Growth Center

Planning Manual

for vermont communities

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PLANNING COORDINATION GROUP

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Preface

About This Manual and Checklist

This manual and checklist were prepared to fulfill the program requirements included in Act 183 and to serve as a tool for communities planning for their growth centers. It includes an application for Growth Center designation and additional information that may serve as a guide for applicant communities. As such, the manual contains specific questions designed to elicit substantive responses to the requirements of the Act and to inform the Planning Coordination Group and the Expanded Downtown Board.

This manual also includes illustrations, sample maps, guidance, information and resources. These informational materials are easily distinguished from the required questions and application requirements listed on the checklist and they should be regarded as advisory in nature. None of the advisory and informational materials included in this document should be regarded as standards or minimum requirements for Growth Center designation. Every growth center will be unique and each application will include location specific materials. Communities are encouraged to be creative in the development of their applications, and to seek the advise and assistance of their regional planning commission and the Planning Coordination Group.

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Introduction

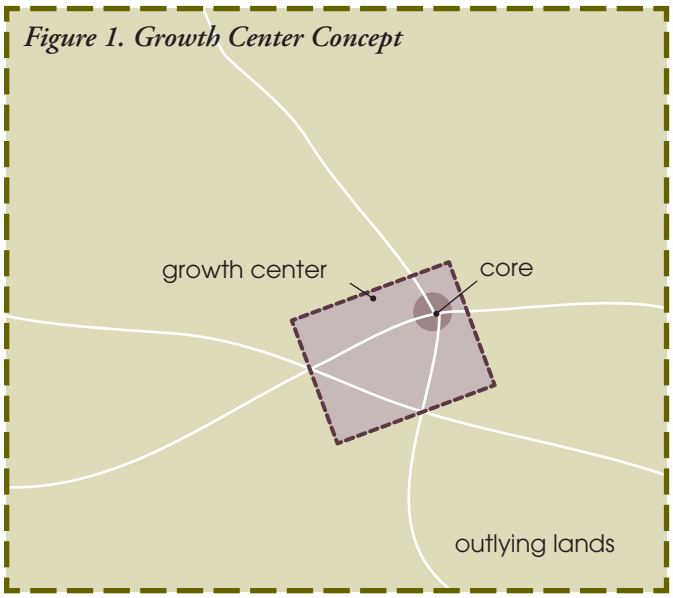


Figure 1. Growth Center Concept

What Is a Growth Center?

A growth center is a compact area planned for concentrated, mixed-use development. Vermont state law enables the creation of growth centers and encourages use of smart growth planning principles to accommodate development in a manner that maintains Vermont's historic settlement pattern of compact village and urban centers separated by rural countryside. Any municipality may engage in growth center planning regardless of current development pressure or rate of anticipated future growth.

A growth center should have a core that is similar in form and function to a traditional downtown. Many Vermont municipalities will choose to establish a historic community center as the core of their growth center, while others are or will be planning for a new town center (those municipalities without a traditional downtown or where an existing center either cannot accommodate infill and/or adjacent development).

The growth center will likely include lands outside the core. The existing and planned characteristics of this area will vary from municipality to municipality. Some communities may include mostly undeveloped land in the area outside the core, but most will have to work with existing development patterns and uses as shown in Figure 2. There will almost certainly be residential neighborhoods; there may be commercial or industrial areas. The goals of growth center planning will include integrating existing and future uses within the growth center and increasing connections between currently disconnected areas.

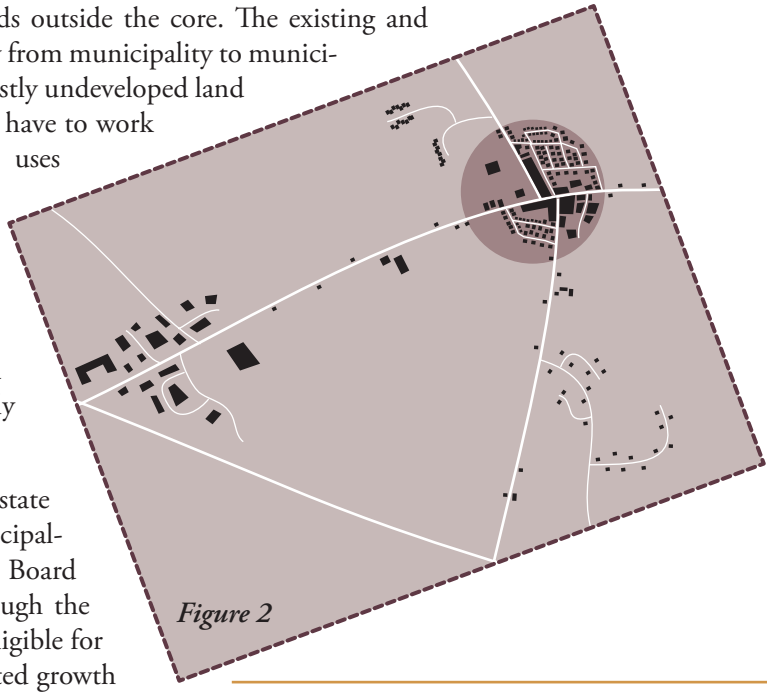
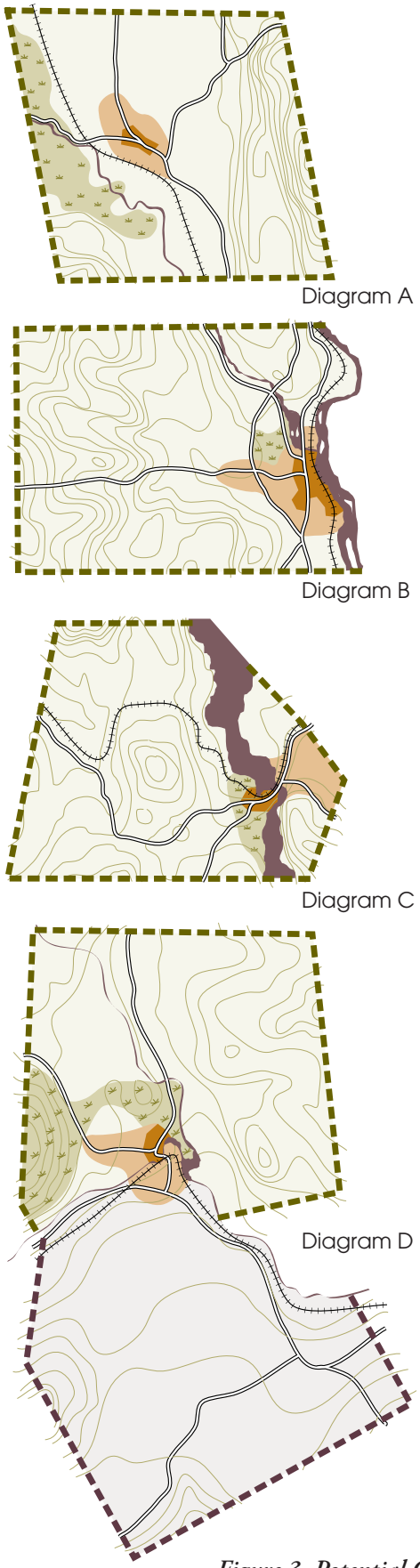


Figure 2

Figure 2 illustrates some existing land use patterns that municipalities may find within their proposed growth center. There may be a commercial area and/or industrial park at a major intersection outside and disconnected from the core. There may be low-density residential neighborhoods and clusters of isolated housing. Linear development may be occurring along main roads.

Communities have the option of seeking state recognition of their growth center. A municipality may apply to the Vermont Downtown Board to have its growth center designated through the Growth Center Program, thus making it eligible for benefits as described on page 7. A designated growth center must meet statutory criteria and be designed to accommodate a majority of anticipated growth over a 20-year planning period. The statutory requirements for a designated growth center are described in detail below.



Where Can a Designated Growth Center Be Located?

24 V.S.A. § 2791(12)(A) sets forth requirements regarding where a municipality can locate a growth center. It defines a growth center as:

- An area of land that is in or adjacent to a designated downtown, village center, or new town center.

Adjacent is defined as **contiguous** except in situations where contiguity is precluded by **natural** or **physical** constraints. Natural or physical constraints include important natural resources, bodies of water, steep or rough terrain, soils unsuitable for development, or utility or transportation corridors.

Where contiguity is precluded by natural or physical constraints, adjacent is defined as:

- Lands lying close to and not widely separated from the majority of the lands within the designated growth center.

The statute requires non-contiguous land included as part of a growth center to exhibit strong land use, economic, infrastructure, and transportation relationships to the designated downtown, village center, or new town center. Such lands must be planned to function as a single, integrated growth center. They must also be essential to accommodate a majority of growth anticipated by the municipality over a 20-year period.

The form and configuration of growth centers will vary from municipality to municipality based on local conditions, needs and preferences. The most obvious structure would be a growth center that includes and completely surrounds a designated downtown, village center or new town center where development would expand outward from the core, as illustrated in Diagram A to the left.

However, Vermont municipalities will likely be faced with more complex situations due to land form, physical or environmental constraints, an existing road network, pre-existing development, and land ownership or use patterns to which their growth center area will need to respond.

Diagram B illustrates a growth center wrapped around three sides of the designated downtown, village center or new town center. In Diagram C, a body of water and the presence of important natural resources necessitates a non-contiguous growth center. Diagram D illustrates a growth center that includes lands in two municipalities.

Figure 3. Potential Growth Center Configurations

How is a Designated Growth Center Defined in Statute?

The characteristics of growth centers specified in statute (24 V.S.A. § 2791(12)(B)) and smart growth principles outlined in 24 V.S.A. § 2791(13) largely parallel the characteristics of traditional Vermont downtowns and village centers.

24 V.S.A. § 2791(12)(B) defines a growth center as an area of land that contains substantially the following characteristics:

- It incorporates a mix of uses that typically include or have the potential to include the following: retail, office, services, and other commercial, civic, recreational, industrial, and residential uses, including affordable housing and new residential neighborhoods, within a densely developed, compact area.
- It incorporates existing or planned public spaces that promote social interaction, such as public parks, civic buildings (e.g., post office, municipal offices), community gardens, and other formal and informal places to gather.
- It is organized around one or more central places or focal points, such as prominent buildings of civic, cultural, or spiritual significance or a village green, common, or square.
- It promotes densities of land development that are significantly greater than existing and allowable densities in parts of the municipality that are outside a designated downtown, village center, growth center, or new town center, or, in the case of municipalities characterized predominately by areas of existing dense urban settlement, it encourages in-fill development and redevelopment of historically developed land.
- It is supported by existing or planned investments in infrastructure and encompasses a circulation system that is conducive to pedestrian and other non-vehicular traffic and that incorporates, accommodates, and supports the use of public transit systems.
- It results in compact concentrated areas of land development that are served by existing or planned infrastructure and are separated by rural countryside or working landscape.
- It is planned in accordance with the planning and development goals under section 4302 of this title, and to conform to smart growth principles.
- It is planned to reinforce the purposes of 10 V.S.A. Chapter 151.

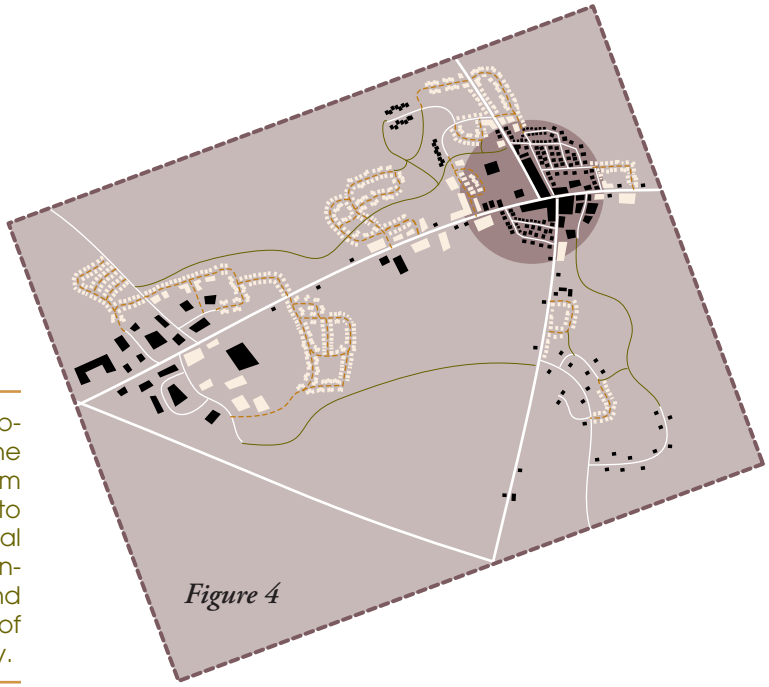


Figure 4

Figure 4 illustrates potential future development patterns within a Growth Center. The street grid may be extended outward from the core, housing may be built adjacent to employment centers, compact residential neighborhoods may be built or occur as in-fill near low-density development, trails and sidewalks may provide alternative modes of transportation and increased connectivity.

24 V.S.A. § 2791(13) defines the smart growth principles that are referenced in 24 V.S.A. § 2791(12)(B)(vii) as growth that:

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

Figure 5. Smart Growth

Smart growth, while a relatively new term, is not a new concept. Planners in Vermont have been promoting the principles that form the basis of smart growth for decades. The state planning goals (24 V.S.A. § 4302) express many smart growth sentiments, most notably the primary goal of maintaining the historic development pattern of compact centers separated by rural countryside.

Land use patterns in many communities throughout Vermont largely reflect the desired characteristics of smart growth development. Some municipalities, recognizing a disconnect between the vision and goals of their plans and the development patterns resulting from their land use regulations, have changed course and incorporated smart growth principles into local regulations.

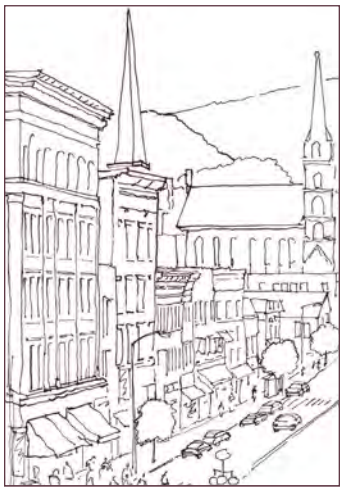
There are many variations on the definition of smart growth, but they share common themes. Smart growth is generally described as development that:

- Mixes land uses.
- Uses compact building design.
- Creates a range of housing opportunities and choices.
- Results in walkable neighborhoods.
- Fosters distinctive, attractive communities with a strong sense of place.
- Preserves open space, farmland, natural resources and environmental quality.
- Strengthens and directs development toward existing centers.
- Provides a variety of transportation choices.

Comparison of Program Purposes and Benefits

The new designated growth center program is integrated with existing programs for the designation of downtowns, village centers and new town centers. Designated downtowns, village centers or new town centers can serve as the core of future designated growth centers. The area of the growth center outside the designated downtown, village center or new town center will serve residential growth, as well as other uses not suitable for or able to be accommodated in the core. The outlying lands beyond the growth center boundary will be primarily rural countryside in most Vermont municipalities, and will have distinctly different development patterns and lower overall densities.

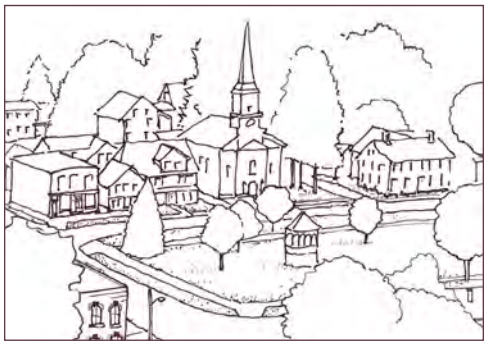
The Downtown Board is now responsible for administering the designation process for four distinct, but interrelated programs. Each was created for specific reasons as follows:



Designated Downtowns: A downtown is the traditional central business district of a community, that has served as the center for socio-economic interaction in the community, characterized by a cohesive core of commercial and mixed-use buildings, often interspersed with civic, religious, and residential buildings and public spaces, typically arranged along a main street and intersecting side streets and served by public infrastructure.

The designated downtown program was created in 1998 and focuses on traditional downtowns. It requires that the designated area have a National Register Historic District. Traditional downtowns are often characterized by multi-story, zero lot line, masonry and high-density areas. Residential neighborhoods and industrially-zoned areas are typically not included in a designated downtown. Following the model established by the National Main Street Center, downtown designation requires, among other things, a dedicated downtown organization along with municipal commitments for planning, capital budgeting and infrastructure.

A designated downtown typically plans for and is able to accommodate some growth – mainly through a combination of historic building rehabilitation and infill development on vacant or underutilized property – but it is not likely to absorb most of the development in a municipality that is growing rapidly. The primary goals are historic preservation and economic revitalization.



Designated Village Centers: A village center is a traditional center of the community, typically comprised of a cohesive core of residential, civic, religious, and commercial buildings, arranged along a main street and intersecting streets. Industrial uses may be found within or immediately adjacent to these centers.

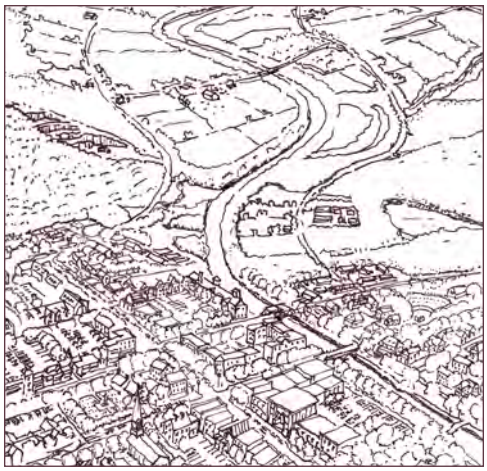
The legislature saw the successes of the designated downtown program, but recognized that the program really was not appropriate for the numerous smaller villages around the state. So, a much simpler process was created for designated village centers in 2002.

The size of these centers range from small hamlets – places with just a handful of commercial and civic uses along with a few homes – to larger villages with a variety of uses and residential neighborhoods. The Board has encouraged larger communities to seek downtown designation, but there is no clear statutory threshold separating downtowns from villages.

As with the designated downtown program, the policy goal is to support the preservation of historic buildings and the economic revitalization of the existing traditional mixed-use core area. The Board has typically decided not to include undeveloped areas within a village center boundary that might be targeted for future growth.

Designated New Town Centers: A new town center is an area planned for or developed as a community's central business district, composed of compact, pedestrian-friendly, multi-story, and mixed-use development that is characteristic of a traditional downtown, supported by planned or existing urban infrastructure, including curbed streets with sidewalks and on-street parking, stormwater treatment, sanitary sewers and public water supply.

The designated new town centers program was passed by the legislature in 2002 along with the village centers program, in support of community plans for new centers in municipalities that do not have a traditional downtown. Conceptually, this program is intended to support the development of new downtowns that are similar in form and function to traditional downtowns. This concept does overlap with growth centers in that both are intended to support substantial new development within a limited area. However, a new town center implies a smaller geographic area built like a downtown, while growth centers suggest a broader geographic area, only part of which may resemble a downtown.



Designated Growth Centers: This most recent designation was created by the legislature in 2006, implementing one of the key planning goals in Act 200, which called for compact settlements separated by rural lands. The purpose of this program is to promote compact development over sprawl in municipalities that are facing development pressure. Conceptually, growth centers are intended for dense and mixed-use development. While they include an existing designated downtown, village center or new town center, they would likely cover a broader geographic area and feature a greater diversity of development patterns than typically found in a traditional downtown. A growth center would include a new or traditional downtown, but also may include areas planned for new largely residential neighborhoods, or commercial or industrial uses that are not appropriate for or cannot be located in an existing downtown area. Some communities may plan growth centers that will be built largely on open land. Others may plan for the redevelopment of a developed area that could accommodate more density.

State legislation establishes a hierarchy among the four programs administered by the Downtown Board. The state's highest priority is facilitating development and growth in downtowns and village centers. As such, designated downtowns and village centers will be given priority in state funding and programs over new town centers and growth centers as indicated on the following chart.

Figure 6. Program Purposes and Benefits Matrix

	Downtown	Village Center	New Town Center	Growth Center
Authority				
Statute Section (24 V.S.A. Chapter 76A)	2793	2793a	2793b	2793c
Date Established	1998	2002	2002	2006
Purpose				
Historic Preservation*	√	√		√
Economic Revitalization*	√	√		√
Smart Growth	√	√	√	√
Economic Development	√	√	√	√
Benefits				
10% State Historic Rehabilitation Tax Credit	√	√		
25% Façade Improvement Tax Credit	√	√		
50% Code Improvement Tax Credit	√	√		
Downtown Transportation Fund	√			
Sprinkler System Rebate	√			
Tax Increment Financing	√			√
Special Assessment District	√	√	√	
Reallocation of Sales Tax on Construction Materials	√			
Traffic Calming Options	√			
Signage Options	√			
Act 250 Threshold for Mixed-Income Housing & Mixed-Use Projects	√			√
Act 250 Master Plan Permit Application				√
Act 250 Mitigation for Loss of Primary Agricultural Soils				√
Priority Consideration**				
All State Agencies and Funding Programs	√			
Specific State Agencies and Funding Programs:				
❑ Municipal Planning Grants	√	√		√
❑ Transportation Enhancement Improvements	√	√		√
❑ Property Assessment Fund (Contaminated Sites / Brownfields)	√			√
❑ Community Development Block Grants	√	√		√
❑ ANR Wastewater funding	√			√
❑ State affordable housing funds	√			√
❑ Locating State Buildings	√	√	√	√

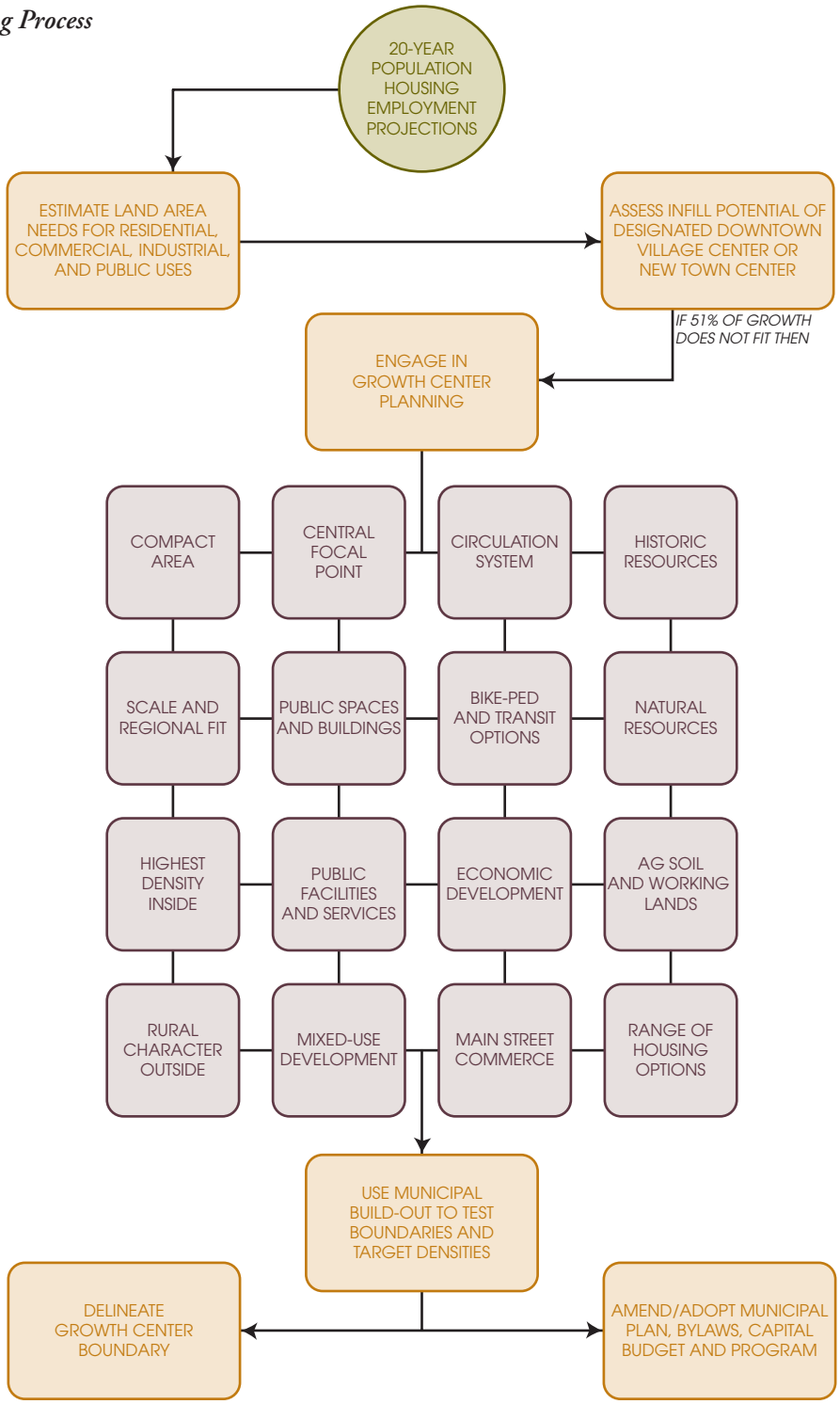
**May not apply to all growth centers.*

***Statute establishes that designated downtowns and village centers should have greater priority for state funding and programs than new town centers and growth centers. (24 V.S.A. §2790(d) and 24 V.S.A. §2793c(i)(2)(A))*

Planning Process

The planning process for a designated growth center is illustrated in the flow chart below. Applicants can begin with 20-year projections for population, housing and employment. The land area needed to accommodate projected growth can then be calculated. Any designated downtown, village center or new town center in the municipality can be assessed to determine whether it can accommodate a majority of the projected growth. If existing centers lack the necessary infill capacity, then a municipality can begin to plan for a growth center.

Figure 7. Designated Growth Center Planning Process



Applicants will need to delineate a proposed growth center, amend their municipal plans, and draft policies and implementation measures that meet the requirements of the statute in a manner that is most appropriate for the municipality given its character, role in the region, physical constraints, existing development pattern and anticipated growth.

Vermont's growth center legislation does not include specific regulatory measures that municipalities must enact. Instead, applicants must engage in a planning process resulting in proposed growth centers that meet the statutory definition and implement those policies through municipal plans, bylaws, ordinances and/or other regulatory or non-regulatory measures. Applicants will need to demonstrate the following (see 24 V.S.A. 2793c(d)):

- The growth center proposal meets the definition of a growth center established in 24 V.S.A. § 2791(12).
- That important natural resources and historic resources within the proposed growth center, the anticipated impacts on those resources, and any proposed mitigation have been identified.
- The most recent guidelines developed by the Secretary of Agriculture, Food and Markets have been used to identify areas proposed for agriculture.
- The growth center has been designed so as to avoid the conversion of primary agricultural soils, wherever possible.
- The applicant has a regionally confirmed planning process and an approved municipal plan, pursuant to 24 V.S.A. § 4350.
- The approved plan contains provisions that are appropriate to implement the designated growth center proposal.
- The applicant has adopted bylaws in conformance with the municipal plan that implement the provisions in the plan that pertain to the designated growth center.
- The approved plan and the implementing bylaws further the goal of retaining a more rural character in the area surrounding the growth center, to the extent that a more rural character exists.
- The approved plan and the implementing bylaws provide reasonable protection for important natural resources and historic resources located outside the proposed growth center.
- Existing and planned infrastructure is adequate to implement the growth center as shown in the adopted Capital Budget and Program.
- The growth center is of an appropriate size sufficient to accommodate a majority of the projected population and development over a 20-year planning period in a manner that is consistent with the definition under 24 V.S.A. § 2791(12).
- The growth center does not encompass an excessive area of land that would involve the unnecessary extension of infrastructure to service low-density development, or result in a scattered or low-density pattern of development at the conclusion of the 20-year planning period.
- The growth center will support and reinforce any existing designated downtown, village center, or new town center located in the municipality or adjacent municipality by accommodating concentrated residential neighborhoods and a mix and scale of commercial, civic, and industrial uses that is consistent with the anticipated demand for those uses within the municipality and region.
- The proposed growth center growth cannot reasonably be achieved within an existing designated downtown, village center, or new town center located within the applicant municipality.

Designation Process

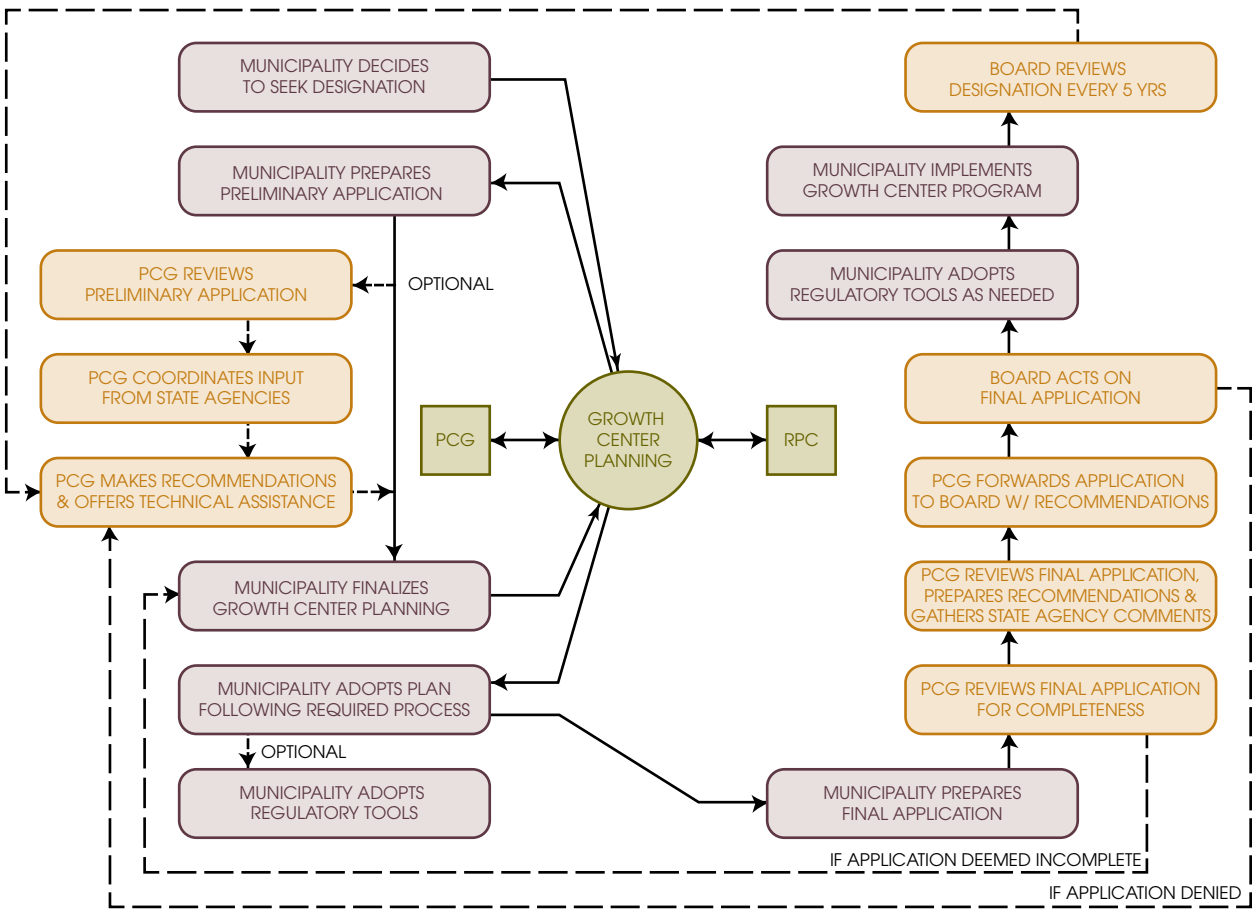
The designation process is illustrated in the flow chart below. The decision to apply must be endorsed by a vote of the municipal legislative body as specified in statute (24 V.S.A. §2793c(c)). The growth center planning process will require applicant municipalities to review, amend and re-adopt municipal plans and implementing bylaws (designation may be contingent upon adoption of revised regulatory tools). Applicants are strongly encouraged to submit a preliminary application to the Planning Coordination Group (PCG), which will solicit comments and recommendations from all relevant state agencies to assist applicants in preparing a final application that meets program requirements.

Applicants may submit concurrent applications for a designated downtown, village center or new town center with their application for a designated growth center. Municipalities planning on submitting concurrent applications should contact the PCG to coordinate the program application requirements. Where a new town center is being proposed, applicants will need to carefully consider the new town center's relationship to any existing village centers within the municipality, especially those with significant community facilities or public spaces, to establish that a growth center will be in conformance with statutory goals.

Joint applications from two or more municipalities are encouraged where appropriate; the PCG can provide assistance with the requirements for a joint application as well. Joint applications may be appropriate:

- Where an existing downtown straddles or is located on a municipal border.
- In towns with an incorporated village.
- For regional centers with adjoining small or rural towns.

Figure 8. Growth Center Designation Process



Final applications will be reviewed by the PCG, which will review applications for completeness and prepare recommendations on the proposed growth center before forwarding the application to the Expanded Downtown Board. The Expanded Downtown Board consists of the Downtown Board members plus a member of the Vermont Planners Association, a representative of the Land Use Panel of the Natural Resources Board and a member of the Vermont Association of Regional Planning and Development Agencies.

Once it receives an application, the Expanded Downtown Board will warn and hold a hearing on the application. Applicants will be requested to attend the board meeting to respond to any board member questions. Within 90 days of receiving a complete application, the Expanded Downtown Board will issue a written decision based on the review criteria listed in statute (24 V.S.A. § 2793c(e)).

Preliminary Application

Applicants are strongly encouraged to submit a preliminary application to the Planning Coordination Group while they are engaged in the growth center planning process so that recommendations may be considered prior to the final drafting and/or adoption of plans and implementation measures. The following materials should be included in a preliminary application:

I. **Draft Growth Center Map.** A map of the proposed growth center designed to accommodate a majority of the community's growth needs for the next 20 years. The boundaries of the designated downtown, village center or new town center associated with the proposed growth center should also be delineated. The map legend should indicate the total acreage within the proposed growth center as well as the acreage of the designated downtown, village center or new town center associated with the proposed growth center.

II. **Regional Map.** A regional map indicating the location of the proposed growth center in relation to the region and any designated downtowns, village centers, new town centers or growth centers located in the applicant municipality or adjacent municipalities.

III. **Growth Projections.** Summary tables of the municipality's and region's 20-year population, housing and employment projections.

IV. **Build-Out Analysis.** A build-out analysis for the potential growth center to show that the geographic area of a proposed growth center will accommodate a majority of projected growth over a 20-year period in a manner that is consistent with the definition of a growth center included in the Act. The application should include a summary table of development potential inside the proposed growth center area.

V. **Resource Maps.** Map(s) showing the location of all important natural resources in the municipality. Important natural resources should at a minimum include the following as defined in statute (10 V.S.A. Chapter 151): headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands, and primary agricultural soils. Map(s) showing the location of national and/or state register historic district(s) in the municipality. The proposed growth center and downtown/village center/new town center boundaries should be shown on all maps.

VI. **Narrative.** Brief explanation of planning and implementation policies that the municipality anticipates enacting in order to guide development inside the growth center in a manner consistent with the purposes of 24 V.S.A. § 2791(12)(B) and (13), and to maintain the rural character of the outlying area, to the extent that it exists.

Final Application and Guidance

The review criteria that the Board will use to evaluate applications are set forth in statute (24 V.S.A. § 2793c(e)). The statutory review criteria (in italics below) have been grouped into twelve topic areas. Applicants will need to provide narrative responses to the questions (numbered) under each topic area and attach the required submissions (lettered) to demonstrate their conformance with the goals of the growth center program. General guidance for preparing an application follows each set of questions and submission requirements. The Planning Principles, Implementation Tools and Resources sections offer more in-depth guidance for growth center planning and links to resources for further assistance.

In their responses, applicants should cite specific policies from the municipal plan, land use regulations, provisions from the capital plan and budget, and any other relevant municipal planning, policy or implementation documents. Applicants are urged to be concise. References can be made to previous answers, maps and other attachments, but the written responses to the questions below should summarize key information. Applicants should not simply respond with "See Appendix A" or "See Municipal Plan." **All required maps should be prepared in a GIS format based on data developed to VCGI Standards and Guidelines.** Required and any additional submissions should be clearly identified and may be included either within the application narrative or attached as a series of appendices.

1. *The proposed growth center growth cannot reasonably be achieved within an existing designated downtown, village center, or new town center located within the applicant municipality (*24 V.S.A. § 2793c(e)(1)(G)(ii)).

1.1 Discuss why a majority of the projected growth cannot reasonably occur within an existing designated downtown, village center or new town center within the municipality, specifically citing the municipality's 20-year projections for population, housing and employment growth and the build-out potential of any designated downtown, village center, or new town center in the municipality.

A. Growth Center Map. A map of the proposed growth center designed to accommodate a majority of the community's growth needs for the next 20 years. The map should use the municipal property tax map overlying an orthophoto as a base and must delineate the boundaries of the new growth center. The boundaries of the designated downtown, village center or new town center associated with the proposed growth center should also be delineated. The map should clearly show which properties are to be included in the growth center. The map legend should indicate the total acreage within the proposed growth center and the acreage of the designated downtown, village center or new town center associated with the proposed growth center.

B. Growth Projections. Summary tables of the municipality's and region's 20-year population, housing and employment projections, along with a brief narrative describing the projection methodology and how the municipal projections fit with those of the region.

C. Build-Out Analysis. A build-out analysis for the potential growth center to show that the geographic area of a proposed growth center will accommodate a majority of projected growth over a 20-year period in a manner that is consistent with the definition of a growth center included in the Act. The application should include a summary table of development potential inside the proposed growth center area.

Question 1.1

To answer Question 1.1, applicants will need to first estimate the land area needed to accommodate 20 years worth of population growth and economic development, and then calculate infill potential based on a build-out analysis.

Preparing Growth Projections

Twenty-year projections of population, housing and economic growth within the municipality are the required starting point for growth center planning. Growth centers by statute must accommodate a majority of the municipality's projected 20-year growth. Applicants will need to use projections of population, housing and employment to prove that a proposed growth center can accommodate at least 51 percent of the municipality's anticipated growth for the 20-year planning period.

Applicants can begin by obtaining the projections available from their Regional Planning Commission and, if so desired, compare them to other available or internally developed projections. Additional sources of statewide or regional projections include:

- U.S. Census Bureau Population Projections to 2030
- MISER Population Projections for Vermont, 2000–2020 prepared for the Vermont Agency of Human Services

Applicants may also have access to population, housing or economic projections for their community that were completed as part of another project. *Estimating Land Area Needs for Growth Centers: A Technical Report and Handbook* available from the Vermont Department of Housing and Community Affairs provides a clear methodology for generating local projections based on existing county, regional or state projections.

Applicants who choose not to use projections prepared by their Regional Planning Commission will need to explain their reasons for doing so. Alternative projections chosen or prepared by applicants should be based on a model generally accepted by planners and demographers. Applicants will need to provide a clear summary of the data upon which the model is based, the methodology and the assumptions made if preparing their own projections.

Applicants looking for demographic or economic data specific to their municipality can begin with the profiles prepared by the Center for Rural Studies and available online at http://maps.vcgi.org/indicators. More detailed statistical data is available from the U.S. Census Bureau through their website, http://www.census.gov.

Conducting a Build-Out Analysis

Build-out analysis is a tool that applicants can use to:

- Produce the quantitative data that will be needed to justify the proposed boundary and target densities of development, and to prove that at least 51% of growth can be accommodated within the proposed growth center (required).
- Test alternatives as municipalities are considering how to draw the boundaries of a proposed growth center and set appropriate development densities, and compare multiple combinations of geographic boundaries and development densities.
- Help stakeholders and the public at large engage in the planning process and visualize the resulting development pattern in order to build support for a proposed growth center within the municipality.

Applicants will need to document the data and the series of assumptions upon which their build-out analysis is based. If applicants are submitting two build-out analyses, before and after growth center planning, the underlying set of assumptions should remain constant so that they are comparable to each other.

Build-out analyses are to be used as a planning tool by municipalities engaged in growth center planning. A baseline build-out of the entire municipality under current regulations will provide insight into questions such as:

- How much development potential is there in the municipality under current regulations?
- What development patterns are the current regulations promoting?
- How much potential for infill within existing downtowns or centers currently exists?

- To what degree is there excess, sufficient or inadequate capacity to accommodate expected growth?

Applicants may want to examine build-out analyses for the region or neighboring municipalities, if available, to place development potential and patterns in the applicant municipality into a regional context. Regional build-outs, if available, may be included in the application package.

Calculating Infill Potential

The growth center legislation requires that applicants show that the majority of the municipality's 20-year growth cannot reasonably be accommodated in an existing designated downtown, village center or new town center within the municipality.

Applicants can use build-out analysis as a tool to calculate the infill potential that exists in the designated area(s). In setting up the build-out model, applicants will need to consider the assumptions being made, especially regarding infill or redevelopment of parcels of land that are developed but at lower intensities than allowed under regulations.

Depending upon the build-out software being used, applicants may need to supplement the computerized results with additional analysis. To fully capture infill potential, applicants can:

- Identify undeveloped land within the designated area(s) and calculate its development potential and/or summarize constraints to its development.
- Identify major parcels of underutilized land (such as parking lots, industrial facilities, large single-story commercial buildings, etc.) and calculate their redevelopment potential and/or summarize constraints to their redevelopment.
- Estimate the potential development that could occur if use of the upper stories of existing buildings was maximized.
- Consider the potential for infill development within established residential neighborhoods and assess the likelihood of densification on developed lots.
- Research the rate at which accessory units are being added or existing homes are being converted from single-family to multi-family dwellings within the designated area.
- Document any other constraints to increasing density within the existing designated area(s).
- Consider what percentage of supply in excess of demand is desirable or necessary for a functioning real estate market.

Estimating Land Area Needs

Applicants will need to calculate how much land will be needed to accommodate projected growth. *Estimating Land Area Needs for Growth Centers,* available from the Vermont Department of Housing and Community Affairs, provides a clear methodology for converting projected population and employment growth into the amount of land needed to accommodate residential, commercial/industrial and civic/infrastructure uses.

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2. *The proposed growth center is of an appropriate size sufficient to accommodate a majority of the projected population and development over a 20-year planning period. The proposed growth center does not encompass an excessive area of land that would involve the unnecessary extension of infrastructure to service low-density development or result in a scattered or low-density pattern of development at the conclusion of the 20-year period (*24 V.S.A. § 2793c(e)(1)(F)).

   *The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by development that is not serviced by municipal infrastructure or that requires the extension of municipal infrastructure across undeveloped lands in a manner that would extend service to lands located outside compact village and urban centers (*24 V.S.A. § 2791(13)(I)(iv)).

   *The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by linear development along well-traveled roads and highways that lacks depth, as measured from the highway (*24 V.S.A. § 2791(13)(I)(v)).

2.1 Summarize the amount of land included within the proposed growth center and its build-out potential.

2.2 Explain how the municipality arrived at the proposed growth center boundary and determined how much land was needed to meet the requirement of accommodating a majority of projected growth over the 20-year planning period, specifically justifying how the proposed boundary achieves the program goal of a compact center that does not encompass an excessive area of land.

2.3 Identify the steps that the municipality is taking to manage any necessary extensions of infrastructure to parts of the municipality that are currently not served by water or wastewater in a manner that will discourage a scattered or low-density pattern of development.

Question 2.1

The amount of land being included within the proposed growth center and its maximum build-out potential should not be significantly different than the need for additional housing units and non-residential square footage as calculated based on projected growth in population, housing and employment.

Question 2.2

Applicants will need to describe the methodology and process used to determine how much land would be included in the proposed growth center.

Compact Development

Applicants will also need to demonstrate that their growth center area has been delineated based on rational planning decisions given the projected growth within the municipality over the 20-year planning period.

The enabling legislation requires that growth centers be compact and not encompass an excessive area of land. While there is no one-size-fits-all measurement for compactness, applicants may want to relate the size of their growth center to measures of walkability and the scale of traditional Vermont centers. To demonstrate that a proposed growth center is compact, applicants may:

- Compare the size and planned density of the growth center to traditional Vermont centers.
- Examine the densities of traditional Vermont centers as a starting point for specifying planned densities within the proposed growth center.
- Show how the proposed growth center will be composed of walkable neighborhoods that are interconnected and relate to the associated designated downtown, village center or new town center.
- Illustrate average walking times from various focal points (town green, school, post office, commercial area, etc.) on a map of the growth center.

Significant growth can be accommodated in an area measured in hundreds, as opposed to thousands, of acres. Municipalities should anticipate that the Board will implement the statutory policy favoring smaller rather than larger areas, thus more effectively targeting program benefits. If a proposed growth area is too large or the projected growth rate is too high, the result could be a scattered development pattern at the end of the 20-year planning period. While municipalities are planning for a 20-year period, the growth center designation will be reviewed at five-year intervals, providing regular opportunities to adjust the boundary if warranted.

Question 2.3

Applicants should have adopted policies related to infrastructure extension. Applicants may want to reference sewer allocation ordinances and/or other measures that will be used to prevent infrastructure from supporting or promoting scattered, sprawling, linear or land consumptive development both inside and outside the proposed growth center.

Provision or Extension of Infrastructure

Infrastructure extensions into previously unserved areas promote development. Provision of infrastructure is one of the most important tools available to municipalities to guide development in a manner consistent with its adopted municipal plan.

In municipalities where lands outside the proposed growth center are currently not served by infrastructure, extensions that are not necessitated for public health reasons will likely undermine growth center goals. In those municipalities where outlying lands are served by infrastructure or where the geographic location of the proposed growth center requires infrastructure extensions through lands outside the proposed growth center, applicants will need clear policies to allocate capacity in a manner that achieves growth center goals.

References

3. *The proposed growth center will support and reinforce any existing designated downtown, village center, or new town center located in the municipality or adjacent municipality by accommodating concentrated residential neighborhoods and a mix and scale of commercial, civic, and industrial uses consistent with the anticipated demand for those uses within the municipality and region (*24 V.S.A. § 2793c(e)(1)(G)(i)).

   *The proposed growth center is planned to develop compact mixed-use centers at a scale appropriate for the community and the region (*24 V.S.A. § 2791(13)(B)).

3.1 Identify all designated downtowns, village centers and new town centers in the applicant municipality and adjacent municipalities.

3.2 Identify all major retail areas (downtowns, shopping centers, malls, big-box stores, etc.) within the applicant municipality and adjacent municipalities, specifically noting which currently function primarily as community-serving retail areas and which serve primarily as destination retail areas.

3.3 Describe the extent to which any downtowns, village centers or new town centers (designated or non-designated) that are located outside the proposed growth center currently serve as significant employment, retail, service or civic centers for residents in the applicant municipality.

3.4 Describe the extent to which the applicant municipality currently serves as an employment and/or residential center in the region, presenting the best available statistics regarding place of work and residence for people living and working in the applicant municipality.

3.5 Summarize the Regional Planning Commission's 20-year projections for population, housing, employment growth for the region and discuss what percentage of regional growth the municipality is planning to accommodate within its growth center by type – residential, commercial (retail and non-retail), and industrial, and how that compares to its current regional share, explaining any significant changes in regional share being planned for by the municipality.

D. Regional Map. A regional map indicating the location of the proposed growth center in relation to the region and any designated downtowns, village centers, new town centers or growth centers located in the applicant municipality or adjacent municipalities.

Question 3.1

Applicants will need to identify all designated downtowns, village centers and new town centers in their municipality and all adjacent communities. In the context this and other questions under this group of review criteria, adjacent should be interpreted to mean not only those municipalities bordering the applicant municipality, but all those within a reasonable distance (such as a half-hour drive) and those that serve as major employment or service centers for residents in the applicant municipality.

A list of designated downtowns, village centers and new town centers is available from the Vermont Division of Historic Preservation (http://www.historicvermont.org or (802) 828-3211).

Question 3.2

A primary goal of the growth center program is to support the vitality of downtowns, village centers and new town centers. Questions that should be considered include:

- Does the growth center function as an organic extension of an existing downtown, village center or new town center? If not, what is the justification for its placement?
- Does the scale of the growth center take into consideration absorption of any current vacant space in existing downtowns, village centers and new town centers?
- Is there an integrated business development program that will encompass both existing commercial centers and new commercial development?
- Will new commercial and mixed-use buildings in the growth center support the urban design traditions and patterns established by existing downtowns in terms of urban form, scale, density, height, setback, and other urban design characteristics?

A proposed growth center should not deflect business activity away from the extant district(s) or strain its infrastructure and other resources. To demonstrate that a proposed growth center will support its associated designated downtown, village center or new town center, applicants can:

- Plan to achieve reasonably full occupancy of existing downtowns, village centers and new town centers before supporting new development.
- Show that their growth center will be integrated in terms of urban form and accessibility with existing districts to the extent possible, unless there are justifiable reasons for not doing so.
- Support efforts to manage business development and marketing of existing districts and new growth centers in an integrated manner.

Questions 3.3 and 3.4

Regional Fit

It is not the intent of the growth centers program to establish new centers that have the potential to significantly undermine the viability of existing centers. Applicants will want to develop an understanding of the existing residential and economic dynamics of their municipality and of the region in order to plan for a growth center that is appropriate in scale and mix of uses. Questions that should be considered include:

- Is the applicant municipality an employment center for residents in surrounding communities?
- Is the applicant municipality a bedroom community for a regional center in a nearby community?
- What are the economic development goals of the applicant municipality as expressed in the municipal plan or other planning documents?
- How do municipal goals relate to regional economic development efforts?
- What are the regional growth projections and how do the municipality's projections fit into that regional context?
- Is the municipality planning for a commercial center that will rely on attracting residents from neighboring communities to be economically viable?

Applicants will be asked to demonstrate that their proposed growth center is appropriately scaled for the region. In order to do that effectively, applicants can:

- Show that their growth projections are reasonable when considered in a regional context.
- Plan to provide their regional share of housing, and to balance growth in jobs and housing.
- Plan for levels of commercial or industrial development that would not represent significant restructuring of existing or anticipated future regional economic conditions.
- Collaborate with nearby communities to estimate regional retail supply and demand for both community-serving and destination retail.

Joint applications for growth center designation are encouraged for those municipalities that serve as a regional center for one or more adjacent, rural communities.

Question 3.5

Municipal growth projections will be reviewed in a regional context. Applicants must address how anticipated growth in the municipality fits with the growth projected for the region. If an applicant municipality is planning to provide a significantly different regional share of housing, retail, other commercial, or industrial uses than is supported by regional projections, existing conditions and/or historic trends, the applicant will need to explain the reasoning behind such a decision.

References

*4. The proposed growth center promotes densities of land development that are significantly greater than existing and allowable densities in parts of the municipality that are outside a designated downtown, village center, growth center, or new town center, or, in the case of municipalities characterized predominately by areas of existing dense urban settlement, it encourages infill development and redevelopment of historically developed land (*24 V.S.A. § 2791(12)(B)(iv)).

*The proposed growth center results in compact concentrated areas of land development that are served by existing or planned infrastructure and are separated by rural countryside or working landscape (*24 V.S.A. § 2791(12)(B)(vi)).

*The proposed growth center is planned to maintain the historic development pattern of compact village and urban centers separated by rural countryside (*24 V.S.A. § 2791(13)(A)).

*The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by scattered development located outside of compact urban and village centers that is excessively land consumptive (*24 V.S.A. § 2791(13)(I)(i)).

*The approved plan and the implementing bylaws further the goal of retaining a more rural character in the areas surrounding the growth center, to the extent that a more rural character exists (*24 V.S.A. § 2793c(e)(1)(D)(iv)).

4.1 Discuss the character, land uses and density of development that currently exists and will be permitted on lands within the designated downtown, village center or new town center associated with the proposed growth center, specifically citing the steps the municipality is taking to encourage infill development, adaptive reuse and/or redevelopment of vacant or underutilized land within the designated downtown or village center, or to promote development with a 'downtown' character within a new town center.

4.2 Discuss the character, land uses and density of development that currently exists and will be permitted on lands within the proposed growth center but outside the designated downtown, village center or new town center associated with the proposed growth center, specifically citing the steps that the municipality is taking to encourage a the settlement pattern resulting from growth center designation that is not be characterized by scattered or excessively land consumptive development.

4.3 Discuss the character, land uses and density of development that currently exists and will be permitted on lands outside the proposed growth center, specifically citing the steps the municipality is taking to further the goal of retaining rural character outside the proposed growth center, to the extent that such a character exists.

E. Planning and Regulatory Maps. The land use map from the approved municipal plan and applicable zoning district map. Any additional planning or regulatory maps relevant to development within the growth center (master plan map, open space map, etc.).

Questions 4.1, 4.2 and 4.3

This set of questions focuses on the character, land use pattern and density of development existing and planned for within and outside the proposed growth center.

Density within the Growth Center

The enabling legislation requires densities within the growth center to be significantly greater than allowed in those parts of the municipality outside the growth center. Over time, it is anticipated that the growth center boundary will become a distinguishing line that creates a distinct edge between compact center and rural countryside (to the extent that rural lands currently exist in the applicant municipality). As described in the introduction to this manual, applicants can think about three areas within their municipality when planning a growth center:

- The designated downtown, village center or new town center associated with the proposed growth center;
- The lands within the growth center but outside the designated downtown, village center or new town center; and
- The lands outside the growth center.

Applicants will be asked to clearly describe the existing and planned density of development in each of these three areas, citing specific policies and regulations that will guide development in conformance with growth center goals.

Establishing appropriate densities can begin within an assessment of the existing (or planned in the case of a largely undeveloped new town center) density of development in the designated downtown, village center or new town center associated with the proposed growth center. Applicants can calculate the densities of historic neighborhoods (either within their municipality or elsewhere in Vermont) and use those figures as a reference point for setting target densities within the growth center.

For rapidly growing municipalities, the historic density of development may not accommodate projected growth in a reasonably compact area and it may be necessary to plan for greater density. It is important to recognize that simply enabling higher density development may not result in development proposals that meet targets, so applicants may want to explore options available to either promote high-density projects such as incentives or bonuses, or to require minimum densities in certain areas or for particular types of projects.

Urban and Suburban Municipalities

For urban or suburban communities with limited rural lands, the area outside the growth center should still have different development patterns and densities than the area inside the growth center although the distinctions may not be as sharp as in more rural municipalities. These municipalities are asked to focus their growth center planning on infill of existing developed areas.

Some municipalities with limited rural lands inside their boundaries may have one or more rural municipalities as neighbors. Joint applications from such communities are encouraged.

Suburban patterns of development should not continue to be supported even in those municipalities where such development currently exists. Existing suburban development patterns may be found either inside or outside a proposed growth center and applicant municipalities can work to change such patterns over time by taking actions such as:

- Allowing mixed uses in areas previously zoned for a single use (e.g., allowing for neighborhood-scale retail stores in residential zones).
- Creating and enforcing guidelines for the height, scale, setback, roof profile, and proportions of new buildings within the growth center.
- Streamlining code approvals for proposed infill projects that meet these guidelines.
- Encouraging shared parking in order to minimize on-site parking needs.
- Creating zero-setback 'screens' (e.g., plantings or low walls) along street edges with lengthy gaps in order to minimize the visual impact of suburban-style setbacks in commercial districts and neighborhoods with a core of zero-setback buildings.
- Assisting with land assembly by maintaining current information on property ownership, liens, and environmental hazards on potential infill sites.

- Assisting with land assembly by creating land banks to hold property acquired through tax delinquency and through voluntary sales or contributions to the local government.
- Offering a conduit to programs and resources that help facilitate infill development (brownfields funds, for example).
- Establishing tax increment financing districts that overlay the area in which infill development is being encouraged to help fund infrastructure improvements.

Outlying Lands

It is important to understand that the designation of a growth center does not alter the regulatory regime outside the growth center. Some communities may establish multiple growth centers, although only one can be designated per municipality and enjoy the benefits of that designation. Industrial development and other land improvement projects may be pursued outside growth centers but are subject to local, regional and state review as is now the case.

Outside the growth center, most Vermont municipalities should be planning to retain rural character, open space and/or working lands. Municipalities can plan for low overall densities while promoting a development pattern that maintains the greatest amount of working land or open space feasible. Simply establishing a large minimum lot size will not achieve the goal of maintaining rural countryside. Applicants can implement rural planning techniques such as:

- Using building envelopes to site development in a manner that conserves open space or working lands.
- Enacting use and/or area allocation standards.
- Requiring or incentivizing clustered development through PUDs.
- Enacting fixed-area or sliding-scale zoning to maintain low overall densities and conserve open space and/or working lands.
- Using conservation subdivision design to preserve critical natural resources and/or working lands.
- Allowing transfer of development rights or multi-lot PUDs to relocate density from outlying rural to growth center lands.
- Promoting land conservation or sale of development rights to permanently protect critical natural resources and/or working lands.
- Identifying and developing policies in the municipal plan and enacting regulations to protect special resources such as ridgelines, critical habitat, floodways, viable farmland, and/or scenic views.

Not all the land outside the growth center must be uniformly low density. Village centers and hamlets may exist or continue to be developed at relatively high densities, but at a scale that is significantly smaller than that of the proposed growth center.

References

*5. The proposed growth center incorporates a mix of uses that typically include or have the potential to include the following: retail, office, services, and other commercial, civic, recreational, industrial, and residential uses, including affordable housing and new residential neighborhoods, within a densely developed, compact area (*24 V.S.A. § 2791(12)(B)(i)).

*The proposed growth center is planned to support a diversity of viable businesses in downtowns and villages (*24 V.S.A. § 2791(13)(G)).

*The proposed growth center is planned to provide for housing that meets the needs of a diversity of social and income groups in each community (*24 V.S.A. § 2791(13)(H)).

5.1 Summarize the desired mix of uses within the proposed growth center as envisioned in the municipal plan and allowed under the land use regulations, specifically identifying any steps the municipality is taking to encourage for mixed-use development within the proposed growth center.

5.2 Discuss the steps the municipality is taking to plan for and encourage residential development that meets the needs of a diverse population, including affordable housing, within the proposed growth center.

5.3 Discuss the steps the municipality is taking to plan for and encourage economic development within the proposed growth center, specifically describing how the growth center will support a healthy business climate in the designated downtown, village center or new town center associated with the growth center.

5.4 Describe the extent to which large-scale commercial, industrial or institutional, and automobile-oriented uses currently exist in the proposed growth center, and discuss the municipality's policies and regulations related to such uses, specifically identifying all locations within the municipality where such uses will be accommodated.

Question 5.1

Mixed-Use Development

In a growth center, residents should have easy access to a variety of goods, services, social opportunities, schools and recreation within walking or biking distance of their home. Ideally, employment opportunities will also be within walking distance, a short drive or bus trip from home.

A growth center may be comprised of multiple zoning districts and some separation of incompatible uses, but a reasonable mix of uses should be allowed in most districts, especially within the associated designated downtown, village center or new town center.

Question 5.2

Housing

Housing is an integral use in both the proposed growth center and its associated designated downtown, village center or new town center. Providing for a diversity of housing types, sizes and price ranges allows residents to find homes in the growth center and remain living in their community as their housing needs change throughout the cycles of their lives.

A diverse mix of housing will include homes that are affordable to families with a range of income levels and accessible to those with special needs such as seniors or people with disabilities. Specific provisions may be needed to encourage provision of an adequate supply of affordable housing, as defined in 24 V.S.A. § 4303(1), within the proposed growth center.

Applicants can demonstrate how the municipality will enable creation of a diverse housing stock in the proposed growth center through action such as:

- Allowing for a variety of housing types and forms.
- Establishing small lot sizes for residential uses.
- Setting moderate to high densities for residential uses.
- Allowing duplex and multi-family dwelling units.
- Permitting the conversion of single-family homes to multi-family homes.
- Encouraging residential uses in the upper floors of commercial buildings.
- Allowing manufactured housing.
- Reducing barriers to creation of accessory dwellings.
- Allowing for group homes, residential care facilities, and other types of congregate care, rooming or boarding homes.
- Encouraging the "adaptive reuse" of historic structures to provide housing.
- Providing incentives for housing of various types within the municipality's regulations.
- Adopting inclusionary zoning provisions.

Question 5.3

Economic Development

A diverse and viable business mix will be enabled by a strategic economic planning process. Applicants that have initiated such a process or are part of a regional organization that engages in economic planning may present documentation of those efforts to the extent that they support their growth center plan.

The economic vitality of the designated downtown, village center or new town center associated with the proposed growth center is an essential planning issue. Applicants can look to the Vermont Downtown Program and National Main Street Program for assistance and resources related to downtown revitalization.

Municipalities can establish policies and regulations to guide appropriate businesses first into the designated downtown, village center or new town center. *10 Reasons Why Vermont's Homegrown Economy Matters* suggests a number of actions that municipalities can take to support the viability of downtowns and small, locally-owned businesses including:

- Limiting the amount of land zoned for retail use.
- Funneling new retail growth downtown.
- Limiting the size of retail stores.
- Establishing community-serving commercial zones.
- Establishing a small business revolving loan fund.
- Establishing a commercial land trust.
- Publishing a local business directory.

Question 5.4

Large-Scale and Auto-Oriented Uses

Applicants need to plan for large-scale and auto-oriented uses, which may currently exist or be planned for areas within and/or outside the proposed growth center.

Large-scale commercial, industrial or institutional and automobile-oriented uses may be accommodated within the growth center, and even within the associated designated downtown, village center or new town center, if they adhere to certain smart growth principles and design guides.

Applicants can demonstrate adequate planning for and regulation of such uses through adoption of zoning regulation that provide design direction by specifying such criterion as:

- Maximum lot size
- Coverage requirements
- Maximum building square footage
- Building placement and setbacks
- Minimum building heights
- Floor area ratios
- Maximum parking regulations

References

*6. The applicant has adopted a capital budget and program in accordance with 24 V.S.A. § 4426 and the existing and planned infrastructure is adequate to implement the growth center (*24 V.S.A. § 2793c(e)(1)(E)).

*The proposed growth center is planned to balance growth with the availability of economic and efficient public utilities and services (*24 V.S.A. § 2791(13)(F)).

6.1 Describe the capacity of existing community infrastructure, facilities and services (as defined in 24 V.S.A. § 4382(4)), and summarize the municipality's plans to provide and finance the infrastructure, facilities and services needed to support projected growth and development within the proposed growth center over the 20-year planning period, citing specific provisions of the municipality's adopted capital budget and program.

6.2 Discuss the steps the municipality is taking to maintain a rate of growth that will not exceed the municipality's ability to provide or finance required community infrastructure, facilities and services over the 20-year planning period.

F. Capital Budget and Program. Adopted capital budget and program.

Question 6.1

Applicants need to discuss existing and planned community infrastructure, facilities and services. Responses should not be limited to potable water and wastewater treatment infrastructure, but should include the full range of utilities, facilities and services covered in the municipal plan. This includes educational and recreational facilities, hospitals, libraries, power generating plants and transmission lines, water supply, sewage disposal, refuse disposal, storm drainage and other similar community facilities and services.

The applicant municipality's adopted capital budget and program will be examined to determine if adequate consideration has been given to providing needed infrastructure, facilities and services within the proposed growth center.

Capital Budget and Program

To be eligible for growth center designation, a municipality must have an adopted capital budget and program, which consists of a capital budget for the current fiscal year and a projection of capital expenses over the next five fiscal years.

The growth center program is based on a 20-year planning period, therefore requiring applicants to plan for infrastructure needs beyond the time horizon of standard capital plans. It may not be feasible for municipalities to prepare a detailed, long-range capital improvement program for the entire planning period. Applicants can, however, anticipate significant infrastructure needs directly linked to projected growth such as wastewater treatment or school facilities. Since growth center designation will be reviewed every five years, municipalities will have the ability to show how their annually updated capital budgets and programs address evolving growth center needs.

Long-range capital planning can provide municipalities with the opportunity to acquire or identify lands needed for the expansion of existing or construction of new facilities (such as municipal offices, schools, or public safety buildings). Applicants will be asked to demonstrate that they have considered the public infrastructure and service needs resulting from projected growth and are actively planning to provide adequate levels of service as development proceeds.

Capital expenses that municipalities may be planning for include:

- Water, wastewater and stormwater infrastructure
- Transportation (roads, transit, sidewalks, trails, municipal parking)
- Civic buildings and administration, schools
- Public spaces and recreation facilities (greens, parks, ball fields, streetscape)
- Public safety (police, fire, rescue)

An applicant's capital improvement budget and program can be re-examined during each five-year review to confirm that the municipality is on track to provide needed infrastructure and services.

The adopted capital budget and program should identify potential funding sources for planned projects. Applicants may also want to consider potential funding sources for long-range projects. Applicants may want to describe the status of any projects within the proposed growth center currently in line for funding such as improvements listed in the Vermont Agency of Transportation's Multi-Year Transportation Program (the STIP).

Question 6.2

Applicant municipalities should have considered their ability to provide or finance the new, expanded or improved community infrastructure, facilities and services that will be needed to support development within growth centers. Municipalities may prepare a growth management plan or study to determine an appropriate level of growth that will not exceed their ability to provide infrastructure, facilities and services.

Rate of Growth

The main purpose of capital improvement planning is to ensure that needed infrastructure can be provided in a manner that is affordable to the municipality. Understanding the relationship between growth of various types, the resulting increase in demand for public services and the cost of providing those services is critical to the growth center planning process.

Applicants will be asked to demonstrate that they have considered the fiscal implications of anticipated growth and are financially preparing to provide the

requisite infrastructure and services. The municipality can explore options to manage the rate and/or costs of growth such as:

- Impact fees, which places the burden of paying for new or expanded infrastructure on the development that necessitates it.
- Phasing of development, which can be required when the rate of growth is out-pacing the municipality's ability to provide services.
- Allocation of wastewater capacity, which can be used to limit the rate of development, or to promote specific types of or locations for growth.
- Special assessment districts, which can be used to shift the tax burden of improvements to those property owners that benefit directly from them.
- TIFs (tax increment financing), which allows municipalities to borrow against future tax revenues of properties benefiting from public improvements.

References

*7. The proposed growth center incorporates existing or planned public spaces that promote social interaction, such as public parks, civic buildings (e.g., post office, municipal offices), community gardens, and other formal and informal places to gather (*24 V.S.A. § 2791(12)(B)(ii)).

7.1 Identify all existing or planned public spaces located within the proposed growth center and summarize the steps the municipality is taking to plan for, provide and/or maintain public spaces, including open space and public recreation facilities, within the proposed growth center.

7.2 If existing public buildings/uses (post office, municipal office, school, library, etc.) are not included within the proposed growth center, explain the municipality's rationale in drawing its growth center boundary to exclude them.

G. Infrastructure and Facilities Maps. Map delineating the boundaries of any existing or planned sewer service area(s) within the municipality. Map showing the location of all existing or planned civic buildings in the municipality. Map indicating the location of all public spaces existing or planned within the growth center. Map of all existing and planned transportation facilities including pedestrian/non-vehicular and public transit facilities. The municipality's Official Map, if one has been adopted. (The growth center and downtown/village center/new town center boundaries should be shown on all maps. Multiple data layers may be presented on a single map as long as the map remains legible.)

Question 7.1

Applicants should be considering existing and planned public spaces and civic uses when delineating and planning for their growth center. While this question may overlap with information covered in Question 6.1, the focus of applicant's response should be on the public spaces and uses that promote social interaction and a sense of community. Provision of open space and outdoor recreation facilities conveniently located to residential neighborhoods should be addressed.

Public Spaces and Civic Uses

Civic uses such as the municipal office, school, post office or library, which bring residents to the center of town on a regular basis, are important elements of a vital center. Public open spaces that frequently host community activities serve a similar function. When delineating a growth center, applicants should consider the location of existing public spaces and civic buildings within the municipality. Ideally, many of these will be incorporated into the proposed growth center.

Growth may necessitate creation of new public spaces. Preferably, these needs can be met with facilities and spaces that are located in a central, dense part of the growth center, easily accessible to most residents. New public spaces may also serve as a focal point for residential neighborhoods within the growth center.

Planning for greenways, open space and outdoor recreation facilities becomes increasingly important as settlement areas expand and/or become more densely developed. A common standard used by cities around the country for many years to guide provision of parks and recreation facilities was 10 acres of parkland per 1,000 population. More detailed standards have been developed by recreation organizations, professional and trade associations, and municipalities, which may be more useful to municipalities planning for growth centers. One such guideline is from the Vermont Trails and Greenways Council, which envisions a network of trails and greenways across the state that will originate within 15 minutes or closer to where most Vermonters live.

Applicants should plan for the areas and facilities that will meet the needs of future growth center residents for outdoor recreation, connections to the natural environment and alternative modes of transportation. Increasingly, connections are being made between land use planning, community design, easy access to recreation facilities and health. A compact, pedestrian-oriented growth center can support a more active and healthy lifestyle for its residents.

Applicants can demonstrate adequate planning for public spaces and civic uses through actions such as:

- Estimating future need for expanded or new public spaces given the municipality's projected growth.
- Adopting an Official Map that identifies desired locations for future public uses.
- Adopting a capital budget and program that shows budgeted financial support for the acquisition and/or continuing maintenance of public buildings and open space.
- Preparing facility management plans for public spaces and uses.
- Requiring dedications of public open space for certain types or sizes of development.
- Planning, building and/or maintaining a network of trails or greenways within the proposed growth center.
- Initiating a streetscape improvement plan.
- Planning, building and/or maintaining public parks and recreation facilities near where people live.

Question 7.2

To the greatest extent feasible, existing public functions like the post office, municipal office, school, or library should be located within the proposed growth center. A growth center that excludes existing public buildings and/or uses has the potential to adversely impact the viability of those public buildings and/or uses. Such a growth center may also be challenged to create a sense of community if it is not providing significant civic uses or spaces.

References

*8. The proposed growth center is organized around one or more central places or focal points, such as prominent buildings of civic, cultural, or spiritual significance or a village green, common, or square (*24 V.S.A. § 2791(12)(B)(iii)).

*The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by linear development along well-traveled roads and highways that lacks depth, as measured from the highway (*24 V.S.A. § 2791(13)(I)(v)).

8.1 Identify the focal point(s) around which the proposed growth center will be organized.

8.2 If the growth center is associated with an existing downtown or village center whose form is linear, summarize the steps the municipality is taking to establish a new development pattern that creates depth as opposed to continuing the linear pattern and/or describe any constraints that limit creating greater depth.

8.3 Describe the extent to which the municipality is planning for and/or requiring development of an interconnected street network within the proposed growth center.

Question 8.1

Central Focus

The lack of a central focus is a hallmark of suburban sprawl. One of the smart growth principles of the growth center program is to promote development that is organized around one or more central focal points. Applicants should be considering how to implement urban or community design principles to guide the form of future development in a manner that meets the intent of the growth center program.

Most Vermont municipalities already have an existing municipal center that serves as a focal point for the community, and many have the stereotypical historic town center with civic buildings located around a common or green. Preferably, these will become a central focus in proposed growth centers where new development will be an organic extension of existing development patterns.

For municipalities with no existing identifiable center, such as linear settlements or new town centers, new focal points can be planned. Planning a new town center may be appropriate for towns whose centers are incorporated cities or villages that long ago separated (although joint applications from such municipalities may be appropriate as well). Towns with multiple small centers or linear development patterns that have a weak center can strengthen their sense of place by creating a central focus.

The size of such spaces is not as significant as a central location, visibility from the public way, and ideally an association between public spaces and public buildings. As with an existing focal point, the proposed growth center should be built around or adjacent to one or more new focal points.

A series of related or multiple unrelated focal points may be appropriate, especially in larger growth centers. Focal points are critical organizing elements that create a sense of place and help people navigate.

Neighborhoods can also be planned around a central focal point such as a pocket park, public building or small commercial area. Streets can be designed to provide views of important community features and to terminate at given locations to frame a specific view.

Applicants can demonstrate that the proposed growth center will have one or more central focal points through action such as:

- Planning to maintain existing or build new civic uses in locations that reinforce the focal point(s).
- Preparing a master plan that sets forth a vision for how development should be guided around the focal point(s).
- Adopting an Official Map that designates the future location of a planned focal point(s).

Question 8.2

Non-Linear Development Pattern

Linear development is another hallmark of suburban sprawl that the growth centers program actively discourages. Historic linear village centers are fairly common in Vermont, especially at the small scale. While some are constrained by their physical environment, most could increase their depth through development of an interconnected street network built off the spine of the existing highway.

Applicants can demonstrate that the proposed growth center will not promote linear development through action such as:

- Avoiding use of linear or strip zoning districts.
- Undertaking a master planning process to identify appropriate locations for extending or creating an interconnected street network.
- Adopting an Official Map that lays out an interconnected network of future streets.
- Building a parallel road along a main street in a commercial area.

Question 8.3

Interconnected Street Network

A largely interconnected street system within the growth center is critical to achieving the purposes of the growth center program. An interconnected road network can also provide multiple travel routes and reduce congestion on main thoroughfares.

Applicants can promote development of interconnected streets through actions such as:

- Undertaking a master planning process to identify appropriate locations for extending or creating an interconnected street network.
- Adopting an Official Map that lays out an interconnected network of future streets.
- Discouraging or prohibiting construction cul-de-sac or dead-end streets except where necessitated by physical or environmental conditions.
- Limiting the length of cul-de-sac streets.
- Requiring rights-of-way be established or street stubs built that would allow for future road connections as adjacent lands are developed.

References

*9. The proposed growth center is supported by existing or planned investments in infrastructure and encompasses a circulation system that is conducive to pedestrian and other non-vehicular traffic and that incorporates, accommodates and supports the use of public transit systems (*24 V.S.A. § 2791(12)(B)(v)*).*

*The proposed growth center is planned to enable choice in modes of transportation (*24 V.S.A. § 2791(13)(C)*).*

*The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by development that limits transportation options, especially for pedestrians (*24 V.S.A. § 2791(13)(I)(ii)*).*

9.1 Describe the facilities/provisions that exist and are planned for pedestrian and other non-vehicular traffic within the proposed growth center, specifically identifying the steps the municipality is taking to promote a safe, pedestrian-friendly environment within the growth center in general and specifically within the associated designated downtown, village center or new town center.

9.2 Describe the current level of public transit service/facilities serving the proposed growth center and the extent to which improvements in public transit service/facilities are planned for the proposed growth center, specifically citing any steps the municipality is taking to enable transportation alternatives within the growth center in general and within the associated designated downtown, village center or new town center.

9.3 Present the best available information on the current condition, current level of service, and current and projected traffic on routes that will serve the proposed growth center.

9.4 Address the capacity of the road network to accommodate increased traffic, specifically (a) identifying any infrastructure improvements that might be required by the state, municipality and/or private developers to accommodate increased traffic, and (b) discussing the steps the municipality is taking to plan for a transportation network that will be able to accommodate growth and development in a manner consistent with the goals of the growth center program.

9.5 If the municipality has adopted an Official Map, summarize the planned transportation infrastructure delineated on the map within the proposed growth center.

Question 9.1

Pedestrian and Non-Vehicular Traffic

Pedestrian and bicycle facilities are a necessity for a growth center that is conducive to non-vehicular transportation modes. Well-designed sidewalks and shared-use paths within the proposed growth center, especially within the associated downtown, village center or new town center, can ease the potential congestion associated with areas of dense development by encouraging people to park their cars and travel on foot or by bicycle. Sidewalks and paths can reduce vehicular traffic if they connect neighborhoods, commercial areas, employment centers, and public spaces or uses.

Applicants can demonstrate that the municipality is planning for pedestrian and non-vehicular access within the proposed growth center through actions such as:

- Preparing and implementing a multi-modal circulation master plan.
- Preparing and implementing a sidewalk master plan that shows existing and planned sidewalks serving the proposed growth center and planned phasing of future installations.
- Preparing and implementing a shared-use path master plan that shows existing and planned off-road paths that will serve the proposed growth center and a narrative indicating the planning process for implementing the plan.
- Adopting an Official Map that shows where a network of sidewalks and/or paths will be extended or established.
- Adopting public works specifications for roadway cross-sections within the proposed growth center that will include provisions for pedestrians and pedestrian amenities, parallel parking, and/or on-road bicycle use within the right-of-way.

Question 9.2

Public Transit

Although fixed-route public transportation is limited or not available in many parts of Vermont, the land use pattern of growth centers could help promote any current and future public transportation by clustering development within easily served dense centers.

Applicants can demonstrate that the municipality is working with local transportation providers to plan for the future availability of or improvements to transit service through actions such as:

- Planning for transit service serving the proposed growth center, commercial and/or public, including identifying routes, locating transit stops and providing connectivity to the designated downtown, village center or new town center, and the sidewalk and path system.
- Planning for development at densities that can support transit service.
- Participating in the activities of regional transit providers, including development of short-range transit plans.
- Supporting the efforts of regional transit providers, including financial support.

Question 9.3

Road Network Condition and Capacity

Applicants should be considering the capacity of the existing road network within and adjacent to the proposed growth center to support projected growth. Applicant municipalities may have completed transportation studies, which can be used to document conditions of the road network.

The traffic impacts of additional residents and businesses can be estimated and compared to the capacity of the existing transportation system. Existing deficiencies in the transportation network within the proposed growth center can also be identified.

The Vermont Agency of Transportation (VTrans) Policy and Planning Division (http://www.aot.state.vt.us/planning/planning.htm or (802) 828-3441) can provide applicants with highway and traffic research data including:

- Sufficiency ratings for state highways and town roads classified as major collectors.
- AADT (average annual daily traffic) volume for state highways and town roads classified as major collectors.
- Continuous traffic count data from specific sites around the state.

- Turning movement counts at major intersections.
- Crash statistics.

Demand Forecasting

VTrans also maintains a Statewide Travel Demand Forecasting (TDF) model, which is used to analyze existing and future travel patterns based on changing demographics as well as quantify the traffic impacts from major proposed developments.

TDF modeling is a support tool for VTrans Planning and Program Development projects, and upon request, to regional and community transportation and development planning. Assistance may also be available from the regional planning commission and/or metropolitan planning organization. VTrans recommends that applicants use a regional TDF model if one is available. Applicants considering use of the statewide model should make a request early in their planning process.

Applicants may also prepare local projections of traffic impacts resulting from anticipated development within the proposed growth center.

Question 9.4

Transportation Infrastructure Improvements

A designated growth center that will absorb a majority of 20 years worth of projected growth will likely require improvement to and/or expansion of the existing transportation infrastructure to accommodate new growth and to create a balance of facilities for vehicles, pedestrians, cyclists and other travelers. Applicants should be identifying and prioritizing needed improvements, as well as exploring funding options.

Applicants are encouraged to work with VTrans and their regional planning commissions or metropolitan planning organization, which provide VTrans with a prioritized list of projects as part of the state's capital planning process each year. Active participation in the region's Transportation Advisory Committee will be beneficial for municipalities planning growth centers.

Applicants can demonstrate the municipality's plans and financial capability to provide a transportation system that achieves the purposes of the growth center program through actions such as:

- Adopting an Official Map that shows existing and (where applicable) new networks of interconnected roadways that will serve the growth center. Prioritization or phasing may be included.
- Incorporating Transportation Demand Management (TDM) strategies into plans, bylaws and municipal policies.
- Incorporating access management strategies into plans, bylaws and other municipal policies.
- Adopting public works specifications to guide the construction of, or improvements to, existing transportation infrastructure for vehicular as well as other modes of travel, and to create a pleasant, safe environment for pedestrians and other non-vehicular travelers within the growth center.
- Adopting zoning regulations that establish specific parking requirements (including maximums or shared parking provisions) and other standards for the siting of parking lots within the proposed growth center.
- Adopting a capital budget and program, facility management documents, and other documents that show budgeted financial support for new or improved roads, sidewalks, municipal parking lots and shared use paths and ongoing maintenance of existing transportation infrastructure within the proposed growth center.
- Enacting regulations that require applicants to prepare traffic impact analyzes for projects within the growth center based on their scale, type and/or location.

Parking

The management of parking is also essential in order to provide enough efficiently planned spaces for those driving to and within the growth center, and to prevent excessive and poorly located parking that undermines the smart growth principles of the growth center program. Parking requirements are directly related to the goal of creating growth centers that are characterized by compact, dense development.

Question 9.5

Applicants with an adopted Official Map should summarize any transportation infrastructure within the proposed growth center shown on the map that has not been referenced in response to other questions.

References

*10. The applicant has identified important natural resources and historic resources within the proposed growth center, anticipated impacts on those resources and has proposed mitigation (*24 V.S.A. § 2793c(e)(1)(B)).

*The approved plan and the implementing bylaws provide reasonable protection for important natural resources and historic resources located outside the proposed growth center (*24 V.S.A. § 2793c(e)(1)(D)(iv)).

*The proposed growth center is planned to protect the state's important environmental, natural and historic features, including natural areas, water quality, scenic resources, and historic sites and districts (*24 V.S.A. § 2791(13)(D)).

10.1 Identify the important natural resources (headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands, and primary agricultural soils) located within the proposed growth center, assess potential impacts on those resources and describe the proposed mitigation.

10.2 Identify the historic resources located within the proposed growth center, assess potential impacts on those resources and describe the proposed mitigation, including any steps the municipality is taking to promote the preservation, restoration and/or adaptive reuse of historic structures within the proposed growth center.

10.3 Explain the municipality's choices in locating the proposed growth center in relation to its potential impacts on important natural and historic resources.

10.4 Summarize the provisions of the approved municipal plan and implementing bylaws that provide reasonable protection for important natural and historic resources located outside the proposed growth center.

H. Resource Maps. Map showing the location of all important natural resources in the municipality. Important natural resources should at a minimum include the following as defined in statute (10 V.S.A. Chapter 151): headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands, and primary agricultural soils. Map showing the location of national and/or state register historic district(s) in the municipality. Map identifying all historic resources inside the proposed growth center. Historic resources including all contributing structures within any national and/or state register historic district(s), any other state or nationally listed historic site or structure, and identified archaeological resources. (The growth center and downtown/village center/new town center boundaries should be shown on all maps. Multiple data layers may be presented on a single map as long as the map remains legible.)

Question 10.1

Important Natural Resources

Applicants can utilize available GIS data to identify the location of important natural resources both inside and outside the proposed growth center. Important natural resources are defined as headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands and primary agricultural soils in 10 V.S.A. Chapter 151 (Act 250):

- Headwaters - defined in 10 V.S.A. § 6086(a)(1)(A) as watersheds:
  - Characterized by steep slopes and shallow soils;
  - With drainage areas of 20 square miles or less;
  - That are above 1,500 feet in elevation;
  - Of public water supplies designated by the Agency of Natural Resources Water Supply Division [(802) 241-3400]; or
  - That are areas supplying significant amounts of recharge waters to aquifers.
- Streams - defined in 10 V.S.A. § 6001(18) as a current of water which is above an elevation of 1,500 feet above sea level or which flows at any time at a rate of less than 1.5 cubic feet per second.
- Shorelines - defined in 10 V.S.A. § 6001(17) as the land adjacent to the waters of lakes, ponds, reservoirs and rivers. Shorelines shall include the land between the mean high water mark and the mean low water mark of such surface waters.
- Floodways - defined in 10 V.S.A. § 6001(6) as the channel of a watercourse which is expected to flood on an average of at least once every 100 years and the adjacent land areas which are required to carry and discharge the flood of the watercourse, as determined by the Secretary of the Agency of Natural Resources with full consideration given to upstream impoundments and flood control projects.
  - Questions relating to the National Flood Insurance Program (NFIP) maps should be addressed to the ANR Water Quality Division at (802) 241-3770. For more guidance on determining floodway limits, please review ANR's *Procedure on ANR Floodway Determinations in Act 250 Proceedings* and the accompanying *Technical Guidance for Determining Floodway Limits Pursuant to Act 250 Criterion 1(D).*
- Rare and irreplaceable natural areas - a list of mapped and potential areas is maintained by the Department of Fish and Wildlife.
- Necessary wildlife habitat - defined in 10 V.S.A. § 6001(12) as concentrated habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life including breeding and migratory periods.
- Wetlands - defined in 10 V.S.A. § 6086(a)(1)(G) as significant wetlands, Class I and II, pursuant to the Rules of the Water Resources Panel of the Natural Resources Board.
- Endangered species - defined in 10 V.S.A. § 6001(5) as those species the taking of which is prohibited under rules adopted under 10 V.S.A. Chapter 123.
- Productive forest lands - defined in 10 V.S.A. § 6001(8) as those soils which are not primary agricultural soils but which have a reasonable potential for commercial forestry and which have not been developed. In order to qualify as productive forest soils, the land containing such soils shall be of a size and location, relative to adjoining land uses, natural condition, and ownership patterns so that those soils will be capable of supporting or contributing to a commercial forestry operation. Land use on those soils may include commercial timber harvesting and specialized forest uses, such as maple sugar or Christmas tree production.
- Primary agricultural soils - defined in 10 V.S.A. § 6001(15) as soil map units with the best combination of physical and chemical characteristics that have a potential for growing food, feed, and forage crops, have sufficient moisture and drainage, plant nutrients or responsiveness to fertilizers, few limitations for cultivation or limitations which may be easily overcome, and an average slope

that does not exceed 15 percent. Present uses may be cropland, pasture, regenerating forests, forestland, or other agricultural or silvicultural uses. However, the soils must be of a size and location, relative to adjoining land uses, so that those soils will be capable, following removal of any identified limitations, of supporting or contributing to an economic or commercial agricultural operation. Unless contradicted by the qualifications stated in this subdivision, primary agricultural soils shall include important farmland soils map units with a rating of prime, statewide, or local importance as defined by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture.

- For information about the classification and identification of primary agricultural soils, see the NRCS publication, *Farmland Classification Systems for Vermont Soils*.

Natural Resource Mitigation

A well-planned growth center should be located so as to minimize its impacts on important natural resources. Applicants should contact Agency of Natural Resources (ANR) staff early in their planning process to identify potential natural resource issues.

Mitigation procedures are in place for primary agricultural soils, productive forest lands and wetlands. Mitigation for other important natural resources will be handled on a case-by-case basis, following Act 250 procedures and precedents. For a compilation of current Act 250 case precedent on the protection of important natural resources, please refer to the *E-Note Index*, which can be found on the Natural Resources Board website (http://www.nrb.state.vt.us).

Applicants are encouraged to accurately delineate important natural resources within their proposed growth centers to the greatest extent feasible to facilitate permitting of future projects. Working with ANR, municipalities may identify potential concerns on developable lands within the proposed growth center that might not otherwise arise until project permitting commences.

Planning for Natural Resources

Where important natural resources cannot reasonably be excluded from a proposed growth center, applicant municipalities can limit potential adverse impacts through their planning efforts. Municipalities can demonstrate adequate planning for important natural resources through actions such as:

- Identifying important natural resources and accurately delineating their boundaries, which may include conducting additional field inventories.
- Forming and/or supporting the efforts of a municipal conservation commission.
- Cooperating with and supporting the efforts of area conservation organizations.
- Preparing a master plan that recognizes important natural resources and structures growth in a manner that preserves their natural function and makes them into community resources.
- Considering topography and important natural resources when planning for new roads and establishing vegetated buffers between roads and resources such as wetlands or streams.
- Establishing overlay or conservation districts to prevent development from adversely impacting important natural resources.
- Establishing setbacks and/or buffers to prevent development from encroaching on important natural resources.
- Enacting flood hazard regulations to limit or prohibit development in floodways.
- Requiring erosion control and stormwater management plans for new development, both during and after construction.
- Implementing parking standards that limit the amount of impervious surface and/or encouraging parking lots that are designed to allow for infiltration.
- Requiring snow removal and storage management plans.
- Adopting an open space plan and/or creating a fund to allow permanent conservation of important natural resources.
- Budgeting for and/or establishing an impact fee program to fund the acquisition, management and/or maintenance of public open space that may include important natural resources.

Question 10.2

Historic Resources

Older buildings, districts and historic and archeological sites on or eligible for nomination to the Vermont or National Register of Historic Places may be located within or outside the proposed growth center. These historic resources can be critical elements in maintaining or enhancing community character. It is the intent of the growth center program that new development supports historic community centers.

Municipalities can demonstrate adequate planning for historic resources through actions such as:

- Establishing a local historic district or basing an overlay zoning district on an existing state or federal historic district.
- Encouraging or requiring projects involving historic buildings to follow the Secretary of the Interior's Standards for Rehabilitation (36 CFR Part 67).
- Establishing a design review district.
- Forming a design review or advisory board to provide expertise and technical assistance to the planning commission and other review boards.
- Forming or supporting the efforts of a local historical society.
- Allowing for adaptive reuse of historic buildings within zoning regulations.
- Discouraging and/or requiring conditional use review for the demolition of historic structures within zoning regulations.
- Working with the Vermont Division for Historic Preservation to update the municipality's survey of historic sites.

Question 10.3

Applicants are not expected to delineate a proposed growth center to completely exclude all important natural resources. Many of Vermont's traditional downtowns or village centers formed around rivers or streams. If properly protected and planned for, the presence of important natural resources can enhance the growth center, create character, and provide passive and active recreation opportunities. However, to the greatest extent feasible, applicants should strive to locate proposed growth centers where there is the least potential for impacting important natural resources.

Question 10.4

Planning for the lands outside the growth center is essential to meeting the goals of the growth center program. It is likely that most of a municipality's important natural resources will be located outside the proposed growth center.

References

*11. The most recently adopted guidelines of the Secretary of Agriculture, Food and Markets have been used to identify areas proposed for agriculture and the proposed growth center has been designed to avoid the conversion of primary agricultural soils, wherever possible (*24 V.S.A. § 2793c(e)(1)(C)*).*

*The proposed growth center serves to strengthen agricultural and forest industries and is planned to minimize conflicts of development with these industries (*24 V.S.A. § 2791(13)(E)*).*

*The proposed growth center will result in a settlement pattern that, at full build-out, is not characterized by the fragmentation of farm and forest land (*24 V.S.A. § 2791(13)(I)(iii)*).*

11.1 Justify the municipality's choices in locating the proposed growth center in relation to the conversion of primary agricultural soils and the fragmentation of farm or forest land.

11.2 Identify any ways in which the proposed growth center will serve to strengthen agricultural and forest industries (to the extent that they exist) and discuss the steps the municipality is taking to minimize conflicts between development and agricultural and forest industries (to the extent that they exist).

11.3 Describe the provisions of the approved municipal plan and implementing bylaws that limit or discourage the fragmentation of farm and forest land.

Question 11.1

Agricultural Soils

Most of Vermont's traditional downtowns and village centers were located in areas with high-quality soils, so expanding these settlements is likely to impact primary agricultural soils. This loss of productive soils within the growth center can be balanced with policies that will limit further fragmentation of large blocks of working lands and further conversion of primary agricultural soils outside the center.

When delineating the proposed growth center boundary, applicants should review soils maps and data identifying primary agricultural soils in combination with assessing whether large blocks of working or potentially viable productive lands are located in the municipality. In delineating the boundary of a proposed growth center, applicants should consider the impact on primary agricultural soils and strive to minimize the loss of high quality soils on property that, due to its size, location and/or current use, remains economically viable for farming or forestry.

Soil Maps

The Natural Resource Conservation Survey Web Soil Survey is an on-line soil mapping tool (for most areas of the state) that displays a soils map for any parcel of land defined by the user and then calculates the number of acres of each soil type. The tool will also calculate the number of acres of primary agricultural soils for any parcel. The Web Soil Survey and specific instructions on the use of this tool to determine soil types and acreages are available from the Vermont Natural Resources Board website (http://www.nrb.state.vt.us).

For most areas of the state, soil maps are available in GIS format. Applicants can visit the Vermont Center for Geographic Information (VCGI) website (http://www.vcgi.org) or contact their regional planning commission to determine whether this information is available in electronic format.

Agricultural Soil Mitigation

For projects located within designated growth centers, suitable mitigation will take the form of an off-site mitigation fee paid to the Vermont Housing and Conservation Board (VHCB), based on the number of acres of primary agricultural soils impacted by a project.

For projects located outside designated growth centers, applicants, in most instances, will be required to provide on-site mitigation through site design and planning, resulting in compact development patterns that will preserve primary agricultural soils on the project tract for present and future agricultural use. The remaining soils must be capable of supporting or contributing to an economic or commercial agricultural operation.

See 10 V.S.A. § 6093 for a more complete description of mitigation requirements for primary agricultural soils.

Question 11.2

Planning for growth centers and planning to maintain viable working farm and forest lands are inextricably linked. In addition to consuming productive land, development on rural land can result in increased conflicts between farms or forestry operations and their neighbors. In planning for a growth center, municipalities can consider options for limiting the potential for conflicts such as requiring buffers between developed and working lands.

Question 11.3

High-density compact development within a growth center should reduce development pressure on outlying rural lands, but it will not eliminate it all together. For a discussion of actions that municipalities can take to protect working lands and open space, see discussion of Outlying Area on page 22.

References

*12. The applicant has a regionally confirmed planning process and an approved municipal plan. The approved plan contains provisions that are appropriate to implement the designated growth center proposal. The applicant has adopted bylaws in conformance with the municipal plan that implement the provisions in the plan that pertain to the designated growth center (*24 V.S.A. § 2793c(e)(1)(D)).

*The proposed growth center is planned to reinforce the purposes of 10 V.S.A. Chapter 151. The proposed growth center is planned in accordance with the planning and development goals under 24 V.S.A. § 4302 (*24 V.S.A. § 2791(12)(B)(vii) and (viii)).

12.1 List the dates of the most recent plan adoption, bylaw amendment(s), and municipal plan approval and confirmation of the municipality's planning process by the regional planning commission.

12.2 Highlight any additional steps the municipality is taking to implement the purposes of the growth center program that have not been discussed in previous responses, specifically those that relate to the purposes of 10 V.S.A. Chapter 151 or the goals of 24 V.S.A. § 4302.

I. Administrative. A signed municipal resolution showing that the municipality has authorized the application. Evidence that the regional planning commission and regional development corporation for that region have been notified of the municipality's intent to apply. A letter from the municipality's regional planning commission must be included in the application, stating that the municipal planning process has been confirmed under the provisions of 24 V.S.A. § 4350.

Figure 9. Administrative Process

Applicants will need to have completed the following administrative steps before submitting a final application:

- Adopted a municipal plan that contains provisions that are appropriate to implement the designated growth center proposal.
- Adopted a capital budget and program.
- Notified the regional planning commission and regional development corporation of their intent to apply.
- Received regional approval of the adopted municipal plan from the regional planning commission.
- Have their municipal planning process confirmed by the regional planning commission.
- Authorized the decision to apply by a vote of the legislative body, following the process of 24 V.S.A. § 1972 and 1973 (adoption of ordinances and rules).

Applicants may submit draft bylaws, ordinances and other regulatory tools with final growth center designation contingent upon their adoption.

Any non-regulatory measures referenced in the application must be in place before submitting a final application.

Implementation Checklist

Final Application Questions

_____ 1.1 Discuss why a majority of the projected growth cannot reasonably occur within an existing designated downtown, village center or new town center within the municipality, specifically citing the municipality's 20-year projections for population, housing and employment growth and the build-out potential of any designated downtown, village center, or new town center in the municipality.

_____ 2.1 Summarize the amount of land included within the proposed growth center and its build-out potential.

_____ 2.2 Explain how the municipality arrived at the proposed growth center boundary and determined how much land was needed to meet the requirement of accommodating a majority of projected growth over the 20-year planning period, specifically justifying how the proposed boundary achieves the program goal of a compact center that does not encompass an excessive area of land.

_____ 2.3 Identify the steps that the municipality is taking to manage any necessary extensions of infrastructure to parts of the municipality that are currently not served by water or wastewater in a manner that will discourage a scattered or low-density pattern of development.

_____ 3.1 Identify all designated downtowns, village centers and new town centers in the applicant municipality and adjacent municipalities.

_____ 3.2 Identify all major retail areas (downtowns, shopping centers, malls, big-box stores, etc.) within the applicant municipality and adjacent municipalities, specifically noting which currently function primarily as community-serving retail areas and which serve primarily as destination retail areas.

_____ 3.3 Describe the extent to which any downtowns, village centers or new town centers (designated or non-designated) that are located outside the proposed growth center currently serve as significant employment, retail, service or civic centers for residents in the applicant municipality.

_____ 3.4 Describe the extent to which the applicant municipality currently serves as an employment and/or residential center in the region, presenting the best available statistics regarding place of work and residence for people living and working in the applicant municipality.

_____ 3.5 Summarize the regional planning commission's 20-year projections for population, housing, employment growth for the region and discuss what percentage of regional growth the municipality is planning to accommodate within its growth center by type – residential, commercial (retail and non-retail), and industrial, and how that compares to its current regional share, explaining any significant changes in regional share being planned for by the municipality.

_____ 4.1 Discuss the character, land uses and density of development that currently exists and will be permitted on lands within the designated downtown, village center or new town center associated with the proposed growth center, specifically citing the steps the municipality is taking to encourage infill development, adaptive reuse and/or redevelopment of vacant or underutilized land within the designated downtown or village center, or to promote development with a 'downtown' character within a new town center.

_____ 4.2 Discuss the character, land uses and density of development that currently exists and will be permitted on lands within the proposed growth center but outside the designated downtown, village center or new town center associated with the proposed growth center, specifically citing the steps that the municipality is taking to encourage a the settlement pattern resulting from growth center designation that is not be characterized by scattered or excessively land consumptive development.

_____ 4.3 Discuss the character, land uses and density of development that currently exists and will be permitted on lands outside the proposed growth center, specifically citing the steps the municipality is taking to further the goal of retaining rural character outside the proposed growth center, to the extent that such a character exists.

_____ 5.1 Summarize the desired mix of uses within the proposed growth center as envisioned in the municipal plan and allowed under the land use regulations, specifically identifying any steps the municipality is taking to encourage mixed-use development within the proposed growth center.

_____ 5.2 Discuss the steps the municipality is taking to plan for and encourage residential development that meets the needs of a diverse population, including affordable housing, within the proposed growth center.

_____ 5.3 Discuss the steps the municipality is taking to plan for and encourage economic development within the proposed growth center, specifically describing how the growth center will support a healthy business climate in the designated downtown, village center or new town center associated with the growth center.

_____ 5.4 Describe the extent to which large-scale commercial, industrial or institutional, and automobile-oriented uses currently exist in the proposed growth center, and discuss the municipality's policies and regulations related to such uses, specifically identifying all locations within the municipality where such uses will be accommodated.

_____ 6.1 Describe the capacity of existing community infrastructure, facilities and services (as defined in 24 V.S.A. § 4382(4)), and summarize the municipality's plans to provide and finance the infrastructure, facilities and services needed to support projected growth and development within the proposed growth center over the 20-year planning period, citing specific provisions of the municipality's adopted capital budget and program.

_____ 6.2 Discuss the steps the municipality is taking to maintain a rate of growth that will not exceed the municipality's ability to provide or finance required community infrastructure, facilities and services over the 20-year planning period.

_____ 7.1 Identify all existing or planned public spaces located within the proposed growth center and summarize the steps the municipality is taking to plan for, provide and/or maintain public spaces, including open space and public recreation facilities, within the proposed growth center.

_____ 7.2 If existing public buildings/uses (post office, municipal office, school, library, etc.) are not included within the proposed growth center, explain the municipality's rationale in drawing its growth center boundary to exclude them.

_____ 8.1 Identify the focal point(s) around which the proposed growth center will be organized.

_____ 8.2 If the growth center is associated with an existing downtown or village center whose form is linear, summarize the steps the municipality is taking to establish a new development pattern that creates depth as opposed to continuing the linear pattern and/or describe any constraints that limit creating greater depth.

_____ 8.3 Describe the extent to which the municipality is planning for and/or requiring development of an interconnected street network within the proposed growth center.

_____ 9.1 Describe the facilities/provisions that exist and are planned for pedestrian and other non-vehicular traffic within the proposed growth center, specifically identifying the steps the municipality is taking to promote a safe, pedestrian-friendly environment within the growth center in general and specifically within the associated designated downtown, village center or new town center.

_____ 9.2 Describe the current level of public transit service/facilities serving the proposed growth center and the extent to which improvements in public transit service/facilities are planned for the proposed growth center, specifically citing any steps the municipality is taking to enable transportation alternatives within the growth center in general and within the associated designated downtown, village center or new town center.

_____ 9.3 Present the best available information on the current condition, current level of service, and current and projected traffic on routes that will serve the proposed growth center.

_____ 9.4 Address the capacity of the road network to accommodate increased traffic, specifically (a) identifying any infrastructure improvements that might be required by the state, municipality and/or private developers to accommodate increased traffic, and (b) discussing the steps the municipality is taking to plan for a transportation network that will be able to accommodate growth and development in a manner consistent with the goals of the growth center program.

_____ 9.5 If the municipality has adopted an Official Map, summarize the planned transportation infrastructure delineated on the map within the proposed growth center.

_____ 10.1 Identify the important natural resources (headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands, and primary agricultural soils) located within the proposed growth center, assess potential impacts on those resources and describe the proposed mitigation.

_____ 10.2 Identify the historic resources located within the proposed growth center, assess potential impacts on those resources and describe the proposed mitigation, including any steps the municipality is taking to promote the preservation, restoration and/or adaptive reuse of historic structures within the proposed growth center.

_____ 10.3 Explain the municipality's choices in locating the proposed growth center in relation to its potential impacts on important natural and historic resources.

_____ 10.4 Summarize the provisions of the approved municipal plan and implementing bylaws that provide reasonable protection for important natural and historic resources located outside the proposed growth center.

_____ 11.1 Justify the municipality's choices in locating the proposed growth center in relation to the conversion of primary agricultural soils and the fragmentation of farm or forest land.

_____ 11.2 Identify any ways in which the proposed growth center will serve to strengthen agricultural and forest industries (to the extent that they exist) and discuss the steps the municipality is taking to minimize conflicts between development and agricultural and forest industries (to the extent that they exist).

_____ 11.3 Describe the provisions of the approved municipal plan and implementing bylaws that limit or discourage the fragmentation of farm and forest land.

_____ 12.1 List the dates of most recent plan adoption, bylaw amendment(s), and municipal plan approval and confirmation of the municipality's planning process by the regional planning commission.

_____ 12.2 Highlight any additional steps the municipality is taking to implement the purposes of the growth center program that have not been discussed in previous responses, specifically those that relate to the purposes of 10 V.S.A. Chapter 151 or the goals of 24 V.S.A. § 4302.

Required Submissions

_____ A. Growth Center Map. A map of the proposed growth center designed to accommodate a majority of the community's growth needs for the next 20 years. The map should use the municipal property tax map overlying an orthophoto as a base and must delineate the boundaries of the new growth center. The boundaries of the designated downtown, village center or new town center associated with the proposed growth center should also be delineated. The map should clearly show which properties are to be included in the growth center. The map legend should indicate the total acreage within the proposed growth center and the acreage of the designated downtown, village center or new town center associated with the proposed growth center.

_____ B. Growth Projections. Summary tables of the municipality's and region's 20-year population, housing and employment projections, along with a brief narrative describing the projection methodology and how the municipal projections fit with those of the region.

_____ C. Build-Out Analysis. A build-out analysis for the potential growth center to show that the geographic area of a proposed growth center will accommodate a majority of projected growth over a 20-year period in a manner that is consistent with the definition of a growth center included in the Act. The application should include a summary table of development potential inside the proposed growth center area.

_____ D. Regional Map. A regional map indicating the location of the proposed growth center in relation to the region and any designated downtowns, village centers, new town centers or growth centers located in the applicant municipality or adjacent municipalities.

_____ E. Planning and Regulatory Maps. The land use map from the approved municipal plan and applicable zoning district map. Any additional planning or regulatory maps relevant to development within the growth center (master plan map, open space map, etc.).

_____ F. Capital Budget and Program. Adopted capital budget and program.

_____ G. Infrastructure and Facilities Maps. Map delineating the boundaries of any existing or planned sewer service area(s) within the municipality. Map showing the location of all existing or planned civic buildings in the municipality. Map indicating the location of all public spaces existing or planned within the growth center. Map of all existing and planned transportation facilities including pedestrian/non-vehicular and public transit facilities. The municipality's Official Map, if one has been adopted. (The growth center and downtown/village center/new town center boundaries should be shown on all maps. Multiple data layers may be presented on a single map as long as the map remains legible.)

_____ H. Resource Maps. Map showing the location of all important natural resources in the municipality. Important natural resources should at a minimum include the following as defined in statute (10 V.S.A. Chapter 151): headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat, wetlands, endangered species, productive forest lands, and primary agricultural soils. Map showing the location of national and/or state register historic district(s) in the municipality. Map identifying all historic resources inside the proposed growth center. Historic resources include all contributing structures within any national and/or state register historic district(s), any other state or nationally listed historic site or structure, and identified archaeological resources. (The growth center and downtown/village center/new town center boundaries should be shown on all maps. Multiple data layers may be presented on a single map as long as map remains legible.)

_____ I. Administrative. A signed municipal resolution showing that the municipality has authorized the application. Evidence that the regional planning commission and regional development corporation for that region have been notified of the municipality's intent to apply. A letter from the municipality's regional planning commission must be included in the application, stating that the municipal planning process has been confirmed under the provisions of 24 V.S.A. § 4350.

SIZE

The term 'compact' is a frequently used adjective in planning literature, but what does it mean for municipalities in Vermont that are planning growth centers? Measures of compactness are often based on the scale of places that are pedestrian-friendly and walkable. While there is no one-size-fits-all measurement for a compact settlement, there are some general guidelines to consider.

The historic core of many of Vermont's downtowns and village centers would fit into a 40-acre area. A 160-acre area (a square with ½ mile sides) often can encompass most of the historic residential neighborhoods as well as the downtown commercial core of a traditional center as illustrated in Figures 11 and 12 below.

The average person can walk a ¼ mile at a comfortable pace in about 5 minutes; this is the distance within which a significant percentage of people will leave their cars parked and walk between destinations. How far people will walk is dependent on more than distance however, and measures of a 'walkable' distance typically range between ¼ and ½ mile.

A circle with a radius of ¼ mile has an area of approximately 125 acres, while a circle with a ½-mile radius will enclose a 500-acre area. Drawing circles of varying radii on a base map from one or more focal points (i.e. a major intersection, village green, town hall or school) is a good test for compactness and walkability. Most of Vermont's historic settlement areas will be contained within an area close to the general standard of being walkable from the center, as shown in Figure 10 below.

Figure 10. Winooski, 1869

Figure 11. Woodstock

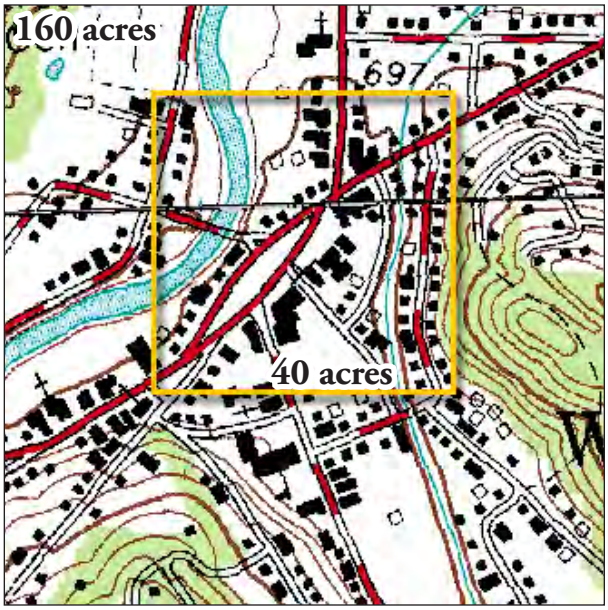


Figure 12. Morrisville

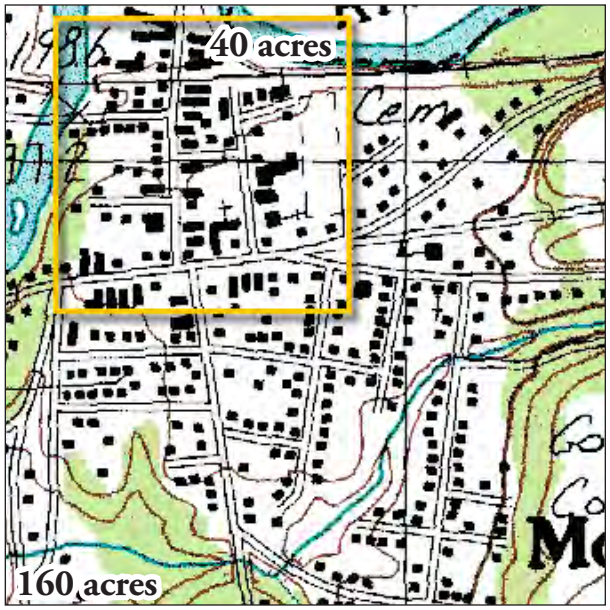


Figure 13. Neighborhoods around Downtown Middlebury

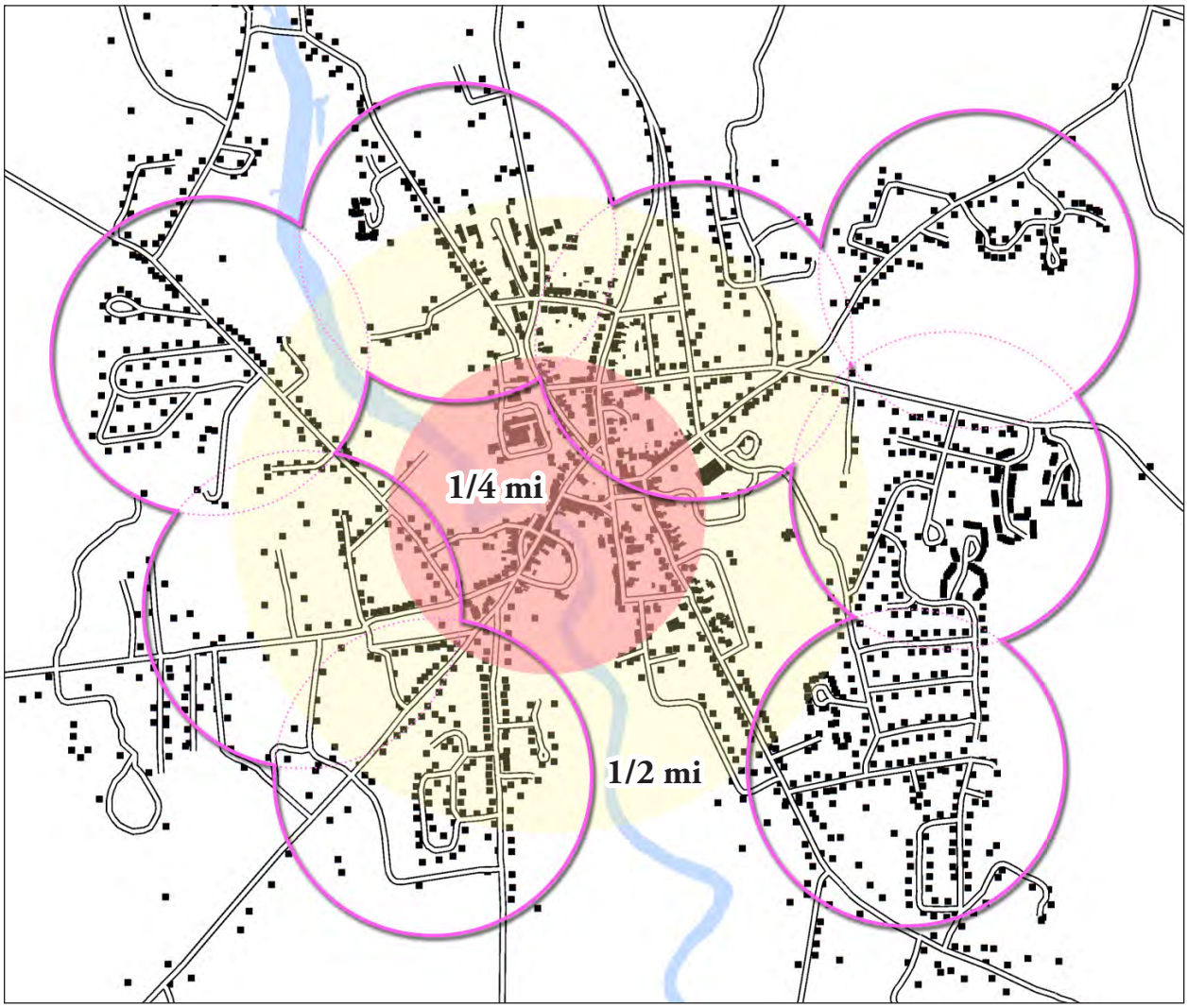


Figure 14. Area Reference Table

40 ac =	square with sides of	1/4 mi	or	1,320 ft
160 ac =	square with sides of	1/2 mi	or	2,640 ft
360 ac =	square with sides of	3/4 mi	or	3,960 ft
640 ac =	square with sides of	1 mi	or	5,280 ft
125 ac =	circle with a radius of	1/4 mi	or	1,320 ft
225 ac =	circle with a radius of	1/3 mi	or	1,760 ft
500 ac =	circle with a radius of	1/2 mi	or	2,640 ft

One model for a growth center would be a downtown core (designated downtown, village center or new town center) with multiple walkable neighborhoods as shown in Figure 13, a diagram of the neighborhoods around Middlebury, above. This type of analysis could be used by applicants to demonstrate that a proposed growth center is compact.

Density

High-density development has come to have a negative connotation in the minds of many Vermonters, conjuring up images of decaying inner city neighborhoods, cookie-cutter suburban subdivisions, or congested commercial sprawl.

But in almost every Vermont municipality, there are historic settlement areas characterized by high-density development. These places were built before five miles became a ten-minute car trip, so they had to be compact. Buildings were close to the road because there was no way to keep a quarter-mile driveway open in the winter. The tallest buildings usually stopped at four or five stories when getting to the top floor meant climbing the stairs.

The result of these development patterns has often been described as the traditional New England village or town center and is now recognized as a model for community design. Vermont's existing historic centers are a good starting point for establishing appropriate densities within proposed growth centers.

When planning for a growth center, it may be useful to separate the amount of land needed for residential and non-residential uses even though mixed-use development may be encouraged in many areas.

Residential Uses

Determining the land area needed to house a given population is a basic planning exercise. *Estimating Land Area Needs for Growth Centers* provides a methodology for preparing those calculations. Recommendations on the percentage of land area within a growth center that should be dedicated to residential use range between 50 to 80 percent. An analysis of some typical Vermont centers in *Estimating Land Area Needs for Growth Centers* found that 65 to 85 percent of their land area was used for residential purposes.

As the table in Figure 15 below indicates, the majority of the 20-year population increase of even the fastest growing Vermont municipalities can be accommodated in hundreds, as opposed to thousands, of acres if residential densities are set at appropriate levels. Within a 225-acre area, 5,000 residences could be accommodated at a gross density of 22.2 units per acre providing homes for 12,500 people. If that same 250 acres was developed at a gross density of 4.4 units per acre, the result would be 1,000 new homes.

Figure 15. Gross Density in Dwelling Units per Acre

		Residences			
		500	1,000	2,500	5,000
Acres	40	12.5	25.0	62.5	125.0
	125	4.0	8.0	20.0	40.0
	160	3.1	6.3	15.6	31.3
	225	2.2	4.4	11.1	22.2
	360	1.4	2.8	6.9	13.9
	500	1.0	2.0	5.0	10.0
	640	0.8	1.6	3.9	7.8
	750	0.7	1.3	3.3	6.7
	1,000	0.5	1.0	2.5	5.0
		1,250	2,500	6,250	12,500
		Population*			

** Based on an average household size of 2.5 people*

While 10 dwelling units per acre may seem exceedingly dense in communities that have not allowed the creation of lots smaller than a half acre (or even larger) for decades, the resulting 4,300 square feet per dwelling is close to the historic norm for many Vermont centers as shown in Figure 16 below.

Figure 16. Average Lot Size Comparison Table

Use Type	Historic	Current
Single-Family	4,800 sq. ft.	10,000 sq. ft.
Multi-Family	3,700 sq. ft./unit	5,600 sq. ft./unit
Commercial	4,570 sq. ft.	20,000 sq. ft.
Industrial	5,300 sq. ft.	100,000 sq. ft.

Source: Estimating Land Area Needs for Growth Centers, 1995

Taking the population growth anticipated, various combinations of density and land area can be explored to determine what is most appropriate for each community or within specific neighborhoods. See page 58 for a discussion of housing options available to achieve specific residential densities.

Non-Residential Uses

The density of non-residential development is often measured in terms of floor-area ratio (FAR), which is the ratio of a building's gross floor area to the area of the lot on which the building is located. Requiring higher FARs can promote compact, multi-story development over low-density, one-story structures, especially when used in combination with lot coverage and other dimensional standards. As shown in Figure 17 below, Buildings C and D have the same gross square footage, but the footprint of the two-story Building D is half that of the one-story Building C. As more stories are added, the FAR increases.

Figure 17. Floor-Area Ratio

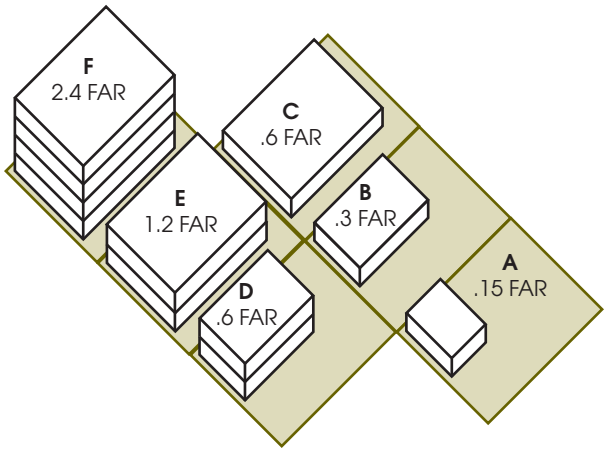


Figure 18. Mixed-Use Development Model Site Plan

New Models for Commercial and Industrial Development Site Plans, Vermont Forum on Sprawl, 2003

Lower FARs are commonly tied to large amounts of surface parking. Parking requirements can be a significant constraint on achieving higher-density non-residential development (see discussions on page 62 and 83).

Mixed Use

See Vermont Land Use Planning Implementation Manual, Planned Unit Development.

Mixed uses were common in Vermont's downtowns and village centers a century ago when residents generally could walk a short distance from their home to shop at the general store, work at the local mill, or attend school or religious services. Within Vermont's traditional downtowns, mixed-use buildings are common with commercial activity on the ground floor and office or residential space on the upper floors.

Conventional suburban development made the segregation of uses the accepted norm in many communities and many local zoning regulations prohibit mixed-use development. While the separation of land uses was originally intended to protect people from polluting industries and businesses, it has led to a pattern of land development in which people must drive from home to work, school and stores – each often located miles away in opposite directions.

Encouraging development of a mix of uses within a growth center will provide residents with easy access to a variety of goods, services, social opportunities, schools and even recreation within walking or biking distance of their home. Ideally, employment will also be nearby, saving the time, energy and the expense of a long commute.

A mix of uses can occur within the same building, within a single development or within the same area of the growth center. The site plan shown above for a mixed-use development includes housing, office, retail, manufacturing and civic uses.

Municipalities can include "mixed use" as an allowable use in growth center zoning districts. Existing single-use areas within a growth center can be converted to mixed use over time. Neighborhood-scale commercial uses can be allowed in residential districts. Housing, especially upper-story apartments, can be permitted in commercial districts.

Public Spaces

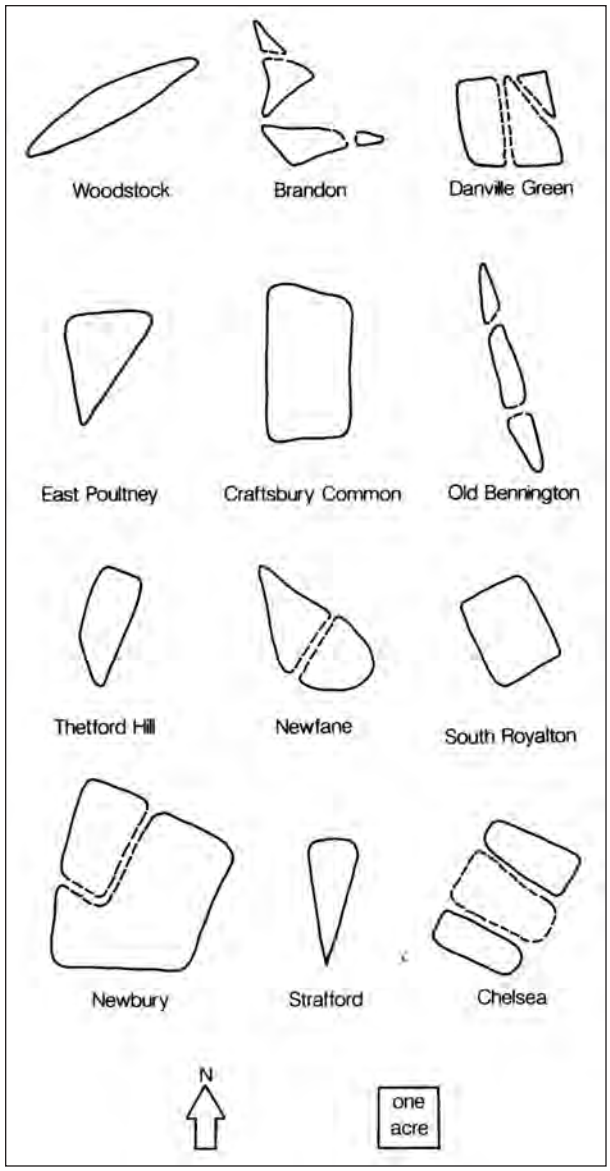
Public Open Space

Public open space, in the form of town greens and commons, is strongly associated with Vermont's traditional downtowns and village centers. Today, communities with these valuable public spaces find them to be not only attractive open space and identifying icons, but also very useful spots for community activities. They often host farmers' markets, Fourth of July celebrations and other holiday events, as well as concerts and other gatherings, that draw residents and visitors to the downtown or village center. Many of Vermont's traditional town greens are only a couple of acres in area and are irregular in shape.

Within a densely developed growth center, connections to nature can be maintained through a well-designed system of open spaces. Such a system includes: tree-lined streets, sidewalks, walkways, parks, greens, commons, playgrounds, sports fields and courts, trails, buffer zones, wildlife habitat, natural areas and scenic views.

Municipalities can incorporate guidelines or standards for provision of various types of open space into their plans and policies. These standards may be based on national recommendations, such as those from the National Recreation and Park Association (NRPA) or based on local preferences. Tools such as the official map, public works specifications, impact fees and dedication requirements can be used to implement open space goals.

Figure 19. Form and Size of Vermont Town Greens



Crossroads, Hamlet, Village, Town; Randall Arendt, 2004

Figure 20. Recreation Facility Opportunity Standards

Facility Type	Approximate Size (acres)	Standard (acres per 1,000 pop)	Maximum Travel Time	Means of Access	Comments
Play lot	1 - 2	2	10 min.	Foot or bicycle	Combined with residential development or school
Pocket park	.25 - .50	.25	10 min.	Foot or bicycle	For office workers, shoppers, neighborhood residents
Neighborhood park	4 - 7	1	20 min.	Foot or bicycle	Should contain passive areas with landscaping, as well as active areas such as play fields, court games, tot lots, etc.
District park	20 - 100	2	30 min.	Automobile, mass transit, bicycle, foot, trail	Should include comfort station, interests for all ages; 1/3 capacity for winter activities (e.g. ice skating, sledding)

Source: Adapted from NRPA's Park, Recreation, Open Space and Greenway Guidelines

Civic Uses

Civic uses such as the municipal buildings, post offices, schools and libraries, which bring residents to the center of a community on a regular basis, are important elements of a successful growth center. As well as serving their primary functions, they can also provide much needed community meeting space. Running errands to the post office or municipal building is an opportunity for informal encounters with friends and acquaintances. Businesses located near these civic uses benefit from the pedestrian traffic they generate.

Schools

Many Vermont communities still have their elementary school located in a downtown or village center. These schools are generally on small lots (less than 5 acres in area) and may not have attached recreation fields. Some are historic (many schools were built in Vermont in the early 20th century), multi-story buildings that have served generations of students.

Modern school facility standards have resulted in construction of bigger, mostly single-story buildings on large lots (10 acres or more in area) with extensive recreation fields and parking areas outside the downtown or village center on open land. Children are no longer able to walk to school and must be bused or driven for classes and after-school activities.

Figure 21. Woodstock, VT Town Green

Figure 22. Tree-Lined Street in Brandon, VT

Street trees can be a critical component of a community's open space system. Trees add scale, shade and visual interest to the street and studies have shown they increase property values. Wide esplanades, like those on the street above, provide trees with adequate room to grow.

Infill

See Vermont Land Use Planning Implementation Manual, Downtown Revitalization, Historic Preservation, and Brownfields.

The goal of infill, as the name implies, is to develop or intensify the use of vacant or underutilized parcels. Infill development can be residential, commercial or mixed use. The size and location of infill development can vary greatly but opportunities include:

- Development of vacant parcels. Close examination of parcel maps and/or aerial photos often reveals overlooked land that has development potential. If reasonable density is allowed, the development of such parcels can

lead to a significant increase in needed housing or other uses. However, parcels may not have been developed previously because of site conditions that increase building costs.

- Redevelopment of vacant or underutilized buildings and sites. The use of existing parcels that have been developed at significantly less than the allowed density can be intensified if done with attention to the context. Vacant, non-historic buildings that have less value than the property they occupy may also be candidates for redevelopment spurred by growth center designation. Non-conforming uses that have outgrown their site and conflict with their surrounding neighbors may also be candidates for infill if they can be successfully relocated to a more appropriate area.
- Rehabilitation of historic buildings. Due to state and federal support there are excellent examples of historic re-use throughout Vermont from senior housing to industrial uses.

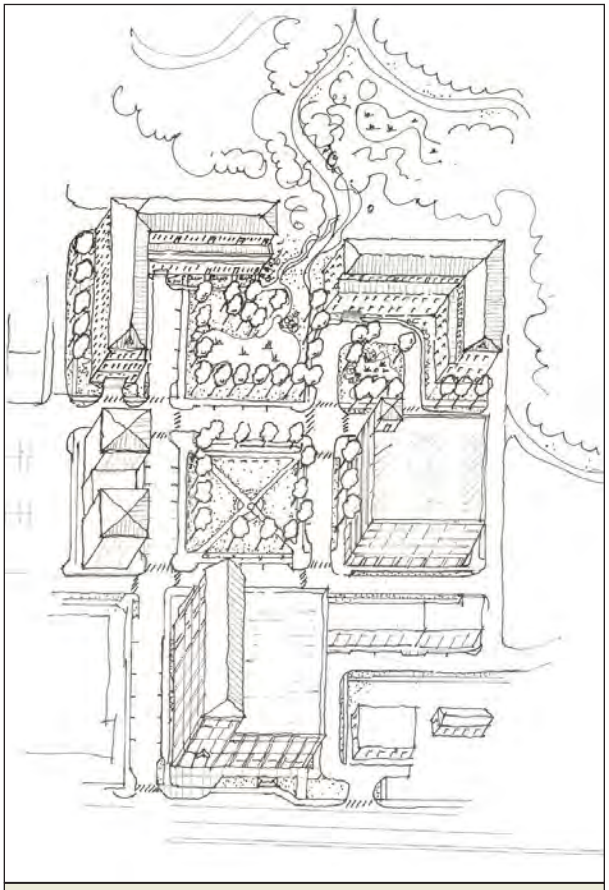
Successful infill should be quality development with its own character but it should fit within the context of its surroundings.

Municipalities should understand and acknowledge that infill can be more challenging than new development located on open space parcels. Infill generally occurs on smaller parcels and includes a mix of uses that require more careful planning, but does not necessarily result in greater profit. Rehabilitation of historic buildings is full of unknowns and sometimes involves removal of hazardous materials. Banks are sometimes reluctant to finance mixed-use projects because they are not the norm, and there are few developers experienced in such projects. Depending on the location, residential neighbors may also object to perceived increases in density and traffic.

A community can support infill development in their growth center through action such as:

- Setting the stage for community's acceptance of infill by conducting a public planning process and developing clear long-term vision statements in the municipal plan that promote infill development.
- Providing the needed municipal infrastructure wherever possible.

Figure 23. Infill Shopping Center

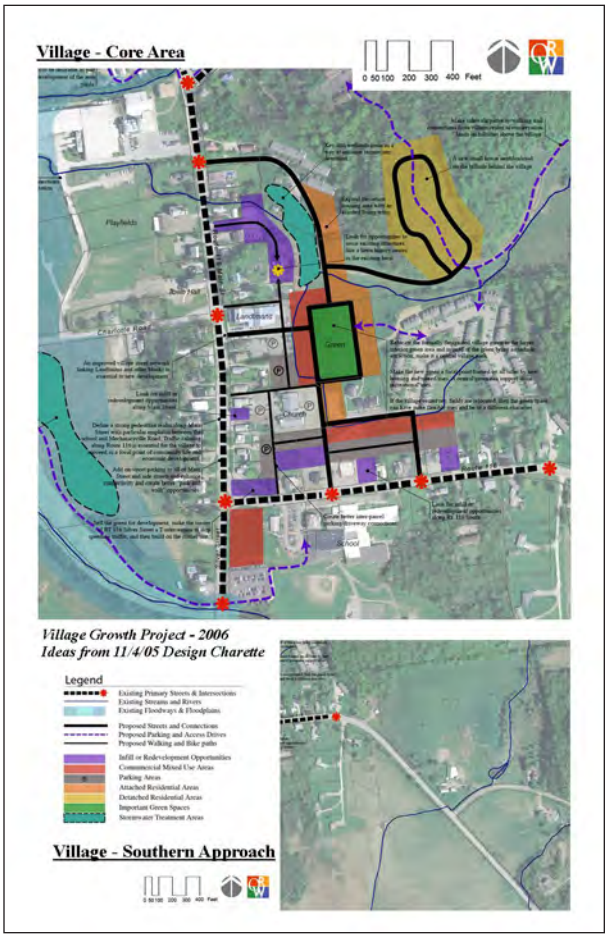


Outdated shopping centers, with low-investment structures, which may be located along main roads at the edge of a downtown are good candidates for infill development. Existing structures may be replaced entirely as shown in this conceptual plan for an empty shopping plaza in South Burlington or new structures may be added to the property. These centers may have new life as mixed-use developments that add vitality to the new growth center.

Figure 24. Infill Housing Development, Burlington

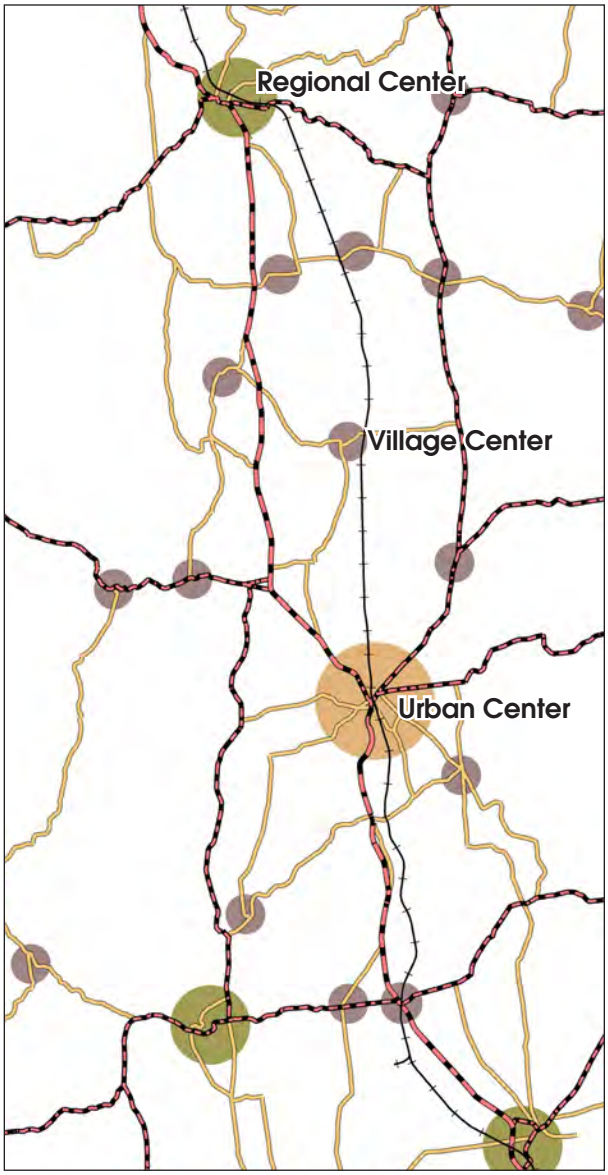
- Creating the necessary zoning regulations that encourage infill to occur.
- Streamlining the zoning process for infill sites, while coupling the swifter process with high design standards.
- Allowing mixed uses.
- Considering zoning benefits such as density bonuses, limited open space requirements and parking waivers. Frequently, high parking requirements for commercial uses discourage infill development on small lots.
- Allowing the assembly of lots to allow developable lot sizes compatible with the context of the neighborhood.

Figure 25. Plan for Infill in Hinesburg Village



ORW Landscape Architects and Planner, 2005

Fig. 26 Urban, Regional & Village Centers Diagram



Regional Fit

One of the challenges of planning for a growth center is to establish a center that is appropriate in scale for the municipality and for the region. Traditional Vermont centers generally fit into one the following in terms of their scale and role in the region:

- **Village Centers.** Vermont's village centers tend to be small and primarily residential (mainly single-family homes on small lots). They may have a few small businesses that provide basic goods and services to area residents. Historically, many of these centers had more commerce and industry than ex-

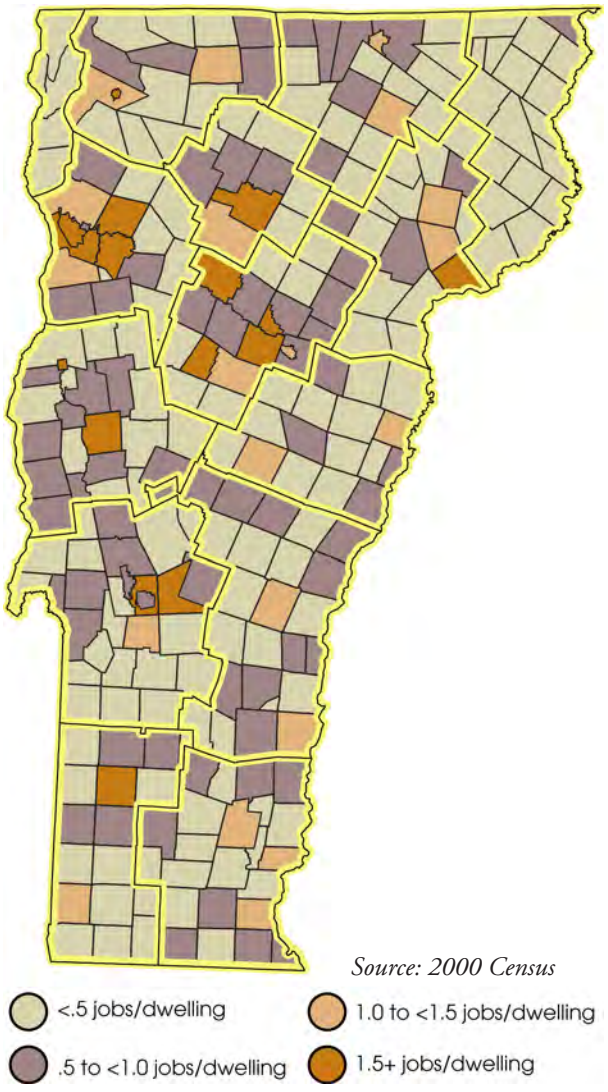
ists today. They typically developed along an intersection between a main and secondary road, often with a centrally located green or civic building. Others grew up around railroad depots or a location that could provide waterpower. Many of these centers are linear in nature and never developed a grid street pattern. Some municipalities may have several village centers.

- **Regional Centers (Downtowns)**. Traditional downtowns in Vermont are typically regional centers that were located near the intersection of major roads and easily accessible from surrounding communities. They typically have several downtown commercial blocks characterized by multi-story buildings with storefronts on the ground level and office or residential space on the upper floors. Blocks of largely residential neighborhoods radiate from the commercial core. There is a greater diversity of housing types including multi-family, attached units and rental housing. There is typically at least one major downtown in each of Vermont's counties and most have multiple regional centers.
- **Urban Centers**. There are a limited number of urban centers in Vermont. These communities are largely developed with limited amounts of land remaining as undeveloped open space, or working farm or forest land. There may be underutilized areas within an urban center that are available for redevelopment. Some vacant lands may remain undeveloped, but it is likely that there are constraining factors that have prevented productive use of this land in the past that will need to be considered. Opportunities may also exist for infill on individual lots where development potential has not been fully utilized. Typical types of infill include addition of accessory dwelling units to existing residential property or the replacement of a one-story structure with a multi-story one.

A growth center may be created through organic growth from an existing center, thus increasing the center's scale and potentially changing how it functions within its region. Those growth centers formed around a new town center will be adding a new center to the region. In either case, applicants will need to consider the impacts of their growth center on the economic viability of neighboring centers.

Currently, there are a limited number of employment centers in Vermont, as illustrated in Figure 27 below (where municipalities with more jobs than dwelling units are shown in orange). Planning for a balance between job and housing growth within a proposed growth center will limit economic impact on neighboring communities. Increasing the number of residents who live and work in the same municipality can also further other growth center goals, including those related to transportation and sense of community.

Figure 27. Employment & Residential Centers



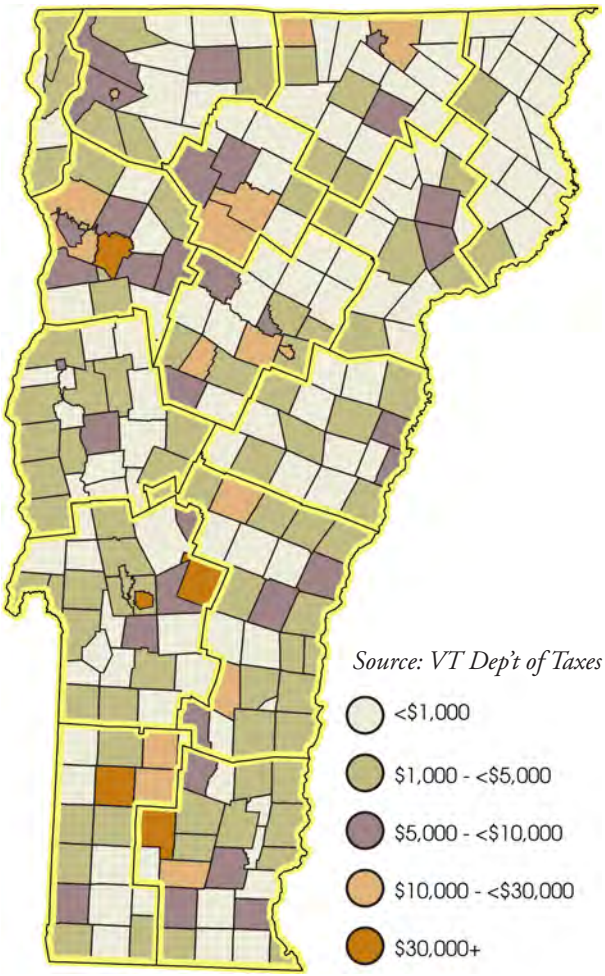


Figure 28. Per Capita Annual Retail Receipts 2005

Planning for the appropriate amount of retail space within a proposed growth center will be critical to limiting adverse impacts on nearby centers. As shown in Figure 28, a limited number of Vermont municipalities have established themselves as retail centers and are heavily reliant on consumers from outside the community. Municipalities are encouraged to consider what percentage of the region's projected retail needs should reasonably be located within their growth centers and how the growth centers will function within their region in order to limit the overbuilding of retail square footage.

Economic Development

See Vermont Land Use Planning Implementation Manual, Community and Economic Development, Downtown Revitalization, and Brownfields.

See 10 Reasons Why Vermont's Homegrown Economy Matters, 2003.

Housing

See Vermont Land Use Planning Implementation Manual, Housing Programs and Housing Regulations.

Surveys have found that Vermonters are interested in living in downtowns if they can find reasonably priced houses in attractive, livable neighborhoods. The 2006 Annual Vermonter Poll conducted by the Center for Rural Studies found that:

- 1 out 3 Vermonters would be willing to trade a larger home in a rural setting for an in-town location closer to services; these numbers have increased from 1 in 4 in 1998. In Chittenden County, 2 out of 3 people would prefer a home in an urban or village setting.
- Nearly 90% of respondents thought residential development should occur in or adjacent to existing downtowns or residential neighborhoods.

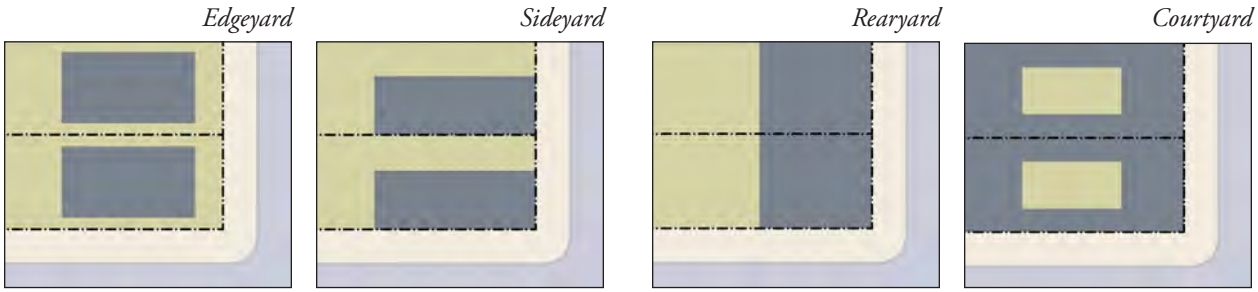
Housing Types

While the single-family home is the dominant type of residential structure in nearly all Vermont municipalities, other forms of housing were built historically and are being re-introduced throughout the state. Multi-generational housing was common into the early 1900s and many of Vermont's larger historic homes once housed several related family units with varying degrees of shared living space. Employers in some industrial centers built worker housing, in the form of duplexes, multi-family units or row houses. Boarding houses provided affordable living quarters for singles or couples without children.

Resort communities and rapidly growing suburban towns have seen the development of attached housing, but in most of Vermont, the majority of new housing that has been built in the past 50 years has been single-family homes on at least an acre lot. Therefore, many communities have little experience planning for greater diversity in housing types. The form-based SmartCode provides a useful system for classifying housing types based on four basic building forms as illustrated in Figure 29, opposite:

- **Edgeyard**. A building that occupies the center of its lot with setbacks on all sides.
- **Sideyard**. A building that occupies one side of the lot with the setback to the other side. If

Figure 29. Housing Forms



SmartCode v.8.0, Duany Plater-Zyberk & Co., 2006

the adjacent building is similar with a blank party wall, the yard can be quite private.

- **Rearyard**. A building that occupies the full frontage, leaving the rear of the lot as the sole yard.
- **Courtyard**. A building that occupies the boundaries of its lot while internally defining one or more private patios.

Only the edgeyard type is allowed under many municipality's zoning regulations, although PUD provisions offer the possibility of altering the dimensional standards. When planning for growth centers, consideration should be given to how one or more of the other three building forms could be permitted to diversify the community's housing stock. The target density of a growth center will largely dictate the housing forms that will need to be permitted.

Residential Densities

As illustrated above, attractive housing options can be built at a range of densities. Appealing, market rate, large family homes can easily fit on lots of ¼ acre or less. Smaller homes may fit onto 4,000 square foot lots and still have room for small enclosed yards with patios, gardens or play areas for young children. Multi-family housing can increase the diversity of housing options, allow for increased density and be compatible with other homes in the neighborhood as shown in Figure 30. In exchange for each lot not having a large back yard, common space, both open and wooded, can be provided to meet the need for recreation and the exploration of nature.

Residential density depends mostly on lot size and building type. Housing at densities from two to 20 units per acre can be built within developments very similar in character to the historic residential neighborhoods found around Vermont's traditional down-

Figure 30. Site Plan with a Mix of Housing Types

Vermont Neighborhoods Project, Vermont Forum on Sprawl

Figure 31. Housing Forms by Density

A: 55 units/acre B: 33 units/acre C: 29 units/acre D: 17 units/acre E: 12 units/acre F: 8 units/acre

Visualizing Density, Lincoln Institute of Land Policy

towns and centers. In most communities, the predominant residential type will likely continue to be detached homes on lots ranging in size from 5,000 to 15,000 square feet, which results in net development densities of 3 to 7 units per acre. Other housing forms, including duplexes, townhouses, and small apartment buildings can be mixed within largely single-family neighborhoods.

Photo E, in Figure 31 above, is of a residential neighborhood in St. Johnsbury. Some of the traditional large homes remain single-family units, while others have been converted to two or more units. The lots are narrow and deep, a characteristic of lots in historic residential neighborhoods.

Residential Lots

Another hallmark of such neighborhoods is variable lot frontages so that the average width may be 70 feet, but lots may range from 50 to 100 or more feet in width. Variable lot sizes and frontages were created in some historic neighborhoods by subdividing 'strip

lots' with widths of 15 or 20 feet. Buyers then purchased the strips in multiples of two, three or more creating a diversity of lot sizes and widths on the same street. This technique accommodated buyers at different price points, houses of various sizes and helped account for physical features of the land.

Transportation

See Vermont Land Use Planning Implementation Manual, Roads and Highways, Parking, Bicycle and Pedestrian Facilities, Public Transit, Rail and Airports, Transportation Demand Management (TDM).

A growth center will need well-functioning vehicle and truck connections to the state highway system. Most of Vermont's traditional downtowns and larger village centers are located on state highways. Many of Vermont's smaller village centers are located just off major highways.

Within the Core

The commercial cores of larger downtowns and urban areas are scaled to serve residents from around the region. For these communities, downtown traffic is a complex issue since their economic viability is intrinsically linked to the number of vehicles passing through. Yet where traffic volume is high and trucks make up a high percentage of downtown traffic, it is a challenge to maintain a comfortable downtown environment on the street. Rather than the roadway being a central gathering space, the high traffic roadway splits the town. However, projects designed to route truck traffic out of a downtown may result in fewer tourists and even regional residents not making unplanned stops as they are traveling through.

Significant improvements to the environment of a growth center core can be accomplished through streetscape design and traffic calming without reducing the amount of traffic on the roadway. Yet, the ability of a municipality to improve the character of its "main street" through renovation of the roadway, widening sidewalks, adding parallel parking or street trees, slowing downtown traffic, etc. can be limited on state highways. Greater flexibility is possible if jurisdiction of a state or federal highway through a downtown or village center has been taken over by the municipality.

- Woodstock, Vermont, is an example of a community that has worked hard to preserve and promote its historic amenities and traditions that keep visitors coming to their Main Street – the heavily trafficked US Route 4.
- Waitsfield, Vermont addressed traffic issues in their downtown through the creation of the Slow Road, which parallels the main highway – Route 100 – and provides a more pedestrian-oriented commercial area.

Communities planning for a growth center associated with a new town center should be considering the existing roadway environment in their municipality. If a principal arterial or a highway with very high traffic volume passes through the planned growth area, it may be best to locate the downtown core off to one side of the roadway and to create a new "main street."

The essence of a successful "main street" commercial area is the quality of the pedestrian environment; the car should be secondary. When drivers come downtown they need to find parking, but from that point on, they turn into pedestrians. Streets should be a perfect habitat for walkers and strollers of all ages that includes the following elements:

- Buildings constructed to the edge of the sidewalk that enclose the street.
- Building façades that provide architectural interest and visual access into the building activity or displays.
- Inviting doorways into a variety of uses.
- Pleasant lighting at night.
- Street trees that provide shelter and shade.
- Parallel parking for easy access, which also serves to buffer pedestrians from roadway traffic.
- Wide sidewalks with curbs to keep vehicles from impinging on pedestrian space.

Figure 32. Main Street (Route 4) in Woodstock, VT

Figure 33. Interconnected Street Network

Interconnected Streets

As growth centers develop, they will likely require additional streets. In past decades, development in most Vermont towns gravitated to the edges of existing downtowns and village centers along existing roads. In order to promote compact development over linear, strip development, municipalities may need to plan for a system of interconnected streets that provide street frontage for new commercial and other mixed uses.

A grid of streets that divides the core of a growth center into smaller blocks has many benefits including:

- Creation of more street frontage for businesses and other uses.
- Better pedestrian access to businesses.
- Slower traffic as cars stop at intersections.
- Maximum on-street parking.
- Shared parking in block interiors.
- Alternative vehicle routes disperse traffic and reduce congestion on primary streets.
- Improved safety and emergency response because there are multiple routes in and out of neighborhoods for response vehicles and residents.
- Shorter, more direct pedestrian routes between neighborhoods.
- Better pedestrian scale and visual interest.

Road Design

The design of a road – its surface, width, grade, curvature, turning radius at intersections, etc. – greatly influences people's driving behavior. Fast moving traffic is not appropriate in areas of dense, compact development. It creates unsafe conditions for pedestrians, bicyclists and children, and discourages people from using non-vehicular modes of transportation and enjoying many types of outdoor recreation. Streets in growth centers should enforce slow movement of vehicles through their design and provide ample public space for sidewalks, landscaping, street trees, street lighting, etc.

Transit Oriented Design

Transit Oriented Design (TOD) is a type of compact, mixed-use development that is located near transit facilities with high-quality pedestrian environments. TOD is seen not only as a way to promote transit ridership, but as a mechanism to further economic development and enhance community quality of life goals as well. For municipalities with transit service, or where transit service is likely to become available, TOD offers a model for development that furthers the smart growth principles of the growth center program. The Essex TOD Master Plan above illustrates how consideration for pedestrian scale, provision of trail and sidewalks, and access to transit can be integrated into a dense, compact center that promotes non-vehicular modes of transportation.

Parking

As suggested elsewhere in this manual, parking is a critical component of (or constraint to) planning for compact development. Within a growth center, parking should be efficient, occupy the smallest footprint of developable space and not diminish walkability. As much parking as possible should be flexible and

Figure 34. Downtown Parking Lot in Rutland, VT

Figure 35. Transit Oriented Design Master Plan for the Susie Wilson Road Corridor, Town of Essex

ORW Landscape Architects and Planner, RSG, Inc., 2006

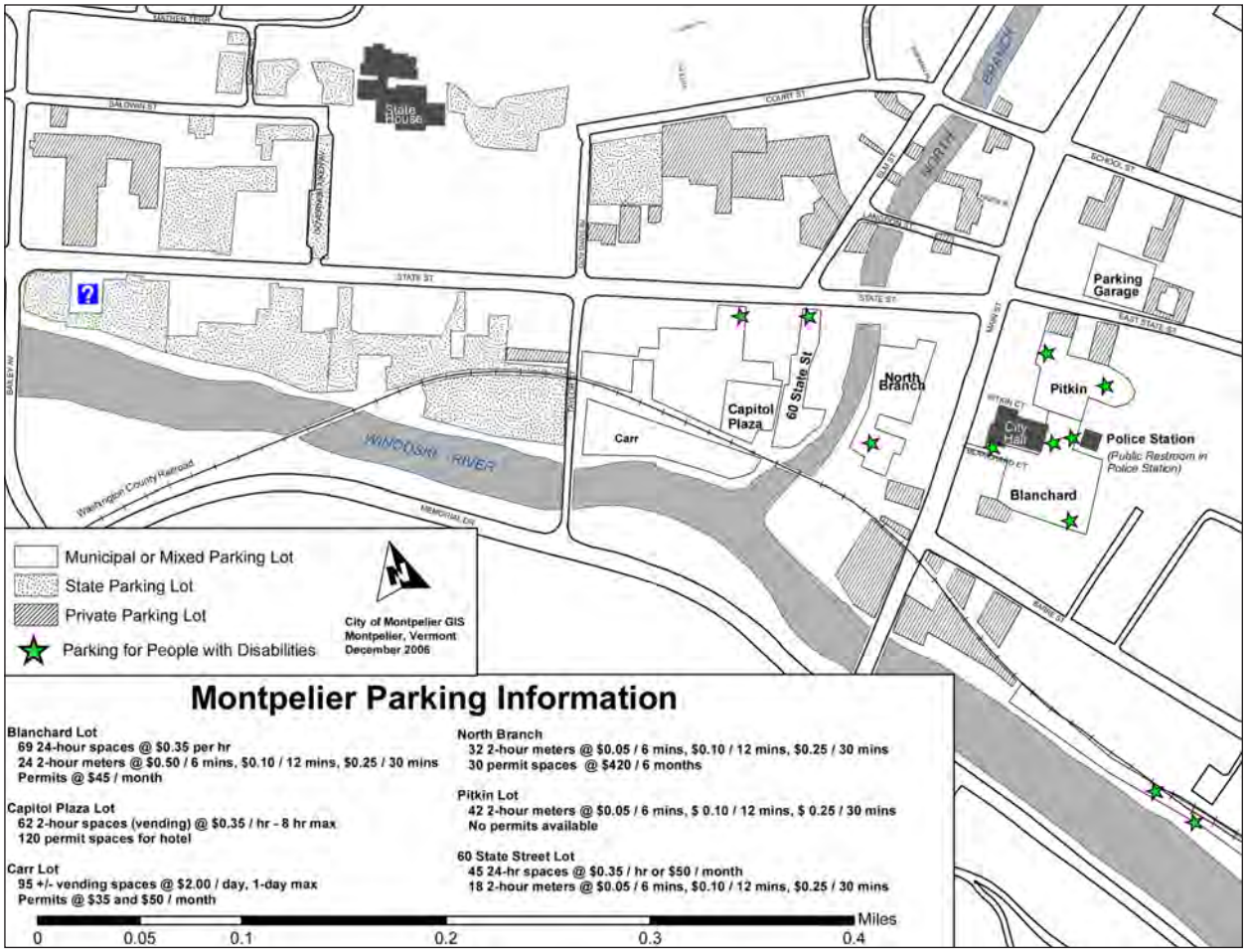
available to all users. Coincident to this must be the creation of easy and comfortable pedestrian links between all available parking venues. Drivers may not find a space directly in front of their destination, but will know that they will likely find a space within a block of their destination, and will experience a pleasant walk to get where they need to go.

Most zoning ordinances include parking regulations that no longer serve the community well and are not appropriate for development of downtowns or growth centers. These regulations assume that every customer, client or employee will be arriving by car and will drive to each destination. In addition, parking requirements are often based on close-to-peak-day use. Many businesses, especially national chain stores, have made it their own policy to provide excessive parking. This can be a problem for a municipality's effort to create a growth center based on smart growth principles.

Current thinking on parking asserts that, at the very least, parking requirements should be greatly reduced from current 1970s standards to reflect the availability of public transportation, on-street parking, municipal parking lots, shared parking potential generated by mixed uses, informal carpooling, and pedestrian and bike access from neighborhoods. Growth center parking options include:

- **Municipal Parking Lot.** The flexibility and turnover of spaces in a municipal lot makes it a very efficient way to provide parking for many businesses whose parking needs peak at different hours. A municipal lot provides more parking at less cost than individual lots. Parking needs are met with the minimum lot coverage and less stormwater impact. In addition valuable downtown property is preserved for buildings that can add vitality and density.

Figure 36. Downtown Montpelier Parking Inventory



- **On-street parking.** On-street parking is the most efficient means of providing downtown parking. It is visible, easily accessible, and because it only requires an extra 160 square feet of asphalt per space alongside an existing road, it is the least expensive. It also benefits pedestrians as it forms a protective buffer between moving traffic and the sidewalk. Diagonal parking is also possible on wider downtown streets where traffic is slow moving.
- **Shared parking.** Shared parking between one or more private businesses or civic uses can be useful in reducing the number and size of parking lots but requires clear municipal policies and negotiated agreements between two or more willing landowners whose land uses have significantly different peak parking characteristics. Such uses could be office, restaurants, retail, colleges, churches, cinemas, and special event situations.
- **Parking within and below buildings.** Underground parking, interior and exterior parking garages and parking decks provide needed parking while minimizing the footprint of parking in the downtown. Parking on the ground floor of a multi-story building achieves this goal but must not occupy the building's street frontage. Structured parking can be approximately 10 times more costly than on-grade parking and ground water or other subsurface conditions may also present engineering challenges in some areas. However, all these alternatives should be encouraged in preference to on-grade parking.

PROJECTIONS

Projections estimate future growth based on statistical models that extrapolate past trends and current conditions into the future. Projections can be created through very simple or very complex calculations. Deciding which method to use is based on the available data and desired use of the projection.

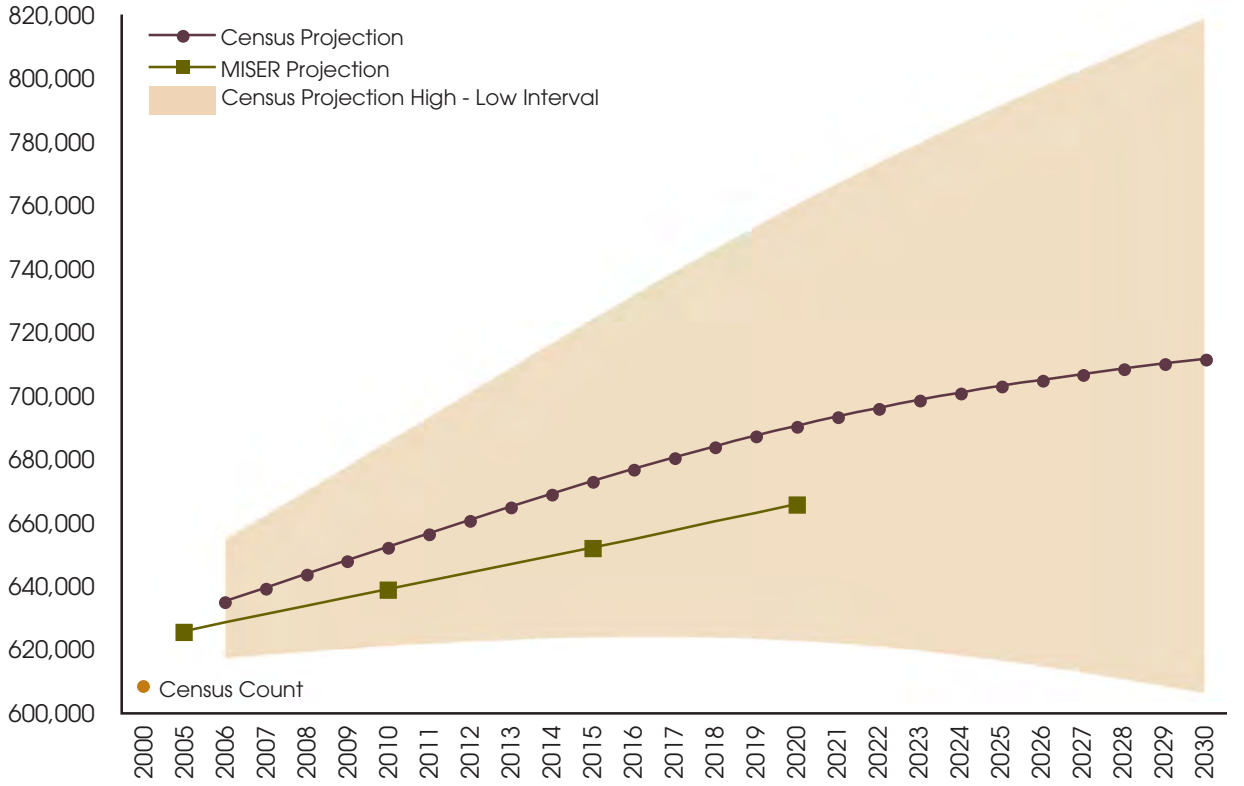
The mathematical models that underlie projections can be adjusted based on "value judgments" made to reflect assumptions of future changes. Projections of future population commonly take into account economic variables that are the principal driving force of population change. Projections can also be adjusted based on the availability of resources in an area or limitations on growth imposed by infrastructure capacity or land use regulations. It is important to document all assumptions made when developing a projections.

The small size of most Vermont municipalities makes it difficult to accurately derive demographic and economic projections at the local level, since the smaller the population or economic base, the greater the likelihood for short-term variations. Smaller populations are more affected by migration (people moving in and out), which is the most difficult component of population change to predict. Additionally, the further into the future an estimate extends, the less reliable it becomes.

Population projections will provide a gross count of the number of people living in an area at a given point in the future, but they may also break down the numbers based on the demographic characteristics of those residents. While such information can be useful for planning, as estimates become more detailed, the level of certainty generally decreases.

The state-level Census Bureau projections to 2030 include figures broken down by gender, age and race. As Figure 37 below indicates, the Census Bureau projection is an average based on a high and low rate of growth. The difference between the high and low projections widens over time. The MISER Vermont population projection to 2020 (which includes state

Figure 37. Vermont Population Projections



and county projections) anticipates a slower rate of growth in Vermont than the Census Bureau model.

Housing projections are typically based on population projections. When combined with estimates of average household size, population projections can be used to forecast housing demand. When projections are broken down into demographic groups, household size can be more accurately estimated and more information can be inferred about the types of housing that will be needed for the expected households.

Employment projections are typically a product of complex econometric models. At a local level, models analyze trends in various sectors of the economy in order to predict future strength or weakness. The relationships between the local, regional, national and even global economies are considered. Economic forecasts are more complicated than population projections because there are more variables influencing change.

The economic base of many Vermont municipalities is too small to accurately project employment trends. Economic data is generally subject to privacy considerations and is not disclosed when numbers are small. Most Vermont municipalities will need to rely on regional economic forecasts although the assumptions of those models should be reviewed in light of local conditions. Employment and population trends are interrelated because availability of employment is typically the most important consideration when people are deciding where to live.

Three common methods of projecting population change are briefly presented below beginning with the simplest, least accurate methods and concluding with more sophisticated models. There are situations in which all of the techniques described are valid based on the available data, geographic area of interest or intended use of the projection. Housing and employment projections are frequently based on similar models.

- **Extrapolation Techniques.** There are a number of mathematical formulas that can be used to project future population using only historic population data (arithmetic change, exponential change, polynomial curves, Gompertz curves, logistic curve and regression analysis). While these types of projections are not as precise as more complex calculations, they can be done using data that is readily available for all Vermont municipalities and do not require sophisticated software. These projections can accurately predict change only to the extent that the conditions affecting growth (such as birth, death and migration rates) remain constant.
- **Share or Ratio Approach.** This method is frequently used to project change in a small population by comparing the relationship between a small area and a large area (which encompasses the small area) over time. This method can increase the accuracy of projecting population in a small area since a more sophisticated projection can usually be done for larger geographic areas (because of the availability of needed data and the larger sample size). This method can also be used to project change in one variable, such as population, based on change in another such as jobs. Incorporating population density into this model is useful where growth is expanding rapidly from a metropolitan center to outlying municipalities. Density can be used to establish an upper limit for growth and disperse growth to adjacent areas when that limit is reached.
- **Cohort-Component Model.** This methodology first separates the population into age groups by gender (cohorts). It then applies the various components of population change (births, deaths, and migration) to each cohort in a given increment of time over the projection period. Once the population is broken down into cohorts, the demographic processes that result in population growth (births, deaths and migration) can be more accurately modeled. Additional data is required to prepare projections using this method such as fertility and mortality rates and life expectancy for the various age groups. These data are readily available at the national level, but state or regional rates should be used if available to increase the accuracy of the model. A number of methods exist for predicting migration rates and it is this factor that is the most open to debate when projections are prepared.

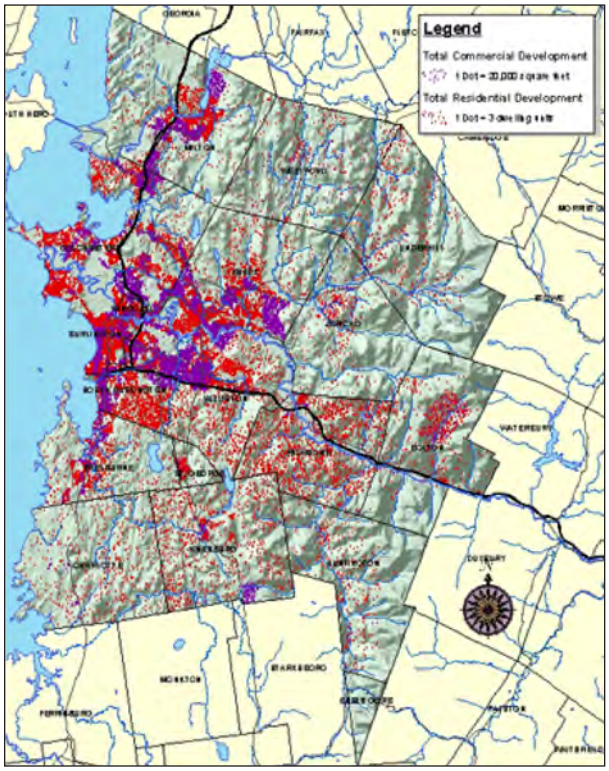
Build-Out Analysis

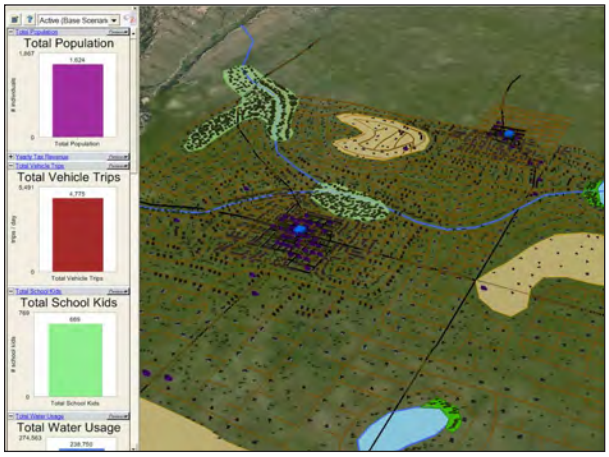
A build-out analysis is a planning tool that can be used to visualize what land is available for development within a municipality or region and quantify how much development can occur under a specific set of regulatory conditions. It can provide an assessment of potential development resulting from a community's existing land use regulations or it can be used to compare alternative development scenarios. While build-out analyses provide data about the amount of potential development and its location, they generally do not project the rate at which development will proceed or the length of time it would take to achieve full build-out.

Build-out analyses can be undertaken at different scales from a regional perspective to the site design level. The availability of GIS software and data has greatly reduced the time required to calculate potential development at the regional or community scale. The basic data a municipality will need to conduct a GIS-based build-out analysis may need to be digitized or converted to work with GIS software.

Many build-out analysis software applications and GIS plug-ins have been developed in recent years.

Fig. 38. Chittenden County RPC Build-Out Analysis





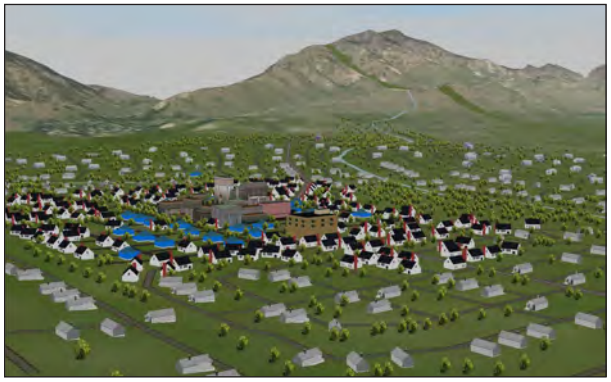


Figure 39. CommunityViz Build-Out Analysis

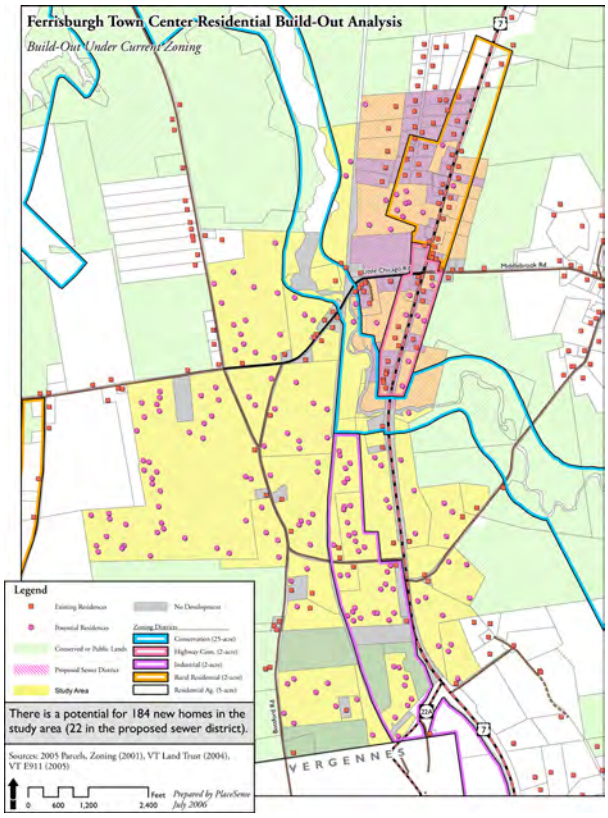
Both Addison County and Chittenden County Regional Planning Commissions have developed build-out applications that are available for use by Vermont municipalities. The Orton Foundation's CommunityViz software, which has been used by several Vermont communities, includes a build-out analysis in addition to other visualization tools.

Build-out analyses typically need three basic sets of information about the area to be studied:

- The current pattern of land subdivision and ownership (i.e. tax parcels)
- The amount and location of existing development (i.e. homes, businesses and public uses, which is available for all Vermont municipalities as a point file of E911 sites)
- The amount and type of development allowed (i.e. permitted uses and dimensional standards within each zoning district)

The quality of the data upon which the build-out analysis is based can significantly affect the accuracy of the quantitative results. The sources and limitations

Figure 40. Addison County RPC Build-Out Analysis



of the base data should be included in the documentation of the build-out methodology and assumptions.

To refine a build-out analysis, it may be desirable to take certain types of property that are not available for development out of the model (such as National Forest, State Wildlife Management Areas, permanently conserved lands or cemeteries). There are other types of land that may be ill-suited for development (such as wetlands or steep slopes), which may be removed from the model or have its development reduced by a certain percentage. The likelihood of currently developed property being redeveloped at higher densities needs to be taken into account. Future use of municipally owned open space, vacant or underutilized lands should be considered as well. As with growth projections, build-out analyses are based on a series of assumptions that must be clearly documented.

Basic build-out analyses tend to focus solely on the potential for residential development. However, more complex models can calculate the potential for non-residential development based on zoning standards such as parking, lot coverage, maximum building size and floor-area ratios. For parts of a community where both non-residential and residential uses are allowed, applicants may want to calculate both the maximum residential build-out (assuming no non-residential use) and the maximum non-residential build-out. Assumptions will need to be made about the mix of uses that is most likely to occur in the future. The characteristics of the community and expected development trends should guide a municipality's selection of a build-out tool and the level of detail needed to assist with planning for a growth center.

Land Area Calculations

See Estimating Land Area Needs for Growth Centers, Vermont Agency of Development and Community Affairs, 1995.

Estimating the land area needed for residential uses is fairly straightforward once population growth has been projected and *Estimating Land Area Needs for Growth Centers* provides a clear methodology for preparing those figures.

Calculating the amount of land area needed to accommodate non-residential uses is more complex, however. Employment projections should provide the number of new jobs anticipated by sector. The results can then be placed into categories like warehouse/distribution, high-tech manufacturing, office, retail, medical, etc., each of which will have particular land area needs.

Those land area needs can be expressed in a number of jobs per acre. Estimates of the number of jobs per acre can be calculated based on an analysis of existing businesses in the community or region. The following data would be needed to do such an analysis:

- Business type
- Building square footage
- Lot size
- Number of FTE (full time equivalent) employees.

From that data an average square foot per job and floor area ratio (FAR) can be calculated for various business types and/or geographic areas. Those two figures can then be used to calculate jobs per acre using the following formula:

= 1 ÷ ((sq. ft. per job * (1 ÷ FAR)) * 0.000022957)

The results can be presented in a table as shown in Figure 41 below.

Figure 41. Job Density Calculation Table

Business Type	Sq. Ft./Job	FAR	Jobs/Acre
Warehousing/Distribution	1,400	0.23	7
General Industrial	400	0.35	38
Technology/Flex	450	0.30	29
Office	300	0.60	87
Retail	350	0.44	55
Medical/Government	400	0.34	37

Source: 2002-2022 Urban Growth Report, Portland, OR

Transportation Demand Forecasting

There are a number of different techniques that can be used to forecast transportation demand. However, the process generally proceeds as follows:

- Break the area that requires prediction of future travel demand into study zones.
- Calculate the number of trips starting in each zone for a particular trip purpose. (Trip Generation Analysis)
- Produce a table of the number of trips starting in each zone and ending up in each other zone. (Trip Distribution Analysis)
- Complete the allocation of the various trips among the available transportation systems (transit, pedestrian, and private vehicles). (Modal Choice Analysis)
- Identify the specific routes on each transportation system that will be selected by the travelers. (Trip Assignment Analysis)

The Institute of Transportation Engineers (ITE) produces trip generation rates for a variety of land uses. These can be used to produce a rough estimate of the number of trips that will be generated from new development, especially residential uses since they are primarily trip producers.

The ITE figure from the 7th edition of the *Trip Generation Manual* for average daily trips generated by a single-family home is 10; remember that each vehicle leaving or returning counts as a separate trip. Each apartment, condominium, townhouse and senior citizen housing unit generates seven trips per day.

While the ITE also produces trip generation rates for non-residential uses, the variables that influence those figures are more complex. Schools, for example, may generate between 1.3 and 2.5 trips per student depending on grades served and student bussing. Restaurants may generate between 90 and 500 trips per 1,000 square feet of building area depending on type.

As described on page 36, the Vermont Agency of Transportation (VTrans) may be able to assist municipalities with forecasting transportation demand, as may the regional planning commission and/or the metropolitan planning organization. Municipalities may have access to transportation impact analyses prepared for development projects in the area, which might provide data that could be used to more accurately forecast transportation demand within the proposed growth center.

Traffic Impact Analysis

See Traffic Impact Evaluation: Study and Review Guide, VTrans Development Review Section, 2003.

See Vermont Land Use Planning Implementation Manual, Roads and Highways.

Many municipalities in Vermont already have the authority to require a traffic impact analysis be prepared when projects are being reviewed under the community's zoning or subdivision regulations. VTrans generally recommends that a traffic impact study be required if the proposed development will generate 75 or more peak hour trips, although this is not the only factor to be considered.

A traffic impact analysis provides information about the anticipated traffic impacts of a project on the surrounding highway infrastructure and the capability of that infrastructure to accommodate increased traffic. Currently, it is VTrans' policy to design state highways and to require others accessing state facilities to effect improvements that will maintain level-of-service (LOS) of C. Generally, a road is considered congested when its LOS drops below C. In more urbanized areas, however, levels below C can be acceptable. These level of service standards, which use an A to F scale, are in the process of being revised.

Figure 42. Downtown Brandon, VT

Projecting Commercial Demand

As part of their 20-year projections of anticipated growth, applicants will need to estimate how much new commercial space their communities will need. It is not the intent of the legislation to create new commercial districts that will displace sales from existing districts but, rather, to ensure that existing designated downtowns, village centers and new town centers have high levels of occupancy and are performing well economically before permitting development of new commercial space. Applicants will therefore need to demonstrate that existing commercial space is well utilized before developing new commercial space.

For the purposes of this analysis, applicants should focus on two types of commercial activity:

- Community-serving retail goods and services: Products and services that meet the everyday needs of community residents, like groceries, gasoline, and hardware; basic levels of clothing, furniture, home furnishings, and dining out; and personal and professional services.
- Destination retail goods and services: Specialized products and services that are outside the everyday needs of community residents and that generally rely on attracting customers from a larger trade area (e.g., a half-hour or longer drive).

The level of analysis needed is not as extensive as would be needed for a retail market analysis intended to provide guidance on business development or marketing. A retail market analyst familiar with historic and traditional downtowns should be able to conduct this analysis for considerably less than he or she would conduct a traditional retail market analysis. Applicants may hire a consultant to conduct this analysis or may complete the analysis themselves using the process outlined below. In either instance, the analysis should include adequate documentation of the methodology and source materials used.

Community-Serving Retail

Estimating future demand for community-serving retail goods and services involves three primary steps:

- Estimating how much market demand for community-serving commercial goods and services will be needed for new community residents.
- Estimating how much of this new market demand can likely be absorbed by existing community businesses.
- Estimating how many new square feet of commercial space will be needed.

To estimate how much new market demand for community-serving commercial goods and services multiply the typical sales per household times the number of households.

Information on typical sales per household for a variety of goods and services can be found in the Consumer Expenditure Survey, published annually by the US Bureau of Labor Statistics (http://www.bls.gov). Data tables are available for household income, household size and many other characteristics. Household income is generally the most reliable indicator of demand for consumer goods and services.

To estimate how much of this new market demand can likely be absorbed by existing community businesses (particularly by businesses in designated downtowns, village centers, and new town centers), applicants will need to estimate total current sales in the community and total minimum commercial sales targets for the community. Applicants can then subtract the difference in these two estimates from the amount of new retail demand anticipated, providing an estimate of the new sales volume for which new commercial space will be needed.

- Total minimum target sales for current businesses – total current sales = performance gap

- ✦ Anticipated new retail demand – performance gap = new sales volume for which new commercial space will be needed
- ✦ Sales volume for which new space will be needed ÷ typical sales/SF = square feet of new commercial space needed

For 2007, it is reasonable to assume a minimum target of $250,000 in gross sales per small retail business and a minimum target of $120,000 in net revenues per professional in a service business or professional office. It is reasonable to assume that these targets will increase each year by the rate of change of the Consumer Price Index.

Information on current retail sales is available from the US Census Bureau in its Economic Census, published every five years. Data is often not reported by the Census Bureau for small communities, as doing so might reveal earnings by individual businesses. In these instances, category totals for the State of Vermont can be divided by the number of businesses per category in the state, then multiplied by the number of businesses in that category in the community.

To estimate how many square feet of new commercial space is needed, applicants can divide the new sales volume anticipated (minus the amount to be absorbed by existing districts) by typical sales per square foot, by business category.

There is no definitive source of information on the average sales per square foot of different types of businesses in historic or traditional downtowns or village centers. The Urban Land Institute compiles and publishes information on sales per square foot for shopping center businesses every three years in *The Dollars and Cents of Shopping Centers*, and the information provided there for neighborhood and community shopping centers is roughly equivalent to that in historic and traditional downtowns and village centers.

Destination Retail

Preparing estimates of market demand for destination retail is more complicated than preparing estimates of market demand for community-serving retail and should be done by a professional retail market analyst.

Applicants interested in developing a destination retail center or cluster of destination businesses should be prepared to demonstrate that the retail center or retail concentration will not deflect sales from designated downtowns, village centers or new town centers within the region.

Figure 43. Burlington's Church Street Marketplace

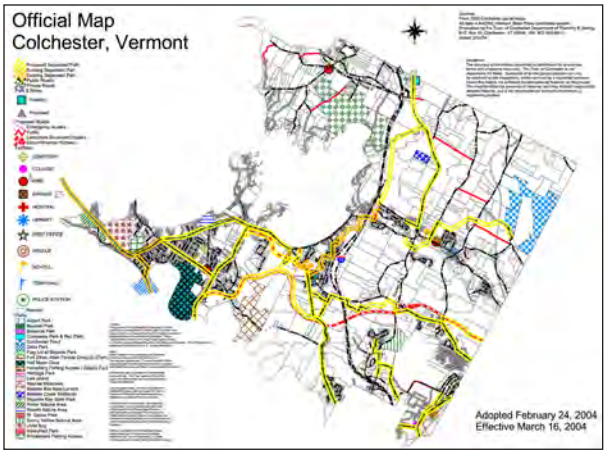
Capital Budget and Program

See Vermont Land Use Planning Implementation Manual, Capital Improvement Program.

Official Map

See Vermont Land Use Planning Implementation Manual, Official Map.

Figure 44. Town of Colchester Official Map



Public Works Specifications

See Vermont Land Use Planning Implementation Manual, Roads and Highways.

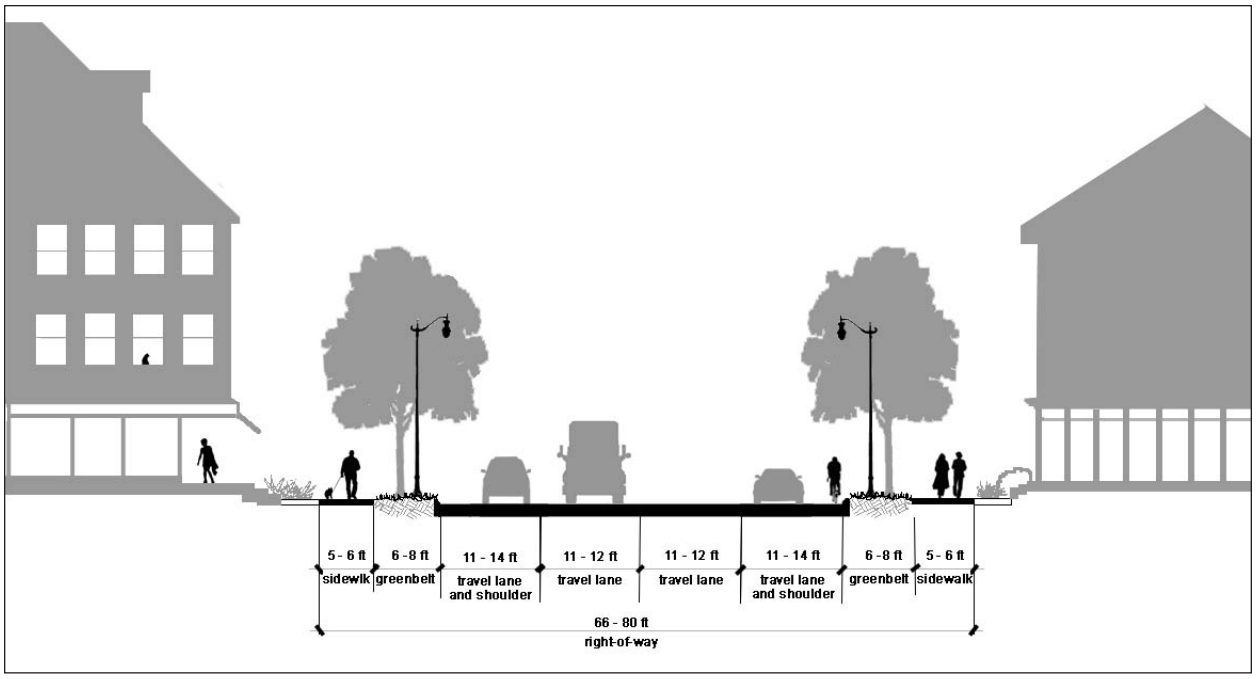
Public works specifications are detailed engineering standards for the design and construction of infrastructure such as streets, transportation paths, sidewalks, water distribution systems, sanitary sewers and storm sewers. Municipalities that adopt public works specifications require all infrastructure to be built to those standards. Others have standards for roads or other infrastructure incorporated into zoning and/or subdivision regulations.

Street design standards are a critical component of creating a human-scaled and pedestrian-friendly community. Streets can be designed to discourage high speed traffic. Elements that should be considered include:

- Street width. Narrower streets slow traffic and are safer for pedestrians.
- Design speed. Neighborhood streets can be designed for speeds of 25 miles per hour or less. A design speed of 35 miles per hour may be allowed for collectors or arterials within a growth center. Vermont law currently allows municipalities to post speed limits of less than 25 miles per hour only within a designated downtown. (23 V.S.A. § 1007)
- Turning radius. Tighter turning radii at corners require vehicles to slow down and allow for narrower street width. A 15-foot radius is fairly standard for downtown intersections.
- Curbs. Curbs are preferred anywhere parallel parking is anticipated. Some neighborhood streets may not require curbs. Uncurbed streets allow stormwater to flow off the road and infiltrate into the ground, while curbed streets typically require a stormwater collection system. Erosion along uncurbed streets can be an issue, however.
- Block length. Neighborhood streets should have shorter block lengths (such as 400 ft.) than collectors or arterials (which may be up to 600 ft.).
- Sidewalks should be required on most roads within a proposed growth center, although they may be optional or narrower on very lightly traveled neighborhood streets.
- Street trees are aesthetically pleasing, increase property values, provide shade and reinforce slower speeds.
- On-street parking, which reduces the number of spaces needed in parking lots, reinforces slower speeds and increases safety for people using sidewalks.

Figure 45. Historic Marble Sidewalks, Bennington

Figure 46. Growth Center Boulevard Cross-Section



Figures 46, 47 and 48 illustrate road design standards that would meet Vermont Agency of Transportation (VTrans) State Design Standards, which apply to any projects with state or federal funding. Excerpts from the state standards applicable to growth centers follow.

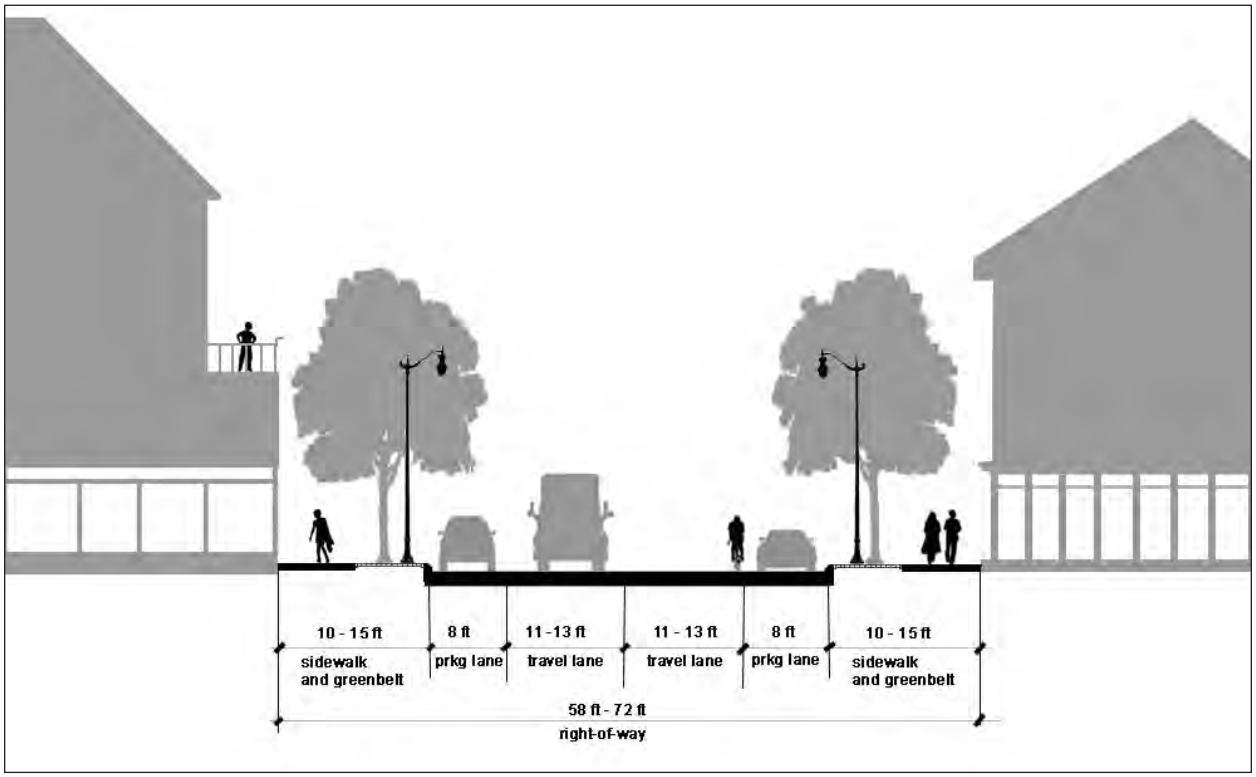


Figure 47. Growth Center Main Street Cross-Section

Figure 48. Growth Center Residential Street Cross-Section

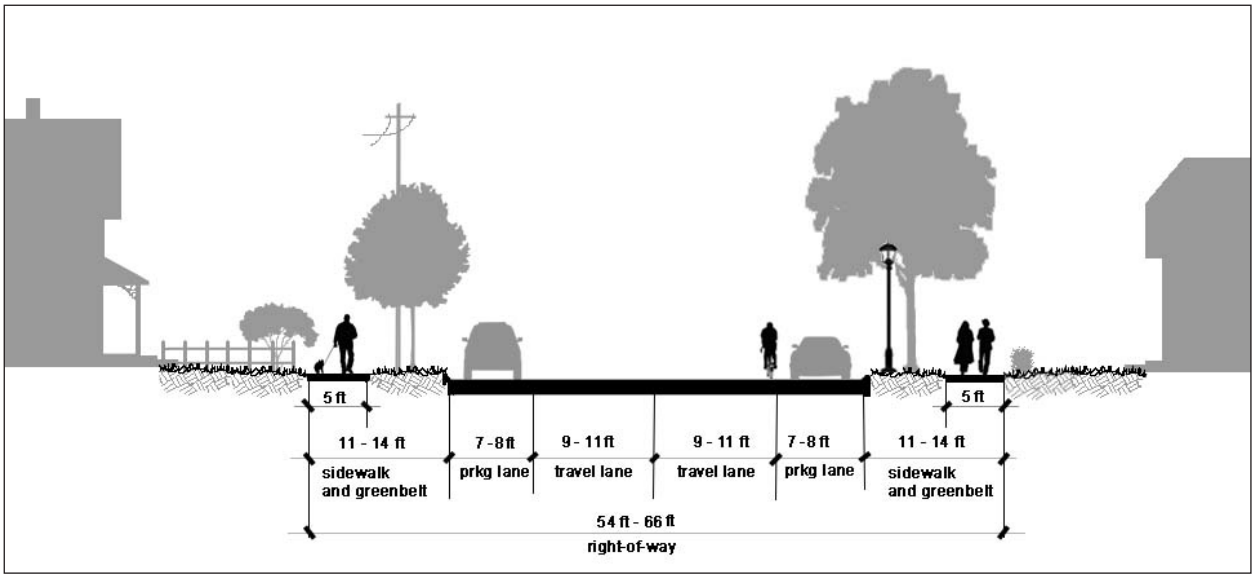


Figure 49. Excerpts from the Vermont State Design Standards Applicable for Growth Centers

Urban and Village Principal Arterials

- Lane widths may vary from 10 to 12 feet.
- The 10-foot widths are appropriate in highly restricted areas having little or no truck traffic.
- The 11-foot lanes are used extensively for urban and village principal arterial street designs.
- Reduced lane widths allow greater numbers of lanes in restricted right-of-way and facilitate pedestrian crossings because of reduced distance. An 11-foot lane width is adequate for through lanes, continuous two-way left-turn lanes and a lane adjacent to a painted median.
- Lane and shoulder widths within historic districts should be compatible with the historic character of the district.
- Parking lanes require approximately 7 feet of actual street space. The desirable minimum width is 8 feet.
- Where shoulders are provided to accommodate disabled vehicles, they must be at least 6 feet wide. The width of shoulders in urban and village areas may be restricted because of available right-of-way, adjacent development and other constraints.
- As an absolute minimum, on limited access principal arterials, where bicycles and pedestrians are prohibited, a 2-foot offset to vertical curb should be provided, and a 1-foot offset to sloped curb.

Urban and Village Minor Arterials

- Lane widths may vary from 10 to 12 feet.
- The 10-foot widths are appropriate in highly restricted areas having little or no truck traffic. The 11-foot lanes are used extensively for urban and village minor arterial street designs. Reduced lane widths allow a greater number of lanes in restricted right-of-way areas and facilitate pedestrian crossings because of reduced distance. A 10-foot left-turn lane, or a combination lane used for parking, with traffic during peak hours, is also acceptable.

- Lane and shoulder widths within historic districts should be compatible with the historic character of the district.
- Parking lanes require approximately 7 feet of actual street space. The desirable minimum width is 8 feet.
- As an absolute minimum, where no bicycles are to be accommodated, a 2-foot offset to vertical curb should be provided, and a 1-foot offset to sloped curb.

Urban Collectors

- Lane widths may vary from 9 to 11 feet.
- 9-foot widths are appropriate in highly restricted areas having little or no truck traffic.
- 11-foot lane widths are generally used on all higher speed, free-flowing collectors.
- Lane and shoulder widths within historic districts should be compatible with the historic character of the district.
- Shoulders are desirable on urban and village collectors, and should be provided where feasible to facilitate maneuvering space for immobilized vehicles, safety for the pedestrian in areas where sidewalks are not provided, safe accommodation of bicycles, speed-change lanes for vehicles turning into driveways, and storage space for plowed snow. Despite these advantages, the width of shoulders in urban and village areas may be restricted because of available right-of-way, adjacent development and other constraints.
- In residential areas, a parallel parking lane of 7 feet may be used.
- In commercial and industrial areas parking lane is 8 feet.
- 9 to 11 foot parking lanes should be used when the use of the parking lane during peak periods for through traffic is necessary.
- As an absolute minimum, a 2-foot offset to vertical curb should be provided, and a 1-foot offset to sloped curb.

Urban Local Streets

- On urban and village local streets, lane widths may vary from 7 to 11 feet, and there should be appropriate offsets to curb. The 7 and 8-foot widths may be appropriate in residential areas having very low traffic volume and little or no truck traffic.
- Lane and shoulder widths within historic districts should be compatible with the historic character of the district.
- As an absolute minimum, a 2-foot offset to vertical curb is recommended, and a 1-foot offset to sloped curb. In all cases, drainage grates and drop inlets should be designed so that they do not project into a travel lane. Drainage grates should always be bicycle-safe in design.

Economic Vitality Considerations

- Use appropriate turning radii for large commercial vehicles at appropriate intersections.
- Use lane widths wider than recommended minimums when necessary to accommodate commercial vehicles or anticipated increased traffic volumes.
- Consider truck routes to avoid impacts on downtowns, neighborhoods, and historic districts.
- Retain existing parking, including angle parking, and/or provide additional parking in commercial areas.
- Consider landscaping, lighting, and aesthetic treatments that complement and enhance the commercial identity of a downtown, historic district, shopping district, or recreational area.
- Use appropriate designs for pedestrian and bicycle needs to enhance the vitality of village and urban areas.
- Consider the needs of public transit and intermodal connections, such as bus stops, transfer locations, and park-and-ride lots.

Master Plans

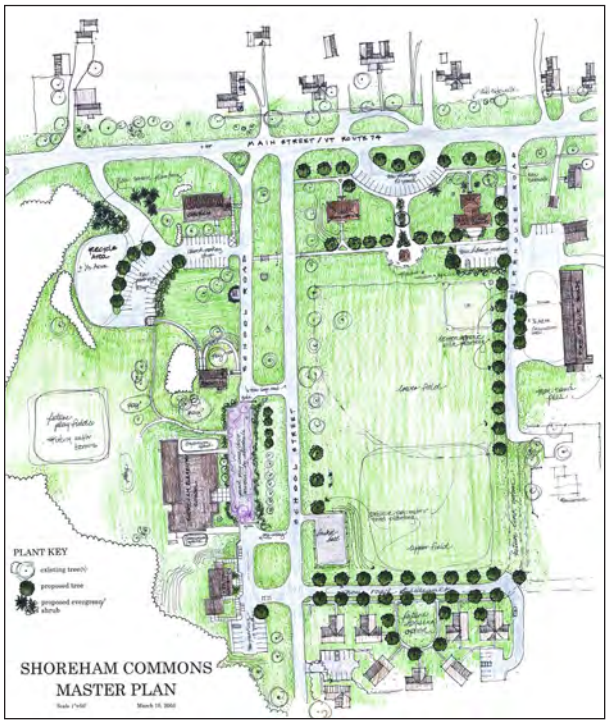
Municipalities can prepare physical master plans for downtowns or village centers, strategic properties, or main street corridors. A master plan sets forth a long-term vision for physical changes, usually with recommended phasing by implementing a series of discrete projects over a number of years. Cost estimates, a multi-year financing plan and potential funding sources are typically included. The plan aides in coordinating the efforts of the multiple entities that will be responsible for undertaking improvements. A master plan is more detailed than a municipal plan, although it may be incorporated into the municipal plan by reference.

While frequently focused on public improvements, master plans can encompass private properties and provide guidance on how they can be improved or developed in a manner that furthers community goals.

In addition to the illustrative master plan typically prepared as part of the planning process, the plan may also include:

- Inventory and needs analysis.
- Project costs, priorities and phases.

Figure 50. Shoreham Commons Master Plan



Vermont Design Institute, 2003

Figure 51. Milton Downtown Development Concept

David Sptiz and the SE Group, 2000

- Market analysis.
- Funding opportunities.

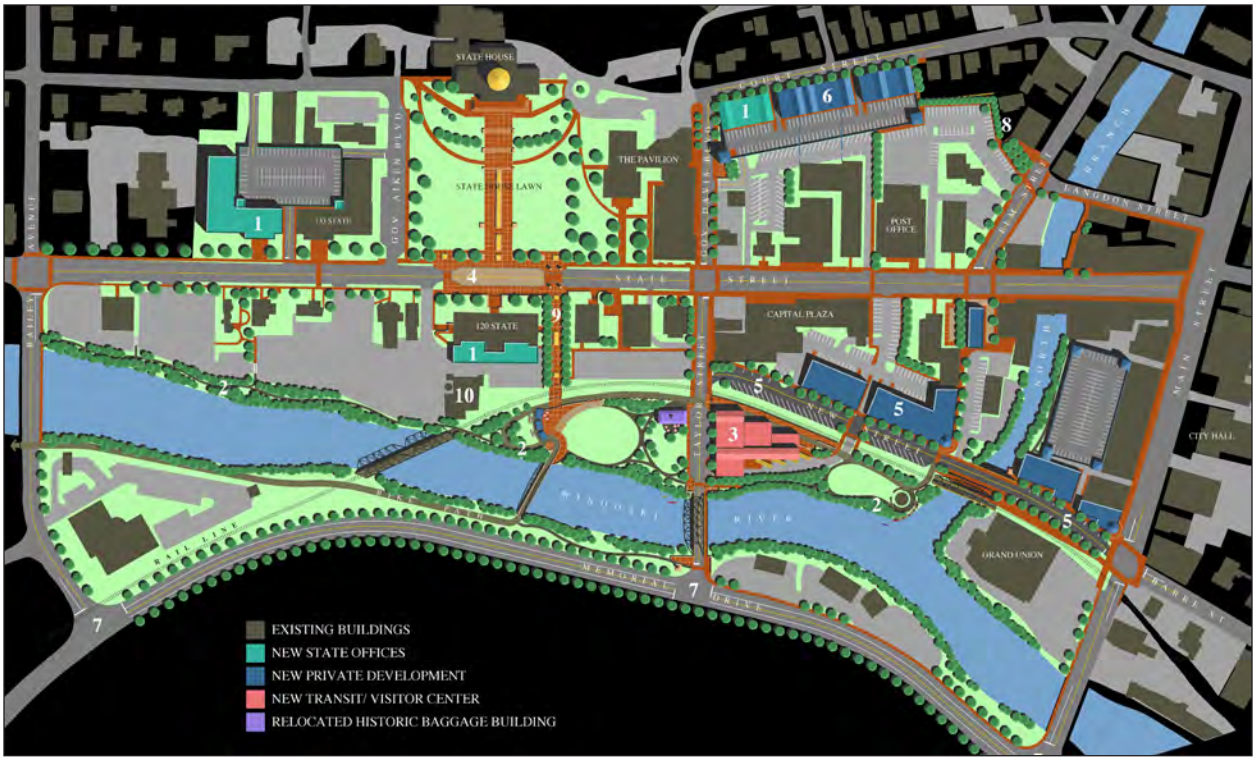
Master plans generally include one or more of the following elements:

- The use of and rehabilitation of existing public buildings or spaces.
- The location of new or expanded public buildings or spaces.
- Design criteria and/or building envelopes for expanded or new buildings.
- Improvements to and expansions of the transportation network including roads, sidewalks, trails, greenways and parking.
- Streetscape improvements and traffic calming techniques.
- Recreation facilities and public open space.

Multi-Modal Transportation Plans

A multi-modal transportation plan assesses important origins and destinations within a municipality or other geographic area and develops a circulation plan linking those uses and providing convenient access to them by alternatives modes. The circulation plan should result in an integrated network that uses roads, parking lots, sidewalks, paths and bus or carpool systems (if available) in a completely connected

Figure 52. Montpelier's Capital District Master Plan



Gossens Bachman, The Office of Robert A. White, and Louis Berger and Associates, 2000

system. When a multi-modal transportation plan is implemented, residents will have access to most of the municipality's destinations and choices of how to travel to them.

Open Space Plans

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Programs.

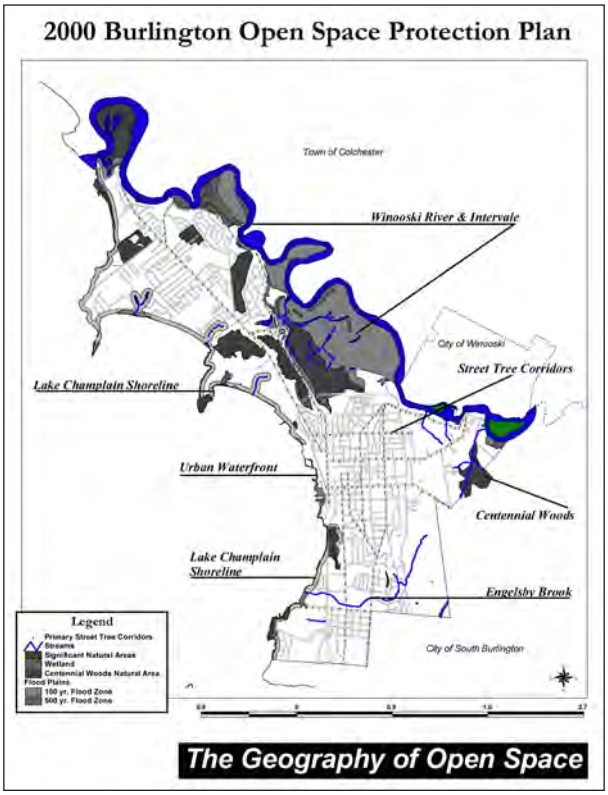
Facility Management Plans

See Vermont Land Use Planning Implementation Manual, Facilities Management.

Growth Management Plans

A growth management plan or study analyzes a municipality's ability to accommodate growth and establishes an appropriate rate of growth that will not exceed the municipality's ability to provide (and afford) facilities and services. Once an appropriate rate is determined, policies such as sewer allocation ordinances, impact fees and phasing can be used to regulate growth.

Figure 53. Burlington Open Space Map



Sewer Allocation Ordinances

See Vermont Land Use Planning Implementation Manual, Facilities Management.

A sewer allocation ordinance can be used to promote development within service areas, such as a designated growth center, by prohibiting the extension of infrastructure beyond delineated service areas. Projects must be granted sewer capacity by the municipality before construction can begin. Sewer allocation can be used as a growth management strategy by linking it to phasing requirements for large developments.

Phasing of Development

See Vermont Land Use Planning Implementation Manual, Facilities Management.

Impact Fees

See Vermont Land Use Planning Implementation Manual, Impact Fees.

Dedication Requirements

Many municipalities are authorized to require dedications of land for public uses (parks, school sites, open space, etc.) within their land use regulations, although these provisions are infrequently used in Vermont. Dedication requirements need to be supported by and work with a municipality's plan, Official Map, impact fee system, and/or capital budget and program.

Financial Incentives

Municipalities can use market-based approaches to encourage developers to propose projects that meet specified community goals. Financial incentives reduce investor risk or close financing gaps, or both, attracting investment capital to priority community projects. Among the incentives often used:

- Density bonuses.
- Transfers of development rights (TDRs).
- Reductions in fees. Municipalities sometimes reduce development impact fees, permitting fees or other typical development fees.
- Property tax abatement. Municipalities might partially or completely abate property taxes for a specified number of years to help reduce a project's annual expenses.
- Tax increment financing (TIF).

There are also a number of state and federal financial incentives available for development, from historic rehabilitation tax credits to funds for affordable housing development. Municipalities can play a valuable role by helping property owners and developers learn about and tap these resources. In addition, there are some resources for which municipalities can apply, making funds or financing available for development in targeted areas. For example:

- The Vermont Community Development Program awards Community Development Block Grants on a competitive basis to Vermont municipalities for projects that meet state community development objectives.
- The federal Main Street/HOPE VI program provides gap financing for projects that create affordable housing in and adjacent to historic and traditional commercial districts in communities with fewer than 50,000 people, no more than one public housing authority, and fewer than 100 units of public housing.

Density Bonuses

Density bonuses permit higher-density development, which increases the developer's profit, in exchange for providing improvements for the public good – such as affordable housing, community meeting space, recreation facilities, or land conservation – that may not otherwise be profitable for the private sector. Many Vermont municipalities currently offer density bonuses for development that include elderly or affordable housing.

Special Assessment Districts

See Vermont Land Use Planning Implementation Manual, Facilities Management.

Special assessment districts are typically created through municipal adoption of an ordinance. They allow additional taxes to be levied from a certain geographic area to fund improvements that benefit that area. Special assessment districts have been used to support downtown revitalization in Vermont communities by raising monies that can be used to match grant funds for public improvements such as streetscaping or traffic calming.

Tax Increment Financing

See Vermont Department of Economic Development, Tax Increment Financing District Information (www.thinkvermont.com).

See Vermont Land Use Planning Implementation Manual, Facilities Management.

Tax increment financing (TIF) uses the additional property tax to be paid by new development within a specific geographic area to pay off municipal debt for constructing public facilities to serve that area.

With the passage of the growth center legislation in 2006, Vermont's TIF program was also amended. Under those changes, a proposed TIF within a designated growth center will automatically meet the locational criteria established in statute and will meet the "but for" test that allows diversion of 75 percent of increased state educational property taxes to local debt repayment.

Performance-Based Zoning

See Vermont Land Use Planning Implementation Manual, Performance Standards.

Performance-based zoning focuses on the impacts – such as noise, odor, traffic, etc. – of development and establishes acceptable thresholds for such impacts. Site planning, building design and facility operation become important considerations when determining the impact of a proposed use on a neighborhood.

Many Vermont municipalities already use performance standards to regulate the impact of commercial or industrial uses as described in the topic paper referenced above. Some may have performance standards within their PUD provisions as well.

Since they are not prescriptive, performance standards can provide flexibility to a zoning ordinance and encourage creativity in project design. Performance standards are especially useful where mixed uses are allowed.

Performance-based zoning may be used in concert with a point system for project review as shown in Figure 54 below. Point systems can also be used to set allowable density based on project performance in relation to the municipality's goals. They can allow for trade-offs in a manner that is more transparent to the public and equitable between projects.

Inclusionary Zoning

See Vermont Land Use Planning Implementation Manual, Housing Regulations.

Inclusionary zoning provisions require developers of residential projects (usually of a certain size) to build a minimum percentage of affordable units. Currently,

Figure 54. Smart Growth Performance Measures

	Excellent	Preferred	Acceptable	Minimal
For residential development, proximity to any one of the following: food/ convenience retail, schools, daycare.	Adjacent	<1/4 mi	1/4 to 1/2 mi	>1/2 mi
For commercial development, proximity to any one of the following: housing, restaurants, entertainment.	Adjacent	<1/4 mi	1/4 to 1/2 mi	>1/2 mi
Project is mixed use.	>4 uses or 4 vertically mixed	4 uses or 3 vertically mixed	3 uses	2 uses
Maximize allowable floor-area ratio.	FAR is max allowed by zoning	FAR is within 10% of max	FAR is within 20% of max	FAR is within 30% of max
Average number of dwelling units per acre.	15 or more	10 to 14	7 to 9	4 to 6
Short block lengths.	<400 ft	400 to 500 ft	501 to 600 ft	>600 ft

Adapted from Smart Scorecard for Development Projects, EPA, 2002

Burlington is the only Vermont municipality with inclusionary zoning provisions. Burlington requires most projects involving the creation or rehabilitation of more than five dwelling units to make up to 25 percent of the resulting units affordable. This inclusionary zoning provision also contains a density bonus of up to 25 percent and less restrictive lot coverage standards.

Figure 55. Shops at Bridgewater Mills

Figure 56. Restaurant at Quechee Mills

Figure 57. Hotel Pharmacy, Brattleboro

Adaptive Reuse Provisions

See Vermont Land Use Planning Implementation Manual, Historic Preservation.

Adaptive reuse is a term for using a historic building for a new purpose, often very different than the use it was originally built for. Examples of adaptive reuse include converting a:

- School to housing.
- Mill to a retail center.
- Warehouse to an art studio.
- Barn to a manufacturing facility.
- Barn to housing.

However, municipal land use regulations may prevent old buildings from having a new life. Many structures suitable for adaptive reuse may not meet the dimensional standards of their zoning district - they may be too large, too tall or located in a setback.

Incorporating adaptive reuse provisions into local zoning regulations provides the flexibility needed to allow new uses in these historic structures. Adaptive reuse provisions can also include standards for maintaining the historic character and architectural integrity of buildings being converted to a new use.

Adaptive reuse provisions supports the goal of protecting historic resources both within and outside growth centers. Within the growth center, adaptive reuse can be a form of infill development. Outside the growth center, adaptive reuse may result in the preservation of historic agricultural buildings and the protection of rural character.

Figure 58. Cold Hollow Cider Mill, Waterbury

Form-Based Zoning

See Vermont Land Use Planning Implementation Manual, Design Review.

Form-based zoning is a fairly recent planning concept, which focuses on architectural standards that result in certain types and sizes of buildings being constructed. The relationship between the design of streets, lots and buildings is carefully regulated to produce a specific type of physical environment. It is assumed that uses that can be accommodated in the resulting buildings will be mutually compatible. This approach may be best suited to guiding development in the core of a growth center where the character of the built environment is of primary concern.

The principles of form-based zoning can be incorporated into a traditional zoning ordinance by expanding upon the typical dimensional standards to include additional provisions such as:

- Minimum building heights.
- Maximum setbacks.
- Maximum building footprints.
- Maximum lot widths.
- Minimum building frontage.

The SmartCode is a model form-based development code that incorporates smart growth principles. It was developed by the New Urbanist firm, DPZ, to provide regulatory standards for traditional neighborhood design. The code relies more on graphics than text to communicate requirements as shown in Figure 59.

Design Review

See Vermont Land Use Planning Implementation Manual, Design Review.

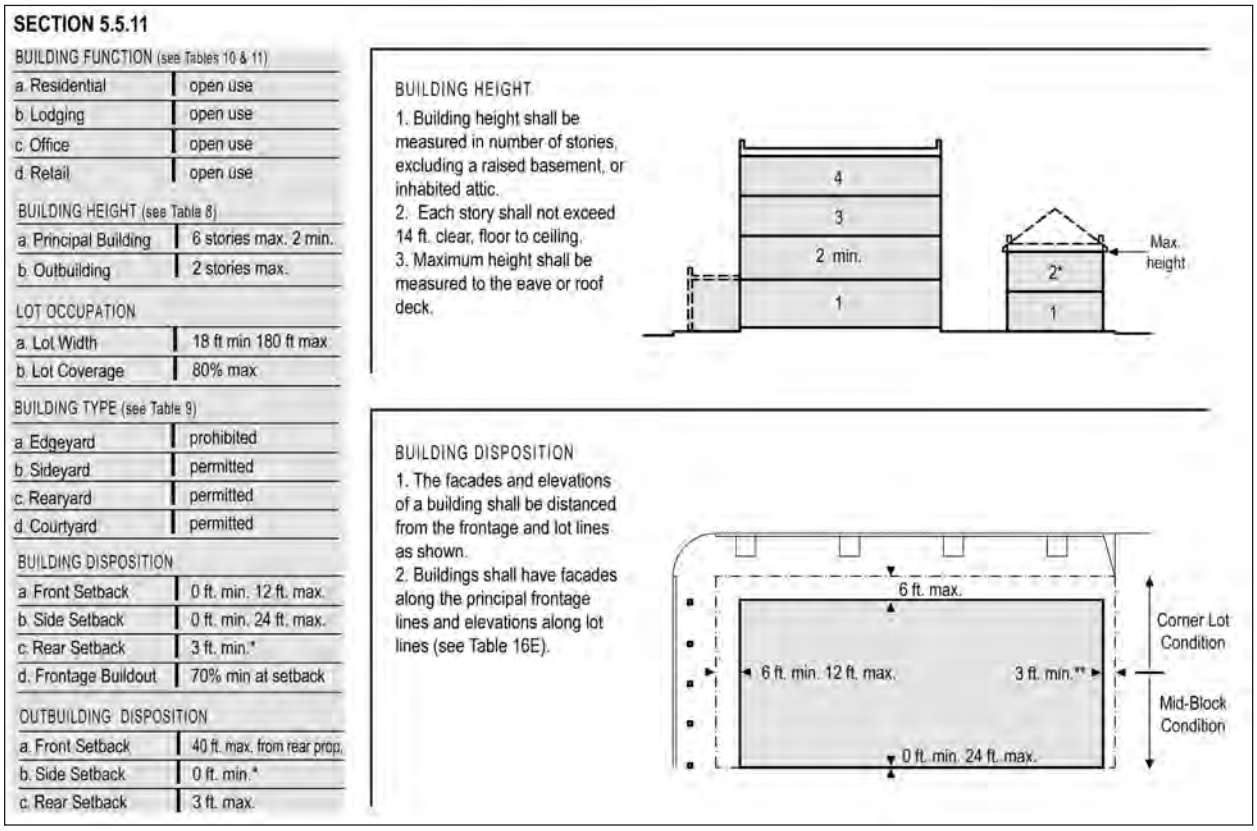
Historic Districts

See Vermont Land Use Planning Implementation Manual, Historic Preservation.

Historic Building Rehabilitation Standards

See Vermont Land Use Planning Implementation Manual, Historic Preservation.

Figure 59. Illustrated Dimensional Standards from the SmartCode



SECTION 5.5.11

BUILDING FUNCTION (see Tables 10 & 11)	
a. Residential	open use
b. Lodging	open use
c. Office	open use
d. Retail	open use
BUILDING HEIGHT (see Table 8)	
a. Principal Building	6 stories max. 2 min.
b. Outbuilding	2 stories max.
LOT OCCUPATION	
a. Lot Width	18 ft min 180 ft max
b. Lot Coverage	80% max
BUILDING TYPE (see Table 9)	
a. Edgeyard	prohibited
b. Sideyard	permitted
c. Rearyard	permitted
d. Courtyard	permitted
BUILDING DISPOSITION	
a. Front Setback	0 ft. min. 12 ft. max.
b. Side Setback	0 ft. min. 24 ft. max.
c. Rear Setback	3 ft. min.*
d. Frontage Buildout	70% min at setback
OUTBUILDING DISPOSITION	
a. Front Setback	40 ft. max. from rear prop.
b. Side Setback	0 ft. min.*
c. Rear Setback	3 ft. max.

BUILDING HEIGHT

1. Building height shall be measured in number of stories, excluding a raised basement, or inhabited attic.
2. Each story shall not exceed 14 ft. clear, floor to ceiling.
3. Maximum height shall be measured to the eave or roof deck.

BUILDING DISPOSITION

1. The facades and elevations of a building shall be distanced from the frontage and lot lines as shown.
2. Buildings shall have facades along the principal frontage lines and elevations along lot lines (see Table 16E).

SmartCode v.8.0, Duany Plater-Zyberk & Co., 2006

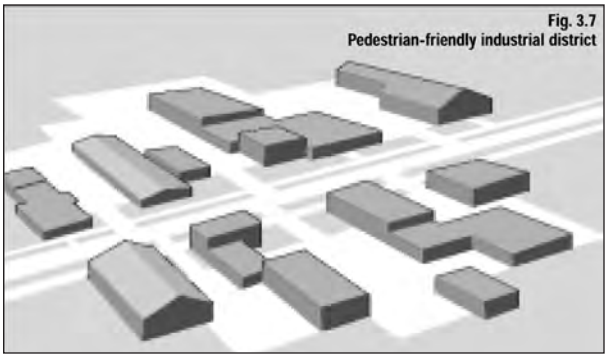
Standards for Large-Scale Uses

A growth center will need to accommodate new development that will be primarily automobile oriented, large-scale, and/or located outside of the downtown or commercial core. When appropriately designed such uses can fit in the growth center and further community goals.

The Vermont Forum on Sprawl's (VFOS) *Growing Smarter: Best Site Planning for Residential, Commercial & Industrial Development* contains specific examples of smart growth development practices. A 2003 VFOS' *New Models for Commercial and Industrial Development Site Plans* presents five model site plans for three properties in Bennington, South Burlington and Waterbury that meet smart growth principles (See Figure 18 on page 52).

The Maine Department of Transportation's *Performance Standards for Large Scale Development* provides detailed guidance on architectural, landscaping, parking, lighting and other standards appropriate for New England communities (see Figure 61). The publication also includes photos illustrating development that meets and does not meet various performance standards.

Figure 60. Illustrations from Growing Smarter



Vermont Forum on Sprawl, 2001

Figure 61. Model standards from Performance Standards for Large-Scale Development

A minimum of 20 percent of the structure's facades that are visible from a public street shall employ actual protrusions or recesses with a depth of at least six feet. No uninterrupted facade shall extend more than 100 feet.

Building facade colors shall be non-reflective, subtle, neutral or earth tone. The use of high intensity colors, metallic colors, fluorescent colors or black on facades shall be prohibited. Building trim and architectural accent elements may feature bright colors or black, but such colors shall be muted, not metallic, not fluorescent, and not specific to particular uses or tenants. Standard corporate and trademark colors shall be permitted only on signs.

Ground floor facades that face public streets shall have arcades, display windows, entry areas, awnings, or other such features along no less than 50 percent of their horizontal length. The integration of windows into building design is required, and shall be transparent, clear glass (not tinted) between three to eight feet above the walkway along any facades facing a public street.

A minimum of 30 percent of the building's total foundation, including a minimum of 50 percent along the building's front facade, shall be planted with landscaping consisting of one 1.5-inch caliper ornamental tree and four shrubs per 10 linear feet of foundation. Preferred locations for such landscaping are near entrances and facades facing public streets.

One 2.5-inch caliper canopy tree, one four-foot high understory tree, and five 12-inch high evergreen or 15-inch high deciduous shrubs shall be planted within each parking lot island. All landscaped areas shall be a minimum of 10 feet in width in their smallest dimension and tree wells shall be a minimum of 36 square feet in area.

Parking lots over 100 spaces shall be segmented visually and functionally into distinct parking areas of no more than 60 spaces by landscaped and curbed medians with a minimum curb-to-curb width of 10 feet. Curbed islands shall be sited at the end of each parking aisle and within parking aisles at intervals no greater than one island per every 20 spaces. Islands at the end of aisles shall be counted toward meeting this requirement. Each required landscaped island shall be a minimum of 360 square feet in landscaped area.

Continuous internal pedestrian walkways, no less than eight feet in width, shall be provided from the public sidewalk or right-of-way to the principal customer entrance of all large commercial buildings on the site. Curbed walkways are preferred. At a minimum walkways shall connect focal points of pedestrian activity such as, but not limited to, transit stops, street crossings, building and store entry points, and shall feature adjoining landscaped areas that include trees, shrubs, benches, flower beds, ground covers or other such materials for no less than 50 percent of the length of the walkway.

Figure 62. Calculating Mixed-Use Parking Requirements

			Weekday		Weekend		Night
		Spaces Needed (by use)	6 am 6 pm	6 am 12 am	6 am 6 pm	6 am 12 am	12 am 6 am
Office	25,00 sq. ft. gross floor area	53	53	5	5	3	3
Retail	30,00 sq. ft. gross floor area	147	88	132	147	103	7
Restaurant	10,00 sq. ft. gross floor area	87	44	87	87	87	9
Residential	40 units	68	27	68	54	68	68
TOTAL		**355**	211	293	**294**	261	87

Using the multiplier table (Figure 63), the total number of parking spaces needed for the mixed-use development can be calculated by multiplying the total number of spaces needed for each use by the appropriate factor from the multiplier table for each time of day. The total number of parking spaces needed for each use individually in this example is 355. Totaling the amount of parking needed in each category returns a peak parking demand of 294 spaces, which occurs during the daytime on weekends. The amount of parking is reduced by 17% or 61 spaces.

Parking Standards

See Vermont Land Use Planning Implementation Manual, Parking.

Many Vermont municipalities incorporate parking standards within their zoning regulations. Most are in the form of a list of use categories with a minimum amount of parking for each unit, employee or amount of building square footage. The number of spaces required is often based on peak demand. The result is that parking standards are one of the leading constraints to achieving compact development in many communities. Municipalities can:

- Incorporate standards for shared parking, especially for mixed-use developments, into their regulations.
- Establish maximum parking requirements in addition to or instead of minimum parking requirements.

Figure 64. Municipal Parking Lot, Bethel

- Require creation of on-street parking through road design standards.
- Count on-street parking spaces in front of or within a certain distance of a business as part of their parking requirements and/or provide municipal parking lots and allow spaces in those lots to count towards parking requirements for nearby buildings.

Figure 63. Mixed-Use Parking Multiplier Table

	Weekday		Weekend		Night
	6 am 6 pm	6 am 12 am	6 am 6 pm	6 am 12 am	12 am 6 am
Office	1.00	0.10	0.10	0.05	0.05
Retail	0.60	0.90	1.00	0.70	0.05
Restaurant	0.50	1.00	1.00	1.00	0.10
Residential	0.50	1.00	0.80	1.00	1.00

Adapted from Montgomery County, MD Zoning Ordinance

In Vermont, parking lots will need to be cleared of snow in winter and that snow will need to either be stored on-site or trucked off-site. Snow removal and storage needs should be considered as parking lot design standards are drafted. Snow storage has stormwater implications and often impacts parking lot landscaping.

Traditional Neighborhood Design

Traditional neighborhood design is one of many terms (new urbanism, neo-traditional, or village-style) used to describe a development pattern characterized by the smart growth principles set forth in Vermont's growth center program. Around the country, some communities have adopted stand-alone traditional

neighborhood ordinances or incorporated traditional neighborhood standards into their existing regulations. Some are focused largely on residential development, while others include standards for commercial and other non-residential uses.

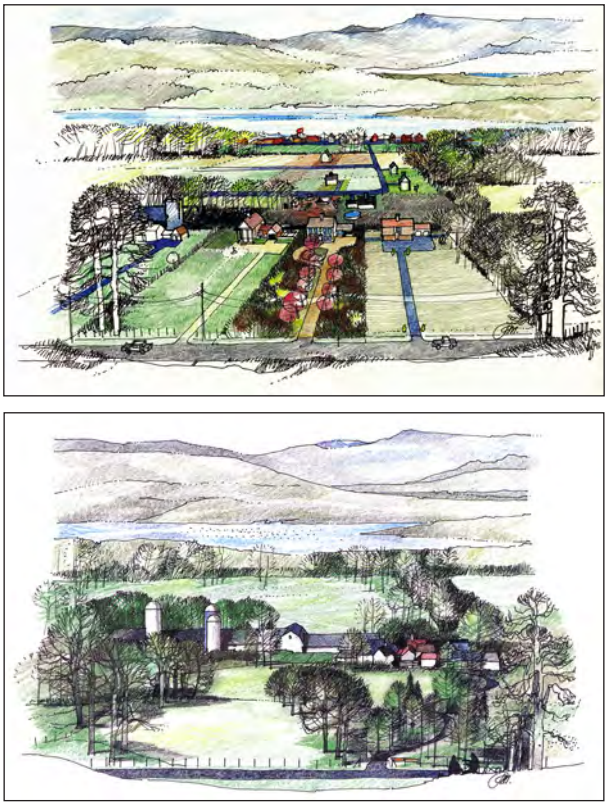
The Great American Neighborhood: Contemporary Design Principles for Building Livable Residential Communities, prepared for Maine State Planning Office provides an overview of traditional neighborhood design from the community to site planning level with numerous recommendations that could be used to develop land use regulations such as:

- Create short blocks, generally not longer than 400 to 600 feet. The optimal number of single-family homes along each side of the street is 6 to 8 per block.
- There is an optimum ratio of the distance between homes on the opposite sides of the street and building heights. In New England villages, that ratio rarely exceeds 4:1 and in urban areas it can be as low as 1:1.
- Net residential density can range between 2 units per acre and 16 units per acre, with most single-family house lots ranging from 7,000 to 15,000 square feet in area.

Figure 65. Great American Neighborhood Design

Maine State Planning Office, 2004

Figure 66. Conventional vs. Cluster Development



Vermont's Scenic Landscapes, 1991

- House lots should generally be long and narrow ranging between 50 to 100 feet.

PUDs and Cluster Development

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Many Vermont municipalities have land use regulations that authorize PUDs (planned unit developments) that cluster development and preserve open space. Unfortunately, these provisions are infrequently used in some communities possibly because they are more onerous than traditional subdivisions or because they are not well understood.

Municipalities can encourage the use of PUD provisions through actions such as:

- Requiring them in certain zoning districts and/or for subdivisions of a certain size.
- Offering a density bonus that may be tied to the percentage of the property to remain undeveloped.

- Establishing a higher allowable density for PUDs than for conventional subdivisions.
- Simplifying and/or streamlining the application and review process.

Conservation Subdivision Design

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Conservation subdivisions are characterized by common open space and clustered compact lots. The purpose of a conservation subdivision is to protect farmland and/or natural resources while allowing the same number of residences as would be permitted under the basic zoning and subdivision regulations. Conservation subdivisions are a more environmentally-oriented form of cluster developments or PUDs.

Conservation subdivision ordinances generally require permanent dedication of 40 percent or more of the total development parcel as open space. Open space design requirements often include contiguity and connection to other open space or conservation areas. Open space uses may include agriculture, forestry, outdoor recreation or wastewater disposal.

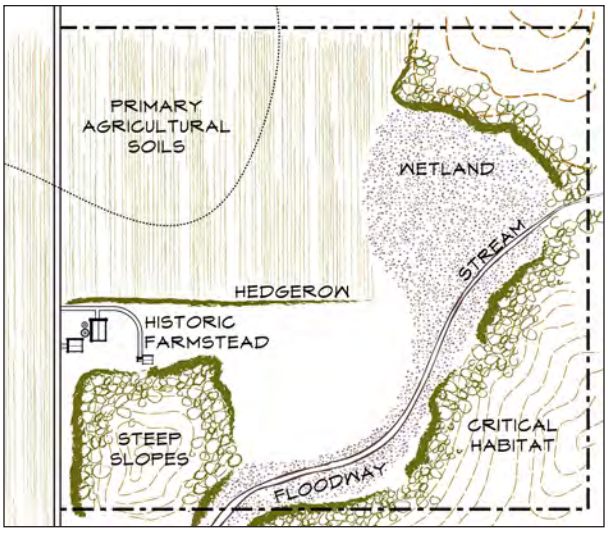
There are a variety of ownership choices for the open space:

- The original landowner can retain ownership of the land and continue to use it as a farm.
- A homeowners' association could manage it.
- It can be held as individual outlots for each of the building lots.
- The municipality, a conservation organization or a land trust can manage the property for conservation purposes or outdoor recreation.

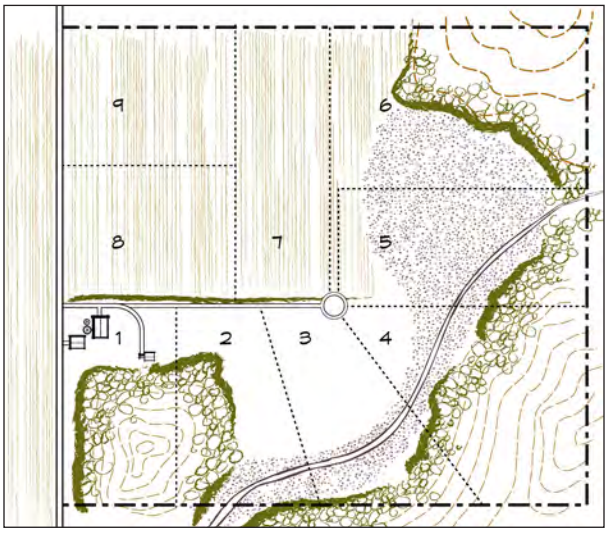
In *Growing Greener: Conservation Subdivision Design*, Randall Arendt offers a framework for subdivision review that encourages the preservation of open space and natural areas. The model ordinance reverses the standard subdivision review process by focusing first on the conservation of natural areas and last on the detailed layout of house lots. The book outlines a four step process for designing conservation subdivisions:

- The cultural and natural resources that are valued on a specific parcel earmarked for de-

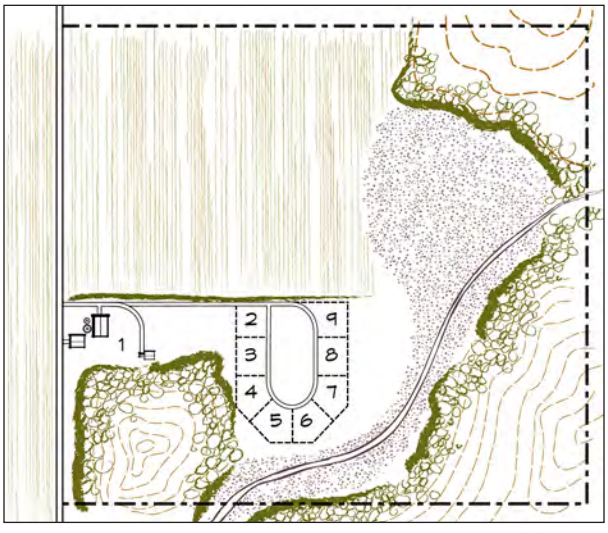
Figure 67. Conservation Subdivision Design



Site Analysis

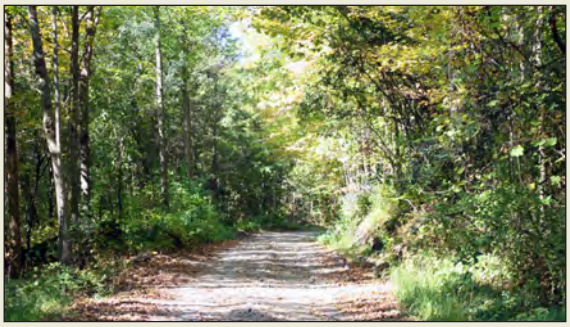


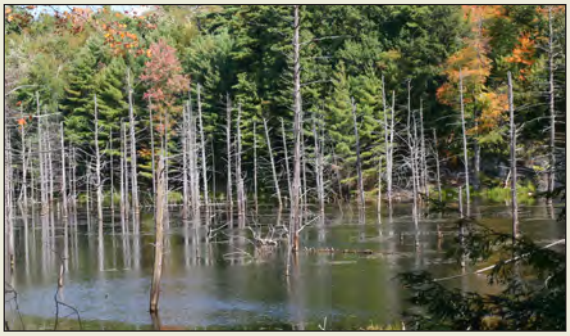
Conventional Subdivision Yield Plan



Conservation Subdivision

Figure 68. Rural Character





velopment are identified, usually based on conservation priorities set forth in the municipal plan. The resources are classified as primary or secondary conservation areas on the property.

- Open space is set aside, protecting the identified resources.
- House sites are arranged outside of the protected areas.
- Streets, lots and infrastructure are laid out to serve the house sites.

Transfer of Development Rights (TDR)

See Vermont Land Use Planning Implementation Manual, Transfer of Development Rights.

While TDR has not been widely used in Vermont, state law now specifically authorizes municipalities to allow for multi-lot PUDs on parcels that are non-contiguous and/or in separate ownership. A multi-lot PUD is in essence a transfer development rights from one parcel to another.

One mechanism for incentivizing the use of TDR or PUD provisions is offering a density bonus. Municipalities can establish different density standards for different types of subdivisions in the same zoning district as in the following example:

- Conventional Subdivision: Maximum density of 1 unit per 15 acres.
- PUD: Max density of 1 unit per 10 acres.
- TDR: Max density of 1 unit per 5 acres.

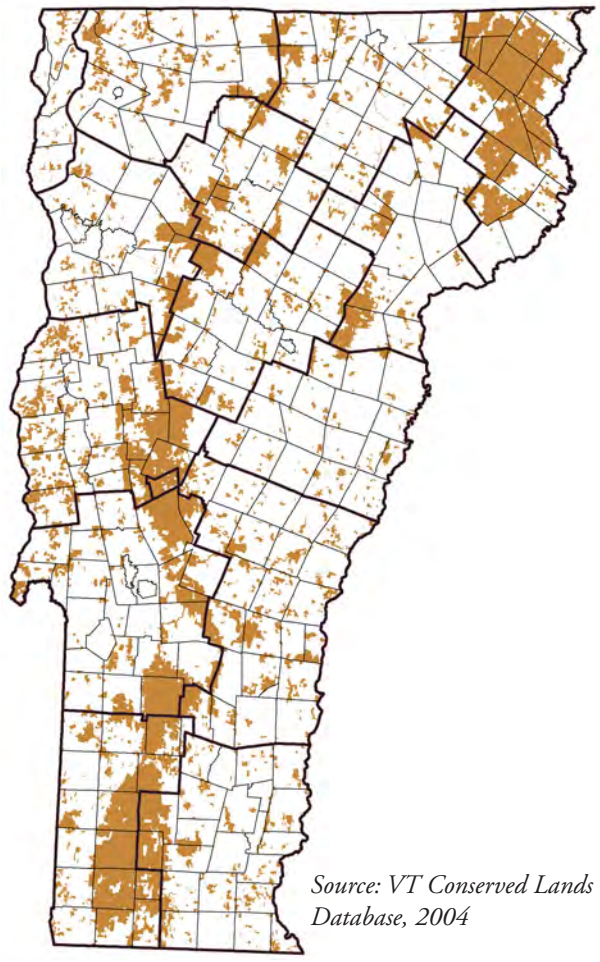
A technique like this can also be useful if a municipality wants to down-zone a district by reducing permitted density as it can allow the affected property owners to retain more development potential if they use the PUD or TDR provisions (or meet other community goals tied to a density bonus).

Many municipal plans have as a goal to preserve rural character. It is important for a community to develop a shared definition of rural character. For some, rural character means working farms or forest lands. Others may place more value on unpaved roads, historic farm buildings, stonewalls or hedgerows. Open space and scenic views may be contributing elements, as well as natural areas and resources. Distance to neighbors, quiet and dark night skies may be part of the definition. Different strategies and techniques may need to be pursued depending on how residents define the community's rural character.

Figure 69. Large-Lot Zoning

Large-lot zoning is not considered an effective tool for maintaining rural character, especially when development proceeds incrementally. More effective techniques maintain a low overall density, but allow development on smaller lots.

Figure 70. Public and Conserved Lands



Source: VT Conserved Lands Database, 2004

Purchase of Development Rights

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Programs.

Fixed Area Zoning

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Fixed area zoning separates density from lot size. This addresses the issue of excessive land consumption associated with low density zoning districts (5 acres or more per home). Low overall densities can be maintained, while allowing development on small lots.

Since this technique does not change the number of lots permitted, it is often less difficult to implement than measures that affect development potential. If smaller lots are going to be allowed in a district that once had large lot sizes, dimensional standards (setbacks, frontage, depth) will likely need to be adjusted as well.

Sliding Scale Zoning

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Sliding scale zoning is a variant of fixed area zoning where the overall density allowed on a parcel of land is inversely related to its size. Smaller parcels have a

higher permitted density, while larger parcels have a lower permitted density. The goal is to limit fragmentation of large tracts of land.

Figure 71. Sample of a Sliding Scale Density Table

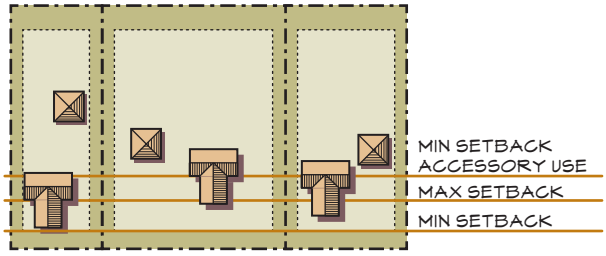
Parcel Size (acres)	# of Lots	Density Range
2 to <5	1	1:2 to 1:5
5 to <15	2	1:2.5 to 1:7.5
15 to <50	3	1:5 to 1:16.67
50 to <100	4	1:12.5 to 1:25
100 to <200	5	1:20 to 1:40
200 to <350	6	1:33.3 to 1:58.3
350+	7	1:50+

Setbacks and Buffers

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Municipalities can establish maximum setbacks, in addition to minimums. These are especially useful for districts that include traditional settlement areas with an established pattern of development and infill potential. Maximum setbacks can also be used to ensure that new neighborhoods develop a consistent pattern along the street.

Figure 72. Minimum and Maximum Setbacks



Different minimum setbacks can be established for different uses. Parking areas or accessory buildings may have a deeper minimum setback, for example, to ensure that they are located behind the front line of the principal building.

Building Envelopes

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

As lot size increases, setbacks become a less effective

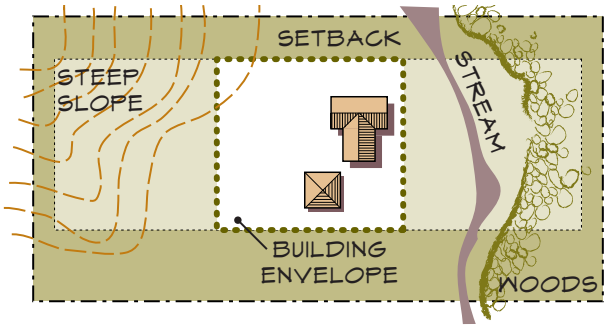


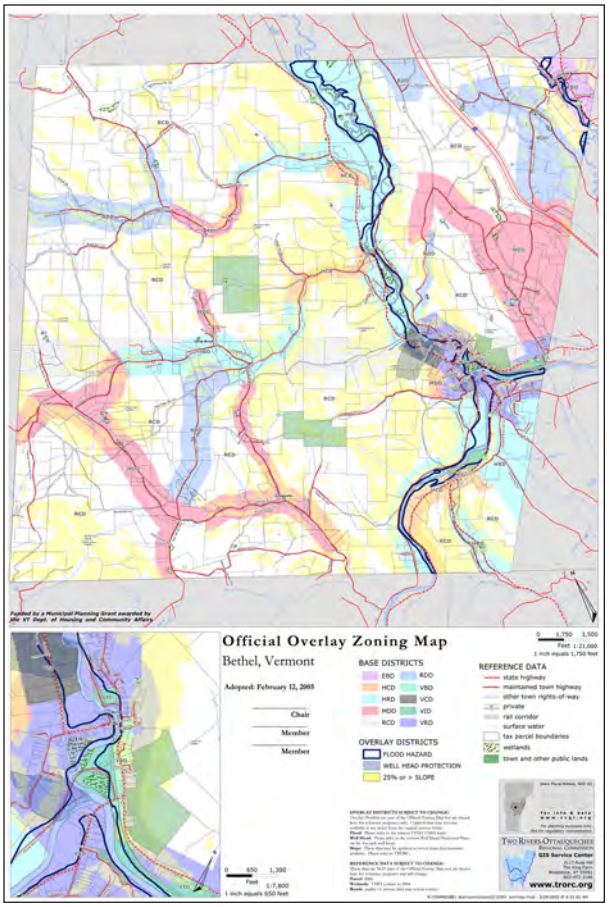
Figure 73. Building Envelopes

tool for regulating where development can occur on a lot. Building envelopes can be used to delineate a smaller area for development than established by setbacks. Building envelopes are also useful for ensuring that development will be located away from any important natural resources on the property.

Conservation Districts and Overlays

See Vermont Land Use Planning Implementation Manual, Open Space and Resource Protection Regulations.

Figure 74. Zoning District Overlay Map, Bethel



Flood Hazard Regulations

See Vermont Dep't Housing and Community Affairs, Community Planning For Flood Hazards.

See Vermont Agency of Natural Resources, VT Model Flood Hazard Area Regulations, Fluvial Erosion Hazard Municipal Guide & VT Model Fluvial Erosion Hazard Overlay District.

Stormwater Management and Erosion Control

See ANR, VT Stormwater Management Manual (Vols. 1 & 2).

Low Impact Design (LID) practices can be used to reduce run off. Most of these practices are appropriate for growth centers. Some, such as the elimination of curbs restricting sidewalks to one side of the street, will not be useful practices in the growth center core. Community open space, however, can serve the dual purpose of public open space and stormwater management, if well designed and planted to be both attractive and functional.

Figure 75. Stormwater Basin at UVM

A municipality with a functioning stormwater collection system can examine its current impact on the waterways of their community and region. Expansion of the system with new storm lines and/or additional run-off generated by new growth and increased density can be balanced with efforts to encourage dual purpose green space that allows on-site infiltration, adds amenity and value to new development and relieves the burden and impact on the stormwater collection system and the local waterways

Figure 76. Water Resources Map, Ferrisburgh

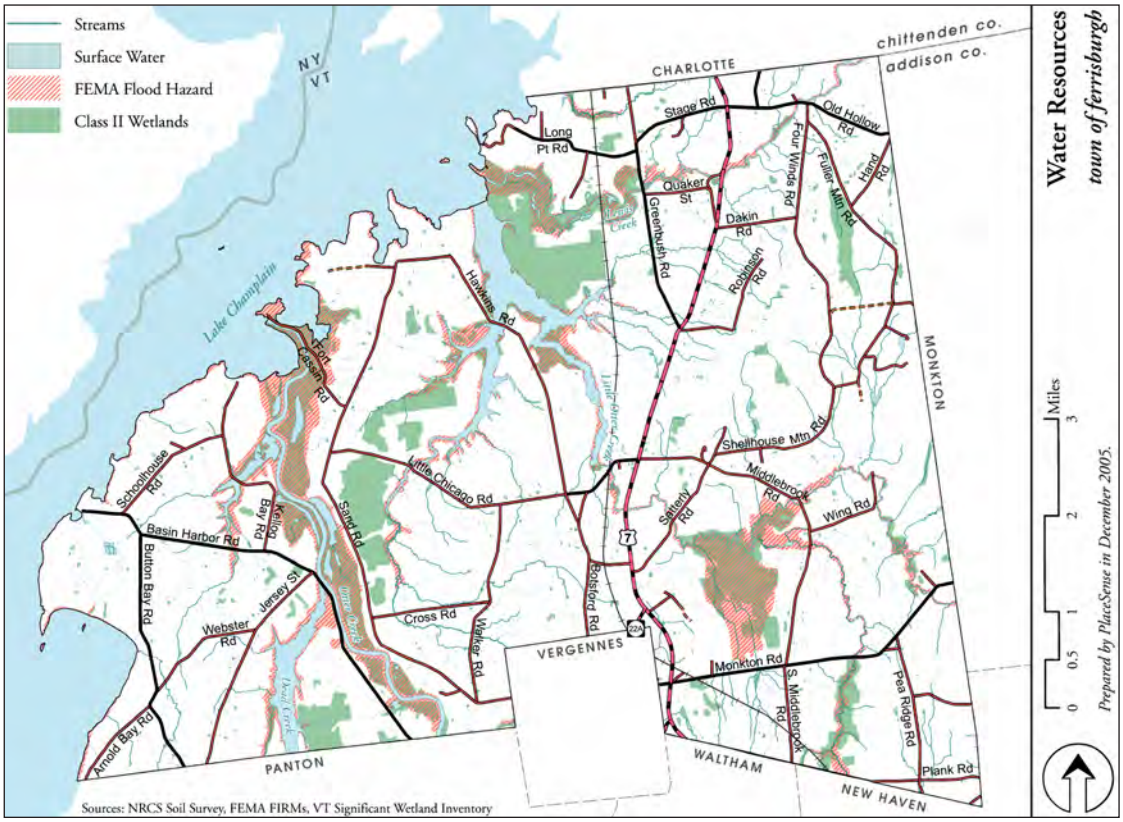


Figure 77. Low-Impact Design Stormwater Management Techniques

Planted islands in parking lots can serve to slow stormwater runoff and filter out sediment and contaminants. Many plants and trees can help the process as well as provide shade and color.

Together with narrow roadways, Rain Gardens (small bio-retention areas) that infiltrate roof run-off can significantly reduce the stormwater burden of new residential neighborhoods.

Gardens and green space are arranged to collect roof water from this cluster of small homes on a compact site.

Early planning for new roads and other green space within a growth center can incorporate bio-detention and bio infiltration areas that lessen stormwater impact.

Resources

State Agencies

Agriculture, Food & Markets

116 State Street
Montpelier, VT 05620
Phone: (802) 828-2416
Web: http://www.vermontagriculture.com

Commerce & Community Development

National Life Building North, Drawer 20
Montpelier, VT 05620
Phone: (802) 828-3211
Web: http://www.dca.state.vt.us

Dep't of Economic Development

National Life Building, Drawer 20
Montpelier, VT 05620-0501
Phone: (802) 828-3080
Web: http://www.thinkvermont.com

Dep't of Housing & Community Affairs

National Life Building, 6th Floor, Drawer 20
Montpelier, VT 05620
Phone: (802) 828-3211
Web: http://www.dhca.state.vt.us

- Housing Division
- Brownfields Initiative
- Land Use Planning
- Community Development
- Historic Sites
- Historic Preservation
- Downtown Program

Human Services

103 South Main Street
Waterbury, VT 05671-0204
Phone: (802) 241-2220
Web: http://www.humanservices.vermont.gov

Natural Resources

103 South Main Street, Center Building
Waterbury, VT 05671-0301
Phone: (802) 241-3600
Web: http://www.anr.state.vt.us

Dep't of Environmental Conservation

One South Building
103 South Main Street
Waterbury, VT 05671-0401
Phone: (802) 241-3808

Air Quality: (802) 241-3840
State Geologist: (802) 241-3608
Wastewater Management: (802) 241-3822
Water Quality: (802) 241-3770

- Lakes & Ponds
- River Management
- Stormwater
- Wetlands

Water Supply: (802) 241-3400

- Source Water Protection
- Drinking Water Quality

Dep't of Fish and Wildlife

10 South Building
103 South Main Street
Waterbury, VT 05671-0501
Phone: (802) 241-3700

Natural Heritage Program: (802) 241-3700

Dep't of Forest, Parks and Recreation

8, 9 & 10 South Building
103 South Main Street
Waterbury, VT 05671-0601
Phone: (802) 241-3670
Fax: (802) 244-1481

Forestry: (802) 241-3678
State Parks: (802) 241-3655
Lands: (802) 241-3693

County Foresters

Addison County: (802) 388-4969
Bennington County: (802) 375-1217
Caledonia & Essex Counties: (802) 751-0110
Chittenden County: (802) 879-5694
Franklin & Grand Isle Counties: (802) 524-6501
Lamoille County: (802) 888-5733
Orange County: (802) 476-0173
Orleans County: (802) 334-7325
Rutland County: (802) 483-2730

Washington County: (802) 476-0172
Windham County: (802) 257-7967
Windsor County: (802) 296-7630

ANR Regional Offices

Barre Regional Office
5 Perry Street
Barre, VT 05641
Environmental Conservation: (802) 476-0190
Fish and Wildlife: (802) 476-0199
Forest, Parks and Recreation: (802) 476-0170

Barre Regional Office
111 West Street
Essex Junction, VT 05452
Environmental Conservation: (802) 879-5656
Fish and Wildlife: (802) 879-1564
Forest, Parks and Recreation: (802) 879-6565

Rutland North Regional Office
271 North Main Street, Suite 215
Rutland, VT 05701
Fish and Wildlife: (802) 786-0040
Forest, Parks and Recreation: (802) 786-0060

Rutland Regional Office
450 Asa Bloomer State Office Building
88 Merchants Row
Rutland, VT 05701-5903
Environmental Conservation: (802) 786-5900

Springfield Regional Office
100 Mineral Street
Springfield, VT 05156
Phone: (802) 885-8855

St. Johnsbury Regional Office
1229 Portland Street, Suite 201
St. Johnsbury, VT 05819-2099
Environmental Conservation: (802) 751-0130
Fish and Wildlife: (802) 751-0100
Forest, Parks and Recreation: (802) 751-0110

Transportation

One National Life Drive
Montpelier, VT 05633-5001
Phone: (802) 828-2657
Web: http://www.aot.state.vt.us

Program Development Division

One National Life Drive, Drawer 33
Montpelier, VT 05633-5001
Phone: (802) 828-2685

- Construction
- Engineering Services
- Environmental Section
- Local Transportation Section
- Materials and Research
- Pavement Management
- Right-of-Way
- Roadway, Traffic & Safety
- Structures

Operations Division

National Life Building, Drawer 33
Montpelier, VT 05633-5001
Phone: (802) 828-2709

- Maintenance
- Public Transit
- Rail
- Aviation

Policy and Planning Division

One National Life Drive, Drawer 33
Montpelier, VT 05633-5001
Phone: (802) 828-3441

- Statewide Planning
- Regional Planning
- Strategic Planning
- Highway Research
- Mapping
- Traffic Research

VTrans District Offices

Bennington: (802) 447-2790
Dummerston: (802) 254-5011
Rutland: (802) 786-5826
White River Junction: (802) 295-8888
Colchester: (802) 655-1580
Berlin: (802) 828-2691
St. Johnsbury: (802) 748-6670
St. Albans: (802) 524-5926
Derby: (802) 334-7934

Natural Resources Board

National Life Records Center Building, Drawer 20
Montpelier, VT 05620
Phone: (802) 828-3309
Web: http://www.nrb.state.vt.us

Regional Planning Commissions

Addison County RPC

79 Court Street
Middlebury, VT 05753
Phone: (802) 388-3141
Web: http://www.acrpc.org

Bennington County RPC

PO Box 342
Arlington, VT 05250
Phone: (802) 375-2576
Web: http://www.rpc.bennington.vt.us

Central Vermont RPC

26 State Street
Montpelier, VT 05602
Phone: (802) 229-0389
Web: http://www.centralvtplanning.org

Chittenden County RPC

30 Kimball Avenue, Suite 206
South Burlington, VT 05403
Phone: (802) 846-4490
Web: http://www.ccrpcvt.org

Chittenden County MPO

30 Kimball Avenue, Suite 206
South Burlington, VT 05403
Phone: (802) 660-4071
Web: http://www.ccmpo.org

Lamoille County RPC

PO Box 1009
43 Portland Street
Morrisville, VT 05661-9786
Phone: (802) 888-4548
Web: http://www.lcpcvt.org

Northeastern Vermont Development Assoc.

PO Box 630
44 Main Street
St. Johnsbury, VT 05819
Phone: (802) 748-5181
Web: http://www.nvda.net

Rutland RPC

PO Box 965
Rutland, VT 05661-9786
Phone: (802) 775-0871
Web: http://www.rutlandrpc.org

Southern Windsor County RPC

PO Box 320
Ascutney, VT 05030
Phone: (802) 674-9201
Web: http://www.swcrpc.org

Two Rivers - Ottauquechee RC

The King Farm
Woodstock, VT 05091
Phone: (802) 457-3188
Web: http://www.trorc.org

Windham RC

139 Main Street, Suite 505
Brattleboro, VT 05302
Phone: (802) 257-4547
Web: http://www.rpc.windham.vt.us

Other Agencies and Organizations

USDA Rural Development

City Center, 3rd Floor
89 Main Street
Montpelier, VT 05602
Phone: (802) 828-6080
Web: http://www.ruraldev.usda.gov/vt/

NRCS District Offices

Addison County: (802) 388-6746
Bennington County: (802) 442-2275
Caledonia & Essex Counties: (802) 748-3885
Chittenden County: (802) 878-7402
Franklin & Grand Isle Counties: (802) 524-6505
Lamoille County: (802) 888-4965
Orleans County: (802) 334-8325

Rutland County: (802) 775-7192
Washington County: (802) 828-4493
Windham County: (802) 254-5323
Windsor & Orange Counties: (802) 295-1662

U.S. Environmental Protection Agency

New England Regional Office
Phone: (888) 372-7341
Web: http://www.epa.gov

National Main Street Program

National Main Street Center
National Trust for Historic Preservation
1785 Massachusetts Avenue, N.W.
Washington, DC 20036
Phone: (202) 588-6219
Web: http://www.mainst.org

The Preservation Trust of Vermont

104 Church Street
Burlington, VT 05401
Phone: (802) 658-6647
Web: http://www.ptvermont.org

Vermont Trails and Greenways Council

VT Department of Forests, Parks & Recreation
103 South Main Street, Building 10 South
Waterbury, VT 05671-0601
Phone: (802) 241-3683
Web: http://www.vttgc.org

Vermont Recreation & Parks Association

721 Main Street
Colchester, Vermont 05446
Phone: (802) 878-2077
Web: http://www.calcaminedesign.com/vrpa

Vermont Housing and Conservation Board

149 State Street
Montpelier, VT 05602
Phone: (802) 828-3250
Web: http://www.vhcb.org

Vermont Local Roads Program

Saint Michael's College
One Winooski Park, Box 260
Colchester, VT 05439
Phone: (802) 654-2652
Web: personalweb.smcvt.edu/vermontlocalroads

Vermont Forum on Sprawl

110 Main Street
Burlington, VT 05401
Phone: (802) 864-6310
Web: http://www.vtsprawl.org

Data Sources

VT Center for Rural Studies

207 Morrill Hall
University of Vermont
Burlington, VT 05405
Phone: (802) 656-3021
Web: http://crs.uvm.edu

VT Center for Geographic Information

58 South Main Street, Suite 2
Waterbury, VT 05676
Phone: (802) 882-3000
Web: http://www.vcgi.org

Vermont Planning Information Center

Web: http://www.vpic.info/

U.S. Census Bureau

Web: http://www.census.gov

U.S. Bureau of Labor Statistics

Web: http://www.bls.gov

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Natural Resources

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