because there aren't housing options other than single-family. It isn't affordable.
- ◆ A lot of people want to live close in. There has been less demand for housing in the more remote, rural areas recently. There are people who want to live in town, not at the end of a dirt road.
- ◆ The vacancy rate for rental housing in the area is near zero. More good quality rental housing is needed.
- ◆ **Wastewater.** How dependent is the future of these areas on the availability of sewer?
- ◆ No high density development will be possible without sewer. The sewer study committee examined a range of options and decided it would be very expensive.
- ◆ It would be very expensive to fully sewer the village. There may be more affordable ways to extend sewer into some of these areas from the adjacent towns – the lines are already very close. Family Place is hooked into Hartford for sewer and the Unitarian Universalist congregation has an application for hook-up.
- ◆ Bringing wastewater across the bridge from Hanover will be very expensive. The development would need to justify the expense.
- ◆ Residents have been and continue to be concerned about the cost of municipal sewer.
- ◆ Part of the purpose of this study is to determine how much sewer capacity might be needed. To negotiate with the adjoining towns for sewer, Norwich would need to know how much capacity we should be looking for. Also with a better sense of the type of

development, there may be other options for wastewater that could work – like package, decentralized or shared systems.

- ◆ There are poor soils in proximity to the interstate because of all the fill done during highway construction. On-site septic will likely be limited in all the areas near the highway.
- ◆ **Transportation.** We have transit service and proximity to employment centers.
- ◆ Need to look at all these areas and ask whether there are services nearby. Development needs to be walkable.

Area A. The comments related to the portion of Route 5 south of Hopson Road are summarized below:

- ◆ **Transportation.** People living in this area will be heavily reliant on cars in order to get to services .
- ◆ This area might not be “walkable” today to the village or services, but it is on the Advance Transit line. It is a major transportation corridor, near enough to existing centers and services. It is a great place to consider development.
- ◆ **Housing.** Site 1 – would be appropriate for a cottage court.
- ◆ Good place for affordable housing for families with children – Dresden fields across road. Norwich needs to attract more families with children to lower per pupil costs at the school (and resulting property taxes).
- ◆ Favor residential set back from the road.
- ◆ Should small parcels of ag land be the focus of preservation efforts? There are more significant lands to protect.
- ◆ Area A seems the most promising. It could be developed with housing for families with children.
- ◆ Housing would be best on hill (Site 1).
- ◆ Think about a Cobb Hill type of development with houses on the hill (Site 1).
- ◆ This area is least attractive for commercial development. It is furthest from the village and highway. May be better suited for housing.

- ◆ Housing clustered in the woods (Site 1).
- ◆ **Wastewater.** Hartford sewer line comes to the adjacent property – seems feasible to connect. This area seems the most likely to be able to get sewer – most affordable and reasonable.
- ◆ Proximity to sewer in Hartford is an opportunity for this area.
- ◆ **Open Space.** The value of the open space (field on Site 1) is not that high. Housing could benefit from open area – community garden space, for example.
- ◆ The field on Site 1 has scenic benefits and tourist value.
- ◆ Field could be used for community gardens with affordable or senior housing at periphery.
- ◆ **Commercial and Mixed Use.** Think about service type uses – build on the traffic generated by the Dresden fields.
- ◆ Think about mixed use – both commercial and housing.

Area B. The comments related to the area west of Route 5 and north of Hopson Road are summarized below:

- ◆ **Commercial and Mixed Use.** Parcels across from car store make sense to be commercial (Sites 6 and 7). They should not be rural residential. They are/were commercial.
- ◆ Commercial use on both sides of the road makes sense.
- ◆ Sites 6 and 7 should be mixed use – high density residential upstairs, commercial downstairs. Buildings could be built into the slope to look like 1 or 2 stories from the road, but actually be larger. Homes that faced northwest would be shielded from road impacts and have good views.
- ◆ Sites 6 and 7 are still good for home businesses – similar to what they used to be.
- ◆ Allow more businesses along Route 5. Maybe a business park.
- ◆ Might be a good place for mixed use. Topography could help fit larger buildings into the landscape.

- ◆ **Housing.** Site 3 (off Hopson Rd) would be suitable for residential, particularly cluster housing. Could be smaller homes. Walkable to the village and to King Arthur – there should be paths.
- ◆ Sites 3, 4 and 5 should be considered together, should be interconnected (if not for cars then at least for walking). Together there is enough area to get a density of housing that could help support commercial uses on Sites 6 and 7.
- ◆ These are small sites. Consider multi-family to maximize areas that are suitable.
- ◆ Key to residential is walkability.

Area C. The comments related to the area east of Route 5 and north of the Dresden fields are summarized below:

- ◆ Site 10 – what about a vineyard or ag-related similar use?
- ◆ Site 10 – could be an expansion of the existing office use to create an office park.
- ◆ Commercial uses like lodging or a garden center would be good. Lodging has same wastewater issues as residential – high demand as compared to other types of commercial.
- ◆ Think about a tie-in to the sports center idea – a rink.
- ◆ Need to think about getting kids from the school to the fields – need a corridor for a path.
- ◆ Pursue the opportunity for affordable housing on adjacent Dresden land.

Area D. The comments related to Lewiston and the area along McKenna Road are summarized below:

- ◆ **Lewiston.** Lewiston is suitable for high density mixed use. A restaurant would be a good use on Site 14.
- ◆ A restaurant overlooking the river.
- ◆ This area is a gateway for both towns and the college.
- ◆ Need to make the financials work to extend sewer to Site 14 (college land). The site is small and they would need to make

money off every square inch to make it feasible. Think about high-density housing, office or institutional uses. Parking under buildings so no land consumed by surface parking.

- ◆ Site 14 makes sense for mixed use development with a residential component that is consistent with what is across the bridge in Hanover.
- ◆ Site 14 – the aesthetics are not good, but it currently serves a useful function for college – storage.
- ◆ Need to consider the railroad. Unlikely there will ever be a stop here again. Amount of train traffic and speed appears to be increasing. How does this impact what can be done on the site?
- ◆ Appearance of Site 14 needs to be upgraded so that the gateway looks good.
- ◆ Good site for a restaurant.
- ◆ Site 14 should be mixed use.
- ◆ **McKenna Road.** Sites 12 and 13 (off McKenna Road) may have slopes that make them difficult to built on.
- ◆ Site 11 (McKenna Road) is fill. That limits opportunity and may be a challenge for wastewater.
- ◆ Consider McKenna Road sites as one piece. There could be opportunity for redevelopment over the long-term.
- ◆ Slopes limit options on some of this land.
- ◆ Is there any place for a park-and-ride in this area?
- ◆ Would a park-and-ride serve Norwich residents? Would it have public support? There have been concerns about park-and-rides in the past.
- ◆ Could there be a site for solar panels?

Area E. The comments related to the area east of Interstate 91 and west of River Road are summarized below:

- ◆ This is Norwich's most valuable real estate. There should be a focus on this area. It has proximity and access to village, to Lewiston, to Hanover, to river.

- ◆ Housing would need separation from the interstate. Change in elevation does reduce traffic noise along River Road, but it does not eliminate it. Noise would be much more prominent on unshielded upper portion.
- ◆ There should be higher density housing or mixed use development along River Road.
- ◆ There should be access to the river. The railroad is a constraint. Still property on River Street has views of river if not physical access.
- ◆ Housing with river views would be good.
- ◆ A riverfront or river-view restaurant with outdoor seating would be good.
- ◆ What about appearance from the interstate? The state seems to want to prevent development that would be visible from the interstate – keeping views of woods or fields. Development on the upper part of this area would be highly visible from the highway.
- ◆ Sites 17 or 19 could be used for senior housing.
- ◆ There should be housing on sites 19 and 17. River and views are assets. Noise is an issue.
- ◆ Because there are river views, maybe this land should remain lower-density, higher-value residential lots.
- ◆ Land is better suited for higher density housing, more affordable housing. Focus on rentals.
- ◆ What about mixed income housing. Some higher-end units and some affordable units.
- ◆ Sites 18 and 19 (on River Rd) are insulated to some extent from highway noise. May make sense to focus housing on 18 & 19 and to use Site 17 (off River Road abutting I-91) for commercial.
- ◆ Site 18 could be senior housing.

Area F. The comments related to the area east of Interstate 91 and south of Church Street are summarized below:

- ◆ Infill housing in this area.

- ◆ Site 15 could be appropriate for cottage/bungalow type housing.
- ◆ The sidewalk would need to be extended from the village if there is going to be more housing in this area.
- ◆ It is close to the school and village.
- ◆ Consider extending Village Residential district into this area rather than a new mixed use district. The area is more suitable for housing than commercial.
- ◆ There were concerns raised about increasing the density between the school and highway when the Agway site was considered for affordable housing and the zoning was changed to allow for higher density affordable housing.
- ◆ Site 16 (Agway site) is commercial now and has been for a long time. Why shouldn't it continue to be?
- ◆ Site 16 (Agway site) could be affordable senior housing.
- ◆ There was not enough septic to support housing on Site 16 – that is why the affordable housing project didn't happen.
- ◆ Municipal water is available in this area. That could make it possible to do more with on-site septic

COMMUNITY WORKSHOP 2

Introduction. Two workshop sessions were held on December 11, 2014 – one in the afternoon and one in the evening. Phil Dechert and Brandy Saxton opened each workshop session with a brief presentation as summarized below:

- ◆ The town plans calls for consideration of a mixed use district in the areas south and east of the village along Route 5 and River Road. These areas are close to the village, Hanover and major transportation corridors, and transit service.
- ◆ The town plan recommendations related to reducing the density of development in the rural, outlying parts of town have been accomplished. This is the next phase of that effort – accommodating compact, higher density, mixed use development in appropriate, designated areas of town.
- ◆ There was a workshop in 2005 exploring similar issues. Given the amount of time that has passed, the Planning Commission wanted to get another round of input from town residents on these issues.
- ◆ A workshop on November 20 examined the natural resource and current land ownership/use constraints that may affect development potential in the areas south and east of the village along Route 5 and River Road.
- ◆ Wastewater is another constraint to development in these areas. This project is assuming that there will be another alternative to individual on-site, soil-based septic systems to support development in these areas. Alternatives could include extension of wastewater from neighboring towns or package, decentralized or shared wastewater or septic systems. The goal of this project is to determine what type, density, amount and form of development residents want to see occur in these areas over time, and then work on how best to meet its wastewater needs.

Of the six areas examined in depth at the November 20 meeting, the two areas with significant amounts of undeveloped land were selected to illustrate the types of compact, higher density, mixed use development that could potentially be accommodated during this workshop.

Area A is the land west of Route 5 and south of Hopson Road, which includes an open field near the road and wooded hillside beyond. Area E is the land between I-91 and River Road south of Church Street (Route 5), which includes a largely undeveloped higher elevation portion along the interstate and a lower elevation area along River Road that includes a mix of existing development and open land.

It is assumed that similar forms and densities of development could be accommodated in the other four areas as well, although perhaps at a more limited scale due to the small infill sites that are available.

Conceptual Scenarios. Three different conceptual scenarios for development in Area A were presented:

1. Plan 1 attempted to maximize residential development on the property. It included a cluster of 13 cottage homes on 4 acres (a density of about 3 homes per acre); 16 detached single-family homes located close together on 11 acres ringing the open field (a density of about 1½ homes per acre); and 134 townhouse units located on 16 wooded acres above the field (a density of about 8 homes per acre).
2. Plan 2 was similar in concept to Plan 1, except at a lower density. It included a cluster of 12 cottage homes on 4 acres (a density of 3 homes per acre); 11 detached single-family homes located close together on 11 acres ringing the open field (a density of 1 home per acre); and 48 townhouse units located on 16 wooded acres above the field (a density of 3 homes per acre). This plan has less housing, but a similar amount of road as Plan 1 – this will affect affordability. The plan could be altered so that the townhomes and single-family homes shared a single road, which would reduce construction costs considerably, but would change the appearance and amount of privacy afforded by the development.
3. Plan 3 had the same number of homes as Plan 2, but also added three mixed use (commercial first floor and residential second floor) buildings. It included a cluster of 12 cottage homes on 4 acres (a density of 3 homes per acre); 11 detached single-

Figure 18. Area A Conceptual Site Plan 1



Figure 19. Area A Conceptual Site Plan 2



Figure 20. Area A Conceptual Site Plan 3



Figure 21. Area E Conceptual Site Plan 1



Figure 22. Area E Conceptual Site Plan 2



family homes plus the 3 mixed use buildings ringing the open field (increasing the density to about 2 homes per acre plus the commercial space); and 48 townhouse units located on 16 wooded acres above the field (a density of 3 homes per acre). This plan could be adapted to include more mixed use development either opposite the mixed use buildings shown (in the field) or replacing out some or all of the single-family homes. A certain amount of the field will need to remain open due to the presence of wetlands (near Route 5), but otherwise how much of the field to preserve as open space is open for discussion.

Two different conceptual scenarios for development in Area E were presented:

1. Plan 1 attempted to maximize the amount of rental housing on the lower portion of the site (along River Road) and reserved the upper portion of the site (along the interstate) for two large-scale light industrial/office buildings. It included 36 multi-family apartments on 5 acres (a density of about 7 homes per acre); intensifying the existing mixed use along River Road with multiple buildings totaling about 30,000 square feet of commercial space and 30 upper floor rental apartments; about 102,000 square feet of light industrial space was shown on the upper 19 acres.
2. Plan 2 showed a slightly different mix of residential and nonresidential development types. It included 24 multi-family apartments on 5 acres (a density of about 5 homes per acre); less of an intensification of the existing mixed use along River Road with the multiple buildings totaling about 18,000 square feet of commercial space and 18 upper floor rental apartments, as well as 5 duplexes (10 dwelling units) set behind the mixed use buildings along River Road; the upper portion of the site includes both a light industrial/office building and a hotel, bringing more commercial/traffic activity to the area.

There was an interactive poll taken at the end of each workshop. For both areas and in both sessions, there was a preference for Area A's Plan 3, which included mixed use buildings. There was not a consensus on which plan was preferred for Area E, although there was a preference for mixed use there as well.

General Discussion. After the presentation, there was a facilitated discussion of each conceptual plan and what type, density, amount and form of development should be allowed in the areas south and east of the village. The discussions from both sessions are summarized below.

- ◆ **Current Zoning.** There was discussion of the current Rural Residential zoning and what development is allowed in these areas now. Phil reported that in Area A, the property with the field and wooded hillside could likely be developed with about 30 single-family or two-family homes under current zoning, with additional homes possible if the development included affordable housing. There would likely be factors that would encourage the development to be clustered (such as wastewater and natural resource constraints). However, the zoning does not require clustering and it could be in the form of single-family houses on roughly 2-acre lots. The lack of wastewater is obviously a limitation today. Hartford's sewer lines come to the town line. Family Place is hooked into Hartford for sewer and the Unitarian Universalist congregation has an application for hook-up. In the future, it could be feasible and not cost prohibitive to extend sewer to this land.
- ◆ **Market Demand.** There was discussion of what is known about development/housing needs and whether these plans reflect market demand. There is a good deal known about regional housing needs – there is strong demand for quality rental housing for those working in the region and the demographic trends point to smaller households that will be looking for smaller homes conveniently located to transit, services, employment, etc.
- ◆ **Affordable Housing.** A question was raised as to whether the town should be looking to attract more affordable housing – would it just raise the cost of living in Norwich for everyone? There are already people living in town who cannot afford it – people have moved out of town because they could not afford to live in town. They may not want to live in higher density types of housing like what is built as “affordable” housing. There was discussion of the need for more diversity of housing in Norwich so that people would have options. Right now, there are not a lot of options to single-family homes, many on large lots. These are expensive to own and maintain.

People may not be choosing to live in Norwich because there is not housing they can afford and/or the type of housing they want in a convenient location to access employment, services, etc.

- ◆ **Tax Implications.** There was discussion of the tax implications of development. This is something that changes over time as tax policies change, particularly state education tax policy. It has been the town's position to not base development decisions on the tax implications. Instead, the town tries to attract the types of housing and businesses that will bring other benefits to the community – support a diversity of residents, provide jobs, provide services, etc. – basically contribute to quality of life. The nonresidential development that has occurred in recent decades fits that description – King Arthur Flour, the expansion of the Norwich Inn, etc. Norwich has strong site plan review requirements that have tended to discourage certain types of businesses (ex. gas stations) from proposing to locate here.
- ◆ **Traffic.** Traffic was a significant concern raised at both sessions. There were concerns about how much additional traffic development in these areas could generate. Specifically there were concerns expressed about increasing current commuter traffic on both Route 5 and River Road – as they are already congested during commuter hours. It should be noted that these areas are served by transit, and that is one of the reasons they are being considered for higher density. Phil also noted the town's site plan review process would consider the traffic implications of any proposed development. There was also mention of improving facilities for walking and biking along these corridors, which could encourage more people to travel by means other than car.
- ◆ **Project Timeline.** The amount of time it would take for the town to change the zoning for these areas was discussed. Phil responded that it would likely take at least 2 years. It was noted that zoning changes have been made more quickly in response to specific projects. The current work will result in a plan completed in May. The plan would then guide the next step of the process, specific changes to zoning districts and/or standards. There was also discussion about the overall timeframe of the development of these areas. Based on what has happened during the past several decades the build-out of these areas would be very slow. There was general

agreement that development should proceed slowly and that large changes are not desirable if they happen quickly. Town residents generally want the town to stay rural. It was noted that the area being studied is a very small portion of the town and that much has already been done to ensure that most of the town will remain rural.

- ◆ **Other.** There was further mention of Areas B, C and D from the prior workshop. These are the areas along Route 5 north of Hopson Road. It was again stated that these areas are suited for commercial uses. There was brief discussion of Lewiston and the college's plans for their property there. The importance of the area's historic character was mentioned specifically.

PHOTO PREFERENCE SURVEY

As part of the Route 5 South – River Road study, Norwich residents were invited to respond to a survey in December 2014 to assess their preferences for any future development within the study area. A link to the online survey was sent to those who attended one of the community planning workshops and was distributed via the town's listserve, resulting in 183 responses. The survey was designed to be a follow-up to the workshops. However, it is important to note that only about 35 residents attended the community workshops, which offered an opportunity to ask questions and to discuss potential development options in a group setting prior to taking the survey.

Development Types by Area. The photo preference survey showed respondents examples of four different types of higher density housing and five different types of commercial or industrial development, and asked whether they would like to see that type of development in any of the six subareas (A-F, see Figure 9) in the Route 5 South - River Road study area.

Approximately 20% of survey respondents indicated that they did not want to see any of the development types in any of the areas. The percentage of respondents indicating that they did not want to see any of the development types in any one particular area ranged from 36% to 48%. Respondents indicated that Areas A and C (both on Route 5 South) were more suitable for the types of development shown than the other subareas. Area D (Lewiston) had the largest percentage of respondents indicating that they would not want to see any of the development types shown. The narrative comments suggest that many respondents are concerned about maintaining the historic character of Lewiston.

A majority of respondents indicated that they would be willing to see three of the development types – cottage housing, farm and garden businesses, and local food businesses – somewhere within the study area. The narrative comments suggest that respondents who liked the cottage

housing thought that it was more similar in scale, architectural design, density, and amount of open space to other residential development in town than the other housing types shown. For many, providing affordable housing is an essential component of whether or not they would support compact, higher density residential development. The narrative comments also suggest that the respondents who liked the farm, garden and local food businesses thought that they were more compatible with the town's rural character and complemented existing business like King Arthur Flour more than the other types of commercial or industrial development shown.

There were more respondents indicating that they did not want to see the other six development types anywhere within the study area than there were indicating that they would want to see them. There was a strong consensus among respondents that they did not want to see retail and traveler service businesses in the study area. The narrative comments suggest that many respondents are concerned about loss of the town's character if franchise/corporate buildings were developed and about the increase in traffic such businesses might generate. This is consistent with results from prior planning surveys and public meetings over the years.

Would you like to see...	A	B	C	D	E	F	NONE
Cottage housing	45%	43%	29%	22%	32%	39%	39%
High-density single-family housing	26%	27%	17%	21%	21%	30%	54%
Attached row housing	22%	17%	15%	15%	14%	18%	63%
Multi-family housing	24%	16%	17%	17%	16%	20%	62%
Light industrial/office	26%	14%	26%	10%	9%	13%	60%
Business park	22%	11%	31%	13%	9%	10%	60%
Farm/garden businesses	40%	31%	44%	26%	33%	28%	40%
Retail/traveler service	9%	7%	15%	8%	4%	4%	81%
Local food businesses	34%	30%	45%	33%	22%	23%	42%
None of the above	37%	43%	36%	48%	46%	46%	



Cottage Cluster Housing – What do you like about this type of development?

There were 111 responses to this question. Approximately 20 respondents indicated that there was nothing that they liked about this type of development.

Affordability was mentioned in approximately 30 of the comments. As stated previously, many survey respondents would only be supportive of residential development if it provided affordable housing.

Approximately 20 comments related to aesthetics and design issues. Those respondents generally thought that this type of development was attractive and that this is a form of housing that could be compatible with the New England vernacular residential architecture commonly found in town.

A similar number of comments spoke about how this form of development could create a neighborhood or sense of community for residents. There were also related comments about how the clustering of homes with open space was desirable.

Cottage Cluster Housing – What don't you like about this type of development?

There were 84 responses to this question. Approximately 15 respondents indicated that there was nothing that they liked about this type of development. Many of these asked why any development was needed or wanted in Norwich.

Interestingly, aesthetics and design was again mentioned in approximately 20 of the comments. Those respondents generally thought that such development was “suburban” and too dense or tightly clustered for Norwich. More than 10 comments were related to the density of development. Some expressed concern about “cookie-cutter” homes that would all look similar to one another.

Approximately 10 comments were related to concerns about development resulting in higher taxes for all property owners in town due to increased demand for town services. A number mentioned the related issue of wastewater and whether costly municipal infrastructure would be required to allow for this type of development. Another similar concern brought up by multiple respondents was increased traffic and congestion resulting from more residential development in town.



Higher Density Single-Family – What do you like about this type of development?

There were 93 responses to this question. Approximately 25 respondents indicated that there was nothing that they liked about this type of development.

Affordability was mentioned in approximately 25 of the comments. As stated previously, many survey respondents would only be supportive of residential development if it provided affordable housing.

Approximately 10 comments related to aesthetics and design issues. Some of those respondents mentioned variability in building design as an important factor. For others, it is important that the homes are energy efficient, produce renewable energy or are designed for passive solar, use green building materials/practices and/or are located in a walkable area or where there is transit service.

A number of respondents mentioned that there needs to be open space near higher density or clustered housing.

Higher Density Single-Family – What don't you like about this type of development?

There were 106 responses to this question. Approximately 15 respondents indicated that there was nothing that they liked about this type of development. Many of these asked why any development was needed or wanted in Norwich.

Aesthetics and design issues were mentioned in approximately 45 of the comments. Many described this type of housing as suburban and out of place in Norwich, which they described as either rural or village. The proximity of the buildings to one another was another factor that many did not like, along with the associated lack of privacy and yard space. Some would want greater variability in the size and design of buildings to avoid creating a “cookie-cutter” neighborhood. Approximately 10 responses indicated that such housing would be too dense for Norwich.

As with the cottage housing, there were comments about the impacts of development on taxes, town services, traffic, etc. A few respondents described this type of development as sprawl.



Attached Row Housing – What do you like about this type of development?

There were 92 responses to this question. Approximately 40 respondents indicated that there was nothing that they liked about this type of development.

Again, affordability was the most frequently mentioned factor in approximately 25 comments. A number of these respondents also mentioned related issues like the benefits of smaller units, less property maintenance, greater energy efficiency, and efficient use of land.

Attached Row Housing – What don't you like about this type of development?

There were 106 responses to this question. Approximately 25 respondents indicated that there was nothing that they liked about this type of development. Many of these asked why any development was needed or wanted in Norwich.

Aesthetics and design issues were mentioned in approximately 50 of the comments. Respondents described this type of housing as suburban or urban. Approximately 10 respondents specifically described it as too dense for Norwich. Other comments mentioned factors like repetitiveness or lack of variability in design, the “cheapness” or poor quality of the construction, and the overall scale or bulk of the attached units. There were also concerns raised about the lack of open space or yards and where the parking would be located.

There were also comments about the impact of this type of development on taxes, town services and traffic congestion.



Multi-Family Housing – What do you like about this type of development?

There were 94 responses to this question. Approximately 50 respondents indicated that there was nothing that they liked about this type of development.

Affordability was mentioned factor in approximately 25 comments. Many respondents would only consider multi-family housing if it was affordable. Several mentioned that such housing might allow young families to move to Norwich and increase the number of students for the school. Some also suggested that such housing have common rooms or shared amenities like community gardens.

Density was the second most frequently mentioned factor. A number of these comments related to the benefits of reducing the amount of land needed to accommodate housing as compared to lower-density housing or sprawl.



Multi-Family Housing – What don't you like about this type of development?

There were 106 responses to this question. Approximately 30 respondents indicated that there was nothing that they liked about this type of development. Many of these asked why any development was needed or wanted in Norwich.

Aesthetics and design issues were mentioned in approximately 45 of the comments. These respondents generally agreed that multi-family housing would not fit the town's character, largely due to the scale of the buildings. There were also concerns expressed again about "cheap" construction or generic designs. A number of respondents indicated that this type of development was too dense and large-scale for Norwich.

Again there were similar comments about the impact of this type of development on taxes, town services and traffic congestion.

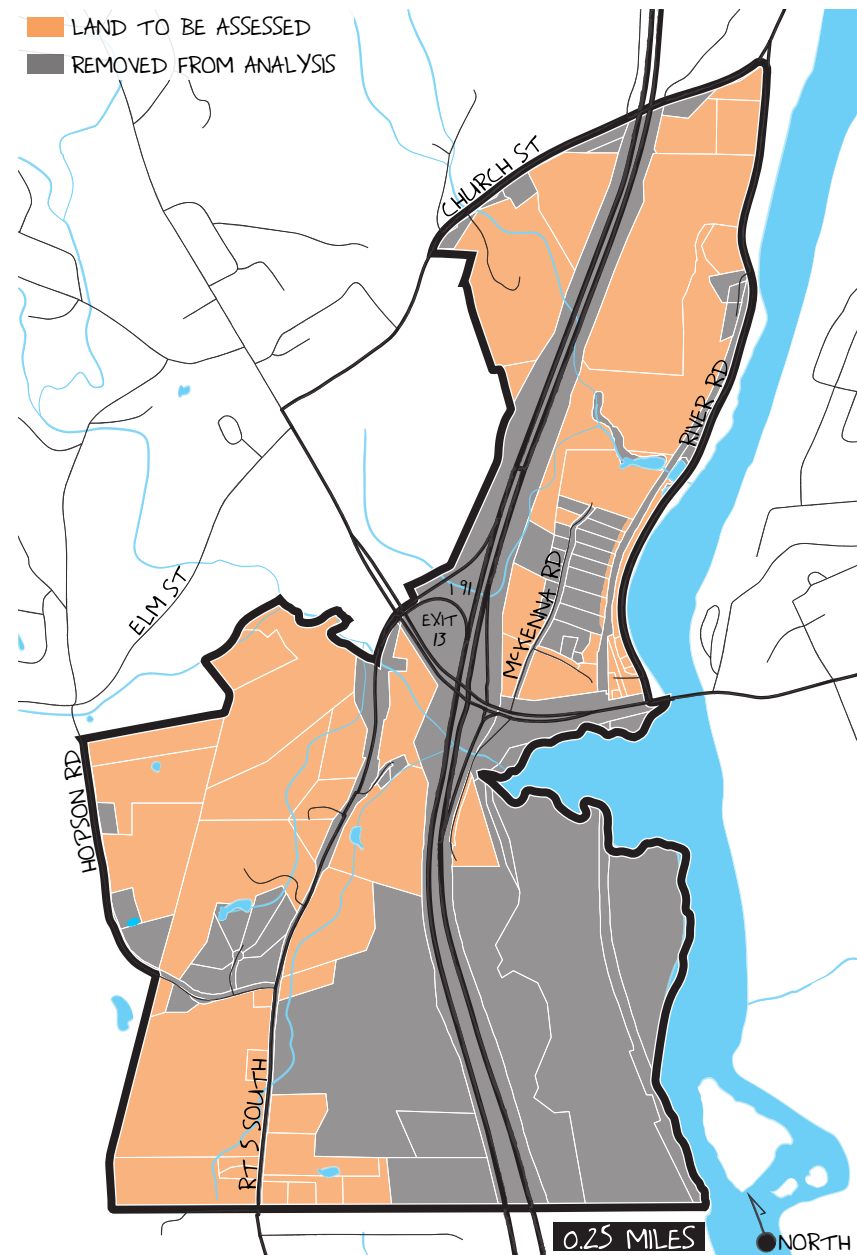
natural resource assessment

STEP 1

The first step of this assessment examined the availability and likelihood of future development or redevelopment of the 726 acres of land within the study area. As shown in the map to the right, the analysis found that:

- ◆ 150 acres are within highway, road or railroad rights-of-way or underwater and unavailable for development.
- ◆ 88 acres are owned by the Montshire Museum and are unlikely to be developed in the foreseeable future.
- ◆ 30 acres (south of Main Street) are owned by Dartmouth College, have limited access and are unlikely be developed in the foreseeable future.
- ◆ 70 acres (east of Route 5 South) are owned by the Dresden School District and are partially developed as recreation fields. The majority of this land is likely to remain used for recreation and open space in the foreseeable future.
- ◆ 42 acres are composed of a number of developed small residential lots. These lots are unlikely be further developed in the foreseeable future.

Of the 726 acres within the study area, these 380 acres (52%) are not currently available for development or are not likely to be further developed in the foreseeable future. Therefore, they were removed from the assessment. The elimination of those areas for further assessment and consideration at this time does not constitute a finding, one way or the other, regarding the capacity or suitability of those areas for development should their dedicated purpose and/or ownership change in the future. Should there be a change in purpose or ownership, the principles and recommendations made in this study could be applied to any lands within the study area being considered for potential development.

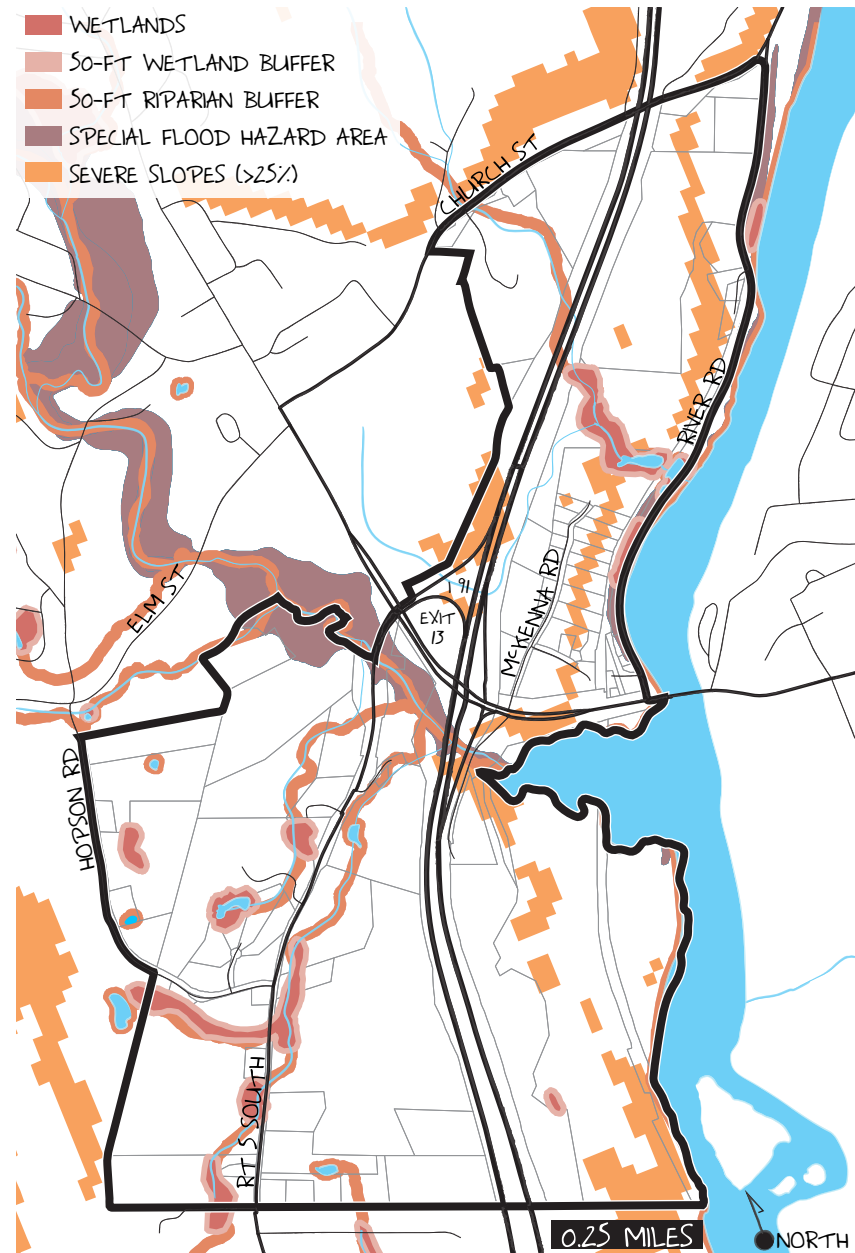


STEP 2

This step assessed the remaining 346 acres within the study area to identify natural resource features that significantly constrain potential development. The analysis found that (as shown in map to the right):

- ◆ 22 acres are mapped wetlands or are within 50 feet of a mapped wetland.
- ◆ Another 20 acres are within 50 feet of a stream.
- ◆ Another 10 acres are within the special flood hazard area.
- ◆ Another 24 acres have severely steep slopes (25% or steeper).

These 76 acres will likely remain open space protected from development by state and town regulations. Therefore, that land was removed from the assessment leaving 270 acres of land (less than 1% of the town's total land area) within the study area for further analysis.



STEP 3

The final step in the assessment looked at natural resource features that might influence the potential or likelihood of development, but that would not necessarily preclude development on the remaining 270 acres. The analysis found that (as shown in the map to the right):

- ◆ 36 acres have prime agricultural soils and 136 acres have statewide important agricultural soils (64% of the 270 acres).
- ◆ 21 acres of the agricultural soil identified above are also classified as hydric soils, which is an indicator that there may be more wetlands in those areas not mapped (and therefore not included in Step 2).
- ◆ 43 acres have moderately steep slopes (15% to <25% slope) and 15 acres of that area also have agricultural soils.

Primary Agricultural Soils. While town and state regulations discourage conversion of farmland, it is possible to develop on primary agricultural soils. The permitting process may be more challenging and mitigation may be required for projects that require an Act 250 permit, which would likely increase the cost and complexity, and limit the scale, of potential development on the agricultural soils within the study area.

Norwich's current zoning and subdivision regulations include provisions to protect farm land. The regulations recognize soils as a component of productive agricultural land, but also consider other factors such as size and shape, accessibility and adjacent uses to determine the actual suitability of land for agricultural use. Given the size and location of the land with primary agricultural soils within the study area, it is likely that most of that area would not be considered to have significant agricultural potential under the town's regulations.

Larger development or redevelopment projects within the study area would likely require an Act 250 permit, in addition to town approvals and permits. Act 250 considers the impact that



NORWICH ZONING REGULATIONS

Section 3.13 Natural and Scenic Features

(B)(1) **Farm Land.** Development shall be located and configured to minimize adverse impacts to open farm fields, particularly those with “prime” and “statewide” agricultural soils, except as otherwise provided below:

- a. Development shall be located at field and orchard edges or, in the event that no other land is practical for development, on the least fertile soils in order to minimize the use of productive agricultural land, impacts on existing farm operations, and disruption to the scenic qualities of the site.
- b. Buildings and associated building envelopes should be clustered to avoid the fragmentation of productive farm land.
- c. Access roads, driveways and utility corridors shall be shared to the extent feasible; and, where sites include linear features such as existing roads, tree lines, stone walls, and/or fence lines, shall follow these to minimize the fragmentation of agricultural land and visual impacts.

Section 7.02 Definitions

Farm Land – Land currently supporting crops, orchards, or grazing; or open land with significant potential to support crops based on the presence of prime or statewide agricultural soils, accessibility, adequate size and shape, and compatibility with adjacent uses.

development would have on primary agricultural soils. In 2014, the definition of primary agricultural soil in 10 V.S.A § 6001(15) was amended to include soils that the Natural Resource Conservation Service classified as prime, statewide or local importance “*unless the District Commission determines that the soils within the unit have lost their agricultural potential.*”

The statutory definition goes on to list a series of factors that the District Commission must consider when making that determination including impacts from previous development, presence of wetlands, existence of topographic or physical barriers that limit accessibility, and other site-specific factors.

NORWICH SUBDIVISION REGULATIONS

Section 3.3 Protection of Natural, Scenic and Cultural Features

(G) **Protection of Farm Land.** Development envelopes shall be located and configured to minimize adverse impacts to farm land and areas with “prime” and “statewide” agricultural soils suitable for farming. Methods for avoiding such adverse impacts include but may not be limited to the following:

- (1) Development envelopes shall be located at field and orchard edges or, in the event that no other land is practical for development in such a way as to minimize the impact on productive agricultural land, impacts on existing farm operations, and disruption to the scenic qualities of the site.
- (2) Buildings and associated building lots should be clustered to avoid fragmentation of productive farm land.
- (3) Vegetated buffer areas may be required to buffer agricultural operations from other uses to minimize land use conflicts.
- (4) Access roads, driveways and utility corridors shall be shared to the extent feasible; and, where sites include linear features such as existing roads, tree lines, stone walls, and/or fence lines, shall follow these to minimize fragmentation of agricultural land and visual impacts.
- (5) Intact parcels of productive farmland shall be designated as open space; conservation easements, limitations on further subdivision, or comparable site protection mechanisms may be required.

Act 250 applicants must submit evidence that proposed development satisfies a series of standards, including Criteria 9B that evaluates whether the proposed development preserves, or at least minimizes, impacts on primary agricultural soils. While development can be approved on primary agricultural soils, such proposed development must meet the following two-step test:

A determination will be made as to whether the proposed development would significantly reduce the agricultural potential of primary agricultural soils. Agricultural potential means that the soils could be economically put to use by an agricultural operation. This does not necessarily mean that a single farm could

profitably operate on the affected soils. They could contribute to an economical agricultural operation as leased land, for example.

If the proposed development significantly reduces the agricultural potential of primary agricultural soils, then the applicant must satisfy all four sub-criteria listed in the statute (see Act 250 box below).

None of the land within the study area is part of a state-designated village center, downtown or growth center. The study area

ACT 250 CRITERIA

10 V.S.A. § 6086. Issuance of permit; conditions and criteria

(9)(B) Primary agricultural soils. A permit will be granted for the development or subdivision of primary agricultural soils only when it is demonstrated by the applicant that, in addition to all other applicable criteria, either, the subdivision or development will not result in any reduction in the agricultural potential of the primary agricultural soils; or:

- (i) the development or subdivision will not significantly interfere with or jeopardize the continuation of agriculture or forestry on adjoining lands or reduce their agricultural or forestry potential; and
- (ii) except in the case of an application for a project located in a designated growth center, there are no lands other than primary agricultural soils owned or controlled by the applicant which are reasonably suited to the purpose of the development or subdivision; and
- (iii) except in the case of an application for a project located in a designated growth center, the subdivision or development has been planned to minimize the reduction of agricultural potential of the primary agricultural soils through innovative land use design resulting in compact development patterns, so that the remaining primary agricultural soils on the project tract are capable of supporting or contributing to an economic or commercial agricultural operation; and
- (iv) suitable mitigation will be provided for any reduction in the agricultural potential of the primary agricultural soils caused by the development or subdivision, in accordance with section 6093 of this title and rules adopted by the Natural Resources Board.

ACT 250 MITIGATION

10 V.S.A. § 6093. Mitigation of primary agricultural soils

(2) Project located outside certain designated areas. If the project tract is not located in a designated area described in subdivision (1) of this subsection, mitigation shall be provided on site in order to preserve primary agricultural soils for present and future agricultural use, with special emphasis on preserving prime agricultural soils. Preservation of primary agricultural soils shall be accomplished through innovative land use design resulting in compact development patterns which will maintain a sufficient acreage of primary agricultural soils on the project tract capable of supporting or contributing to an economic or commercial agricultural operation and shall be enforceable by permit conditions issued by the District Commission. The number of acres of primary agricultural soils to be preserved shall be derived by:

(A) Determining the number of acres of primary agricultural soils affected by the proposed development or subdivision.

(B) Multiplying the number of affected acres of primary agricultural soils by a factor based on the quality of those primary agricultural soils, and other factors as the Secretary of Agriculture, Food and Markets may deem relevant, including the soil's location; accessibility; tract size; existing agricultural operations; water sources; drainage; slope; the presence of ledge or protected wetlands; the infrastructure of the existing farm or municipality in which the soils are located; and the NRCS rating system for Vermont soils. This factor shall result in a ratio of no less than 2:1, but no more than 3:1, protected acres to acres of impacted primary agricultural soils.

(3) Mitigation flexibility.

(B) Notwithstanding the provisions of subdivision (a)(2) of this section pertaining to a development or subdivision on primary agricultural soils outside a designated area described in subdivision (a)(1) of this section, the District Commission may, in appropriate circumstances, approve off-site mitigation or some combination of onsite and off-site mitigation if that action is deemed consistent with the agricultural elements of local and regional plans and the goals of 24 V.S.A. § 4302. For projects located outside such a designated area, all factors used to calculate suitable mitigation acreage or fees, or some combination of these measures, shall be as specified in this subsection (a), subject to a ratio of no less than 2:1, but no more than 3:1.

is not within a quarter mile of Norwich's designated village center, precluding any land within it from being designated as a neighborhood development area under current state statute. Therefore, the options for mitigation of primary agricultural soils under Act 250 are more restricted than they would be if a proposed development site was within a designated area.

Any development subject to Act 250 approval within the study area that would impact primary agricultural soils would likely need to use *“innovative land use design resulting in compact development patterns which will maintain a sufficient acreage of primary agricultural soils on the project tract capable of supporting or contributing to an economic or commercial agricultural operation.”*

Such on-site mitigation would require protecting two-thirds to three-quarters of the agricultural soils on the development site. It is statutorily possible for the District Commission to allow off-site mitigation, but that is not its common practice. Off-site mitigation requires the applicant to pay a fee, which is based on the quantity and quality of the agricultural soil being impacted by development.

Hydric Soils. Not all wetlands that may be subject to town or state regulations have been mapped (on the Vermont Significant Wetlands Inventory Map prepared by the Agency of Natural Resources). The soil maps produced by NRCS (Natural Resource Conservation Service) identify hydric soils, which are associated with wetlands. Hydric soils those which are inundated or waterlogged for two weeks or more during the growing season in most years.

The presence of hydric soils suggests that there are unmapped wetlands within the study area. Further field investigation and delineation would be warranted (and likely required) as part of the development planning and permitting process. With field investigation, it is possible that the mapped areas of Class 2 wetlands would expand and/or that Class 3 wetlands would be

found. Such additional wetland areas and their buffers (50 feet from Class 2 and 25 feet from Class 3 wetlands) would likely be precluded from potential development as well as the mapped wetlands removed in Step 2 of this assessment.

Moderately Steep Slopes. Moderately steep (15-25%) slopes can be developed but at a greater expense than similar development on level land due to the more complex engineering and design, site preparation, road and building construction, and erosion control and stormwater management necessary on sloped land.

Norwich's zoning and subdivision regulations recognize the challenges posed by moderately steep slopes by requiring applicants disturbing such slopes to prepare and implement an erosion control plan. The total acreage of moderately steep slopes is also partially removed from the calculation of developable area on a parcel when determining density within the Rural Residential district.

CONCLUSIONS

The results of the natural resource assessment suggest that while there are opportunities for development within the study area, a significant amount of acreage is unlikely to be developed due to a combination of physical limitations or constraints and current land ownership and use.

The assessment led to the study area being divided for further analysis into six subareas to encompass those areas where sustainable development or redevelopment may be most feasible. The subareas should be considered as illustrations of the potential for future development in the study area, rather than as a finding that the identified lands are the only sites where development might be appropriate. The subareas include:

- ◆ **Area A** includes 49 acres south of Hopson Road and west of Route 5 South. It has one of the largest parcels of undeveloped land in the

study area. Approximately one-third of Area A has natural resource constraints and virtually all the land has primary agricultural soils.

- ◆ **Area B** includes 77 acres north of Hopson Road and west of Route 5 South. More than one-third of the area has natural resource constraints and most of the land has primary agricultural soils. The frontage on Route 5 South is currently developed but presents opportunities for infill and redevelopment.
- ◆ **Area C** includes 31 acres east of Route 5 South. This land is within the town's Commercial Industrial district and is largely developed. The opportunities for infill and redevelopment are fairly limited.
- ◆ **Area D** encompasses 12 acres in Lewiston. It is a small area, but an important gateway for the town with redevelopment potential.
- ◆ **Area E** includes 58 acres between I-91 and River Road. It has the other significant large parcel with development potential in the study area. There are large expanses of severe and moderate slopes, but almost no primary agricultural soils.
- ◆ **Area F** includes 36 acres west of I-91 and south of Church Street. A significant amount of the land has moderate slopes. It is close to the village and existing residential neighborhoods.

current zoning analysis

Before recommending regulatory approaches that would allow for sustainable development within the study area, it is useful to understand the amount, type and pattern of development that is possible under Norwich's existing zoning and subdivision regulations.

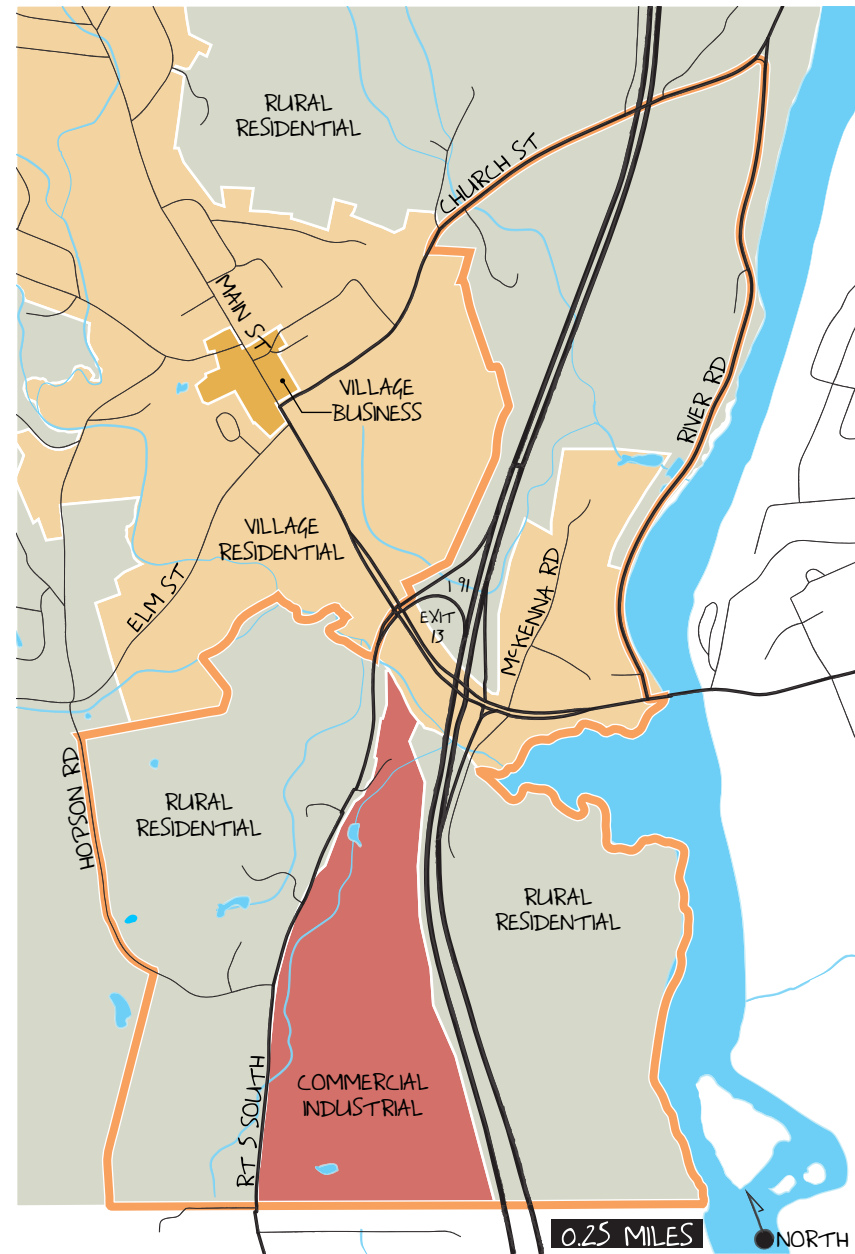
As shown in the map to the right, the land within the study area is currently divided between three zoning districts:

- ◆ 531 acres (73%) of the study area is in the Rural Residential district.
- ◆ 119 acres (16%) of the study area is in the Commercial/Industrial district.
- ◆ 77 acres (11%) of the study area is in the Village Residential district.

RURAL RESIDENTIAL DISTRICT

The Rural Residential district is the largest zoning district in Norwich encompassing 97% of the town's land area. The purpose of this district *"is to allow low density development in a rural setting, while protecting the natural resources and limiting development in those areas of town accessed by unimproved or substandard roads. The Rural Residential District is intended principally for agriculture, forestry, residential dwellings and associated home-based uses. Residential development is encouraged in appropriate locations in a manner that preserves open space and protects natural resources. Only limited commercial uses are allowed, and then only in a manner that avoids unreasonable burdens on town roads and services or other adverse impacts on the rural, residential character of the district."*

In keeping with that purpose statement, the permitted uses in the district are one-unit and two-unit dwellings, home businesses, agriculture and forestry. Conditional uses allowed with Development Review Board approval include home industries, cultural facilities, daycare facilities, group homes, private clubs, outdoor recreation facilities, cemeteries, telecommunications facilities, and sand and gravel extraction. Planned unit



developments (PUDs), which may include multi-unit housing, are allowed with approval from the Development Review Board.

While the minimum lot size in the Rural Residential district is two acres, the density-based approach to rural subdivision effectively reduces that to 20,000 square feet (approximately 1/2 acre).

Instead of relying on a minimum lot size to establish density, the potential for residential development in the Rural Residential district is based on a calculation of developable land, distance from the town office and the type of road providing access to the property.

Under Section 3.2 of Norwich's subdivision regulation, the maximum residential density in the Rural Residential district within the study area would be 1 lot per 2 acres of developable land. There are approximately 212 acres of developable Rural Residential land (as defined in Section 3.2, which takes natural resource constraints into account) within the study area, resulting in a maximum potential density of 106 lots.

Under the zoning regulations, each lot may be developed either with a one-unit or two-unit dwelling. This provision could allow for up to 212 dwelling units in the study area. If development was approved as a PUD, it could be in the form of multi-unit buildings. Also through the PUD provisions, there are opportunities for density bonuses of up to:

- ◆ 25% for setting aside 60% or more of the total acreage as open space.
- ◆ 25% if 20% to <50% of the total number of units are affordable housing.
- ◆ 50% if 50% or more of the total number of units are affordable housing.

So within the 531 acres zoned Rural Residential within the study area, the maximum residential density could reach approximately 320 dwelling units as compared to the approximately 70 units

currently built within this area. This maximum residential density could not be achieved without some alternative to individual on-site septic systems as discussed below. Realizing this density would also require site designs that avoided impacts to natural resource areas.

The analysis suggests that a substantial increase in residential density may not be necessary to facilitate compact development. What is more critical to furthering the sustainability goals of the 2011 Town Plan at this point is expanding the uses allowed and ensuring future development will result in:

- ◆ A mix of uses and housing options in close proximity.
- ◆ Compact development patterns that efficiently use land and maintain open space.
- ◆ Affordable and moderate-income housing.
- ◆ Energy-efficient, green buildings that are designed and sized to meet market demand.
- ◆ Walkable neighborhoods where residents will be less auto-dependent.
- ◆ Quality businesses that provide jobs and services for area residents.

The adopted zoning regulations limit opportunities for mixed use development, particularly in the Rural Residential district. For example, the two properties on the west side of Route 5 South across the street from the Car Store have housed various residential and business uses over the years. Recently, the business use of both properties has ceased and they have become solely residential. Under current zoning, it will likely not be possible to convert the use of either property back to a non-residential or mixed residential and non-residential use because the land on that side of the highway is in the Rural Residential district.

The current regulations also lack specific standards to ensure that density, type and form of residential development that could occur in the study area would further the goals of the 2011 Town

Plan. For example, it would be possible to create a conventional residential subdivision with single-family homes on two acre lots under the current zoning that may not address any of the community goals listed above.

COMMERCIAL/INDUSTRIAL DISTRICT

The entire 119-acre Commercial/Industrial district east of Route 5 South and west of I-91 is within the study area. The purpose of this district is to *“promote a mix of residential, commercial and appropriate industrial uses in an area of town with good highway access and limited potential to adversely impact historic neighborhoods or important natural or cultural resources.”*

The Dresden School District owns approximately 61 acres (51%) of the land in this district, which as discussed previously is developed with recreation fields and not available for further development at this time. Another 19 acres have significant natural constraints reducing their development potential. The remaining 39 acres of land are largely developed.

The analysis suggests that Norwich’s Commercial/Industrial district is nearly built-out in its current configuration. While there is opportunity for a limited amount of infill or expansion of existing uses, meaningful increases in density could only be achieved by one or more major redevelopment projects. Given the viability of existing businesses in the district, it seems unlikely that such redevelopment will occur in the foreseeable future.

Even modest infill development or expansion of existing uses may be dependent on wastewater infrastructure becoming available within this district. Much of the open space classified as “developable” in the natural resources assessment in this district is actually required for existing on-site septic systems and therefore is not available for development presently. Lack of wastewater capacity is a greater limitation for residential development, which generates much higher flows than most commercial or industrial uses. It seems unlikely that this district could accommodate mixed

residential and nonresidential uses as envisioned in the 2011 Town Plan without wastewater infrastructure.

VILLAGE RESIDENTIAL DISTRICT

The Lewiston portion of the study area is within the Village Residential district. That district is intended to *“provide for medium density residential development in a compact, neighborhood setting which is near municipal services and which is serviced or may be serviced in the future by community water and/or sewer facilities. While the primary permitted uses intended are residential dwellings and associated home-based uses, other types of residential accommodations, related service enterprises and public facilities are allowed in a manner which protects the residential character of neighborhoods within the district.”*

The permitted uses in the district include one-unit and two-unit dwellings, and home businesses. Conditional uses allowed with Development Review Board approval include home industries, cultural facilities, daycare facilities, group homes, private clubs, and nursing homes. Planned unit developments (PUDs), which may include multi-unit housing, are allowed with approval from the Development Review Board.

Of the 77 acres within the study area in the Village Residential district, approximately 38 acres are available for development and 16 of those acres off McKenna Road are within existing residential lots. There are 20 single-family homes in this area currently.

The minimum lot size in the Village Residential district is 20,000 square feet (approximately 1/2 acre). Under the zoning regulations, each lot may be developed either with a one-unit or two-unit dwelling. This provision could allow for up to 140 more dwelling units in this portion of the study area than currently exist.

If development was approved as a PUD, additional housing could be in the form of multi-unit buildings or conversion of existing single-family homes to multi-family homes. Also through the PUD

provisions, the same opportunities for density bonuses of 25% to 50% for affordable housing available in the Rural Residential district are available in the Village Residential district.

So within the 77 acres zoned Village Residential within the study area, the maximum residential density could be as high as 210 dwelling units. As discussed elsewhere, this maximum residential density could not be achieved without some alternative to individual on-site septic systems.

As within the Rural Residential district, this analysis suggests that a substantial increase in residential density would not be necessary to facilitate compact, higher density, mixed use development. What is more critical to furthering the sustainability goals of the 2011 Town Plan at this point is expanding the uses allowed and more precisely regulating the form and pattern of future development.

The 2.5-acre site around the railroad station currently owned by Dartmouth College has long been recognized as a critical gateway to the town that residents would like to see redeveloped and revitalized. Currently most of the institutional, office, retail and/or dining uses that have been envisioned for this property are not allowed in the Village Residential district (educational uses would be allowed). The college uses the buildings on this site primarily for storage at the present time. Again, the lack of infrastructure is a major limitation to redevelopment of this site.

The developed neighborhood on McKenna Road has potential for infill residential development through new construction, accessory apartments and conversion of single-family homes to multi-family homes. Wastewater capacity limits the amount of infill likely to occur in the foreseeable future far more than the zoning regulations. Given that most of the land is already developed into residential lots, the potential for infill is also dependent on the willingness of multiple individual owners to build more housing on their property.

INFRASTRUCTURE

As noted in the 2011 Town Plan, there is currently a lack of infrastructure necessary to support sustainable development within the study area.

Land within the study area is currently served or could reasonably be served by the town's water system. As water demand increased, some improvements to existing facilities would likely be needed. For example, upgrades would likely be necessary to meet minimum water storage requirements and provide adequate water for firefighting.

The maximum densities possible under current zoning cannot be realized on most lots without some alternative to individual on-site septic systems. Such alternatives include:

- ◆ **Shared Septic Systems.** Under the state's current wastewater rules about 25 dwelling units could be connected to a shared soil-based septic system. When multiple homes share a system, the average flow per home is reduced, so that usually a shared system will be less land consumptive and expensive to build than multiple individual systems.
- ◆ **Package Plants.** Package plants are pre-engineered and pre-fabricated treatment facilities used to treat wastewater in small communities or on individual properties. The smallest of these plants are designed to treat 2,000 to 10,000 gallons of wastewater per day (equivalent to 8 to 40 homes). At the other end of the scale, they can be similar in capacity to a conventional sewage treatment plant and capable of treating wastewater from more than 2,000 homes. The benefits of package plants include ease of installation (they are generally shipped in several pieces and require only minimal on-site assembly) and operation (they generally require only periodic inspection and maintenance) as compared to conventional treatment plants.
- ◆ **Decentralized Wastewater.** A number of Vermont municipalities are pursuing a strategy of decentralized wastewater treatment in their villages and planned growth areas. Decentralized systems will likely include a combination of conventional or advanced on-site,

soil-based septic systems that serve individual properties, larger shared septic systems that serve a cluster of buildings on one or more properties, and/or package plants that serve a neighborhood. However, these multiple systems will be jointly managed to ensure they are maintained and operated correctly. Management programs can be administered by a municipality, or by a special district or local utility that is set up to oversee these systems.

- ◆ **Municipal Wastewater.** The construction of a town wastewater system to serve Norwich village and surrounding areas has been considered and studied at various times, most recently in 2005. The high cost of building a conventional, centralized wastewater system adequately sized to serve existing development in and around the village, and to support future growth has always discouraged the town from pursuing this option. The options considered in the 2005 sewer study ranged in cost from \$14 million to \$21 million and would certainly be higher today than they were a decade ago. The 2005 options did not include constructing a sewage treatment plant. Instead, they assumed connecting the Norwich system to either Hartford or Hanover and would have had an additional annual cost to purchase treatment capacity.
- ◆ **Hartford.** Hartford's municipal sewer system already extends into Norwich to serve several properties on Route 5 South just over the town line. Extending the line further north on Route 5 South could be a feasible option (both technologically and financially) for providing wastewater to the portion of the study area along Route 5 South, particularly south of Hopson Road.
- ◆ **Hanover.** Extending Hanover's municipal wastewater lines into Norwich would be a more expensive and complex project than hooking into Hartford's system. The Ledyard Bridge was designed to carry a sewer pipe. Once across the river, however, the terrain and other natural constraints would increase the technological challenges and financial cost of extending the lines beyond the immediate Lewiston area. There would have to be a major development project with significant economic benefits to make such an extension financially feasible. The 2.5-acre site owned by Dartmouth College just over the bridge may not be large enough and have enough redevelopment potential on its own to justify the expense of bringing the sewer line across the river.

The previous studies and debates on the issue of municipal sewer in Norwich are evidence that the wastewater problem needs to be addressed incrementally and at the neighborhood scale. The decentralized approach and short extensions of sewer from neighboring communities into Norwich are the most viable options for providing wastewater treatment capacity in the study area as needed to support the sustainable development envisioned in the 2011 Town Plan.

CONCLUSIONS

The current build-out analysis suggests that only a modest increase in density, primarily in those areas presently zoned Rural Residential, would be necessary to further the goals of the 2011 Town Plan. Increasing the density in that area to a level similar to what is currently allowed in the Village Residential and Commercial/Industrial would likely provide adequate opportunity for growth given the physical and infrastructure constraints within the study area for the foreseeable future.

There needs to be a relationship between density and wastewater capacity. The zoning should allow for a level of density that would make the alternatives to on-site septic systems discussed above financially feasible to construct and to create an incentive for developers to invest in projects within the study area. However, the density does not need to be set at the maximum envisioned for the study area over the long-term (20+ years from now). Zoning can be amended to incrementally increase density as the infrastructure becomes available to support it.

As mentioned previously, perhaps what is more critical at the present time than the allowed density is the form and pattern of development. If the vision expressed in the 2011 Town Plan for a sustainable future is to be realized, there needs to be a change in the form and pattern of development as detailed elsewhere in this report.