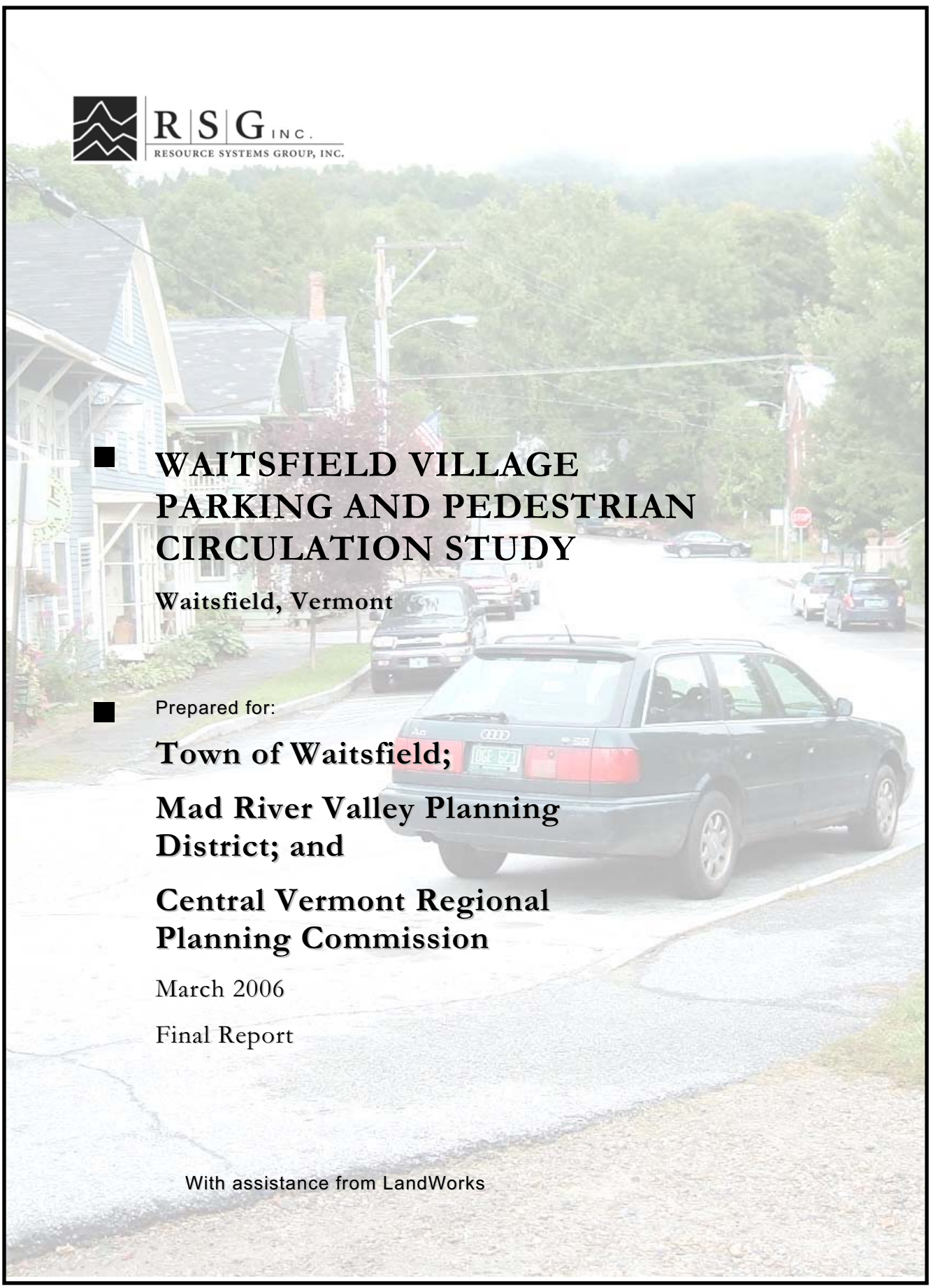

RSG INC.
RESOURCE SYSTEMS GROUP, INC.

WAITSFIELD VILLAGE PARKING AND PEDESTRIAN CIRCULATION STUDY

Waitsfield, Vermont

Prepared for:

Town of Waitsfield;

Mad River Valley Planning District; and

Central Vermont Regional Planning Commission

March 2006

Final Report

With assistance from LandWorks

100 Dorset Street, Suite 20 ▪ South Burlington, Vermont 05403

WAITSFIELD VILLAGE PARKING AND PEDESTRIAN CIRCULATION STUDY
Final Report – March 2006

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EXECUTIVE SUMMARY

This study recommends sidewalk, access management, traffic calming, parking, and enhancements in Waitsfield Village. This report incorporates comments from the public offered at a final public meeting held on September 28 2005, additional comments submitted in writing, and direction from the Selectboard issued in an October 26, 2005 memorandum to the consultant.

The study area is located in Waitsfield Village along VT 100 and Bridge Street. It is anchored by the VT 100-Bridge Street intersection in the south and extends approximately 0.40 miles to the southern most intersection of VT 100 with Old County Road.

This report documents the existing and future conditions in the study area, summarizes the key issues to be addressed, and presents a comprehensive list of pedestrian and bicycle facility improvements, intersection and roadway modifications, and parking facility recommendations for Waitsfield Village.

This study is a joint effort of the Town of Waitsfield, Mad River Valley Planning District (MRVD), Central Vermont Regional Planning Commission (CVRPC), Vermont Agency of Transportation (VTrans) and local residents and business owners. The project is financed by the Central Vermont Regional Planning Commission using local funds and state funds provided through the VTrans Transportation Planning Initiative.

Key Findings:

- Development and redevelopment within Waitsfield Village will occur at a slow pace. Growth in traffic will be driven by development in Irasville, the ski areas, general population growth in Town, and general statewide and regional traffic trends.
- Congestion currently exists on the Bridge Street approach to VT 100. The congestion will worsen over time. Vehicle queues will eventually extend to and beyond the Covered Bridge during the morning, mid-day, and afternoon peak hours. Sight distance from Bridge Street is currently obstructed by the Waitsfield House porch on the southeast corner and the intersection is not easy to identify when approaching along VT 100 from the south.
- Members of the public expressed concern about the speed of traffic passing through the Village. The entrances to the Village, and the cross-section on VT 100 in the Village, lack the necessary visual cues to slow traffic.
- Access management problems are concentrated along the west side of VT 100 near its intersection with Farr Lane pass the Village Grocery, Kehoe Design and No Wirz. The issues include lack of well defined commercial driveways, and the lack of definition at the Farr Lane and Parsonage Lane intersection approaches to VT 100.
- Overall, the pedestrian network is well connected. However, gaps exist at following locations:
    - The west side of VT 100 from Bridge Street to Old County Road; and

    - Designated pedestrian crossings between the on-street parking, homes, and businesses on the east side of VT 100 to destinations on the west side including major destinations such as the Village Grocery and Valley Players Theatre.

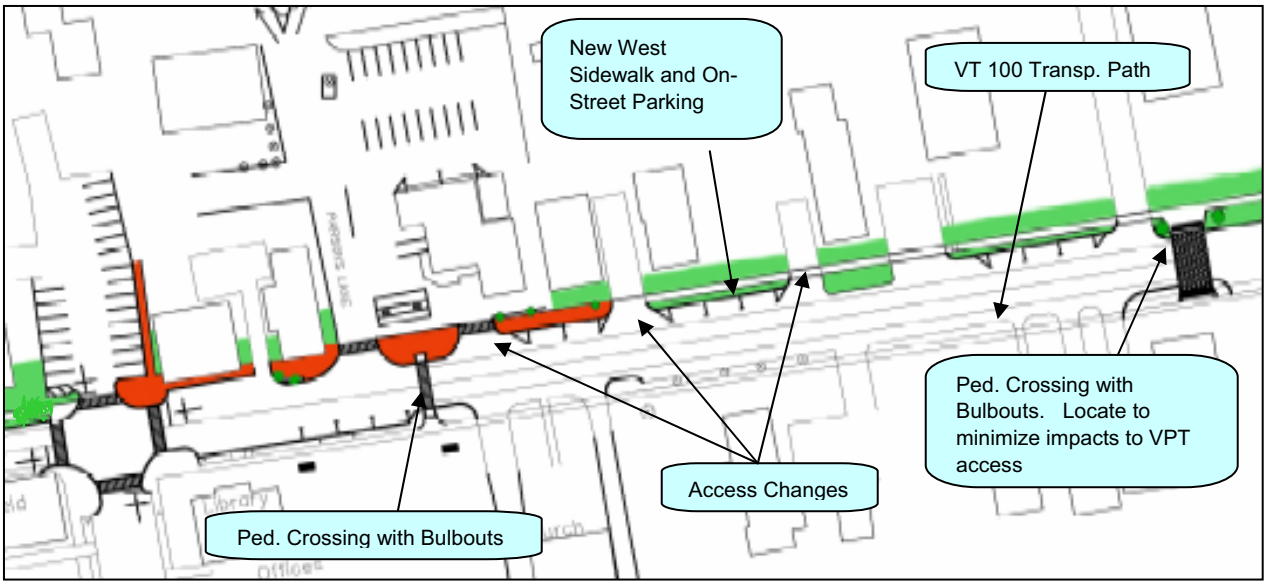
- Conditions in Waitsfield Village are most appropriate for advanced cyclists because they must share the travel lane with motor vehicles when traveling through the study area. Shared travel lanes are not appropriate for people with basic bicycling skills and experience or children.
- Less than 30% of non-residential parking spaces are occupied during the peak periods of a typical weekday. Therefore, there are enough parking spaces to accommodate existing and future demand the Village. The key assumption underlying this finding is that most of the private and public spaces are shared among multiple users. Shared parking, supported by the publicly owned spaces in the study area, and unrestricted use of the Bridge Street Market Place lot, are important to meeting daily parking demand in the study area.
- Special events (which mostly occur during weekends) can overwhelm the parking supply at the Village's core around the VT 100-Bridge Street intersection while parking facilities on the northern end of the Village are underutilized.

Recommendations: VT 100-South of Farr Lane to Valley Players Theatre

Figure E-1 shows the general concept plan which includes:

- A new sidewalk, green strip, and on-street parking on the west side of VT 100. The recommended concept plan is coordinated with the cross-section proposed for the VT 100 Transportation Path which includes upgrades to the existing sidewalk and on-street parking on the east side of VT 100, and bike lines on both sides of the roadway;
- Better defined driveways; and
- Mid-block pedestrian crossings with bulbouts on VT 100 at the Village Grocery and Valley Players Theatre.

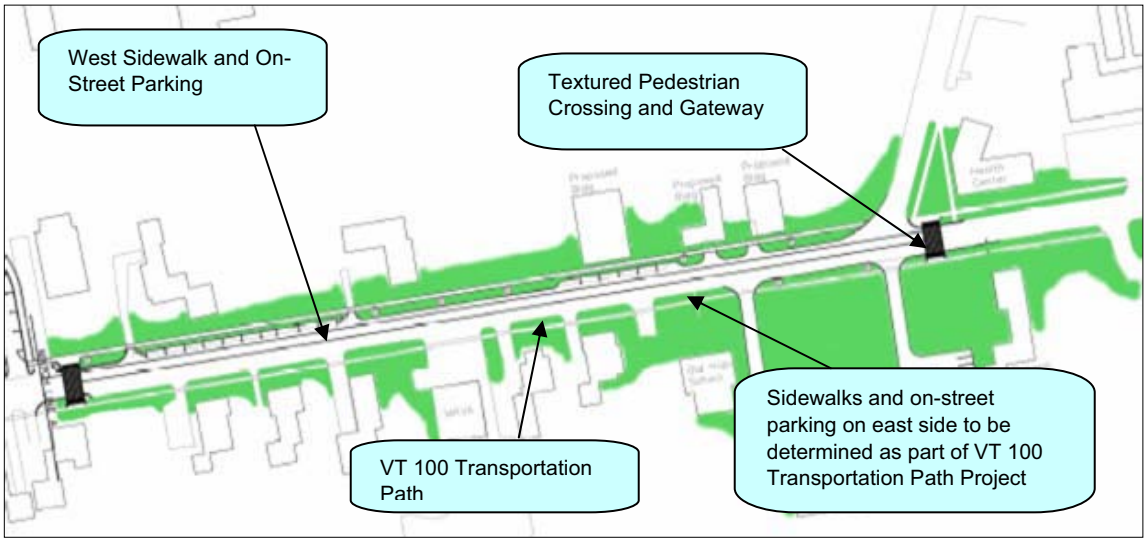
Figure E1: Concept Plan-Farr Lane to Valley Players Theatre



Recommendations: VT 100-Valley Players Theatre to Old County Road

The study recommends extension of a sidewalk on the west side of VT 100 from Valley Players Theatre to Old County Road. The concept plan is shown in Figure E-2 and is consistent with the cross-section proposed for the VT 100 Transportation Path. It includes intermittent on-street parking and a new textured pedestrian crossing anchored by bulbouts across VT 100 at Old County Road. This cross-walk would also serve as gateway to the Village.

Figure E2: VT 100 Valley Players to Old County Road



Recommendations: VT 100-Bridge Street-Farr Lane Intersection

The intersection is located in the Village Core and it must be designed in a manner that provides for a high level of pedestrian activity and enhances the aesthetics of its surroundings.

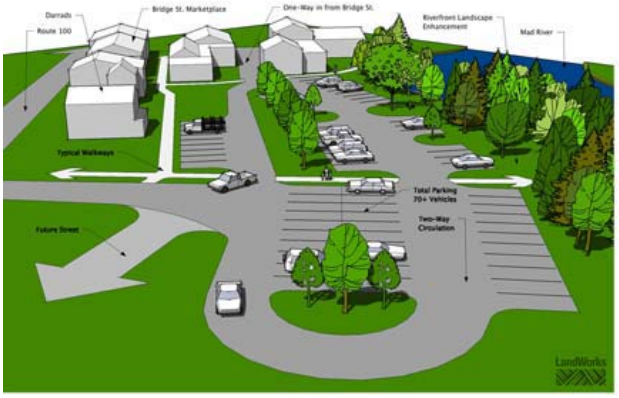
Figure E3: VT 100-Bridge Street Intersection Recommendations

The intersection must also provide a safe and efficient connection between Bridge Street, a major collector, and VT 100. In the long-term, traffic from the New Local Street will be re-directed through the intersection. A traffic signal is the most effective means available to manage traffic at the intersection, within the physical space available, while also protecting pedestrian and bicycle travel. When and if a traffic signal is installed, it should utilize pedestal mounted traffic signals and associated equipment which are more appropriate for the center of a village.

Parking Facility Recommendations

Bridge Street Marketplace Lot.

Figure E 4: Bridge Street Marketplace Lot. Long-term Concept



The Bridge Street Market Place lot is arguably the most important parking facility in the Village. The Town, public, and other Village businesses have an interest in keeping it available for public use. In the short-term, the Town should consider negotiating a lease agreement with the owners of the Bridge Street Marketplace that ensures a number of parking spaces remain available for unrestricted public use.

In the long-term, the Town should purchase the parking lot to allow implementation of a plan like the one shown in Figure E5 in this document that reorganizes the lot, provides an opportunity to create a riverside park in the village, and helps improve local circulation.

Waitsfield Church Parking Lot – Given the abundance of existing parking, construction of an official parking lot behind the Waitsfield Church is not necessary in the short-term.

Village Grocery Parking Lot - Beyond the access management recommendations and associated changes along VT 100, no modifications are recommended to the rear Village Grocery Parking lot.

Use of Northern Parking Lots for Special Events – The Waitsfield Elementary School, General Wait House Parking Lot, rear lot of the Mad River Valley Ambulance, and the green next to the General Wait House should be used to accommodate excess parking demand during special events. In the short-term, use of these locations can be encouraged by charging a fee for parking near the Village core while parking in the northern end of the Village is free. In the long-term, the VT 100 Transportation Path and other enhancements will make walking from the northern end of the Village to its core more safe, interesting, and pleasant and will encourage further use of these lots.

Expanding Public Parking – The study's recommendations will result in more public parking. The amount of on-street parking will increase with implementation of the sidewalk and access management improvements along VT 100. The pubic parking will be further increased if the Town purchases the Bridge Street Marketplace parking lot.

Traffic Calming and Enhancements

The concept designs developed for the sidewalk and roadways incorporate several elements that will help slow traffic through Waitsfield Village on VT 100 such as gateways, mid-block pedestrian crossings with bulbouts, curb-extensions at the VT 100-Bridge Street intersection with textured pedestrian crossings, and intermittent on-street parking.

The study also recommends several enhancements such as a pocket park at Valley Players Theatre, increased public space between the Mad River Lodge and Village Grocery, street lighting, and street trees. This study also recommends that utilities be placed underground.

Figure E 5: Enhancement and Traffic Calming at Valley Players Theatre

The mid-block crossing with bulbouts provides safe passage for pedestrians and calms traffic while the pocket park creates a new focal point in the Village (Exact location of cross-walk to be determined. Valley Players Theatre does not support the location of the monument as shown).

Costs and Implementation

Projects to be implemented in the short-term (less than 5 years) include:

- The VT 100 west sidewalk with on-street parking and access improvements from Farr Lane to Valley Players Theatre with street lights and street trees;

- Curb extensions and enhanced pedestrian crossings at the VT 100-Bridge Street-Farr Lane intersection;
- Mid-block pedestrian crossings with bulbouts; and
- Charging for parking near the Village core with free parking at the northern lots during special events.

Projects to be implemented in the medium-term (5-10 years) include:

- The VT 100 west sidewalk with on-street parking and access improvements from Valley Players Theatre to Old County Road with street lights and street trees;
- Valley Players Pocket Park; and
- Signalization of the VT 100-Bridge Street-Farr Lane intersection.

Projects to be implemented in the long-term (more than 10 years) include:

- Reconstruction of Bridge Street Marketplace Parking Lot; and
- Construction of the Waitsfield Parking Church Lot (no access to Bridge Street).

The total cost of all recommendations, excluding the cost to place utilities under ground, is $1.7 million. The cost for underground utilities is between $1.6 to 3.6 Million.

1.0 INTRODUCTION

The purpose of this project is to evaluate the feasibility of parking, sidewalk, access management, and traffic calming improvements in Waitsfield Village. This report documents the existing conditions in the study area, summarizes the key issues to be addressed, and presents a comprehensive list of pedestrian and bicycle facility improvements, intersection and roadway modifications, and parking facility recommendations for Waitsfield Village.

This study is a joint effort of the Town of Waitsfield, Mad River Valley Planning District (MRVD), Central Vermont Regional Planning Commission (CVRPC), Vermont Agency of Transportation (VTrans) and local residents and business owners. The project is financed by the Central Vermont Regional Planning Commission using local funds and state funds provided through the VTrans Transportation Planning Initiative.

This report contains the following major sections:

- Section 1.0 - Introduction provides and overview of the study's purpose and process, the study area, and previous plans and ongoing projects related to the Village;
- Section 2.0 – Analysis of Existing and Future Conditions provides a comprehensive assessment of the parking and overall transportation system in the study area, summarizes public comments, and presents a list of issues to be addressed,
- Section 3.0 – Alternatives and Recommendations describes, evaluates, and recommends roadway, sidewalks, and parking facility changes within Waitsfield Village that are intended to address the identified issues; and
- Section 4.0 – Implementation Plan identifies time-lines, costs, funding sources, project partners, and next steps for each recommendation.

1.1 STUDY PROCESS

This project was conducted by Resource Systems Group, Inc., a transportation planning and engineering consultant, with assistance from Land Works, specializing in landscape architecture. The consultant team was directed by a local steering committee that consisted of representatives from the Waitsfield Planning Commission, Waitsfield Town administration, Village businesses and residents, Mad River Planning District, Central Vermont Regional Planning Commission, and the Vermont Agency of Transportation.

The steering committee met several times to review and comment on draft products and assisted with arranging the public meetings. The project included a public meeting in February of 2005 to gather initial feedback on the issues to be addressed, a public meeting in June 2005 to present preliminary alternatives, and a final public meeting in September 2005 to present the draft report. The final report incorporates the comments and recommendations from the final meeting. All comments are contained in Appendix C.

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1.2 STUDY AREA OVERVIEW AND LAND USE

Figure 1 shows the study area limits from a large perspective. The study area is located in Waitsfield Village along VT 100. It is anchored by the VT 100-Bridge Street intersection in the south and extends approximately 0.40 miles to the southern most intersection of VT 100 with Old County Road. VT 100 is a state highway that eventually connects to I-89 at Exit 9 via VT 100B through Moretown and Exit 10 via US 2 through Waterbury Village. VT 100 is an important connection to employment and other destinations in Washington and Chittenden Counties and is the primary route to the Sugarbush and Mad River Glen ski areas. As such, VT 100 creates a significant amount of through traffic in Waitsfield Village which may sometimes be in conflict with local trips on foot, bicycle, and by vehicle.

The study area also includes Bridge Street from the covered bridge over the Mad River to VT 100. Bridge Street provides a connection between the east and west sides of Waitsfield and is one of the few river crossings in Town. It is therefore an important link for vehicle travel in Town. At the same time, Bridge Street provides direct access to several businesses and its design with sidewalks and on-street parking, and buildings located close to the street, creates a village environment.

Figure 1: Study Area Location

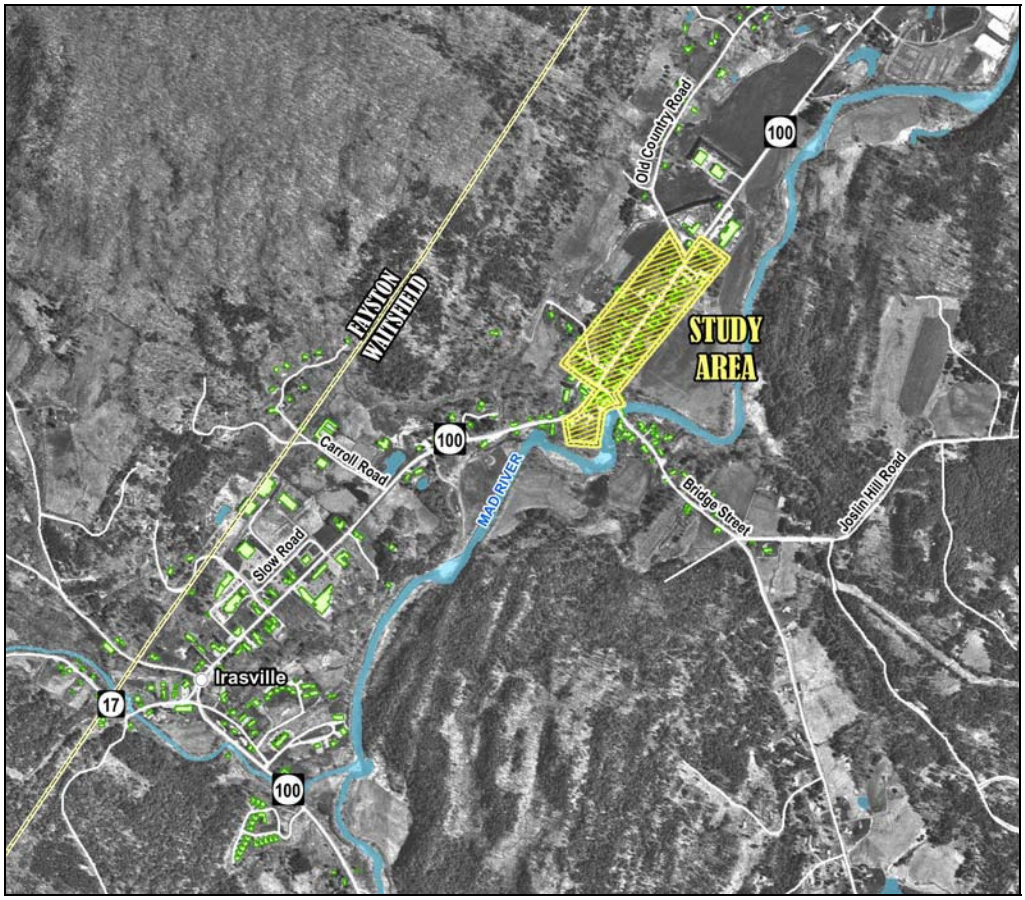


Figure 2 presents a closer perspective on the study area and shows the general land use types that exist in the Village.

Figure 2 demonstrates that Waitsfield Village contains a healthy mix of land uses all within close proximity. The commercial and retail uses are concentrated near the Bridge Street-VT 100 intersection and a mix of office and residential uses expand to the north. An important part of maintaining vitality in the Village are the buildings that house special events such as the Mad River Lodge, which provides a meeting space for community dinners and events such as the Baked Beads sale; the Waitsfield Church; and the Valley Players Theatre.

Figure 2 shows the general configuration and location of off-street parking lots. Almost all of these parking lots are located on the side or behind the buildings they serve. The location of parking behind or next to buildings, rather than in front, helps maintain the aesthetic qualities of the Village and promotes pedestrian access. Section 2.7 of this project memorandum presents a detailed inventory and assessment of parking supply and demand in the study area.

Most of the parcels that front VT 100 and Bridge Street in the study area are relatively small and are currently occupied. There are a few large parcels located along VT 100, or just behind other parcels fronting VT 100. The entire study area is located within the Village Residential (VR) zoning district. The purpose of this district is to "…maintain and enhance the residential and historic character of Waitsfield Village…and to allow for additional residential, public, institutional, and very limited commercial uses…"[1] so that the historic settlement pattern and quality of life in the Village are protected.

In addition, most of the study area is within the historic overlay district. Exterior alterations to accommodate a redevelopment classified as a conditional use, or the complete demolition for any purpose, of a building identified as contributing to the listing of the Waitsfield Historic District on the National Register of Historic Places, requires approval by the Board of Adjustment.

The Mad River is a prominent natural and recreational resource in the study area, but is also important to consider in a land use context.

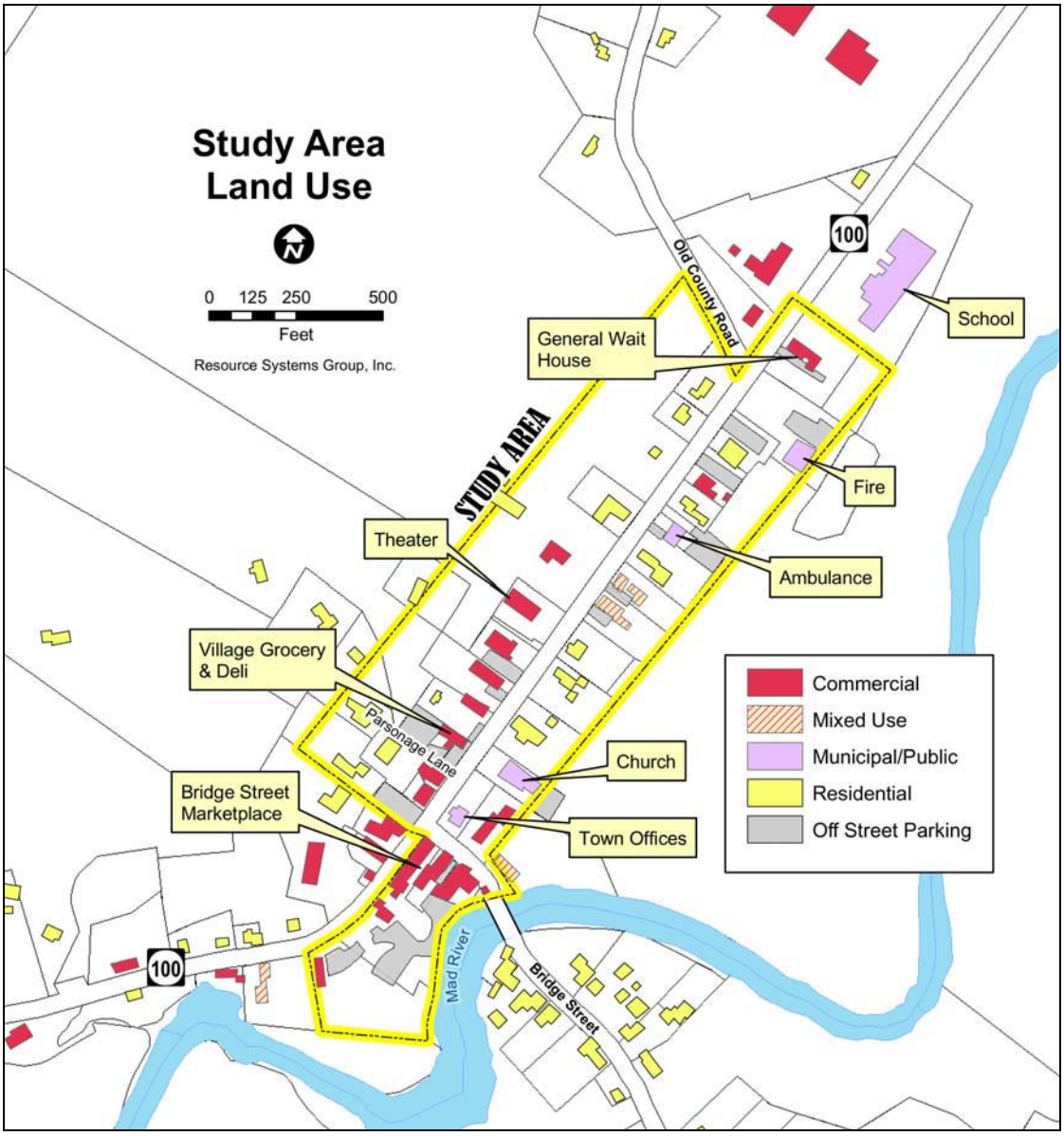
Figure 2 shows its prominence in the study area. The river's flood plain restricts development east of VT 100 in the study area. The river is also a destination, and like other land uses, attracts vehicle trips. The parking lot behind the Bridge Street Market Place provides access to the river.

As noted in the 1*997 Waitsfield Circulation and Access Management Plan* (summarized in Section 1.3), Waitsfield Village has the greatest potential for redevelopment in the Town while Irasville has the greatest potential for new development. Given the stated purpose of the VR zoning district and the limitations it places on commercial development, the regulation of historic buildings, and the constraints created by the Mad River, it is reasonable to conclude that development and

[1] Town of Waitsfield Zoning Bylaws, Adopted March 2, 2004.

redevelopment within Waitsfield Village will occur at a slow pace. Growth in traffic will be driven by development in Irasville, the ski areas, general population growth in Town, and general statewide and regional traffic trends.

Figure 2: Study Area Land Use



1.3 RECENT AND ON-GOING TRANSPORTATION PLANS AND PROJECTS

1997 Waitsfield Circulation and Access Management Plan[1]

The study area extends along VT 100 from a point between the north and south ends of Old County Road to south of Irasville just beyond Fiddlers Green and includes all of the study area considered in this report. Recommendations are based upon the following goals which were developed with public input and synthesized from the Town Plan and CVRPC Regional Transportation Plan:

- Maintain Level of Service of C or better for the design hour in Waitsfield Village and Irasville;
- Maintain or improve existing Village character in Waitsfield and Irasville;
- Encourage development in Waitsfield and Irasville as town growth centers;
- Safely accommodate all trip types and travel modes; and
- Avoid creating a high speed through route along VT 100.

A public design Charette was conducted to develop the following vision: expand a village grid network of roadways in Irasville and to a lesser extent in Waitsfield Village.

A development build-out analysis was conducted for Irasville and Waitsfield. The analysis demonstrated that most of the pressure for new development will occur in Irasville; the greatest potential for new driveways is between Waitsfield and Irasville; and the greatest concentration of redevelopment potential is in Waitsfield Village. The study noted that a desire to maintain the historic nature of Waitsfield Village may limit redevelopment but the local regulations did not appear to limit significant changes to historic buildings (the 2004 Zoning Regulations now include an Historic Overlay District).

The study evaluates fifteen different strategies for achieving the goals listed above. Strategies include policy recommendations related to access management (placement and design of driveways); changing the physical design of VT 100 (including curbing, widening VT 100 to 4 lanes, and medians), and general intersection improvements. Also discussed is the creation of two alternate north-south routes through the study area with connections to VT 100.

The preferred combination of actions is:

- All actions that do not involve major physical changes should be pursued by the Town. These actions include identifying new local roads on an official town map and local regulations that encourage sound access management practices as parcels are developed or re-developed;
- Creating more local roads parallel to VT 100;
- Expanding the bicycle and pedestrian system; and

[1] Prepared by Lamoureux, Stone, & O'Leary for the Town of Waitsfield and the Central Vermont Regional Planning Commission; October 17, 1997.

- Completing curbing along the west side of VT 100 to formalize the on-street parking on the west side of VT 100 and to clearly define driveways.

1999 Waitsfield Parking Study[1]

This study compares the number of parking spaces available in Waitsfield Village and Irasville to the number of spaces required by the zoning regulations in effect in 1999[2]. The study found that on average, the actual ratio of parking spaces provided per square footage of commercial development is much lower in both Waitsfield Village and Irasville than required by the zoning regulations.

In Waitsfield Village, there was one privately owned parking space available for each 648 square feet of commercial space. If the public spaces were included in the calculation (The Farr Municipal Lot and on-street parking along Bridge Street and VT 100), the ratio drops to one space per 520 square feet. Both of these actual ratios are much less than required in the zoning regulations in effect at the time of the study (1 space per 200 square feet).

Despite this difference however, the study states that the need for parking in Waitsfield Village is generally met. The general conclusion reached by the community was that isolated parking shortages may exist, but the current level of parking appears to be adequate and that future parking requirements should be based more closely to actual local demand rather than national standards.

The study discusses a variety of strategies to help address and manage parking needs. Table 1 lists the recommendations and their status.

Table 1: 1999 Parking Study Recommendations and Status

Recommendation	Status
Reduce parking ratios.	***Addressed in 2004 Zoning Regulations*.** Parking ratios for commercial uses have been changed to 1 space/300 sf. (Section 3.9 (A)(1) and Table 3.1)
Shared Parking	**Addressed in 2004 Zoning Regulations.** Shared parking may be used to justify a waiver of the parking requirements (Section 3.9 (C)(2)).
Use of Adjacent/Public Parking Areas	***Addressed in 2004 Zoning Regulations.*** On-street parking along a parcel's road frontage may be used to reduce on-site parking spaces (Section 3.9 (A)(5)). If off-site public parking is within walking distance, it may be used to justify a reduction in parking requirements (Section 3.9 (C)(3)).
Land-banked Parking	***Addressed in 2004 Zoning Regulations***. Parking requirements may be waived if green areas are set aside for future parking areas. This set aside will allow additional parking spaces to be provided if the number of parking spaces turns out to be inadequate (Section 3.9 (C)(1))
Other Waivers	***Partially Addressed in 2004 Zoning Regulations***. This recommendations specifies allowable percent reductions in parking spaces (up to 60% in Waitsfield Village) if justified by the unique characteristics of a development, Waivers are allowed, but must be justified based on land banking, shared parking, adequate off-site public parking, or if the development is for affordable or elderly housing.

[1] Prepared by Lamoureux, & Dickinson for the Town of Waitsfield and the Central Vermont Regional Planning Commission; December 1999.

[2] The zoning regulations in place in 1999 include amendments adopted on March 7, 1995.

Performance Standards/Site Plan Review Standards	***Not Included in 2004 Zoning Regulations***. Specify how a parking area should look, be hidden, be operated, and how it should affect the remaining portions of a parcel. The standards provide greater flexibility in the design and location of parking areas and in the review process.

VT 100 Transportation Path

In 1993, the Vermont Agency of Transportation selected the VT 100 Transportation Path for funding through the Statewide Bicycle and Pedestrian Program. The intent of the Route 100 Transportation Path is to provide pedestrian and bicycle connections between the villages of Waitsfield and Irasville. The goals of the pathway include the following:

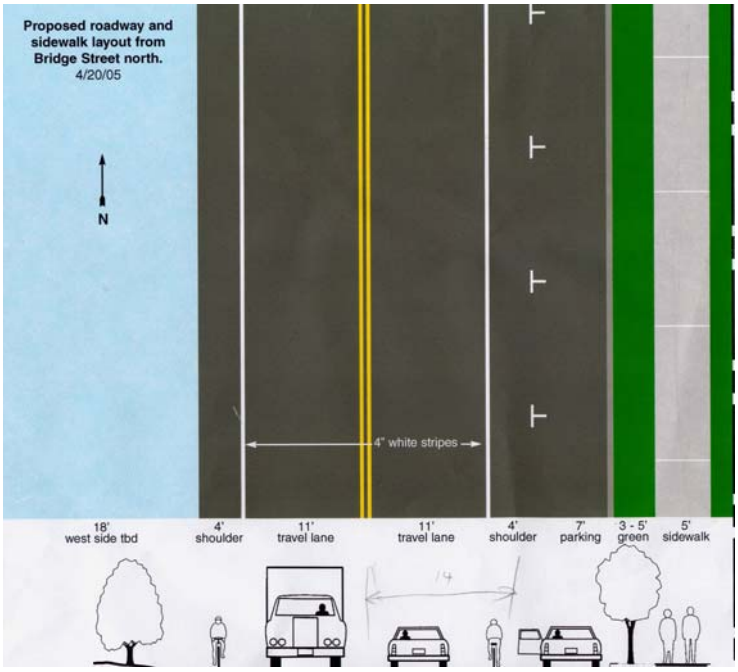
- To provide safer access for pedestrians and bicyclists;
- To reduce local reliance on the automobile;
- To provide an opportunity for fitness walking;
- To provide safe crosswalks across VT 100;
- To calm automobile traffic through the corridor; and
- To provide a more shopper-friendly commercial district.

The identified pathway runs from Bragg Hill Road in Irasville north along VT 100 to the Waitsfield Elementary School and is planned to include a five foot sidewalk along one side of the road, four foot marked bicycle lanes along both sides, granite curbing, enhanced landscaping and lighting, and new crosswalks across VT 100. Additional enhancements identified for development in conjunction with the pathway project include the following:

- Construct a gravel pathway connecting the Irasville Common;
- Upgrading the Village Path;
- Sidewalk improvements on the west side of Waitsfield Village;
- Sidewalk improvements on Bridge Street; and
- New sidewalks with development in the growth center of Irasville.

The Town of Waitsfield has hired a municipal project manager to work in coordination with an 8-member local advisory committee to implement the goals of the pathway project. Figure 3 shows the proposed cross-section for the VT 100 Transportation Path north of Bridge Street.

Figure 3: VT 100 Transportation Path Conceptual Roadway Cross-section



The 2000 Waitsfield Street Tree Master Plan[1]

The plan is based upon on an inventory of all street trees along VT 100 in Irasville and Waitsfield. It includes street tree maps, a street tree phasing plan, budget projections, planting methods, and a maintenance plan. The most relevant recommendation include: Coordination of street tree plantings with existing and planned infrastructure (VT 100 sidewalk project and town sewer project); construction of a sidewalk on the west side of VT 100 from Bridge Street to Valley Players Theatre; add cross-walks at the Waitsfield Church, Valley Players Theatre, Old County Road, and possibly to the Bridge Street Marketplace Parking lot on VT 100; curbing along VT 100 from VT 17 to the Waitsfield Telecom property; and the Town of Waitsfield should assume ownership of VT 100 through the Village. The plan also recommends that street trees be placed in the green strip between the roadway and sidewalk whenever possible.

Water and Sewer Project

The Villages of Waitsfield and Irasville are currently developing plans for a 10-mile long wastewater pipeline, pump stations, and treatment facilities within Waitsfield Village, Irasville, and on two parcels south of Waitsfield Village. The wastewater pipeline will be laid within Waitsfield Village and Irasville, mostly in the existing road right-of-way. A portion of the wastewater pipeline will also cross a low lying wetland area before connecting with the VT 100 right of way again in Irasville. The wastewater treatment facility will be located on the Munn property south of the Village of Waitsfield.

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[1] Prepared for the Town of Waitsfield by Broadleaf Design; March 21, 2000.

The new wastewater collection system will allow existing septic systems within the service area to connect to the sewer system and will also allow for more concentrated development within the VT 100 corridor. The construction of any new sidewalks or curbs along VT 100 in Waitsfield Village should be coordinated with the installation of the wastewater system to minimize impacts to the Village and surrounding land uses.

2.0 ANALYSIS OF EXISTING AND FUTURE CONDITIONS

This section includes a provides a general descriptions of street and roadway characteristics; assessments of congestion, safety, access management, and bicycle and pedestrian facility conditions; an assessment of the parking supply and demand; and a summary of natural resources in the study area. Comments from a public meeting are presented and a list of issues to be addressed is summarized.

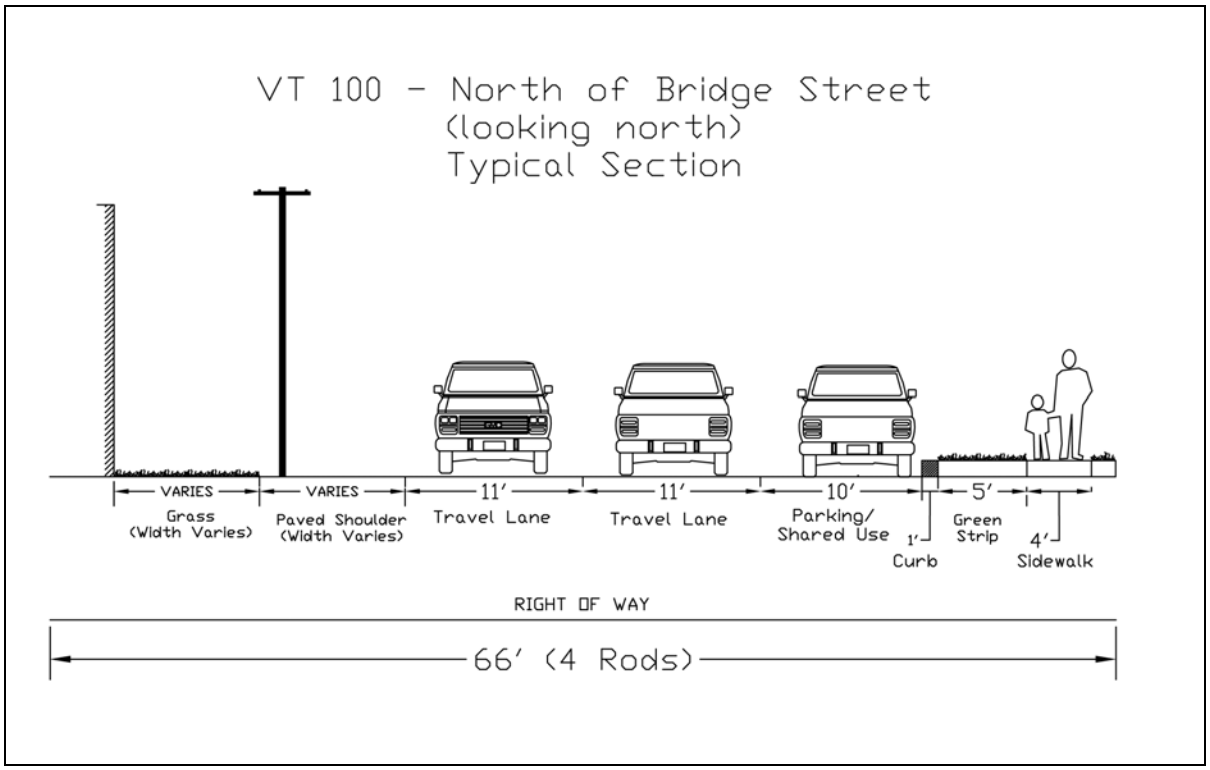
2.1 STREET AND ROADWAY CHARACTERISTICS

VT 100 south of Bridge Street is characterized by two 11 foot travel lanes with a delineated shoulder on the east side and an unlined shoulder on the west side of varying width. The shoulder on the east side increases from one foot south of Bridge Street, to approximately 8 north of Bridge Street. Adjacent to the shoulder on the east side is a relatively narrow footpath worn into the dirt. Between the footpath and the shoulder is a shallow, narrow concrete curb in poor condition. The right of way along VT 100 south of Bridge Street is three rods (49.5 feet).

VT 100 north of Bridge Street to Old Country Road is characterized by two 11 foot travel lanes with a delineated parking/shared use lane along most of the east side and an unlined shoulder on the west side of varying width. (See Figure 4) Adjacent to the shared use lane on the east side is a granite curb, a green strip, and a four-foot sidewalk (See Section 2.6 for more details on the Bicycle and Pedestrian Network). Along the west side lies a shoulder of varying width, a grass strip in certain locations, and a narrow sidewalk/footpath along certain segments. The right of way along VT 100 north of Bridge Street is four rods (66 feet).

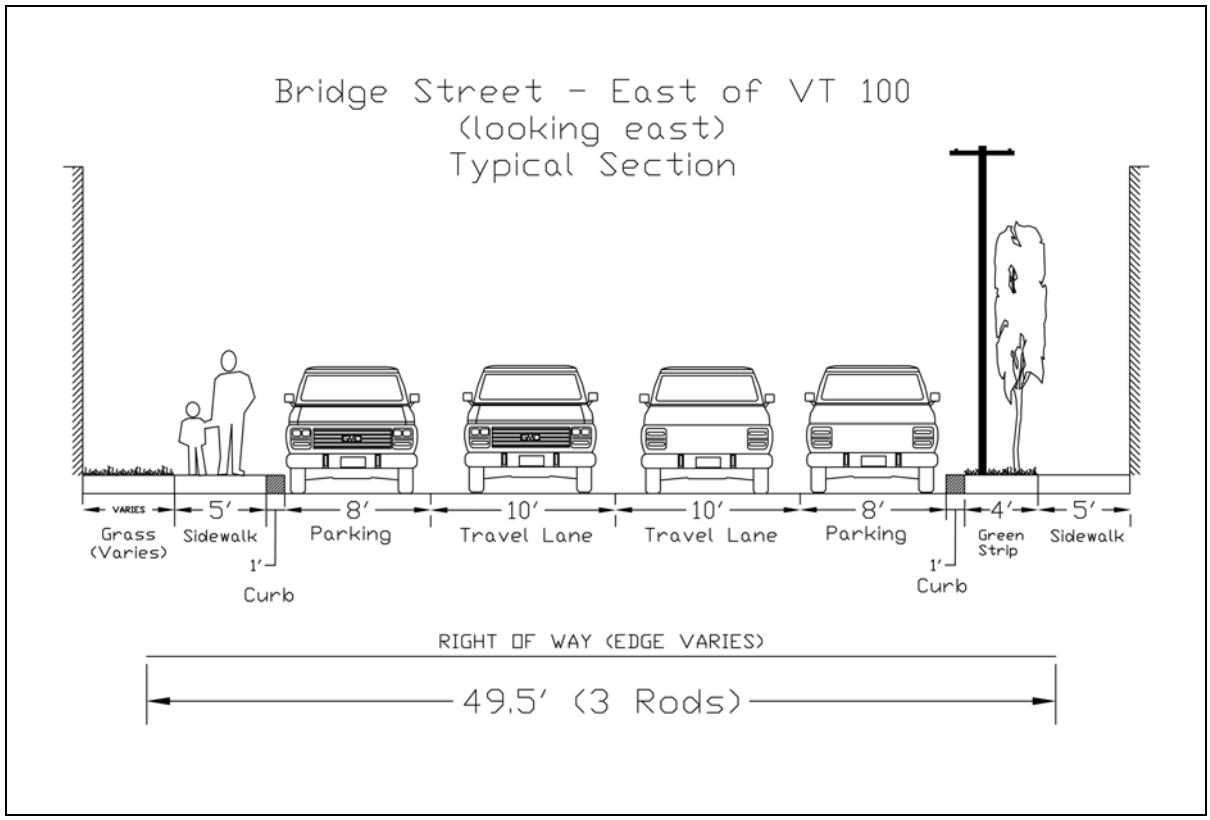
VT 100 drops approximately 8 feet in elevation between the lower Bridge Street Marketplace entrance and the Waitsfield Elementary School.

Figure 4: Typical Cross-Section - VT 100 North of Bridge Street



Bridge Street east of VT 100 is characterized by two 10 foot travel lanes with parallel parking located along both sides. (See Figure 5) Adjacent to the parking lane on the south side is a granite curb, a green strip and a five-foot sidewalk which often abuts the Bridge Street Marketplace buildings (See Section 2.6 for more details on the Bicycle and Pedestrian Network). Adjacent to the parking lane on the north side is a granite curb, a five foot sidewalk, and a grass strip of varying width. The right of way along Bridge Street is three rods (49.5 feet).

Figure 5: Typical Cross-Section - Bridge Street East of VT 100



Traveling south on VT 100, the speed limit drops from 40 to 30 miles per hour north of the Waitsfield Elementary School. The speed limit remains 30 miles per hour through the village.

The VT 100-Bridge Street-Farr Municipal Parking Lot intersection is configured as an unsignalized intersection with stop controls on the Bridge Street and Farr lot approaches. All approaches consist of a single lane that accommodates through and turning vehicles. The Mad Bus has a designated stop immediately north of the intersection on both sides of VT 100. There are marked crosswalks across the northern and eastern legs of the intersection.

2.2 HIGHWAY SYSTEM-WIDE CONTEXT

This section documents the functional classification and jurisdiction of the roadways that comprise the study area. This system-wide context is important in determining design standards as alternatives are developed in subsequent sections of the study and potential funding sources are identified.

Functional Classification

The Federal Highway Administration's roadway functional classification system, depicted in Figure 6, is organized as a hierarchy of facilities, based on the degree to which the roadway serves mobility and access to adjacent land uses. Freeways and interstate highways, at the top of the hierarchy, are devoted exclusively to vehicle mobility, with no direct access to adjacent land. Arterials and collectors provide both mobility and access to adjacent land uses. The local road system is devoted exclusively to providing local access, with limited capacity and relatively slow speeds.

Figure 6: Conceptual Roadway Functional Hierarchy

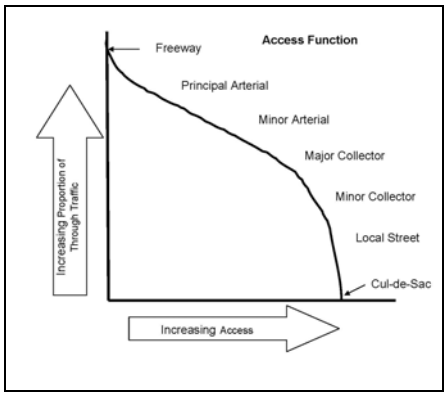
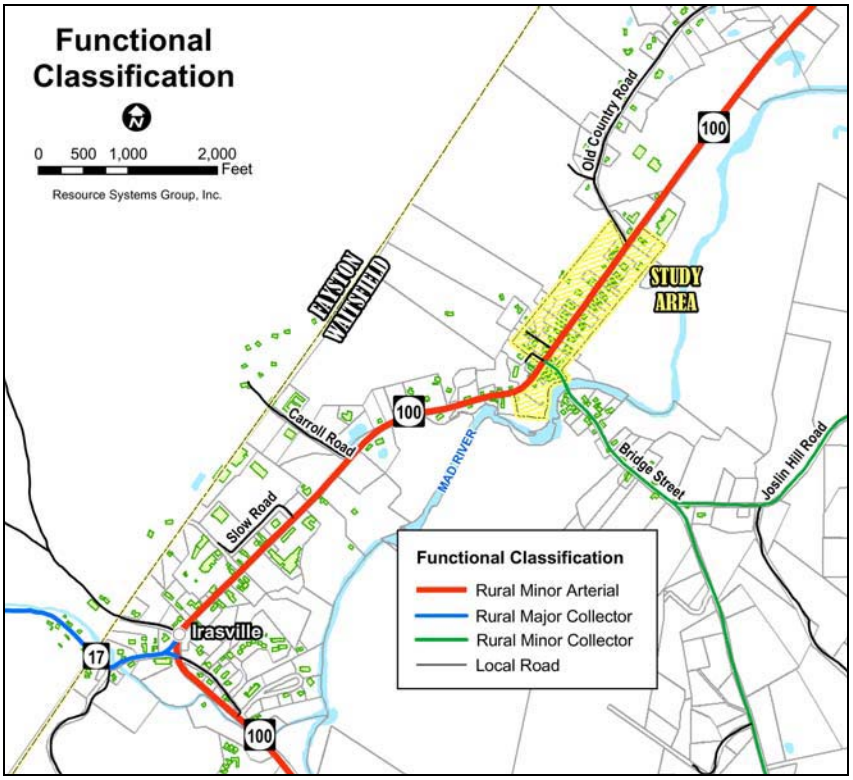


Figure 7 shows the functional classification of the roadways in the study area. VT 100 is classified as a rural minor arterial. A minor arterial's function is to serve through traffic while also providing some access to adjacent land. In the idealized situation shown in Figure 6, all access to the minor arterial would be provided through at-grade local street intersections rather than driveways serving individual parcels. In the real world, particularly in Vermont, many arterials pass through the center of villages such as Waitsfield and must accommodate numerous driveways, closely spaced street intersections and higher levels of pedestrian and bicycle travel.

Bridge Street is classified as a Rural Minor Collector. Although its function emphasizes access to adjacent land over mobility, it must still accommodate some through traffic. This balance is particularly true in Waitsfield where Bridge Street provides a connection between the east and west sides of Town over the Mad River.

The Vermont State Standard were developed in part to help balance the need to accommodate through traffic while also preserving and enhancing livability where arterials and collectors form the center of villages and cities. The Vermont State Design Standards provide flexibility for arterials and collectors in village centers by allowing for narrower travel lane and shoulder widths than recommended for rural sections of highway.

Figure 7: Federal Functional Classification



Roadway Jurisdiction

VTrans has established a roadway classification system to identify the levels of jurisdiction over each section of road across the state. These classifications identify whether, for example, VTrans or the Town is responsible for pot hole patching on a particular section of road. The following categories are used by VTrans[1]:

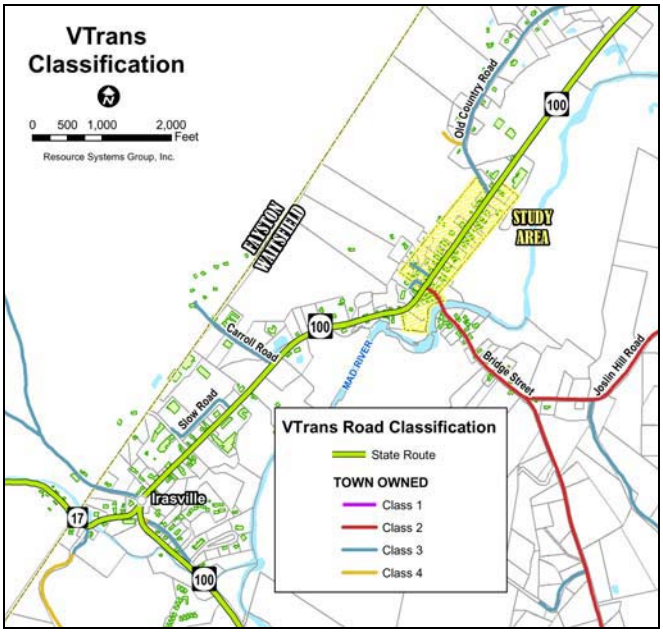
- State Route: Forms the primary transportation network through the State. State routes include all state numbered highway routes not designated as Class 1 town highways. The State routes are the responsibility of VTrans.
- Class 1 Town Highway: Forms the extension of state numbered highway routes through a town, and which carry a state highway route number. Class 1 town highways are subject to concurrent responsibility and jurisdiction between the Municipality and VTrans on several matters. VTrans is responsible for scheduled surface maintenance or resurfacing while municipalities are responsible for pot hole patching, crack filling, etc; VTrans is responsible for center line pavement markings, while *municipalities are responsible for sidewalks, crosswalks and parking*. VTrans has exclusive authority to designate Class 1 highways.

[1] Road classification description sources: VTrans "Handbook for Local Officials" (2004) and NVDA Online Transportation Glossary.

- Class 2 Town Highway: Those town highways selected as the most important highways in each town. As far as practicable they shall be selected with the purposes of securing trunk lines of improved highways connecting two towns and to places which by their nature have more than a normal amount of traffic. The selectmen, with the approval of the Vermont Agency of Transportation, shall determine which highways are to be class 2 highways. Class 2 highways are primarily the responsibility of municipalities. VTrans is responsible for center line pavement markings if municipalities notify VTrans of the need to replace them, while *municipalities are responsible for sidewalks, crosswalks and parking*. Class 2 mileage normally may not exceed 25 percent of the total Class 2 and Class 3 mileage in the municipality.
- Class 3 Town Highway: All other town highways that are "negotiable under normal conditions all seasons of the year by a standard pleasure car." *Class 3 town highways, including sidewalks, crosswalks, and parking, are the responsibility of municipalities.*
- Class 4 Town Highway: All other town highways are considered Class 4 town highways. The majority of these receive limited or no maintenance. They are negotiable at your own risk, usually impassable in Winter, and referred to as "jeep trails" at other times of the year. *Class 4 town highways, including sidewalks, crosswalks, and parking, are the responsibility of municipalities.*

VT 100 is owned by the State of Vermont and maintained by VTrans. No local funds are required for reconstruction of the road and VTrans will play a significant role in any decisions regarding its design. Bridge Street is a class 2 town highway that is owned and maintained by the Town of Waitsfield. Although Bridge Street is not part of the federal aid highway system, bicycle, pedestrian and general transportation enhancement projects along Bridge Street may be funded with state and federal funds.

Figure 8: State and Local Roadway Jurisdiction



2.3 CONGESTION

This section provides an overview of average daily traffic volumes, current and future intersection traffic volumes, and quantifies the level of congestion under existing and future conditions at the VT 100-Bridge Street intersection.

Daily Traffic Volumes and Adjustments

Average daily traffic volumes and design hour volumes are examined within the study area under the following scenarios:

- 2005 – Existing Conditions
- 2010 – Background Growth plus Sugarbush Development
- 2015 – Background Growth plus Sugarbush Development plus Build-out Growth

Background Growth: To account for background traffic growth in the study area (i.e. traffic resulting from development outside of the study area), the VTrans 20-year projected growth rate for rural primary and secondary roads was used.[1] This background annual growth rate of 1.6% was applied to all traffic within the study area to adjust to 2010 and 2015 conditions.

Sugarbush Development: To account for traffic growth within and adjacent to the study area, traffic anticipated to be generated by significant developments was included in the analysis. For the purposes of this study, traffic generated by a proposed hotel and potential lift and trail expansion at the Sugarbush Resort in Warren has been included. A 1997 traffic study, *Waitsfield Circulation and Access Management Plan*, assumed that 480 new trips would be generated during the peak hour by expansion and new development at the resort. Further, the report estimated that 330 of these peak hour trips would travel through the study area along VT 100. More recently, Sugarbush has backed away from plans for expansion of their lift and trail accommodations. However, this report has utilized the more conservative trip generation figures reported in the *Waitsfield Circulation and Access Management Plan.* The 330 new trips generated by the development at Sugarbush was applied to through traffic on VT 100 in the 2010 and 2015 scenarios.

Build-out Growth: It is often valuable to examine how roadways and intersections handle traffic under build-out conditions. A build-out scenario typically includes the number of new trips generated assuming that all developable land within a defined area is developed to its maximum extent under current zoning. The build-out conditions typically represent a worst-case scenario for comparison purposes. For the purposes of this analysis, the build-out growth scenario developed for the *Waitsfield Circulation and Access Management Plan* (1997) was used. This scenario estimates an additional 1,000 new trips generated during the peak hour resulting from a 125% increase in building floor area in Irasville and Waitsfield. The 1,000 new trips were projected to increase existing traffic volumes on VT 100

[1] Although there is a VTrans continuous traffic count station near the study area (VT 100 north of VT 17), VTrans does not publish specific growth rate projections for this count station. Thus, we have used the projected growth rate for rural primary and secondary routes.

through the study area by 55% and volumes on Bridge Street by 17%. The traffic volume increase resulting from build-out conditions have been included in the 2015 scenario only.[1]

The Average Annual Daily Traffic (AADT) volumes at selected locations along VT 100, VT 17, and Bridge Street under the 2005, 2010, and 2015 scenarios are shown in Table 2 below. The locations move from north to south beginning on VT 100 near Riverview Road, through Waitsfield Village, and end near Kingsbury Road south of VT 17. The percentage increase in traffic is shown next to the 2010 and 2015 volumes and shows that under the 2015 scenario (background growth plus Sugarbush growth plus Build-out growth) daily volumes at locations north of VT 17 more than double.

Table 2: Average Annual Daily Traffic (AADT) Volumes

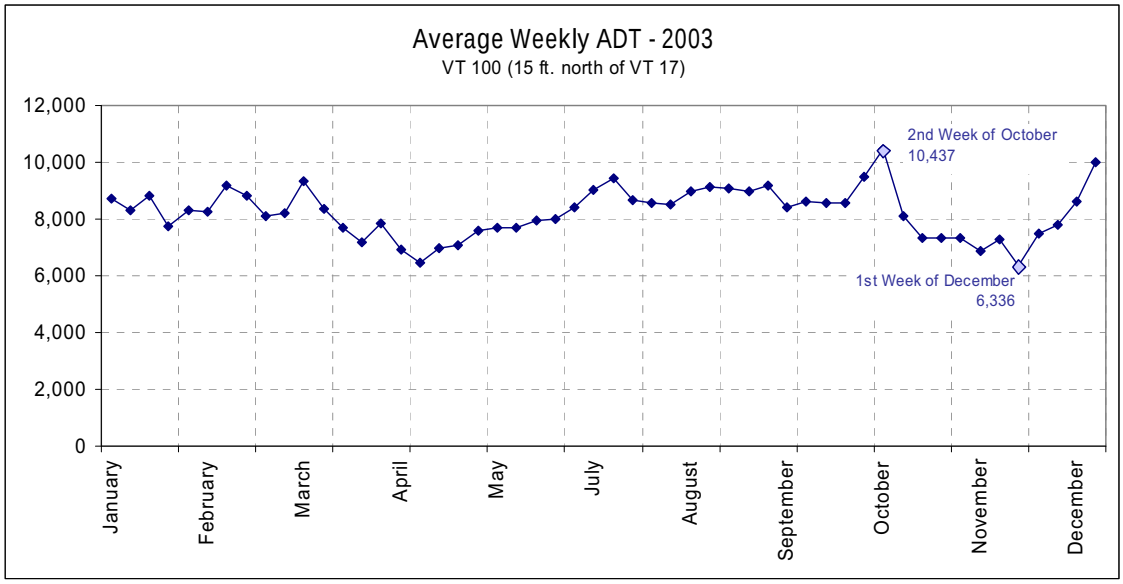
Location	2005	2010	% Increase (2005-2010)	2015	% Increase (2005-2015)
<-- North to South -->					
VT 100 - 0.1 miles north of Riverview Rd.	6,700	10,500	57%	14,800	121%
Bridge Street - 0.4 miles east of VT 100	2,500	2,700	8%	3,300	32%
VT 100 - 15 ft. north of VT 17	8,600	12,600	47%	18,700	117%
VT 17 - 15 ft. west of VT 100	4,100	6,100	49%	9,000	120%
VT 100 - 15 ft. south of VT 17	6,200	8,300	34%	11,700	89%
VT 100 - 0.2 miles north of Kingsbury Rd.	5,100	7,200	41%	10,000	96%

Although the volumes shown in the table above reflect *average* daily traffic volumes adjacent to the study area it is important to note that traffic volumes fluctuate throughout the year. This study area in particular experiences larger than average fluctuations in traffic volumes over the year due to the nearby ski resorts and high levels of tourist traffic at various points throughout the year.

Figure 9 shows the fluctuation of average weekly volumes during 2003 along VT 100 just north of VT 17. The 2003 Average Annual Daily Traffic volume at this location is 8,700 vehicles. However, the graphic shows significant fluctuations from this average over the course of a year. The highest average week counted in 2003 was the second week in October where the average daily traffic volume was close to 10,500 cars per day. This week likely occurred during the peak of foliage season. The lowest average weekly volumes were counted the first week in December with an average of just over 6,300 cars per day.

[1] Although the 2015 scenario includes the 'Build-out Growth' volumes, it is likely that build-out conditions will not be reached within a 10 year timeframe.

Figure 9: Monthly Variations in Traffic Volumes on VT 100



Level of Service Analysis at the VT 100-Bridge Street Intersection

A Level of Service (LOS) analysis is the analytical tool used to estimate congestion at intersections. LOS is a qualitative measure rating the operating conditions as perceived by motorists driving in a traffic stream. The *Highway Capacity Manual*[1] (HCM) defines six grades of LOS at an intersection, based on the control delay per vehicle.

Error! Reference source not found. shows the various LOS grades, qualitative descriptions, and quantitative definitions for unsignalized and signalized intersections.

Table 3: Intersection Level of Service Criteria

		--Unsignalized--	--Signalized--
LOS	Characteristics	Total Delay (sec)	Total Delay (sec)
A	Little or no delay	≤ 10.0	≤ 10.0
B	Short delays	10.1-15.0	10.1-20.0
C	Average delays	15.1-25.0	20.1-35.0
D	Long delays	25.1-35.0	35.1-55.0
E	Very long delays	35.1-50.0	55.1-80.0
F	Extreme delays	> 50.0	> 80.0

[1] Transportation Research Board, National Research Council, *Highway Capacity Manual: Special Report 209,* Washington DC, 2000.

A LOS analysis was conducted at the VT 100-Bridge Street intersection under the following scenarios (described in detail in the previous section) during the morning, midday, and evening peak hours:

- 2005 – Existing Conditions
- 2010 – Background Growth plus Sugarbush Development
- 2015 – Background Growth plus Sugarbush Development plus Build-out Growth

Raw turning movement volumes were obtained from a 20 October 2004 traffic count. These raw volumes were then adjusted to 2010 and 2015 using the 1.6% per year background growth rate described in the previous section. Additionally, traffic generated by the potential Sugarbush development was added to the 2010 and 2015 volumes, while traffic generated under build-out conditions was added to the 2015 volumes.

Design Hour Volume Adjustment: In addition to adjusting the intersection traffic counts to reflect background and build-out growth, it is typical to normalize the volumes to reflect design hour conditions. In Vermont, the Design Hour Volume (DHV) reflects the 30th highest hour's volume and is typically used as a standard for design of intersections. The DHV adjustment factor was obtained by comparing the traffic volume at a nearby VTrans traffic count station (W228, VT 100 north of VT 17) on the day of our traffic count (20 October) with the DHV for the count station. The base traffic count volumes were multiplied by the resulting DHV adjustment factor (131%) to adjust to design hour conditions.

2.3.1.2 Level of Service and Queuing Results

The Level of Service and Queuing results from the selected scenarios were determined using the software program Synchro (v6) and are shown in Table 4 below. The table shows the LOS, average delay per vehicle (in seconds) and 95th percentile maximum queue lengths[1] (number of vehicles) for each approach to the VT 100-Bridge Street intersection.

[1] The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes.

Table 4: Level of Service and Queuing Results

AM PEAK HOUR (7:30 - 8:30 AM)

	2005			2010			2015		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Parking Lot*	D	29	0	**F**	**75**	**1**	**F**	**1000+**	**2**
WB Left/Thru/Right - *From Bridge Street*	**E**	**48**	**8**	**F**	**345**	**23**	**F**	**1000+**	**--**
NB Left/Thru/Right - *From VT 100*	A	0	0	A	0	0	A	1	0
SB Left/Thru/Right - *From VT 100*	A	2	0	A	3	0	A	6	1

MIDDAY PEAK HOUR (12:00 - 1:00 PM)

	2005			2010			2015		
Unsignalized Intersections	LOS	Delay	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Parking Lot*	B	13	0	C	18	0	D	33	0
WB Left/Thru/Right - *From Bridge Street*	D	25	4	**F**	**86**	**9**	**F**	**645**	**27**
NB Left/Thru/Right - *From VT 100*	A	0	0	A	0	0	A	0	0
SB Left/Thru/Right - *From VT 100*	A	1	0	A	1	0	A	2	0

PM PEAK HOUR (4:30 - 5:30 PM)

	2005			2010			2015		
Unsignalized Intersections	LOS	Delay	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)	LOS	Delay	95th Percentile Queue* (# Vehicles)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Parking Lot*	D	35	1	**F**	**118**	**4**	**F**	**1000+**	**8**
WB Left/Thru/Right - *From Bridge Street*	**F**	**110**	**9**	**F**	**851**	**22**	**F**	**1000+**	**--**
NB Left/Thru/Right - *From VT 100*	A	0	0	A	0	0	A	0	0
SB Left/Thru/Right - *From VT 100*	A	2	0	A	3	0	A	6	1

** Assumes 20 ft. vehicle length. Queues greater than 500 feet reported as '--'.*

The VTrans policy on LOS states that, "Collectors in urban or village areas will generally be designed for a level of service D or better. However, in heavily developed village or urban areas, level of service E may be appropriate as judged on a case by case basis. Minor Arterials in urban or village areas will generally be designed for a level of service C or better. However, in heavily developed urban areas, reduced level of service criteria such as D or E may be appropriate as judged on a case by case basis." VT 100 through the study area is a minor arterial while Bridge Street is classified as a collector.

The intersection approaches shown in bold in Table 4 are the approaches operating at LOS E or F. Under the 2005 DHV conditions the Bridge Street approach operates at LOS E during the AM peak hour and LOS F during the PM peak hour. Under 2010 DHV conditions (which account for 5 years of growth and the proposed Sugarbush development) the Bridge Street approach drops to LOS F during all three periods and the Parking Lot approach also drops to LOS F during the AM and PM peak hours. Under 2015 DHV conditions (which account for 10 years of growth, the proposed Sugarbush development, and build-out conditions) these same approaches remain LOS F with increased delay.

2.4 SAFETY

Figure 11 shows the location of all reported vehicular crashes within or adjacent to the study area between 1998 and 2002. Reportable crashes generally involve a fatality, injury, and/or property damage in excess of $1,000. In the period 1998-2002, there were three reported crashes in the area, two of which involved injuries. The study area is not identified as a high crash location by VTrans.

While the limited amount of data associated with the crash reports makes it difficult to understand the causes of the collisions, some inferences can be made from the available data. For example, all three of the reported crashes occurred during foliage season, when more out-of-state drivers are traveling through the area. The crash that occurred at the VT 100-Bridge Street intersection was a result of a driver failing to yield right of way and may be attributable to the lack of sufficient sight distance at the Bridge Street approach to the intersection.

The proximity of the Bridge Street Marketplace building at the southeast corner of the VT 100-Bridge Street intersection (in particular, the building's porch) significantly limits the sight distance for vehicles pulling onto VT 100 from Bridge Street. The left photo in Figure 10 shows how the view south on VT 100 from the stop bar on Bridge Street is obstructed by the two-story porch. Many drivers are forced to pull out into the VT 100 travel lane in order to see if a car is coming from the south. The right photo demonstrates that the Bridge Street intersection is not apparent to a northbound motorist.

The minimum stopping sight distance for the conditions found at the VT 100-Bridge Street intersection is 200 feet. The available sight distance at the intersection is currently 100 feet.

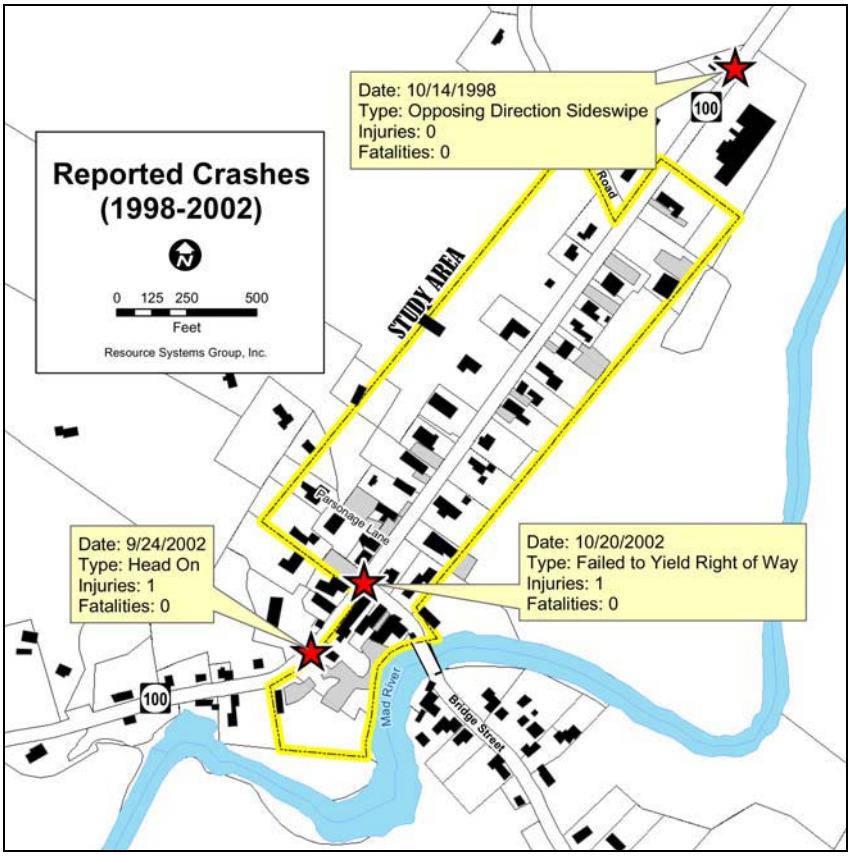
The configuration of the southbound VT 100 approach into the Village adjacent to the Elementary School does not encourage vehicles to slow from 40 miles per hour to the Village's 30 mile per hour zone. Other than the sign indicating the reduced speed, an unfamiliar driver receives no other visual cues that he or she is entering a village area and should thus slow down. The straight stretch of VT 100 and the scattered land uses around the General Wait house may lead this driver to continue through at a higher speed. Certain visual cues, such as gateway signage or street trees can be used to slow passing vehicles.

Figure 10: Visibility Problems at the VT 100-Bridge Street Intersection

Sight Distance from Bridge Street looking south is restricted by the porch of the adjacent building.

The Bridge Street intersection with VT 100 is difficult to see for northbound traffic

Figure 11: Reported Crashes (1998-2002)



2.5 ACCESS MANAGEMENT

Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.

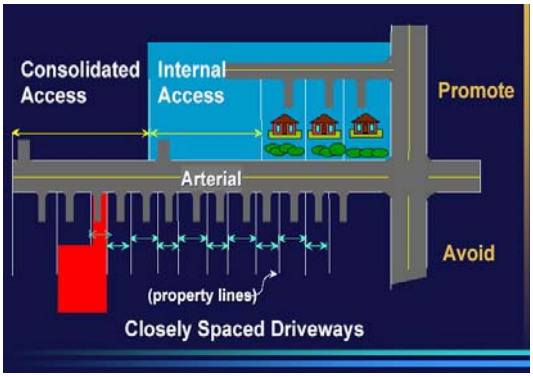
From a system-wide perspective, access management is concerned with providing a specialized roadway system related to function (mobility for through traffic and access to adjacent land as demonstrated in Figure 6 on page 12) and providing appropriate transitions from one roadway classification to another. This system-wide principal applies to the intersection of Bridge Street with VT 100 which provides a connection between the local and statewide roadway networks. From an access management perspective, it is important to provide a safe and efficient connection at that intersection.

Location specific access management strategies are concerned with how adjacent property accesses the highway system through proper design and location of driveways. Figure 12 demonstrates many of the following key concepts:

- Promote access through collector roads and side streets rather than arterials;

- Reduce the number of potential conflict points by:
    - consolidating and sharing driveways,
    - providing adequate separation distance between driveways, and between driveways and intersections,
    - aligning driveways on opposite side of a road;
- Remove turning traffic from through traffic lanes; and
- Provide well defined edges and proper access width. Driveways should be designed with clearly defined borders that safely channel traffic from the street to a parking area. Wide open curb cuts cause confusion by mixing entering and exiting traffic, creating additional conflict points, and often obscuring sidewalks.

Figure 12: Location Specific Access Management Concepts



Examples of good and bad location specific access management techniques.

Left turn lane from VT 100 northbound to Ben & Jerry's factory separates through traffic from turning traffic.

Driveway access is regulated by both the Town and VTrans in the study area. VTrans has established an Access Management Program that assigns all segments of the State's Highway System into one of six access management categories. These categories were designated by the Transportation Advisory Committees (TAC) of the Central Vermont Regional Planning Commission in consultation with VTrans based on functional classification, average annual daily traffic (AADT), local plans and zoning, and existing and future land use.

The VTrans access management program provide the basis for access permitting on state highways and are used in the planning and development of VTrans roadway construction projects. Existing highways are not required to meet the access management standards. However, the standards are applied to all new access permits and construction projects.

VT 100 in the study area has been designated as Access Management Category 3 which has the following key provisions:

- VTrans may restrict access to VT 100 if other reasonable access from a side street is available. Restrictions may include limiting turn movements (for example: prohibit left turns in or out of a driveway) or denial of any access to the highway (if reasonable access is available on a side street or by sharing access with an adjacent parcel); and
- One access per parcel is permitted. If a large parcel is subdivided, each new parcel must use the existing access.

Assuming a permit requests satisfies these basic criteria, the *Access Management Program Guidelines* provides specific geometric standards for driveway width and turning radii, surfacing and pavement markings, need for turn lanes, corner sight distance, spacing between driveways, and corner clearances between driveways and intersections with public streets.

Access to any town highway, such as Bridge Street, is subject to the approval of the Selectboard. In addition, as a condition of any access permit issued by VTrans, State Statutes require compliance with all local ordinances and regulations relating to both highways and land use. Therefore, access to VT 100 must conform to both VTrans and Town access management regulations.

Access management criteria in the Waitsfield 2004 Zoning Regulations are similar to the VTrans requirements and include:

- Limit access to one per parcel (with variances allowed for different conditions). Existing lots with more than one access must eliminate or combine access points if they are seeking a permit for redevelopment;
- May limit access for lots along VT 100 to secondary or frontage roads. Temporary access to VT 100 may be permitted until an access road is constructed;
- Encourage sharing of access between adjacent parcels;
- Require driveway designs meet state typical standards; and
- Require a minimum separation distance of 50 feet between a driveway and public street intersection (or 75 feet to the road centerline) for single-family and two-family residential uses. All other uses require a 100 foot separation (125 feet to centerline).

Figure 13 shows the areas with existing access management problems. Figure 13 provides photos of some of these areas. The access management problems are concentrated along the west side of VT 100 near its intersection with Bridge Street and the Farr Municipal lot. The lack of well defined driveways and intersection approaches affects the safety and operation of both intersections with Bridge Street and Parsonage Lane.

Access along the east side of VT 100 in the study area is generally acceptable because the uses are primarily residential and curbing helps define the entrances to driveways. The one exception on the east side is the entrance to the Mad River Valley Ambulance which has a curb cut that extends across the entire length of the parcel.

Figure 13: Access Management Issues

Figure 14: Access Management Problem Photos

Looking northbound. Continuous curb-cut in front of Village Grocery.

Looking southbound. Continuous curb-cut extends from Kehoe Design to Parsonage Lane.

The Parsonage Lane-VT 100 intersection lacks definition. There is a continuous curb-cut along Parsonage Lane to the Village Grocery.

Wide driveway entrance at Cabin Fever Quilts.

The entrance and exit to the Farr Lane lacks definition

2.6 PEDESTRIAN AND BICYCLE FACILITY ASSESSMENT

Pedestrian Facilities

Figure 15 shows the extent of the existing pedestrian network in the study area and the major origins and destinations it serves. In addition to the sidewalks along each side of Bridge Street and the east side of VT 100, Waitsfield's pedestrian network consists of several unique features:

- Alleys that connect the Bridge Street Market Place parking lot to Bridge Street;
- A stairway from the Bridge Street Market Place parking lot to VT 100;
- The covered walkway along the Bridge Street Marketplace buildings that front VT 100;
- The walkway in the covered Bridge; and
- The walkway from Bridge Street through the park to the Waitsfield Church.

These features, some of which are shown in Figure 16 on page 29, create pleasant and interesting spaces for pedestrians and therefore encourage walking. They support village vitality by providing places for people to interact and places for special events such as sidewalk sales and flee markets.

All trips to some destination in the Village, even those arriving in a vehicle, reach their final destination on foot. For people who travel to the Village in vehicles, they access the final destinations by walking from various parking facilities along the pedestrian network. Table 5 lists the facilities that provide for general parking that is not necessarily restricted to a specific building. It provides an overall assessment of how well the parking facility is connected to the existing pedestrian network.

Table 5: Qualitative Assessment of Pedestrian Access from Parking Facilities Available to the General Public

Parking Facility	Comments	Qualitative Assessment of Village Pedestrian Network Connectivity
Bridge Street Market Place	▪ Has multiple pedestrian access points that connect directly to existing sidewalks	▪ Excellent
Farr Municipal Lot	▪ Adequately connected to adjacent use (Mad River Lodge) ▪ Cross-walk to existing sidewalks ▪ Wide open curb cut at entrance lacks defined space for pedestrians	▪ Fair
VT 100 East-side on-street parking	▪ Adjacent to existing sidewalk on east side ▪ Access to west side destinations requires crossing VT 100	▪ Good for VT 100 east side access ▪ Fair for VT 100 west side access
VT 100 west-side on-street parking	▪ Adjacent to disconnected segment of sidewalk	▪ Poor
Bridge Street on-street parking	▪ Adjacent to existing sidewalks on each side of street and multiple alley-ways and path	▪ Excellent

The pedestrian network is the primary means by which people that live and/or work in the Village travel between home, work, and the services offered in the study area. Most of the employment in

the study area is concentrated in the commercial uses centered at the VT 100-Bridge Street intersection. This concentration creates a critical mass of destinations in close proximity. As shown in Figure 15, these uses are for the most part directly adjacent to the existing sidewalk system. The exceptions are the businesses located along the west side VT 100 from the Municipal lot to the Valley Players Theatre. Because there is no sidewalk on this side of the street, these businesses are not well connected to the pedestrian network. There are also no cross-walks, or designated pedestrian crossing areas, between these uses and the existing sidewalk on the east side of VT 100.

The residential uses, by comparison, spread out to the north along VT 100. The homes, and other uses, along the east side of VT 100 are currently connected to the pedestrian network and the center of Waitsfield Village by an existing sidewalk. The proposed Irasville-Waitsfield Transportation Path will further enhance this connection. The identified pathway will extend from the Bragg Hill Road in Irasville north along VT 100 to the Waitsfield Elementary School. Its current design includes a five foot sidewalk along one side of the road, four foot marked bicycle lanes along both sides, granite curbing, enhanced landscaping and lighting, and new crosswalks across VT 100.

Overall connectivity is good in the pedestrian network. However, gaps exist as follows:

- The west side of VT 100 from Bridge Street to Old County Road; and
- Designated pedestrian crossings of VT 100 north from on-street parking on the east side to major destinations such as the Village Grocery and Valley Players Theatre.

A pedestrian network must also serve the needs of the disabled. Ramps exist to the existing cross-walks at the VT 100-Bridge Street intersections. However, a blind person or person in a wheel chair would have difficulty using the sidewalk remnants on the west side of VT 100. It would also be difficult, if not impossible, for a disabled person to use the covered walkway along the Bridge Street Marketplace buildings that front the east side of VT 100. The Irasville-Waitsfield Transportation Path may help address that gap for disabled persons by providing a new sidewalk behind the Bridge Street Market Place.

Figure 15: Existing Pedestrian Network

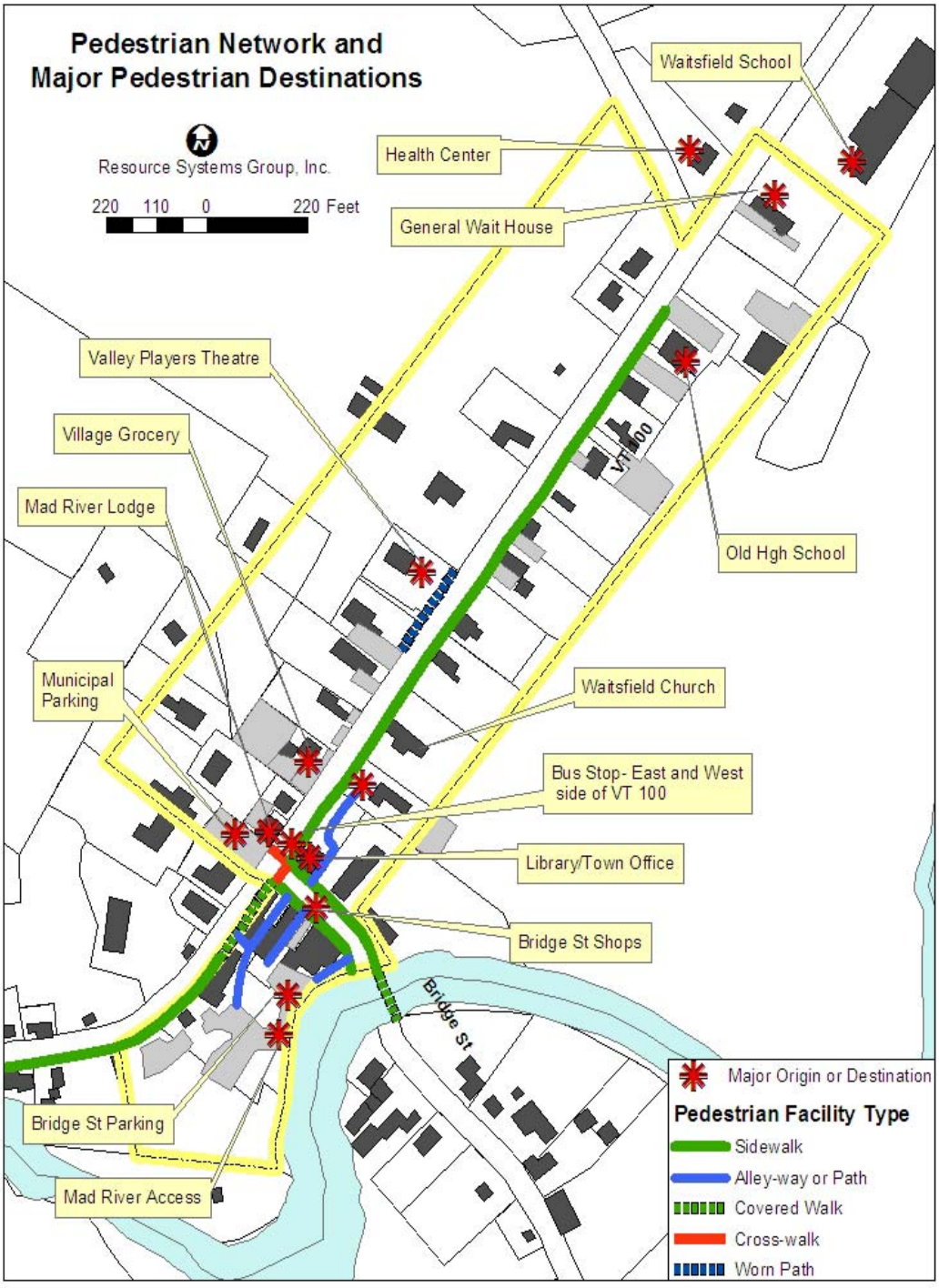
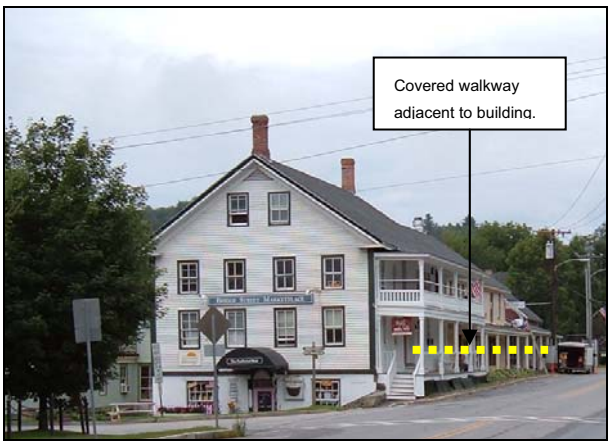


Figure 16: Unique Features of the Waitsfield Pedestrian Network

The green strip, street trees, and buildings that front the sidewalk create a pleasant environment for walking or sitting.

The walkway through this park provides a quite and shady short cut around the busy VT 100-Bridge Street intersection.



The covered walkway is a unique feature of the pedestrian network that entices people to walk. It is not completely accessible to people with disabilities.

The alley-way to the Bridge Street Market Place lot leads to a flee market.

The street trees, small park, and library steps are all features that are attractive to pedestrians and create a sense of place along the Village sidewalk.

An informal path between this building and the Mad River provides another connection between Bridge Street and the Market Place parking lot.

Bicycle Facility Assessment

As shown in Figure 17, bicyclists must share the travel lane with motor vehicles when traveling through most of the study area. The different types of on-road bicycle facilities are defined in Figure 19. The two types of facilities where bicyclist and motor vehicles share the same travel lane are the wide-curb lane and the shared travel lane. Of these two, the wide-curb lane is more appropriate as a model for assessing on-road bicycle facilities in a village environment where on-street parking and relatively high levels of traffic volumes are present.

Figure 17: Bicyclists Share the Travel Lane with Motor Vehicles

The minimum widths for wide-curb lanes for new construction are[1]:

- 13 feet with no on-street parking; and
- 14 foot travel lane plus 8-10 feet for on-street parking.

Comparing these guidelines with the cross-sections for VT 100 and Bridge Street shown in Figure 4 (page 11) and Figure 5 (page 11) respectively leads to the following observations:

- The east side of VT 100 has a travel lane width of 11 feet and has on-street parking. Therefore, existing lane widths on the east side of VT 100 do not satisfy the design guidelines for an on-road bicycle facility;
- The west side of VT 100 does not have on-street parking. The combined width of the travel lane and paved shoulder is acceptable for shared use by bicyclists and motor vehicles; and
- Bridge Street has on-street parking on each side of the street and 11 ft travel lanes. Therefore, existing lane widths on Bridge Street do not satisfy the design guidelines for an on-road bicycle facility. However, there is less traffic on Bridge Street and it moves slower than traffic on VT 100. Westbound traffic from across the Mad River is calmed by the Covered Bridge, and eastbound traffic slows as it turns from VT 100. As a result, conditions are better along Bridge Street for cyclists.

The type of bicyclist is also an important consideration in evaluating bicycle conditions. Table 6 lists the three general types of bicyclists, their characteristics, and the type of bicycle facility most appropriate for their abilities. When bicyclists must share travel lanes with motor vehicles, conditions are more appropriate for advanced cyclists. Wide-curb or shared travel lanes are not appropriate for basic cyclists and children. Therefore, conditions in Waitsfield Village are most appropriate for advanced cyclists.

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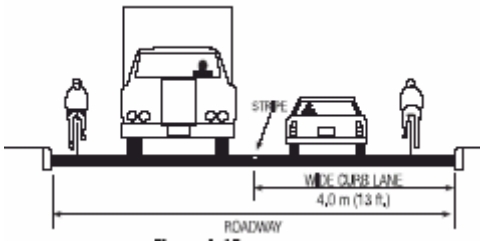
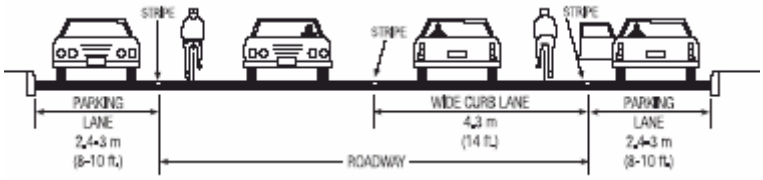
[1] *Pedestrian and Bicycle Facility Planning and Design Manual*; Vermont Agency of Transportation; December 2002.

This comparison is useful only in identifying areas where conditions for cyclists could be improved. It does not imply that bicyclists should be prohibited in Waitsfield Village. Bicyclists are allowed on all roadways except where legally prohibited (limited access highways such as the Interstate, for example). The Waitsfield-Irasville transportation path will improve conditions for bicyclists by providing dedicated bicycle lanes one each side of VT 100.

Figure 18: Wide Curb Lanes



Wide Curb Lane without On-Street Parking



Wide Curb Lane with On-Street Parking

Table 6: General Bicycle User Types[1]

	Group Characteristics	Facility Design Guidelines
Group A: Advanced Bicyclists	- Experienced riders	- Urban Setting: Wide curb lane
	- Comfortable operating in traffic	- Rural Setting: Paved shoulder/shared travel lane
	- Use existing roadway system	
	- Require minimal roadway operating space	
Group B: Basic Bicyclists	- Casual or teenage riders	- Provide extra operating space
	- Less confident operating in traffic	- Provide network of designated bicycle facilities
	- Prefer low-speed, low-traffic streets or bike lanes	- Usable shoulders on rural highways
Group C: Children	- May not comply with traffic regulations	- Provide extra operating space
	- Prefer residential streets with low volumes & speeds	- Provide network of designated bicycle facilities
	- Comprised of children and pre-teens	- Riding on sidewalk where activity is low

[1] Source: *Pedestrian and Bicycle Facility Planning and Design Manual*, VTrans 2002

Figure 19: Bicycle Facility Types

	**BICYCLE LANE:** A portion of the roadway that has been designated for the exclusive use by bicyclists. Bicycle lanes usually have appropriate pavement markings and signage to identify the facility.
	**PAVED SHOULDER:** Paved shoulders adjacent to the travel lane that can be used by bicycles, pedestrians, stopped vehicles, or for emergency use. The minimum shoulder width recommended to accommodate bicyclists varies from 1 to 4 feet depending on roadway classification, average annual daily traffic (AADT), and roadway design speed.
	**WIDE CURB LANE**: A wider than normal travel lane that accommodates bicycles and motor vehicles in the same lane. With adequate curb lanes, motorists can pass bicyclists without changing lanes. The minimum travel lane width recommended to accommodate motorists and bicyclists varies from 12 to 15 feet depending on roadway classification, average annual daily traffic (AADT), and roadway design speed.
	**SHARED TRAVEL LANES**: Travel lanes with no additional width provided for bicycles. These facilities are intended primarily for intermediate and advanced bicyclists and are common on local rural roads. This type of facility is most appropriate where AADT is less than 500 vehicles per day.
	**OFF-ROAD MULTI-USE TRAIL**: A multi-use facility (i.e. bicyclists, pedestrians, equestrians, snowmobiles, cross-country skiers, etc.) that is separated from the roadway, often found with a paved or hard-packed gravel surface.

2.7 PARKING ASSESSMENT

This section describes the parking supply in the study area, compares the existing supply to the parking requirements contained in the 2004 zoning regulations, and analyzes the parking demand based on data collected during a typical weekday and two different special events. This analysis focuses on the parking facilities that serve the non-residential land uses in the study area.

Supply

The parking supply consists of off-street lots and on-street parking. The study area has two officially designated handicapped spaces located on the north side of Bridge Street in front of the Town Hall and in the off-street lot serving the General Wait House. The only other specially designated parking areas are the two bus stops located on VT 100 in front of the Library and the Mad River Lodge.

As shown in Table 7, there are 330 non-residential parking spaces in the study area. Most of these spaces are located in off-street, privately owned parking lots. Twenty-six percent of the parking spaces are owned by the public either in the on-street spaces along VT 100, Bridge Street, and Parsonage Lane, or in the one off-street, municipal parking lot along Farr Lane. Figure 20 on page 36 shows the location, ownership type (public or private), and number of parking spaces for each off-street lot and the on-street parking.

Table 7: Non-Residential Parking Supply Inventory

Ownership	On-Street	Off-Street	Totals	% of Total
Public	62	24	86	26%
Private	0	244	244	74%
Total	62	268	330	100%
% of Total	19%	81%	100%	

As noted in Table 7, 74% of the parking spaces are located in privately owned off-street lots. Private parking lots are typically restricted for use by the customers, employees, or visitors traveling to the associated building. However, the largest privately-owned parking lot in the study area, the Bridge Street Market Place lot, operates much like a public facility. There are no posted restrictions and the lot is therefore available for use by people accessing businesses other than those located in the Bridge Street Market Place. The Village Grocery's rear lot also has no parking restrictions posted and may also be used from time to time by people with destinations other than the Village Grocery. Both lots were used by patrons to the Baked Bead sale, with permission from their owners.

The 1999 Waitsfield Parking Study pointed out that the actual parking space ratios (parking spaces per building square footage) were less than those required in the zoning regulations in effect at the time. In 1999, the zoning regulations required 1 parking space for every 200 square feet of commercial or retail space. The actual parking space ratios calculated in Waitsfield Village were:

- One privately owned parking space per 648 square feet of commercial space; and

- If the public spaces were included in the calculation (The Farr Municipal Lot and on-street parking along Bridge Street and VT 100), the ratio dropped to one space per 520 square feet.

Table 8 and Table 9 update that analysis for this study area and compare the results to the minimum off-street parking requirements in the 2004 Zoning Regulations. The analysis presented below has more detail than presented in the 1999 study because the current zoning regulations include additional parking ratios for public assembly and office development in addition to commercial/retail land uses. The public assembly uses are the Waitsfield Church and the Mad River Lodge. The uses that fall within the not-specified category are the Fire Station and Mad River Valley Ambulance.

Table 8 shows that:

- The actual parking for the commercial/retail uses is less than is required in the zoning regulations;
- The parking for office uses is reasonably close to the zoning requirements;
- The parking for the Church and Mad River Lodge (public assembly) is significantly less than required in zoning. The Mad River Lodge does not currently have any dedicated off-site parking. The small 4-space parking lot located behind the Mad River Lodge is on the parcel of the building directly to the north (Pottery Shop). The parking ratio for the public assembly uses is based entirely on the parking spaces assumed to be available behind the Waitsfield Church. Although not officially constructed as a parking lot, that space is used for parking during weddings; and
- The actual ratio of parking spaces-to-building square footage for non-residential land uses (1/494 sf), including the MRVA and Fire Station, does not satisfy the current zoning regulations which require 1 space per 200 to 400 sf (depending on the type of non-residential land use).

Table 8: Comparison of Actual to Required Parking Space Ratios in the Study Area with Private Spaces Only[1]

Land Use Type	Square Footage	Private Off-Street Spaces	Actual Parking Space Ratio	Parking Ratio per 2004 Zoning Regulations
Commercial/Retail	67,598	124	1 space / 545 sf	1 space / 300 sf
Office	29,560	70	1 space / 422 sf	1 space / 400 sf
Public Assembly	16,036	16	1 space / 1002 sf	1 Space / 200 SF
Uses Not Specified in Zoning	7,421	34	1 space / 218 sf	Not Specified
Total Non-Residential	120,615	244	1 space / 494 sf	Between 1 space/200-400 sf

Table 9 presents the average parking space/square footage ratio for all non-residential land use types in the study area. The ratio includes all private and public parking spaces. It demonstrates that when public spaces are included in the parking supply mix, the actual ratio of parking spaces to building

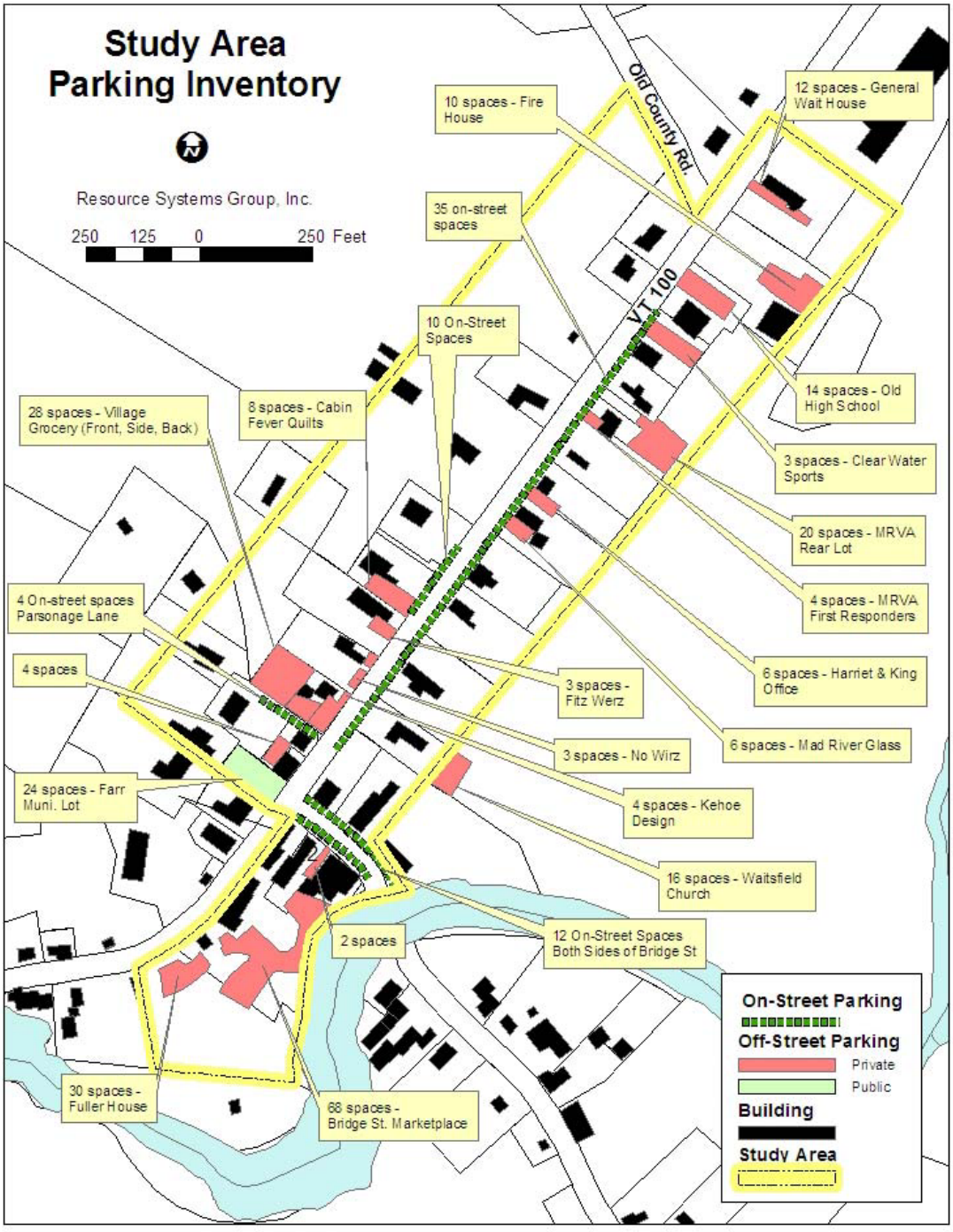
[1] Building square footages have been taken from the 1999 Waitsfield Parking Study.

square footage is within the range of parking space ratios required in the zoning regulations and close to the average space/sf based on the mix of land uses in Village. The actual study area parking ratio of 1 space/365 feet is reasonably close to the weighted average of 1 space/320 sf suggesting the importance of both the public and private parking spaces in the study area and shared parking facilities.

Table 9: Comparison of Actual to Required Parking Space Ratios in the Study Area with Private and Public Spaces

Square Footage	Public and Private Non-Residential Spaces	Actual Parking Space Ratio	Ratio per 2004 Zoning	
			Range of Parking Ratios for the Non-Residential Land Uses	Average Parking Ratio Required based on Mix of Non-Res. Land Uses
120,615	330	1 space / 365 sf	Between 1 space/200-400 sf	1 space / 320 sf

Figure 20: Parking Supply Inventory



Parking Demand

To help quantify the actual demand for parking in the study area during a typical weekday and special events, parking space occupancy data were collected on the following days and times:

- Wednesday, October 20, 2004 at 7:00 AM, 8:30 AM, 10:00 AM, 1:00 PM, 4:00 PM, and 6:00 PM. These data are used to describe the parking demand patterns for a typical weekday. As shown in Figure 9 on page 17, the highest daily traffic volumes on VT 100 during a year occurred in the second week of October[1]. The parking data for this study were collected the third week of October. Although not the highest, the third week of October has higher traffic volumes, and therefore parking demand, than most other weeks during the year.
- Saturday, October 8, 2003 at 12:00 PM and 1:30 PM. These data were collected during the height of the foliage season. The Baked Beads sale was occurring at the Mad River Lodge and a wedding was held at the Waitsfield Church; and
- Saturday, October 24, 2004 at 5:00 PM. These data were collected just before a sold-out concert was held at the Valley Players Theatre.

Appendix A contains the actual data collected for each parking facility and time period.

Weekday Parking Demand

Table 10 summarizes the data collected for each of the time periods. The peak parking demand occurred at 10:00 AM with a total of 97 occupied spaces. Although this is the peak period, only 28% of all parking spaces were occupied. Another peak in demand occurred at 4:00 PM. During the 4:00 PM time period, there was a slight decrease in the occupied off-street spaces, and an increase in the occupied on-street spaces. The increase in on-street spaces occurred as vehicles were parked in front of the Library. From these on-street spaces, people crossed VT 100 to the Village Grocery or walked to the Library.

The following observations refer to Figure 21 on page 39 which shows the percent occupancy of each off-street and on-street parking facility during the 10:00 AM peak period:

- Three of the largest off-street lots which are all located in the center of the Village (Bridge Street Market Place, Fuller House lot, and the Village Grocery market rear lot) are all less than 25% full during the peak period.
- The on-street parking is also less than 25% occupied;
- The off-street lots with the highest percent occupancies also have a small number of parking spaces; and
- Overall, there is plenty of parking available during the peak hour of a typical weekday.

[1] Based on 2003 data. Similar seasonal variations can be expected each year.

Table 10: Parking Accumulation Survey Summary - Wednesday, October 20, 2004

Occupied Parking Spaces at 7:00 AM

Ownership	On-Street	Off-Street	Totals
Public	6	1	7
Private	0	29	29
Total	6	30	36

Percent Occupied Parking Spaces at 7:00 AM

Ownership	On-Street	Off-Street	Totals
Public	10%	4%	8%
Private	NA	12%	12%
Total	10%	11%	11%

Occupied Parking Spaces at 8:30 AM

Ownership	On-Street	Off-Street	Totals
Public	11	2	13
Private	0	46	46
Total	11	48	59

Percent Occupied Parking Spaces at 8:30 AM

Ownership	On-Street	Off-Street	Totals
Public	18%	8%	15%
Private	NA	19%	19%
Total	18%	18%	18%

Occupied Parking Spaces at 10:00 AM

Ownership	On-Street	Off-Street	Totals
Public	8	10	18
Private	0	79	79
Total	8	89	97

Percent Occupied Parking Spaces at 10:00 AM

Ownership	On-Street	Off-Street	Totals
Public	13%	42%	21%
Private	NA	32%	32%
Total	13%	33%	29%

Occupied Parking Spaces at 1:00 PM

Ownership	On-Street	Off-Street	Totals
Public	9	8	17
Private	0	64	64
Total	9	72	81

Percent Occupied Parking Spaces at 1:00 PM

Ownership	On-Street	Off-Street	Totals
Public	15%	33%	20%
Private	NA	26%	26%
Total	15%	27%	25%

Occupied Parking Spaces at 4:00 PM

Ownership	On-Street	Off-Street	Totals
Public	17	12	29
Private	0	63	63
Total	17	75	92

Percent Occupied Parking Spaces at 4:00 PM

Ownership	On-Street	Off-Street	Totals
Public	28%	50%	34%
Private	NA	26%	26%
Total	28%	28%	28%

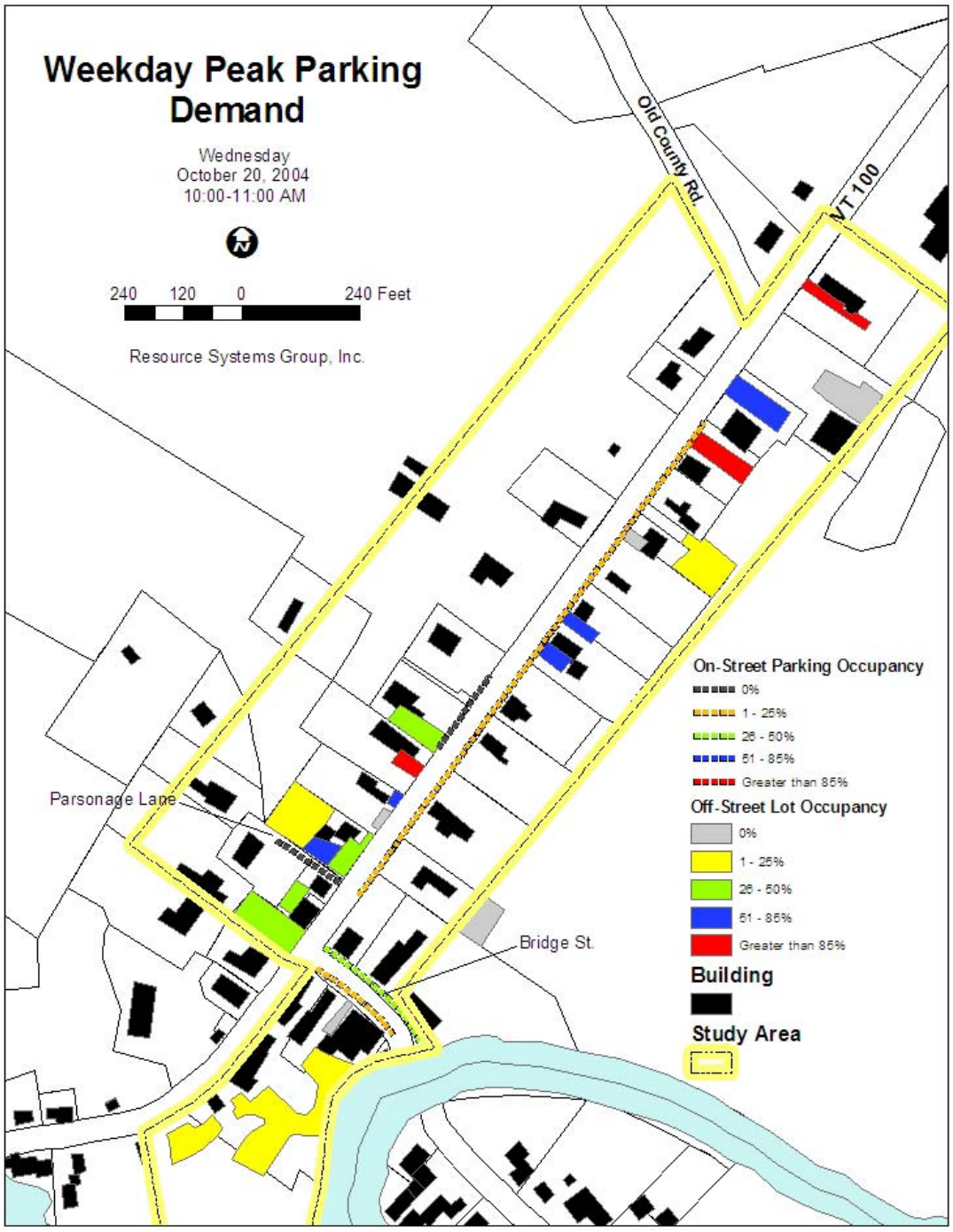
Occupied Parking Spaces at 6:00 PM

Ownership	On-Street	Off-Street	Totals
Public	7	5	12
Private	0	42	42
Total	7	47	54

Percent Occupied Parking Spaces at 6:00 PM

Ownership	On-Street	Off-Street	Totals
Public	11%	21%	14%
Private	NA	17%	17%
Total	11%	18%	16%

Figure 21: Parking Facility Occupancy During Weekday Peak



In addition to the number of parked cars, license plates were also noted at the Farr Municipal Lot, Bridge Street Market Place lot, and all on-street parking. These data are used to estimate the duration of parked cars at these facilities. License plate data were collected at these locations because they are available to the general public. The results of the license plate survey are summarized in Table 11.

Short-term parking dominates the on-street spaces. Seventy percent of the vehicles parked on-street during the day were there for less than two hours and 93% were parked for less than three hours. The off-street lots had a larger percentage of vehicles parked for greater than four hours. However, short-term parking still accounted for the majority of vehicles parked in the Farr and Bridge Street Market Place lots. This turn over of parking may be related to the commercial and retail nature of the land use in the Village. It suggests that employees in the study area, which would be parked for longer periods of the day, are not occupying a high percentage of the publicly available spaces. This finding contradicts the observation made in the 1999 Parking Study which suggested that long-term parking was dominating the on-street parking spaces.

Table 11: Parking Duration at Facilities Used by General Public (Wednesday, October 20, 2004)

Parking Facility	Less Than 2 Hrs.	2-3 Hrs	3-6 Hrs	6-9 Hrs	More Than 9 Hrs
Farr Municipal Lot	35%	25%	15%	5%	20%
Bridge Street Market Place	30%	26%	22%	20%	2%
Bridge St WB- on Street	73%	27%	0%	0%	0%
Bridge St EB - On Street	55%	36%	9%	0%	0%
VT 100 East Side - On Street	78%	11%	0%	6%	6%
Average for Off-Street Lots	32%	26%	20%	15%	8%
Average for On-Street	70%	23%	2%	2%	2%

Special Event Parking

Table 12 shows the parking occupancy during the Baked Beads Sale day, a special event that occurs during the mid-morning and afternoon on a Saturday. A wedding at the Waitsfield Church was also held on the same day.

Figure 22 on page 41 shows the occupancy of the parking facilities near the center of the Village. Data were not collected for the lots located on the northern end of the study area. Overall parking space occupancy was 85% at 12:00 PM and 79% at 1:00 PM. Most of the nearby off-street lots were at 100% or greater occupancy (indicating that cars were parked on lawns or other non-designated areas). All of the on-street parking along Bridge Street was occupied and some people parked on the other side of the covered bridge. The on-street parking along the east side of VT 100 was approximately 65% occupied. Most of the 65% were concentrated on the southern end near the Church.

Table 12: Parking Space Occupancy During the Baked Beads/Fall Foliage Day

Parking Supply at Locations Where Data Were Collected

Ownership	On-Street	Off-Street	Totals
Public	62	24	86
Private	0	169	169
Total	62	193	255

Occupied Parking Spaces at 12:00 PM

Ownership	On-Street	Off-Street	Totals
Public	44	24	68
Private	NA	148	148
Total	44	172	216

Percent Occupied Parking Spaces at 12:00 PM

Ownership	On-Street	Off-Street	Totals
Public	71%	100%	79%
Private	NA	88%	88%
Total	71%	89%	85%

Occupied Parking Spaces at 1:30 PM

Ownership	On-Street	Off-Street	Totals
Public	58	26	84
Private	NA	116	116
Total	58	142	200

Percent Occupied Parking Spaces at 1:30 PM

Ownership	On-Street	Off-Street	Totals
Public	94%	108%	98%
Private	NA	69%	69%
Total	94%	74%	79%

Table 13 and Figure 23 (on page 43) present the results of data collected during an evening event at the Valley Players Theatre. The parking is concentrated along the on-street parking on both sides of VT 100 near the venue while the off-street parking lots are less than 20% occupied. The Farr Municipal Lot, which is as close to the Valley Players Theatre as the northern end of the on-street parking along VT 100, is notably empty. This lot is not well marked, and lacks a clear and safe pedestrian connection to the Valley Players Theatre.

Table 13: Parking Occupancy During a Valley Players Theatre Evening Event

Occupied Parking Spaces at 5:00 PM

Ownership	On-Street	Off-Street	Totals
Public	45	5	50
Private	0	46	46
Total	45	51	96

Percent Occupied Parking Spaces at 7:00 PM

Ownership	On-Street	Off-Street	Totals
Public	73%	2%	15%
Private	NA	17%	14%
Total	73%	19%	29%

Figure 22: Parking Facility Occupancy During Weekend Daytime Special Event

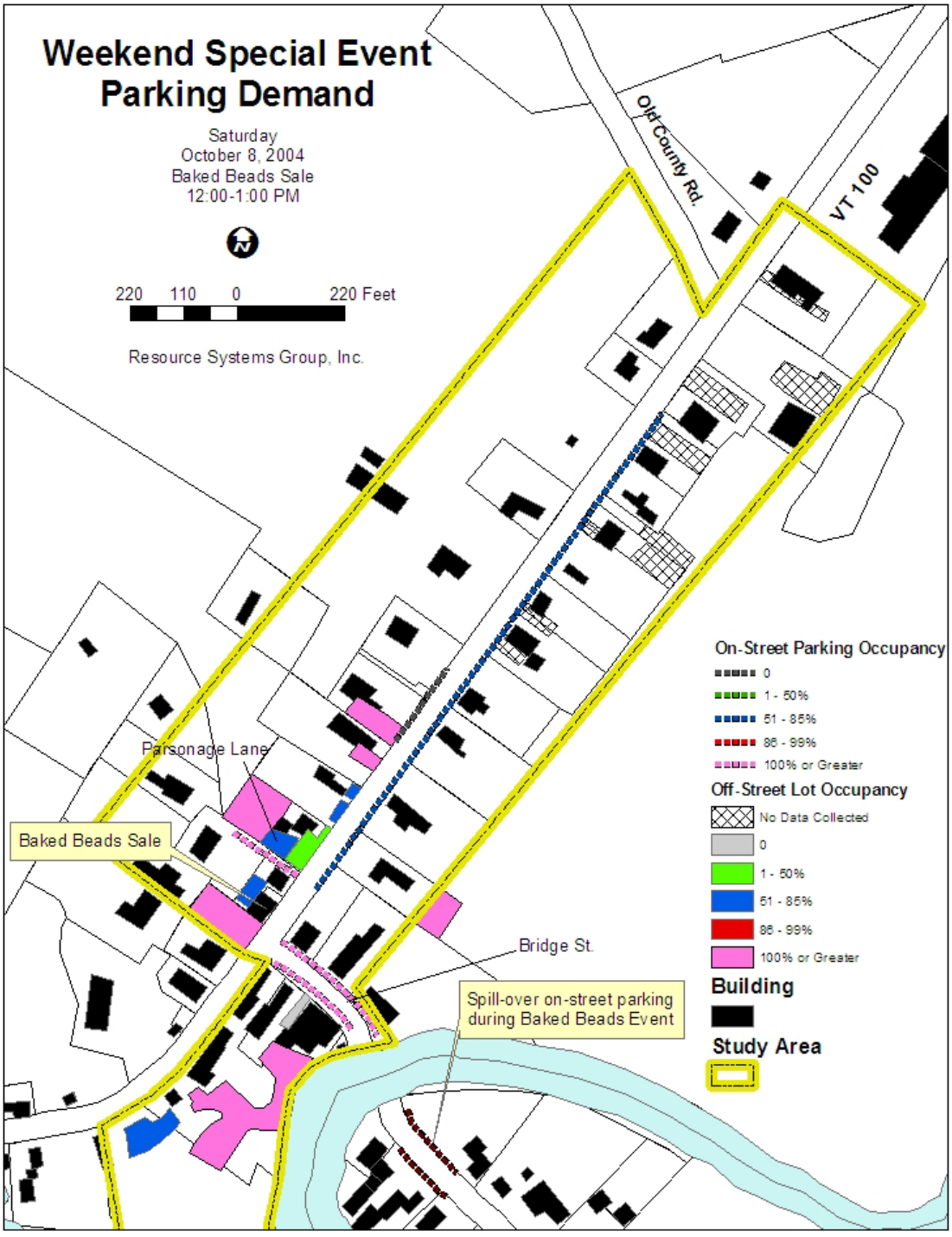
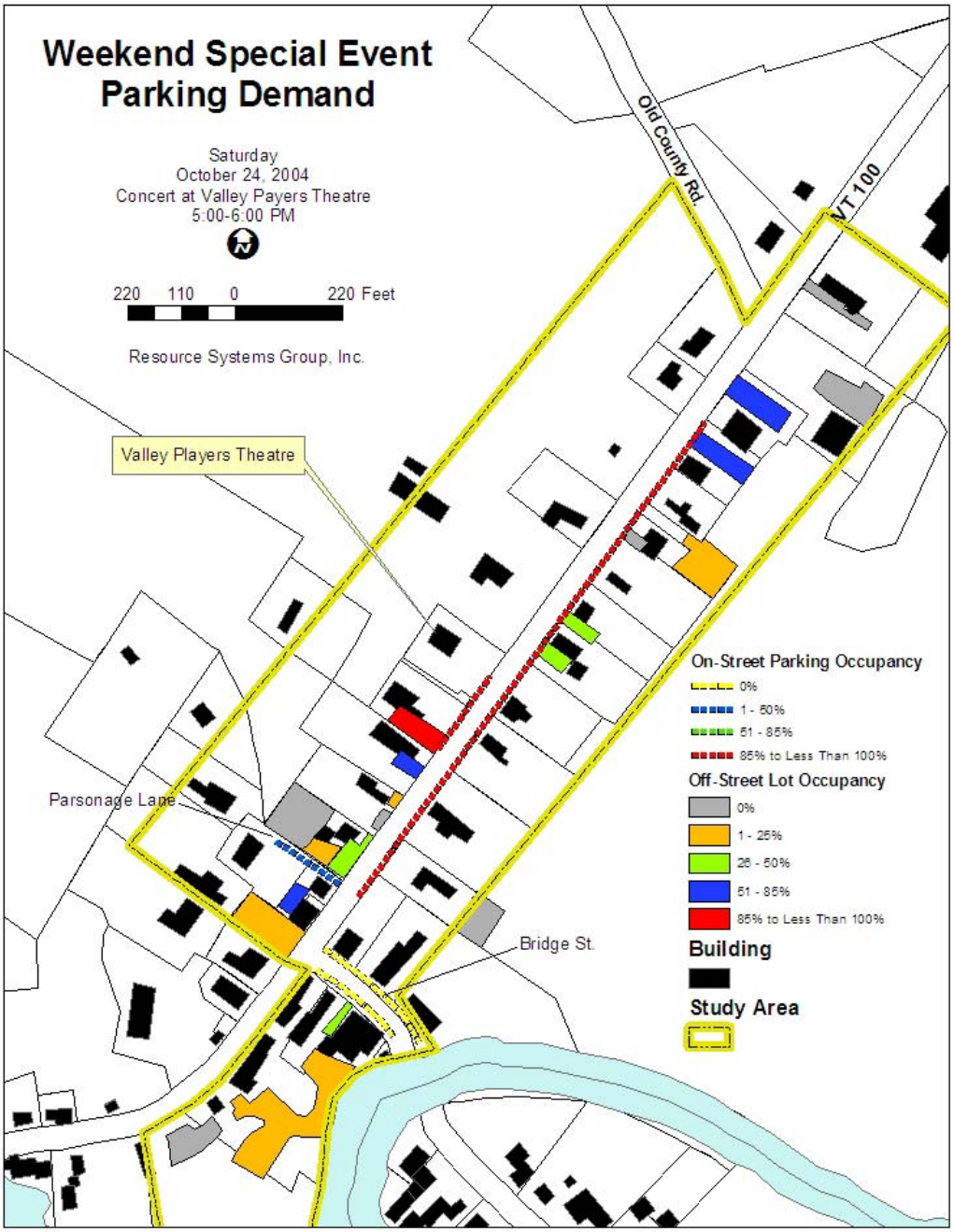


Figure 23: Parking Facility Occupancy During Weekend Evening Special Event



2.8 NATURAL RESOURCES

This section provides an overview of historic and archeological resources, wetlands, steep slopes, and endangered species in the study area. New sidewalks or reconfiguration of existing parking lots may be affected by the presence of these resources. The goal of any design project is to avoid impacts if possible or minimize impacts if other options are not reasonable.

Historic and Archeological Resources:

An Archeological Resources Assessment (ARA) was conducted by the University of Vermont Consulting Archeology Program (CAP) in November 2002 for the proposed Waitsfield-Irasville Wastewater Collection and Treatment Facility Project. The 10-mile Area of Potential Effects (APE) examined in the ARA includes all of this project's study area. The 2002 ARA noted that much of the land within the APE has been disturbed over time during the construction of VT 100 and other development which may have affected archeological sites. The 2002 ARA concluded that there are no archaeologically sensitive areas within the project area. The ARA was updated in April 2003[1] for the specific area of the Waitsfield-Irasville path and reached the same conclusion.

Much of the study area is located within the Waitsfield Village Historic District (See Figure 24 on page 46), which is listed in the National Register of Historic Places. An historic resource review conducted according to Section 106 of the National Historic Preservation Act is required for the Waitsfield-Irasville transportation path project. The same type of review would also be required for projects identified in this plan for which federal funds are used. A preliminary review by an historic preservation consultant for the Waitsfield-Irasville Transportation path[2] states that adverse impacts can be avoided by locating the east-side sidewalk as far from exiting buildings as possible and limiting its width to four feet.

Wetlands

Class II wetlands, including a 50-foot protective buffer, are protected under the Vermont Wetland Rules. Any intrusion into the identified wetland or its buffer requires a Conditional Use Determination from the Water Quality Division of the Department of Environmental Conservation. An examination of the Class II wetlands boundaries (Figure 25), as identified in the Vermont Significant Wetlands Inventory shows no identified wetlands within the study area. However, a few Class II wetlands have been identified just north of the study area boundary along Old County Road and south of the study area along the Mad River.

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[1] "Archaeological Resources Assessment for the Proposed Waitsfield VT 100 Transportation Path Project, Waitsfield, Washington County, Vermont"; Submitted to Mark Bannon, P.E.; Bannon Engineering by Charles Knight, Ph.D., University of Vermont Consulting Archaeology Program; Burlington, VT; Report No. 375; April 17, 2003.

[2] July 28, 2003 Memorandum to Mark Bannon PE, Bannon Engineering from Paula Sagerman Historic Preservation Consultant

Flood Plain

Figure 25 on page 49 shows the boundaries of Mad River's 100 year flood plain relative to the study area. Floodplain impacts are considered in the NEPA process, Executive Order 11988, and Act 250. If floodplains are impacted, a specific finding based on Executive Order 11988 is required in the NEPA document. Permits under Act 250 are required when development may occur in a floodway. The flood plain affects the Bridge Street Market Place parking lot and portions of Bridge Street.

Steep Slopes

A composite GIS image of the study area showing slopes generated from US Geologic Survey data was examined for the presence of steep slopes (i.e. greater than 10%). Based on this data, survey data assembled for the ongoing wastewater collection and treatment system, and on data collected in the field, a majority of the study area has slopes less than 5%. Behind Parsonage Lane there are a few locations with slopes greater than 5%, which increase as one moves west.

Endangered Species

There are no rare, threatened, or endangered species or significant communities as identified by the Vermont Department of Fish and Wildlife in the vicinity of the study area. The nearest identified location of a rare or threatened species is a vascular plant species west of Sugarbush Resort in the northwest corner of Warren.

There are no deer wintering areas in the vicinity of the study area as identified by the Vermont Agency of Natural Resources. Deer wintering areas generally begin at the edge of mature coniferous tree cover. Any disturbance on identified deer wintering areas may require mitigation. The nearest identified deer wintering area is located south of Bridge Street on the east side of the Mad River.

Figure 24: Waitsfield Village Historic District

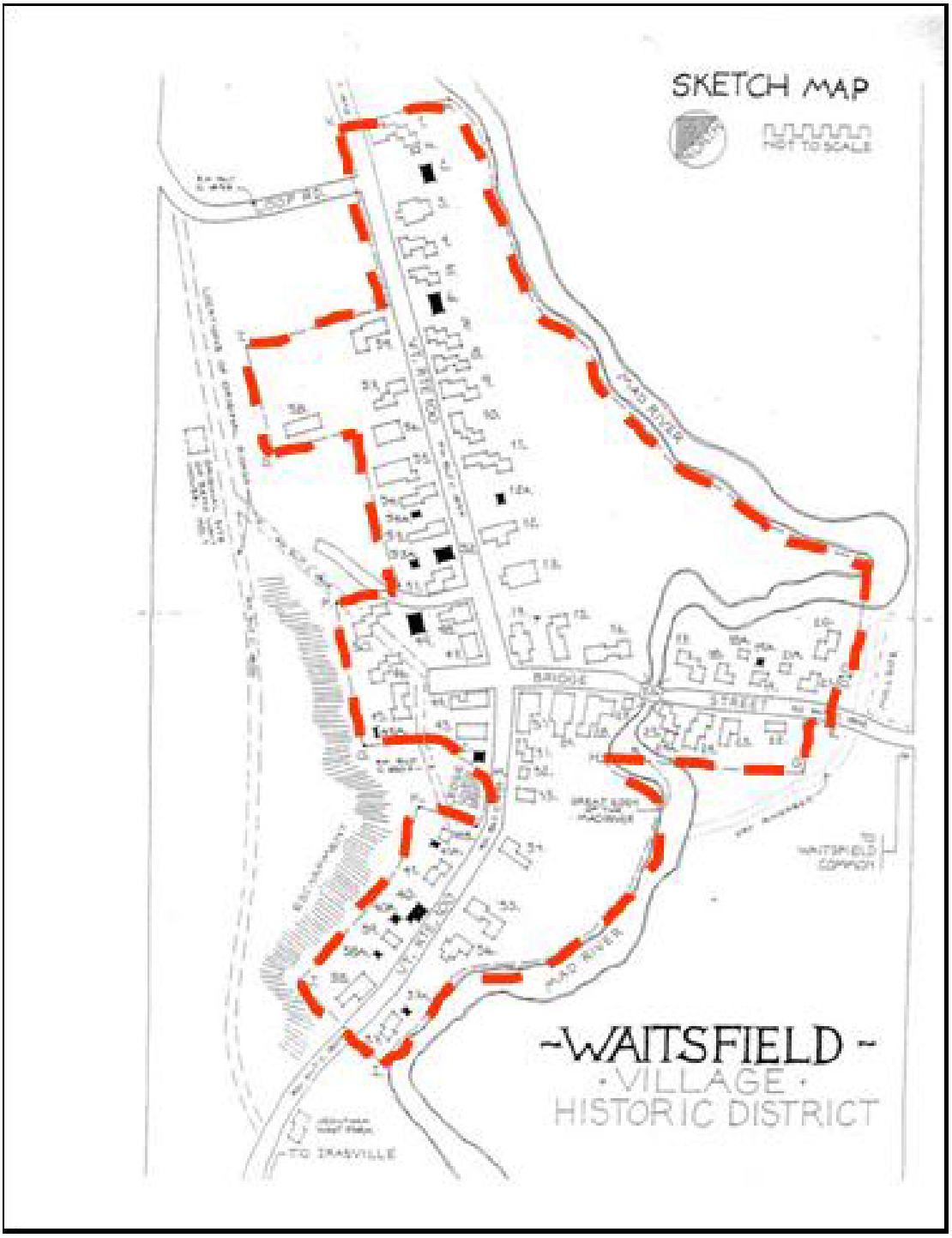


Figure 25: Identified Class II Wetlands and 50-Foot Buffer

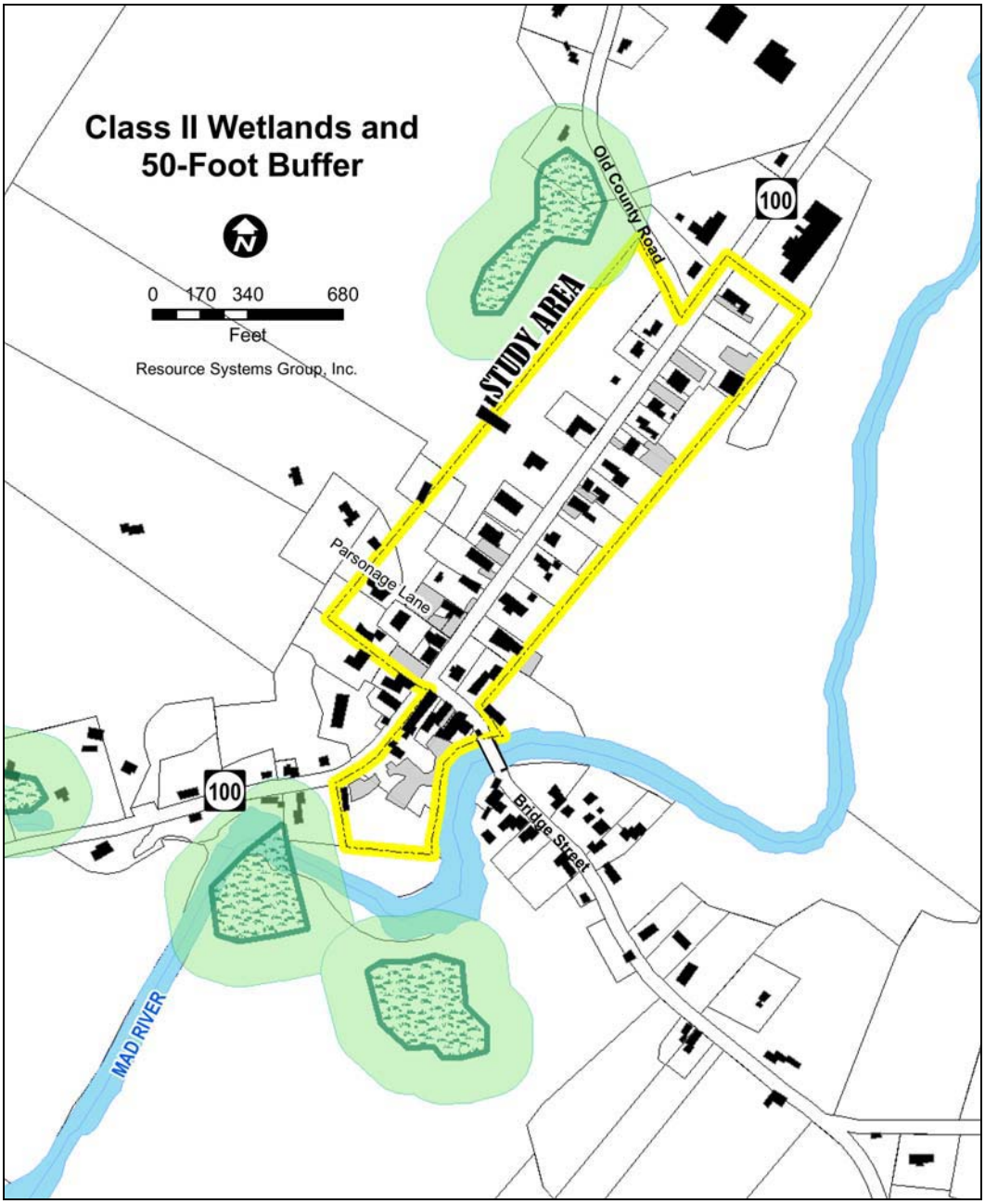
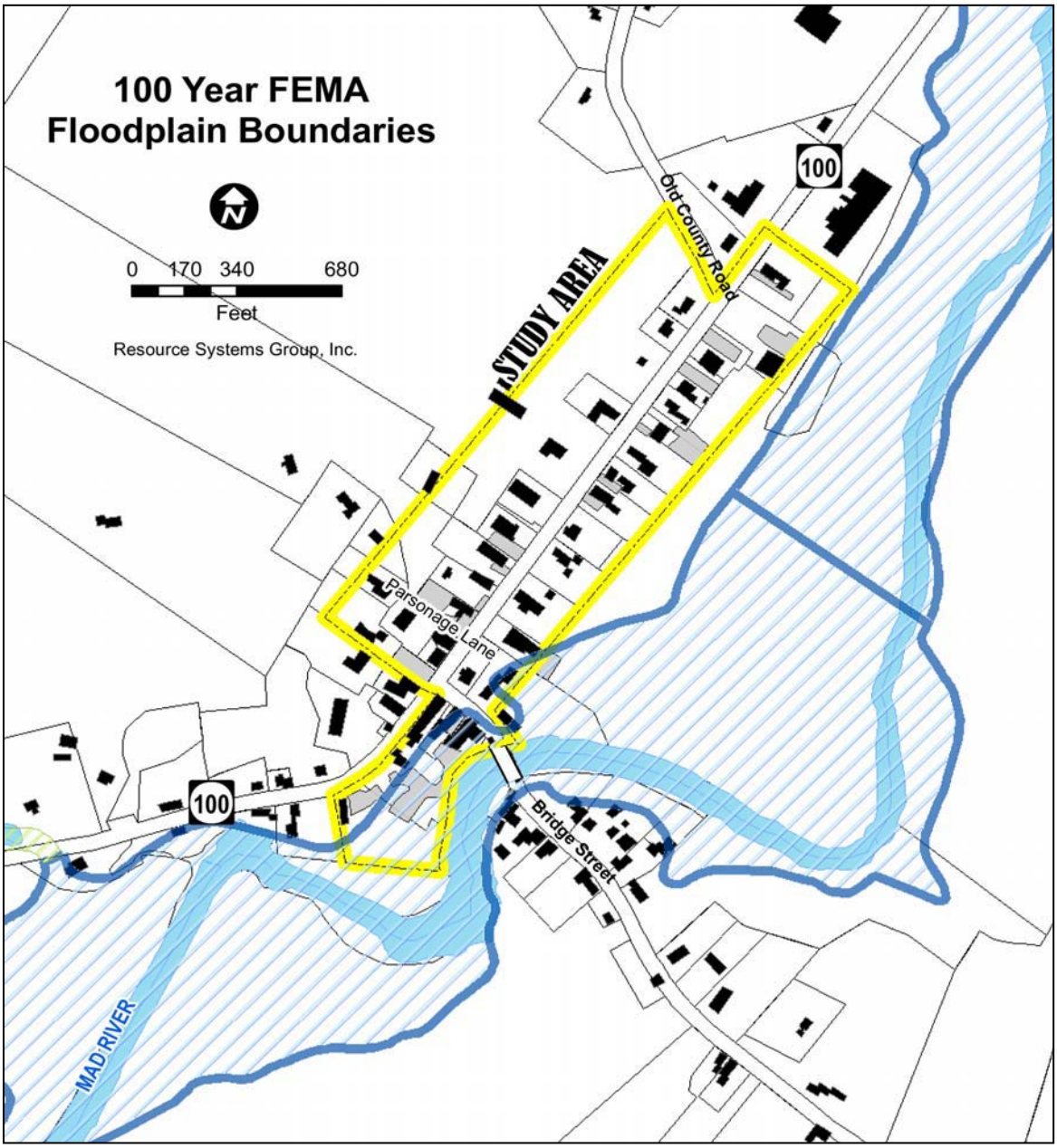


Figure 26: Mad River Flood Plain



2.9 PUBLIC INPUT MEETING

A public meeting was held on Thursday, February 3, 2005 to gather feedback on the issues identified in Sections 2.1 through 2.8. The findings were summarized in Project Memorandum #1 which was made available for review at the Waitsfield Town office and the Mad River Planning District. An electronic copy of the project memorandum was available on the CVRPC web site. A press release announcing the meeting was published in the Valley Reporter and flyers announcing the meeting were distributed electronically.

The meeting was held at the Waitsfield Elementary School and was attended by approximately twenty people including residents, business owners, and local officials. A list of attendees and detailed meeting notes are provided in Appendix C. The meeting was filmed and was shown on local public access television station.

The most common issues raised by meeting participants include:

- General comments about growth assumptions. Some participants felt that the future year growth assumptions were too high and that Irasville was faced with more critical issues.
- The need to slow down traffic along VT 100 in Waitsfield Village. Concerns included the speed of logging trucks and speed of traffic near the elementary school. Meeting participants were interested in creating a gateway near the elementary school that incorporates the Health Center and the possibility of incorporating traffic calming measures along VT 100 in the Village.
- Traffic congestion and circulation. Although there were varying opinions about the rate at which traffic could grow, participants agreed that congestion on the Bridge Street approach to VT 100 currently exists and will continue to worsen over time. The congestion could result in motorists choosing other routes during the peak periods. One participant noted that the Covered Bridge currently causes some congestion because it only allows one-way traffic flow.
- Access management. Meeting participants identified several locations that have access management problems: the entrance to the Farr Lane lacks definition and vehicles parked on the edge block sight distance; Parsonage Lane lacks definition; and the wide curb cut in front of Mad River Valley Ambulance could be improved with a well defined sidewalk.
- Pedestrian and bicycle facility issues. Several participants commented that the existing cross-walks at the Bridge Street-VT 100 intersection need to be painted more frequently. Most participants appeared to support the idea of sidewalks on both sides of VT 100 and the concept of providing pedestrian amenities along VT 100 to encourage more walking. One person questioned whether or not a sidewalk along the west side of VT 100 is a priority when compared to more pressing needs in Irasville. Meeting participants expressed some concern about mixing bicycle lanes with on-street parking. Bike lanes may create the appearance of a wider roadway which could encourage increased speeds for motor vehicles. A Village resident pointed out that bicycle and pedestrian activity continue in the evenings and that improvements should be designed at a "human" scale.
- Parking. Meeting participants generally agreed with the finding that there is enough parking in the Village to accommodate daily needs, parking problems are limited to a few special events

during the year, existing parking facilities should be redesigned to address access, site-circulation and aesthetics issues, and that parking lots in the northern end of the Village should be used to accommodate special event parking demand. The northern lots can be better utilized when they are connected to the Village core with improved sidewalks.

2.10 SUMMARY OF EXISTING AND PROJECTED ISSUES

The purpose of this project is to evaluate the feasibility of specific parking, sidewalk, access management, and traffic calming improvements in Waitsfield Village. This section of the report documents the existing conditions and future traffic congestion in the study area. It provides an overall context for the study area and summarizes the key issues to be addressed as recommendations are developed.

Land Use

Waitsfield Village contains a healthy mix of land uses all within close proximity. The commercial and retail uses are concentrated near the Bridge Street-VT 100 intersection and a mix of office and residential uses expand to the north.

Given the stated purpose of the Village Residential zoning district and the limitations it places on commercial development, the regulation of historic buildings, and the constraints created by the Mad River, it is reasonable to conclude that development and redevelopment within Waitsfield Village will occur at a slow pace. Growth in traffic will be driven by development in Irasville, the ski areas, general population growth in Town, and general statewide and regional traffic trends.

Congestion

Traffic congestion was quantified at the VT 100 intersection with Bridge Street for the morning, mid-day, and afternoon peak periods under the following scenarios:

- 2005 – Existing Conditions
- 2010 – Background Growth plus Sugarbush Development
- 2015 – Background Growth plus Sugarbush Development plus Build-out Growth

Under the 2005 conditions the Bridge Street approach operates at LOS E during the AM peak hour and LOS F during the PM peak hour.

Under 2010 DHV conditions (which account for 5 years of background growth and the proposed Sugarbush development) the Bridge Street approach drops to LOS F during all three periods and the Municipal Parking Lot approach also drops to LOS F during the AM and PM peak hours.

Under 2015 DHV conditions (which account for 10 years of background growth, the proposed Sugarbush development, and build-out conditions) these same approaches remain LOS F with increased delay.

Safety

There are no high crash locations identified in the study area indicating that the number of reported crashes does not exceed a critical statewide threshold for similar types of roadways. All three of the reported crashes occurred during foliage season, when more out-of-state drivers are traveling through the area.

The proximity of the Bridge Street Marketplace building at the southeast corner of the VT 100-Bridge Street intersection (in particular, the building's porch) significantly limits the sight distance for vehicles pulling onto VT 100 from Bridge Street and makes the intersection indistinguishable to drivers along northbound VT 100. The crash that occurred at the VT 100-Bridge Street intersection was a result of a driver failing to yield right of way and may be attributable to the lack of sufficient sight distance at the Bridge Street approach to the intersection.

The configuration of the southbound VT 100 approach into the Village adjacent to the Elementary School does not encourage vehicles to slow from 40 miles per hour to the Village's 30 mile per hour zone. Other than the sign indicating the reduced speed, an unfamiliar driver receives no other visual cues that he or she is entering a village area and should thus slow down.

Access Management

The access management problems are concentrated along the west side of VT 100 near its intersection with Bridge Street and the Farr Municipal lot and along the west side of VT 100 from the Farr Municipal Lot passed the Village Grocery, Kehoe Design and No Wirz. The lack of well defined driveways and intersection approaches affects the safety and operation of both VT 100 intersections with Bridge Street and Parsonage Lane.

Access along the east side of VT 100 in the study area is generally acceptable because the uses are primarily residential and curbing helps define the entrances to driveways. The one exception on the east side is the entrance to the Mad River Valley Ambulance which has a curb cut that extends across the entire length of the parcel.

Pedestrian and bicycle Facilities

The pedestrian network consists of sidewalks, cross-walks, alley-ways, and covered walks. These features create pleasant and interesting spaces for pedestrians and therefore encourage walking. They support village vitality by providing places for people to interact and for special events such as sidewalk sales and flee markets. Some of these features, however, create obstacles for people with disabilities.

Overall, the pedestrian network is well connected. However, gaps exist at following locations:

- The west side of VT 100 from Bridge Street to Old County Road; and
- Designated pedestrian crossings between the on-street parking, homes, and businesses on the east side of VT 100 to destinations on the west side including major destinations such as the Village Grocery and Valley Players Theatre.

Conditions in Waitsfield Village are most appropriate for advanced cyclists because they must share the travel lane with motor vehicles when traveling through the study area. Shared travel lanes are not appropriate for people with basic bicycling skills and experience or children. Conditions for advanced cycling could be improved because the current lane widths along the east side of VT 100 and Bridge Street do not satisfy the design guidelines for an on-road bicycle facility in a village setting.

Parking

There are 330 non-residential parking spaces in the study area. Most of these spaces are located in off-street, privately owned parking lots. Twenty-six percent of these parking spaces are owned by the public either in the on-street spaces along VT 100, Bridge Street, and Parsonage Lane, or in the one off-street, municipal parking lot along Farr Lane.

Shared parking, supported by the publicly owned spaces in the study area, and unrestricted use of the Bridge Street Market Place lot, are important to meeting daily parking demand in the study area. When public spaces are included in the parking supply mix, the number of spaces provided nearly satisfies the current zoning regulations.

Short-term parking dominates the on-street spaces. Seventy percent of the vehicles parked on-street during the day were there for less than two hours and 93% were parked for less than three hours. The off-street lots had a larger percentage of vehicles parked for greater than four hours. However, short-term parking still accounted for the majority of vehicles parked in the Farr and Bridge Street Market Place lots. These data suggest that employees and residents in the study area, which would be parked for longer periods of the day, are not occupying a high percentage of the publicly available spaces. Turn-over is reasonable which allows the existing parking spaces to serve the visitors to the Village on a typical weekday.

Overall, the number of non-residential parking spaces in the study area is more than adequate to accommodate the peak parking demand of a typical weekday. During the weekday peak parking demand, less than 30% of all non-residential parking spaces were occupied. This finding suggests that increased parking demand (that could result from redevelopment of existing buildings in the Village over time) could be accommodated without adding new parking spaces. This finding assumes that the existing non-residential parking supply is shared among all of the uses.

The importance of shared parking in the Village is highlighted during special events such as the Baked Beads sale. That event could not occur in the Village without the spaces provided behind the Village Grocery, the Bridge Street Market Place, and the Waitsfield Church. The publicly owned parking spaces on-street and in the Farr Municipal Lot, are also critical to supporting parking demand during special events.

This project will present concept plans for enhancing the following parking facilities that currently provide for shared parking: Bridge Street Market Place lot, Farr Municipal Lot, and the parking lot behind the Village Grocery.

Given that, on a typical day, there is adequate parking available, the steering committee should consider whether or not any new parking facilities are warranted to accommodate parking demand

for special events. Additional parking lots could be evaluated behind the Waitsfield Church (the existing back yard lawn is used informally for parking during Church events), by expanding the rear Village Grocery lot northerly behind Kehoe Design and No Wirz, and by formalizing on-street lots along Bridge Street east of the Covered Bridge (cars were parked there during the Baked Beads sale).

As an alternate to increased parking near the VT 100-Bridge Street intersection, parking for large special events such as the Baked Beads sale could be encouraged behind the Mad River Valley Ambulance garage and adjacent to the General Wait House. The MRVA lot is less than ¼ mile from the VT 100-Bridge Street intersection, which is well within walking distance for most people. The General Wait House is also within a reasonable walking distance form the Village commercial core (approximately 0.3 miles to the VT 100-Bridge Street intersection). When complete, the VT 100 Transportation Path will improve access between both of these lots and the commercial core. Using these lots would reduce the need to add parking in the Village core that except for the occasional special event would be empty most of the time. In addition, the location of these lots on the northern end of the study area would reduce somewhat the number of vehicles passing through and circulating in and around the center of the Village.

3.0 ALTERNATIVES AND RECOMMENDATIONS

This section describes improvements to the roadway, sidewalks, and parking facilities within Waitsfield Village that are intended to address the issues identified in Section 2.10. The recommendations and alternatives are organized as follows:

- VT 100: Bridge Street to Valley Players Theatre. Sidewalks, cross-walks, green strips, on-street parking and access improvements for the:
  - Short-term without a New Local Street; and
  - Long-term with a New Local Street.
- VT 100: Valley Players Theatre to Old County Road. Sidewalks, green strips, on-street parking and access improvements
- VT 100-Brigde Street Intersection Alternatives and Recommendation.
- Parking Facility Recommendations.
- Traffic Calming and Enhancement Features.

3.1 VT 100: BRIDGE STREET TO VALLEY PLAYERS THEATRE

Recommendations are presented for the section of VT 100 that extends from the Bridge Street-Farr Lane intersection to the Valley Players Theatre.

The concepts presented below are proposed to address the following issues:

- Close gaps in the pedestrian network, build upon the interesting features of the existing sidewalks and alley-way system in town;
- Accommodate on-road bicycle travel;
- Address existing access management deficiencies;
- Slow traffic through the village; and
- Enhance Village aesthetics.

Short-Term Recommendations

The short-term options focus on improvements along VT 100. Figure 27 shows the concept plan for a new sidewalk on the west of side of VT 100, on-street parking, and access management improvements between Tree Forms, located just south of the VT 100-Bridge Street intersection, to the Valley Players Theatre.

- Cross-section. Figure 28 on page 57 presents the VT 100 cross-section with the on-street parking and sidewalk proposed on the west side of VT 100. It also incorporates the design as proposed for the VT 100 Transportation Path. The design allows for a five foot green strip on the west side of VT 100, on-street parking, and a four foot shoulder to accommodate

bicycle travel. The design can be accommodated within the public right-of-way. (See Figure 3 on page 8).

- Sidewalk on the west side of VT 100. This sidewalk would connect the existing businesses and public gathering facilities (Mad River Lodge and the Valley Player Theatre) on the west side of VT 100 to each other, and to the public parking available along Farr Lane, and the rest of the pedestrian network and parking facilities located on the east side of VT 100 via improved cross-walks as described below.
- New cross-walks: The concept plan includes the following new cross-walks along this section of VT 100:
    1. Between the Town Park and Village Grocery. This cross-walk would serve patrons of the Village Grocery that park on the east side of VT 100. See Figure 30 on page 58; and
    2. A cross-walk would be provided at the Valley Players Theatre. Theatre-goers often park on the east side of VT 100. This cross-walk would provide a safe means for theatre-goers to cross from on-street parking along the east side of VT 100. The sidewalk on the west side of VT 100 would most likely be constructed in phases. The first phase would extend from just south of Farr Lane to the Valley Players Theatre. The cross-walk proposed at the Valley Players Theatre would provide the logical connection from the north end of the sidewalk to the VT 100 Transportation Path on the east side of VT 100. The Valley Player Theatre cross-walk combined with bulb-outs is also intended to serve as a traffic calming device to slow vehicles that are entering the most active and dense section of the Village. The exact location of the cross-walks should be determined in final design.

Before VTrans will agree to installation of new cross-walks over state-owned highways, the agency considers a set of screening criteria as specified in the *Guideline for the Installation of Crosswalk Markings and Pedestrian Signs at Marked and Unmarked Crossings* (VTrans, 2004). Appendix E contains an assessment of each cross-walk relative to the type of crossing (mid-block or at an intersection), connectivity to sidewalks or shoulders adequate for pedestrians, speed limit and traffic volumes, sight distance, distance from other cross-walks, and the amount of pedestrians that may be served.

Earlier versions of this study considered a crossing at Tree Forms, just south of Farr Lane. That location was removed from this study based on comments received at the September 28, 2005 public meeting. The assessment in Appendix E demonstrates that the final locations for the mid-block crossings at Tree forms (which is no longer recommended in this study) and Village Grocery may have to adjusted to satisfy the 200 foot separation distance. To provide adequate separation distance to the southern most crossing at Tree Forms, the cross-walk proposed across the VT 100 northbound approach to Bridge Street could be eliminated. If the separation distances can not be met, a design exception could be requested. Even if VTrans does not approve the crossings, the bulbouts should remain to help slow traffic and to provide an informal, narrower road crossing for pedestrians.

- Improved access management: The improvements include curbing; formalized on-street parking; and providing defined entrances to Cabin Fever Quilts, No Wirz, Kehoe Design, Village Grocery/Parsonage Lane and the entrance to Farr Lane. This concept maintains both existing entrances to the Village Grocery, but replaces the existing head-in parking at the front of the Village Grocery porch with on-street, parallel parking. See Figure 30 on 58.

Figure 27: Short-term Concept Plan VT 100 Sidewalk and Access Management Improvements

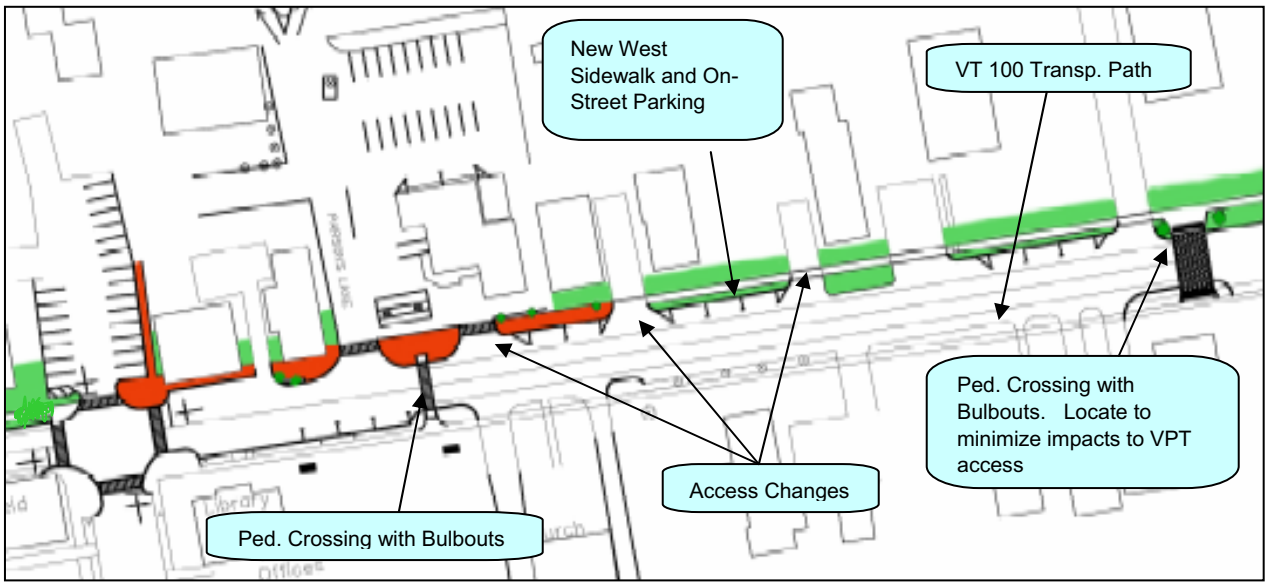


Figure 28 on the next page shows the cross-section with the west sidewalk. Figure 29 shows the cross-section at a location with bulbouts.

Figure 28: VT 100 Cross-section with VT 100 Transportation Path and Proposed West Sidewalk

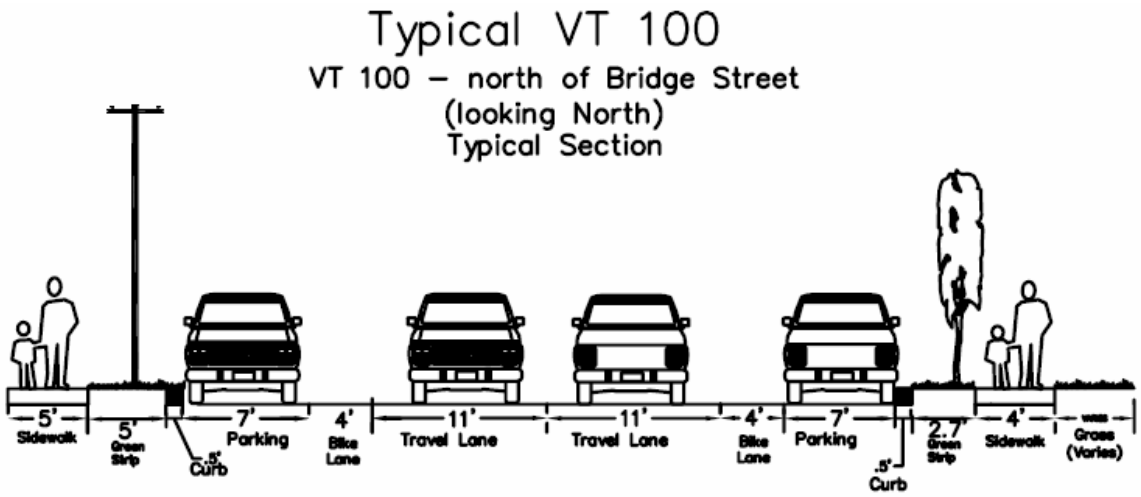


Figure 29: VT 100 Cross-section With Bulb-out

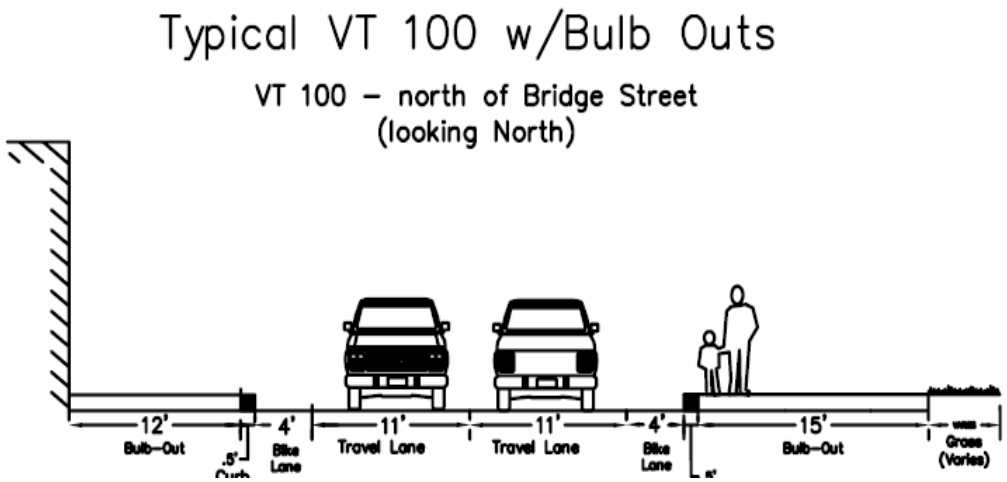
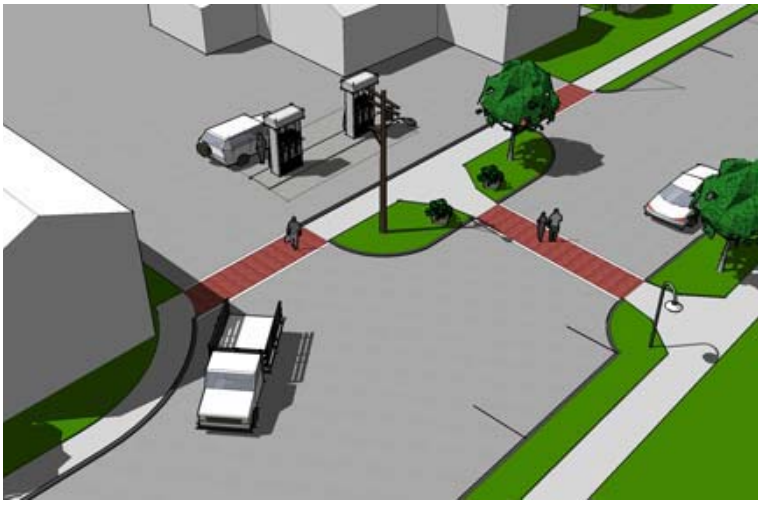


Figure 30: Village Grocery Access Modifications



Long-Term Alternative: New Local Street

Figure 32 shows a concept plan for a New Local Street between Farr Lane and Valley Players Theatre. The purpose of this new local street is to:

- Provide access to new rear parking lots that would serve employees of businesses fronting VT 100, and to provide rear access for general loading and deliveries;
- Eliminate curb cuts along VT 100 which will reduce potential conflict points between vehicles entering and exiting driveways and through traffic on VT 100 (pedestrians, cyclists, and vehicles);
- Allow for a greater level of streetscape improvements along VT 100 and more on-street parking;
- Improve circulation by concentrating turning movements at an improved intersection of VT 100-Bridge Street (See Section 3.3 below); and at a new intersection between the New Local Street and VT 100 adjacent to Valley Players Theatre; and
- Encouraging in-fill development by increasing access to the land west of VT 100.

The key features of this concept are:

- Designed for Slow Speeds: The roadway design, which includes 10 foot wide travel lanes, on-street parking, and multiple driveways (See Figure 33), will encourage slower speeds. The posted speed limit would be 25 miles per hour. The new local street should have characteristics similar to Depot Street in Stowe (See Figure 31).

Figure 31: Example Characteristics for the New Local Street

The New Local Street should have similar characteristics to Depot Street in Stowe. It provides an alternate route to VT 100 in the center of the Village; on-street parking; access to off-street parking lots located behind buildings; sidewalks; loading zones; and an attractive streetscape.

- More public On-Street and Off-Street Parking. On-street parking would be provided on the west-side of the street, and along each side of the street section that would pass between Valley Players Theatre and Cabin Fever Quilts. A new off-street public lot would be provided between the buildings that house Fit Werx and No Wirz. These public parking spaces would serve customers of the existing businesses during typical working hours and provide additional spaces to accommodate special event parking needs.

- Rear Access to Existing Buildings. On-street parking is not included on the east-side of the New Local Street to allow enough room for driveways that serve the existing buildings on VT 100.

- Changes to Parsonage Lane. Parsonage Lane, between VT 100 and the New Local Street, should be transferred to the Village Grocery to serve as its one VT 100 access point, parking, and on-site circulation. Parsonage Lane would remain as a two-way public street west of the New Local Street. Vehicular access to the existing homes and the apartment building on Parsonage Lane would be provided via the New Local Street, the VT 100-Bridge Street intersection and the proposed intersection of the New Local Street with VT 100 adjacent to Valley Players Theatre.

- Village Grocery Access and Parking Lot Modifications (See Figure 34 on page 62). The concept design requires a significant change to the access and parking for the Village Grocery that will require re-location of the existing gas pumps. To access the existing fueling stations, vehicles currently park parallel to VT 100 (See Figure 30 on page 58). The long-term concept plan rotates the fueling stations perpendicular to VT 100. This modification is significant and expensive and would only occur if the Village Grocery needs to replace its existing underground storage tanks; the property is completely redeveloped; and/or the funding for relocation of the gas pumps and reconstruction of the parking lot is included in the construction of the New Local Street.

  The concept plan also consolidates the existing access points to the Village Grocery from VT 100 into one curb-cut that would allow in-bound traffic only. Traffic exiting the Village

Grocery would leave through the New Local Street passing through either the VT 100-Bridge Street intersection or the proposed intersection of the New Local Street with VT 100 adjacent to Valley Players Theatre. A loading zone would be provided along the New Local Street behind the Village Grocery for truck deliveries. Trucks delivering fuel, which are the largest vehicles that access the Village Grocery, would enter from VT 100, drop their fuel, and depart via the New Local Street.

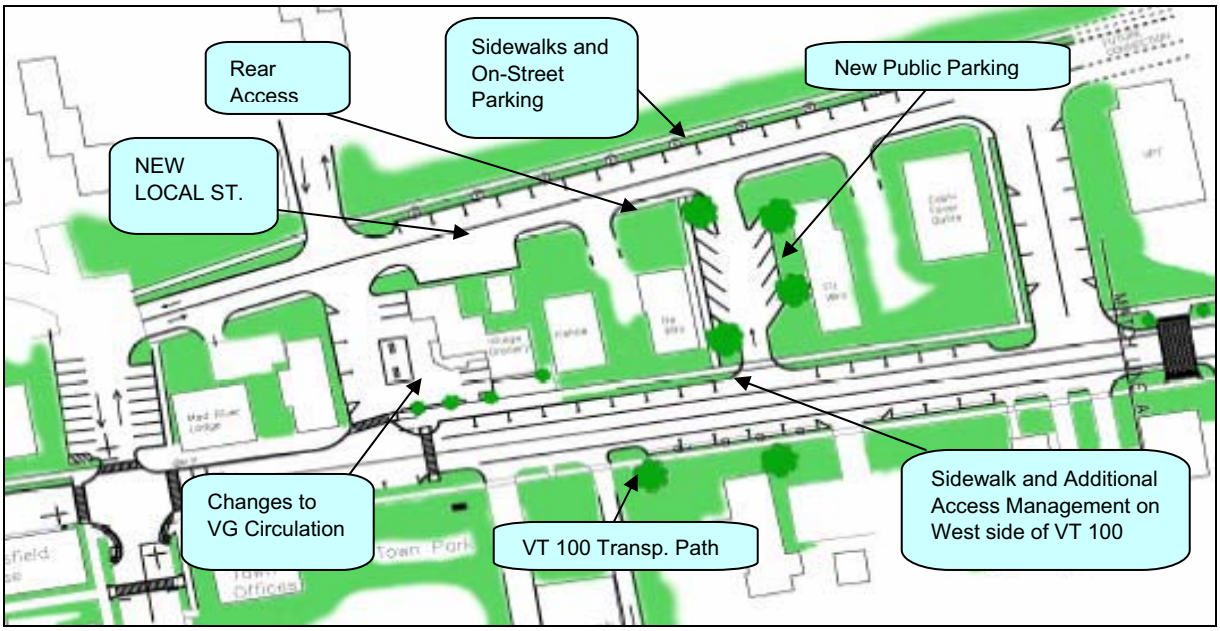
- Consistency with the Short-Term Plan and with the VT 100 Transportation Path. The long-term concept utilizes the same VT 100 cross-section as proposed for the short-term concept described in Section 0; which in turn is consistent with the cross-section proposed for the VT 100 Transportation Path. The long-term concept also includes the three new cross-walks described above. This consistency would allow the long-term concept to be implemented with a minimal amount of reconstruction along VT 100. The most significant differences are the access changes to the Village Grocery, relocation of driveways from VT 100 to the New Local Streets, and possible elimination of the bus-stop in front of the Mad River Lodge. The bus stop could remain in its current location, or be relocated to an appropriate location along the New Local Street.

Construction of the New Local Street is a major undertaking that requires land acquisition from at least six or seven land owners (See Figure 35 on page 62) and significant changes to the access and on-site circulation at the Village Grocery. Because of these challenges, the New Local Street is presented as a long-term concept.

The Town of Waitsfield can begin the process by identifying the New Local Street on an official town map. The purpose of an official town map is to identify and reserve, in advance of development or redevelopment of an area, the location of proposed road rights-of-way, intersections and access areas, or other proposed public improvements such as recreation paths, sidewalks and parking areas. If a development is then proposed within an area reserved on the official map, it may be subject to conditional use review to allow conditions to be placed on the property that preserve the alignment; or it may be denied if the municipality is willing to initiate proceedings to acquire its interests within 120 days of denial.

Village residents and the Selectboard do not support the new local road. Strong opposition was stated at the public meeting held on September 28, 2005. See Appendix C for a summary of the public meeting and a letter from the Selectboard.

Figure 32: New Local Street Concept Design



This alternative was rejected at the September 28, 2005 Public Meeting.

Figure 33: New Local Street Cross-section

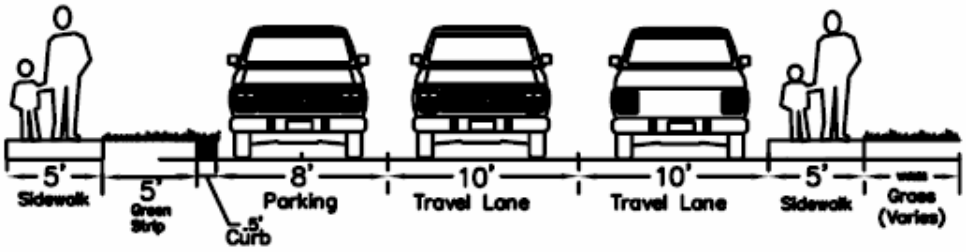
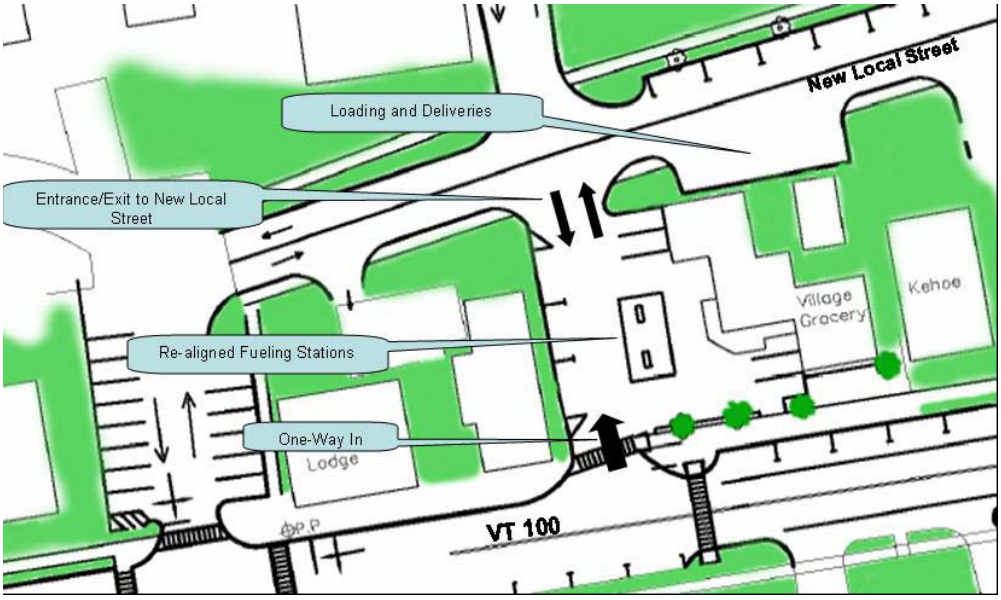
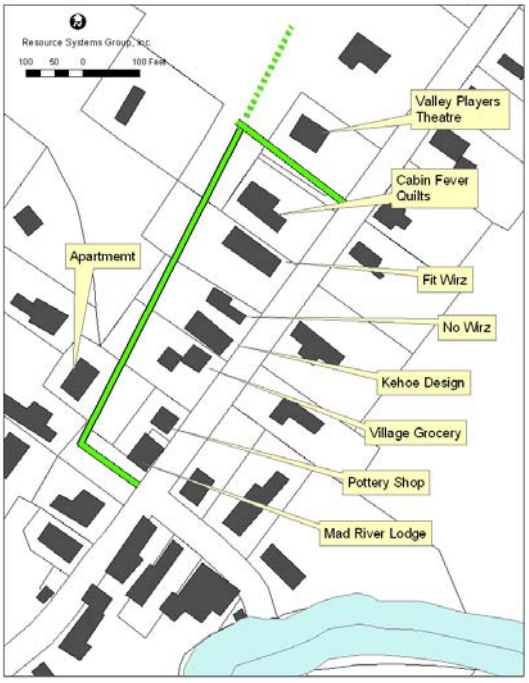


Figure 34: Village Grocery Long-term Access and Circulation Modifications with New Local Street



This alternative was rejected at the September 28, 2005 Public Meeting.

Figure 35:Alignment of New Local Street relative to Existing Parcels



3.2 VT 100: VALLEY PLAYERS THEATRE TO OLD COUNTY ROAD

Figure 36 on page 64 shows the concept plan for VT 100 between Valley Players Theatre and Old County Road. The concept is also consistent with the cross-section proposed for the VT 100 Transportation Path including the proposed lane widths and on-road bicycle facility. Key features of this concept are:

- Sidewalk on the west-side of VT 100. This sidewalk will connect the southern phase of the west sidewalk to the Health Center that is currently being redeveloped on the northwest corner of the VT 100-Old County Road intersection.
- Formalized On-Street Parking. On-street parking could be provided along this section of VT 100. The parking survey conducted for the first phase of this study did not indicate demand for additional parking during a typical week-day along the northern end of the Village. However, additional on-street parking would help meet spill-over demand during special events and would provide additional capacity to for new development at the north end of the Village. The on-street parking should be broken into discreet sections divided by wider areas of the green-strip, as shown in Figure 36. This intermittent parking will break-up the edge of a long, straight section of roadway, sending visual cues intended to slow traffic. This effect could be enforced with trees placed in the wide sections of green strips.

  The sidewalk and on-street parking on the east side of VT 100 from the Seibert Lawton residence to the Waitsfield Elementary School will be determined as part of the VT 100 Transportation Path project.
- Northern Gateway Enhancements. The intersection of Old County Road with VT 100 is a natural location for a gateway. A wide cross-walk anchored by bulbouts is proposed across VT 100 at this location. The design would be similar to the gateway/cross-walk at the southern end of the Village. The 8 foot wide design, combined with a textured surface and bulbouts, is intended to reinforce the northern gateway and to slow traffic as it enters the Village. The cross-walk will provide a connection between the northern end of the west sidewalk to the VT 100 Transportation Path on the east side of VT 100. Appendix E shows that the VTrans guidelines for a cross-walk are satisfied at this location.

  The cross-walk and bulbouts will enforce the gateway concept developed proposed for the north end of the Village in a plan developed by Broadleaf Landscaping for the Town. The concept is shown in Figure 37 and consists of enhancements to the green south of the General Wait House, and new municipal and private building concentrated around the intersection of VT 100 with Old County Road. The cross-walk would connect these different uses and would help reinforce the gateway that may someday be created by a mass of new buildings at this location.

Figure 36: VT 100 Concept Plan Valley Players Theatre to Old County Road

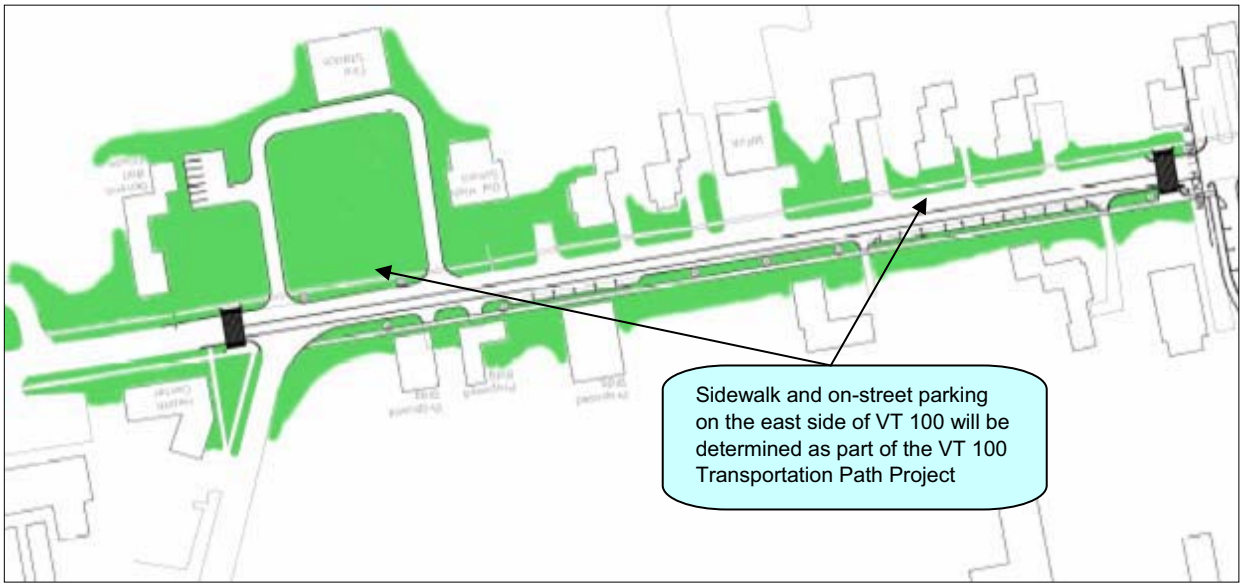
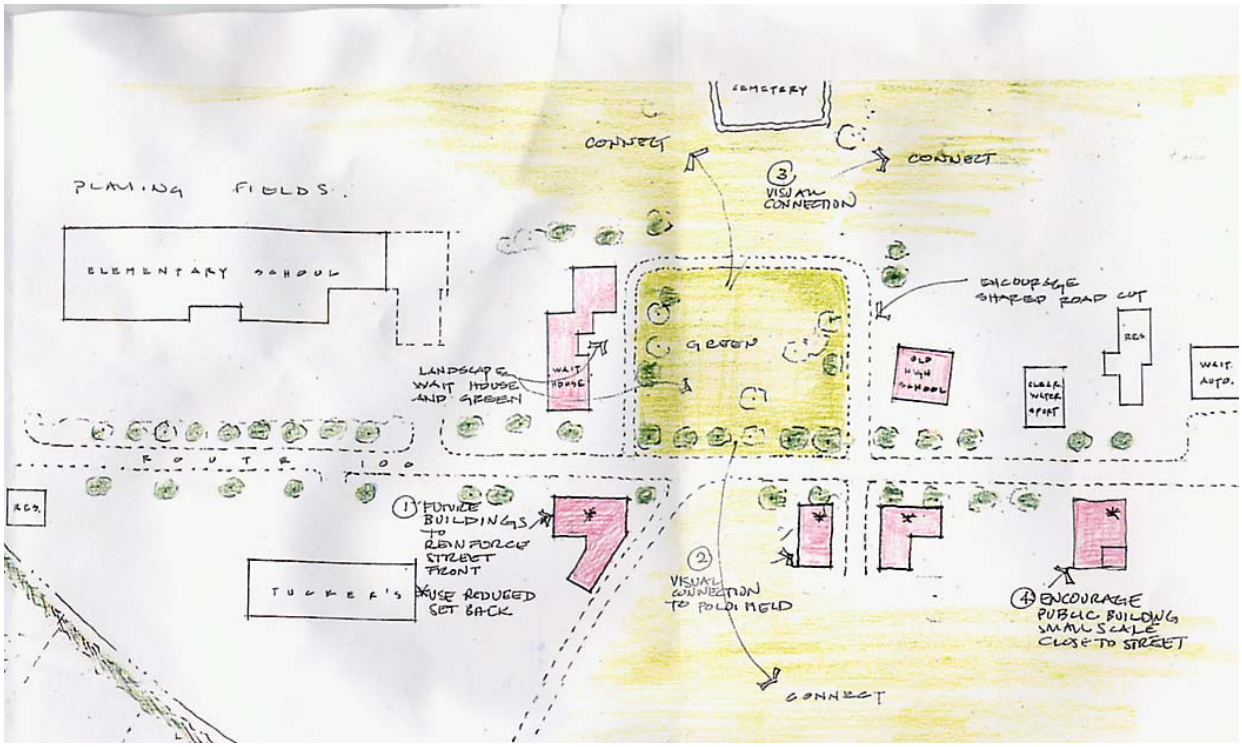


Figure 37: Northern Gateway Concept



Prepared by Broadleaf Landscaping for the Town of Waitsfield

3.3 VT 100-BRIDGE STREET INTERSECTION: ALTERNATIVES AND RECOMMENDATION

The section compares four alternative operational designs for the VT 100-Bridge Street intersection including: maintaining the existing number of lanes with stop signs on Bridge Street and Farr Lane; adding a right-turn lane to Bridge Street; installing stop-signs on all four approaches; and installation of a traffic signal. All of these alternatives would include design elements to improve the pedestrian environment, calm traffic, and improve access management at the intersection. The alternatives are intended to address the following issues:

- Congestion on the Bridge Street and Farr Lane approaches to VT 100. The existing Level of Service is E during the AM peak hour and LOS F during the PM peak hour. By 2010, the LOS is projected to decrease to F on the Bridge Street approach. LOS is also projected to decrease to F on the Farr Lane approaches by 2010.
- Limited sight distance. The corner sight distance from the Bridge Street approach looking south is obstructed by the porch of Waitsfield House located on the southeast corner of the intersection;
- The Farr Lane approach lacks definition. Vehicles often park too close to the edge of VT 100 which limits sight distance for other vehicles that are exiting Farr Lane;
- The intersection is not visible from the northbound VT 100 approach; and
- The intersection is located in the center of Waitsfield Village and therefore must accommodate pedestrians and cyclists.

In addition to addressing these specific issues, alternatives at the VT 100-Bridge Street intersection must be coordinated with the VT 100 Transportation Path and the other recommendations made in this report as follows:

- VT 100 Transportation Path Crossing. Through most of the Village, the VT 100 Transportation Path consists of an on-road bike lane (often adjacent to on-street parking), a green-strip, and a sidewalk. South of Bridge Street, the sidewalk follows an alignment behind the Bridge Street Market Place (along the alley between the Waitsfield House and the Artisan Gallery) while the bike lane remains adjacent to the VT 100 travel lane. Alternative designs at the intersection must maintain the cross-walk over Bridge Street to serve the VT 100 Transportation Path;
- Effect of the New Local Street. The New Local Street will increase the amount of traffic to and from the Farr Lane approach. Alternative designs will consider this additional traffic; and
- Consistency with access management recommendations. The design of the VT 100-Bridge Street intersection must be consistent with the access management designs suggested above in Sections 3.1 along the west side of VT 100.

Section 0 on page 15 describes the development of future year traffic volumes for 2010, with background growth plus traffic from development at Sugarbush; and 2015, with background traffic growth plus traffic from development at Sugarbush and traffic generated under the assumption that

Irasville and Waitsfield Village would reach full development potential. There was some concern raised at the public meeting held in February 2005 that the growth projections assumed in this study are too high. Table 14 presents an alternative perspective on the growth projections. Traffic has been growing about 1.6% per year in the study area. If traffic is assumed to grow at this rate well into the future, traffic volume projections developed for 2010 would not occur until 2025 and the traffic volumes projected for 2015 would not occur until 2045. Given that there is uncertainty in the rate of traffic growth, Table 14 presents the projections in terms of ranges.

To recognize that there is uncertainty in how fast traffic will grow, the LOS analyses for the VT 100-Bridge Street intersection presented in the next section describe results relative to the planning year ranges of 2010-2025 and 2025-2045, rather than suggesting growth will happen by one specific year.

Table 14: Revised Planning Year Ranges

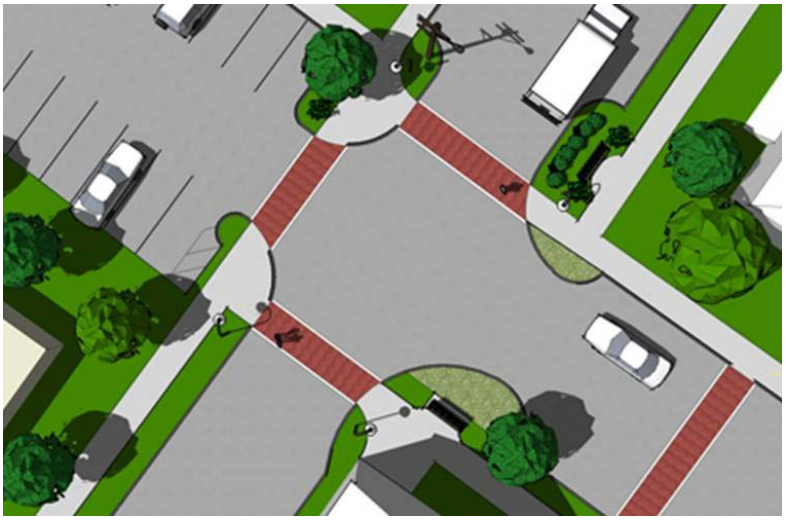
Initial Planning Horizons	2005-2010	2005-2015
Percent Growth	37%	87%
Number of Years to Reach Assuming 1.6% per Year Growth	20	39
Revised Planning Year Ranges	2010-2025	2025-2045

Alternative 1: Curb-Extension/Single-Lane Approaches/Stop-controlled

Alternative 1 is shown in Figure 38. The key features are:

- Single lanes on four approaches. Bridge Street and Farr Lane are controlled by stop signs;
- Curb-extensions on all four corners. The curb-extensions provide multiple functions. They define the Farr Lane approach, increase sight distance to the south from Bridge Street by allowing vehicles to move beyond the edge of the visual obstruction created by the Waitsfield House porch on the southeast corner, reduce crossing distances for pedestrians, and improve visibility of the intersection for vehicles approaching along VT 100 from the south. The curb-extensions have been designed to allow a minimum of 14 feet between the roadway center line and the edge of curb to accommodate snow removal and to provide at least three feet for on-road bicycle travel.
- Cross-walks on all four approaches. The cross-walks over VT 100 and Farr Lane would be located at the intersection directly in front of the stop bar. The cross-walk over Bridge Street would be located in line with the VT 100 Transportation Path as it passes between the Waitsfield House and the Artisan Gallery. This location is recommended because it allows the stop bar to be located as far west as possible (thereby improving the sight distance to the south from Bridge Street).

Figure 38: VT 100-Bridge Street Alternative 1



Level of service, delay, and vehicle queues are presented in Table 15 for this alternative without the New Local Street. Delays and vehicle queues on the Bridge Street approach are projected to increase significantly in the 2010-2025 planning horizon. The projected vehicle queues would extend beyond the Covered Bridge during the morning and afternoon peak hours.

LOS analyses were not conducted for this intersection with traffic changes that would be created by the New Local Street. The results shown in Table 15 provide enough information to indicate that this alternative would not be able to accommodate the additional traffic on the Farr Lane approach that would result from the New Local Street.

Table 15: VT 100-Bridge Street Alternative 1 Congestion Analysis

AM PEAK HOUR

	2005			2010-2025			2025-2045		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Farr Lane*	D	29	4	F	75	11	F	1000+	47
WB Left/Thru/Right - *From Bridge Street*	E	48	160	F	345	460	F	1000+	Not computable
NB Left/Thru/Right - *From VT 100*	A	0	1	A	0	1	A	1	1
SB Left/Thru/Right - *From VT 100*	A	2	6	A	3	8	A	6	14

PM PEAK HOUR

	2005			2010-2025			2025-2045		
Unsignalized Intersections	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Farr Lane*	D	35	28	F	118	73	F	1000+	164
WB Left/Thru/Right - *From Bridge Street*	F	110	186	F	851	441	F	1000+	Not computable
NB Left/Thru/Right - *From VT 100*	A	0	0	A	0	0	A	0	0
SB Left/Thru/Right - *From VT 100*	A	2	6	A	3	8	A	6	14

LOS E or F and Long Vehicle Queues

Alternative 2: Curb-Extensions/New Bridge Street Right-Turn Lane /Stop-Controlled

Alternative 2 is shown in Figure 39. The key features are:

- The Bridge Street approach includes an exclusive right-turn lane and a shared left/through lane. The VT 100 and Farr Lane approaches would have one lane. Bridge Street and Farr Lane are controlled by stop signs.
- Curb-extensions are provided on three of the corners. A curb-extension is not possible on the northeast corner due to the right-turn lane. The three bulbouts provide many of the same functions described in Alternative 1 including: better definition for the Farr Lane approach, reduced crossing distances for pedestrians on three approaches, and improve visibility of the intersection for vehicles approaching along VT 100 from the south. The lack of a bulbout on the northeast corner means loosing the sight-distance improvement to the south for vehicles exiting Bridge Street. That particular curb-extension is the one that would provide the protected area in which vehicles could pull beyond the sight distance constraint caused by the Waitsfield House porch.
- Cross-walks are provided on all four approaches as described in Alternative 1. The cross-walk over the VT 100 southbound approach is longer because a curb-extension is not provided on the northeast corner.

Figure 39: VT 100-Bridge Street Alternative 2

Level of service, delay, and vehicle queues are presented in Table 16 for Alternative 2 (without the New Local Street). The right-turn lane on Bridge Street reduces delay significantly for vehicles turning right to VT 100. The delay for left-turning vehicles is also reduced, but remains extremely large and operates at LOS F in the 2010-2025 planning horizon. Vehicle queues are reduced

significantly during the AM peak hour but would continue to extend as far back as the Covered Bridge during the PM peak hour.

LOS analyses were not conducted for this intersection with the changes in traffic that would be created by the New Local Street. The right-turn lane on Bridge Street would not affect the capacity of Farr Lane. Therefore, the results shown in Table 16 provide enough information to indicate that that this alternative would not be able to accommodate the additional traffic on the Farr Lane approach that would result from the New Local Street.

Table 16: VT 100-Bridge Street Alternative 3 Congestion Analysis

AM PEAK HOUR

	2005			2010-2025			2025-2045		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Farr Lane*	D	29	4	F	75	11	F	1341	47
WB Thru/Left - *From Bridge Street*	E	45	59	F	247	164	F	ot computa	Not computable
WB Right - *From Bridge Street*	B	14	31	C	21	56	F	60	171
NB Left/Thru/Right - *From VT 100*	A	0	1	A	0	1	A	A	1
SB Left/Thru/Right - *From VT 100*	A	2	6	A	3	8	A	A	14

PM PEAK HOUR

	2005			2010-2025			2025-2045		
Unsignalized Intersections	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)	LOS	Delay	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - *From Farr Lane*	D	34	28	F	118	73	F	1247	164
WB Thru/Left - *From Bridge Street*	F	108	137	F	837	316	F	ot computa	Not computable
WB Right - *From Bridge Street*	B	12	8	C	15	12	C	22	25
NB Left/Thru/Right - *From VT 100*	A	0	0	A	0	0	A	0	0
SB Left/Thru/Right - *From VT 100*	A	2	6	A	3	8	A	6	14

LOS E or F and Long Vehicle Queues

Alternative 3: All-Way Stop

This alternative would have the same lane configuration and enhancements shown in Alternative 1 as presented in Figure 38 but all four approaches would be controlled by stop signs. This type of control creates advantages for side-streets and pedestrians.

Level of service, delay, and vehicle queues are presented in Table 17 for Alternative 3 (without the New Local Street). An all-way stop reduces delay significantly on the Bridge Street and Farr Lane approaches. However, the delay and long vehicle queues are transferred to the VT 100 northbound and southbound approaches. As noted in Section 0 on page 12, VT 100 is a minor arterial, Bridge Street is a minor collector, and Farr Lane is a local road. This hierarchy suggests that traffic on the arterial should be given the priority because its function is to provide a higher level of mobility. Therefore, transferring delay from a collector and local street to an arterial is not good practice unless a reasonable level of delay can be provided on all approaches.

Table 17: VT 100-Bridge Street Alternative 3 All Way Stop Congestion Analysis

AM PEAK HOUR

Unsignalized Intersections	2005 LOS	2005 Delay (seconds)	2005 95th Percentile Queue (feet)	2010-2025 LOS	2010-2025 Delay (seconds)	2010-2025 95th Percentile Queue (feet)	2025-2045 LOS	2025-2045 Delay (seconds)	2025-2045 95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - From Farr Lane	B	11	0	B	11	27	B	12	0
WB Left/Thru/Right - From Bridge Street	B	15	88	C	16	112	C	20	121
NB Left/Thru/Right - From VT 100	D	32	103	F	158	218	F	420	1009
SB Left/Thru/Right - From VT 100	D	32	150	F	152	388	F	405	1845

PM PEAK HOUR

Unsignalized Intersections	2005 LOS	2005 Delay (seconds)	2005 95th Percentile Queue (feet)	2010-2025 LOS	2010-2025 Delay (seconds)	2010-2025 95th Percentile Queue (feet)	2025-2045 LOS	2025-2045 Delay (seconds)	2025-2045 95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - From Farr Lane	B	11	46	B	12	44	B	12	44
WB Left/Thru/Right - From Bridge Street	B	13	63	B	14	102	C	16	91
NB Left/Thru/Right - From VT 100	D	31	31	F	134	292	F	366	1981
SB Left/Thru/Right - From VT 100	E	48	48	F	218	388	F	495	1623

LOS E or F and Long Vehicle Queues

Alternative 4: Traffic Signal

This alternative would have the same lane configuration and enhancements as Alternative 1 (See Figure 38) but would be controlled by a traffic signal. The traffic signal would also include actuated pedestrian signals. As indicated in Table 18, the traffic signal provides acceptable levels of service through a planning horizon of 2010-2025 on all four approaches. The delay on VT 100 is significantly less than the delay resulting from an all-way stop. However, the vehicle queues on VT 100 would still be long, although they would be cleared at every cycle.

To maintain acceptable levels of service beyond the 2010-2025 planning horizon, additional turn lanes would be necessary on the VT 100 southbound approach and the Bridge Street approach.

Table 18: VT 100-Bridge Street Alternative4 Congestion Analysis (Without New Local Street)

AM PEAK HOUR

	2005			2010-2025			2025-2045(1)		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay (seconds)	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - From Farr Lane	B	13	9	B	19	11	C	30	14
WB Left/Thru/Right - From Bridge Street	B	16	83	C	29	146	D	36	(72 LT, 108 TR)
NB Left/Thru/Right - From VT 100	A	6	143	A	10	230	B	20	447
SB Left/Thru/Right - From VT 100	A	4	196	A	14	427	A	12	(46 LT, 526 TR)

PM PEAK HOUR

	2005			2010-2025			2025-2045(1)		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay (seconds)	95th Percentile Queue (feet)	LOS	Delay (seconds)	95th Percentile Queue (feet)
VT 100 - Bridge Street									
EB Left/Thru/Right - From Farr Lane	B	19	31	C	27	44	D	35	49
WB Left/Thru/Right - From Bridge Street	C	28	91	D	53	179	D	43	(126 LT, 50 TR)
NB Left/Thru/Right - From VT 100	A	5	154	A	8	250	B	15	587
SB Left/Thru/Right - From VT 100	A	7	182	B	7	329	B	16	(43 LT, 458 TR)

(1) Assumes VT 100 southbound and Bridge Street westbound each have an exclusive left turn lane (LT) and a shared Through/Right turn lane.

Long Vehicle Queues

Table 19 presents the level of service, delay, and vehicles queues for the planning years assuming a traffic signal is installed and the New Local Street is constructed. The New Local Street would change the turning movement pattern at the VT 100-Bridge Street intersection but would not result in a significant increase of the total traffic passing through the intersection. The New Local Street would increase the amount of traffic exiting from Farr Lane, and the amount of traffic turning left from VT 100 northbound to Farr Lane. Appendix D shows the estimated effect of the New Local Street on traffic volumes at the VT 100-Bridge Street intersection.

Table 19 demonstrates that the traffic signal could accommodate the change in traffic patterns resulting from the New Local Street through the 2010-2025 planning horizon. To maintain acceptable levels of service beyond the 2010-2025 planning horizon, additional turn lanes would be necessary on the VT 100 southbound approach and the Bridge Street approach.

Table 19: VT 100-Bridge Street Alternative 4 Congestion Analysis (With New Local Street)

	2010-2025			2025-2045(1)		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue* (feet)	LOS	Delay (seconds)	95th Percentile Queue* (feet)
VT 100 - Bridge Street						
EB Left/Thru/Right - From Farr Lane	C	27	90	E	80	143
WB Left/Thru/Right - From Bridge Street	D	39	188	C	32	(71 LT, 106 TR)
NB Left/Thru/Right - From VT 100	B	19	318	D	20	(8 LT, 440 TR)
SB Left/Thru/Right - From VT 100	B	12	333	D	12	(127 LT, 441 TR)

	2010-2025			2025-2045(1)		
Unsignalized Intersections	LOS	Delay (seconds)	95th Percentile Queue* (feet)	LOS	Delay (seconds)	95th Percentile Queue* (feet)
VT 100 - Bridge Street						
EB Left/Thru/Right - From Farr Lane	D	42	186	D	52	196
WB Left/Thru/Right - From Bridge Street	D	43	171	D	36	(125 LT, 47 RT)
NB Left/Thru/Right - From VT 100	A	10	262	D	47	861
SB Left/Thru/Right - From VT 100	B	18	308	C	24	(54 LT, 514 RT)

(1) Assumes VT 100 southbound and Bridge Street westbound each have an exclusive left turn lane (LT) and a shared Through/Right turn lane.

Long Vehicle Queues

Preliminary Traffic Signal Warrant Analysis

Before a traffic signal may be installed at a particular intersection, conditions must satisfy at least one of eight warrants in accordance with the procedures provided in the 2003 Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD is the standard used in Vermont and is codified in the Vermont State Statutes. Only one warrant needs to be satisfied to justify installation of a traffic signal. A signal warrant analysis is considered advisory only. This means that simply meeting any warrant may not be sufficient cause for installing a traffic signal.

The analysis for the VT 100-Bridge Street intersection is preliminary because the traffic volume data necessary to evaluate some of the relevant warrants is not available. The warrant analysis depends on traffic count data for at least twelve hours on all approaches to an intersection. Count data has only been collected for the AM, mid-day, and PM peak hours for this study. To estimate volumes for the other hours of the day, a twelve-hour count at the VT 100-Bridge Street intersection conducted by VTrans in June 1995 is used to determine the hourly distribution of traffic volumes under existing and future conditions. This analysis provides a preliminary indication if the Four-Hour and Eight-Hour volume warrants will be satisfied. A final traffic signal warrant analysis must be completed based on actual traffic counts before a traffic signal can be installed.

Following is a description of each warrant and a discussion of whether or not the warrant is applicable for the VT 100-Bridge Street intersection. Warrants that are applicable are analyzed following identification of applicable warrants.

Warrant 1 - Eight-Hour Vehicular Traffic Warrant: Applicable when a large amount of intersecting traffic occurs for any eight hours of a typical day is the principal reason for installing a traffic signal, or where excessive delays occur on minor approaches to an intersection due to a large amount of traffic on the major street. ***Warrant 1 is applicable*** at this location because the traffic volumes entering the intersection and the delay experienced on the Bridge Street and Farr Lane approaches are significant. This warrant is analyzed below.

Warrant 2 - Four-Hour Vehicular Traffic Warrant: Applicable when a large amount of intersecting traffic occurring over any four hours of a typical day is the principal reason for installing a traffic signal. ***Warrant 2 is applicable*** at this intersection because of the traffic volume entering the intersection is significant. This warrant is analyzed below.

Warrant 3 - Peak Hour Warrant: Applicable when the minor-street traffic suffers undue delay when entering or crossing the major-street during the average peak hour is the principal reason for installing a traffic signal. ***Warrant 3 is not applicable.*** It should only be applied near facilities that generate large traffic volumes over a short amount of time such as an office complex or a manufacturing facility.

Warrant 4 - Pedestrian Volume Warrant: Applicable when the traffic volumes on a major street are so heavy that pedestrians experience excessive delays. ***Warrant 4 is applicable*** due to the location of this intersection in the center of a village where higher levels of pedestrian traffic is anticipated. Although it is applicable, this warrant is not analyzed below because there is not enough information on the number of pedestrians crossing under existing conditions and it is not possible to predict the number of pedestrians crossing in the planning years.

Warrant 5 - School Crossing Warrant: Applicable when school children crossing a major street are the principal reason for installing a traffic signal. ***Warrant 5 is not applicable*** at this location because it is not in close proximity to a school.

Warrant 6 - Coordinated Signal System Warrant: Applicable when maintaining proper platooning of vehicles between traffic signals is the principal reason for installing a traffic signal. ***Warrant 6 is not applicable*** because the study intersection is not located between two existing signalized intersections that need to be coordinated.

Warrant 7 - Crash Experience Warrant: Applicable when the severity and frequency of crashes is the principal reason for installing a traffic signal. The safety analysis presented in Section 2.4 on page 19 indicates that the location is not a high crash location ***Warrant 7 is not applicable.***

Warrant 8 - Roadway Network Warrant: Applicable when the concentration and organization of traffic flow is the principal reason for installing a traffic signal. A traffic signal will usually result in increased capacity at an intersection. This warrant should be applied when there is a desire to shift traffic from one street to another. That desire should be established in a city-wide traffic circulation plan that identifies the function and design of each street. ***Warrant 8 is applicable*** for the scenario that includes the New Local Street. One purpose of the New Local Street is to shift and concentrate turning traffic at the VT 100-Bridge Street intersection.

Figure 40 shows the results of the analysis for Warrant 1 (8 Hour Vehicular Traffic Warrant) and Warrant 2 (4 Hour Vehicular Traffic Warrant) for 2005 conditions. Warrant 1 has two conditions that need to be evaluated. Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

Warrant 1 is satisfied when the volumes on the major street and minor street approaches meet or exceed the threshold volumes indicated in Figure 40 for at least eight hours. Different threshold volumes exist for Condition A and Condition B. The MUTCD allows the threshold volumes to be reduced to 70% when the intersection is located in an isolated community with a population less than 10,000 people.

Assuming the 70% reduction is applicable (according to the US Census, Waitsfield's 2004 population is 1,706), current conditions satisfy both Warrants 1 and Warrants 2. If the 70% reduction is not acceptable to VTrans, existing conditions do not satisfy either Warrants 1 or 2 (See Figure 41**).**

Figure 42 shows that even if the 70% reduction is not applied, Warrants 1 and 2 will be satisfied in the 2010-2025 planning horizon. And, as noted above, Warrant 8-Roadway Network will be satisfied if the New Local Street is constructed.

Therefore, subject to verification with an actual twelve-hour traffic count at the VT 100-Bridge Street intersection, a traffic signal is justified at this location. The LOS analyses presented above indicate that a traffic signal would provide acceptable level of service through the 2010-2025 planning horizon. The traffic signal would also enhance the environment for pedestrians by providing protected crossings of VT 100. A traffic signal would also address the sight distance constraint caused by the Waitsfield House by providing a protected exit for vehicles leaving Bridge Street.

Figure 40: 2005 Preliminary Traffic Signal Analysis - 70% Volume Reduction

	Beginning Hour	2005 AAWDT Major Street VT 100	2005 AAWDT Minor Street (Bridge St)	Warrant 1 70% 8-HR Condition A	Warrant 1 70% 8-HR Condition B	Warrant 2 4-HR Warrant
	2005 PM Peak Hour	608	109			
Estimated Hourly Traffic Volumes for Average Weekday	6:00 AM	168	57	No	No	No
	7:00 AM	411	150	Yes	No	No
	8:00 AM	436	131	Yes	No	No
	9:00 AM	435	158	Yes	No	No
	10:00 AM	488	123	Yes	No	No
	11:00 AM	479	115	Yes	No	No
	12:00 PM	523	126	Yes	No	Yes
	1:00 PM	503	134	Yes	No	Yes
	2:00 PM	494	124	Yes	No	No
	3:00 PM	521	117	Yes	No	No
	4:00 PM	605	108	Yes	Yes	Yes
	5:00 PM	608	109	Yes	Yes	Yes
	Number of Hours Satisfying Threshold Volumes			11	2	4
	Is Overall Warrant Satisfied?			Yes	No	Yes
	Major Street Volume Threshold			350	525	Fig 4C-2
	Minor Street Volume			105	53	Fig 4C-2

Traffic Volume Adjustments to Assume:

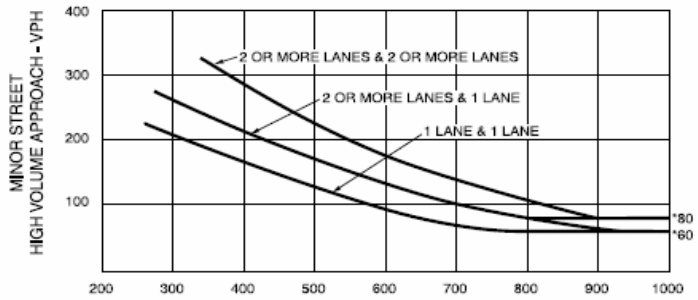
AAWDT = raw count * (MAWDT to AAWDT Factor for Oct)
For Summer/Recreational Roads (Group V)

Volume Thresholds assume:

35 MPH
1 Major Street Lane and 1 Minor Street Lanes
Waitsfield Village is an isolated community w/ population < 10,000:
As a result, 70% volume thresholds are used for Warrant 1
4-Hr Volume Thresholds from Curve 4C-2

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

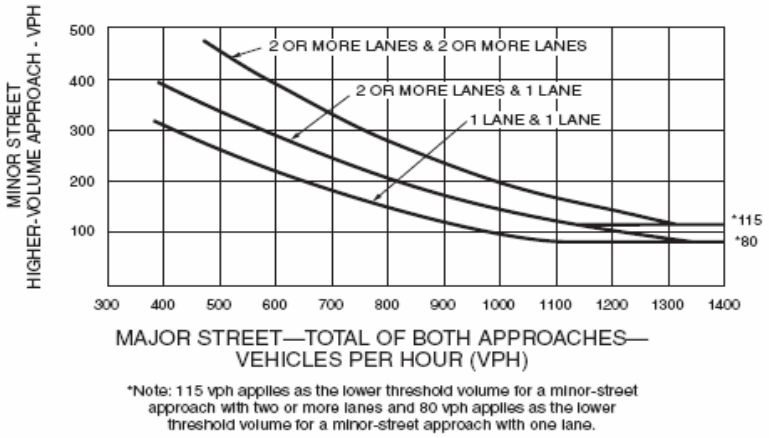
Figure 41: 2005 Preliminary Traffic Signal Analysis - 100% Volume Thresholds

	Beginning Hour	2005 AAWDT Major Street VT 100	2005 AAWDT Minor Street (Bridge St)	Warrant 1 8-HR Condition A	Warrant 1 8-HR Condition B	Warrant 2 4-HR Warrant
	2005 PM Peak Hour	608	109			
Estimated Hourly Traffic Volumes for Average Weekday	6:00 AM	168	57	No	No	No
	7:00 AM	411	150	No	No	No
	8:00 AM	436	131	No	No	No
	9:00 AM	435	158	No	No	No
	10:00 AM	488	123	No	No	No
	11:00 AM	479	115	No	No	No
	12:00 PM	523	126	No	No	No
	1:00 PM	503	134	No	No	No
	2:00 PM	494	124	No	No	No
	3:00 PM	521	117	No	No	No
	4:00 PM	605	108	No	No	No
	5:00 PM	608	109	No	No	No
	Number of Hours Satisfying Threshold Volumes			0	0	0
	Is Overall Warrant Satisfied?			No	No	No
	Major Street Volume Threshold			500	750	Fig 4C-1
	Minor Street Volume			150	75	Fig 4C-1

Traffic Volume Adjustments to Assume:
AAWDT = raw count * (MAWDT to AAWDT Factor for Oct)
For Summer/Recreational Roads (Group V)

Volume Thresholds assume:
35 MPH
1 Major Street Lane and 1 Minor Street Lanes
4-Hr Volume Thresholds from Curve 4C-2

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 42: 2010-2025 Preliminary Traffic Signal Analysis - 100% Volume Thresholds

	Beginning Hour	2010-2025 AAWDT Major Street VT 100	2010-2025 AAWDT Minor Street (Bridge St)	Warrant 1 8-HR Condition A	Warrant 1 8-HR Condition B	Warrant 2 4-HR Warrant
	2005 PM Peak Hour	1059	129			
Estimated Hourly Traffic Volumes for Average Weekday	6:00 AM	293	68	No	No	No
	7:00 AM	716	177	Yes	No	No
	8:00 AM	759	156	Yes	Yes	No
	9:00 AM	758	187	Yes	Yes	No
	10:00 AM	849	146	No	Yes	Yes
	11:00 AM	834	136	No	Yes	No
	12:00 PM	911	149	No	Yes	Yes
	1:00 PM	876	159	Yes	Yes	Yes
	2:00 PM	861	148	No	Yes	Yes
	3:00 PM	908	139	No	Yes	Yes
	4:00 PM	1054	128	No	Yes	Yes
	5:00 PM	1059	129	No	Yes	Yes
	Number of Hours Satisfying Threshold Volumes			4	10	7
	Is Overall Warrant Satisfied?			No	Yes	Yes

Major Street Volume Threshold	500	750	Fig 4C-1
Minor Street Volume	150	75	Fig 4C-1

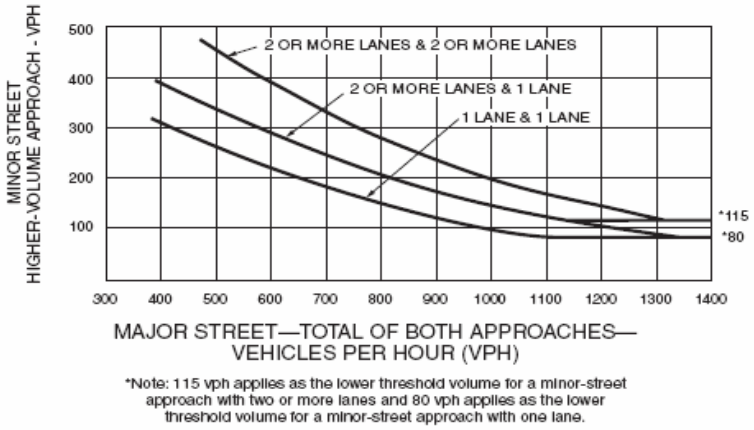
Traffic Volume Adjustments to Assume:

AAWDT = raw count * (MAWDT to AAWDT Factor for Oct)
For Summer/Recreational Roads (Group V)

Volume Thresholds assume:

35 MPH
1 Major Street Lane and 1 Minor Street Lanes
4-Hr Volume Thresholds from Curve 4C-2

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

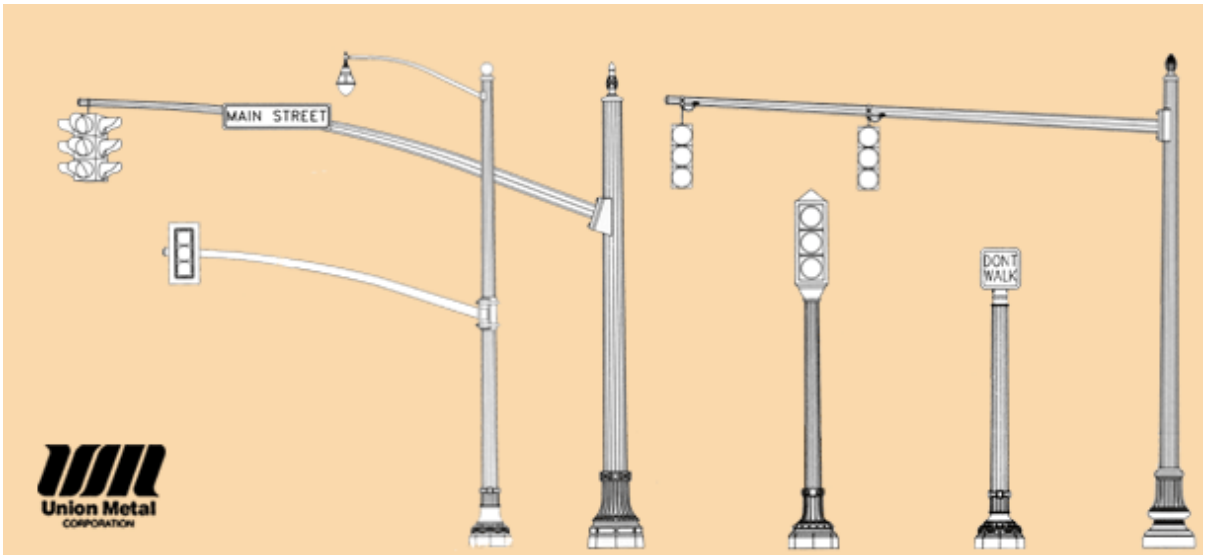
VT 100-Bridge Street Intersection Recommendations

The intersection is located in the Village Core and it must be designed in a manner that provides for a high level of pedestrian use and enhances the aesthetics of its surroundings. The curb-extensions and improved pedestrian crossings achieve these goals and are therefore recommended. The single lane approaches should be maintained. The addition of turning lanes would require eliminating the curb-extension, resulting in longer pedestrian crossings, and less room for landscaping.

The intersection must also provide a safe and efficient connection between Bridge Street, a major collector, and VT 100. In the long-term, traffic from the New Local Street will be re-directed through the intersection. A traffic signal is the most effective means available to manage traffic at the intersection, within the physical space available, while also protecting pedestrian and bicycle travel.

The intersection should first be reconstructed to include the curb-extension and enhanced pedestrian crossings. The underground conduit necessary for a traffic signal should be installed at the same time. The Town, VTrans, and CVRPC should monitor the intersection to verify if and when actual conditions satisfy the warrants for a traffic signal. When and if a traffic signal is installed, it should utilize pedestal mounted traffic signals and associated equipment similar to the example shown in Figure 43. This design is more appropriate for the center of a village than the often used strain pole and overhead traffic signal common in most locations.

Figure 43: Nostalgic Traffic Signal and Pedestals



3.4 PARKING FACILITY RECOMMENDATIONS

The parking analysis summarized in Section 2.7 concludes that less than 30% of non-residential parking spaces are occupied during the peak periods of a typical weekday. Therefore, there are enough parking spaces to accommodate existing demand plus additional parking needs to

accommodate redevelopment and infill in the Village. The key assumption underlying this finding is that most of the private and public spaces are shared among multiple users. Shared parking, supported by the publicly owned spaces in the study area, and unrestricted use of the Bridge Street Market Place lot, are important to meeting daily parking demand in the study area.

The analysis also shows that special events (which mostly occur during weekends) can overwhelm the parking supply at the Village's core around the VT 100-Bridge Street intersection while parking facilities on the northern end of the Village are underutilized.

Therefore, the following recommendations are intended to (1) maintain about the same number of parking spaces in the study area; (2) expand the number of public parking spaces to ensure the long-term availability of facilities that serve multiple users; (3) improve efficiency and aesthesis of existing off-street parking facilities; and (4) take advantage of underutilized parking facilities in the northern end of the Village.

This section presents concept plans to improve the existing off-street lots serving the Bridge Street Marketplace and the Waitsfield Church. Additional public parking is summarized for scenarios with and without the New Local Street.

Bridge Street Marketplace Parking Lot

Figure 44 shows the existing layout of the Bridge Street Marketplace parking lot. The existing parking lot has a gravel surface and provides a maximum of 68 spaces. The parking lot is situated around a green space that provides a place for employees and others to sit during nice weather. The green space breaks up what would otherwise be a large open parking lot. Maintaining a green space is important to the owners and employees of businesses located within the Bridge Street Marketplace. The septic system for the Bridge Street Marketplace is also located under this green space. The septic system will be disconnected as part of the water and sewer project. The Bridge Street Marketplace lot is also used as an access point to the Mad River.

Vehicular access to the parking lot is provided via a one-way entrance from Bridge Street and an entrance/exit on VT 100 that also serves the Fuller House parking lot. There are several pedestrian connections to this lot as indicated in Figure 44. The VT 100 Transportation Path will also be passing through the western edge of the lot.

Figure 44: Bridge Street Marketplace Lot – Existing Conditions

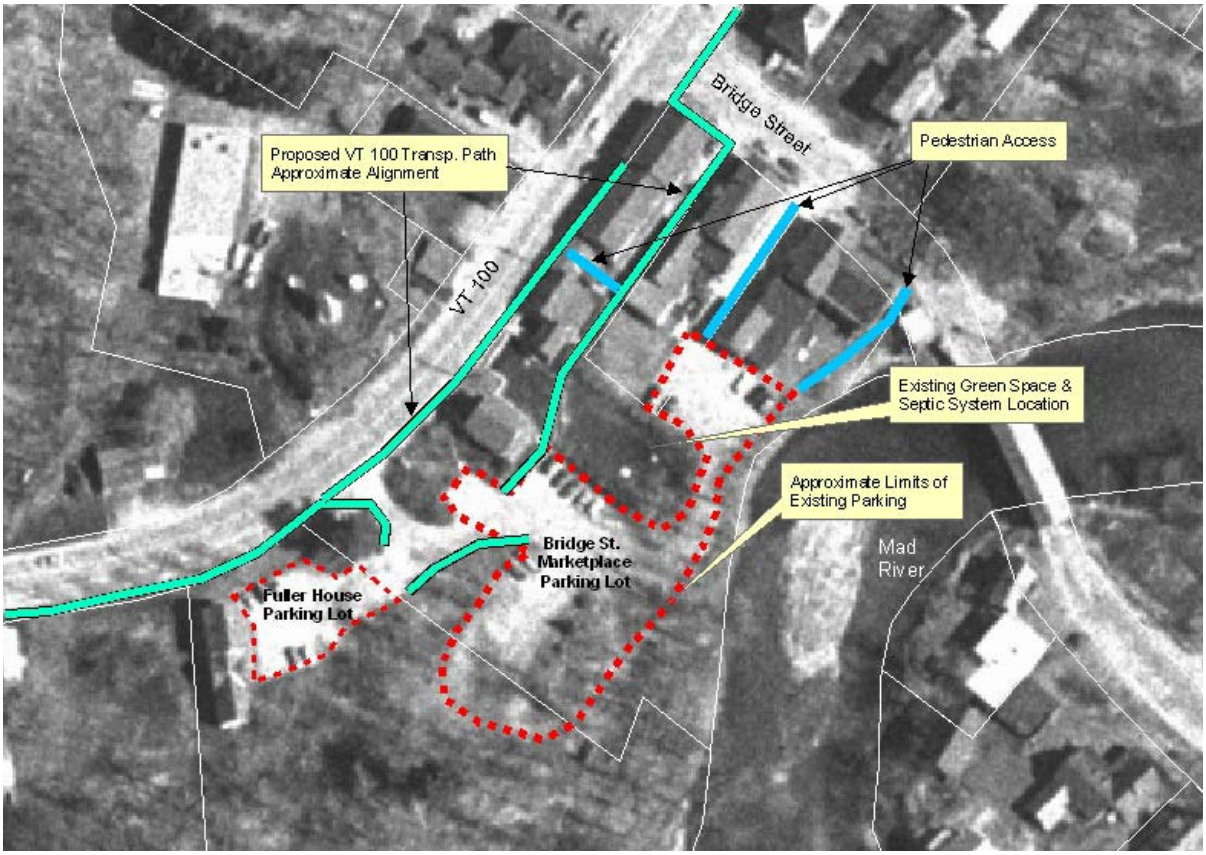


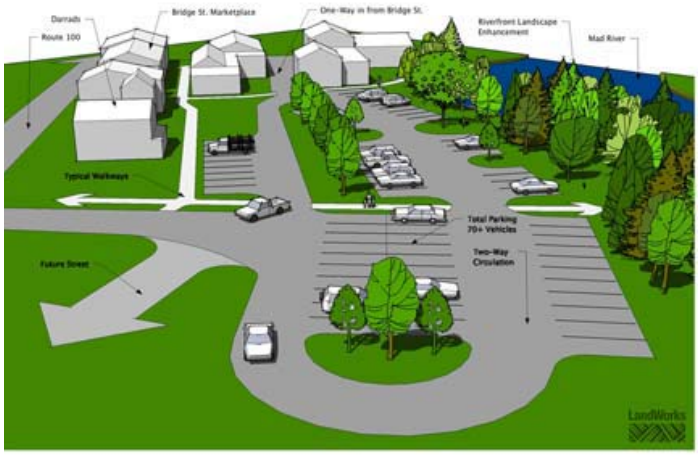
Figure 45 shows a perspective and plan views of recommended design changes to this lot. The concept design has the following features:

- The number of parking spaces increased slightly from 68 to 70.
- Green space enhancements. The green space is maintained in a different form, adjacent to the buildings. In addition, the eastern edge of the parking lot is pulled back from the edge of the Mad River. This modification allows for a riverside park to supplement the existing green space.
- Pockets of parking. To visually break-up the amount of surface used for parking, many of the parking spaces are grouped together in small cluster that are separated by landscaping.
- Improved circulation. The concept plan provides a clear circulation pattern for the parking lot.
- Improved connection between Bridge Street and VT 100. The concept plan provides an alternate route for vehicles turning left from Bridge Street to VT 100. The concept plan provides a more direct alignment that is separated from most of the parking spaces.

- Future Connections. The concept plan shows a future connection to the south. The concept for this future connection, as envisioned by the steering committee, is that it could continue the local street network parallel to VT 100 and would incorporate additional improvements to the Fuller House parking lot. The feasibility of extending a local street to the south needs to be studied further before including it in this study and is beyond the scope of work of this study.

Figure 45: Concept Plan for Bridge Street Marketplace Lot – Plan View

Figure 46: Concept Plan for Bridge Street Marketplace Lot – Perspective View



Waitsfield Church Parking Lot

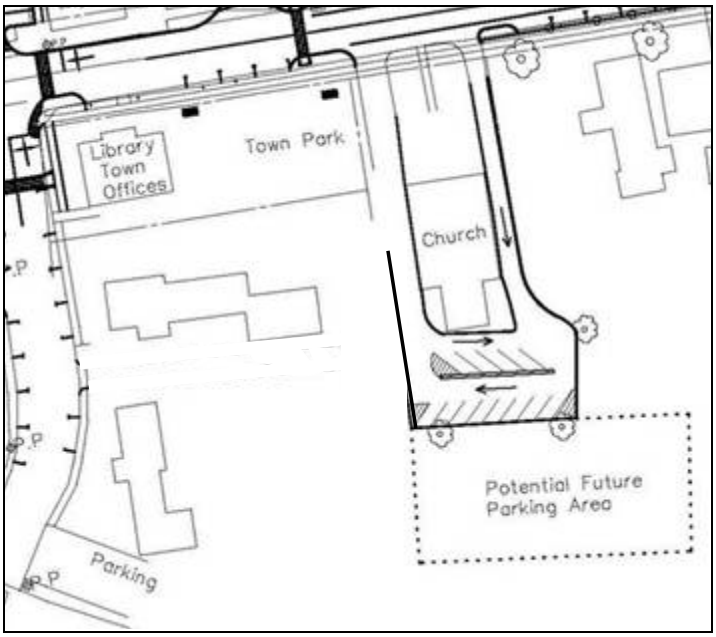
The back yard of the Waitsfield Church is sometimes used as an informal parking lot. This informal lot has a grass surface and is accessed via two narrow driveways on each side of the Church.

Although as many as 16 vehicles were counted in this lot, reshuffling was necessary for some vehicles to exit. That informal arrangement is acceptable when patrons know each other and are at the same event, but would not be acceptable for a parking facility serving the general public.

Figure 47 presents a design concept for a more formal parking lot behind the Church. If the lot remains within the Church's parcel boundaries, it is possible to provide twelve parking spaces while accommodating access and circulation. A significant number of additional spaces could be provided in the large parcel located behind the Church.

Access to the lot could be accommodated with the existing driveways signed to for a one-way circulation pattern. As shown in Figure 47, an additional access point could be provided to Bridge Street.

Figure 47: Waitsfield Church Parking Lot Design Concept



Village Grocery Rear Parking Lot

Village Grocery's rear lot has approximately 15 parking spaces. On a typical weekday, this lot provides a loading area for the store and parking for employees and the apartment above the store. The lot is made available to the general public during some special events. Beyond the access management recommendations and associated changes along VT 100 (See Figure 27 on page 56 and Figure 30 on page 58), no modifications are recommended to the rear Village Grocery Parking lot. By providing additional parking spaces during special events, the Village Grocery's rear lot currently serves an important community function.

Special Event Northern Park-and-Walk

The parking lots serving the Waitsfield Elementary School and General Wait House, and the lot behind the Mad River Valley Ambulance, could be used to accommodate excess parking demand during special events. No physical modifications are recommended to these lots because they would only be used for this purpose a few times each year. Parking could also be accommodated during dry, warmer weather for special events on the green next to the General Wait House. This approach has the added advantages of decreasing the amount of traffic that passes through the rest of the Village, and increasing the number of potential shoppers passing by businesses not located directly adjacent to the Village core.

A key component to encouraging use of these northern village park-and-walks is providing safe and interesting pedestrian connections between the lots and the events, which typically occur near the Village core. In the short-term, the VT 100 Transportation Path will go a long way towards improving the pedestrian connection. Parking should be encouraged in the northern end of the Village by making it free while parking near the Village core will cost a modest fee ($5 per car for example). The Village core parking fee could be used to generate funds for use by local groups, who would be responsible for directing parking and collecting the fees.

The long-term enhancements described above in Section 3.5 will further improve the pedestrian connection and environment and will encourage people to park -and-walk from northern lots to final destinations.

Summary of Public and Private Parking Facility Changes

Table 20 presents the number of parking spaces by facility for existing conditions, the short-term plan, and the long-term alternative. Only the facilities that are affected by alternatives are shown. Table 21 summarizes the overall change in the study area. As recommendations are implemented, the total number of parking spaces will increase slightly, and a larger percentage of the parking spaces will become publicly owned. This shift of parking spaces from private to public ownership is meant to ensure that shared parking can continue into the future.

Table 20: Summary of Parking Facility Changes

Location	Existing		Short-Term (Without New Local Street)		Long-Term (With New Local Street)	
	Private	Public	Private	Public	Private	Public
Bridge Street Marketplace	68		70		70	
Church	16		16		12	
VT 100 West-Side On-Street (Farr Lane-VPT)		8		8		13
VT 100 West Side (VPT-Old County Rd)		0		16		16
Farr Lane		22		22		15
New Local Street		0		0		23
New-Road Off-Street		0		0		12
Parsonage Lane		3		3		0
Kehoe Design & Sign	3		3		2	
Fit Werz	3		3		2	
Cabin Fever Quilts	8		8		2	
No Wirz	5		5		2	
Village Grocery - Rear Lot	15		15		0	
Village Grocery - Front and Side Parking	13		9		7	
Total Private or Public	131	33	129	49	97	79
Percent Share Public and Private	80%	20%	72%	28%	55%	45%

The impact of the New Local Road on parking is shown for information only. The New Local Road is not supported in this study due to opposition from the public and Selectboard.

Table 21: Study Area Change in Private and Public Parking

	Total Parking Spaces			Change Relative to Existing		
Scenario	Private	Public	Total	Private	Public	Total
Existing	131	33	164			
Short-Term Plan	129	49	178	-2	16	14
Long-Term Plan	97	79	176	-34	46	12

Summary of Parking Facility Recommendations

Bridge Street Marketplace Lot – This lot is a private facility owned by the Bridge Street Marketplace. However, it serves almost like a public facility because there are no posted restrictions, and patrons to the businesses at the Bridge Street Marketplace may also be visiting other nearby shops and services. Because the concept plan would not increase the number of parking spaces, and there is no existing need for more parking, there is no immediate need to reconstruct the parking lot as suggested in this report.

Because the Bridge Street Market Place lot is arguably the most important single parking facility in the Village, the Town, public, and other Village businesses have an interest in keeping it available for public use. In the short-term, the Town should consider negotiating a lease agreement with the owners of the Bridge Street Marketplace that ensures a number of parking spaces remain available for unrestricted public use. In the long-term, the Town should purchase the parking lot to allow

implementation of a plan similar to the one recommended in this document that reorganizes the lot, provides an opportunity to create a riverside park in the village, and helps improve local circulation.

Waitsfield Church Parking Lot – Given the abundance of existing parking, construction of an official parking lot behind the Waitsfield Church is not recommended at this time.

Village Grocery Parking Lot - Beyond the access management recommendations and associated changes along VT 100, no modifications are recommended to the rear Village Grocery Parking lot.

Use of Northern Parking Lots for Special Events – The Waitsfield Elementary School, General Wait House Parking Lot, rear lot of the Mad River Valley Ambulance, and the green next to the General Wait House should be used to accommodate excess parking demand during special events. In the short-term, use of these lots can be encouraged by charging a fee for parking near the Village core while parking in the northern end of the Village is free. In the long-term, the VT 100 Transportation Path and other enhancements will make walking from the northern end of the Village to its core more safe, interesting, and pleasant and will encourage further use of these lots.

Expanding Public Parking – The amount of on-street parking will increase with implementation of the sidewalk and access management improvements along VT 100. The pubic parking will be further increased with the possible purchase of the Bridge Street Marketplace parking lot.

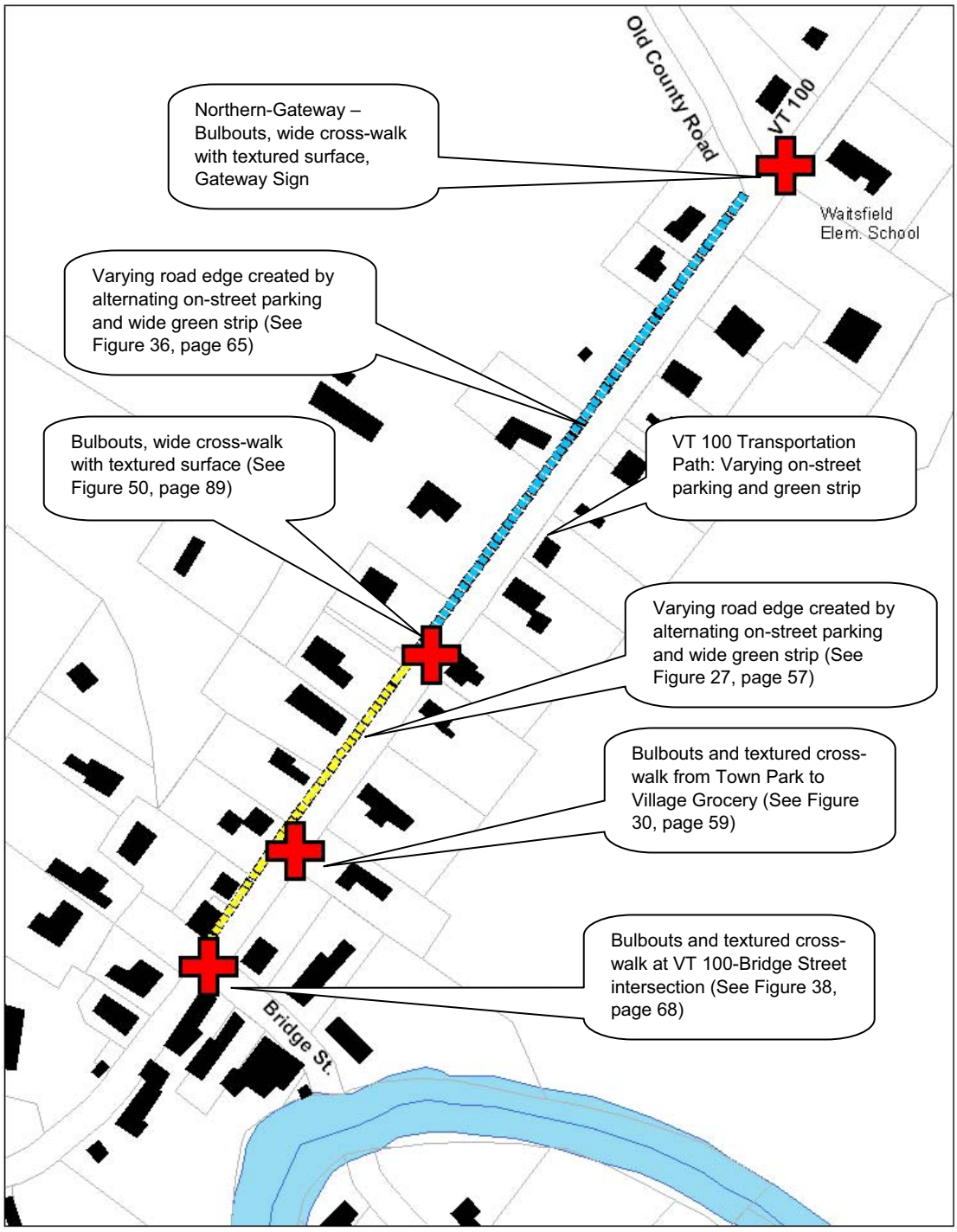
3.5 TRAFFIC CALMING AND ENHANCEMENTS FEATURES

The cross-section improvements recommended along VT 100, the New Local Street, modifications recommended at the VT 100-Bridge Street intersection, and parking facility changes all include various enhancements that will improve aesthetics, access and mobility for pedestrians and cyclists, and will help slow traffic on VT 100 through the Village. This section describes the traffic calming and enhancement features that are incorporated into the recommendations of this study.

Traffic Calming Features

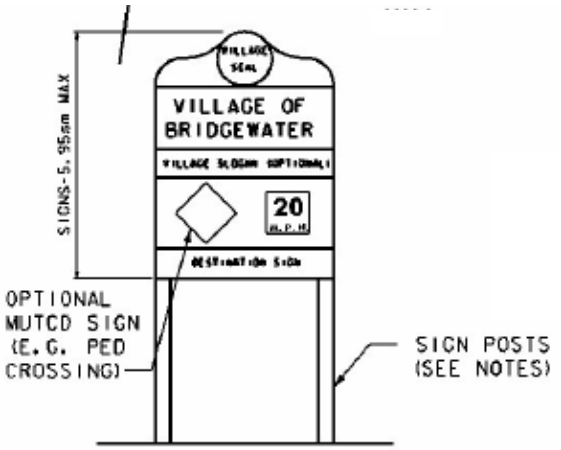
Figure 48 shows the location of all design elements that will help slow traffic passing through the Village. Traffic calming is can be achieved by using gateway treatments at the northern and southern ends of the Village and improvements to the roadway cross-section that change the fundamental character of VT 100 from a rural, high speed facility designed to move traffic, to a Village main street and multimodal facility designed to accommodates pedestrians, cyclists, on-street parking and vehicles moving at slower speeds.

Figure 48: Recommended Traffic Calming Features



Northern and Southern Gateways – Gateways provide a visual cue that speeds should be reduced and are recommended at the edges of towns and villages where the transitions from highway speeds to town speeds are desired. Gateways must be distinctive to be effective and should include vertical elements as well as changes to the roadway cross-section. Gateways to European villages sometimes include vertical structures (towers on each side of the road for example), rough road surfaces, or dramatic signage. Center islands are believed to enhance the effectiveness of a gateway by deflecting traffic (*Traffic Calming: State of the Practice*; ITE/FHWA, August 1999).

Figure 49: Example Gateway Sign



Source: *Traffic Calming and Approval Process for State Highway* (September 2001)

A center island poses issues for snow removal in Vermont. Therefore, the bulbouts with a wide textured cross-walk, in combination with a gateway sign similar to the one shown in Figure 49, are proposed as a better local solution for the northern and southern entrances to Waitsfield Village. The signs will remind drivers that they are entering a village. The bulbouts and cross-walks will create the appearance that the roadway is narrowing and will tell drivers to expect pedestrians. In the long-term, the additional buildings envisioned as part of a larger gateway redevelopment vision (See Figure 37 on page 64) will provide the vertical elements to make the northern gateway most effective.

As noted in VTrans *Traffic Calming and Approval Process for State Highway* (September 2001), the gateway sign identifies a change in roadway character from a rural to more densely settled area, helps orient the driver, and may help reduce speeds. If the gateway sign is located in the state right-of-way, it must comply with the Manual on Uniform Traffic Control Devices. This requirement would limit design options. If more creative designs are desired, the gateway sign would need to be located outside of the state's right-of-way.

Changing the Character of the Roadway – Adding sidewalks, green-strips, on-street parking, and bicycle lanes to the roadway right-of-way changes the charter of the road in a manner that, arguably, causes motorists to slow down. As noted in Traffic Calming: State of the Practice (ITE/FHWA, August 1999): "The effects are more psychological (not physical as with vertical and horizontal deflection) because the motorist perceives that the road no longer belongs exclusively to motor vehicles".

In addition to these roadway cross-sectional changes, the mid-block bulbouts and pedestrian crossings at Valley Player's Theatre and between the town park and Village Grocery create neck downs that provide additional reminders to slow down as vehicles approach the Village core. The message is reinforced further with the curb-extensions proposed at the VT 100-Bridge Street

intersection. The curb extensions at the intersection will also encourage vehicles to move more slowly as they turn between VT 100 and Bridge Street, and VT 100 and Farr Lane.

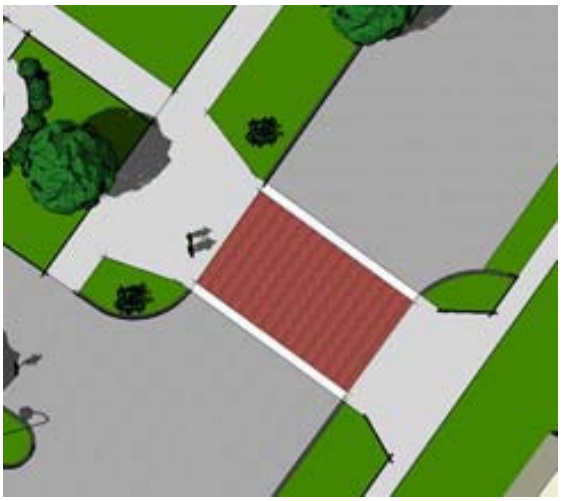
The VTrans *Traffic Calming and Approval Process for State Highway* identifies neck-downs, curb-extensions, and on-street parking as traffic calming devices to use along state highways. The advantages and disadvantages of each are summarized in Table 22. The final design of the neck-downs, curb extensions, and pedestrian crossing will need to be consistent with the applicable VTrans standard drawings.

As the name implies, the VTrans *Traffic Calming and Approval Process for State Highway* describes a process for developing and implementing a traffic calming plan along state highways that has local buy-in and is approved by the state.

The Waitsfield Village Parking and Pedestrian Circulation Study has followed elements of the process – but was never intended to be a stand alone traffic calming plan. Most of the features that will help calm traffic will be implemented as part of other projects.

For example, the VT 100 Transportation Path will provide the bicycle lanes, improvements to on-street parking and sidewalk upgrades on the east side of VT 100. The west sidewalk could be pursued in two phases (Farr Lane to Valley Players Theatre, and Valley Players Theatre to Old County Road) which each include the on-street parking, bulbouts and cross-walks. The traffic calming improvements associated with the VT 100 Bridge Street intersection could also be part of stand-alone project at that intersection.

Figure 50: Bulb-Out and Mid-Block Cross-walks at Valley Player Theatre



The bulbouts and textured pedestrian crossings recommended at Valley Players Theatre could provide a safe environment for pedestrians, reinforces the multimodal nature of a village street, and reminds drivers that they are no longer on a high speed rural roadway. Exact location to be determined

Figure 51: Traffic Calming Features at VT 100-Bridge Street

The curb-extensions and textured cross-walks at this intersection will provide additional reinforcement for vehicles to slow down as they pass through the Village core while improving safety for pedestrians and aesthetics.

Table 22: Advantages and Disadvantages of Traffic Calming Devices

Device	*As applied in Waitsfield*	*Advantages*	*Disadvantages*	*How/If Waitsfield Plan addresses Disadvantage*
Mid-block Neck-down	Mid-block pedestrian crossings with bulbouts.	Improves visibility of pedestrians.	May lose on-street parking spaces.	On-street parking has been planned in conjunction with neck-downs
		Shortens the crossing distance for pedestrians.	May make it difficult to accommodate full bicycle lanes.	The 4 foot bike lane is maintained
		May reduce vehicle-pedestrian conflicts.	May impact drainage.	Address drainage in final design
		Landscaping and special pavement may enhance village area.	Requires provisions for maintenance and snow removal.	Town will need to account for additional maintenance
Curb Extension at Intersection	Bulbouts at VT 100-Bridge Street-Farr Lane intersection	May reduce vehicle-pedestrian conflicts.	May make it difficult to accommodate full bicycle lanes.	3 foot shoulder for bicycle travel is maintained on VT 100
		May visually enhance the street, especially if landscaped	May impact drainage.	Address drainage in final design
		Vehicle speeds may decrease.		
		Shortens the crossing distance for pedestrians.		
		Improve visibility of pedestrians.		
On-Street Parking	Provided along both sides of VT 100 and on Bridge Street	May reduce travel speeds depending on extent of use	On-street parking can reduce the visibility of pedestrians and vehicles to each other.	The bulbouts improve visibility for pedestrians
		Parked vehicles provide a buffer between traffic and pedestrians on sidewalks. This provides a comfort level for pedestrians that can be particularly important in commercial or village areas.	Increased risk of suddenly opened doors hitting cyclists or vehicles where the adjacent travel lane is narrow.	The 4 foot bike lane reduces the risk

Other Enhancements

In addition to the sidewalks, cross-walks, green strips, and bike lanes along VT 100, the potential for a riverside park behind Bridge Street Marketplace, and the northern Village Gateway park, as described in previous sections of this report, the following enhancements are also recommended:

Valley Players Theatre Pocket Park A pocket park is recommended in front of Valley Player's Theatre. This park will enhance the entrance to the Theatre and also provides a focal point for the center of the Village. The pocket park is intended to break-up the walk between the northern gateway to the Village and the Village core by providing a resting spot and point of interest for pedestrians. The existing monument located on the narrow town owned parcel adjacent to the theatre could be situated in the park as shown in Figure 52 **(At the September 28, 2005 public meeting, representatives from the Valley Players Theatre expressed strong opposition to including the monument)** The park would also form one corner of the intersection of the New Local Street with VT 100.

Figure 52: Valley Players Theatre Pocket Park

Street Plaza between Mad River Lodge and Village Grocery. The Village Grocery is an active spot in the Village core on almost every day of the week. The Mad River Lodge provides a meeting space for different special events. This recommendation takes advantage of the fact that that people already congregate in this area. The red area shown Figure 53 should be constructed with brick pavers to create the feel of a plaza. The green-strip that would be provided along VT 100 north of the Village Grocery would be eliminated to allow more space for pedestrians to congregate. Some street trees could be provided in this area along with benches and other street furniture. These improvements will enhance the bus stop, provide a public space for people to sit and eat lunch, and will create a sense of place at the corner.

Figure 53:Short-term Street Plaza-Mad River Lodge to Village Grocery

Figure 54: Long-term Street Plaza-Mad River Lodge to Village Grocery

Pedestrian Scale Lighting. Figure 55 below shows the "cobra head" style overhead lighting found along VT 100 in the study area. Although these lights can provide strong illumination, some of the lamps are surrounded by tree limbs which block much of the light before it reaches the ground and results in scattered shadows around the street. Additionally, because these lights are mounted relatively high, they cast their light across a broader area, increasing the potential for light pollution. The cobra head lights are also spaced with vehicles in mind.

Figure 55: Existing Street Lighting

Figure 56: Sample Pedestrian Scale Decorative Lighting with Overhead Light Shields

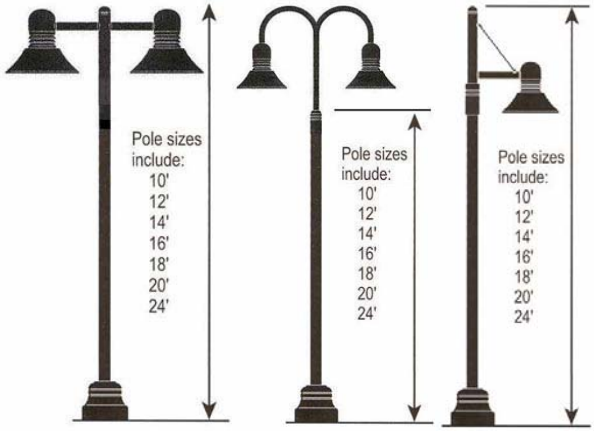


Figure 56 provides some examples of decorative pedestrian scale pedestal lights with overhead shields to direct their light downward to minimize the amount of light pollution. A style appropriate for Waitsfield Village should be selected during final design. A more formal lighting study should be conducted to determine the appropriate light styles and locations to ensure appropriate lighting levels are provided, as well as life-cycle costs of various bulb types, and electrical service availability.

Street Trees. As recommended in the 2000 Waitsfield Street Tree Master Plan, street trees should be placed in the green strip between the roadway and sidewalk wherever possible.

Underground Utilities: As demonstrated in Figure 55, the utility poles and associated line utilities are aesthetically unpleasing and consume valuable green space. All utilities should be placed underground through the Village.

4.0 IMPLEMENTATION PLAN

The implementation plan is presented in Table 23. It includes a timeline for when a project could be constructed, an order of magnitude cost estimate, potential funding sources, project partners, and additional notes and next steps. These components are described in more detail following the table.

Table 23: Implementation Plan

		ESTIMATED TIMELINE						
		Short Term (<5 years)	Mid Term (5-10 Years)	Long Term (> 10 years)	Cost Estimate (Order of Magnitude)	Potential Funding Sources **	Project Partners	Next Steps and Other Notes
SIDEWALK, ACCESS MANAGEMENT, AND ROADWAY PROJECTS								
VT 100- Farr Lane to Valley Players Theatre (VPT)	West Sidewalk, Green Strip, Access Modifications, and On-Street Parking	X			$208,000	Bike/Ped,TE	Town, VTrans, Property owners along VT 100	Submit application for funding through the VTrans Bicycle and Pedestrian Program.
At Village Grocery	VT 100 Painted Cross-walk w/ Bulbout	X			$9,000	Bike/Ped,TE, Downtown	Town, VTrans	
At Valley Players Theatre	VT 100 Textured Cross-walk and Bulbout	X			$14,000	Town, VTrans	Town, VTrans	
VT 100: VPT to Old County Road	West Sidewalk, Green Strip, and On-Street Parking		X		$173,000	Bike/Ped,TE	Town, VTrans, Property owners along VT 100	No immedeiate action required
VT 100 at Old County Road	VT 100 Textured Cross-walk and Bulbout/Gateway	X			$10,000	Bike/Ped,TE, Downtown	Town, Vtrans	Complete before northern sidewalk segment to start traffic calming as soon as possible
VT 100-Bridge Street Intersection	Curb extensions-No Traffic Signal	X			$99,000	STP, TE, Downtown	VTrans, Town	Identify intersection in CVRPC plan to begin positioning it as a VTrans project
VT 100-Bridge Street Intersection	Add traffic signal		X		$175,000	STP	VTrans	Conduct traffic signal warrant analysis
OFF-STREET PARKING FACILITIES								
Bridge St Market Place	Purchase Lot and Reconstruct		X		$357,000	Municipal, Downtown	Town, Bridge Street Marketplace owners	Town should consider leasing spaces for public use. Meet with Bridge Street Marketplace to dicuss long-term options
Between Fit Wirz and No Wirz	New Lot in conjunction with New Local Street			X	$36,000	Municipal, Downtown	Town	No immediate action necessary
Waitsfield Church	New Parking Lot			X	$86,000	Muncipal, Downtown	Town, Church	No immediate action necessary
Northern Lots	Encourage use of northern lots by charging a fee for special event parking in the Village Core	X			No capital costs	Town and a local organization that wants to raise some funds	Town, Chamber of Commerce, Local Groups, Bridge Street Marketplace owners, Village Grocery, Mad River Valley Ambulance	Find local group that is willing to facilitate the parking, get organized, and impement in 2006 Baked Beads day
OTHER ENHANCEMENTS								
Valley Player Theatre	Pocket Park		X		$16,000	TE, Municipal, Downtown	Town, Valley Players Theatre	Discuss concept with Valley Players Theatre
General Wait House	Village Gateway Park		X		$31,000	TE, Municipal, Downtown	Town, Chamber of Commerce	No immedeiate action necessary
Farr Lane to VPT	Lighting	X			$200,000	TE, Municipal, Downtown	Town, VTrans	Should be part of south sidewalk project
Farr Lane to VPT	Street Trees	X			$86,000	TE, Municipal, Downtown	Town, VTrans	Should be part of south sidewalk project
VPT to Old County Road	Lighting		X		$180,000	TE, Municipal, Downtown	Town, VTrans	Should be part of north sidewalk project
VPT to Old County Road	Street Trees		X		$23,000	TE, Municipal, Downtown	Town, VTrans	Should be part of north sidewalk project
Underground Utilitties	Street Trees		X		$1.6 - $3.6 Million	Municipal	Town, VTrans	Coordinate with waste water system upgrades

* VPT = Valley Players Theatre
** Funding source abreviations are explained below.

The estimated timeline provides a rough approximation of when the recommendation(s) could be implemented or constructed. This timeline considers the time necessary for additional design work and permitting.

The cost estimate provides an order of magnitude cost for engineering, right-of-way acquisition if necessary, and construction of the recommendation(s). In many instances, VTrans average unit prices, and national data sources. The cost estimates include 15% for engineering and design work plus a 100% contingency. Although significant, this contingency was assumed to account for the uncertainty associated with the level of detail and to for a local desire as expressed by the steering committee members to use high quality material whenever possible. The cost estimates should be used for planning purposes only. Appendix F contains additional detail on the cost estimates.

The potential funding sources identify financing opportunities appropriate for each of the recommendations. The funding sources include:

- **(BIKE/PED) VTrans Bicycle and Pedestrian Program:**
  To be eligible for funding in this category, projects must have completed the preliminary planning stage and have a completed feasibility study or equivalent type study.

  Project Construction funding is intended to assist in the development of bicycle and pedestrian facilities. This includes activities that enhance the transportation system through the building and improvement of existing facilities to make them more usable and friendly for pedestrians and bicyclists. Projects based solely on the maintenance or repair of existing facilities (i.e. repaving or rehabilitation of sidewalks and multi-use paths) are not eligible for funding assistance through this program. Upgrades or expansions of existing facilities may, however, qualify for funding assistance if the proposed work is clearly shown to be beyond the scope of routine maintenance and repairs to the facility.

  Applications may include spot improvements such as the addition of bike racks, rest areas, information kiosks and signs as well as lane widening and other construction-based improvements. Projects should focus on the elimination of barriers to bicycling and walking and implementation of a continuous network of bicycle and pedestrian facilities throughout the community. Applications with the following emphasis will be considered favorably:
    - connectivity to other bicycle and pedestrian facilities
    - proximity and access to and within village centers and downtown areas
    - multi-town, multi-regional projects
    - projects that demonstrate a strong relationship to economic development
    - Projects that enhance larger transportation projects and which resolve conflicts between users of different modes in favor of bicyclists and pedestrians are strongly encouraged.

More information is available at: http://www.aot.state.vt.us/progdev/Sections/LTF/LTF.htm

- **(TE) Transportation Enhancements Program:**
  Federal reimbursement grants for projects that enhance multi-modal transportation goals in the areas of historic preservation, bike and pedestrian paths, scenic protection, archeological planning, mitigation of highway water runoff, tourist and welcome centers, and transportation museums. Preservation projects must have a direct, evident and strong

relationship to the surface transportation system. Proximity to a road alone is not sufficient. Buildings listed in the National Register and/or located within a state scenic byway or along an alternate designated scenic or historic route are most competitive. Project costs range from $10,000 to approximately $350,000 and a 20% non-federal fund match is required. Local, state and federal governments and non-profit organizations may apply

- **(STP) Surface Transportation Program/VTrans Capital Program:**
  VT 100 and the VT 100-Bridge Street intersection is part of the state highway system. Projects can therefore be funded through the Surface Transportation Program (STP). STP funds have the most flexible uses of any federal transportation funds. STP funds may be used for highway, transit, and non-motorized facility construction and improvements. Facilities must be classified by the State as eligible for federal-aid, although sidewalk projects on local roads that are not on the federal-aid system may also be eligible for STP funding. The non-federal match is 20 percent. For projects that are completely on the state system, the state typically covers the 20% match. When local road or bridges are involved, a local match of 10-20% may be required depending on the classification of the highways involved and other factors.

  Projects utilizing STP funds are typically prioritized by a regional planning commission relative to other projects in a region and must pass through the VTrans scoping and project development process. The project development process may take several years and does not necessarily guarantee that funds will be waiting when the studies are completed. This type of funding source is not recommended for a project that needs to be implemented in less than five years.
- **(MUNICIPAL) Local Funds through the Municipal Capital Budget:**
  The municipal capital budget can be used to match Federal or State funded projects, or to finance all of a project. The particular projects may be identified in advance through a municipal Capital Improvement Plan and should be included in the appropriate budget year(s) for approval at Town Meeting. Larger projects, such as the New Local Street, are often funded through municipal bonds.

  The Vermont Municipal Bond Bank (VMBB) is a quasi-state agency administered by a board of directors that includes four members appointed by the Governor and the State Treasurer. VMBB operates by purchasing a bond from a municipality such as the Town of Waitsfield. The municipality must have approved the issue of the bond by vote of the legislative body, which, for the Town of St. Albans, is the Town Meeting[1]. The VMBB bundles together several individual municipal bonds and sells them as a package to individual or institutional investors. In this way VMBB can secure preferential rates for its municipal Vermont clients.

  Bond transaction costs are assumed by VMBB, which is an important advantage of this source of financing. The interest rate accompanying any bond issue is determined at the date of sale. Bond payback terms are typically 20 years for highway-related improvements and 30

[1] This could be a special Town Meeting or part of the annually scheduled Town Meeting. Pursuing a Town Meeting vote on this subject should follow a Selectboard resolution regarding the necessity of making the proposed improvements.

years for water/sewer improvements. Payments are made on a monthly basis, and can be calculated for level or declining principal balance.

Local governments have several options available to raise revenue for paying back a bond. The most common options are briefly described below. Careful review of the advantages of each method, including reliable estimates on how these options affect local tax rates, is necessary before selecting an appropriate funding mechanism.

Special Assessment Tax District: A special assessment district can be created where property owners, which presumably benefit from the investment, pay a special tax to cover the cost of bond payments. Special assessment districts could be established for a designated area of the town or can be designated town-wide.

Tax Increment Financing District: A tax increment financing district (TIF) can be established that dedicates the non-school taxes generated by increased property value to paying off the bond. A TIF is most appropriate where property values are expected to increase significantly.

Transportation Impact Fees. Through impact fees, new developments pay a 'fair-share' of the costs related to updating and improving infrastructure based on the amount of 'impact' the development would have on that infrastructure.

Local Option Sales Taxes: The State of Vermont allows the following taxes to be collected as part of the Local Option Sales Tax: A one percent sales tax; a one percent meals and alcoholic beverages tax; and a one percent rooms tax. LOST is permitted for VT municipalities that were affected a certain way by Act 60 and Act 68. The legislature is considering a bill that will make LOST available to all VT municipalities.

- **(DOWNTOWN) Downtown Transportation and Related Capital Improvement Fund:**
  The Downtown Development Act (24 V.S.A. chapter 76A) creates the Downtown Transportation and Related Capital Improvement Fund (Downtown Transportation Fund). Any municipality with a designated downtown or village district may apply to the Downtown Development Board (Board) for financial assistance from this fund to finance eligible transportation-related capital improvements in support of economic development, within or serving the downtown district. The funds are awarded for projects on a one-time basis, and no municipality can receive more than $75,000 in any fiscal year. Eligible projects must be publicly-owned, and may include, but are not limited to: construction or alteration of roads and highways, parking facilities, pedestrian and streetscape improvement, rail or bus facilities or equipment, and underground relocation of electric utility, cable and telecommunications lines. More information can be found at: http://www.dhca.state.vt.us/DHP/programs/downtown.html.

  The Town has not requested that Waitsfield Village be designated as an village district under this program. However, if the Town chose to seek designation of Waitsfield Village as a "designated village", the grant opportunities available through program could be a source of funds for many of the recommendations in this report.

The Project Partners column identifies all parties that will need to be involved at some point in implementing the recommendation. In most cases, the Town will need to be the lead agency, as has occurred on the VT 100 Transportation Path.

The Next Steps column suggests some immediate action that could occur for most recommendations to start the process of implementation.

5.0 SUMMARY

This report documents the existing conditions in the study area, summarizes the key issues to be addressed, and presents a comprehensive set of pedestrian and bicycle facility improvements, intersection and roadway modifications, and parking facility recommendations for Waitsfield Village.

The study area is located in Waitsfield Village along VT 100 and Bridge Street. It is anchored by the VT 100-Bridge Street intersection in the south and extends approximately 0.40 miles to the southern most intersection of VT 100 with Old County Road.

The study identifies issues related to pedestrian safety and accessibility within the Village, the need for better defined commercial driveways along VT 100, limited sight distance and growing levels of congestion at the VT 100-Bridge Street intersection, and concern for the overall safety of people moving within the Village. An analysis of parking demand and supply determined that there are a sufficient number of parking spaces to satisfy current and future peak demand on a typical weekday. However, special events can overwhelm the parking supply, especially near the Village core around the VT 100-Bridge Street intersection.

The recommendations include a new sidewalk along the west side of VT 100 from Farr Lane to Old County Road. The sidewalk project should be divided into southern and northern sections at the Valley Players Theater. The sidewalk project is consistent with the VT 100 Transportation Path and would also include modifications to commercial driveways, on-street parking, and a green strip.

The report also suggests a different layout for the Bridge Street Marketplace parking lot and a more formal parking lot behind the Waitsfield Church. The study demonstrates that shared parking is important to meeting the parking demands in the Village and recommends a shift from privately owned to public parking over time. To address special event parking, the study recommends charging a fee for parking near the Village core while parking in lots located at the northern end of the Village would be free.

The concept designs developed for the sidewalk and roadways incorporate several elements that will help slow traffic through Waitsfield Village on VT 100 such as gateways, mid-block pedestrian crossings with bulbouts, curb-extensions at the VT 100-Bridge Street intersection with textured pedestrian crossings, and intermittent on-street parking. The study also recommends several enhancements such as a pocket park at Valley Players Theatre, increased public space between the Mad River Lodge and Village Grocery, street lighting, and street trees.

An implementation plan is presented that includes a timeline for when a project should be constructed, an order of magnitude cost estimate, potential funding sources, the partners involved in the project, and next steps.

The total cost of all recommendations, excluding the cost to place utilities under ground, is $1.7 million. The cost for underground utilities is between $1.6 to 3.6 Million.

This cost does not include: the New Local Street (approximately $605,000), purchase and reconstruction of the Bridge Street Marketplace parking lot, or purchase and reconstruction of land behind the Waitsfield Church for a new parking lot.