A Town Core Streetscape and Accessibility Design Study

Prepared for the

TOWN OF MILTON, VERMONT

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Prepared in association with

River Street Planning & Development

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with
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August 2007

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1. DB1 Town Planning

a. New Street System

The existing street system within the DB1 Zone will form the framework of Milton's new downtown. This basic roadway system can be expanded with additional streets to create a grid network of traditionally sized, downtown blocks of 300 to 600 feet long.

A grid of streets that divide the downtown into smaller blocks has many benefits for a downtown, including:

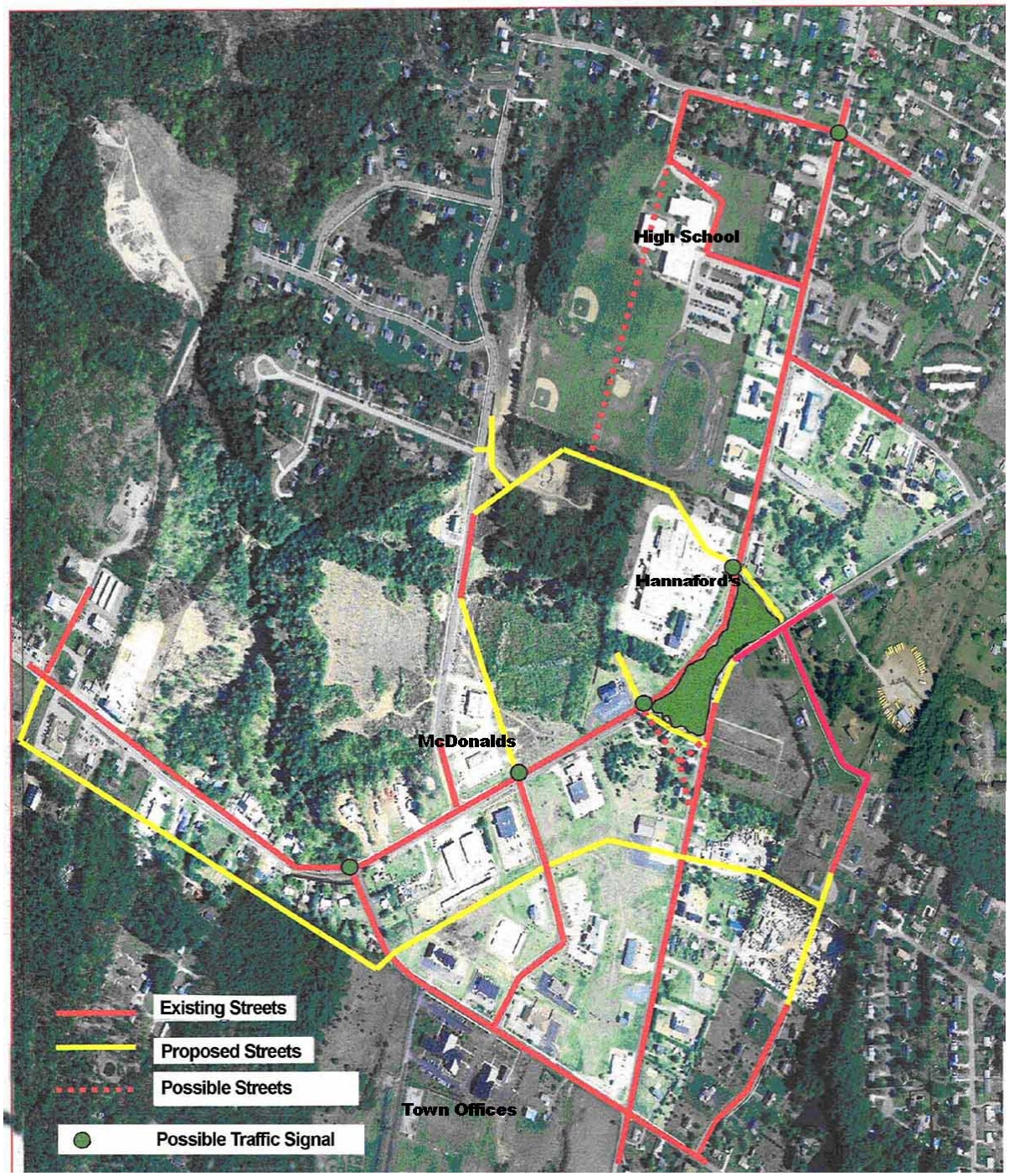
- Creation of more street frontage for businesses and other uses.
- Better pedestrian access to stores and businesses
- Slower traffic as cars slowdown or stop at intersections
- Maximum on-street parking
- Alternative vehicle routes that will disperse traffic lessening traffic impact on primary streets
- Shorter, more direct pedestrian routes
- Better pedestrian scale and visual interest

The consultant team for the *Town of Milton Economic Development & Planning Initiatives* has recommended and mapped a specific street system for the DB1 Zone. (see MAP 1, following page) The recommendations include the realignment of one section of Railroad Street and Middle Road, and the addition of several connector streets on either side of US Route 7. This portion of the study, *A Route Seven Transportation Plan for the Next 20 Years, dated February, 2006,* was prepared by Transportation Concepts, 164 Jay St., Schenectady, NY 12305-1906.

Expansions and modifications to the *Transportation Concepts* recommendations are shown on the MAP 2 on page 3. This map shows recommended modifications to the road system shown on MAP 1, specifically in the area of Hadenberry Drive.

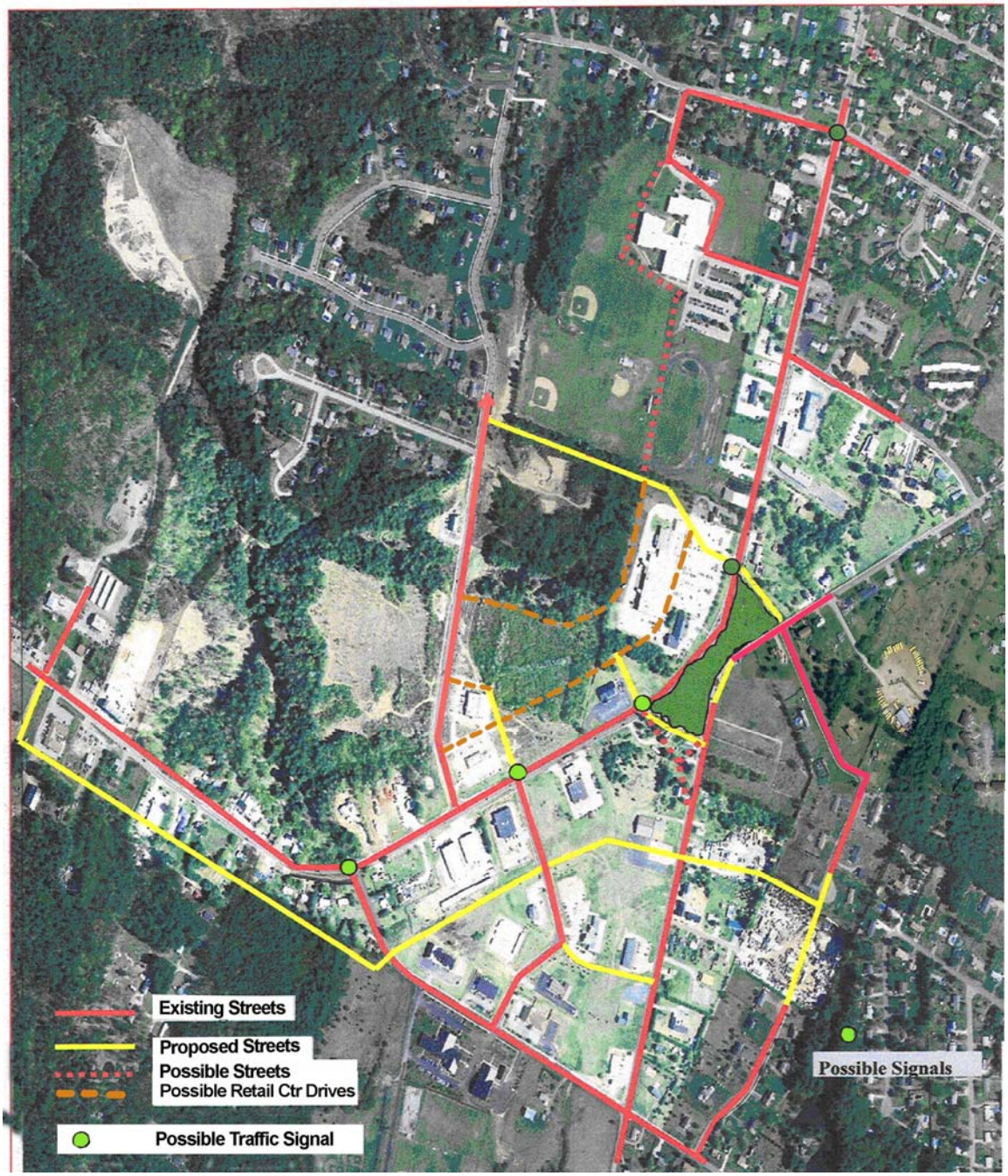
MAP 2 recommends maintaining the entire length of Hadenberry Drive; however, sections could be designated one-way to reduce the potential of cut-through traffic. This plan also suggests that new roadway realignments follow property lines more closely to protect public and private investments. Another road is added to the east side of River Street to establish downtown-type blocks of similar size within the retail center.

The concepts for additions and changes to the roadway system were presented at a charette style public meeting held in December of 2005. Based on comments at the meeting, and responses to a distributed questionnaire (see Appendix), the recommendations on improvements to the roadway system were supported by the public. However, the roadway system shown on both of the following maps will require further refinement that will be based on traffic studies and transportation engineering.
.
The State Enabling Legislation (24 VSA, Chapter 117**)** provides a planning tool that allows towns to plan for expansion and development of their street network. This tool, called the Official Map, allows the town to plan and delineate the right-of-way of future roads. When the route of a future road is identified and selected by the planning process, and shown on the Official Map, the town has the right of first refusal to acquire the needed right-of-way, within a specified time, when the parcel for the road or a portion of the road becomes available. (*see Resources*)



Roadway Map **1** - Transportation Concepts
The lightened area of the aerial photo represents the DB1 Zone

1. Planned roadways south-east of River Street form new downtown blocks.
2. Railroad Street and Middle Road intersection reconfigured for safety, new Town Green resulting.
3. Three downtown intersections are defined that provide vehicle and pedestrian links across River Street.
4. New roadways on northwest side of River Street provide access to future land use. Roadway system configured to discourage through traffic in neighborhoods.



1. Haydenberry Drive maintained with a through connection to River Street. Consider one-way traffic pattern and turning lanes off River Street.

2. Center Drive continues north, across River Street, connecting to Hadenberry Drive. Consider turns and intersections that slow traffic.
3. Through-road north of the shopping center follows the school property line as close as possible.
4. Internal drives/roadway system of shopping center added which mimic historic downtown blocks. Intersections slow traffic.

b. Town Green

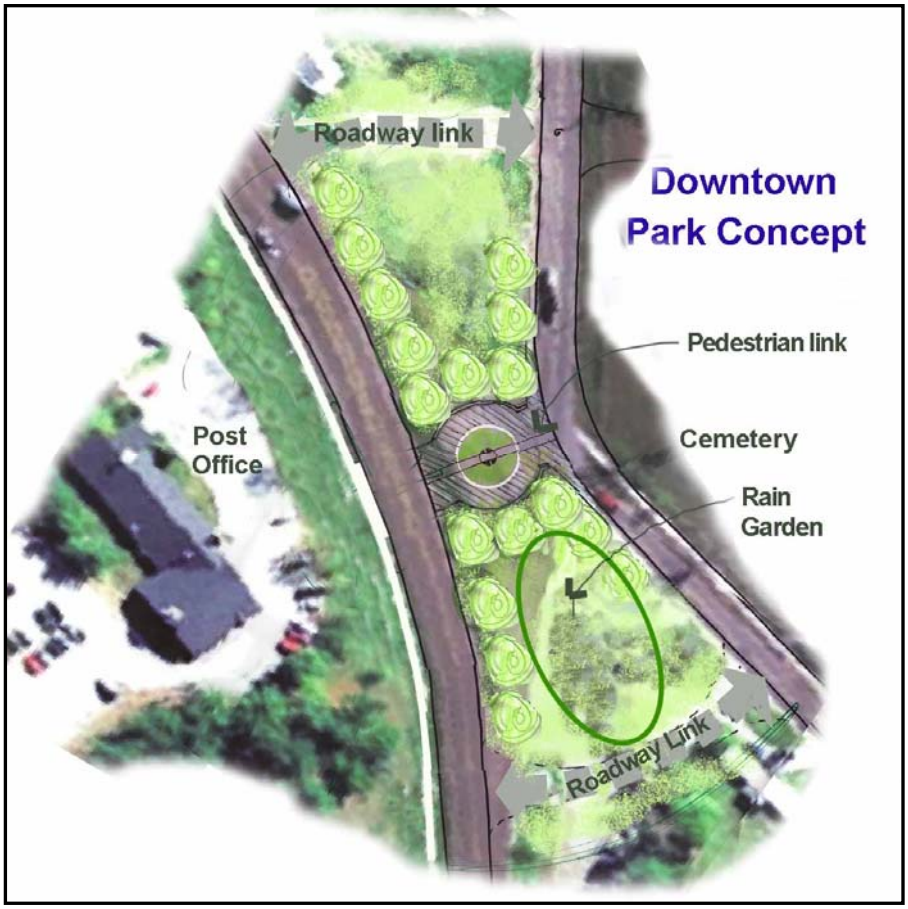
Recommendations for the street network include the realignment of Railroad Street and Middle Road, and the addition of two cross streets connecting those two roads to River Street. While the purpose of the realignment is to eliminate a high accident intersection, the redesign has the added benefit of creating a large, hour-glass shaped area of public land that, together with some adjacent land, could be developed as an approximately one acre Town Green, and a focal point for the new downtown.

A new Town Green will be an important and needed focal point of visual enhancement to the downtown area. The green could also provide a space for community events. The size of the Green, and its highly visible location, may make it appropriate for a farmer's market, a charity Christmas tree sale or similar events.

Part of the space may serve as a "rain garden", providing storm-water bio-infiltration, supporting and demonstrating the Town's goal of on-site stormwater treatment. The rain garden concept achieves its stormwater infiltration goals as an attractive and colorful public garden, using a mix of plants that benefit from periods of high water flow.

The center of the Green could host an identifying icon-- a sculpture or simply a large circle of shade trees around a sitting area as shown in the sketch below.

The Town may want to resist locating non-functional, conventional structures in the Town Green, such as bandstands or gazebos, in favor of a design that is unique to Milton. Open Public space can quickly be filled with donated items, memorials, or trees that although attractive can interfere with the function of a multi-use public space. The Green can serve the Town well if its uses and design are well thought out through a public process, designed with care, and professional assistance.



Section 1 Resources:

Chapter 117 Implementation Manual Topic Papers. To be completed in 2007
Department of Housing and Community Affairs, Planning Division
802 828 3211
http://www.dhca.state.vt.us/

2. Parking Concepts

a. Background

People go downtown to enjoy lively, active streets, interesting places to shop, dine, meet, do business, engage in civic activities, or conduct mundane tasks such as paying a tax bill. Vermont has many such vital downtowns including Montpelier, Brattleboro, Bennington, and Windsor. Even Richmond's small downtown boasts a post office, town offices, and a growing number of places to shop, dine, or just meet friends. Although parking is limited in these downtowns, people are willing to walk the few blocks from their parking space to their destination, and are also willing to walk between multiple destinations. If the pedestrian experience is comfortable, and the downtown setting is interesting and attractive, walking though a downtown street is an accepted and enjoyable activity.

The availability of parking in the form of large parking lots is not the primary characteristic of a downtown that attracts shoppers, visitors, or those seeking a community gathering place. A downtown has a different draw for people than a shopping center or mall with unlimited parking.

Vacant parking lots in a downtown create dead spots. A 10 to 15 percent vacancy rate in publicly available parking in a commercial downtown is considered desirable but higher rates can be a detrimental. [1]

However, in a rural community, such as Milton, many people will need to drive to the downtown area, and will need a parking space. The provision of parking should not detract from the most attractive qualities of the downtown, which are the compact nature of many useful and attractive destinations within a pedestrian friendly environment.

[1] The AIA's Center for Communities by Design

Downtown parking should not detract from the streetscape , but rather occupy the least amount of developable space and be efficient, Milton can be cautious about allowing or requiring parking based on parking needs of a few high-use days. Given Milton's stormwater management needs (see Section 4) fewer and smaller paved parking areas are preferable.

The Downtown Core will be best served by making parking flexible and available to all users. Simultaneously, pedestrian facilities can provide comfortable walkable links between all available parking venues. Those coming to the Downtown may not find a space directly in front of their destination, but they will likely find a space within a block. They will enjoy the pleasant walk to their destination while discovering the new downtown and local businesses. Businesses gain the benefit of storefront visibility as more pedestrians use the sidewalks.

The following sections, 2*b*. through 2*f*., discuss several ways that adequate parking for commercial and civic uses can be offered in a downtown setting. Residential parking is addressed in section *2h.*

Parking References:

Parking Solutions: A Comprehensive Menu of Solutions to Parking Problems
TDM Encyclopedia, Victoria Transport Policy Institute
http://www.vtpi.org/tdm/tdm72.htm

Ten Principles for Reinventing America's Suburban Business District, also *Ten principals for Building Neighborhood Retail* both by Geoffrey Booth, Bruce Leonard, Michael Pawlukiewicz – publisher- The Urban Land Institute. www.ULI.org

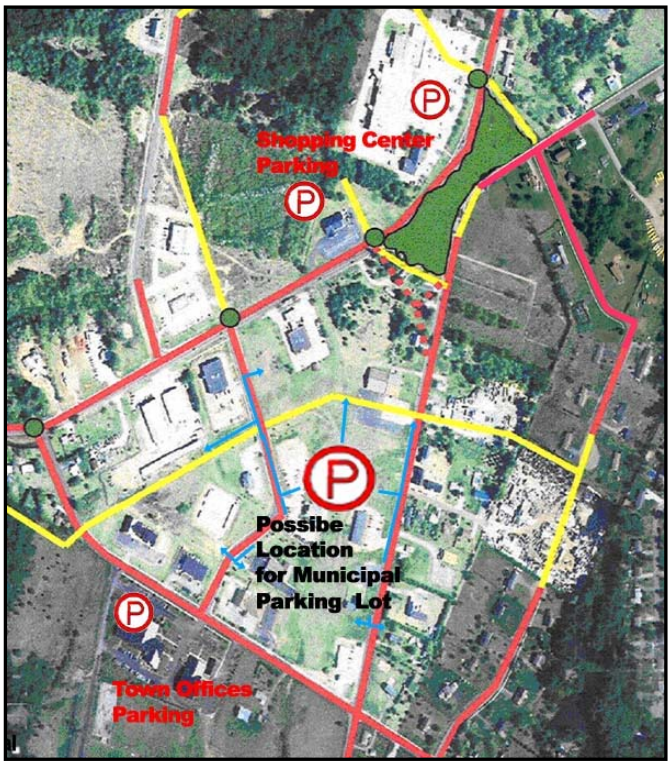
The High Cost of Free Parking, Donald C. Shoup Institute of Transportation Studies at the School of Public Policy and Social Research, University of California.

b. Municipal Parking Lot

Many Vermont communities have created a downtown municipal parking lot to serve business and civic uses in their traditional, compact town center where parking is limited. The flexibility and turnover of spaces in a municipal lot makes it a very efficient way to provide parking for groups of businesses whose parking needs peak at different hours. A municipal lot provides more parking opportunities at less cost than individual lots. Parking needs are met with the minimum lot coverage and consequently, less stormwater impact. In addition valuable downtown property is preserved for residential and commercial uses that add vitality.

Municipal lots can be managed with various types of metering or "pay and display" ticket systems. Although revenue to the town may result, the purpose of managing parking should be to encouraging parking turnover at an appropriate rate in order to serve the maximum number of users. Municipal parking lots may also provide free or low rate long-term spaces for staff and business owners at the more remote parts of the lot, freeing more conveniently located and on-street parking for customers and clients. Long term parking for commuters should be served by a park and ride lot outside of the downtown.

Milton's DB1 parking needs will be served by existing and planned parking lots, some of which will be located in the shopping center west of River Street and to the extent permitted by the Town, in the Town Office parking lot. Although the Town Offices' lot at the south end of the DB1 zone is well used, there are many times during the week when it could be shared by the general public coming to the new downtown. Expanding the Town Office lot for this purpose should be considered; if parking demand in the south part of the DB1 zone suggests it. However, a more centrally located Municipal Parking Lot is preferable.



<u>Municipal and other Parking Lots</u>
The large **P** on the map to the left indicates a possible location for a municipal lot. The smaller Ps indicate existing and planned available parking.

The actual location of a new municipal lot for the downtown will be based on many local factors, including availability of land.

The prime criterion for the parking lot should be a central location, within a two block walk, or approximately 800 to 1200 feet, from most uses in the DB1 not currently served by parking. The blue arrows on the map show pedestrian routes between the parking lot and sites that are less than 800 feet distant.

A municipal parking lot is a considerable investment and an ongoing maintenance expense for the town. Also, as a public facility, the lot represents a loss of taxable property. However, a municipal lot supports downtown businesses and can therefore increase the value of surrounding downtown property.

There are several regulatory solutions that can balance the cost of public parking and the loss of tax revenue. In addition to parking fees, options include a requirement that future commercial developers in the DB1 area, served by the municipal parking lot, buy a share of the lot based on the anticipated parking need. Alternatively the developer could be required to pay an up-front or on-going fee, sharing the cost of developing and maintaining the lot. Some towns have made the payment a voluntary option and an alternative to building *required* parking. For this to be a preferred option, the fee must, of course, must be less than applicant's cost of building an individual lot.

There are a number of other ways to share cost of a public parking lot. Rental fees to be paid by the business for use of the lot are another alternative.

Tax Increment Financing in the downtown may be implemented as per Vermont Law and funds from the TIF may go toward a municipal lot. Some of the options described previously would be superseded by a TIF. The Town is currently applying for TIF designation for the Town Core.

Municipal parking lot in downtown Bethel

c. 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 alongside an existing road, it is the least expensive.

If certain spaces are signed for short term (15 minute) parking, on-street spaces provide an easy option for drop in customers for a store or office.

On-street parking also benefits pedestrians. The row of vehicles forms a protective buffer between moving traffic and the sidewalk. In addition, parallel parking is an excellent means of "calming" or slowing traffic on downtown streets where pedestrian safety and comfort is primary. For these reasons it benefits the downtown when parallel parking is installed and used. It is also true however, that empty parallel spaces make the street look wider and encourage higher traffic speeds.

A grid network of streets provides a location for many on-street parking spaces. Where parallel parking is allowed in a downtown setting the green belt should be eliminated, and the sidewalk should extend to the curb to allow direct access for people from their vehicle to the sidewalk and to the front doors of businesses. Street trees can be installed in tree pits within the sidewalk. Driveways disrupt on-street parking by taking away curb space for parking. For this reason curb cuts should be restricted in number and driveways shared wherever possible.

Diagonal parking is also possible on wider downtown streets where traffic is slow moving. Diagonal on-street parking maximizes the number of cars per foot of curb, but does require approximately 16 ft of paved roadway for each side of diagonal parking, vs. 7 to 8 feet for parallel parking. Diagonal parking is not currently recommended for Milton but should be noted as a tool for future consideration. Diagonal parking is currently used successfully in downtown St Albans, St Johnsbury and downtown Burlington without an increase in the accident rate on the blocks where it is used.

On-street parking should be managed through signage (2 hr maximum for example) or parking meters. These management tools can ensure that the spaces turn-over on a regular basis and serve the most users. The price of meters and fees should be set at a level that is not too onerously high to discourage use of the space, but not so low that spaces do not turn over. The purpose of parking meter fees should be to encourage turnover and not be strictly for revenue.

In general, on-street parking should be managed for short term parking, and the municipal lot for longer term parking. Management of parking requires some enforcement, but can be as simple as one enforcement officer noting license plate numbers.

Street tree planted in tree pit adds shade where parallel parking borders the sidewalk and no greenbelt exists.

d. Parking Regulations

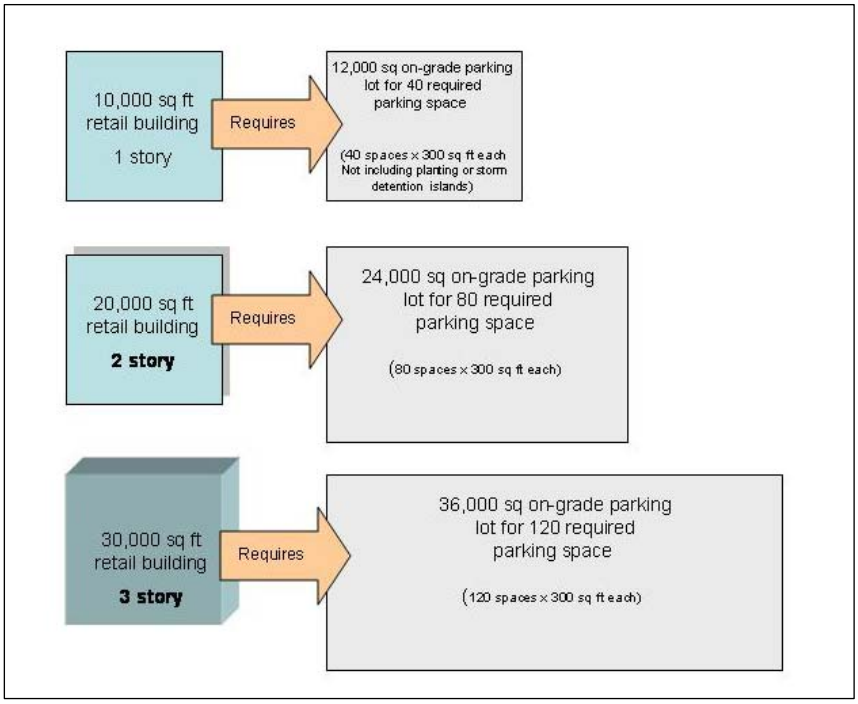
History

Many zoning ordinances in Vermont and across the country include parking regulations written in, and based on, planning recommendations from the 1970s. At that time suburban development patterns were strong, and the conventional wisdom was that towns would be best served if all private businesses provided their own parking, relieving the town of the burden of building community parking lots and saving on-street parking for residents. In many towns such parking regulations are no longer serving the community well, one result being that businesses have spread out from the town center, weakening the compact, walkable downtown.

In general, private sector parking practices are inefficient, resulting in excessive supply, increased automobile traffic, and more dispersed destinations. Many parking facilities are designed for the peak holiday shopping season, and are underutilized the rest of the year.

Parking management and all types of shared parking, including on-street and municipal lot parking, can take advantage of unused space, lessen demand for surface parking, allow parking requirements to be reduced, prevent sprawl, encourage density, reduce cost for developers, and make more land available for tax-base generating uses.

Current parking requirements are often based on close-to-peak-day use, and assume all users are arriving by car and will drive to each destination. While many towns are not happy with the pattern of development these regulations have wrought, they are apprehensive about changing them. The primary concern is that people will stay away unless generous parking is available. In addition, many businesses, especially national chain stores, have made it their policy to provide extensive parking. New stores are often built in areas where land is relatively inexpensive and development of large parking lots adds a small percent to the overall project cost. Land costs in downtown areas, more stringent stormwater treatment requirements and fees may change that practice.



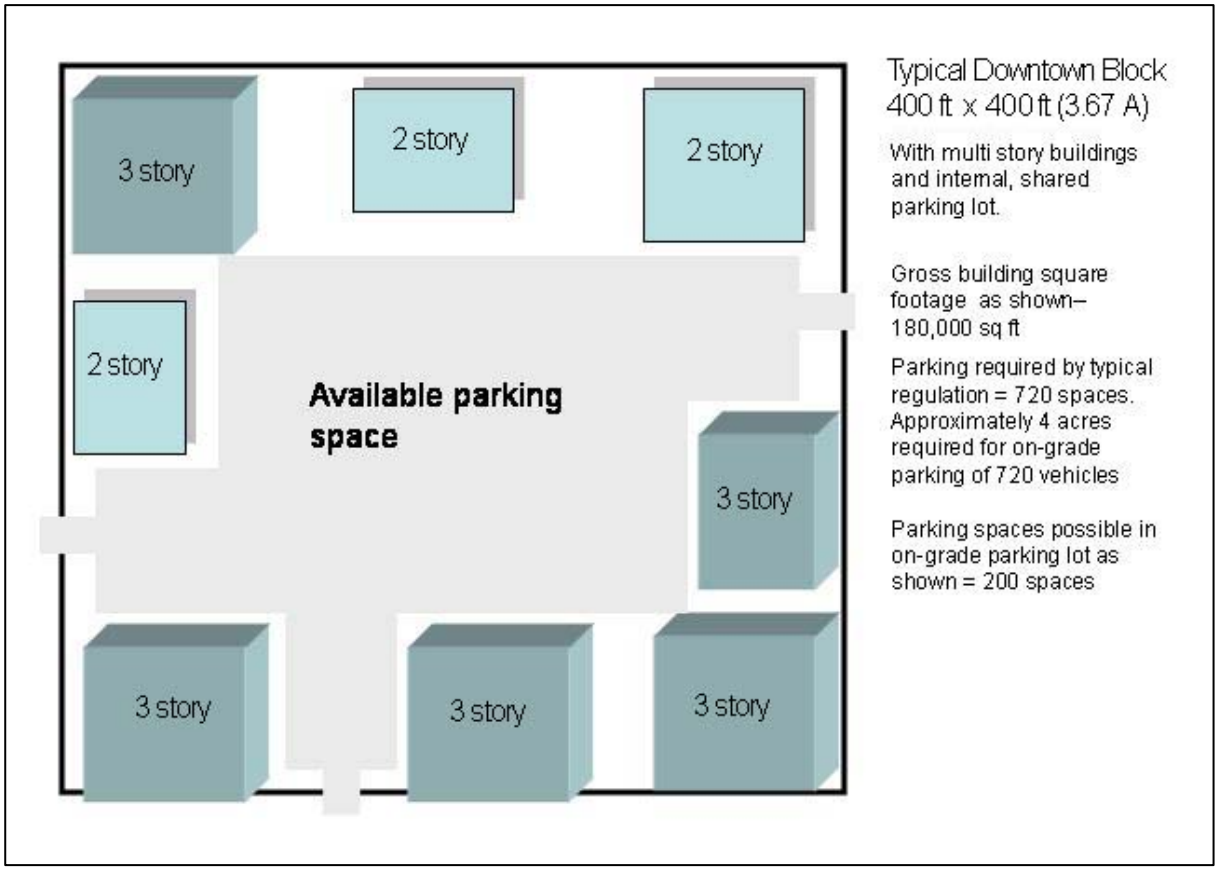
Parking Footprint: Conventional parking regulations

This diagram illustrates the relationship of a building's footprint to that of the parking lot that serves it, based on conventional parking requirements. Multi-story buildings require the same footprint as single story buildings, but their parking footprint doubles or triples using more downtown property, requiring buildings to be further apart, thereby diminishing density and walk-ability.

Underground, first floor parking and parking garages, although costly, lessens the impact of parking on the downtown.

Parking for Downtown Blocks

The street system recommended in Section 1 of this report would create new pedestrian scale downtown blocks. The zoning ordinance allows multi-story building fronting the sidewalk and requires that parking be placed to the back or sides of the building. The resulting development pattern would, as intended, form a contemporary version of a traditional, downtown, commercial block. Although downtown blocks in Vermont towns are irregular in size and shape, the diagram below shows one example of a typical 400 ft. x 400 ft. square block with multi-story buildings. This plan demonstrates a parking solution that places shared parking internal to the block. Depending on the size of buildings and their square footage, internal on-grade parking would not likely meet the parking requirements of typical zoning regulations. However on-street parking, shared use, and/or a multi-story parking structures could provide close to the number of spaces needed.



Perspective view of a historic, mixed-use downtown block, with new internal parking

Perspective view of mixed-use downtown block with parking structure
Graphic from Chapter 117 Implementation Manual Topic Papers, VT DHCA

Above is a detail of a larger graphic created for a State planning document. It depicts one solution for adapting current parking demands for a traditional downtown.

Current Principals and Overview

As the diagrams above show, it is very difficult to create a traditional, dense downtown when typical parking standards are in force.

Current thinking on parking in a smart-growth downtown asserts that, at the very least, **parking**

requirements should be reduced from current 1970s standards to reflect the availability of on-street parking, municipal parking lots, shared parking potential generated by mixed-uses, informal car pooling, and pedestrian and bike access from nearby neighborhoods.

If the Town continues to experience a pattern of developers building large parking lots that stand substantially empty most of the time, which convey the negative impression of a declining downtown, then **maximum parking requirements** can be written into zoning regulations (see box below). Some towns use both minimum and maximums, in which case the maximums are usually high.

The town can encourage **shared parking** by one or more uses. This can be implemented between a few businesses or by the town as **a municipal parking lot.** This option is discussed in the following sections.

Some towns have **eliminated downtown parking requirements** altogether, leaving the number of parking spaces to be determined by the developer. In some cases developers know their market enough to accurately predict the parking needs of their clients. If land is costly there is less incentive to over-build parking, even more so if underground, deck, or garage parking is required by the town regulations. Eliminating parking regulations is probably not the best solution for Milton's DB1 zone at present, since economic pressures and land-use pressures are not at "downtown" levels yet. In addition, public transportation is not available.

Parking Study

It is recommended that Milton conduct a comprehensive parking study to determine the best manner by which to proceed on parking management, parking regulations, and investment in municipal parking for the DB1. The dynamic of parking, and its influence, both positive and negative, on the emergence of the DB1 is too important not to be fully understood and researched.

Route 7 Land Use and Transportation Study, of which this report is a part, will provide the Town with a projection of future development in the DB1 zone. This information will provide a base line for parking demand.

Downtown parking need, phasing, and location should be determined based on a realistic estimate of downtown growth. Parking demand should continue to be monitored as development increases, thereby keeping a desirable balance of building coverage vs. parking. This balance, called the "parking coverage rate" (PRC) can vary greatly. Very pedestrian oriented cities have a low PRC (San Francisco -31%), and auto oriented cities have high PRC rates (Los Angeles- 81%).

Any study of parking solutions and location should follow the streetscape and downtown design practices outlined in this report. Solutions should include the concepts of municipal lots, the many types of shared parking in a mixed-use area, and on-street parking resources. The determination of parking need should also consider that parking may not necessarily be at the doorstep of a commercial venue, but may be available within walking distance. Clearly the streetscape improvements that make walking easy are closely tied to parking management solutions.

Municipalities that use Maximum Parking Standards

City of Bellevue Washington- Population approximately 127,000
http://www.cityofbellevue.org/bellcode/Bluc2025A.html

Lacey WA- Population approximately 33,000
http://www.ci.lacey.wa.us/lmc/tables/table_16-t-13.html

Portland OR - Population approximately 550, 000
http://www.portlandonline.com/shared/cfm/image.cfm?id=53320

e. Shared Private Parking

Although this concept is fairly complex, and requires coordination between property owners and the Town, Milton may explore the opportunity to create shared parking arrangements between nearby land uses to maximize the amount of Town Core land available for complimentary build-out.

Shared parking exists when two or more users (a store, office, restaurant, dental clinic, etc.) share the same parking spaces rather than each having their own dedicated parking area. This is essentially how shopping center parking occurs.

Shared parking is most effective when these land uses have significantly different peak parking characteristics that vary by time of day, day of week, and/or season of the year. In these situations, shared parking strategies will result in fewer total parking spaces needed when compared to the total number of spaces needed for each land use or business separately. Land uses often used in specific shared parking arrangements include office, restaurants, retail, colleges, churches, cinemas, and special event situations. Shared parking is often inherent in mixed-use developments, which include one or more businesses that are complementary, ancillary, or support other activities. General parking lots and/or on-street parking that is available for patrons of nearby businesses/commercial districts is another form of shared parking.

As development occurs along River Street and in the Town Core, Milton should encourage the development of shared parking through policy and negotiated agreements. Careful access management, lessening the number of ingress and egress, and providing internal access between establishments will encourage people to park and then walk to their multiple destinations.

Shared parking relies on understanding the relationships between uses and sites. Successful arrangements have been negotiated between:

- churches (heavy weekend utilization) and retail
- municipal lots and seasonal overflow demand
- Daytime office parking lots and night-time and weekend attractions such as theaters and restaurants.
- Certain residential uses, such as senior housing, may require expanded parking capacity on weekends and holidays, but are typically relatively empty during the week.

Geographic considerations, such as the proximity of destinations to existing parking supply, must be considered as well as the land use type and type of user. The greatest opportunity to create shared parking is in areas where there is significant density and uses are clustered. The closer shared spaces are to the land uses they serve, the more likely the arrangement will be a success.

Acceptable Walking Distances

Adjacent (Less than 100 Feet)	Short (less than 800 Feet)	Medium (Less than 1,200 Feet)	Long (Less than 1,600 feet)
▪ People with disabilities ▪ Deliveries and Loading ▪ Emergency services ▪ Convenience stores	▪ Grocery Stores ▪ Professional Services ▪ Medical Clinics ▪ Residences	▪ General Retail ▪ Restaurant ▪ Employee Parking ▪ Entertainment Center ▪ Religious Institution	▪ Airport or Train Parking ▪ Major sporting or cultural event ▪ Overflow Parking

Typical Shared Parking Code

The Town of Milton may adopt a shared parking code or modify existing parking requirements. Sample code language follows:

"Cumulative parking requirements for mixed-use occupancies or shared facilities may be reduced where it can be determined that the peak requirements of several occupancies occur at different times (either daily or seasonally). Factors evaluated to establish shared parking arrangements should include operating hours, seasonal/daily peaks in parking demand, the site's orientation, location of access driveways, transit service, accessibility to other nearby parking areas, pedestrian connections, distance to parking area, availability of parking spaces, cooperation of adjacent owners. In all cases a shared parking operations plan must be prepared to the satisfaction of the Development Review Board showing that parking spaces most conveniently service the land uses intended, directional signage is provided if appropriate and pedestrian links are direct and clear."

A shared parking operations plan can be prepared for new developments and significant redevelopment of Town Core property. This could be included in the site plan and landscaping plan which already require applicants to address parking issues.

The plan should address:

- Site plan of parking spaces intended for shared parking and their proximity to land uses that they will serve.
- A signage plan that directs drivers to the most convenient parking areas for each particular use or group of uses (if such distinctions can be made).
- A pedestrian circulation plan that shows connections and walkways between parking areas and land uses. These paths should be as direct and short as possible.
- A safety and security plan that addresses lighting and maintenance of the parking areas.

Agreement Between Sharing Property Owners

For large shared parking arrangements the Town could require formal shared parking agreements. If a privately owned parking facility is to serve two or more separate properties, a legal agreement between property owners guaranteeing access to, use of, and management of designated spaces is highly recommended.

f. Parking Signage

Although parking signage will be more fully discussed in Section 7 of this report, it is important to note here the importance of clearly directing the public to all available parking venues. It should be clear as drivers approach and circulate through the downtown exactly where parking is available, and how it can be reached. Signage should be coordinated with a graphic style used to identify the downtown area.

g. Parking Within and Below Buildings

Underground, interior, and exterior parking garages and parking decks all provide needed parking while minimizing the footprint of parking in the Downtown Core. All these alternatives should be encouraged in preference to on-grade parking. Requirements for such parking options should be realistic and keep in mind that the cost of structured parking is considerably more than on-grade parking. Ground water conditions may also present engineering challenges in some parts of the DB1 zone.

Parking below buildings can and is being designed for some current projects to meet a portion of required parking in the DB1 Zone.

The retail uses on the first floor of this parking garage, in downtown Portland, Maine, keep the street lively and the sidewalk feeling more secure.

h. Residential Parking

Residential parking may be regulated by zoning it differently than commercial and civic parking. A resident's need to have a dedicated parking available at their home is considered essential for most owners or renters. Therefore most developers provide two assigned parking spaces per unit of new housing. Shared parking or reduced numbers of required spaces is not common.

However there are exceptions, elderly housing being one. There are now enough elderly housing facilities in Vermont that the proportion of tenants to parking spaces needed can be established. Many of Vermont's funding agencies and non-profits, such as the Champlain Valley Housing Trust, have this data.

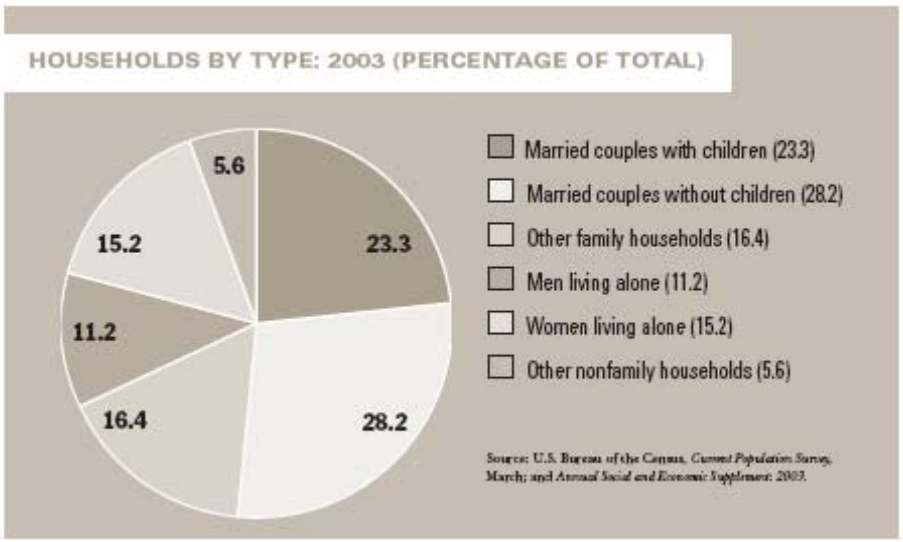
Other exceptions are developments that are likely to have many single residents, or large residential developments, that have a mix of tenants-- a known statistical percentage of whom will be single, one car tenants.

In such residential developments the parking requirement may be reduced by the anticipated percent of one-car residents, or smaller units may be required to provide only one parking space. A group of flexible, un-assigned spaces can be provided and shared by those residents with a second car and by visitors.

Selling or renting parking spaces separately from the residential unit is a financial device for managing parking. Although commonly used in a downtown setting, it can be useful where one-car occupants are common. The buyer or renter of the dwelling unit only pays for the number of spaces needed. Given the cost of structured parking this can result in significant saving for the buyer or renter. This is also cost saving for the developer who avoids the cost of un-needed residential parking and reduces the price of the residential project.

As shown in the chart below, a large portion of the national population lives alone or as single heads of households. Although Milton's population will likely differ from the national percentages shown here, this data does inform the likely demand for parking in residential developments in the Town Core. Using these statistics, a 30 unit development may in fact require only 52 spaces (assuming 25% one driver households) for residents vs. 60 required by standard zoning requirements.

Depending on the location of residential developments in the Town Core, parking for visitors and guests may be provided by on-street parking spaces near the building. As discussed in *section 2c*. empty parallel spaces are a detriment to the streetscape. Use of on-street parking should be encouraged especially during off-hours when businesses are closed but visitors and guests of residential uses are likely.



U.S. Bureau of Census -2003

i. Park & Ride

Park & Ride facilities provide a central collection point for people to transfer from one mode of transportation to another. Currently in Vermont this transfer is most often from a single occupancy vehicle to a carpooling vehicle. The transfer can also be from bicycle to vehicle or, if available as it is at a few VTrans park & ride facilities, from vehicle to bus. Although not often located near sidewalk facilities, pedestrian to vehicle transfers occur as well. In tourist-oriented areas, park & rides can also serve as Tourist Information Centers and can be an easily identifiable meeting place for local residents or travelers.

Successful park & rides are usually located near a major arterial such as I-89 and major highways used for commuting, but also at the edge of population centers. VTrans has built several park & rides at Interstate interchanges, most of which have been very well used. The park & ride recently built at Exit 17 in Colchester meets the basic criteria of a successful park & ride.

As a rule, a park & ride should not be located within a commercial center where it would occupy valuable downtown property and/or take up parking spaces needed by shoppers. Although a downtown may be a desirable meeting and transfer place for carpoolers, it is not a good location for long term car storage.

Some commercial or civic land uses located at the edge of the downtown, that have large parking facilities unused during the day, such as a movie theater or sports facility may have a dual use as a park & ride facility. A determination of compatible peak and off-peak times should be made, keeping in mind that some park & rides have considerable weekend usage. The presence of retail services near a park & ride facility can provide needed lighting and activity both of which provide a sense of security for park & ride users.

Design of a park & ride should include the following

- Easy vehicle circulation that includes bus circulation, and pickup and drop off areas for riders. Although Milton does not currently have public bus service, if it is likely to occur within the next decade it should be considered in the site plan. In the interim, the facility may be used by school buses or private bus companies.
- Parking spaces should be ample to allow easy loading and unloading of cars and vans.
- Secure and covered bicycle storage should also be provided.
- Landscaping that adds an attractive appearance and provides shade for users.
- Shelter and seating for those who need to wait in inclement weather should be available and maintained.
- Trash receptacles should be provided if pick-up is possible.
- A public telephone: The advent of cell phones has made public phone service at park & rides difficult to provide but ideally pay phones should be available, or at least emergency 911 call boxes.
- Adequate lighting and routine surveillance by local law enforcement is also a basic requirement.

j. Future Multi- Model Center

A multi-model center serves as a hub for connecting and easing the transfer between different modes of transportation. For Milton this could include a future express bus, a local shuttle, taxi services, a private vehicle drop-off and other modes such as bicyclists and pedestrians using an improved, interconnected sidewalk and trail system.

A multi-model center is best located in an easy to find, major activity center such as the DB1 Zone. It could be integrated with a municipal parking lot and be the site of a visitors center for the Downtown Core.

Although Milton is not a current or likely future subscriber to CCTA service, the Town may explore the possibility of a contract bus route.

A Chittenden County Transportation Authority Operational Analysis, *System Plan and Funding Alternatives Final Report*, prepared for the CCMPO by KLM Associates, Bethesda Maryland, submitted in May 1999, identifies Milton as an area with high transit need. The report identified routes with potential for ridership between Milton and other Chittenden County destinations.

If passenger rail is one day viable, a link can be made from the rail line to the Downtown Core. However, Milton does not currently have a passenger rail system. The Vermonter Amtrak line, which does not stop in Milton, has had weakening ridership over the last few years. Recent studies for the use of Vermont's western rail corridor passing through Milton have centered on its potential for freight.

Given the lack of transit service there is no current need for a full multi-modal transit center. However, plans for the DB1 should consider the potential for future bus service and incorporate location for a future multi-modal center and a downtown bus stop in the layout of streets and parking.

A logical location, for both visibility and ease of access, may be along River Street near Center Drive.

Section 2 Resources:

Parking Spaces/Community Places: Finding the Balance through Smart Growth Solutions,
U.S. Environmental Protection Agency, Washington, DC 20460
Document Number: EPA 231-K-06-001, January 2006
http://www.epa.gov/smartgrowth

Victoria Transport Policy Institute
1250 Rudlin Street, Victoria, BC, V8V 3R7, Canada
info@vtpi.org (250)360-1560
http://www.vtpi.org

Urban Land Institute Shared Parking Handbook Second Edition, Mary S. Smith, et.al, ULI Press, 2005

Online TDM Encyclopedia at
http://www.vtpi.org/tdm/tdm89.htm

National Parking Association at
http://www.npapark.org/

Institute of Transportation Engineers at
http://www.ite.org/

Policy Framework

The Town of Milton can develop a policy framework which encourages efficient management, and all types of shared parking. The strategy could include:

- Providing the maximum amount of on-street parking in the Town Core to lessen demand on surface parking lots
- Providing public off-street parking and encouraging reliance on public parking facilities (surface and if possible garage parking).
- Modifying parking requirements for the DB1 zone that account for on-street, shared parking and that reflect the development pattern of a traditional downtown.
- Allowing, or requiring, in-lieu fees or other mechanisms that fund public parking facilities as an alternative to private off street parking, thus enabling the Town to reduce parking requirements.
- Assisting in the negotiation of private arrangements to share parking
- Providing comfortable, attractive and continuous walkways.
- Providing for bicycle access and safe bicycle parking
- Encouraging density and clustered development that makes shared parking more likely.

3. Streetscape

The streetscape can be defined as the corridor of the street, between and including the buildings on either side, that establishes the look, feel, character and comfort of the street for the pedestrians and drivers. The elements of a streetscape include building frontages and facades, street trees and other landscaping, sidewalks, cross walks, on-street parking, street furniture (benches, kiosks, trash receptacles, fountains, etc), signs, awnings, and street lighting.

A successful streetscape puts the pedestrian first and is designed to provide maximum comfort, interest, and safety for that user.

The term "pedestrian-scale" is often used when describing a good streetscape. The public infrastructure and private development on the street is designed so a person can comfortably walk from one location to another. Building to a pedestrian scale provides a visually interesting environment, encourages strolling, window-shopping, and other pedestrian activities in a mix of commercial and civic uses (offices, a mix of different retail types, libraries, and other government and social service outlets).

The following sections will address the elements for establishing a great downtown streetscape.

a. Roadway Infrastructure

The street right-of-way (ROW) and its cross-section (horizontal dimensions of elements in the ROW) establish the potential for the downtown streetscape. Downtown streets will all fall within a hierarchy.

The hierarchy of Milton's new downtown streets will be:

1. US Route 7 or River Street, (*For this report we will refer to the section of US Route 7 through the DB1 zone as River Street*)

2. Town Roads - Bombardier, Center Drive and Middle Road

Wilmington, Main St. is VT Route 9; classified by VTrans as a Principal Arterial and Federally as an NHS Highway.

3. Network Streets - All new connecting streets that will form the downtown grid.

US Route 7–River Street

River Street will form the spine of the downtown and will establish the character of Milton's new DB1 zone.

The width of the River Street ROW has not been fully verified with a legal survey, but it appears to be 66 feet wide in most locations and widens along a few segments. This report will assume a minimum 66 foot ROW.

River Street's VTrans classification is a *Minor Arterial*, according to the *Milton Town Core Transportation Master Plan 2005* prepared by Resource Systems Group Inc., 100 Dorset Street, South Burlington. The road functions well as classified, and has the capacity for increased traffic volume. Although it is a named truck route, traffic counts indicate that truck volume is low. The width of the right-of way and the VTrans classification of Minor Arterial for this segment of US Route 7 should not be a deterrent to establishing the character of the downtown and providing the needed sidewalks and parallel parking. A few Vermont towns with "Main Streets" located on US Highways have narrower

rights-of-way, and similar VTrans functional classifications including Wilmington on VT RT 9, North Hero and South Hero on US Route 2, and Wallingford on US Route 7. Several historic towns on Minor Arterial State Highways serve as functional "Main Streets" with both sidewalk green belts and parallel parking. These towns include Townshend and Jamaica, both located on VT Route 30.

Parallel parking located along River Street would not necessarily decrease the traffic capacity of the roadway. Parallel parking does slow traffic speeds, since drivers become more cautious when passing a parallel parked vehicle. This phenomenon, called "friction", in traffic engineering terms has been long understood. Slower traffic increases safety for both vehicles and pedestrians.

There may be some additional traffic slowing to allow drivers to back into a parallel space, but depending on parking turnover, this is not a continual occurrence.

Congestion associated with a town center is more commonly created by intersections (signalized or not) and turning vehicles.

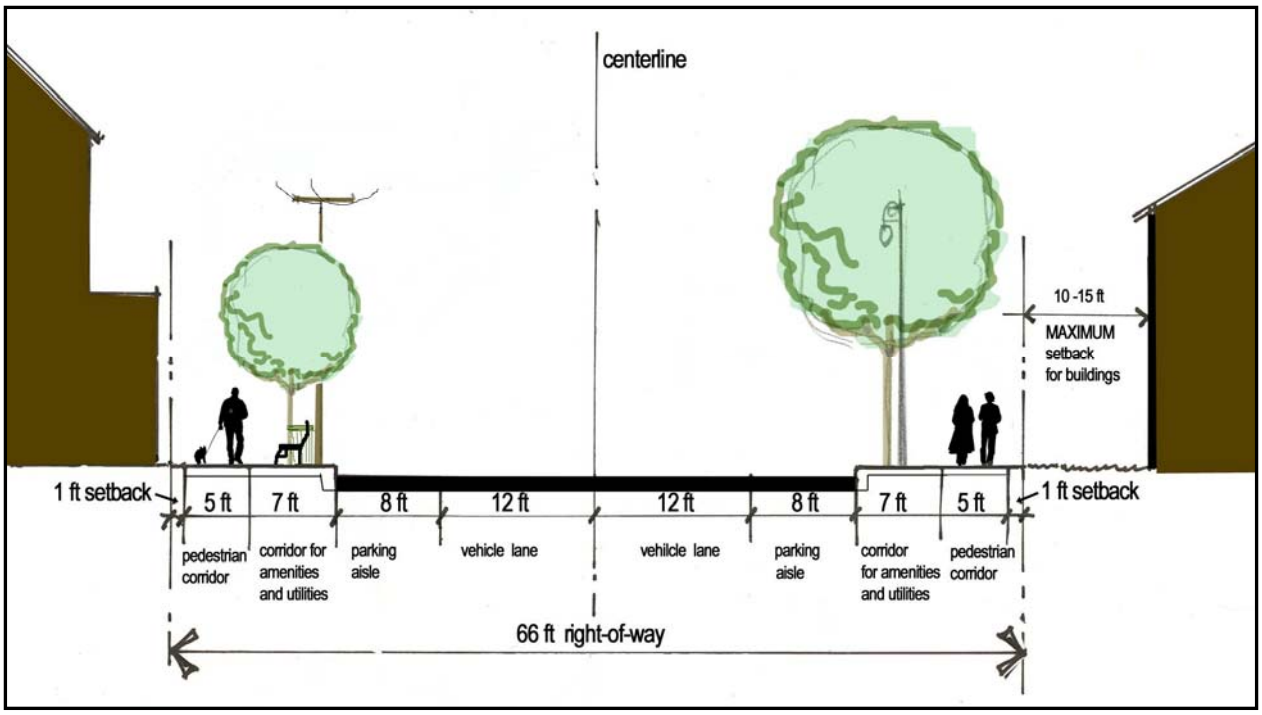
VTrans highway design standards are written with the goal of being "context sensitive"; meaning that the design of roadways will respond to the environment and context they serve. An excerpt from the *Vermont State Standards for Construction, Reconstruction, and Rehabilitation of Roadways and Bridges* states:

> "The Standards have been designed to be flexible and to allow and encourage creative methods to minimize impacts on scenic, historic, archaeological, environmental and other important resources. This will give the VAOT greater ability to conform to State and Federal statutes, rules and regulations, to ensure that projects are designed to fit the Vermont context, to ensure that projects minimize environmental impacts, and to maximize the public benefit of transportation improvement investments."

Milton's new Downtown Core will not be historic, but will create a context that will be similar in design and function to a traditional Vermont downtown or village center. It will be important that re-designs of River Street and VTrans staff reviews understand the new context that the road will serve.

It is recommended that Milton work with the MPO and VTrans to establish a cross- section for River Street at the heart of the Downtown Core that is a pedestrian friendly street which visually announces to people entering town that they have arrived at the center of Downtown.

At a minimum, the improved section of River Street should extend from slightly north of the Hannafords/Pomerleau parcel to slightly south of the intersection with Bombardier Road. The 66 feet of right-of-way should be re-built and the roadway cross-section allocated approximately as shown on the following pages.



Cross-Section – Improved Streetscape of River Street through the Downtown Core. Note the traveled way, excluding parallel parking, is 24 ft in width.

The cross section of a re-built River Street, whether it is completed incrementally or as a whole, should be similar to the one shown above. Some aspects of the streetscape, such as new sidewalks or street lights, can be installed incrementally. However, all elements of the streetscape need to work together to make the street function as a successful pedestrian/vehicle corridor that defines the center of the Downtown Core. The important characteristics of the River Street section are the following:

- ***Building Setback.*** **–**Buildings should be located at the edge of the street right-of-way, to provide easy pedestrian access to front entries and to frame the streetscape. It is recommended that maximum setbacks be established to ensure that this occurs.
- ***1 ft Setback*** from the right-of-way. Generally 1 foot is provided from private property to allow for construction and sidewalk repair that will not damage private property.
- ***New sidewalks*** on both sides of the roadway. Sidewalks should be a minium of 5 foot for the pedestrian route and, where parallel parking is present, the sidewalk should be wider and extend to the curb for easy access in and out of parked vehicles. The pedestrian walking lane of the sidewalk should always be at least 5 feet away from the curb.
- ***Amenities and utilites corridor.*** The remaining space between sidewalk and curb can be used for amenities such as lights, benches, trees, and utilities, either under or above grade. It is also useful for snow storage in winter. Where there is no parallel parking the space can be a grassed greenbelt.

  Specifics

  Decorative pole lighting, street furniture, and other amenities will be covered in *3d and Section 7.* In general, placement of street amenities should consider possible conflicts with snow storage and snow plows, and the swing of parallel parked vehicle doors. All utilites and amenities should be setback from the curb a minimum of 3 feet..
- ***Street trees.*** Ideally street trees will be installed on both sides of the street where they will mature to form a symetrical green border along the street, and a canopy for pedestrians. Mature trees and multi-story buildings lining the street are the most

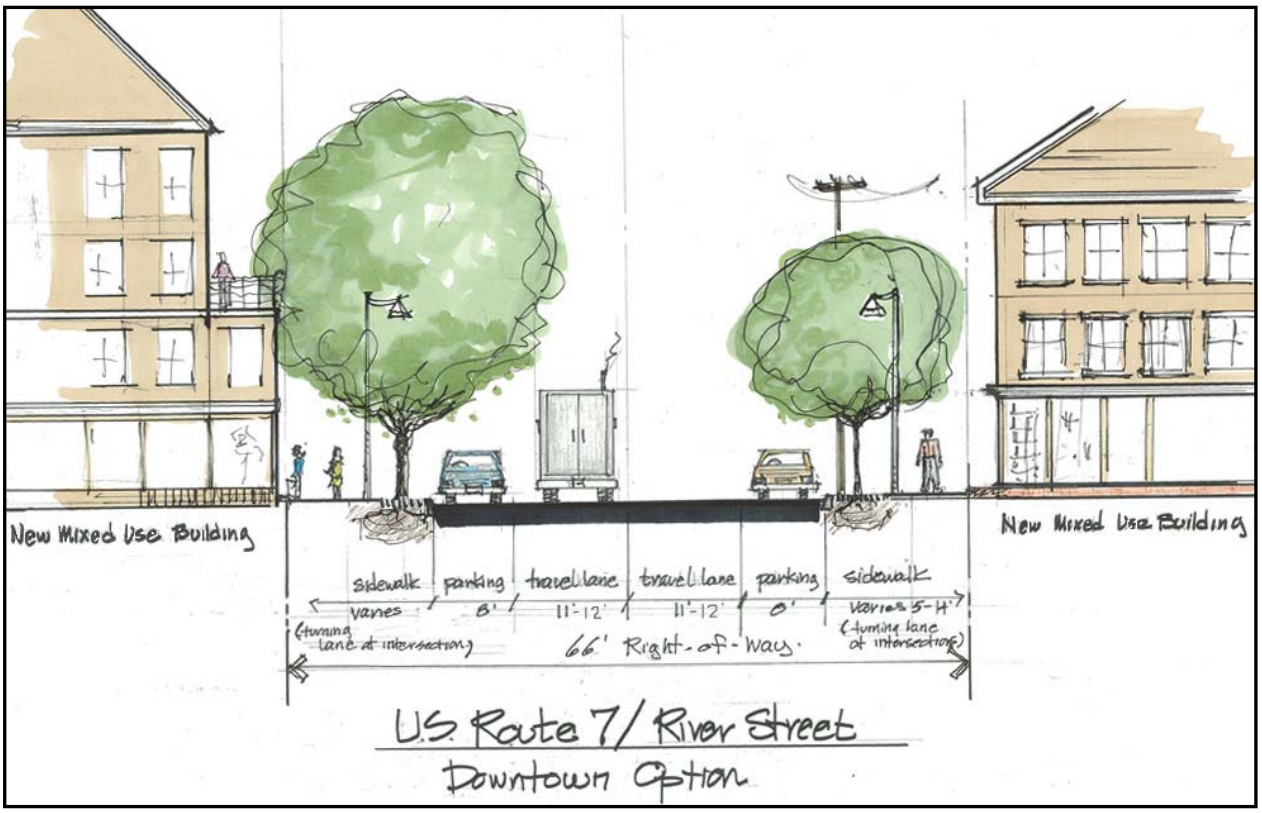
significant visual aspects of the streetscape and will be most effective in defining the gateway to downtown. Low growing street trees can be installed beneath overhead utility lines where they are present.

- Specifics

  Street trees can be installed in a greenbelt or in a tree pit with a tree grate or other protection. Greenbelts must be at least 6 feet wide to provide the needed root space to sustain healthy tree growth and to have the required setback from both road and sidewalk. Trees planted in a tree pit, surrounded by pavement need special treatment including Sturctural Soil; a material that can be used as a base for new sidewalks and also provide a medium for root growth. More details for streetscape planting can be found in the *Landscape Guide for Vermont Roadway and Transportation Systems*, June 2002 available as a download from the VTrans web site: www.aot.state.vt.us/Progdev/Documents/Design/VTrans_Landscape_Guide.pdf - and also *Recommended Trees for Vermont Communities*, both of which should be available from the Vermont Agency of Natural Resources, Division of Forest, Parks and Recreation, Urban Forestry Council.

  There is a wealth of technical infromation that will be useful for Milton at the Vermont Urban and Community Forestry web site and specifically for streetscape and street tree information in their on-line library at: http://www.vtfpr.org/urban/for_urbcomm_library.cfm#Streetscape.

- ***Parking lane.*** Parking lanes should be installed on both sides of the road where they do not interfer with driveways, intersections or sight-lines. Parking lanes are eliminated at intersections and the added roadway space can be dedicated to turning lanes where needed and/or curb extensions to ease pedestrian crossings. Eight feet is a standard width for a parking lane but 7 ft can be used on local roads. Width of most vehicles ranges from 5 feet for to 6 feet (large SUV's can be 6½ ft) leaving some some room for door swing. Parking spaces should be striped to let drivers know parallel parking is available and encouraged to maximize the available spaces.
- ***Travel lane.*** VTrans State Standards allows 11 or 10 foot travel lanes where traffic speeds are slow. Twelve foot lanes are recommended here to allow buffer space from parked cars allowing safer access and egress from vehicles.
- ***Turning lanes.*** Parking and greenbelts can be elimated at intersections to make room for turning lanes which reduce congestion at intersections.
- ***Bicycle traffic*** –The 66 foot right-of-way of River Street is not wide enough for on-road bike lanes that meets the recommended standards of the *Vermont Pedestrian and Bicycle Facility Planning Manual* (5-6 feet). However, is would be possible to provide a wider travel lane (14 feet) that meets the Manual's recommendations for a shared-use lane. The added footage could be deducted from the amenities and ulitities corridor. The disadvantage of this alternative is that when not shared by bicycles, the wider lane would likely encourage higher vehicle speeds. However, speeds will be mitigated by paralled parking if it is regularly used. Providing an on-road bike route for a limited length of road can lead the cyclist onto an unsafe adjacent section of US Route 7. Cyclists in the DB1 zone will be best served by a series of connecting routes over minor roads and paths that do not include long segments of US Route 7.
- ***Traffic speed*** – Current vehicle speed limits of 25 mph should be maintained.
- ***Storm Sewer*** – The installation of curbs required for a new downtown from River Street through the DB1 zone will necessitate the installation of storm drainage structures to collect and transport stormwater to a treatment area. See *Section 4* for further discussion on storm water.

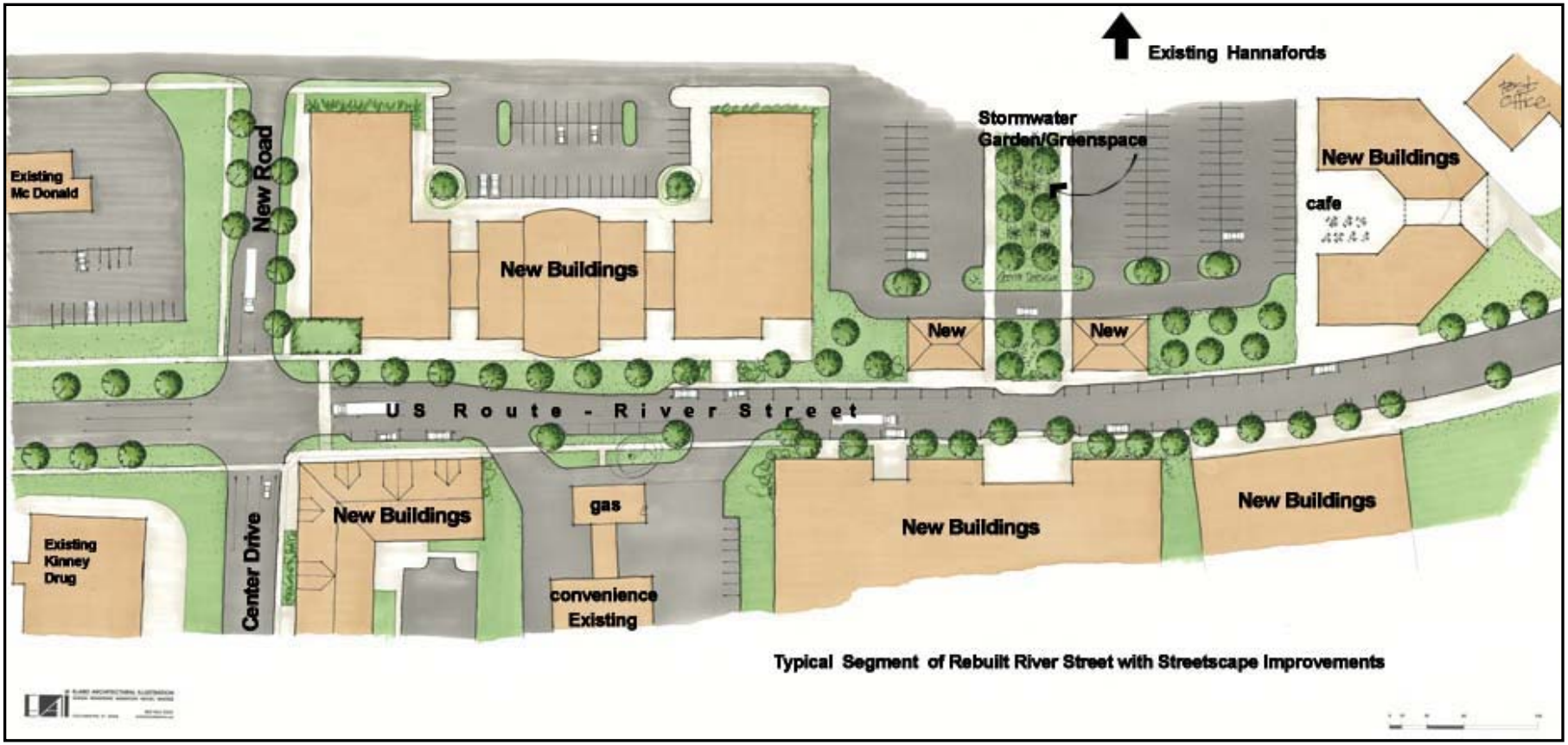


Sketch developed for public charette to show a River Street as a traditional "Main Street." This was the preferred option. The alternative Boulevard style roadway is shown in the Appendix

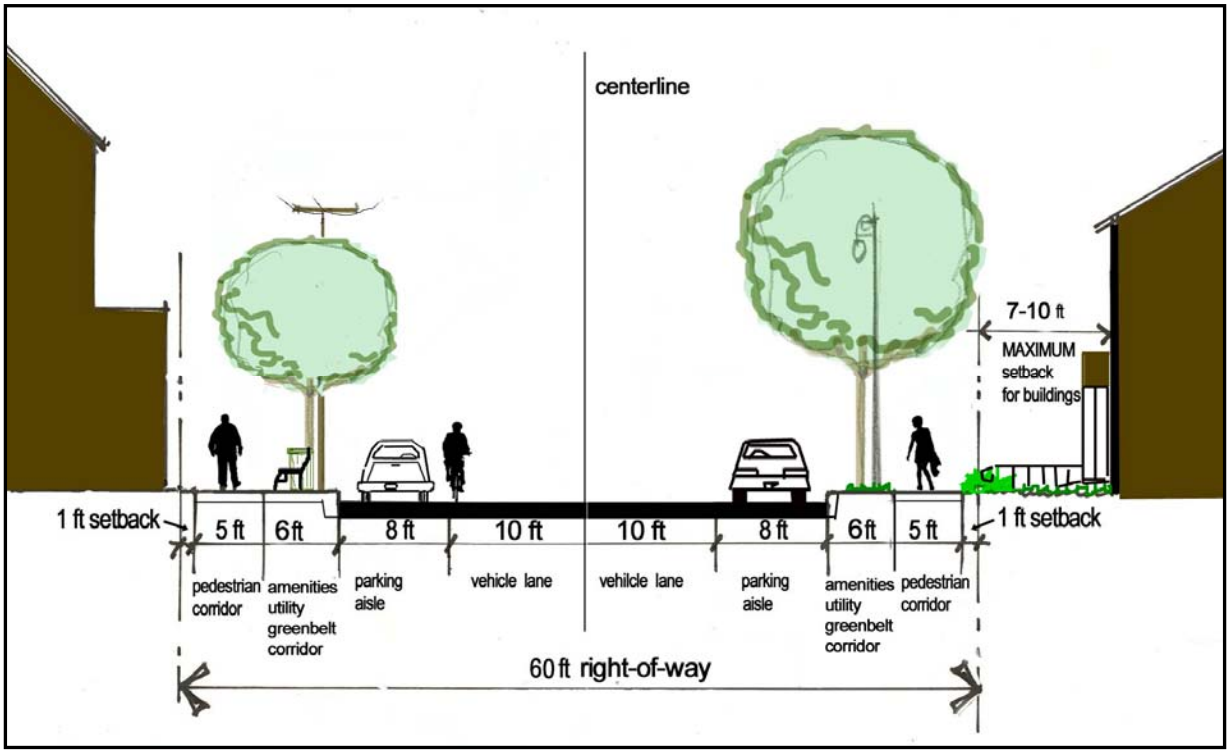
Pedestrian Crossings

Clear, safe, and conveniently located pedestrian crossings will be essential to making the downtown core work. Ideally, people should be able and comfortable to park on one side of River Street and walk to destinations on the other side.

All signalized intersections on River Street should have a pedestrian phase. Details on design of pedestrian crossings are discussed in Section 3c.



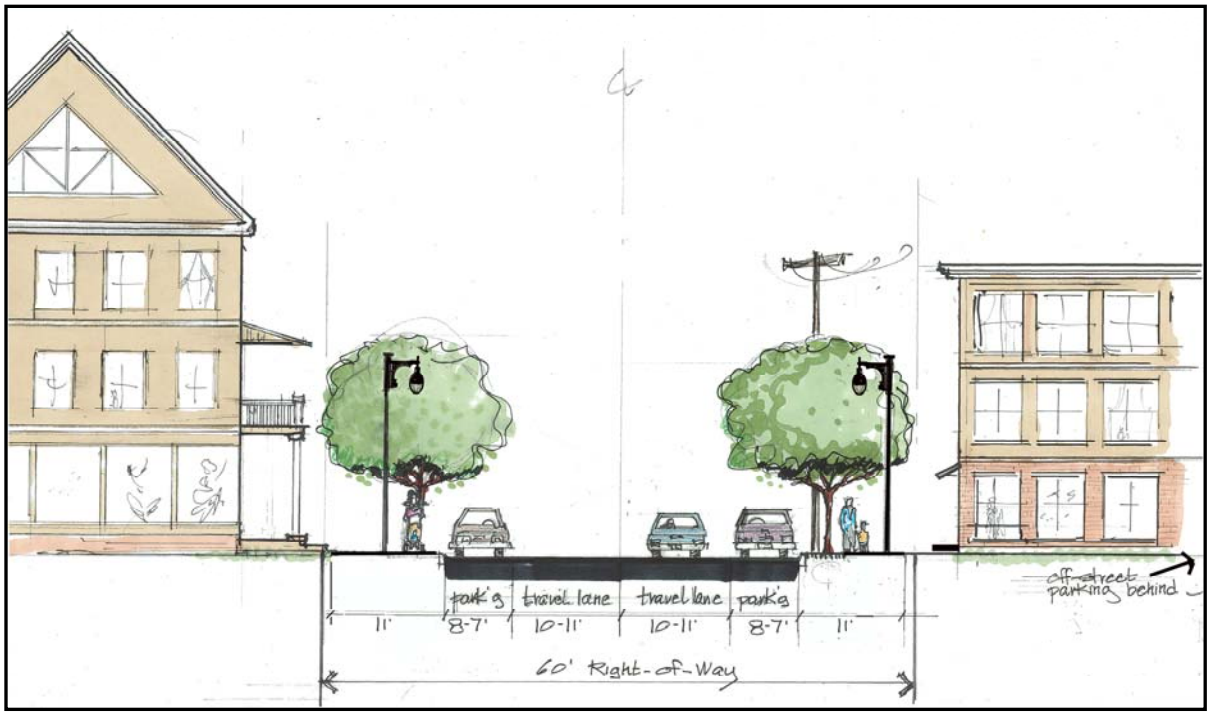
Sketch developed for the community charrette showing proposed changes for a segment of River Street near Center Drive. Several new buildings, sidewalks, planting and parallel parking would improve the look of River Street through the Downtown Core and bring more pedestrians to the street.



Town Roads - Bombardier, Center Drive, Middle Road, and New Roadway Network

New and rebuilt town roads will be constructed within the available 60 foot right-of-way required by Milton's standard for all new roads. The 60 foot width is sufficient to create a very functional streetscape for the local roads of the new Downtown Core. As with River Street, all elements of the streetscape need to work together to make the street function as a successful pedestrian/vehicle corridor. The important characteristics of the Town Road section are the following:

- ***Building Setback.*** **–**Buildings should be located at the edge of the street right-of-way, to provide easy pedestrian access and to frame the streetscape. It is recommended that MAXIMUM setbacks of approximately 7 to 10 feet be established in the zoning ordinence to ensure this occurs.
- ***1 ft Setback*** from the right-of-way. Generally 1 foot is provided from private property to allow for construction and sidewalk repair and not damage private property.
- ***New sidewalks*** on both sides of the roadway. Sidewalks should be a minium of 5 feet for the pedestrian route and, where parallel parking is present, the sidewalk should extend to the curb for easy access in and out of parked vehicles. The area of the sidewalk for the pedestrian walking lane should be setback from the curb a minimun of 5 feet.
- ***Amenities and utilites corridor.*** The remaining space between sidewalk and curb can be used for amenities such as lights, benches, trees and utilities, either under or above grade. This space provides an important buffer between the pedestrian and street traffic. It is also useful for snow storage in winter. Where parallel parking is present and is heavily used, the pavement should extend to the curb. Where there is no parallel parking the space can be a grassed greenbelt.
  Specifics – see River Street
- ***Street trees.*** Street trees are an important amenity for pedestrians. They should be installed on both sides of the street either in wide greenbelt or in tree pits. Low growing



Sketch developed for the public charette showing a streetscape option for Center Drive and other streets within the Downtown Core. This was the preferred option.

- street trees can be installed beneath utility lines.

Specifics – see River Street

- ***Parking lane.*** Parking lanes should be installed on both sides of all streets where they do not interfer with driveways, intersection, or sight-lines. Turning lanes are discouraged on local downtown roads as they are less friendly to pedestrians. Curb extensions at intersections are encouraged.
- ***Travel lane.*** VTrans State Standards are fairly flexible on the width of travel lanes on town roads where traffic speeds are slow and volume is low. Nine and Ten foot lanes are options. Ten foot lanes are recommended here to allow buffer space from parked cars and share-the-road space for bicycles. Most vehicles are 5 ½ to 6 ft. wide. Ten foot lanes and 8 foot parking aisles leave 4-5 feet for a cyclist if passed on the street by a car.
- ***Bicycle traffic*** – If actual traffic speed is 25 mph or less on town roads, bicycles should be able to safely share-the-road with vehicles.
- ***Traffic speed*** – Current vehicle speed limits of 25 mph should be maintained or even lowered as the area develops. State regulations allow posted speeds below 25 mph within Designated Downtowns, but language is not clear if this also applies to Designated New Town Centers. As new streets and intersections are added blocks will become shorter and four-way stop signs at intersections can be installed to discourage speeding and short-cut through traffic.

This plan is an example of the recommended changes for Center Drive, and other new town roads in the Downtown Core. New buildings placed close to the road with parking behind, tree lined sidewalks, parallel parking, and integrated, stormwater gardens characterize the streetscape.

b. Street Trees

Street trees provide enormous benefit to a downtown. The costs of initial investment and long term maintenance are far outweighed by the contribution they make to an inviting and livable town center. It is often difficult to argue for the benefits of trees with the constraints on town budgets that put planting as a low priority. A long term view is needed for promoting this element of the streetscape that adds amenity and economic vitality.

Benefits

The benefits listed below are fully explained in *Landscape Guide for Vermont Roadways and Transportation Facilities, June 2002* Available from the Vermont Agency of Transportation.

Vehicular Transportation Benefits

- *Safety* - Street trees used in combination with curbs and sidewalks have been shown to slow traffic by narrowing the appearance of the roadway and defining the downtown setting. Slower traffic has been shown to result in fewer and less severe accidents.
- *Wayfinding*- Roadside trees or groups of trees can serve as landmarks along the roadway, and even alert drivers to a turn in the road.
- *Multi-modal Benefits*- Pedestrians benefit from the summer shade and cooling of street trees. Street trees encourage pedestrian use by greatly improving pedestrian comfort.

Community Benefits

- *Economic* - Despite the difficulty of placing a value on such intangible factors, research has determined that communities do better economically when they protect their existing trees and continue to plant new ones. [2]
- *Aesthetic and Quality of Life*
  Defining Community Character
  Defining the Entrance or Gateway to a Community
  Screening
  Framing Views
  Noise Attenuation

Ecological Benefits

- *Air Quality*
- *Water Resources*
- *Cooling and Energy Savings*
- *Wildlife*

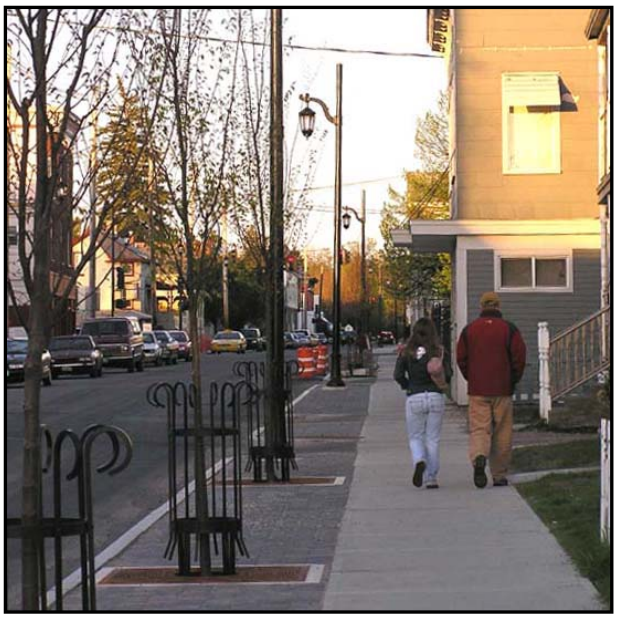
Selection

Street tree selection should consider the site or location where the tree is to be installed and the soil type or conditions it will be growing in.

Soil and growing environment

Soil in Milton and in the DB1 zone is generally sandy. Some trees do well both in sandy soil and in a downtown or urban environment where they are impacted by dirt, dust, and winter salt. The construction process often disrupts the normal soil profile and leaves soils compacted and less suitable for plant growth. Development specifications for new plant beds should be written to correct poor conditions before plants are installed.

[2] Dwyer, John F. *Economic Benefits and Costs of Urban Forest*, Abstract; Proceedings of the Fifth National Urban Forest Conference.



Trees in a Downtown Setting

Where a greenbelt is too narrow (less than 6 feet wide) or in a location where the planting site will be heavily impacted by pedestrian traffic, street trees can be installed in tree pits below bricked pedestrian areas and covered to tree grates.

These newly planted trees shown in the photograph are protected from vandalism by tree guards. Below the sidewalk and the decorative block pavement is *structural soil*™. The roots of these trees will be able to spread broadly through this material to find water and nutrients.

"*Messy Trees"*

Sometime people object to the fact that trees drop leaves, seeds or fruit, creating litter on the street and/or sidewalk. As living things, trees do go through a natural cycle that includes seasonal shedding. If this is objectionable in an urban area, trees can be selected that have the smallest leaves and fruit that is generally taken by birds or sterile varieties that produce no fruit. Trees with smaller leaves, such as honeylocust and ash may be preferred. This will limit the list of trees to choose from. It is not possible to eliminate all tree litter.

Trees to be planted in tree pits within a sidewalk will need *structural soil*™, or its generic equivalent. This type of soil can be compacted yet still allows tree roots to grow through it. It is therefore suitable for sidewalk base material and also as a growing medium for trees.

Trees to be grown in stormwater treatment islands (discussed in *Section 4*) and basins must be tolerant of inundation by stormwater for several hours or even a few days. Stormwater treatment facilities can be planted with a mix of shrubs and trees for that purpose. There are many sources of information on planting for stormwater treatment facilities, including lists from the Vermont Agency of Natural Resources and also the Winooski Natural Resource Conservation District located in Williston.

Below is a brief list of street trees that are suitable for sandy soils and a downtown environment. This is not a definitive list. In addition new varieties are being developed continually that should be considered.

Common Name	**Botanical Name**
Large trees	
Freeman Maple	Acer freemanii
American Elm –new disease resistant species	Ulmus Americans - disease resistant species such as Princeton Elm.
Green Ash	Fraxinus pennsylvanica – varieties
Honey Locust – several varieties	Gledetsia Triacanthos var. Inermis
Red Oak	Quercus rubra
Linden–varieties– "Little leaf" commonly used	Tilia americana – several varieties
Small trees	
Hedge Maple	Acer campestre
Flowering crab	Malus –varieties –disease resistance important
Japanese Tree Lilac	Syringa –varieties
Serviceberry or Shadbush – single stem	Amelancier – varieties
Flowering Pear	Pyrus –varieties

Tree Size and Location

The mature size of the tree should be considered when selecting the tree and its location. In general, large shade trees are preferable as they will bring more of the benefits discussed at the beginning of this section, i.e. a larger tree gives more shade benefits etc. The size and placement of trees should consider several factors:

- Utility lines- Large trees (or its trunk) should be placed at least 15 ft away from utility lines. Smaller trees can be grown below utility lines.
- Buildings – Trees should be placed far enough away from a building so that the branches of the mature tree will not touch the walls or block window views. Also, trees should not be placed to block historic or important downtown buildings.
- Vehicular sight distances- Street trees are often removed or not planted due to concern that they will block sight lines at intersections or other places along the traveled way. Conflicts between sight distance and trees can be easily prevented. Street trees are now grown in nurseries with a *clear stem*. The lower branches are removed as they mature to allow visibility below the crown of the tree.
- Greenbelt – Street trees need in a greenbelt that is at least 6 foot wide to survive in a roadway environment. Wider 8-10 feet greenbelts are preferable but not often attainable. To serve their intended purpose within the streetscape, street trees should be located between the roadway and the pedestrian way. Trees in this location define the sidewalk space and provide a sense of protection for the pedestrian from roadway traffic.

The **Vermont Urban and Community Forestry Program** of the Vermont Department of Forests, Parks and Recreation provides communities with a wealth of information, assistance and grant possibilities. They provide:

- Publications on selecting street trees and how to plant them
- Training for staff and community volunteers
- Grants for inventorying, planning for, and planting trees.
- A news letter called The Town Green
- An enthusiastic and informed staff
- An up-to-date web site

Contact them

Danielle Fitzko – director
Dept. of Forests, Parks & Recreation
103 South Main St, Bldg. 10 South
Waterbury, VT 05671-0601
(802) 241-3673
danielle.fitzko@state.vt.us

Web site: http://www.vtfpr.org/urban/for_urbcomm.cfm

Ash trees with clear stems installed in 1999 along this Brattleboro roadway do not block views of on-coming cars from driveway entering traffic flow.

Installation

There are many errors and omissions that can occur during the process of growing, installing, and establishing street trees. The town should protect their investment in new trees by being cautious and seeking the best advice and selecting good professionals to install streetscape planting.

Section 3b Resources

Vermont State Design Standards- 1999
Vermont Agency of Transportation
http://www.aot.state.vt.us/progdev/standards/statabta.htm

Landscape Guide for Vermont Roadway and Transportation Systems – 2002
Vermont Agency of Transportation
www.aot.state.vt.us/Progdev/Documents/Design/VTrans_Landscape_Guide.pdf

Residential Streets, Third Edition 2001
Walter M. Kulash, Principal Author
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1025 Thomas Jefferson Street, NW
Suite 500 West
Washington, D.C. 20007-5201

c. Pedestrian Roadway Crossing

Purpose

A pedestrian crossing is designed to encourage pedestrians to cross a roadway at a predictable location where they can be easily seen by motorists and cross safely. Although most pedestrian crossings are at intersections, they may be located at other points such as mid way along a long block or near schools where there are a large number of children crossing.

On State and Federal highways pedestrian striping and signalization requires a "warrant." It must be demonstrated that there is sufficient pedestrian demand to warrant the investment in crossing infrastructure. There is an exception for school crossings.

Crosswalk markings alone are unlikely to benefit pedestrian safety. Ideally, crosswalks should be used in conjunction with other measures, such as curb extensions, particularly on multi-lane roads with average daily traffic (ADT) above about 10,000[3].

Vermont Pedestrian and Bicycle Facility Planning and Design Manual. This manual, which is available on-line, has a wealth of detailed information on both pedestrian and bicycle standards and options.

Other important factors for pedestrian crossings are: 1. good lighting that illuminates the pedestrian in the crosswalk and does not create glare for on-coming motorists; 2. good sight lines; and 3. speed control for motorists.

River Street- The town should consider striped pedestrian crossings, curb extensions and a pedestrian signal phase for any new intersection designs or roadway improvements for River Street. Pedestrian refuges or median islands are an alternative to curb extensions.

Low Traffic Streets

There can be more design flexibility on Center Drive and other new and existing streets for designs that serve pedestrians. Striped pedestrian crossings, and curb extensions can be added to most intersections. Stop signs will keep traffic at a reasonable speed, improving pedestrian safety.

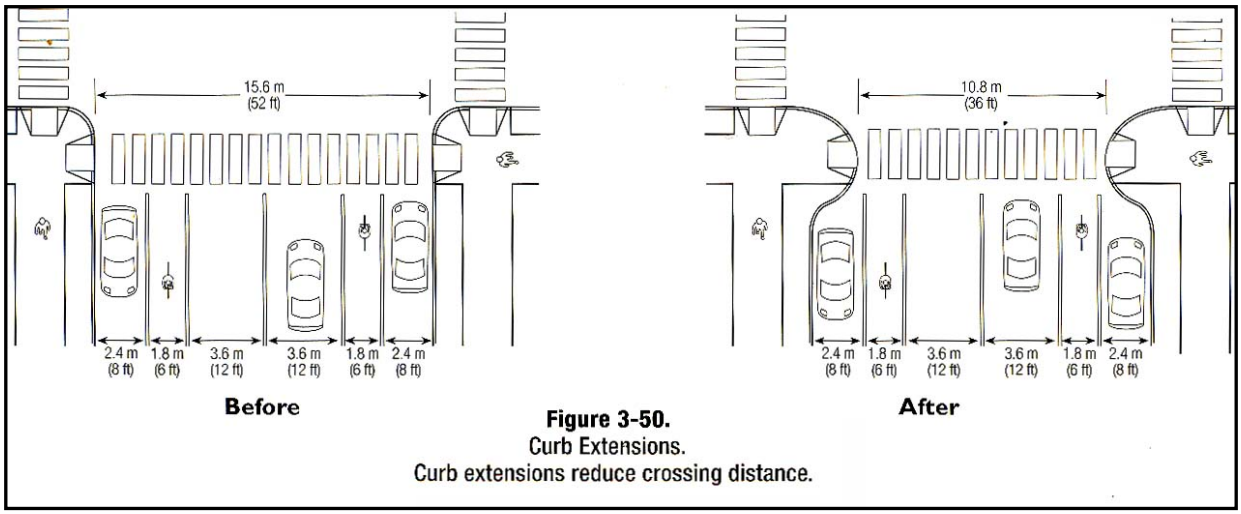


Figure 3-50.
Curb Extensions.
Curb extensions reduce crossing distance.

Curb Extensions make the pedestrian more visible while waiting to cross and they also shorten the pedestrian crossing distance and the crossing time, giving comfort and safety to the pedestrian. The graphic above is from the

Intersections should be designed with standard town center turning radii of 15 feet. This radius has been historically used and functions well in most Vermont town centers, where trucks

[3] Walking Info Pedestrian and Bicycle Information Center, 730 Airport Road, Suite 300, Campus Box 3430, Chapel Hill, NC 27599-3430 phone - 919.962.2203 pbic@pedbikeinfo.org

circulate. Major intersections on River Street may require wider radius intersections.

Crosswalk Materials

The most important factor of crosswalk markings is their visibility to motorists, particularly at night. Crosswalks should not be slippery or overly textured.

Common alternative crossing materials are shown below in order of installation cost.

Colored and Textured Stamped Asphalt $$$

This option has become popular in many town centers because of its color and brick-like appearance which has a historic reference.

There are several manufacturers who install the product or license local contractors to install the material. Method 1 uses a shallow stamp and color applied on top of newly poured asphalt. Method 2 applies color to the asphalt before it is poured and is stamped more deeply so that the texture better withstands traffic. A third method heats, melts, colors, and stamps existing asphalt pavement.

The durability of stamped asphalt is in question, especially on high traffic roads and on those with heavy truck traffic. For Method 1, used on most streets in Burlington, both the color and texture have proven to erode easily and must be redone every 2 or 3 years depending on the traffic use. Method 2, used in a few downtown Burlington locations, has held up better.

Thermoplastic and Inlay Tape $$

Both inlay tape and thermoplastic are more visible and less slippery than paint when wet. Thermoplastic does come in colors but is generally applied white for cross walks. It usually has iridescent properties making it highly visible at night. It is mechanically applied and it more durable than paint.

Asphalt Paint $

This paint is commonly used for roadways and parking lots that do not experience heavy traffic. It is the least expensive but, although it is formulated to withstand wear, weather and salt, it must be re-applied frequently (yearly) depending on traffic wear.

The Federal MUTCD (Manual of Uniform Traffic Control Devices) prefers the “ladder” marking, although one stripe on either side of the walk, as seen in the stamped asphalt photograph, is acceptable. Heavy diagonal strips are also acceptable and have the advantage of providing good constant with the dark form of a pedestrian crossing at night.

Section 3c Resources

Pedestrian Crossings
www.fhwa.dot.gov/download/hep/environment/09chapter8.pdf

Vermont Pedestrian and Bicycle Facility Planning and Design Manual -2002
VTrans - Chapter 3
www.aot.state.vt.us/progdev/Documents/LTF/FinalPedestrianAndBicycleFacility/PedBikeTOC.html
This document has a full, detailed discussion of all the topics above including serving the needs of handicapped pedestrians.

d. Outdoor Lighting

Lighting the Town Core

Illumination for nighttime activities in the town core will likely come from a variety of sources.

- Street Lights
- Pole lights in parking lots
- Wall mounted lights on buildings
- Wall washing lights at stores
- Lighting from display and other windows
- Sign Lighting

All lighting should be designed to create a comfortable, inviting environment for all residents or nighttime visitors who are shopping, dining, or attending events in the town core.

Many lights along the streets and in prominent locations, such as parks, will be the distinctive signature design chosen by Milton residents who attended the community charette. However, some fixtures installed will be functional and will illuminate an area, show the way, or give just enough light to perform a task without causing glare or wasting light. Not all lights need to be decorative or have a period style, but they should be well designed and well engineered to control glare and prevent wasted light that contributes to skyglow.

Like other Towns, Milton's practice had been to not pay for street lights. Street lighting in most Vermont towns is provided by the local electric utility company on a per-fixture, rental basis. A limited number of fixture and lamp types are available. The fixtures are usually affixed to existing wood utility poles and serviced by the company.

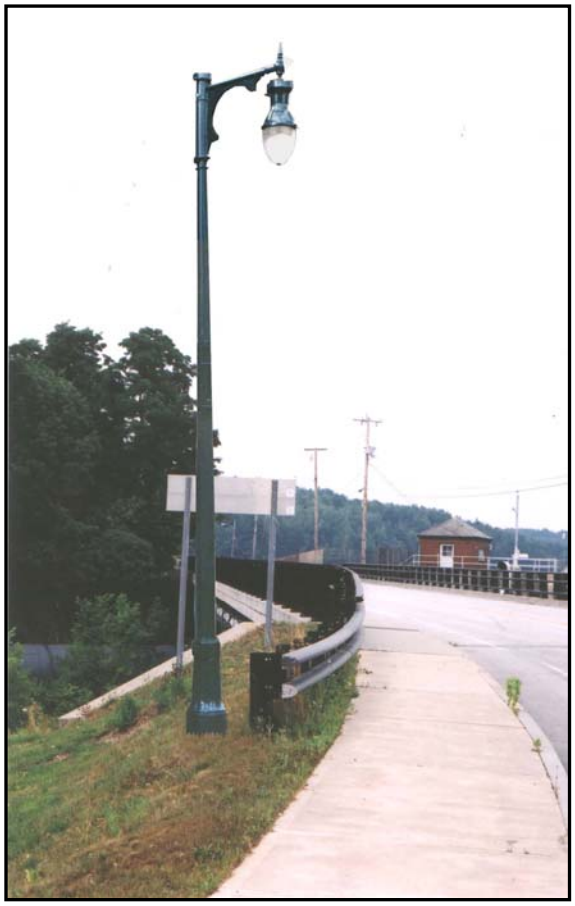
When towns install decorative fixtures they own and maintain the fixtures and underground wiring. Electrical usage is metered and billed to the town. Milton will need to adjust its policy and plan for the additional costs of installing decorative lighting necessary for a successful streetscape.

The new fixtures at the Milton's River Street Park will need to be maintained, metered and billed to the Town in this manner.

An inviting downtown will be evenly illuminated. Very bright lights or uneven lighting creates shadows and makes visibility difficult.

High light levels sometimes create competitive lighting in which one business tries to "out-light" its neighbor resulting in lighting escalation. Bright lights and bright signs should be discouraged.

Milton's Zoning ordinance does address general guidelines for outdoor lighting. The Town can develop a more specific detailed guide of the best outdoor lighting and sign lighting practices to guide developers.



Graphic prepared for the Village Lighting Study in 2002 simulated a proposed teardrop fixture installed at the south end of the bridge.

Selected Fixture Style

Signature Fixture

The "tear drop" style fixture that was the selected as the favorite decorative fixture at the December 2005 community charette was also the style selected for use on River Street, during the 2002 Village Lighting Study for Milton Village. At that time a sample fixture of this type was installed for approximately two weeks at the riverfront park to let the public see it in use. The Village Lighting Study selected a different style fixture to be mounted on a shorter pole for Main Street to define the historic district.

This "tear drop" fixture style is not widely used in Vermont. When installed in the downtown core it will give Milton streets an element of distinction.

The fixture shown at the charette is manufactured by Holophane, a division of Acuity Lighting Group, Inc. Similar styles are also available from other manufacturers including Hadco and Cyclone.

The Holophane product is unique in its use of a finely refracted, thick borosilicate glass globe which distributes light evenly with a minimum of glare. The glass globe is said to be somewhat self-cleaning as rain storms easily wash away dust from glass. Glass keeps its clarity and maintains its light levels over time. Polycarbonate lenses used by most manufacturers tend to discolor overtime which also diminishes the level of illumination. There are a few other manufacturers that use glass globes.

Several manufactures produce a "tear drop" style. All fixtures are at least semi-cutoff. Three of these manufactures and contact information for their sales representatives are shown below. The town may contact these or other manufactures to request a demonstration of their products and to inquire about the costs of fixtures and poles. The number of poles and brackets needed can vary, depending on the location, light distribution pattern, and light levels required. There are several variations on the bracket and pole designs offered by most manufacturers.

Holophane
Sales Representative
Peter Sears
114 Jericho Turnpike
Suite 112
Floral Park, NY 11001
845 679-4329
http://www.holophane.com/

Cyclone
Sales Representative
CWA Group
345 Middle Road
PO Box 49
Melvin Village, NH 03850
603 544 3053
http://www.cyclonelighting.com/

Hadco
Sales Representative
Charron Inc
PO BOX 4550
Manchester, NH 03108
Phone: 6036244827
http://www.charroninc.com
mbeliveau@charroninc.com

Fixture Styles

The tear drop fixture is a distinct ***signature*** style that will identify the downtown core and add vibrancy to the streetscape. It is not necessary to use this style fixture in all locations. In fact, this style may look very out of place in the middle of a parking lot. The tear drop fixture should be used in combination with a set of more ***functional fixtures*** that do the lighting task required, but do not call attention to themselves. Functional fixtures should to be full cut-off.

Signature fixtures should be used along all streets in the DB1 zone, in parks and public spaces and in front of civic building in the downtown. They can be used along prominent driveways, through private developments that function as public roads. They might be used around buildings in private developments if they complement the architecture.

Functional fixtures should be used in parking lots, along walkways between and behind buildings, in active recreation areas, and as wall mounted fixtures on buildings.

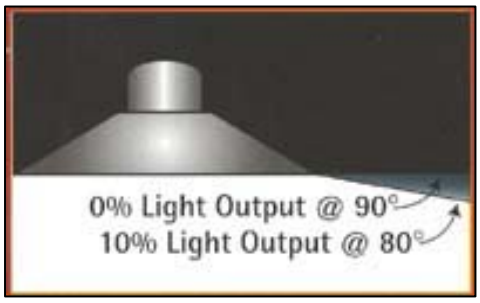
Examples of functional background fixtures.

Cutoff luminaires

There was a consensus among residents attending the charette that new fixtures should have cut-off lighting characteristics to avoid glare and light shining skyward that produces sky-glow. Such lights are called *Cut-off fixtures.* Most lighting manufactures make fixtures that meet some level of IESNA (Illuminating Engineering Society of North America) cut-off standard.

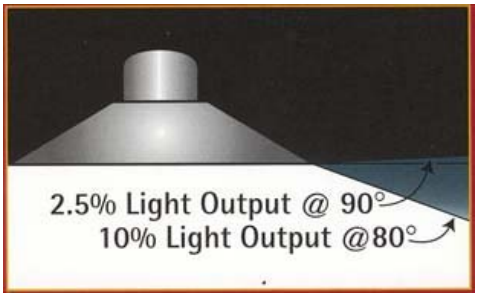
To be FULL cut-off some may require a shade or "skirt. "

The three IESNA categories of cut-off lighting fixtures are as follows. Semi cut-off fixtures are most likely to produce some glare.[4]



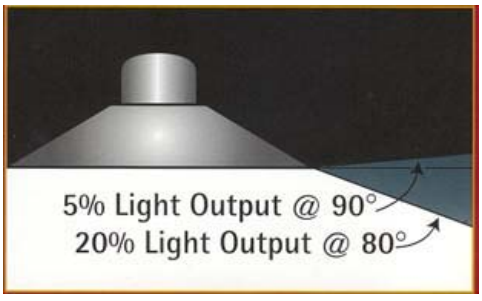
FULL Cut-off

- All light is aimed toward the ground and **none** is allowed to shine directly above 90 degrees
- A maximum of **10 %** of lamp lumens can shine above 80%
- The angle of direct light output minimizes light trespass
- Efficient target lighting. Least wasted uplight.



CUT-OFF

- Most light is aimed toward the ground and up to **2.5% direct uplight** is allowed to shine above 90 degrees
- A maximum of **10%** of lamp lumens can shine above 80%
- In some fixtures, a wider spread of light is possible allowing wider spacing which may save energy if fewer fixtures are needed.
- Small amount of light may help illuminate building facades in a downtown setting.



SEMI CUT-OFF

- Most light is aimed toward the ground and up to **5% direct uplight** is allowed to shine above 90 degrees
- A maximum of **20%** of lamp lumens can shine above 80%
- In some fixtures, a wider spread of light is possible allowing wider spacing which may save energy if fewer fixtures are needed.
- Small amount of light may help illuminate building facades in a downtown setting.

[4] IESNA has developed a new Luminaire Classification System. As of the date of this report if has not been adopted for use but may be in the near future. Manufacturers are beginning to design and classify their fixtures in conformance with the new system.

Glare

Glare is arguably the most important issue in outdoor lighting. Glare from a fixture actually impairs night time vision. Unfortunately, the response by some towns and developers to glare which induces visual impairment is often to add more light.

Unlike light levels which are quantified in footcandles, glare cannot be easily measured. However we usually know it when we see it. Glare usually occurs when the lamp (bulb) or its direct reflection is visible and bright.

As a rule, full cut-off fixtures produce less glare than other fixtures with less effective cut-off characteristics. Using lower wattage lamps is also somewhat effective in lowering glare.

Federal FHWA requirements for higher level illumination on River Street (US Route 7) will likely require taller poles, longer brackets and higher lumen level (brighter) lamps. To avoid glare on River Street a lower mounted *signature* fixture can be used in combination with higher mounted functional fixture to give both character and adequate light to the street. Alternatively the signature fixture can be used on a high pole, with lower wattage lamps, spaced more frequently.

Cost

Costs of fixtures available from different manufacturers vary with the quality of the fixture. The design engineering of some quality luminaires may allow for wider spacing, lower wattage lamps, and less glare. This information should be available from the manufacturer.

Before selecting a fixture, the town may consider a life cycle study of long and short term costs of various fixture options that include installation, maintenance, cost of electricity, and replacement over the lifetime of the fixture.

Wiring

Underground wiring will be required for new pole lights. Spacing of pole lights will need to accommodate existing poles, overhead wires, and below grade utilities.

Emerging Street Lighting Technology

The following new lamps types are on the market and are being improved rapidly for efficiency, quality, and cost. The information below gives a snapshot of current status, but will likely be outdated a year from now.

Induction lamps, and the fixtures that use them, have been available as an alternative street light option for several years. The lamp is unique for its longevity of 100,000 hours, 5 to 10 times the life of commonly used lamps, producing significant savings on the labor of lamp replacement. The lamp has good efficiency, produces an excellent white color, and performs well in cold weather.

Attractive light and long lamp life make the Induction fixture useful for decorative street lighting

Induction lighting has been slow to catch on primarily because of its initial installation cost, which is 4 to 5 times that of conventional fixtures.

Light Emitting Diodes (LEDs) are also being developed for street lighting. LEDs offer long life and actually increase their light intensity in cold weather. The limiting factor of LEDs is the color of the light produced. The most efficient lamps are poor (blue) color and the white lamps currently cannot compete with other light sources on efficiency. However, at least one manufacturer (Beta – see resources) is producing a street light for the municipal market that appears to have overcome some of these obstacles.

Pole light manufactured by Beta

Currently LEDs are more appropriate in signaling applications than in providing "white"

light illumination, because of their directional output and because they produce colored light. However the technology is rapidly improving.

Section 3d Resources

Efficiency Vermont, 255 S. Champlain Street, Suite 7, Burlington VT 05401
1-888-921-5990 http://www.efficiencyvermont.com

Outdoor Lighting Manual for Vermont Municipalities – 1996, Chittenden County Regional Planning Commission
This document is out of print but photocopies are available at the CCRPC. A revised edition may be completed in the near future. Most information is still current as are recommend light levels except for light levels recommended for fuel station canopies.

Lighting for Exterior Environments- 1999, Illuminating Engineering Society of North America
IES document (RP-33-99).
This document has current light level guideline canopies and most other outdoor uses. It is available from the IESNA at www.IESNA.org in the bookstore section of the website under Standards and Practices.

Lighting for Parking Facilities – 1998. Illuminating Engineering Society of North America
IES document (RP-20-98).
This document has light level guidelines for parking garages. It is also available at the IESNA web site.

Induction lighting
http://www.smud.org/education/cat/cat_pdf/Induction%20Lighting.pdf
http://www.nam.lighting.philips.com/us/ecatalog/hid/pdf/p-5456e.pdf

LED lighting
A few companies producing LED pole lights
BetaLED.com
http://www.ledtronics.com/ds/SLL003-12V/default.asp

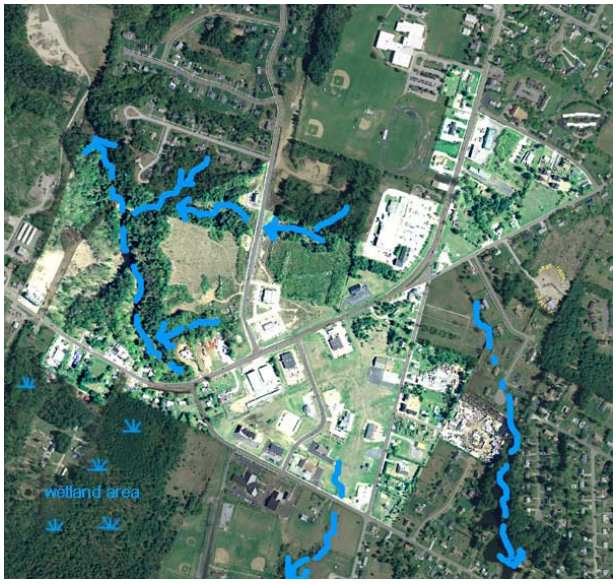
4. Stormwater

a. Overview

Compact mixed-use development is in itself a tool for reducing stormwater run-off[1]. By concentrating development in the downtown core, more of the surrounding countryside will be preserved, less land will be cleared, and fewer roads and parking lots will be created that prevent infiltration.

This is the view of many organizations, including the U.S Environmental Protection Agency, the National Wildlife Federation, and the Lake Champlain Committee.

However, to preserve Vermont's waterways the Vermont Agency of Natural Resources, Water Quality Division has specific and increasingly stringent requirements for storm-water engineering and treatment practices that apply to downtowns as well as suburban areas.



Approximate pattern of stormwater run-off in the DB1 Zone

These practices promote detention, treatment, and on-site infiltration, and discourage the conveyance of stormwater off-site. Such practices are intended to reduce the stormwater overload on streams and prevent contamination of the state's lakes and waterways from siltation and pollutants. Many of the ANR recommended practices could be used in Milton's new downtown core. Others are more suited to rural parts of town.

The DB1 zone does not have a unified storm water infrastructure system in place but fortunately the deep sandy soils found throughout most of the area are conducive for using several storm water infiltration tools, such as swales, rain gardens, bio-infiltration, and below grade storage and infiltration.

Many of stormwater treatment practices can be adapted to Milton's DB1 zone but others are not well suited, or are a challenge for this future compact urban area where buildings, pedestrians, vehicles, and parking must be in close proximity. As planned, open space will be a premium and land may become relatively costly. Currently the Town requires each individual development parcel to manage and treat its own storm water on-site. Storm water treatment related to new streets, sidewalks, and the recommended municipal parking lot would be managed by the Town.

Despite the favorable soil conditions there are design and engineering challenges, and costs for developers associated with obtaining stormwater permits for building in Milton's DB1 Zone on a lot-by-lot basis.

[1] *The Stormwater and Smart Growth Connection-see resources p*

b. Green/Open Space and Stormwater Treatment

As its title implies, the focus of this report is *Streetscape and Accessibility*. However, in a downtown setting, the design of the streetscape directly relates to planning and land use of downtown development, which in turn relates to the growing portion of land use dedicated to stormwater management. While stormwater management primarily falls to the Civil Engineering professional there is an overlap with town planning and design. Therefore, this section will address some of the planning and streetscape implications of stormwater.

For the Downtown Core to emerge as a dense and well functioning commercial center, the Town may wish to consider a comprehensive study of stormwater management, treatment, and permit-issuing for both municipal and private property.

Such a study could assess the potential footprint of buildings and pavement based on projected parcels to be developed and their land use. This projected coverage could be measured against available areas for stormwater detention and treatment based on soil conditions. The results of the study may answer the following questions.

- Will current on-site detention continue to be feasible from both an engineering and land use perspective?
- Will there be a long-term negative impact on groundwater?
- Will space required for on-site detention conflict with density goals in the downtown core?
- Is lot by lot individual stormwater management the most efficient and best use of downtown core acreage?
- Are there opportunities or benefits to creating shared stormwater treatment areas?

These graphics show two new Vermont downtown plans: South Burlington's City Center above, and Waterbury commercial-industrial area to the left. These municipalities are planning their downtowns around existing wetlands, as well as newly designed stormwater treatment areas that will enhance planned development and serve the stormwater treatment needs of large sections of the expanding downtown.

c. Street Stormwater Run-off

Streetscape recommendations in this report show all roadways bordered by curbs. This recommendation is somewhat at odds with some of the Vermont Agency of Natural Resources "Best Practices", and with national "Low Impact Development" advice. This report will suggest ways that the goals of stormwater infiltration can be accomplished while simultaneously protecting the design integrity of the streetscape that requires curbs to define the street edge.

In the downtown core, where parallel parking will be in demand, curbs are needed to keep vehicles from parking on and eroding the greenbelt; or from parking on sidewalks and compromising the pedestrian way. These are common problems in town centers where curbs have not been installed, or where they have been eroded or paved over. Examples are shown in the following photographs of Vermont towns. The erosion created by the lack of curbs is antithetical to Vermont's ANR stormwater goals of controlling erosion and sedimentation.

Without curbs or other barriers, greenbelts and sidewalks are severely compromised in the three Vermont town centers show. Clockwise from above the towns of: Townsend, Woodstock, and Jamaica. Note the lawn erosion in the Townsend photograph.

The streetscape can be designed to provide controlled vehicle parking and meet stormwater goals.

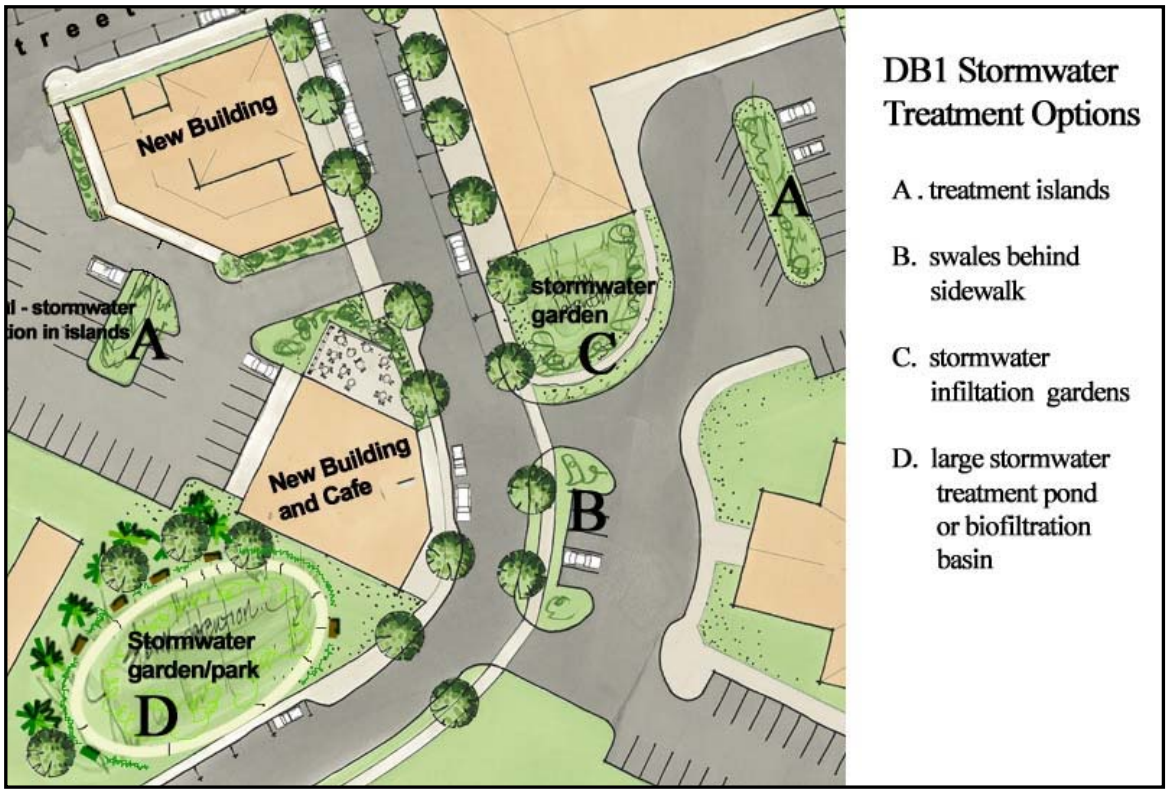
d. Options for Above Grade Stormwater Treatment

If developed as planned the downtown area will have a high percentage of impermeable surface. Where stormwater run-off in the DB1 zone must to be detained or infiltrated, on-site creative design and engineering must be employed. Most green spaces, both large and small, can and should be used to perform the double function of storm water treatment and their traditional function of providing attractive green spaces, planted buffers, or screening.

The following graphic shows four typical green areas that can have the dual function described.

While these options are useful and benefit stormwater treatment, more detention and treatment will likely be required for the developer to obtain a State stormwater permit.

The following pages will describe the options



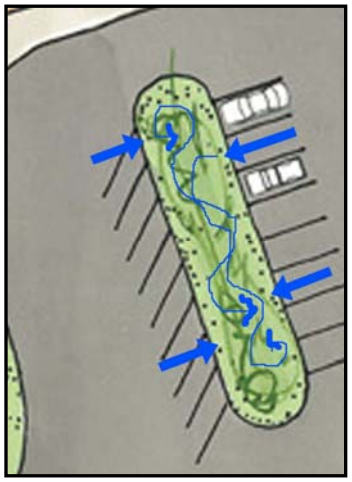
LEFT: A buffer island with trees, decorative grasses and shrubs collects run-off from a paved parking lot, and screens the view of vehicles.

This parking lot is located in the village of Eastsound, Orcas Island, WA.

Treatment Option A -Treatment Islands

Planted islands are attractive amenities for parking lots. They break up large expanses of asphalt, and support trees, shrubs, and flowers that add color and texture. Islands should be sized large enough to support trees that shade the parked cars during the summer.

Islands also can also be designed to infiltrate and treat stormwater. Islands should be curbed, at least on either end, to keep vehicles from driving across soil and plants. One or two sections of curb should be "dropped" flush with the pavement, and the paved surface pitched correctly to allow stormwater to flow into the island. Islands can be engineered with or without inlets and below grade structures.



ABOVE LEFT: Note the dropped curb that allows stormwater to flow into the parking lot island

ABOVE RIGHT: The curb is eliminated on both sides of the island but maintained on the end of the island to protect it from turning vehicles.

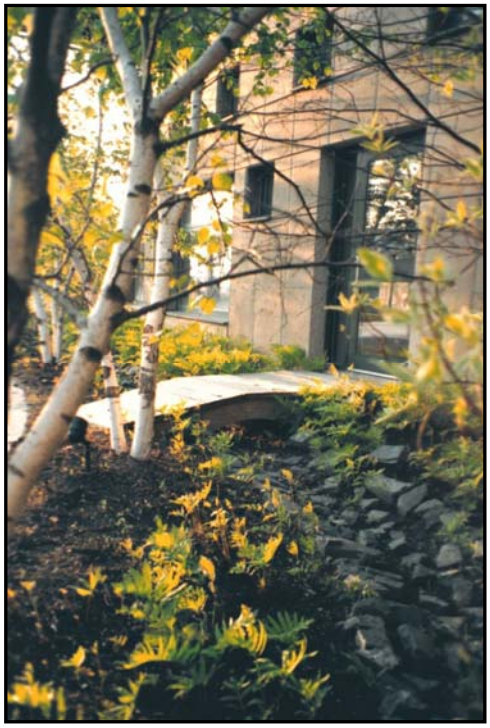
LEFT: The sections of dropped curb allow the island to collect run-off (blue arrows) from both sides but sections of curb or posts must be installed to protect from vehicle tires.

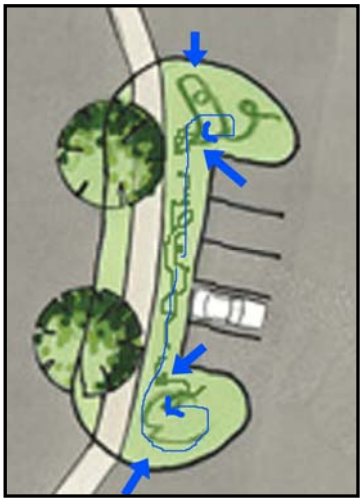
Plant selection is important. Only plants that can adapt to wet conditions should be installed.

This creative stormwater solution for a parking lot island on the campus of the University of Vermont captures runoff at the lower corners of the curb, allows it to flow into the island, and detains it in the green space, but also provides an overflow weir to a catch basin for high rainfall events. Most pollution occurs is in the first half inch of runoff. This run-off is captured and treated in the green space of the island. A shade tree would enhance the parking lot and provide shade.

Treatment Option B - Swales Adjacent to Walks

The downtown streetscape designed with parallel parking next to a curb at the edge of a sidewalk does not easily allow for a planted swale as recommended by many Low Impact Design (LID) recommended stormwater practices. However, there are other opportunities to include attractive planted swales on properties in the downtown core. Small green spaces, around and between buildings and parking, can be planted and shaped to maximize their potential for infiltration.





LEFT: Drainage swales and plantings complement the lower level of the Main Street Landing building in downtown Burlington. Swales are designed to slow, infiltrate and treat stormwater.

RIGHT: The marketplace has begun to develop products for stormwater treatment for use in streetscapes. This structure has a complex set of cisterns and filtering mechanisms below grade. More attractive storm treatment products are being developed that better integrate street trees with engineered components.

Treatment Option C –Small Scale Stormwater Bio-Infiltration Basins (Rain Gardens)

Green space near buildings can enhance a side or rear building entry and have a stormwater function. There are many attractive and colorful trees, shrubs, vines, and perennial plants that can adapt to the inundation from storms for short periods, when these basins typically experience flooding. Above or below grade overflow outlets are required.

LEFT: Stormwater from roofs and sidewalks flows into the landscaped depression of the stormwater garden captured, where it is detained and filters into the soil. Gardens can be designed with a below grade drainage/filtration system and outlets where soils are less permeable or the basin too small.

BELOW: A raingarden in South Burlington installed on clay soils. South Burlington has installed over six demonstration gardens over the last two years on both sandy and clay soils. While this is a residential example, planted areas with the same stormwater function can be installed at commercial sites.

Treatment Option D –Large Scale Treatment/Detention

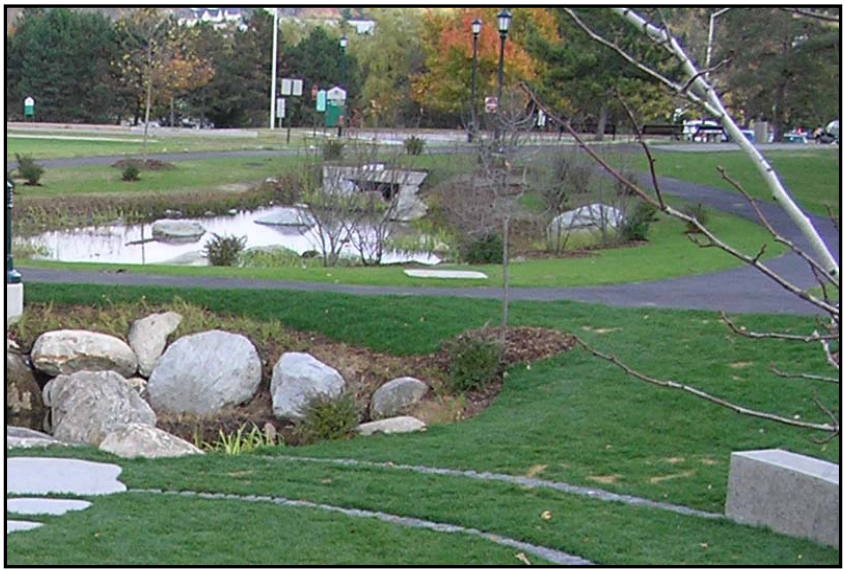
As suggested in *Section b*, (on page 42) it may benefit the development of the DB1 zone if the Town undertakes a comprehensive study of storm water management, treatment, and permit-issuing for both municipal and private property of the downtown core.

Such a study may determine that community facilities can benefit both stormwater management and town planning for the DB1. Large, and strategically located and designed treatment and/or detention facilities in the DB1 zone may add needed green space and enhance the streetscape.

Facilities could be shared by the Town and private landowners, or by adjacent landowners.

BELOW: Areas of roadway and parking area run-off can be treated in large well landscaped wet or dry basins that double public green space and/or parks.

This sketch shows a basin in the midst of a mixed-use area surrounded by a path and bordered with benches. This solution requires more design effort, but in an area of limited green space, is preferable to an engineered basin hidden in the back of a parcel.



LEFT AND BELOW
New dormitories at the University of Vermont include a water feature that includes swales and detention areas, and serves as open space that students can enjoy.

Section 4 - Resources

The Stormwater and Smart Growth Connection
Planning and Designing Water-Smart Communities in the Lake Champlain Basin

Published by - National Wildlife Federation and the Lake Champlain Committee
c/o Natural Resources Council 9 Bailey Ave.
Montpelier, VT 05602

The Low Impact Development Center, www.lid-stormwater.net

U. S Environmental Protection Agency,
www.epa.gov/watertrain/protection/r3.htm

These and other sites provide links to a vast resource of information on Low Impact Development

5. DB1 Building Design Guide

The design and placement of buildings on the site of the downtown core will set the stage for a successful pedestrian oriented street. A dynamic and prosperous downtown will employ the best qualities of a traditional downtown, but adapt those historic forms to contemporary styles and needs.

It is recommended that Milton develop a set of *Design Standards* for the DB1 zone, which advises applicants on the general site layout, parking, landscaping, signage, and lighting standards that will achieve the goals of the new downtown core, and will be most acceptable to Town review boards. Standards for building exteriors can give applicants direction on preferred building materials, window orientation, façade variety, canopies, and roof forms.

Design Standards in Vermont have traditionally been used to preserve historic districts. Since Milton's new downtown core has few historic buildings the Design Standards for the DB1 zone will be "form based" standards (see Resources) that encourage building designs that mimic the best aspects of historic downtowns, but allow for creative use of new architectural materials and designs. New downtowns and mixed-use areas of this kind are being built and have found success in recent years throughout the country.

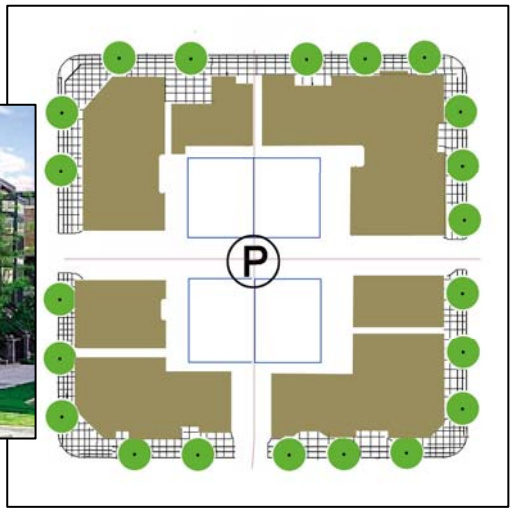
Form based zoning encourages creative use of traditional forms.

Basic standards should include the following:

a. Building Location and Design

Buildings should be located to create a "street wall"; a continuous or closely spaced row of windowed building facades facing the sidewalk. The new building facades should provide visual access into the first floor interior of the buildings, and/or engaging architectural elements. Buildings should allow pedestrians to enter the store or business directly from the public sidewalk. To encourage this type of development, design standards may call for the following:

- Building placed a maximum of 10 feet from the front property line.
- Buildings a minimum of two stories high.
- The primary building entry to be placed in the front of the building.
- First floor windows on the street side are a minimum size and occupy a minimum percent of the front façade (typically not more than 40%) of the building to allow visual access to first floor activity.
- Windows maintain transparency that allows the pedestrian visibility into the interior of the building.
- Encourage canopies, awnings and alcoves
- Architecture uses a variety of quality materials and varied surface planes.
- Façade of the building facing the sidewalk has detail and interest.

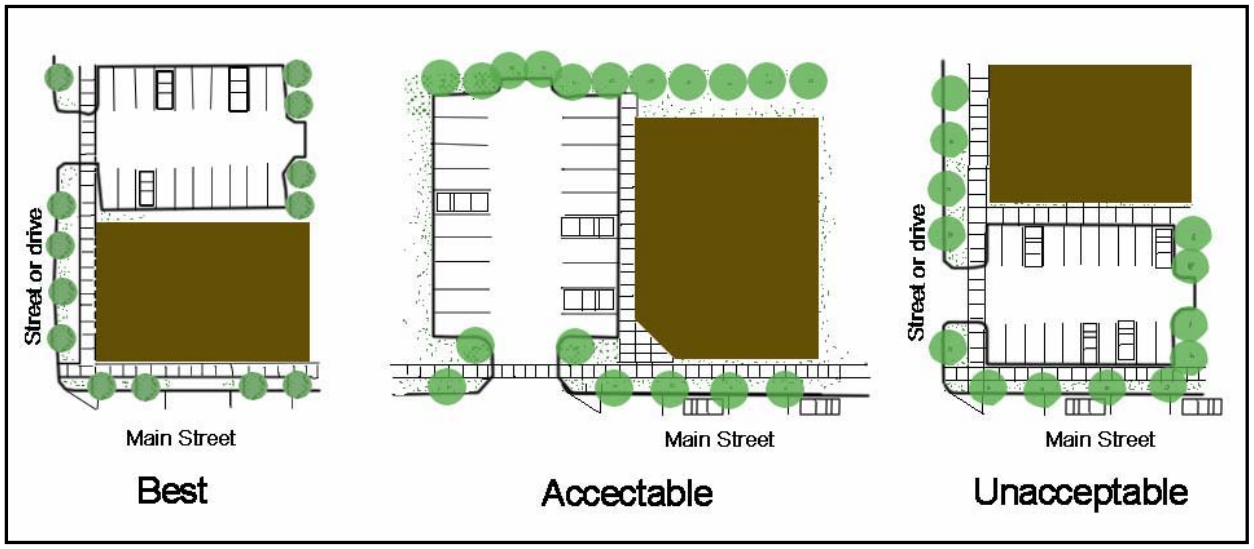


b. Parking Lot Location

The location and placement of parking lots is also essential to preserving the streetscape. Ideally, parking lots are located within the interior of a downtown block, and are shared for maximum parking efficiency.

However, where parking is provided on individual lots, it should be located behind or to the side of the building, allowing pedestrians to directly access the front of the building from the sidewalk without having to cross parking areas or driveways. If parking is located to the side, it should be placed back from the sidewalk, behind the front façade line of the building. Parking should be screened from the sidewalk by a low wall, fence, or hedge.

Parking below buildings is also acceptable and encouraged as long the portion of the building's first floor, facing the sidewalk remains in active use which relates to the streetscape.



Section 4 Resources

Form Based Zoning
Chapter 117 Implementation Manual Topic Papers.
To be completed in 2007
Department of Housing and Community Affairs,
Planning Division
802 828 3211
http://www.dhca.state.vt.us/

Community Rules - New England Guide to Smart Growth Strategies
Vermont Forum on Sprawl
Conservation Law Foundation
http://www.vtsprawl.org/

New Models for Commercial & Industrial Development
Vermont Forum On Sprawl
110 Main Street,
Burlington, Vermont 05401
Tel: (802) 864-6310
email: info@vtsprawl.org

Also from Vermont Forum on Sprawl
Growing Smarter- Making Smart Growth Work
Growing Smarter – Best Site Planning for Residential, Commercial & Industrial Development

6. Shopping Center Design

a. Existing Shopping Center

The retail stores in Milton's downtown shopping center provide its residents many essential goods and services. The center includes a US Post Office, a bank, grocery store, and a pharmacy. Retaining these uses in the downtown core will be important for the emerging DB1 Zone.

Although Milton's shopping center is the core of its current retail district, its form and character are suburban. The site layout is typical of the auto-oriented designs of the 1970's and 80's, in which retail buildings were located at the back of the site, behind a large parking lot. This site plan assumes all customers will arrive by car. It discourages pedestrian access from the public sidewalk and from others downtown businesses.

Fortunately, there are plans to redesign this retail center. The redesign provides an opportunity to create a pedestrian oriented shopping center with easy, walkable links to the public sidewalks, links between businesses inside the center, and good pedestrian connections to the rest of the DB1 Zone. Because the property fronts a long segment of River Street, there are also opportunities to improve the streetscape for a section of the primary thoroughfare through the new downtown.

b. Current Retail Center Designs

The *best practices* currently used in retail center design draw from the best design characteristics of traditional downtowns, and the efficiency of shared parking.

The primary difference between new and old design practices is the emphasis on the pedestrian as the prime user. Although customers may arrive by car, once the car is parked, shoppers become pedestrians. Paths and sidewalks provide continuous routes through out the center. As in a downtown, pedestrian routes pass by visually attractive retail widows and displays, are enhanced with street trees and amenities, are clearly signed and are designed to minimize conflicts with vehicles.

Best practices also include a clear street system for vehicles, similar to a town center. The streets separate sections of the center and provide "street frontage" to several businesses. Streets have parallel or angled parking, sidewalks and other amenities such as benches and decorative lights.

The best new retail centers also provide common space that can be used by stores and restaurants for display or outdoor dining and common green space to be used by shoppers or by the community for activities that draws the public to the retail center. This benefits both the town and the businesses.

Existing shopping center parking lot separates retail stores from the public sidewalk

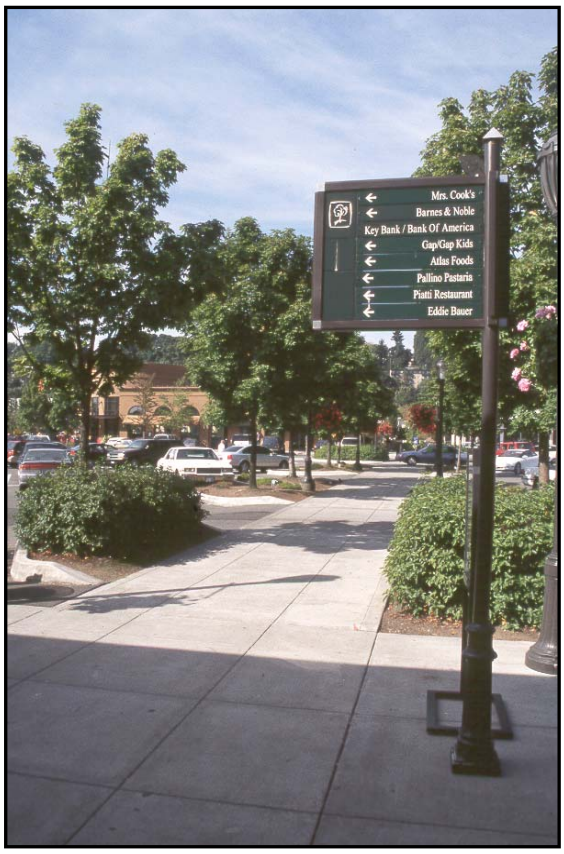
c. Examples

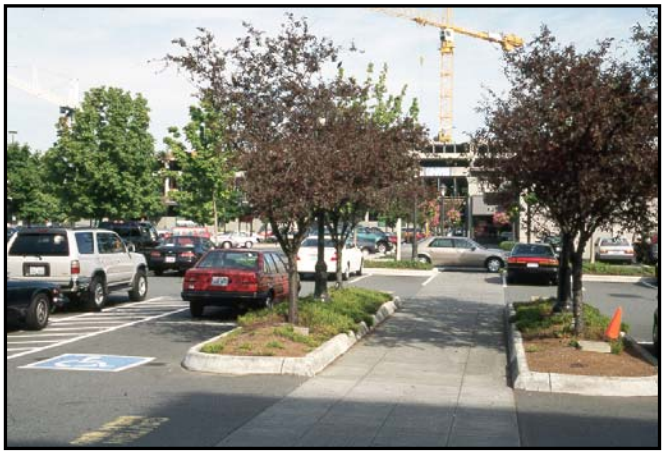
National Examples

The following are examples of existing retail centers in other parts of the country. While these centers may serve a larger, upscale market, their design techniques of creating a streetscape within the retail center, can be reinterpreted for a local market using less costly materials while retaining the same design intent and creating a comfortable public space.

ABOVE: Store windows, lighting and street trees mimic the look and feel of a public street in this Seattle shopping center. Note the use of perpendicular parking (above right) that separates pedestrians from the traveled way and also maximizes on-street parking spaces.

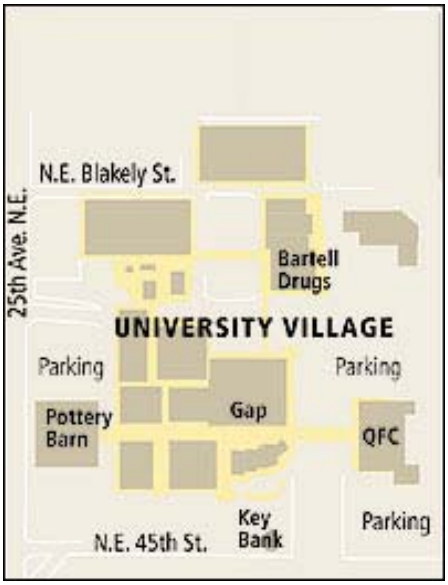
RIGHT: A similar retail center, Mashpee Common in Cape Cod MA.





Buildings are grouped to form interior open-air pedestrian spaces. Street-like pedestrian walkways shown above link building groups. Some buildings face the public street and make a connection to the surrounding community.

Sidewalks link building clusters to access the well planted parking areas. The sidewalks are tree lined, comfortable for pedestrians and well signed.



The design of some new mixed use centers includes central open green spacing both shoppers and the community. The green also provides an identity for the center and draws the public.

Local Examples

Several local retail and mixed use developments in Chittenden County have made efforts to incorporate traditional downtown elements in their design.

ABOVE

As the suburban community of Essex Town grew it found the need to have its own downtown. Essex Town Center is loosely based on a concept plan developed by the Town (Town Center Master Plan, 1991. While the plan was not strictly followed, the Town Center that emerged does serve the community and meets several of the Town's objectives. It provides many local retail needs and includes a senior housing facility. A new coffee house in an historic building is a popular neighborhood gathering place. Some of the buildings face Route 15 which is bordered by an active shared use path linking nearby neighborhoods.

BELOW

The Ethan Allen Shopping Center in Burlington's North End also roughly follows the form of a traditional downtown, particularly in the layout of grid "streets" that form "blocks." While some of the blocks have only parking and no shops, the retail center does provide numerous sidewalks and is home to many shops and the US Post Office, and a very popular "white table cloth" neighborhood restaurant.

An important aspect of Milton's redesigned shopping center will be the manner in which it addresses River Street. The shopping center will define the character of the streetscape on the west side of this primary thoroughfare in the future downtown core.

Currently the street edge of River Street evokes a rural or suburban image. To create a downtown streetscape the new development will need to include multi story buildings on both sides of the street, that define the street edge and begin to create the pedestrian realm that defines the DB1 by bringing it from suburban to DOWNTOWN.

The future infrastructure of River Street, needed to support the private investment, such as curbs, sidewalks and parallel parking are not yet in place. However, the development of buildings at the edge of the right-of-way will be the first step to creating a downtown streetscape and drawing pedestrian traffic to the existing sidewalk.

ABOVE: The current view of the edge of the planned shopping center. New sidewalk will be required for this segment of River Street to support the re-designed shopping center.

BELOW: A section of River Street near the Railroad St intersection. Buildings at the property line, new sidewalks, curbs, wide greenbelts, street trees and lights will create the downtown.

Creating a Streetscape – Buildings at the Sidewalk's Edge

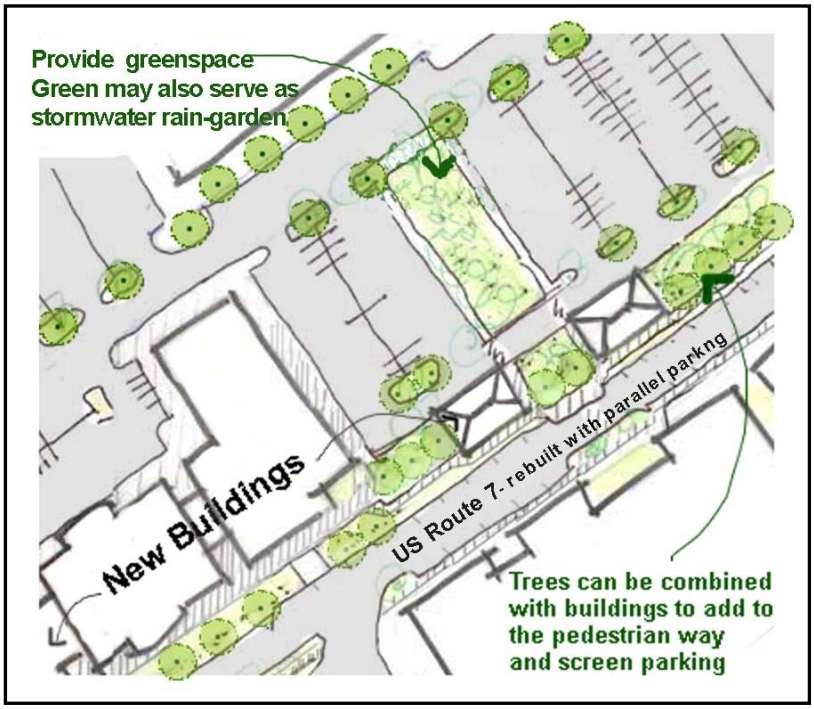
Shopping centers in Burlington's New North End and at South Burlington's new City Center have changed the area's image from "suburban" to "town center" and improved the streetscape with new sidewalks and new buildings built at the edge of the right-of-way.

Issues arising from the need for two entries, off both the street and parking lot, can sometimes be resolved by placing one main building entry at the corner.

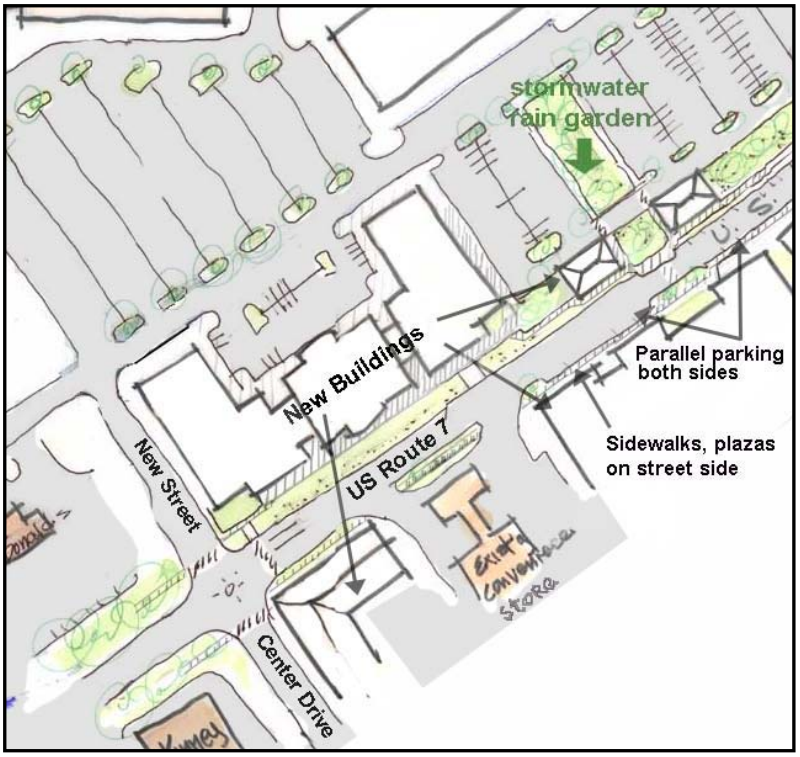
The absence of parallel parking on North Avenue (photo above) diminishes the success of this streetscape effort.

d. Design Concepts

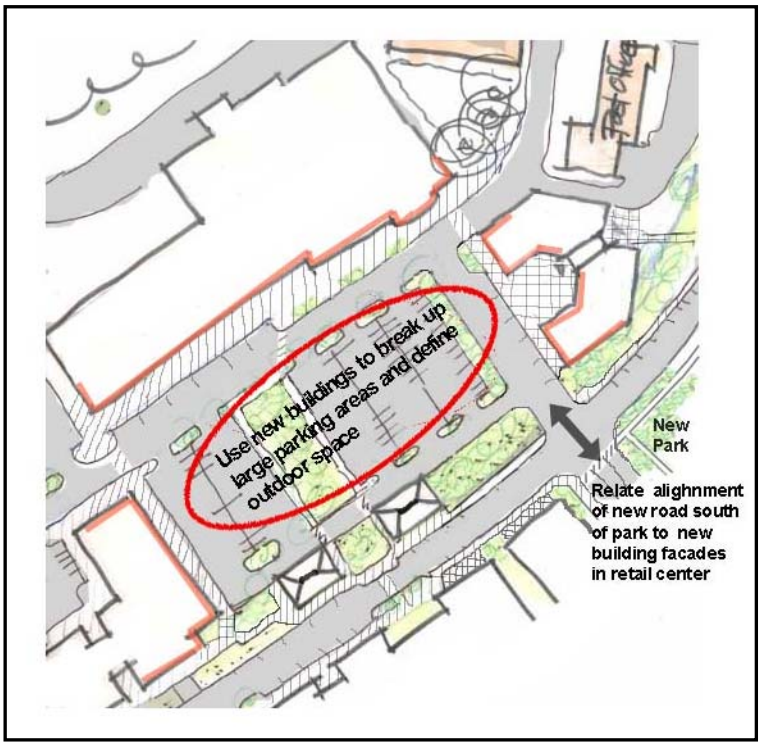
The following are recommended design concepts for the redesigned shopping center west of River Street



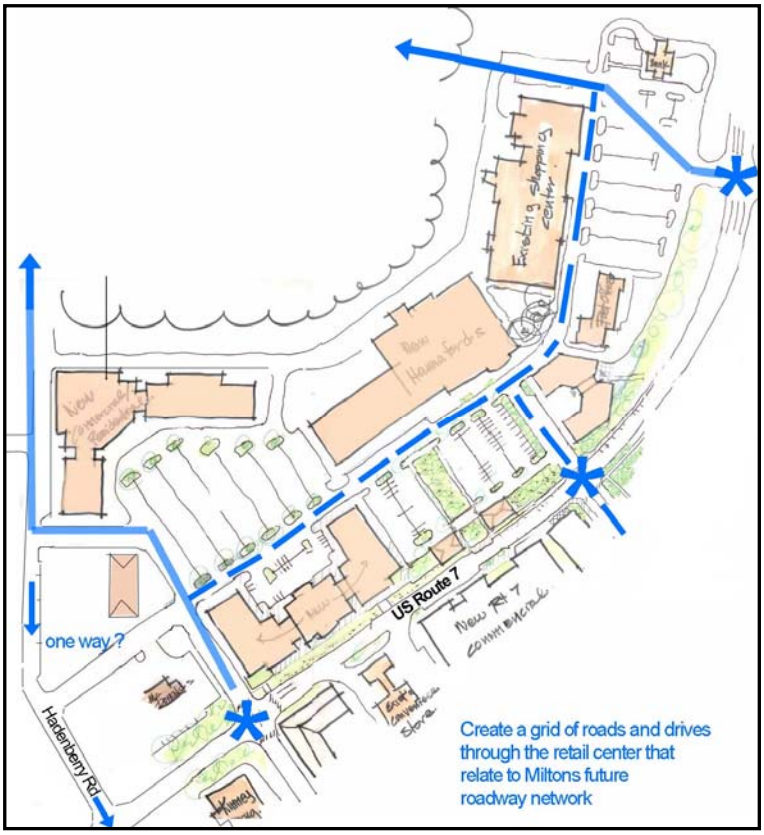
- Locate new parking behind or to the side of new buildings.
- Separate and screen existing parking lots that remain from the streetscape and the public sidewalk with smaller commercial buildings, or greenbelts, street trees and other planting.
- Intersperse all parking lots with green space and large planted islands. Islands can serve the dual purpose of providing attractive green space and stormwater infiltration



- Build new multi-story buildings close to the River Street right-of-way to create the downtown streetscape.
- Provide all buildings on River Street with direct pedestrian connections from the public sidewalk to a major, street-side building entry. A prominent corner entry may also be acceptable. Pedestrians must not be required to cross driveways or parking areas to access new buildings from the public sidewalk.
- Build the large buildings at major, new roadway intersections to define important corners of the downtown.



- The large expanse of the retail center can be broken up into pedestrian scale "blocks" by the placement of large and small buildings. Use buildings to form outdoor spaces or "plazas".
- Create an interconnected system of sidewalks to link and serve all buildings, public green space and parking.
- A grid system of streets and drives can also be used to break up the large parcel and connect the center to existing and planned new city streets.



- The roadway system of the redesigned shopping center should consider the transportation goals and objectives of the Town.
- Alignment of new entries and intersections should be coordinated with the retail center site plan, the planned park at the Railroad Street, Middle Road intersection, and the future Center Drive intersection. The Design and traffic pattern of Haydenberry Drive should consider the impact of through traffic on the neighborhoods.

7. Downtown Identity and Street Furniture

a. Identity

A graphic identity is a distinguishing symbol made up of forms, colors, and sometimes words. It can be used to establish the image of a district or a town. Once created, the image can be used on signage, advertising, and publications. The selected colors can be used on built improvements such as street furniture or pole lights. A graphic identity may or may not be determined by a "brand identity" which lets the public know how the town wants to be perceived.

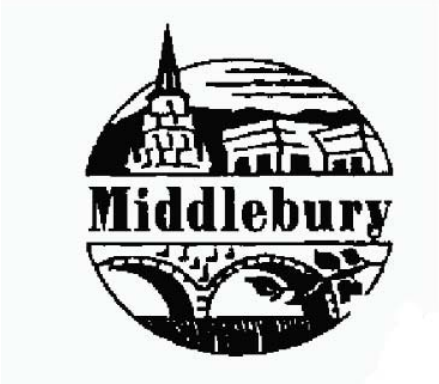
Downtown organizations find that creating a graphic identity helps identify the downtown as a shopping destination, and a place to do business. It can strengthen the cohesiveness among merchants and businesses.

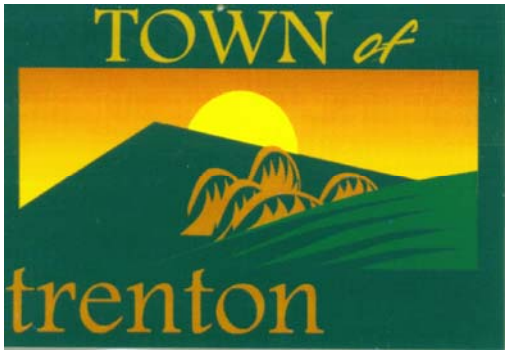
As the downtown emerges, both the town of Milton and its downtown business organization may benefit from hiring a consultant to create a graphic identity. The promotion of the new downtown on directional signage, light poles, community publications, and advertising can be a powerful marketing tool. Once developed, it is important to use the "brand identity" and the selected colors consistently so that the public associates the variety of the destinations within it, with the downtown core.

Towns often use the distinctive elements of their town, ie: historic buildings or natural features, in their graphic identity and signage. Other communities use simple graphics and color templates to convey their image.

Whatever it lacks in historic elements for graphic use the downtown core might borrow from the Town's natural features-- the river and its gourge. Rather than litteral, pictorial images the downtown may be best represented by an abstract design that demonstrates the new, modern opportunites of the downtown core.

Below is a collection of graphics from Vermont and some out of state communities.



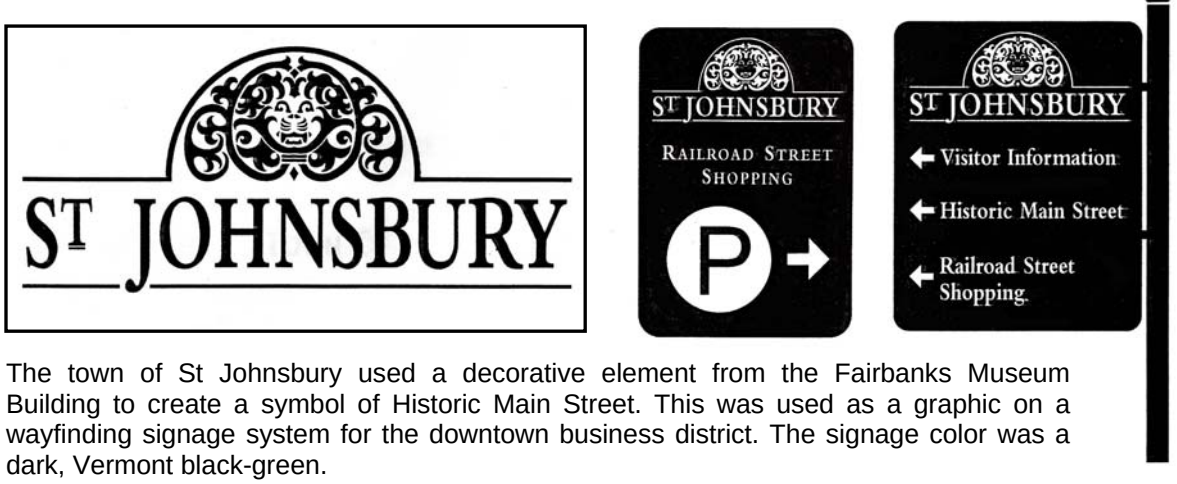


b. Wayfinding

Wayfinding signage is a comprehensive system of directional and identifying signs that help visitors find destinations, districts within the town, show visitors where to park, and calls out any number of helpful directions.

Wayfinding signage will create a mental map for visitors to Milton that will help guide them to where they are headed, and help them discover new places in the downtown.

Continuity in a wayfinding system is important. Using common design elements colors and materials easily recognizable throughout the downtown will catch the eye of visitors seeking a destination, and will create a positive, cohesive image.



The town of St Johnsbury used a decorative element from the Fairbanks Museum Building to create a symbol of Historic Main Street. This was used as a graphic on a wayfinding signage system for the downtown business district. The signage color was a dark, Vermont black-green.

c. Street Furniture

Street furniture includes benches, trash receptacles, bicycle racks, planters, ash receptacles, and other elements of the street that provide for the needs of people in the public area of downtown.

Besides their practical uses, street furnishings are a welcoming gesture to shoppers and visitors.

Like graphics and signage, they also provide a sense of place and a positive image of style and hospitality.

To maintain a positive image, benches and bicycle racks should be attractive, durable, and well maintained. Trash receptacles should not be installed unless there is a system set up for emptying trash on a regular basis.

Versions of the following suggested style are manufactured by several companies. The bench is a contemporary design that has references to a traditional, turn of the last century style. The mix of new and old will fit the new downtown. The Landscape Forms product is non-rusting aluminum. The other two bench products a powder coated steel. All products come in a variety to colors.

Landscape Forms Inc
www.landscapeforms.com- Sales Office
Steve and Carol Johnson
401-884-7026 *phone*
lantzofnewengland@cox.net

DuMor, Inc.
P.O. Box 142
Mifflintown, PA 17059
www.dumor.com

Keystone Designs
P.O. Box 2008, Butler, PA 16003
1-800-284-8208
www.keystoneridgedesigns.com

Bicycle Security Racks can be simple and attractive. There are many functional styles manufactured by several companies. Most designs are available in a variety of colors that can be related to the downtown graphic design system. Bike racks should be placed near the entry to public and private destinations.

Bike Ring

Bike Spiral

Bike Arch

Park a Bike
1412 S St
Sacramento, CA 95814
parkabike@racknroad.com

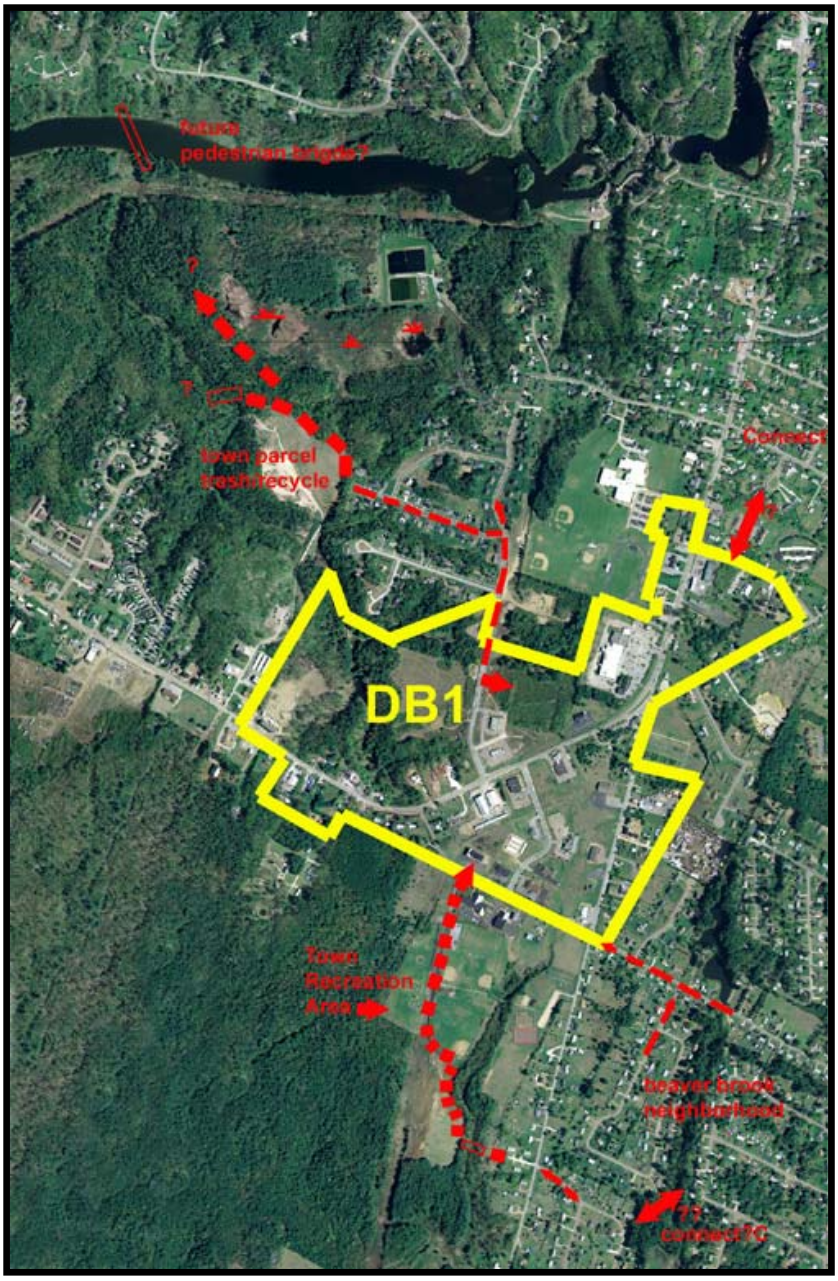
Bike Security Racks Co., Inc
12 Sawyer Loop Wentworth, NH 03282
(800) 545-2757 phone
http://www.bikeracks.com/
also

Cycle Safe, Inc.
Grand Rapids, MI
p. 888-950-6531
f. 616-954-0290
info@cycle-safe.com
www.cycle-safe.com

8. Shared Use Paths /Bicycle Option

Although sidewalk options in Milton are improving, there are few safe on-road or off-road routes for cyclists and other alternative transportation modes. The new downtown core will offer new pedestrian links from near and outlying neighborhoods into the DB1 zone, improving walking as an alternative transportation mode.

The map below was presented at the community charette held on December 2005. It was used to initiate a discussion about which roads were considered safe and bike friendly, and which existing, informal off-road routes are used by children and youth to get to school and other locations around town. The neighborhoods discussed were Beaver Brook, Barnum Street, Haydenberry neighborhood, and the growing Poor Farm Road residential area.



From the responses offered, it was clear that few roads are considered safe for children, and the traffic and lack of shoulders on most roads do not tempt adults to venture out on bicycles very often.

Hobbs Road and Railroad Street are considered safe biking routes, and some sidewalks near downtown are used by younger cyclists Middle Road is considered the least safe for cycling, but the trail through the Town Recreation Area provides a short off-road alternative.

Residents stated there are some recorded easements that could be used to begin an off-road path system.

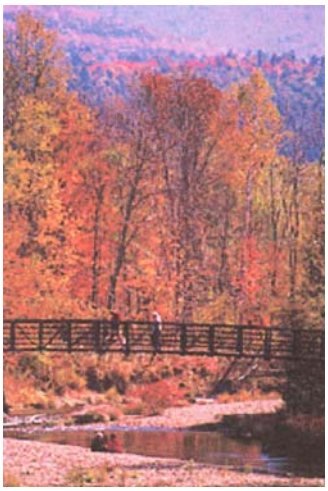
Across the river from the Downtown Core the Poor Farm Road neighborhood, presents the greatest challenge for accessing the downtown area. Although there are sizable parcels of town and CVPS land that might be available for trails, the topography is difficult. Parcels off Lamoille Terrace and Riverside Drive appear to include easements linking these safe-biking roads to

the riverbank.

The town has initiated an Alternative Transportation Master Plan (2002), and has pursued the development of a multi-use path. Although the public is cautious in its support for shared-use paths, continuing this effort will help support the successes of the downtown core.

The town can build on the existing route through the recreation area, and extent this path with links to neighborhoods to the east. The Town can research available easements that may be used to form a link to the quieter streets of the Beaver Brook and Barnum Street neighborhoods

A pedestrian/bicycle bridge crossing the Lamoille River is an optimistic plan at best, but may be a Burnham-like idea (see below) that can one day be pursued. To that end, the Town may wish to keep it on the books.



Make no little plans; they have no magic to stir men's blood and probably will themselves not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will not die.
Daniel Burnham

All new roads, with the possible exception of River Street, should be designed to serve bicycles. If speeds are limited to 25mph, share–the-road cycling is possible on River Street. If not, bike route alternatives to River Street should be provided.

Bike lanes require a full four feet without curb and five feet where a curb is present. This is feasible on suburban and rural roads, but may be difficult to achieve in Milton's downtown core, where right-of-way width is limited.

Bike-able shoulders or wide travel lanes of 13 to 14 feet provide a reasonably safe bike route where traffic actual speeds are in the range of 25-35 mph.

This may be a good cycling solution for roads immediately around the downtown core.

Share the road options can be provided in low-traffic, neighborhood streets, or where traffic moves at less than 25 miles per hour.

Milton should continue the Town's effort to add sidewalks, especially on existing and new roads radiating from the downtown core. Walking is still the preferred method of alternative transportation and is also increasingly practiced and promoted for good health.

TOWN OF MILTON, VERMONT

Town Core Streetscape and Accessibility Design Study

Appendix 1:
Preliminary Assessment
May 2006

I. PURPOSE

In early 2005, the Town of Milton undertook development of a Town Core Streetscape and Accessibility Study. The design study was one of three initiatives undertaken simultaneously which include:

- Development of a Town Core Accessibility Design Study examining the next stage of planned improvements to the Town Core to position it as the Town's retail and commercial center.
- Development of a Strategic Economic Development Plan consistent with the existing planning frameworks including the 2005 Comprehensive Regional Economic Strategy (CEDS) and the 2003 Town of Milton Comprehensive Plan.
- Development of a Route 7 Corridor Land Use Study to evaluate the existing conditions and projected impact of planned wastewater infrastructure extension along the corridor and identification of land management and related recommendations to guide growth and protect community character.

A team of consultants lead by River Street Planning & Development and including Transportation Concepts, LLC, TRIAD Associates, Elabd Architectural Illustration, and Kathleen Ryan Landscape Architecture was selected to assist with the effort. In addition, the town's transportation consultant, Resource Systems Group (RSG Inc.), simultaneously undertook a transportation analysis for the Town Core and assisted the consultant team by preparing transportation projections for the Route Seven corridor.

The focus of this study is to build on the 2000 Town Core Master Plan and to identify the next level of detailed design requirements to position the Town core as the retail center of the Town and a regional niche retail destination. In close coordination with the Route 7 land use and corridor study this report examines transportation issues, particularly along the Route 7 corridor and Main Street (which served as the historic and commercial center of the former Village). This design strategy used public meetings, consultations and a design charette to develop input from the community, developers and other stakeholders. It has resulted in designs and design vocabulary for streetscapes, sidewalks, signage, street lighting, landscape elements, crosswalks and bicycle paths throughout the Town Core area.

II. PREVIOUS STUDIES

In 2003 the Town of Milton developed the 2003 Town of Milton Comprehensive Plan and other studies focused on Town-wide needs related to housing, economic development, main street development, recreation, open space and related elements. These studies recommended that a Design Study for the Town Core be prepared to advance goals and objectives outlined in the Comprehensive Plan and the 2000 Town Core Master Plan and identify a preferred management and implementation strategy. The goal of this plan and the related studies is to present opportunities for broad-based initiatives that will together frame the development initiatives for the Town. Each study exists as a stand alone document. The Common Elements Action Plan summarizes the shared initiatives identified in these studies.

Town Core Master Plan

In 2000 the Town Core Master Plan (attached in part in Sub-Appendix XXX) recognized that trends facing the Town including increasing industry concentration at Catamount Park, loss of farms, development of the Husky Campus, sewer expansion, regional transportation, capital improvement update were impacting the Town Core. The Town decided that it was time to develop a Master Plan for the core that would both preserve the character of the original village center and relation to Lamoille River while defining a 21st century retail and service center.

The 2000 Town Core Master Plan process included a significant effort to build public agreement about the future of the Town Core. Public participation elements included five public meetings plus a community survey. The plan established a vision statement and goals for downtown including an overall goal of increased livability in an accessible, vibrant and attractive downtown. Support was given to higher density, mixed uses, affordable housing, and recreation with strong connections for pedestrians and cyclists. Goals and actions also dealt with infrastructure issues such as water, sewer, fire, and telecommunications. The plan's focus on transportation emphasized better traffic flow with construction of possible east-west roadway links. Land use recommendations focused on strengthening the traditional urban form with

buildings located close to the street and parking behind structures, multi level buildings, street lighting and landscaping.

Existing Conditions

The plan observed that character in the Core has been impacted by lack of density, intermittent sidewalks, lack or street trees and building lot layout which present a poor pedestrian environment. Main Street has many desirable elements that contribute to the core as an historic street but it is mostly residential and removed from the main retail area. The plan addressed other existing conditions including:

- Boundaries of the core and key issues affecting it
- Zoning analysis of existing districts, lot sizes, setbacks and lot coverage limits in downtown area.
- Infrastructure including limits to development caused by the lack of storm sewers in the core
- Intersection concerns at two main intersections regarding definition of the core and limits to pedestrian infrastructure and safety.
- Analysis of limits of municipal septic sewer.
- Natural resource limitations including the location between US Rt 7 between Checkerberry and Cozy Corners of: large class II wetland and possible class III wetlands, rare and threatened vascular plants in the wetland area, favorable slope conditions and steep banks of the ravine formed by two streams that drain the area.

Issues and Opportunities

The public workshops and community survey outlined the issues and opportunities facing the Town Core including:

Issues:

- Lack of municipal wastewater and storm sewer
- Open land/lack of density
- Transmission Line presents some limits.
- Poor east-west connections

Opportunities:

- Open land presents many options
- Few restrictions on development
- New sidewalks are planned
- Recent construction of taller building support urban character
- Rt. 7 traffic feeds downtown
- Proximity to residential uses
- Proximity to recreation uses
- Existing local businesses

Vision

The action plan translated elements of vision to the development concepts. Key vision elements outlined in the plan include:

- Creation of higher density, mixed uses multi-family and affordable housing as well as recreation and cultural uses
- Development of a more bike and pedestrian friendly environment and connections with new road connections with sidewalks east and west on Rt 7, along with mid block pedestrian crossings.
- The development of a downtown steering committee which would focus on creating a more supportive business environment.
- Designation of Route 7 as a lower speed through street. A variety of roundabouts were proposed
- Recommendations for buildings at the sidewalk with parking behind in most locations. Green space was recommended in one plan with a community green across from the Town Offices
- Additional guidance from the public focused on creating more opportunities and fewer regulations, protecting existing uses and encouraging growth in downtown (without discouraging growth elsewhere)

The 2003 Town of Milton Comprehensive Plan: Setting Goals and Priorities

The 2003 Comprehensive plan updates a previous study completed in 1998 when the Town's vision sought to:

> "Enhance the quality of life in Milton by developing a greater sense of community and promoting greater citizen participation in the affairs of the town. New growth must recognize, integrate and enhance traditional settlement patterns. Milton's sense of community must include protecting the quality of the environment, promoting the vitality of the local economy, and improving education."

Specific goals were established including the following which are most relevant to the current economic development planning effort:

Community Involvement - Enhance a sense of community and project a positive image by encouraging active individual and organizational participation in all levels of local government, and coordinating efforts among town, village, and school representatives.

Land Use and Development Patterns - Direct the most intensive development to the downtown area where services, utilities, transportation, and other supporting facilities are most readily available. Enable a more diverse mix of uses emphasizing less intensive development in the transitional areas. Transitional areas are defined as the land between the downtown and rural areas. Agriculture, forestry, mineral extraction, clustered residential development, and outdoor recreation are encouraged in the rural areas.

Economic Growth - Develop a diverse economic base emphasizing high quality job creation. The economic base will focus on providing high value and rewarding job opportunities commensurate with available and planned infrastructure and services while minimizing impacts on the environment.

Housing - Provide for a variety of quality housing to meet the needs of the community for all income levels, including affordable housing options for elderly and disabled residents in the downtown area.

Transportation - Provide connected transportation facilities for the movement of goods and people and linking developments throughout the community. Additionally, alternative transportation, such as public transit, sidewalks and bike paths should be made available.

All of these goals have been advanced in this economic strategy and were confirmed as being of primary importance by the community in public sessions.

Town of Milton Town Core Traffic Circulation Study (Ongoing)

In 2003 The Town of Milton commissioned the Town Core Traffic Circulation Planto conduct a system-wide assessment of traffic flow and congestion along US 7 and the local streets within Milton's town core. The system-wide assessment focused on developing a set of coordinated roadway and intersection modifications that support local goals. The goal of this study is to ensure that each individual project, regardless of the year it is built and the party that builds it, helps achieve an overall plan for the study area. This study was conducted by Resource Systems Group, Inc. for the Town of Milton and is funded by the Chittenden County Metropolitan Planning Organization (CCMPO).

US 7 Georgia-Winooski Corridor Study – October 2001

The US Route 7 Winooski to Georgia Corridor Study was undertaken in response to a growing need for an integrated approach to transportation development along the US 7 corridor from Winooski to Georgia. New developments within the corridor and the increasingly wide reach of the Chittenden County economy have placed increasing strains on the aging transport infrastructure. The study focused on the following areas:

- The corridor should be served by a hierarchical roadway system.
- Providing a safe highway and transport environment for highway users and abutters
- Providing meaningful alternative means of transportation
- Designing transportation service and facilities that support, further, and enhance community land use and development strategies.
- Designing transportation facilities that complement the areas in which they are located.

- Providing for sound and effective long-term fiscal management of necessary improvements within the corridor

The following are conclusions of the study that specifically relate to Milton:

- Middle Road functions much more like a local road than a collector.
- North Road, presently classified a local roadway, provides significant regional access to the Husky development, suggesting potential "collector" status.
- A number of intersections have non-standard, difficult geometric configurations, including:
    - Railroad/Middle/US-7/Grand Union
    - W Milton/Bartlett/US-7
    - Haydenberry/Center/US-7 (although this appears to function adequately as two distinct T intersections)
    - Lake Rd/US-7 (not part of the same geographic cluster, but relevant in the larger picture).
- The segments of Route 7 in particular between Checkerberry and roughly Main Street exhibit a large number of curb cuts, many with little or no definition. This results in numerous uncontrolled left turns and the potential of vehicles backing into this through roadway.
- The high number of commercial uses strung along Route 7 between Checkerberry and Milton Village generates a high level of internal circulation between destinations, increasing congestion, turning movements and safety issues.
- Despite the recent growth in Milton's sidewalk system, there is still room for improvements and expansion especially along part of Route 7 and the New Town Center.
- The compact nature of Milton Village and the expanding sidewalk system provide a good environment for linking to transit.
- Both industrial and residential development at the southern end of Route 7 in Milton is set back from the roadway behind green buffers. Given the low industrial buildings, this area retains some feeling of open space and long-range views to the west.
- Although Checkerberry is currently undistinguished, the curve in the roadway, the open "village green", and its historic role in the town center present opportunities for future, high quality development.

- New Town Center - Middle Road to Barnum: Although the character of the corridor through this section has tremendous potential, the full range of amenities needed in a town center have not yet been completed.
- Historic Town Center: The intersection of Main Street and US Route 7 is the entrance to Milton's historic district. Although a few historic buildings remain, the historic character of the intersection has been weakened and there is little to draw visitors east onto historic Main Street.
- Arrowhead Lake Corridor: Development in this beautiful part of the Route 7 corridor is likely to be limited due to the difficulty of building on the steep hillsides either side of the roadway. The narrow roadway and 50 mph permitted speed keep the driver focused on the road and limits opportunities for enjoying the scenic surroundings.

Husky Traffic Impact Study Master Plan – March 1997

Husky develops, manufactures, and tests injection molding machines for the plastics industry. The site is located between North Road and Arrowhead Lake in Milton. The long term plan is for the Husky site to accommodate 2,000 employees. Currently the site is accessed by North Road, however a bridge over Arrowhead lake directly connecting Husky with US 7 has been proposed to alleviate traffic on Railroad Street and Main Street. This bridge has not been constructed to date. Within the study area and assuming the complete build out of Husky, the only intersection that would experience a detrimental Level of Service requiring improvement would be the US 7 – Main Street intersection.

US 7-Rebecca Lander Drive Scoping Study – August 2004

The CCMPO commissioned Dufresne – Henry to investigate potential access improvements to Milton High School, which is accessed by US 7 via Rebecca Lander Drive. The goals of the study were to increase intersection performance, increase turning radii to better accommodate school buses, improve the mobility function of US 7, and create a safe pedestrian environment. The recommendations from this study include:

- Adding a left turn lane on the northbound approach at US 7 – Rebecca Lander Drive;
- Adding northbound and southbound left turn lanes at US 7 – Barnum Road; • Signalizing the US 7 – Barnum Road intersection;
- Increasing the corner radii at both US 7 – Rebecca Lander Drive and US 7 – Barnum Road; Installing pedestrian crossing on all approaches to US 7 – Barnum Road;
- Installing a pedestrian crossing on US 7 between Barnum Road and Rebecca Lander Drive; • Improving Street Lighting on US 7;
- Designating a school speed zone with flashing beacons; and
- Constructing a raised median on US 7 north of Rebecca Lander Drive and use landscaping to encourage pedestrians to cross only at designated crosswalks. VTrans has jurisdiction over US 7. They remain skeptical that the proposed improvements will force students to cross US 7 at designated locations and are hesitant about signaling US 7 – Barnum Road.

US 7-Middle Road-Railroad Street Scoping Study

The intersection of US 7 – Middle Road – Railroad Street has been labeled as substandard by both the Town of Milton and the CCMPO. The purpose of this study was to investigate alternative geometries for the intersection that would maintain sufficient capacity, while improving safety for vehicles, bicycles, and pedestrians. Seven alternative designs were proposed for consideration to improve the US 7 – Middle Road – Railroad Street intersection. The seven designs could be placed into 3 categories:

- do nothing,
- realigning the roadway and adding lanes,
- and the construction of a roundabout.

Long Range Access and Mobility Committee Report – January 2001

The long range access and mobility committee was formed in 1998. They were charged with developing a long tern transportation plan for the town of Milton while promoting and ensuring public participation in the planning process. The committee also provided input to the CCMPO, Town Selectboard, and Town Planning Commission on the US -7 corridor study and on other long range transportation planning pursued by the town of Milton. In 2001 the committee released a report which envisioned significant changes to the Milton transportation network over a twenty year horizon. These ideas include a developed downtown core area with direct access to I-89 via an interchange at West Milton Road, transit service connecting Milton to the rest of Chittenden County, an improved sidewalk system, and a strong grid of east – west roads to connect the north-south roads in the town.

Alternative Transportation Master Plan – May 2002

The goals of this master plan were to develop a plan for linking existing and planned developments with transportation facilities in Milton and improve mobility and accessibility to the town core area and other locations inside and outside of Milton. Using a combination of input from residents at Town meetings, potential number of users, the number of destination s served, and references to areas in other studies alternative transportation improvement recommendations were made for various areas in Milton. Some key recommendations are listed below:

- From the areas of the town to the town core: shared use paths, sidewalks, and bicycle routes;
- From the town core area to Essex: bicycle route, expansion of CCTA bus service, and train service;
- From town core area to Colchester: bicycle route and shared use trail;
- US 7 south of town core: shared use paths, sidewalks, bicycle lanes, and expansion of CCTA bus service;
- Town core area to Grand Isle: bicycle route;
- US 7 north of Milton: sidewalks, bicycle lanes, and bus service; and
- North Road: sidewalks and bicycle lanes.

COMMUNITY IDEAS & CONCERNS

The Town of Milton held two public meetings and several focus groups with stakeholders, partners and officials and the Town's Economic Development Committee. The initial sessions were broad in scope and designed to identify an overall vision encompassing a range of viewpoints about the Town's preferred future.

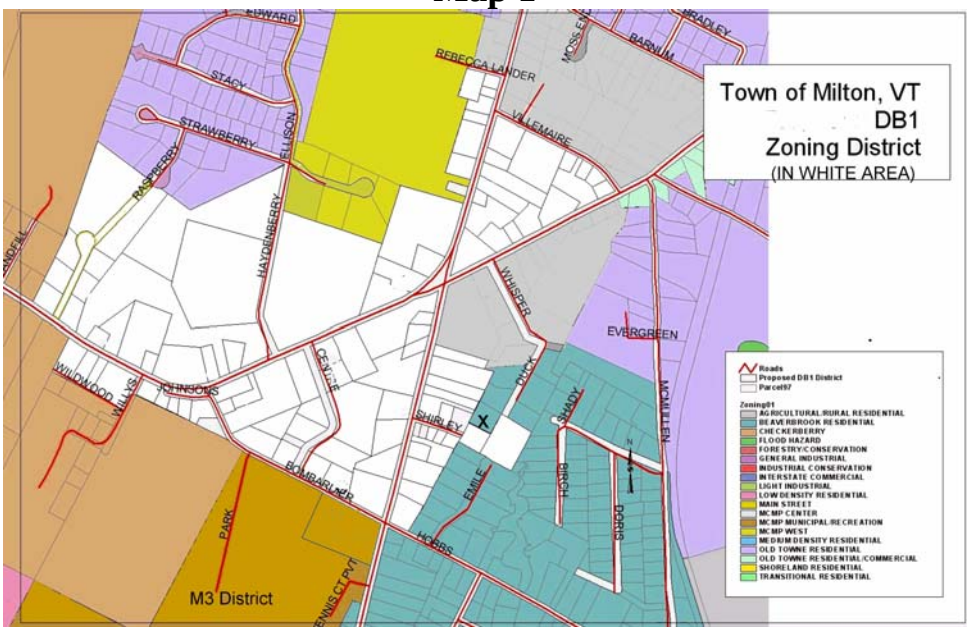
The town conducted a SWOT (Strength, Weaknesses, Opportunities and Threats) analysis with a focus group of officials, economic developers and town core business owners. The first large-scale public meeting was a visioning workshop which solicited resident input on a variety of issues impacting the Towns future. The second public meeting was a design charette which exposed residents to core issues and identified implementation strategies and actions.

Follow-up meetings were more focused and began the evaluation of planning, development, management and design options to be explored further in this Town Core Streetscape and Accessibility Study and the related planning projects.

Summary of Public Opinion about the Town Core

There was clear and strong agreement that retail and commercial uses should be concentrated in a densely compact, walkable mixed-use town core, and that the Town's current efforts to create the DB1 Zone were moving in the right direction. The district, shown in Map 4, is designed to encourage commercial development by requiring the construction of mixed-use units with residential components. The area is fairly limited in size, but a build-out would provide over 120,000 square feet of new commercial space. (Need to reconfirm this number after build out analysis is complete)

Map 1



Participants felt that the Town core needs to be developed and enhanced as a place to gather, socialize and find amenities not currently available in Milton or the surrounding communities. Participants identified traffic and underdeveloped nature of the commercial areas as detriments to businesses choosing the Town core as a business location. There was strong agreement that a "gateway" of some sort should be developed.

There was agreement that a mix of uses in the core would create the most vitality. Analysis in the companion Strategic Plan for Economic Development shows that the local economy will support a significant amount of new retail, including eating and drinking establishments, if parking, appearance, and mix of competed favorably with that of surrounding towns. It was also acknowledged that other commercial industries that are growing in the region such as small professional, health and business services firms would fit well into an improved town core. The design considerations for the core should accommodate both retail and commercial uses, planning parking, for example to meet the desires of each sector.

IV DESIGN CHARETTE

Purpose of the Charette

On December 8, 2005 The Town conducted a community design charette. This large scale public meeting helped residents to understand design issues, vocabulary, and choices about streetscape elements such as lighting elements, signage, signage, sidewalk character, landscape and bicycle paths and connections. Three charette stations were established. One discussed conditions on Route Seven including transportation alternatives and land use futures. Another discussed economic development issues including public infrastructure demands. The third, the focus of this report, discussed streetscape alternatives for the Town Core whit a focus on determining public response to the following questions:

- Route 7: How would you prefer to see Route 7 develop in the Downtown Core: as a traditional downtown pedestrian oriented street, or as a downtown through boulevard?

- Would you like to see the Downtown Core become a network of pedestrian oriented streets or would you prefer a walkable shopping center or a style similar to the existing retail center?

- Where are existing and potential future bicycle routes that link Milton's neighborhoods to the Downtown Core?

- How will the Downtown Core be illuminated? Do you have a preference of fixture style?

Participants were oriented to the project area using the following aerial photo which shows the DB1 zoning district lightened. The DB1 zoning district is the heart of the Downtown Core. Landmarks such as the shopping center and the High School were easily identifiable.

Aerial photograph of the DB1 zone and its surrounds

Existing Route 7 in the Downtown Core, near Minor Funeral Home

At the beginning of the Charette, River Street Planning used a PowerPoint presentation to outline the issues for attendees. Attendees then visited three "stations" to discuss the issues. This section describes the discussion at the "Streetscape station"

To help the participants understand the questions and visualize the alternatives, the Streetscape Consultants presented a series of graphics for each alternative.

Orientation to the Core

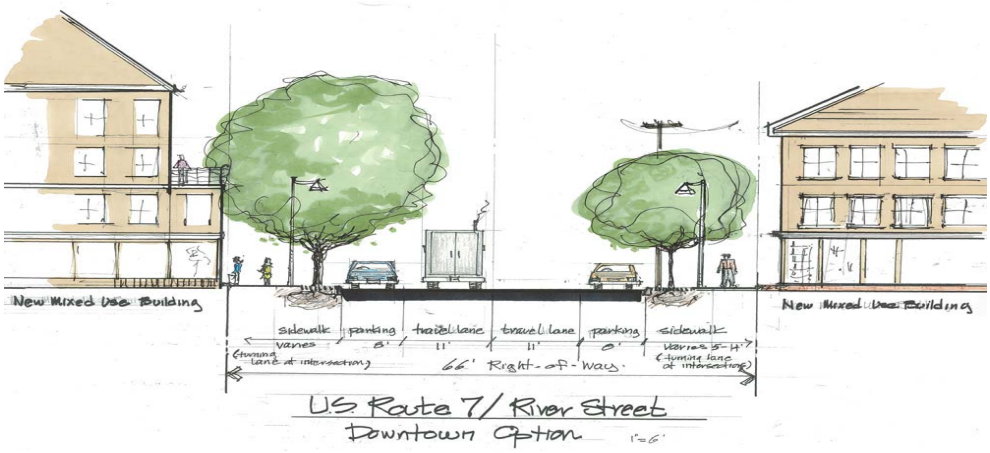
Perhaps the most important change that has occurred with regard to the Town Core is formulation and adoption of the Downtown Business District 1 (BD1) district. As part of the 2000 Town Core Master Plan the town observed increasing residential development pressure across Milton including downtown. Residents and municipal leaders were concerned that, left uncontrolled, residential development would use up current or potential commercial/retail property in the core, frustrating attempts to create a vibrant central business district with appropriate density and scale.

The purpose of the DB1 District is to encourage and enhance the development of Town Core areas with the tallest buildings, highest density, and greatest diversity of commercial and light industrial uses. Residential uses are not allowed except where incorporated into a Planned Unit Development or where created as housing for the elderly. Buildings must be placed close to the sidewalks. A pedestrian friendly environment is encouraged through the planting of street trees and green belts along sidewalks and the placement of safe street crossings. Planned Unit Developments located in the district must provide that at least 20% of the gross floor area of a building constructed as commercial space or the entire first floor of each PUD building is constructed as commercial space. The commercial space in a PUD must be either constructed first or concurrently with the non-commercial space in a PUD.

Charette Questions

Route 7 Alternatives - How would you prefer to see Route 7 develop in the Downtown Core?

As a traditional downtown pedestrian oriented street?



Streetscape would include:

- Parallel parking where possible
- Wide sidewalks at the curb for easy access to parallel parking and many crossing opportunities
- Street trees (low growing species below utility lines)

Plan for the recommended pattern of development on Route 7 between McDonald's to the West and the U.S. Post Office to the East, with "Traditional Downtown

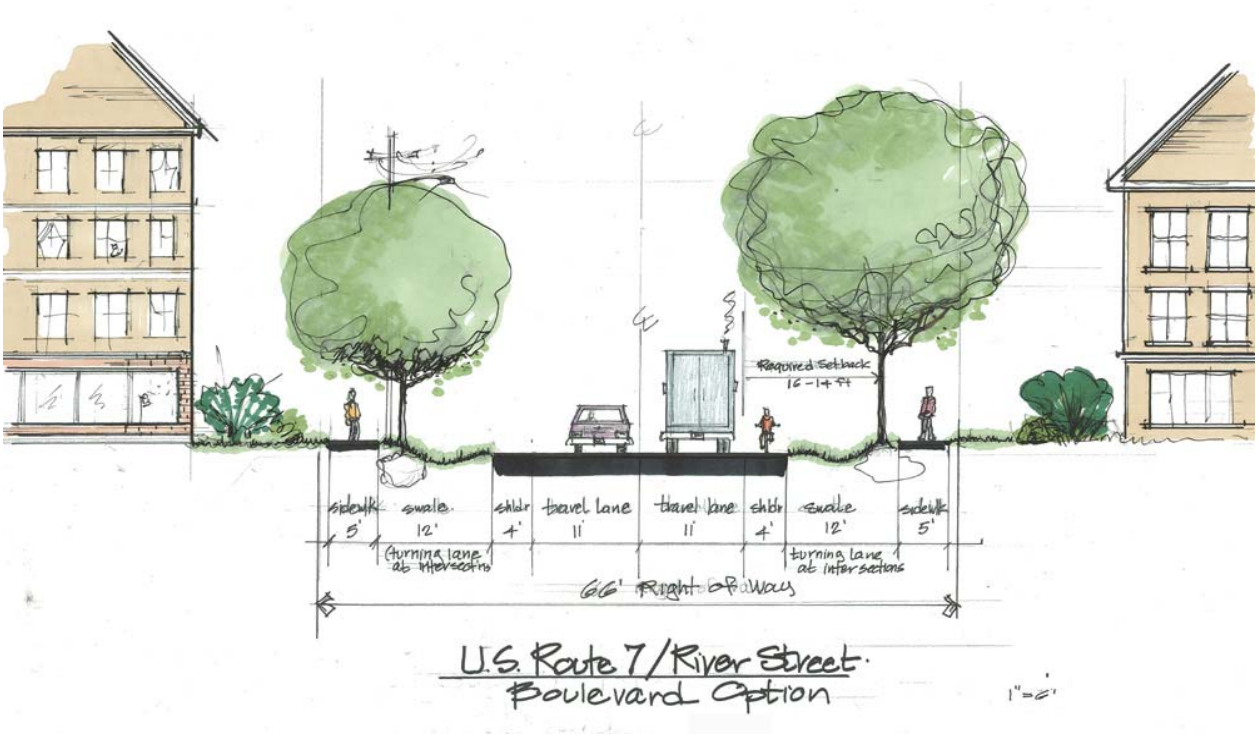
Note the orientation of buildings fronting the sidewalk and the parallel parking along Route 7 to encourage pedestrian activity. Parking lots are located away from the sidewalk, behind buildings or planted areas.

Alternatives for Route 7

Should Route 7 function as a downtown through Boulevard?

Streetscape would include:

- Sidewalks setback from street
- No parallel parking
- Median possible
- Wide greenbelts to provide storm water drainage and planting areas
- Street trees set back to meet VT Agency of Transportation requirements
- Buildings front on side streets



Section – Route 7 as "*Through Boulevard*"

Dorset Street in South Burlington, although this roadway has four lanes it has the "look and feel" of a proposed downtown boulevard and could be a model for U.S. Route 7 in Milton. South Burlington is planning a new City Center Zone to be built around a network of streets off of Dorset Street, across from University Mall. Although larger in scale, this solution has parallels to the downtown Through Boulevard solution for Milton.

Dorset Street in South Burlington's tree-lined boulevard has curbs, sidewalk and a bike path.

At the Charette, the consultants presented several before and after examples of redesigned roadways through suburban commercial districts in towns throughout the U.S. These streets were transformed from auto oriented roads to traditional downtown streets and boulevards.

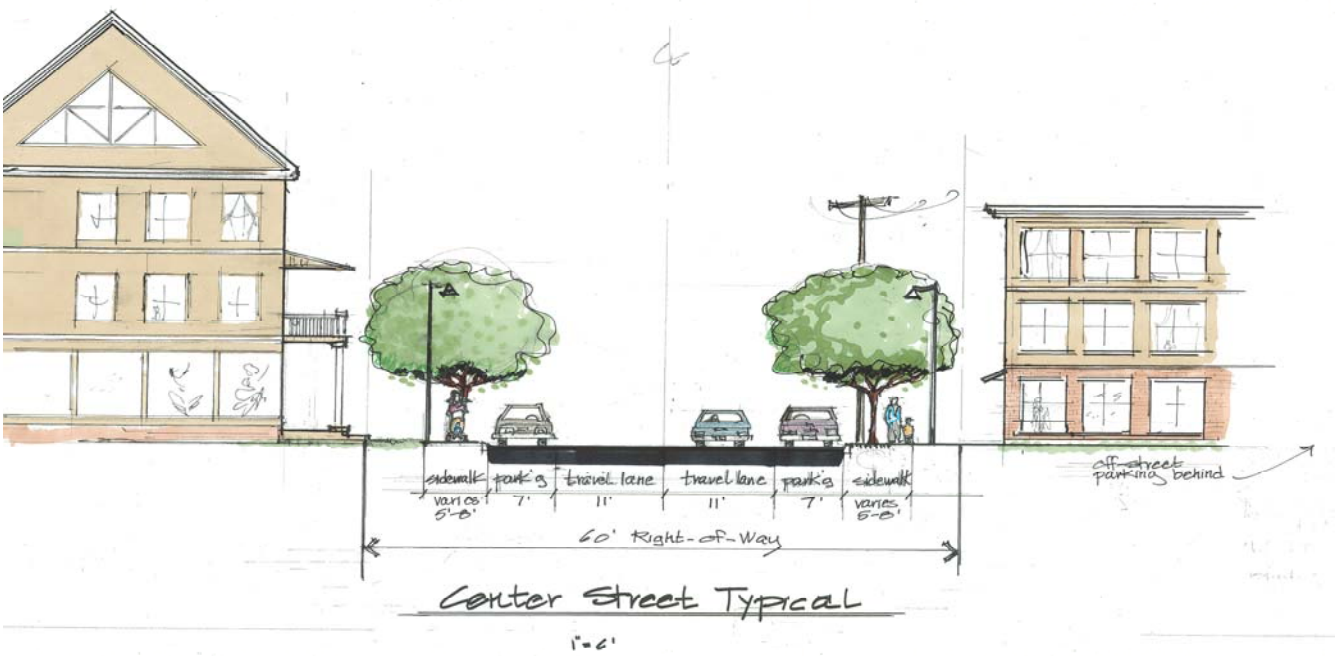
Rebuilding Route 7 - Costs, Issues and Schedule

The Consultant Team discussed the issues associated with rebuilding Route 7 to create either of the alternatives described. Given the substantial costs associated with reconstruction and the time needed to have such a project added to the Vermont Agency of Transportation (VTrans) and Metropolitan Planning Organization (MPO) Transportation Plans, the work would not likely be completed for several years. The MPO and VTrans are the primary funding sources for transportation projects of this scale.

Stormwater constraints must also be addressed. Either approach will require a plan for detention, infiltration and/or collecting and conveying runoff.

If the "Downtown Through Boulevard" alternative is preferred, then downtown pedestrian streets and commercial activity would be concentrated on to the side streets and in the retail center, rather than on Route 7. To avoid splitting the Downtown Core, careful attention must be given to clear, easy and frequently spaced pedestrian links across Route 7.

If the "Downtown Street" alternative is selected, the two sides of town, east and west of Route 7 will be more connected and cohesive with activity centered on Route 7 as the spine of the Downtown Core. Side streets can also become pedestrian oriented streets contributing to the core.



Center Drive and side streets in the Downtown Core

Center Drive and Side Streets

For this concept, development would face the side streets. Pedestrian enhancements would concentrate on Center Drive, other side streets and a pedestrian friendly retail center west of Route 7. Center Drive would be developed in a very different way than has occurred to date.

New zoning allows up to 5 story buildings, mixed use, and buildings built close to the sidewalks.

The ordinance spells out the Town's goals for DB1 District as "the purpose of the DB1 District is to encourage and enhance the development of Town Core areas with the tallest buildings, highest density, and greatest diversity of commercial and light industrial uses. Residential uses would not be allowed except where incorporated into a Planned Unit Development or where created as housing for the elderly. Buildings should be placed close to the sidewalks. A pedestrian friendly environment should be encouraged through the planting of street trees and green belts along sidewalks and the placement of safe street crossings."

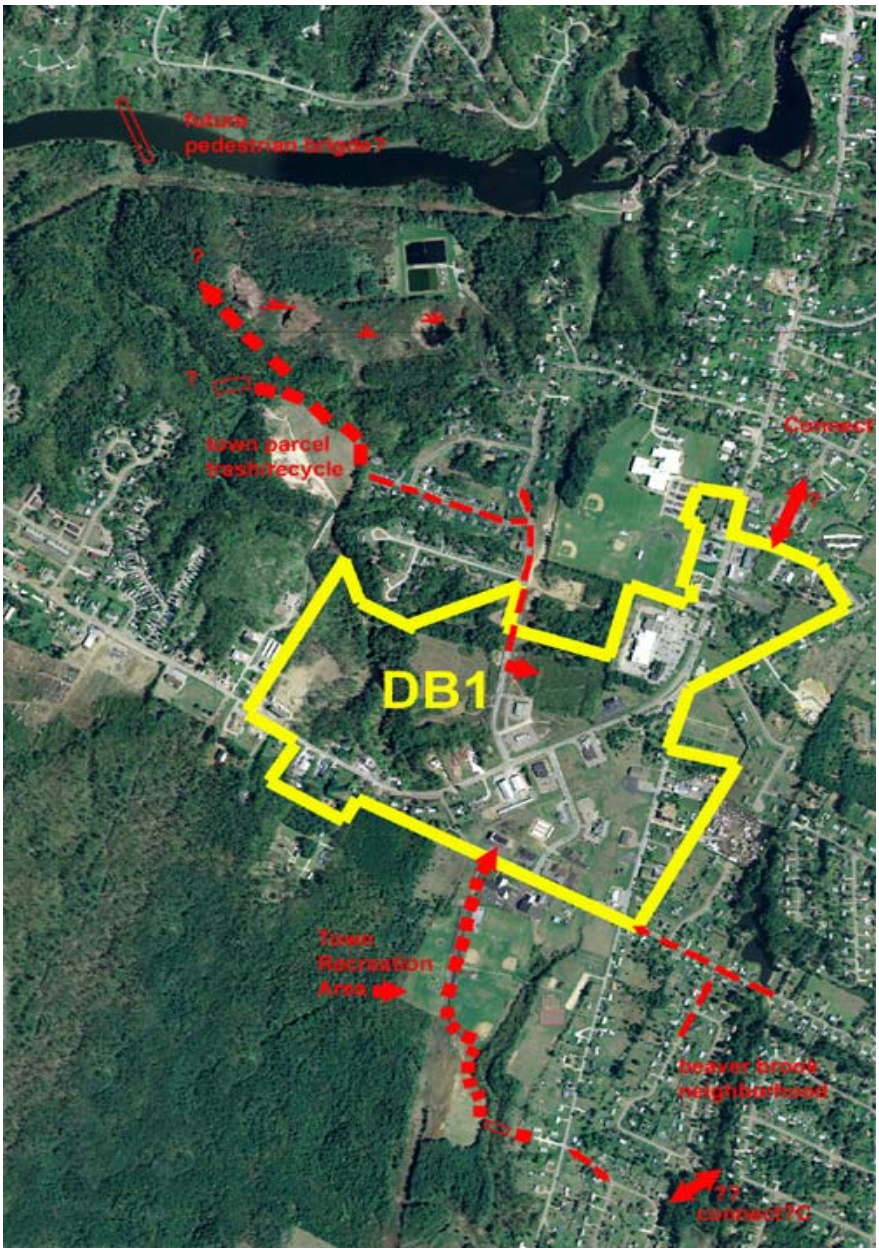
Rebuilding Center Drive and Side Streets - Costs, Issues and Schedule

Design flexibility and a timely schedule are easier for developing Town road infrastructure than U.S. highways. However, the cost of streetscape infrastructure would fall to the Town of Milton using a combination of Town funds and resources from the Vermont Transportation Agency. (Note: Streetscape infrastructure includes sidewalks, curbs, storm drainage, lighting & street trees.)

As part of the approval process, the Town might require developers to install some infrastructure associated with their parcel, such as curbs, sidewalks and street trees along the street front of their parcel.

Concept for Center Street

- New buildings increase density
- Parallel parking both sides of street
- Parking lots located behind buildings
- Streetscape improvements:
  - Curbs
  - Sidewalks
  - Street trees
  - Decorative Lights



3. Where are existing and potential future bicycle routes to the Downtown Core?

Summary of Discussion – Questions 1 and 2

1. Route 7 - How would you prefer to see Route 7 develop in the Downtown Core?

- As a traditional downtown pedestrian oriented street?
- As a downtown through boulevard

2. Center Drive and side streets in the Town Core.

- Would you like to see the Downtown Core become a network of pedestrian oriented streets?
- Would you prefer a walkable shopping center or a style similar to the existing retail center?

The concept of pedestrian oriented streets was very well received, and universally accepted for Center Drive, the retail center and other side streets.

There were two opinions on the future of US Route 7.

The first group through the Streetscape Station seemed to prefer the Downtown model, if it could be built in the existing right-of-way and if it could accommodate traffic. The group did not want to see a Boulevard dividing the two sides of the Downtown Core and they did not think the Boulevard concept reflected the character of Milton, although they saw the value of a Boulevard for other stretches of Route 7 south of the Downtown Core.

The second and third group seemed to prefer the Downtown Boulevard concept. These groups were concerned that the Downtown Pedestrian Street concept, particularly the parallel parking, would create congestion on Route 7 and prevent smooth vehicle access through town. (These groups had seen the Transportation presentation which may account for their heightened level of concern for this issue in comparison to the first group.)

Several members of the second and third groups expressed reservations about the Downtown Boulevard concept, particularly that this concept would include easy pedestrians crossings and aesthetic improvements.

Questionnaires collected after the Charette preferred the Downtown model approximately 4 to 1. The Consultant Team asked the participants to use their knowledge of the town, to suggest possible bicycle and pedestrian routes to link surrounding neighborhoods to the Downtown Core. This map (left) was used to begin the discussion. It suggested the areas where connections may be needed.

Options identified include:

a. Extend the gravel road at the Town recreation field road south along Middle Rd and/or southeast through side-roads and lot easements to the Beaver Brook Neighborhood.

b. North through side roads and/or easements to the Middle School area

c. Northwest along the level sections of the Town parcels and the wetland to the Lamoille River. A shared use bridge would be needed to cross the river and access the Poor Farm Road area. The team discussed the river basin's topographic issues and opportunities for bridge locations provided by the small islands below the falls, northeast of the treatment plant.

Summary of Discussion – Question 3

Where are existing and potential future bicycle routes that link Milton's neighborhoods to the Downtown Core?

The public was interested in finding more suitable cycling routes to the Downtown Core and a shared use trail across the river. The first two groups were intrigued by the concept of a trail crossing the river, despite the engineering and cost challenges. The last group seemed less acquainted with off road opportunities. In summary the responses were as follows.

- Middle Road is not bike friendly
- Hobbs Road is questionably bike friendly
- Railroad Street is somewhat better. Kids bike on the available sidewalk and sometime on the roadway
- There are several easements or rights-of-way that have been acquired by the Town over the years that could be used for off-road paths.
- There is an easement connecting the Town Recreation Fields with Leslie Lane off of Middle Road. There may be an easement connecting Russell Circle to Beaverbrook of Meadow Road
- There may not be an off-road route from Villemarie to Barnum.
- A path and bridge across the River at the end of Poor Farm Road was considered previously and abandoned because of poor soil conditions
- A route nearer Ritchie Avenue or Riverside Drive may be easier using the rock islands in the river
- In conjunction with a recent subdivision permit, a town easement was obtained which links Riverside Road to the bank of the Lamoille River. Topography along this easement is very steep.
- A possible future shared-use bridge and path across the Lamoille River from the Poor Farm Road Neighborhood to bike-friendly Haddenberry Road and the Downtown Core is preferable to a Ritchie Road alternative which connects with the less bike friendly Route 7

Lighting Opportunities

Attendees were assured that all fixtures would be “cut-off” fixtures that would not shine light upward, which minimizes skyglow and glare. Cost was not discussed

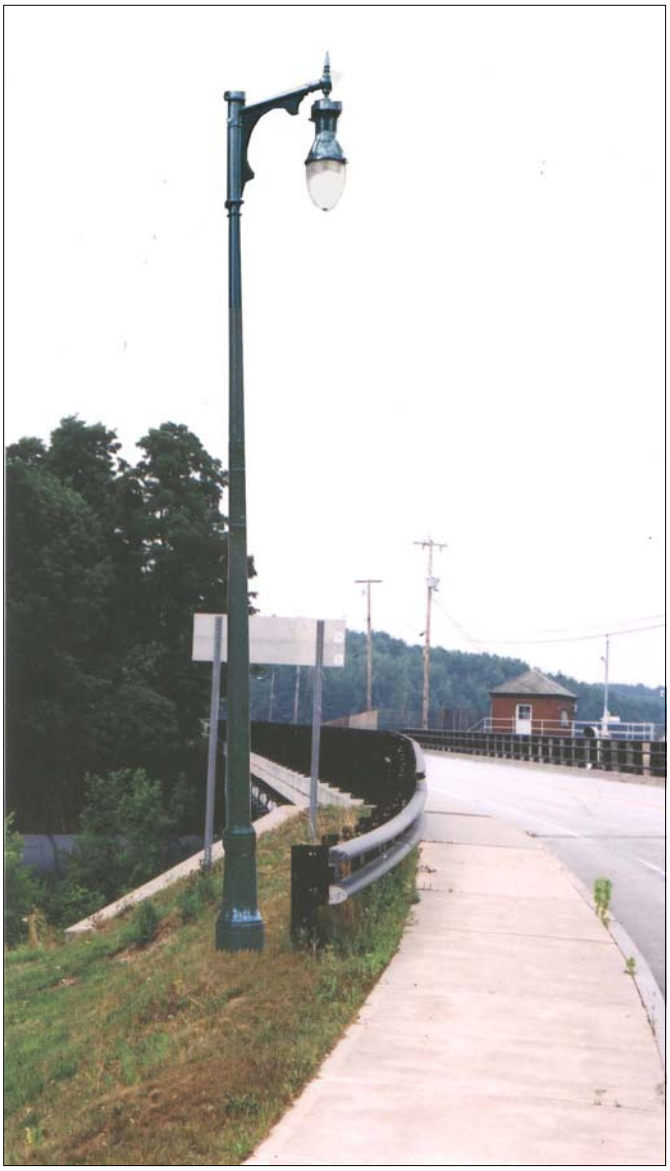
The attendees were asked to consider a suitable prototype street light for the Downtown Core. Pictures of several pole lights were shown, including both traditional and contemporary styles.

Participants were asked to check-off their preferred fixture as they went on to the next station. The overwhelming winner was the fixture outlined in red below.

Contemporary

Traditional /Period Style

Preferred Fixture



Other Topics

Charette participant groups were shown graphic plans of a park that could be built in the right-of-way space remaining if the Middle/RR/Route 7 intersection was eliminated.

The concept for eliminating this intersection was presented at the Transportation Station as a solution to this high accident, problem intersection. The intersection would be replaced by two

cross streets that would continue to link Middle and Railroad Streets to Route 7, but in an easier and safer way.

The park would be a central green space identifying the center of the Downtown Core and creating a possible location for a pedestrian crossing. Consideration could also be given to incorporating stormwater infiltration into the green space, in the form of a lush and attractive, well designed *Rain Garden.* Below is a concept sketch of the proposed central green space that shows a pedestrian link to and across Route 7.

Although there was not extensive discussion about alternatives for the future of this space, the idea of the park was very well received.

Retail Center

The consultant team presented a full, alternate concept for redevelopment of the current Pomerleau Shopping Center. The plan emphasized:

- Building close to and framing Route 7 to strengthen the downtown character
- Multi-story and multi-use buildings, including residential uses that create a "downtown" within the shopping center
- Green space breaking up the parking lot and linking to the sidewalks on Route 7. The green space could also function as an attractive, planted *Rain Garden* to filter stormwater from the parking lot
- Buildings arranged to form inner blocks
- Attractive pedestrian access throughout the retail center

The photographs on the next page show local and national examples of pedestrian oriented retail centers that create a "town center" atmosphere. The sketch on the following page shows one concept developed by the Elabd-Ryan team for how the redeveloped retail center's buildings, green space and parking could be arranged to create a similar "town center" feel and a comfortable pedestrian environment.

The last group of participants included Ernie Pomerleau and some of his consultants. Mr. Pomerleau showed presentation material he had prepared, including photographs of decorative elements such as trees, fencing and flags that he planned to include in the redevelopment of his shopping center. Although not part of the formal presentation, there was a brief discussion of the Pomerleau plans relative to the recommended plan and "townscape" concepts for the retail center as shown in the plans and notes below. There was not extensive discussion about the overall concept or alternative for the retail center. Mr. Pomerleau presented his graphic material and stated that he and the Streetscape consultant team were "on the same track". However the configuration of buildings, green space and parking in the Pomerleau plan took a considerably different design approach from that of the consultants

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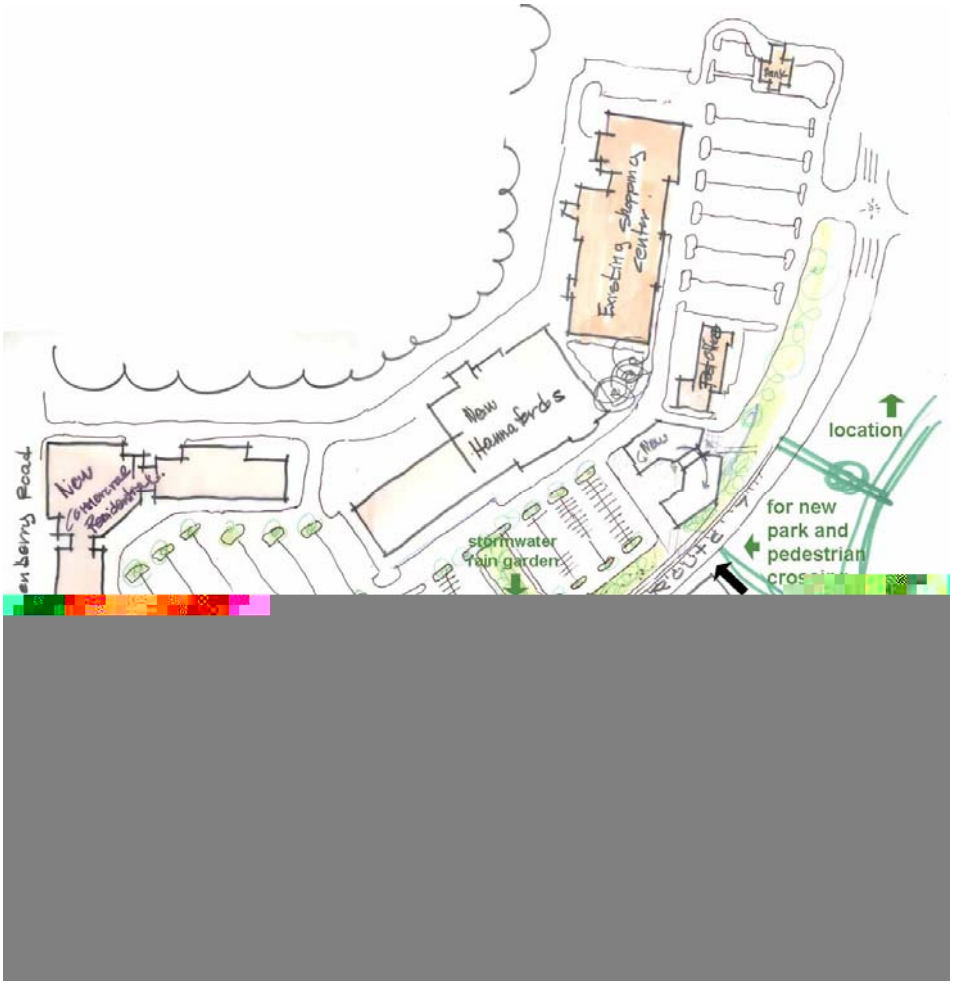

Concept Sketch – Retail Center west of US Route 7 in Town Core

participants as a potential constriction to traffic flow. Others believed it would add to the desired downtown character.

Although rebuilding Route 7 is clearly a priority for Milton, the funding and timing for State Transportation projects could present a delay of several years.

Recommendation:

It is recommended that the Town vigorously pursue funding and approval for reconstruction of Route 7 and its infrastructure. The final design for the roadway could achieve both a pedestrian friendly downtown street and smooth traffic flow.

Since delays at intersections are generally the cause of actual and perceived traffic congestion, well designed turning lanes and timed signals should be employed to facilitate traffic flow. Parallel parking should continue to be considered as it is the best tool for traffic calming and will help transform the character of the street from suburban to downtown. Many US highways through Vermont downtowns and village centers have parallel parking.

Until a full reconstruction is accomplished, the Town can continue to improve the appearance and pedestrian services along the Route 7 with new and improved sidewalks and other low investment improvements such as banners and flags mounted on existing utility poles.

More importantly as new development is planned along Route 7, the Town should promote multi-story buildings that front on the street and site designs that place parking behind buildings. This can be accomplished through the zoning ordinance or though design guidelines that recommend these “Best Practices” for the Town Core.

In the interim, improvements to Center Drive, the shopping center and existing and new side streets should be improved in the context of a master plan that will make Route 7 (River Street) the heart of the commercial zone.

2. Center Drive and side streets and the Retail Center in the Downtown Core.

There was broad approval for rebuilding Center Drive and the other side streets in the Downtown Core to make them more conducive to pedestrian use and provide more local services and commercial needs.

Recommendation:

Change development patterns on Center Drive and other side streets to:

- Increase multi-story buildings that add density
- Bring buildings to the street with entries from the sidewalk to encourage pedestrian traffic
- Develop a mix of uses that results in activity through the day and night allowing for shared parking
- Create less stringent parking requirements
- Consider the purchase of land for a municipal parking lot, allowing shared parking which frees up land for development or green space
- Add new streets to facilitate pedestrian and vehicular connections. Adding roadways creates a traditional downtown grid system, adds valuable street frontage to lots and encourages pedestrian activity
- Include parallel parking, curbs, street trees and decorative lighting on existing and new side streets

Retail Center Improvements:

Encourage the developer of the retail center to create a true pedestrian oriented shopping environment for the new center. Encourage mixed uses and multi-story buildings.

3. Where are existing and potential future bicycle routes to the Downtown Core?

There were few clear and easy off-road routes to take cyclists and other non-drivers to the Downtown Core zone from the surrounding and outlying neighborhoods. The neighborhoods in discussion were Beaver Brook, Barnum Street and the growing Poor Farm Road area.

Some sidewalks near the Downtown Core are used by younger cyclists. According to at least one participant with knowledge of past development, there may be recorded easements that could be used to begin an off-road system.

The Poor Farm Road neighborhood, across the river from the Downtown Core, presented the greatest challenge. Although there are sizable parcels of Town land and CVPS utility easements that might be available for trails, the topography is difficult. Parcels off of Lamoille Terrace and Riverside Drive may include easements linking these safe-biking roads to the river bank. A river crossing will be very demanding and costly undertaking but would result in a powerful amenity for the Town and a very useful alternate off-road route. There will not likely be another alternative route linking the Poor Farm Road area to the Downtown Core unless the section of Route 7 north of the bridge is improved with sidewalks.

Recommendation:

- Research available easements and Town parcels that may be used to form a link between neighborhoods and the Downtown Core and its surrounding bikeable streets.

- Pursue all possibilities for a pedestrian/bicycle bridge crossing the Lamoille River.

- Continue the Town's effort to add sidewalks, especially radiating from the Downtown Core

4. How will the Downtown Core be illuminated? Is there a preferred fixture style ?

The fixture that gained the majority of votes is part of the Tear Drop series manufactured by Holophane, a division of American Electric Lighting.

This fixture was one of those selected for the Village Lighting Study completed for Milton Village a few years ago. At the time of the study, a sample fixture of this type was installed at the riverfront park for a few weeks

There are several variations to the bracket and pole designs. One unique feature of this line is the glass globes which do not discolor over time, resulting in consistent, maintained light levels over the life of the fixture.
This fixture is not widely used in Vermont. This will give Milton streets an element of distinction when the fixtures are installed throughout the street system.

The fixture is somewhat higher in cost than other street lighting commonly used in Vermont but it is of high quality.

Recommendation:

Work with the manufacturer's representative to select a final fixture design as the prototype for Milton streets and the retail center. There may be variations on the design that allow for pole height, wall mounted brackets and size of the luminaire. All luminaires should be cut-off type to avoid undue skyglow.

Sales Office, 114 Jericho Turnpike, Suite 112, Floral Park, NY 11001 - 516-775-2720

Questionnaire Responses

After the Charette, the presentation boards from the Streetscape and Accessibility Design presentation were placed in the lobby of the Town Offices with a questionnaire that residents could use to respond with their comments on the ideas presented. These were the votes and the comments from the 33 written responses received.

Question 1: Would you prefer to see Route 7 develop as a Traditional Downtown Street or a Through Boulevard?

Traditional Street	**Through Boulevard**
23 prefer a traditional downtown pedestrian friendly street	6 prefer a Through Boulevard
Other comments	
With plenty of parking - this would encourage business	People avoid St Albans currently during peak traffic because of the bottleneck. Plus, I hate parallel parking.
Like traditional but through boulevard needs to be wide enough for 20 years in the future to four lanes total with bike safe lanes.	We need to be able to get around town quickly. Route 7 is the only main road. Don't slow it down.
It would add ambiance, warmth and a sense of community.	There needs to be some basic improvements to Rt 7 such as sidewalks, attractive lighting, landscaping etc. But, I believe the flow of traffic demands the diversion of retail development be directed elsewhere.

Question 2. Should the DB1 zone become a network of pedestrian friendly streets or a walkable shopping center or a style similar to the existing shopping center?

Network of Ped-friendly streets

15 people specifically indicated a preference for this option

2 people preferred current conditions

Walkable shopping center

20 Specifically indicated a preference for this option

1 person preferred the existing style retail center.

1 person asked for affordable stores

Other comments

Pedestrian friendly and bike friendly and wheelchair friendly, Segway too. Shops should line streets interspaced with outdoor cafes, bakeries, cell phone stores, etc shoe stores …. Clothing..

Consider the overall look--- No vinyl …traditional structures...quality construction …stricter zoning codes.. towns with strict codes are more desirable towns –Stowe Manchester.. higher end .. more attractive… Main Street is very nice. was right direction then continue…

Need sufficient parking for winter months when walking is difficult

A walkable shopping center is ideal. We want to create an area that people are proud to show their visitors and live in.

Better parking lot plan than Maple Tree Place in Williston

Question 3. Where are existing and potential future bicycle routes to the DB1Zone?

Comments –Routes for safe cycling and shared use paths/routes

- Would like to see route from Colchester line to village (2)
- Parallel to Route 7
- Route to and through the Recreation Park
- Along the Lamoille River and Lake Arrowhead
- Along Railroad Street and along Route 7 from GBIC to Checkerberry…….separated by hedge…etc
- Route from Lake Street to Main Street across Arrowhead Lake
- Like to see a path through downtown and the shopping areas.
- Keep in mind the two types of user; those who use path for recreation vs transportation
- Anything we can to encourage walking and biking is essential to health of community!

7 Support paths but do not suggest routes

17 "don't know" responses or question left blank

4. How will the DB1 Core be illuminated? Do you have a preference of fixture style?

Preference

18 Traditional

5 Contemporary (to match architecture of new development)

1 Traditional but with flair

9 No preference or no answer

Comments

Why not highlight Historic Main Street. It is one of the nicest Main Streets in Chittenden County

Good lighting important to feel secure

Cost effective – (3)

Solar option if possible

Light poles that allow banners

Dark sky sensitive (full cut-off)(3)

Have a downtown theme

Distinct from historic village area of Town

General Comments

- All new buildings should be traditional styles that will last 100 years
- Need to focus on a core that will keep people in Milton
- Looks great hope it will come together
- St Albans, St J, Lyndonville, Vergennes … vital downtowns bring people to work and shop. I would prefer to spend my money where I live than at big boxes
- Asphalt on Rt. 7 between the Ledges and Economy Auto Sales needs to be paved... not done in the fall of 2005 as was other parts of Rt 7
- No motorized vehicles in the Town Forest
- Milton definitely needs more sidewalks and street lighting. I enjoy walking as exercise and find it very difficult to feel safe and out of the way of cars. I live on Middle Road.
- Make some walkways brick or stone for character.
- Please consider the overall look of the buildings. Cheap construction looks horrible within 10 years. Vinyl is ugly! No matter how convenient and cheap it is cheap looking. Build

structures traditional. Milton should be stricter with their zoning codes…towns with strict codes are desirable…will attract more people…Main Street … right direction

- Create Parks and Recreation Department …need Department of Cultural Affairs…Need a Welcome Center –Train stop for Milton… artist studios at the creamery …access to Arrowhead Lake … a lakeside park, café boat access …directory for local crafts persons...improve architecture quality and design…Create tower or other feature for center of town… capitalize on innovation – free wireless for town center

Public Input - SWOT Analysis, Visioning Workshop and Design Charette Notes

Town of Milton SWOT Analysis Public Workshop October 5, 2005

The exercise looked from an objective viewpoint (SWOT), and gives us feedback from members of the community. Although 100 invitees received information and the survey, only nine people attended the meeting. The team members were introduced. Margaret Irwin from River Street Planning summarized the three planning projects which the Town is addressing. A question was asked about coordination with RSG, and the Storm Water study. The team assured participants that there was full coordination. The Town Manager offered information about the DB1 zoning and the upcoming visioning and design charette process. Frank Barnes discussed the CEDS and assured people that we were not duplicating the CEDS but focusing on the Town.

What competitive advantage do you believe the Town of Milton can gain from implementing an Economic Development Strategy?

- What is an economic strategy? Five years is too long. Need to understand what the Town is going to do now – six months. What happens if a developer wants to go faster than the Town may do. Are developers "marrying" into the Town's plans? Are a TIF, a grant to a developer possible – what are the leverage possibilities? Is there any funding – or are developers on their own?
- Design criteria – what will apply – are there site plan requirements? See beginning of growth strategy. Opportunity to create gateway, architectural elements. The town has a 65,000 sq ft limitation. Doesn't understand the PUD and common walls issue. What makes sense to (Mr. Pomerleau)
- Sandy provided update on TIF's. They are looking for approval to extend the two existing TIF's and to create a TIF to allow the Town to pay for infrastructure. There are more than one communities in the State trying to do this (extending the TIF in the Town Core)
- There is dynamic change in the community that must be considered NOW. There is dynamic tension in place. If timing doesn't get worked out it will be the tail wagging the dog.
- Need to address the immediate needs – but the amount of time it takes to do infrastructure and transportation. (Regional Planning Commission). Milton is becoming a center of gravity for economic development. Have a lot of the things in place to capture. Need to understand what are the pieces and in what order there
- The amount of planning and thinking is a competitive advantage for the town in itself – that people have been involved and that a vision has emerged from that process.
- Key is to hit the right balance.
- Pomerleau element is an anchor. Need to marry what he is doing with the plan. Need to marry to design elements are in place. He sees the need to match what he is going to do with what the town wants. He can represent the ideal – and provide energy and set the bar.

- Like to see the Pomerleau plan accommodated - the 65,000 sq ft cap could be lifted. Opinion is that a larger project could be built because the PUD allows a building to be built on more than one parcel.
- Is this the simplest structure that we can come up with? Simplest would be to allow more that 65,000 in the DB1.
- Labor force – people are traveling to Burlington. Route 7 is inadequate to get to Burlington. People sit an hour in traffic trying to get to work. Need to provide places to work here.
- Dennis spoke about the need to make decisions about what functions various roads should play. How do we give people options. Milton needs new links so that people don't have to only use Route Seven to get to the Town Core.
- School superintendent has questions about the core area of the Town. The high school may be looking to increase the footprint of the school, parking, and playing fields. What is the Town's feeling about how close the school is to the Town Core? Should the school move? School also has to think of the school spending in the short term so as not to over-invest. The school district being contiguous is a positive. Loosing the school from the town core could be a problem – loss of population.
- Problem with dispersing the school bus traffic.
- How do you fund it, what's equitable and fair. Town could deal with infrastructure, gateways.
- Must plan all the way through. Need to go and look at a community without zoning to e reminded of what they could be facing. Milton's new zoning is a positive. Need to recognize the need for ongoing reasonable regulation.
- GBIC is impressed with Milton's proactive approach. Town core – properly infrastructured provides the services that businesses, workers and residents need. Need to protect traditional settlement. Infrastructure must be brought to all retail and commercial areas.
- Retention is key. Seven major businesses are leaving Chittenden County. Expansion of existing industry is important too.
- Milton's closeness the Canada could be an asset and its rail link to Canada could be exploited.
- Milton does not have a direct connection to the interstate.
- GBIC is an asset and one thing that could be a competitive advantage is looking at GBIC's plan and pulling out the pieces that the Town can do.
- Margaret asked about how ED should be structured at the Town level.
- Milton is going to be operating in an increasingly regional market. Milton has to figure out how that affects them.

Looking forward over the next ten years what are the economic development issues that the Town will have to address?

- The growth of residential development unfettered must be controlled.
- Need of the school district to expand or relocate.
- Must create public infrastructure
- Increasingly regional development patterns

- Housing demand/pressure will continue in Milton as long as the property values maintain. Managing that demand will be important. Figuring out where residential growth should occur and where it should not is essential
- Telecommunication infrastructure is critical as people work from home. Importance of wireless telecom.
- Builder vs. residential developer is a very true dichotomy. Builders think about what I can do for the next six months, not one of their employees live in Milton. Many people are being priced out of the market. Many people who make a lot of money want to work and live in the same area. Can build reasonably priced housing in Milton at this point.
- Man from Husky said that about 15% of their workforce lives in town. They cannot afford to live in Milton. Many drive an hour to work because they have to live elsewhere. Milton used to be a reasonable option for first homes – but now the gap between Milton and Williston isn't that great any more.
- There is an identity problem in Milton. Don't feel confident that the big jobs and the big money will be created here in the next 15 to 20 years.
- Town needs to be formally designated as a downtown, opportunity zone and growth center which will come with incentives under new state initiatives.
- Smart growth says that if a town wants something here – make it simpler, better and easier than anywhere else.
- The entry into Milton from exit 17 is less than desirable. Husky brings people from exit eighteen south rather than from 17.

List the strengths, weaknesses, opportunities and trends (political, economic, social, technological, education, demographic and legal, that may impact economic development in the town)?

Strengths

- People
- Labor force
- Dedication to planning and zoning
- Location
- River and railroad
- Hard working local people
- Willingness to allow for growth
- Protection of scenic vistas
- School system has come a long way
- Good basic infrastructure
- Do have exit 17 and interstate 89
- Intersection
- Catamount industrial park – should be the portal

Weaknesses

- Don't have I89
- Need stronger representative on MPO and Regional Board and more consistency

- Vision of the town can only be effective if it integrates into regional system
- Limited technical vocational training
- Husky struggles to find employees - lack of employees and lack of training
- School to work transition
- Public Infrastructure
- School system (bickering) and negative perception of the system is a weaknesses
- Newspaper coverage of the school system doesn't help
- Milton has an identity crisis – been the brunt of jokes – press doesn't help

Opportunities

- Near-term retail development
- Transportation system
- The lakeshore – "they don't make it anymore" = we must protect it and use it
- Arrowhead Lake
- Rail
- Canada connection
- Global village – exploit Canada as well as the rest of the world

Trends

- Getting people together – developers, school superintendent, HUSKY, regional developers all in one room is critical – what we are doing today.
- Its just the vision….. As the town becomes solution oriented – not problem oriented things can come together
- Take come money and create a gateway, landscaping, and pocket parks. It's about quality not quantity. Public Art.
- Have good people to overcome bad PR.
- Trying to control a growth curve – but at least you are growing.
- Surrounding communities are trying to grow and compete too.

Town of Milton
Visioning Workshop

What is your vision of economic development in the Town of Milton during the next five years?

- There is a great opportunity to create a new town center
- It will have a beautiful town center
- Pedestrian friendly
- Milton will be described as a center for business
- Entertainment: hockey rink
- Family friendly
- Quality schools

- Highway access
- Multi-modal – that isn't auto dominated
- Landscape accommodates more than cars

What programs/efforts should the town undertake over the next five years?

- TIF for downtown development
- Infrastructure
- Ability to interact with regional entities
- A program to reach core industry clusters
- Use economic development committee
- Need a spark plug – hire a staff person who can go out and "start swinging a club"
- Support Milton Business Association
- Retention - always maintain relationships
- Learn to earn program
- Information sharing
- Husky has been involved with elementary school – but interestingly not at the high school
- Reinforce healthy cultural environment
- Consider tourism and movie making as niches
- Farmers Market
- Consider updating the town logo or doing something else visually interesting – sometimes the visual elements can do as much as physical changes to the environment
- Lakeshore is an asset
- Consider doing a craft market
- Apple fest
- Milton doesn't have a signature, and identify, a brand
- There is a need to keep a close eye on what Colchester is doing. They are creating hamlets all over the place and are a direct competitor. They need water/sewer capacity and are angering the Town over some development directions
- There is a preliminary planning study being done in Colchester (MPO representative)
- Don't forget the long term project regarding the Route 17 interchange
- Colchester wants to make their development work with their transportation system.
- Need to plan for new roadways
- Look at new town logo, make design for downtown modern and interesting – create an identify around art and culture.
- Something to update the historical character of the old town – not try to create a historic – model since that is not the character of the place.

Town of Milton Charette Meeting Notes

Town Core Streetscape and Accessibility

Group 1

- Rt. 7 Pedestrian Theme – Need to widen roadway to permit parallel parking
- Option A – Pedestrian: Slower Traffic.
- Option B – Boulevard : Higher traffic volume likely
- Which preference – Rt. 7 or side street for center of commercial downtown and streetscape improvement? Side street should have improvement either way. Need pedestrian friendly Rt.7.
- With curbing need storm drains. Drains have implications for improved town infrastructure and costs.
- Boulevard does not sound like Vermont concept. Will slice town core in half.
- Limit boulevard to Rt. 7. outside town core.
- Issues with state AOT if Rt. 7 redesigned. "Lobbying" MPO and VTrans would be necessary to put Rt. 7 improvement higher on the Transportation Plans.
- Need new I-89 exit to take some traffic going north out of town core area on Rt. 7.
- Create better non Rt. 7 access into town core.
- Bike paths to town core? –
  - Middle road not good.
  - New bike bridge across Lamoille river to north side
  - Bike path thru recreational area ok out to Lemay Place
  - Hobbs road ok for cyclist also.
  - Bike path across Arrowhead Lake.

Group 2

- Need small mature street trees under power lines.
- Burying power lines is incredibly expensive but desirable*.
- Don't negate (?) aesthetic improvement of Rt. 7.
- Need safe crosswalks at certain points on Rt. 7.
- Incorporate good features of each option: Pedestrian and Boulevard.
- Best Bike Route to Town Center?
  - From Beaverbrook are bike access to town core is not good.
  - No common land available for bike path.
  - Railroad Street not safe but maybe sidewalks could be used.
  - Bike bridge over river behind old landfill is not good for footings.
  - Is there a good way to cross river to Poor Farm Rd.?
- Explore possibility of having the State give town core section of Rt. 7. to town. (Class I Highway)
- *If power lines are buried during construction period, it is less expensive.

Group 3

- Best use of existing infrastructure is to keep Rt. 7. as boulevard and direct shopping to side streets.
- Parallel parking along Rt. 7. in town core is not good.
- Create safe crosswalks across Rt. 7.
- Power lines and poles are unattractive. Small street trees can deemphasize poles and wires.
- Create a small park between Middle road and Rt. 7. This idea received a favorable response. Include art and planters in park. Possible bandstand.
- Lighting is important – can be used to emphasize entrances and highlight buildings.
- Mixed use in Town core – residential and commercial.
- Flags on light poles. Decorative fences. Common scheme. Create identity for Milton.
- Curbing costs can be mitigated.
- Try pedestrian option without parallel parking. Instead of parking, put in bike lanes.
- Biking Access to Town Core
  - Create bike path on town recreational land.
  - Hobbs road is not good for bikes.
  - Bikes use sidewalks on Railroad Street.
  - North bike route to Poor Farm Rd would be difficult and costly.
  - Need bike lanes on Rt. 7 for serious bicyclists.

Transportation

Group One

- Ties to North South arteries –behind high school and on Railroad Street
- Options to stay off Route 7
- Roundabouts
- Railroad Street – Keep traffic off
- Route 7 as a corridor with buildings on streets off of it
- Problems with too much traffic and pedestrians on Route 7
- Spruce up south end of Route 7 – encourage new growth at entrance to Milton – maybe an Artist Guild
- Need a gateway to Milton
- What is the time-frame
- No eminent domain
- Need more than one road coming in
- Group one overwhelmingly approved of the concept Dennis Sketched
- Green space welcome – liked the park concept at current Railroad street/middle road intersection

Group Two

- Route 7 not a problem if traffic is controlled – if so, new roads may not be necessary
- Incorporate small park into new Hannaford Plaza
- Blend Parks with art and create excitement: flags, fountains and artwork
- Make usable pedestrian connections - especially important around the high school
- Left turn lanes at critical intersections
- Connect other side of the river to the Town Core – possibilities??

- Bikes ideally, they should be kept separate from roads - recent public hearing sentiment was not in agreement with this
- Provide another connection/bypass off Route 7
- Bike path is important – shouldn't let one group stop it
- Waterfront access
- Bike and walking paths going through town
- Landfill area as public use area
- Access to Town Forest – maybe a bike path around it. It is a beautiful area and would be nice to be able to use it/bike it
- Ancient roads – be reused for public access/bike path

Group Three

- Main Street (Route 7) just for traffic with buildings inside the site facing each other, keep parking/building access off Route 7
- Park Idea at Rail Road is a great idea
- Alternatives in and out of core other than Route 7 to alleviate bottlenecks
- Make it easier to get to Husky – extension of Rail Road Street
- Parallel corridor to Route 7
- Fill in with grid system off new roads
- Parking area so pedestrians can access Route 7
- Slow down traffic
- Need to break up traffic flow with signals
- Keep heavy truck traffic out as much as possible
- Allow for trucks that need to get to businesses located in the core
- Deal with access to the High School
- Start with bike access in Town Core and connect to neighborhoods – that would drive the expansion in the future out to other areas
- Put buses behind the high school. Separate them from cars.
- Crossing guard needs better training and kids need to be taught and reminded to look both ways
- Invest money in recreation fields with a recreation park and improve pedestrian connections(sidewalks) between the school and recreation fields and ice barn
- One way road to cut between ball fields at the high school to connect from the high school to Haydenberry
- Boulevard needed to handle traffic volume
- 17A - the wrong place is proposed – should be near Lamoille River Bridge because of accidents there, so need better access – with an access road to connect it to the town core
- connect from Racine Road through the back part of M&M to Town Core area – town should work with developer to pursue this option

Economic Development Group

Questions asked:

- Where should/will new economic uses be located?
- What is the economic future of Route 7(outside the Town Core)
- Where new growth should be allowed?
- What lands should be protected?
- What rules should be adopted to guide development
- How should the land around the future 17A interchange be developed?

Group One:

- Don't pull businesses that should be in the core like restaurants, or the supermarket
- No micro-sprawl
- Catamount Park should be well planned
- Town is on the right track with the Town Core with streetscape – important to create and see ambience
- Industrial land – have two industrial areas – that is probably plenty
    - Maybe need a direct feeder road off I98 to catamount (also direct feeder like bridge to Husky)
    - People come to Vermont because they have environmental ethics
- Why 17a? To move volume(impact on residential; town core)
- 3 miles from 17 Exit – is there really a benefit?
- Convenience for community – will happen eventually – so we need to plan for it
- Address fears of why people don't want it
- What development would you want there? Want downtown to build out first (and it likely will). But don't want it to it to compete
- Need Money – a TIF - OK but then what do you want to see there?
- Lands to be conserved/developed
    - Lands outside of the core…Westford road… clearly no large scale development
    - Outlying lands will be pressured for housing… farmers leaving (retiring)
    - Housing pressure for retirees
- Downtown – nice to go to downtown to eat; movie theater (bike there in the summer)
- There are dumpy looking buildings as you come into town need to be addressed
- Spruce up the gateway: where? Start at the core and work out (as much as possible based upon what the Town can afford)
- Other Gateway is at Checkerberry (as you turn the corner) to the Dam
- If we do noting we are gong to wind up with Automobile dominated Route 7 no matter what we want. We need to plan to accommodate the auto as best possible.
- What else is needed on Route 7: healthcare, personal services, restaurants (what type – Applebee's, some yes – ideally more local and intimate), small department store, hotel (almost need an interchange for this type of development - maybe at 17A in 20 years
- What local businesses can open in the mean time
- Don't want Milton to look like everywhere else

Group Two:

- Recreation Tourism – Cobble Hill – Make Route 7 a Gateway to Milton – Right by Exit 17
- Why 17A? move volume, create big box development, reduce congestion at 17, move more people inside and outside of Milton (downtown will be built up by then… don't want the interchange first)
- Need to define what we want inside and outside of the core
- Location of 17A is not good. Needs to be more north – not to pull from the core (like Ritchie Avenue)
- DB1 square footage matches almost the number of businesses Milton can support
- What is missing???
- We need people to shop… there are not enough services
- Even when services are here… how do we get people to come
- Cultural events, movie theaters, bowling alley, coffee shop, sports shop
- Cobble Hill – Indoor active recreation (laser tag, climbing wall, indoor water park, indoor skydiving.
- Concern that the Cobble Hill proposal will short circuit people out of downtown
- Maybe need a feeder road from the North?
- Need infrastructure before Town Core can develop
- Town could use a multi-use civic building. Need more… need ice rink and need to remove obstacles for this kind of development – recreation accessible and affordable to local people
- Recreation doesn't bring people in steadily. Need mix of retail and office so people work here and go out for lunch and to shop.
- What should happen outside of the core???
    - Consider agribusiness – other options than just for housing-i.e. horse farms. Need to research these options
- Percentage of commercial required in DB1 zone is difficult for very small lots – what do people do??? Is selling their property to a developer the only alternative?

Group Three

- Alternative energy and environmental businesses… get these firms to locate here. (UVM is putting a lot of money into this)
- Create an atmosphere for innovation
- Existing innovative small businesses that are here already should be encouraged to expand – how can we take these to the next level???
- Sector specific marketing – identify the next best thing – solid runner over time
- Run with three or four and strongly market them… pull them here
- Lots of dry industry – small IT friendly businesses that could go to GBIC
- 50-100 employee range… they need infrastructure for sanitary waste – not industrial waste
- Can't forget that most people are not lawyers, doctors etc… regular people need value added manufacturing
- Be careful about making a major change (i.e. Corning)
- Restore Rail Road and create a stop with retail - could there be development along the rail road tracks

- Put too much money into highways and road infrastructure… but need to monitor this in the long run. Rail Road may be prepared for future
- Does the Town provide incentives to pull business? Beyond infrastructure?
- EDA gives money to build "incubators" – there is already an incubator at UVM
- Get a grant for the sewer link to Catamount Industrial Park… get this and we can focus on infrastructure expansion to Town Core
- Economic incentives are limited in Vermont…need to attract businesses that want to be in Vermont (Can do TIF's)
- Committee to go to find billionaire and pull them here???
- Will establish a strategy to pull these people here – need to be PROACTIVE
- Focused but diverse strategy
- Need implementation pieces… not just a plan
- Creative Economy grant and program (need to look at this)
- If local people can't start/expand business here - why not. And we need to fix these problems.
- Need to do community asset mapping
- Survey town resources
- Don't want: 65,000 square foot limit (working on this) – but don't want really big boxes either

Appendix Summary Stormwater Funding Scenarios
Prepared by Stone Environmental, Inc. January 2006

SUMMARY AND CONCLUSIONS

Milton is well positioned as a result of thoughtful past actions to address the current need to improve stormwater services. The need to enhance such services has come about predominately due to a portion of the community being designated as needing to comply with the federally mandated MS4 Phase 2 program, though Vermont's recent legal and regulatory turmoil related to stormwater and local requests for services have created additional pressure. There are many options available to the town in determining what level of services to provide in differing parts of town. Similarly, many methods exist that the town could implement to pay for these enhanced services.

In considering the level of service the town may choose to provide, the complexity of the systems needed to deliver service, to bill and collect funding, and to be understood by tax and or rate payers are important considerations. As a result of these factors, Scenario 2 is recommended to the Town. This scenario blends the requirements the Town is under to provide services in six program areas within the MS4 area with the general needs for enhanced maintenance services town-wide. All property owners would see sweepers on their streets and ditching and erosion control measures occurring in their part of town. In short, it would be a program that is easy to understand that would enhance water quality town-side, while providing important educational benefits as residents see the services provided.

This scenario does treat the administrative types of services required by MS4 differently. Enhanced levels of these services would be provided only in the MS4 area. The thinking is that these are predominately behind the scenes services, which while adding value, add less to the overall community and thus represent an area to save important resources at a time when the services are not yet required.

The estimated cost of the various scenarios is presented in the table below.

Program Elements	*Scenario's Current*	*1*	*2*	*3*
• Administration	$ 4,650	$ 40,000	$ 40,000	$ 52,000
• Maintenance	$ 39,355	$ 58,900	$ 81,400	$ 81,400
• Education	$ 6,000	$ 6,000	$ 6,000	$ 8,000
• Monitoring	$ -	$ 3,000	$ 3,000	$ 7,000
Operating Budget Subtotal	**$ 50,005**	**$ 107,900**	**$ 130,400**	**$ 148,400**
• Capital	$ 120,550	$ 150,000	$ 175,000	$ 200,000
Total Budget	**$ 170,555**	**$ 257,900**	**$ 305,400**	**$ 348,400**

As can be seen, the recommended scenario would require approximately $80,000 of new operating resources. While significant, this investment is affordable for residents, if there is agreement on the need for the services. Fees of $20 - $25 dollars for residents within the MS4 area and about half of that for those outside of the area would be required to generate the needed resources. Business costs would be higher based on the size of the business.

We recommend the Town carefully consider creating a user fee as the appropriate mechanism to pay for these services. While the dollar volumes are small, the competition for these dollars is intense. With the regulatory pressure applied by MS4, the Town needs a funding source for stormwater programming that is consistent both in its dollar volume and its support. Continuing to fund stormwater through general property taxes leaves the fiscal programming and thus the Town's ability to comply with MS4 at risk.

To develop an appropriate user based system, the Town should advance the next phase of analysis begun by this project. Finalizing details of the program budget, gaining agreement from appropriate stakeholders as to the need for the services and budget, and developing the appropriate mechanisms to apply and collecting a user fee through a stormwater utility represent the important work of this next phase of work.

Should the Town agree that a user fee is the appropriate mechanism to pay for this work, we strongly encourage you to look at the ideas presented here, and others that may come forward, to consider methods to use surrogates to impervious cover to develop your fees. Impervious cover models have historically been very expensive to develop and simply represent "the way we've always done it" and "what the courts have approved". If Milton were a community of 50,000 this model would be affordable, but it is not. We believe there are appropriate surrogates that can be cost effectively developed to assure the town's rate system would pass the rational nexus test should you be challenged.

TOWN OF MILTON
STRATEGIC ACTION ITEMS AND FUNDING MATRIX

Town Core and Streetscape Accessibility Strategies and Actions

Action Items	Description	Priority	Responsibilities	Potential Funding Source	Assessment Criteria	Timeline
		ST=Short MT = Mid LT= Long				
Streetscape Strategy 1: Plan Shape and Function of Downtown Core						
1a (I)	Develop plan for new roadway network for DB1 Zone as per recommendations. Revise ***Official Map*** to show new roadway system	ST	Planning Commission Selectboard	Town DHCA planning grant	Completion	1 year
1a (II)	Redesign and reconstruct **Railroad** Street-Middle Road intersection as per Study. Secure green space for future Town Green	MT	Planning Commission Selectboard MPO-VTrans Consultant Engineer	MPO-VTrans	Completion	3-4 years
1b	Design and develop ***Town Green*** at Railroad Street- Middle Road "hour glass." Consider use of Green for stormwater garden.	LT	Planning Commission Recreation Commission Conservation Commission Selectboard Consultant team	Town DHCA planning grant MPO- Enhancement Grant Vermont ANR-Water Quality Div. VT Division of Urban Forestry	Completion	5 years
2a, thru h	Develop Town Core ***Parking Plan*** Measure future parking need based on projected future development. Plan for efficient shared parking. Revise parking section of zoning ordinance for parking in DB1 Zone	ST	Director Planning Commission Selectboard Transportation/Parking Consultant	Town DHCA planning grant MPO	Completion	2 years
2b	Create **Municipal Parking Lot** on east side of River Street	MT	Planning Commission Selectboard	MPO VTrans Town	Completion	4 Year
2 i	Include future Park and Ride in the Town Plan	LT	Planning Commission Selectboard	Planning Commission Selectboard VTrans	Approval of Town Plan	5 year completion
2 j	Include future Multi- Model Center in the Town Plan	LT	Planning Commission Selectboard CCTA	Planning Commission Selectboard	Approval of Town Plan	10 year completion

Action Items	Description	Priority	Responsibilities	Potential Funding Source	Assessment Criteria	Timeline
		ST=Short MT = Mid LT= Long				
Streetscape Strategy 2: Develop Roadway Infrastructure and Roadway Character						
3a (I)	Roadway Infrastructure Rebuild **River Street** to be the axis of the Town Core Consider Class 1 Town Highway status for sections of US Route 7 within the DB1 zone	LT	Planning Commission Representatives to RPC and MPO Selectboard Legislative Representatives	MPO VTrans Town	Completion of River Street with all amenities through the DB1 Zone	10 years
3a (II)	Roadway Infrastructure Build new and rebuild existing **Town Roads** in DB1 Zone as per the Official Map. Phase roadway development.	S-MT	Planning Commission Representative- MPO Selectboard	MPO VTrans Town	All DB1 roads and amenities completed as per the Official Map	2-6 years
3a (III)	Build new streets with **curbs and sidewalks** as per typical roadway cross-sections. Rebuild edge of existing DB1 streets as development increases. Install curb, curb extensions and greenbelt.	M-LT	Planning Commission Representatives to RPC and MPO Selectboard Legislative Representatives	MPO VTrans VTrans Enhancement Town	Sidewalk /greenbelt improvements are part of roadway infrastructure in DB1 zone	2- 10 years
3b	Plant **Street Trees** for all new and improved roadway infrastructure.	M-LT	Planning Commission Tree Warden Conservation Commission Selectboard	Vermont Urban Forestry Division Town	Planting follows roadway development	Phased with roadway development
3c	**Pedestrian Crossing** Improvements Assess all active pedestrian crossings to determine needs. Install striping where needed.	ST	Planning Commission with Town Engineer	Town	Completion	1 Year
3d	**Outdoor Lighting** Install new Town lighting fixtures with all roadway improvements Require that new development install Town fixtures where appropriate. Revise Zoning Ordinance and/or develop design guidelines to address outdoor lighting requirements.	M-LT	Planning Commission Development Review Board Selectboard	Town VTrans Enhancement Grant	Completion phased with roadway improvements	2-10 years

Action Items	Description	Priority	Responsibilities	Potential Funding Source	Assessment Criteria	Timeline
		ST=Short MT = Mid LT= Long				
Strategy 3: Plan for Stormwater and Downtown Character						
4	Develop ***Stormwater Plan*** for the Downtown Core Analyze soil capacity for on-site stormwater treatment. Determine the implications or limit to development density if any. Develop tools, strategies and stormwater solutions. Define usable open space for downtown enhancement and detention.	ST	Planning Commission Town Engineer Consultant Selectboard	Vermont ANR Water Quality Div. Clean and Clear Grant	Workable Plan Completed	2 year
5	Develop ***Design Guidelines*** for the DB1 Zone that will achieve downtown character. Work with an Architect/Planning Team to write a clear, fair guide all developers can follow. Consider creation of a Design Advisory Board to advise DRB.	ST	Planning Commission Consultant Selectboard	VDHCA – Municipal Planning Grant	Design Guidelines Complete	2 year
6	Work with developer of retail center, west of River Street, to ensure that planned development follows the goals of the Town Core and is truly for the pedestrian user.	ST	DRB Planning staff	NA	Final Plan and Construction	1 Year
7	Develop ***Identity and Signage System*** for the Downtown	ST	Planning Commission Planning –Development Planning staff Consultant	Town	Approval of Identity and Signage System	1-2 Year
8	Form Shared Use Path Committee made up of interested citizens. Create On-Road and Shared Use Path Master Plan which set goals and priorities for linkages through out the Town but particularly to the downtown. Set goals for broad public process to build consensus. Begin with planning for a broadly accepted path segment.	M-LT	Planning Commission Selectboard	Town	Path segment complete	4 Year