RSG INC.
RESOURCE SYSTEMS GROUP, INC.

Documentation for:

BENNINGTON VT 67A/7A ACCESS MANAGEMENT STUDY:

FINAL REPORT

Prepared for:

Bennington County Regional Commission

25 January 2005

331 Olcott Drive, White River Junction, Vermont 05001

BENNINGTON VT 67A/7A ACCESS MANAGEMENT PLAN

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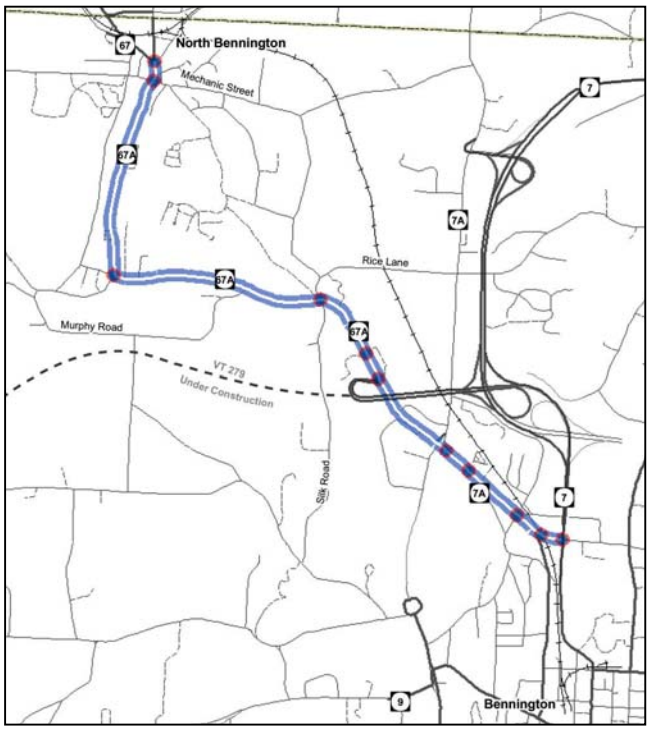
EXECUTIVE SUMMARY

The purpose of the VT 67A/7A Access Management Plan is to improve the efficiency and safety of VT 7A and VT 67A from US 7 in Bennington north to VT 67 in North Bennington using access management techniques. An important goal of this study is to build an understanding of the dynamic relationship between access management and traffic flow and to target specific access management applications that can improve efficiency and safety through the study area.

Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. Effective access management is built upon the following principles:

- Provide a specialized roadway system based upon mobility for through traffic and access to adjacent land;



Study Corridor & Intersections

- Provide appropriate intersection design, control, and spacing to provide efficient transitions from one roadway classification to another;
- Limit direct access between adjacent land uses and higher speed roads while promoting access between land use and minor, low speed roads;
- Limit or separate the number of conflict points between traffic entering and exiting driveways and streets; and
- Remove turning traffic from through traffic lanes.

This study accomplishes the following objectives:

- Evaluates existing land use and transportation system issues and concerns;
- Estimates twenty-year development scenarios for parcels adjacent to VT 67A/7A within the study area and identifies land use, traffic, and access management issues for the year 2025;
- Analyzes and develops sketch plans to address identified access management deficiencies;
- Presents and recommends different administrative techniques to help implement effective access management techniques through municipal plans and regulations, and coordination between Bennington, North Bennington, and the Vermont Agency of Transportation.

This study was a joint effort between the Bennington County Regional Commission (BCRC), the Town of Bennington, and the Village of North Bennington using funds provided through the VTrans Transportation Planning Initiative program.

SUMMARY OF EXISTING CONDITIONS

- An analysis of existing zoning regulations and land use conditions revealed that only four parcels abutting the corridor do not currently have a driveway onto either VT 67A or VT 7A. In fact, one of these parcels already shares an access driveway with abutting parcels, and two do not have necessary frontage along VT 67A to permit a new curb cut. Thus, with no additional subdivision along the corridor and no changes to driveway permitting regulations, there can only be one new driveway added along the corridor.
- Although the Northside Drive section of VT 7A is classified as a minor arterial, the density of development and frequent curb cuts along Northside Drive compromises the road's ability to provide mobility for through traffic.
- Traffic volumes along the study corridor are increasing at approximately 1% per year, with the highest total volumes along Northside Drive.
- Between 1997 and 2001, there were 234 reported accidents along the study corridor. 40% of these accidents were "rear-end" accidents suggesting that poor access management along the corridor may be a contributing factor.
- A number of studies have examined various portions of this corridor – but the synergy or potential conflict between their recommendations has not been examined comprehensively.
- Access management deficiencies such as inadequate spacing between driveways and intersections, inadequate spacing between driveways, lack of well-defined edges, and multiple access points for individual parcels were identified in the following ten focus areas:
    1) VT 67A (Water Street) at VT 67 (Bank Street) in North Bennington;
    2) VT 67A (Water Street) adjacent to West Street and the North Bennington Common;
    3) VT 67A (Water Street) adjacent to National Hanger and Krone Optical;
    4) VT 67A (Water Street) adjacent to the Bennington County Business Incubator;
    5) VT 67A (Water Street) in the vicinity of the River Road intersection;
    6) VT 67A in the vicinity of Paper Mill Village;
    7) VT 67A at the Bennington College Driveway / Mattison Road intersection;
    8) VT 7A (Northside Drive) in vicinity of the VT 67A-VT 7A intersection;
    9) VT 7A (Northside Drive) in the vicinity of Monument Plaza; and
    10) VT 7A (Northside Drive) in the vicinity of Hicks Avenue.

SUMMARY OF FUTURE CONDITIONS

- Over the next twenty years, traffic growth along the corridor will be driven primarily by background traffic growth attributable to residential and commercial development outside of the corridor (83%) with the remainder of the corridor's traffic growth generated by development along the corridor (17%).
- The completion of VT 279 is projected to result in a net 20% *decrease* in traffic on Northside Drive and a 5% *increase* in traffic on VT 67A north of VT 279.
- The southern half of the study area is anticipated to remain the commercial and retail hub for the region, while the prominence of the Water Street segment of VT 67A for employment is anticipated to increase over the next twenty years. Both of these trends will result in an increase in both local and regional traffic traveling through the corridor.
- The statewide average twenty-year growth rate for rural primary and secondary highways is 31%. The average growth rate for the study area was calculated to be 27%, which is slightly below the statewide average.
- The following intersections are anticipated to have at least one congested (i.e. Level of Service E or F) movement in 2025:
    - VT 7A-Emma Street-Price Chopper (Signalized)
    - VT 7A-Hicks Avenue-Willow Road (Signalized)
    - VT 7A-US 7-Kocher Drive (Signalized)
    - VT 67 - VT 67A (Unsignalized)
    - VT 67A - West Street - Prospect Street (Unsignalized)
    - VT 67A - River Road - Hillside Street (Unsignalized)
    - VT 67A - Mattison Road - Silk Road - Bennington College (Unsignalized)
- The additional traffic volumes generated over the next twenty years are projected to lead to decreased average speeds, increased travel times, and increased delays throughout the corridor.
- In 2025, an additional 7 accidents per year can be expected along the study area due to the increased traffic volumes. This increase could potentially be off-set by reducing the number of driveways along the corridor by 25% (from 52 to 43 driveways).

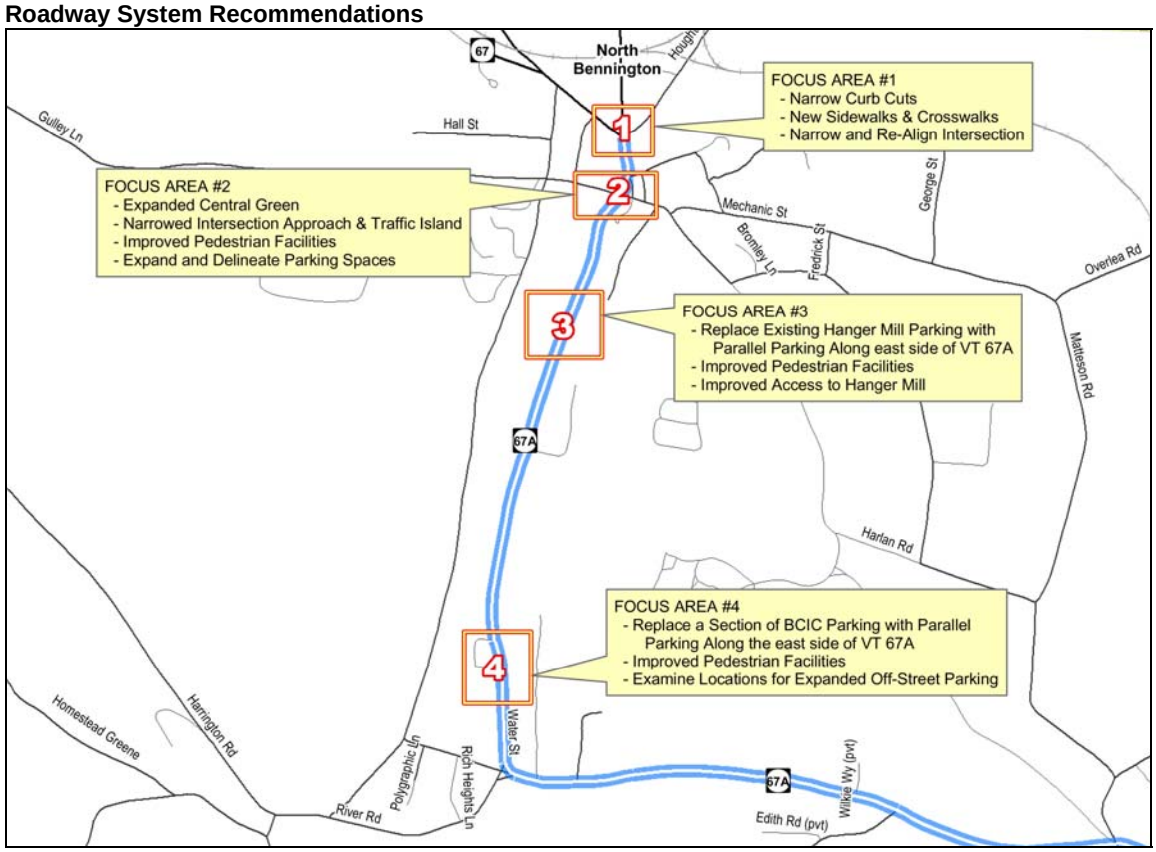
SUMMARY OF RECOMMENDATIONS

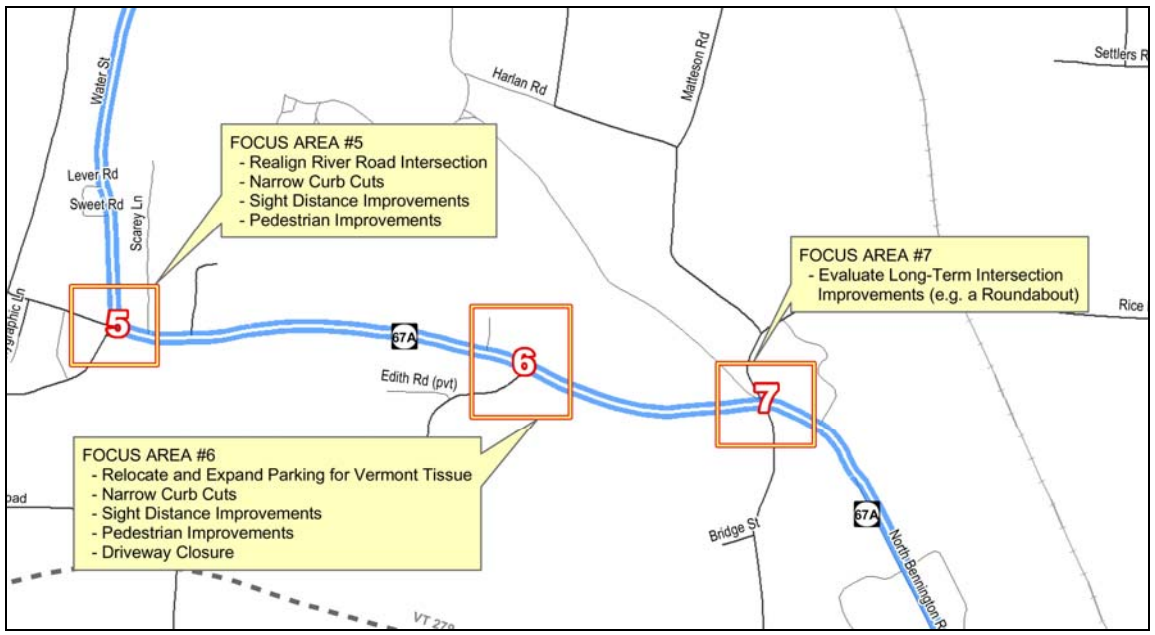
- Improving access design and driveway location can be accomplished through municipal plans, regulations, and the development review process. In addition, to ensure that access management requirements are fairly, effectively and consistently applied, there is a need to improve the

coordination between VTrans and the local officials responsible for adopting and administering local road ordinances and land use regulations.

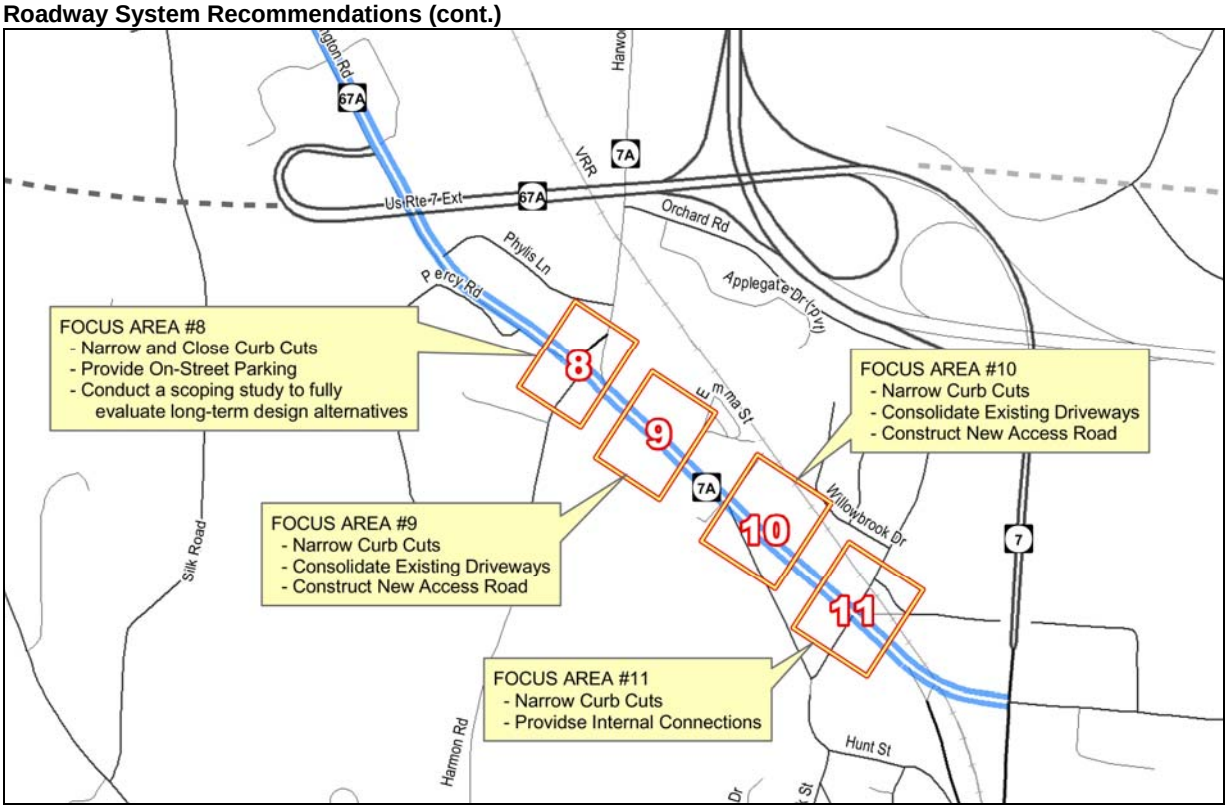
- As of the drafting of this report, VTrans is preparing to begin a major reconstruction of Water Street from River Road to West Street. All of the approved recommendations along Water Street should be forwarded to the appropriate VTrans project manager for inclusion in the reconstruction project.
- Continue to work with VTrans to pursue a long-term solution for the VT 67A-Mattison Road-Silk Road-Bennington College intersection.
- Work with the Bennington County Regional Commission's Transportation Advisory Committee and VTrans to revise the following access management classifications:
    - VT 67A (Water Street) from River Road to West Street from Class 3 to Class 6;
    - VT 67A from Phylis Lane to the northern limit of the Planned Commercial zoning district from Class 3 to Class 2.
- The North Bennington Village Trustees and Planning Commission should review the Policy and Regulatory Access Management Recommendations from Section 5.2 as they revise and update their Village Plan and Zoning Ordinance.
- Add new signs along VT 67A north of the VT 279 interchange indicating the best route to US 7, downtown Bennington, and VT 9 via VT 279 and US 7, to divert some through trips off of Northside Drive.
- Sketch plans have been developed for each of the eleven identified access management focus areas that present potential solutions to the identified problems. These sketch plans provide concepts that may be implemented as opportunities arise – such as a VTrans reconstruction project or redevelopment of an existing development. Summaries of the individual recommendations are shown on the maps on the following pages. Detailed sketches are provided in Section 5.1.

Roadway System Recommendations





Roadway System Recommendations (cont.)



IMPLEMENTATION MATRIX

An implementation matrix has been developed for each of the recommendations developed in this report. The tables on the following pages list each recommendation by focus area and include the following details:

- Estimated timeline (i.e. short term, intermediate, long term)
- Order of magnitude cost estimate
- Implementing party(s)
- Relevant notes related to the recommendation

Implementation Matrix - Part 1

Focus Area	Recommendation	ESTIMATED TIMELINE: Short Term (<2 years)	Mid Term (<5 years)	Long Term (>5 years)	Cost Estimate* (Order of Magnitude)	Potential Funding Sources**	Implementation	Notes/Comments
1 - North Bennington / Bank Street	Add new crosswalks across VT 67, VT 67A, and Houghton Street.	X			↑	TE, STIP (Bike/Ped), Municipal	North Bennington, VTrans, BCRC	From *Village Center Improvements*, Engineered Solutions, 2003
	Narrow access to gas station. Provide two-way driveway onto Bank Street and exit-only drive onto VT 67A.		X		$125,000	TE, STIP, Municipal, PO	North Bennington, VTrans, BCRC, Property Owners	
	Narrow pavement at Bank Street approach to VT 67A to provide a more typical "T" shaped intersection.		X		↓	TE, STIP, Municipal	North Bennington, VTrans, BCRC	
2 - North Bennington / Lincoln Square	Expand central green.		X		↑	TE, STIP, Municipal	North Bennington, VTrans	From *Village Center Improvements*, Engineered Solutions, 2003
	Construct a new traffic island and narrowed approach at the West Street approach to Water Street.	X			$85,000	TE, STIP, Municipal	North Bennington, VTrans	
	Add curbed bump outs along Prospect Street and along the Main Street storefronts.		X		↓	TE, STIP, Municipal	North Bennington, VTrans	
3 - Water Street / National Hanger Mill	Replace existing head-in parking north of mill with parallel parking along the east side of VT 67A.	X			$50,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	North Bennington, VTrans, BCRC, Property Owners	- Parallel parking will result in increased snow removal costs. - Consider increasing lane width from two 11 ft. travel lanes to two 12 ft. lanes - BCRC needs to verify project with North Bennington
	Provide sidewalks adjacent to east side parking lane.		X		$10,000	TE, STIP (Bike/Ped), Municipal, PO	North Bennington, VTrans, BCRC	
	Pave 20 foot apron at the central mill driveway with center line and stop bar.	X			$5,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	Property Owners, North Bennington	
4 - Water Street / Bennington County Business Incubator	Replace existing head-in parking adjacent to the business incubator with parallel parking along the east side of VT 67A.	X			$70,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	North Bennington, VTrans, BCIC, BCRC	- Parallel parking will result in increased snow removal costs. - Consider increasing lane width from two 11 ft. travel lanes to two 12 ft. lanes
	Provide sidewalks adjacent to parking and crosswalks across VT 67A.		X		$20,000	TE, STIP (Bike/Ped), Municipal, PO	North Bennington, VTrans, BCRC	
	Purchase and use vacant parcel at northwest corner of VT 67A-Sweet Road intersection for additional parking.			X	$15,000	Municipal, PO	North Bennington, BCIC, Property Owner(s)	Cost does not include land purchase price
5 - Water Street / River Road / Hillside Street	Consolidate Hillside Street and River Road approaches to provide a more traditional "T" approach to Water Street.	X			NA	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S)	VTrans, North Bennington, BCRC	Project to be completed by VTrans in 2005
	Narrow existing southern delivery access to Bennington County Business Incubator with curbing and guard rail.		X		$2,500	Municipal, PO	BCIC, North Bennington, VTrans, BCRC	
	Lower the grade of VT 67A east of Scarey Lane.			X	$50,000	STIP (Resurfacing/Reconstruction)	VTrans, Bennington, BCRC, Property Owners	
	Continue sidewalk south along VT 67A and provide crosswalks across VT 67A and River Road.	X			NA	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S)	VTrans, North Bennington, BCRC	Project to be completed by VTrans in 2005
6 - Paper Mill Village	Remove current Vermont Tissue parking area along VT 67A and relocate to expanded parking lot east of building.		X		$10,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Add curbing to Vermont Tissue parking lot across VT 67A.	X			$5,000	TE, STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Add crosswalk across VT 67A.	X			$1,000	TE, STIP (Bike/Ped), Municipal	Bennington, VTrans, BCRC	
	Cut back the bank between the Vermont Tissue building and Murphy Road.	X			$5,000	STIP, Municipal, PO	Bennington, VTrans, Property Owners	
	Narrow and define Southern Vermont Tires' driveway using curbing and/or landscaping.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Close residential driveway at southeast corner of VT 67A-Murphy Road intersection.	X			$2,000	Municipal, PO	Property Owners, Bennington, VTrans	
	Narrow and define Smith's Variety Store's accesses using curbing and/or landscaping.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	

* Cost estimate is to be used for planning purposes only. Does not include preliminary engineering or right of way purchase costs.

** TE = Transportation Enhancement
STIP = State Transportation Improvement Program
Municipal = Municipal Capital Budget
PO = Property Owner(s)

Implementation Matrix - Part 2

Focus Area	Recommendation	ESTIMATED TIMELINE Short Term (<2 years)	Mid Term (<5 years)	Long Term (> 5 years)	Cost Estimate* (Order of Magnitude)	Potential Funding Sources**	Implementation	Notes/Comments
7 - Bennington College Entrance	Close existing Bennington College driveway and re-locate approximately 140 feet to the west.	X			NA	Completed	VTrans	Completed
	Add curbing and narrow the Mattison Road approach to VT 67A.	X			NA	Completed	VTrans	Completed
	Replace existing stop-controlled intersection with roundabout		X		$200,000	STIP, Municipal	Bennington, BCRC, VTrans	Based on 1996 VTrans Scoping Report
8 - VT 67A / VT 7A Intersection	Close curb cuts adjacent to Haynes & Kane along both VT 67A and VT 7A and provide on-street parallel parking			X	$20,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate curb cuts at the Northside Salon to provide one-way entrance from Northside Dr. and full access from Harmon Rd.		X		$5,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Provide a new access road to serve the American Legion and adjacent businesses connecting to the Vermont Quality Homes access drive.		X		$40,000	Municipal, PO	Property Owners, Bennington, VTrans	
	Remove the raised curb in front of the American Legion to improve internal circulation and close northerly driveway.	X			$2,500	Municipal, PO	Property Owners, Bennington	
	Relocate bridge railing along VT 67A east of Harmon Road to Improve sight distance for vehicles turning onto VT 67A from Harmon Road of Berard Street.	X			$10,000	STIP (Bridge Replacement & Rehabilitation)	VTrans, Bennington	To improve sight distance.
	Conduct a scoping study to fully evaluate long-term design alternatives to traffic flow at this intersection (to include roundabout and one-way flow options)		X		$30,000	VTRans Transportation Planning Initiative, Municipal	VTrans, BCRC, Bennington	
9 - Monument Plaza	Consolidate access points to the Best Western using curbing and landscaping treatments.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Remove closely-spaced driveways at the Bennington Lanes and Dairy Bar and provide access to Vermont Quality Homes access road.		X		$10,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Provide rear connection between Bennington Lanes and Emma Street to facilitate internal circulation.		X		$30,000	Municipal, PO	VTrans, Bennington	
10 - South of Monument Plaza	Narrow and define existing access to Ronnie's Cycle Sales from Northside Drive.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate, narrow and define curbing and access to Diner.		X		$2,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate access points to video store and gift shop and provide access via Pizza Hut lot and Waite Drive.		X		$5,000	STIP, Municipal, PO	VTrans, Bennington	
11 - Northside Drive / Hicks Avenue	Define existing driveways to Auto City with curbing and landscaping and provide one-way access from Northside Drive and one-way exit to Hicks Avenue.		X		$5,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	

* Cost estimate is to be used for planning purposes only. Does not include preliminary engineering or right of way purchase costs.

** TE = Transportation Enhancement
STIP = State Transportation Improvement Program
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1.0 INTRODUCTION

The purpose of the VT 67A/7A Access Management Plan is to improve the efficiency and safety of VT 7A and VT 67A from US 7 in Bennington north to VT 67 in North Bennington using access management techniques. A goal of this study is to build an understanding of the dynamic relationship between access management and traffic flow and to target specific access management applications that can improve efficiency and safety through the study area.

Access management is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. The purpose of access management is to provide reasonable or improved vehicular and pedestrian access to properties and development along a road corridor, while preserving the capacity of the road network to safely and efficiently handle traffic. Effective access management is built upon the following principles:

- Provide a specialized roadway system based upon mobility for through traffic and access to adjacent land;
- Provide appropriate intersection design, control, and spacing to provide efficient transitions from one roadway classification to another;
- Limit direct access between adjacent land uses and higher speed roads while promoting access between land use and minor, low speed roads;
- Limit or separate the number of conflict points between traffic entering and exiting driveways and streets; and
- Remove turning traffic from through traffic lanes.

1.1 STUDY ORGANIZATION, PUBLIC OUTREACH, AND REPORT FORMAT

This study was a joint effort between the Bennington County Regional Commission (BCRC), the Town of Bennington, and the Village of North Bennington using funds provided through the VTrans Transportation Planning Initiative program and BCRC. A project study committee reviewed drafts of project memoranda and assisted with technical and policy questions, local knowledge, and public outreach efforts.

Public outreach efforts included a joint meeting with the Bennington and North Bennington Planning Commission, public meetings in both Bennington and North Bennington, as well as a day-long staffed information table at the Price Chopper on Northside Drive in Bennington which provided background study information, answers to shopper's questions, and an invitation to attend that evening's public meeting.

The following summarizes major comments received at the 12 May 2004 meeting with the Bennington and North Bennington Planning Commissions:

- The State access management classification of US 7 north of Kocher Drive ("Super 7") has recently been reclassified as a Class 1 roadway.
- It was agreed upon to change the name of the "Access Management Focus Areas" to "Identified Deficiency Areas".
- Change the label for the American Legion building in Figure 12 from "VFW" to "American Legion".
- Jim Sullivan pointed out the past and current problems associated with the VT 7A-VT 67A intersection and suggested focusing particular attention on this intersection.
- Jim Sullivan suggested following up with VTrans and Clough Harbor to pass along any recommendations for the Water Street segment for incorporation into the reconstruction project.
- The sense of the group is that the study corridor is primarily used as an arterial to connect residents to the north and west with the retail/commercial and employment locations located along VT 67A and Northside Drive.
- Marty Cummings noted that he is working on a plan for bicycle connections along and adjacent to the study area.
- It was suggested that RSG send a survey form to residents/stakeholders in advance of the July public meeting so they can still provide comments without attending the meeting.
- David Saladino stated that the Technical Memorandum #2 should be mailed out by the end of June with a public meeting (at a location to be determined) scheduled for early July.

The following summarizes major comments received at the 14 July 2004 public meeting at the North Bennington Depot:

- Why not develop preliminary Access Management designs at the VT 67A/Mattison Road/Silk Road/Bennington College intersection?
    - Jim Sullivan noted that he attended a meeting earlier that day on the intersection with VTrans officials. The preliminary plan would be to relocate the Bennington College driveway approximately 100 feet to the west to improve safety until a more final design could be developed.
    - Joe Segale noted that while the temporary recommendation to relocate the Bennington College driveway was not good Access Management, it would likely improve the situation over current conditions.
- Recommend to keep both BCIC parking lot driveways open for tractor trailer deliveries
- The preliminary recommendation for separating BCIC parking from VT 67A with a grass strip might not provide enough room for parking.

- RSG will conduct a more detailed investigation of BCIC parking along VT 67A as well as an examination of parking alternatives.

- The proposed new Hillside Road/River Road alignment eliminates the chance for vehicles exiting from Scarey Lane to turn around and head east on VT 67A.
- Lowering the grade of VT 67A east of Scarey Lane would help improve sight distance for vehicles exiting from Scarey Lane.
- Look at possibility of converting current Monument Plaza access driveway adjacent to the VT 67A/VT 7A intersection from one-way in to two-way.
    - A traffic count will be conducted at this intersection and further analysis will be conducted to determine impacts and viability of converting access to two-way.

The following summarizes major comments received at the 14 July 2004 public display at the Bennington Price Chopper on Northside Drive:

- Bennington needs more big box stores. Currently going to Saratoga, NY to do shopping and taking money out of Vermont.
- How will Access Management improve traffic flow on Northside Drive?
- The goal should be to slow traffic down not make it able to travel faster.
- Need to widen Northside Drive to provide more capacity but not higher speeds.
- Emergency vehicles heading north travel from Benmont Avenue to Northside Drive to VT 67A and must travel through congestion. There is nowhere for vehicles to go to get out of the emergency vehicle's path.
- Service roads are good. How/who pays landowner for access to land?
- Access Management makes it more difficult to find places to enter – without curbs it is much easier to pull in anywhere.
- Good luck fixing the problem along Northside Drive – it's a "disaster".
- Sometimes avoid shopping at Price Chopper because of the time it takes to get through the traffic on Northside Drive.

The following summarizes major comments received at the 7 October 2004 public meeting at the Bennington Public Library:

- The parallel parking proposed along both sides of Water Street will make snow plowing difficult. Snow will have to be removed rather than piles adjacent to the roadway. Therefore, the design as proposed will have higher snow removal costs.
- Concern was expressed about the 11 ft travel lanes and 8 ft parking lanes proposed for Water Street relative to truck traffic. Does that cross section provide enough room for trucks?

- The proposed design of Water Street does not necessarily support VT 67A's function as a minor arterial. An alternative to the proposed design would be to provide all parking in private off-street lots. Removing all on-street parking would make it possible to provide 12 foot travel lanes with wide paved shoulders. Bennington County Regional Commission will discuss the intended function of Water Street with the Village of North Bennington and potential design options.
- The bridge on VT67A just west of Scarey Lane is too narrow. Jim Sullivan replied that the bridge is on the VTrans list. Although the bridge is functionally obsolete, it is not a high priority at VTrans because there are many other bridges in worse condition.
- Why wasn't a sidewalk proposed along VT 67A between Water Street and Bennington College/Mattison Road? That segment of road serves residential areas and has some commercial uses that generate pedestrian travel. Jim Sullivan stated that BCRC has looked at a sidewalk along that section of VT 67A . Physical constraints (steep banks for example) and the numerous properties that could be impacted by a sidewalk make that segment a challenging location. However, the growing residential areas along this section will continue to increase demand for sidewalks.
- The Bennington College Road intersection with VT 67A has been relocated approximately 150 feet to the west. This modification was implemented by VTrans. Meeting participants agreed that the relocation has improved safety near the intersection of Mattison-Silk-VT 67A.
- There were several comments made regarding the VT67A-7A intersection and the nearby intersections of VT 67A-Harmon Road and Berard Street:
    - The proposal to convert the entrance from this intersection into Monument Plaza from one-way-in to two-way was not supported by the meeting participants. Concerns included: the change would overcomplicate movements at an already awkward intersection; and the change would result in reducing the amount of green time for vehicles turning right from Northside Drive to VT 7A.
    - Sight distance is restricted by the railing of the bridge on VT 67A just west of Harmon Road on to VT 67A.
    - Sight distance is limited for vehicles attempting to turn left from Berard Street onto VT 7A
    - The entire complex of intersections involving VT 67A, 7A, Berard Street, and Harmon Road needs to be re-designed. Support was expressed for a roundabout and the possibility of one-way flow configuration that built around the triangle created by Berard Street, VT 7A, and VT 67A.
- Meeting participants felt that the Western Segment of the Bennington Bypass would cause an increase in traffic volumes along Northside Drive arguing that people with destinations in downtown Bennington would follow the Western Segment into downtown rather than

staying on VT 9. Projections prepared by VTrans however, indicate a 7.5% decrease in traffic on Northside Drive when the Western Segment is complete.

- One Northside Drive business owner (of Bond Auto) noted that he has seen an increase in customers coming from New York. He believes the Western Segment of the Bypass will accelerate this trend.
- The Davis Oil property on Northside Drive is a large parcel that may be redeveloped when and if the business is sold.
- Add funding and next steps to the implementation chart.

Additional detail on public comments can be found in Appendix H.

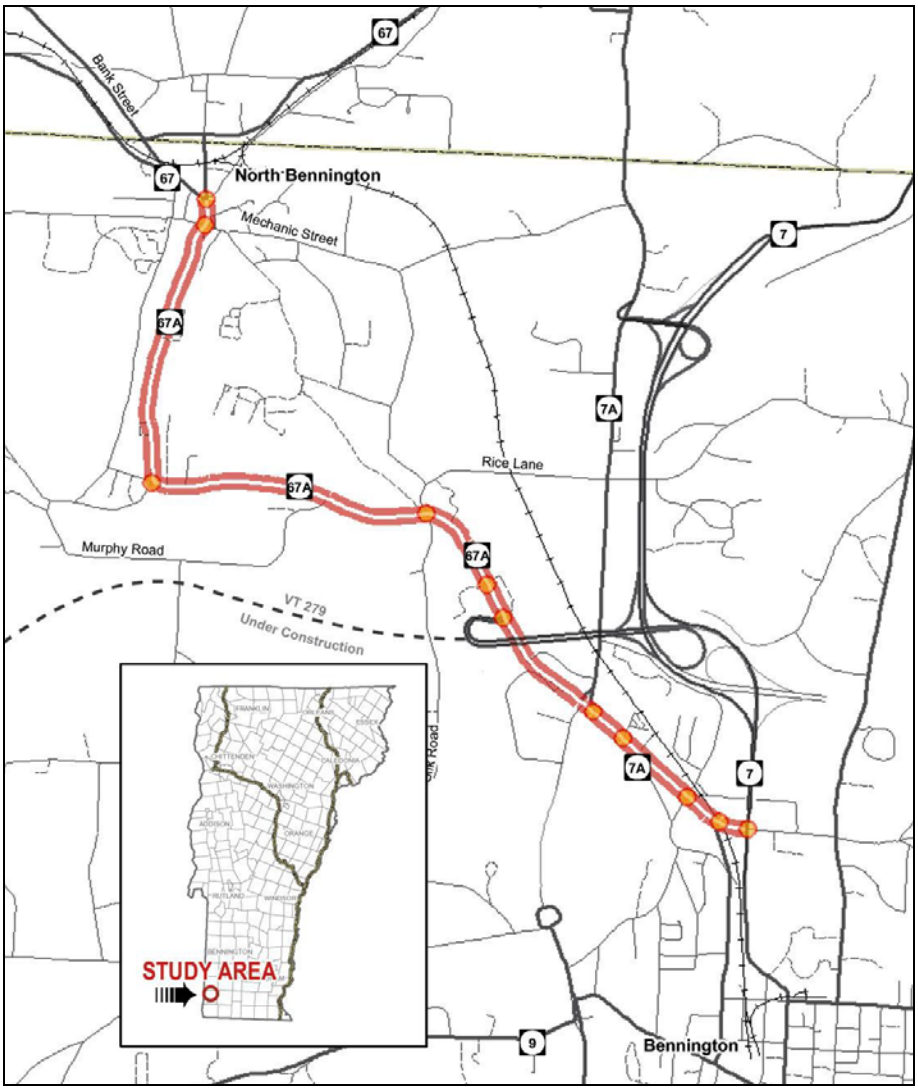
This report includes the following major sections:

- Section 2.0 – Access Management Overview: provides an overview of access management concepts and describes state and local access management regulations.
- Section 3.0 – Summary of Existing Conditions: focuses on existing transportation system and land use conditions and issues identified along the corridor.
- Section 4.0 – Projection of Future Conditions: identifies traffic, land use, and access management issues for the year 2025.
- Section 5.0 – Recommendations and Implementation Plan: presents location-specific and regulatory recommendations along with an implementation plan to address the identified existing and future issues along the corridor.

1.2 STUDY AREA

The study area is shown below in Figure 1. The 4.1 mile corridor follows VT 7A (Northside Drive) from US 7 and Kocher Drive north to the VT 67A-VT7A intersection, and VT 67A from VT 7A north to its terminus in North Bennington Village. The study area also includes the intersections of VT 67A/7A with Bank Street, West Street, River Road, Mattison Road, Home Depot Plaza, VT 279 Ramps, VT 7A, Monument Plaza, Hicks Avenue, Benmont Avenue, and US 7.

Figure 1: Project Study Area



For the purposes of analysis and reporting, the study area as been divided into the following five segments:

Segment 1: <u>North Bennington Section</u>
This segment runs from the VT 67/VT 67A/Houghton Road intersection south 0.1 miles to the VT 67A/West Street intersection. Segment 1 travels through the village of North Bennington and includes a relatively dense mix of residential, commercial, and institutional uses. The roadway is characterized by narrow lanes, sidewalks, and a traffic island which diverts traffic in the vicinity of Lincoln Square.

Segment 2: <u>Industrial Corridor</u>
This segment runs from the VT 67A/West Street intersection south 1.1 miles to the

VT 67A/Scarey Lane intersection. Segment 2 travels along the Paran Creek and includes three large operating industrial, commercial, and manufacturing sites and some residential uses. The roadway is characterized by standard travel lane widths, poorly defined shoulders and poor pavement conditions, and frequent and occasionally undefined curb cuts.

Segment 3: Bennington College Section

This segment follows the Walloomsac River from the VT 67A/Scarey Lane intersection east 1.1 miles to the five-way VT 67A/Mattison Road/Bennington College Road/Silk Road intersection. Segment 3 is comprised primarily of residential uses with some commercial and mixed uses interspersed.

Segment 4: Emerging Commercial and Industrial Section

This segment runs from the VT 67A/Mattison Road/Bennington College Road/Silk Road intersection southeast 1.0 miles to the VT 67A/7A intersection. The segment includes the VT 67A Connector interchange (soon to be VT 279) and a number of pending and recently constructed large-scale commercial and retail developments (e.g. Toyota Dealership, Home Depot, Chili's Restaurant, Hampton Inn)

Segment 5: Northside Drive Section

This segment runs the entire length of Northside Drive from the VT 67A/7A intersection southeast 0.8 miles to the US 7/Kocher Drive intersection. The Northside Drive section is a typical "suburban strip" comprised of a relatively dense mixture of commercial and retail uses with frequent and irregularly-spaced curb cuts and intersections.

2.0 ACCESS MANAGEMENT OVERVIEW

Access management is the *systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway*[1]. Some of the primary benefits of access management include the following:

- Improved traffic flow by decreasing delays and occurrences of vehicle blockages;
- Improved vehicular safety by eliminating conflict points;
- Support for economic development through improved access;
- Support for local land use plans; and
- Improved aesthetics and community character by incorporating landscaping, sidewalks, and lighting into design of intersections and driveways.

A goal of this study is to build an understanding of the dynamic relationship between access management and traffic flow and to target specific access management applications that can improve efficiency and safety through the study area.

Figure 2 shows an example of poor access management on the left (with frequent, irregular spaced driveways) and one potential solution using access management involving the closure of direct access to the main road and interconnecting the driveways and providing access to the secondary road.

Figure 2: Example of Access Management[2]

Example of **Poor** Access Management:
Frequent, irregularly-spaced curb cuts.

Example of **Good** Access Management:
Interconnected driveways, access to side roads.

[1] Access Management Manual, Transportation Research Board, 2003

[2] Images courtesy: Access Management Guidebook, Northwest Regional Planning Commission and Humstone & Campoli, 1996.

An effective transportation access management plan is built upon certain principles which extend from the system-wide to location-specific levels as shown in Table 1.

Table 1: Roadway Access Continuum[1]

System-wide ↓ Location Specific	• Provide a specialized roadway system based upon mobility for through traffic and access to adjacent land; • Provide appropriate intersection design, control, and spacing to provide efficient transitions from one roadway classification to another; • Limit direct access between adjacent land uses and higher speed roads while promoting access between land use and minor, low speed roads; • Limit or separate the number of conflict points between traffic entering and exiting driveways and streets; and • Remove turning traffic from through traffic lanes

The US Federal Highway Administration's (FHWA) Highway Functional Classification System provides the framework for applying the system-wide principles and the Vermont Agency of Transportation's (VTrans) Access Management Classification System and Standards provide the design standards for applying the location-specific principles. The following sections provide a description of these classification systems and their designations within the study area.

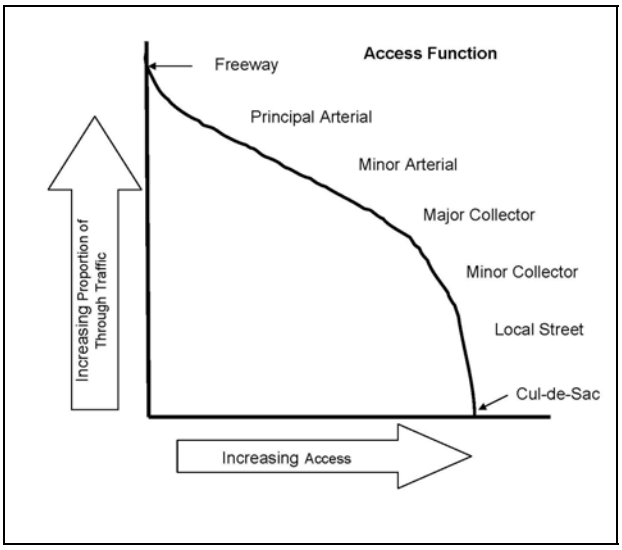
2.2 ACCESS MANAGEMENT: SYSTEM-WIDE CONCEPTS

2.2.1 FHWA Highway Functional Classification System

The FHWA highway functional classification system, depicted in Figure 3, 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.

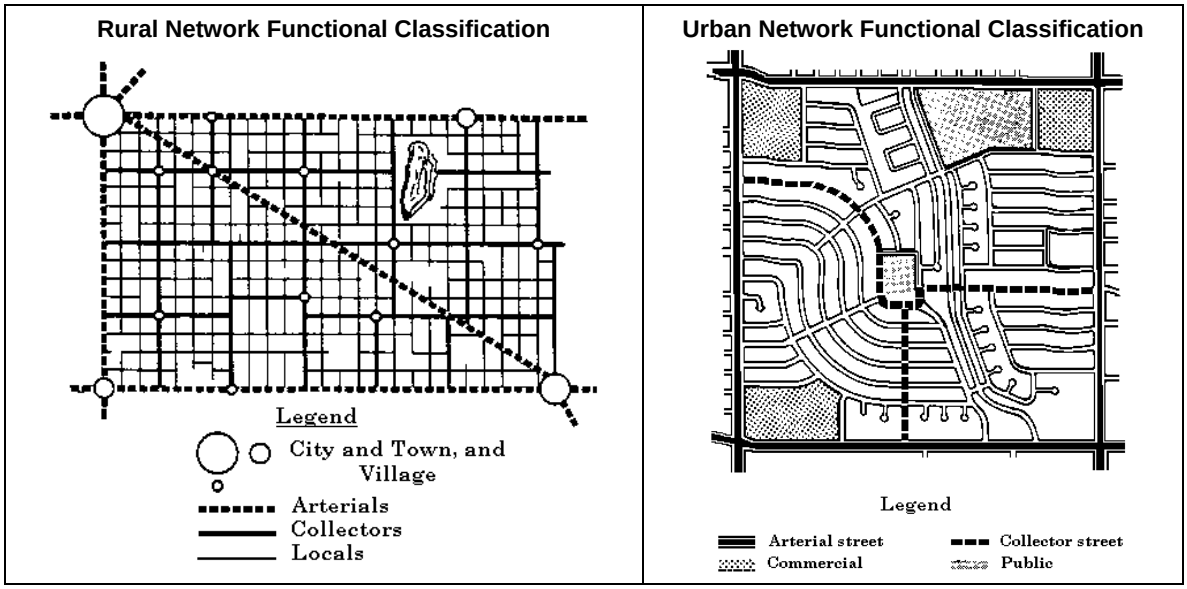
[1] Modified from *Access Management Program Guidelines* (VTrans, 2001) and the *Access Management Manual* (TRB, 2001)

Figure 3: Conceptual Roadway Functional Hierarchy



From a system-wide perspective, access management is concerned with providing a specialized roadway system related to each link's respective function within the larger transportation network and providing appropriate *transitions* from one roadway classification to another. Figure 4 shows the appropriate connections between various functional; classifications in a rural and urban context.

Figure 4: Schematic Roadway Functional Classification Schemes[1]

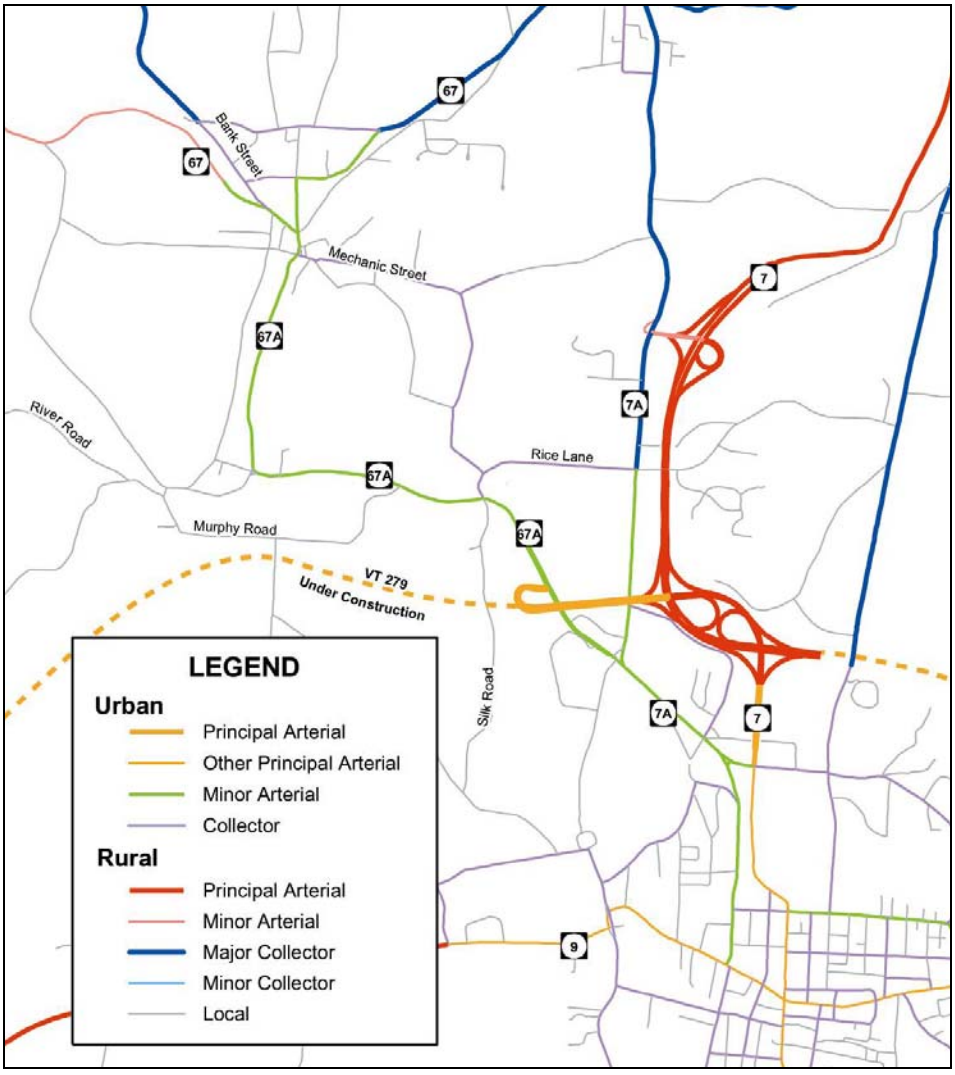


[1] Source: FHWA Functional Classification Guidelines, http://www.fhwa.dot.gov/ planning/fcsec2_1.htm

Figure 5 shows the functional classifications within the study area. As the Figure shows, the entire length of VT 67A and VT 7A within the study area is classified as an urban minor arterial. The minor arterial network should provide interconnections to the primary arterial network (i.e. US 7, VT 279, VT 9) and serve primarily trips of moderate length and provide a relatively high level of mobility.

Local traffic along the study corridor is channeled to the arterial network via the local roads (e.g. Silk Road and Murphy Road) and the collector roads (e.g. Kocher Drive, Mattison Road, Mechanic Street). However, the commercial development and frequent curb cuts along Northside Drive effectively reduce the corridor's ability to handle moderate speeds and volumes typically found on an arterial roadway.

Figure 5: Functional Classification Network



2.2.2 VTrans Access Management Classification System and Standards

VTrans has established an Access Management Program that assigns all segments of the State's Highway System into one of six access management categories. The standards 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 design standards. However, the standards are applied to all new access permits and construction projects.

Table 2: VTrans Access Management Categories[1]

Access Category	Functional Class and AADT Characteristics	Direct Property Access	Driveway Design Factors	Traffic Operations and Movements Allowed	Design Features
1	- Interstates	No	Not Applicable	Access only provided at Interchanges with public highways	Grade-Separated Interchanges
2	- Other Principal Arterials - Limited Access Major Collectors	No – Except by Access Rights	Number, Spacing and Locations	Access at intersections with public highways	At-Grade or Grade-Separated intersections at ½ to 1 mile intervals
3	- Other Principal Arterials - Minor Arterials (AADT > 5,000) - Non-limited Access Major Collectors on State Highway and Class 1 Town Highways (AADT greater than 5,000)	Deny, Restrict or Allow	Number, Spacing and Locations	May limit turning movements	- Physical Barriers (Medians or Islands) - Traffic signal spacing requirements - Left and/or Right Turn Lanes Required - Spacing of public highway intersections that are or may be signalized (1/4 to ½ mile)
4	- Minor Collectors - Minor Arterials and Class 1 Town Highways (< 5,000 AADT) - Non-limited Access Major Collectors on State Highway and Class 1 Town Highways (Less than 5,000 AADT)	Yes	Number, Spacing and Locations	All turns in & out May limit turning movements	- Spacing of public highway intersections that are or may be signalized (1/4 to ½ mile)
5	- Frontage or Service Road	Yes	Number and location	All turns in and out	- Traffic signal spacing not less than 500 feet.
6	- May have any functional class but are urban in nature.	Deny, restrict, or allow	Number and location		- Traffic signal spacing not less than 500 feet.

The access management categories within the study area are shown in Figure 6 and include[2]:

- Class 1: Interstate – None in study area;
- Class 2: Limited or Controlled Access Highways – VT 7A between Benmont Drive and Kocher Drive (US 7), US 7 north of Kocher Drive;
- Class 3: Principal Arterials – VT 67A, US 7 between Kocher Drive and Depot Street;
- Class 4: Minor Arterials – VT 7A north of Northside Drive; and
- Class 6: Urban Sections – Northside Drive and VT 67 in North Bennington Village.

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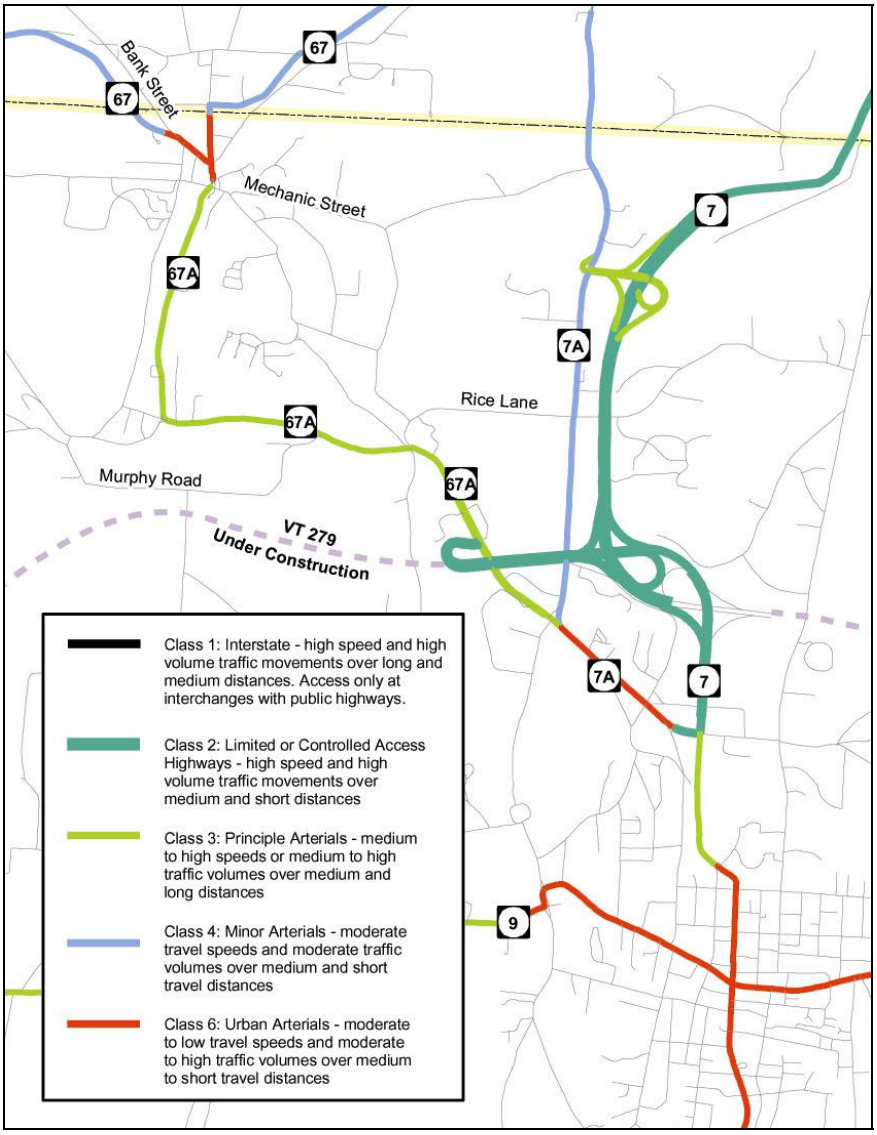
[1] Modified from Table 1-1, page 22 in *Vermont Agency of Transportation Access Management Program Guidelines;* Utilities and Permits Unit Technical Service Division Revised July 17, 2000.

[2] These categories were designated by the Transportation Advisory Committees (TAC) of the Bennington County Regional Commission in consultation with VTrans based on functional classification, average annual daily traffic (AADT), local plans and zoning, and existing and future land use.

Figure 6: VTrans Access Management Classifications



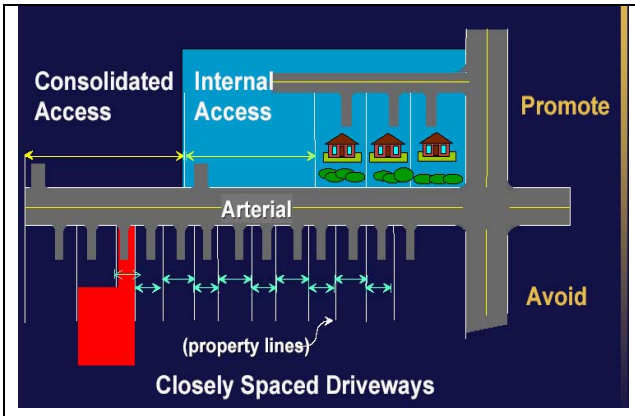
2.3 ACCESS MANAGEMENT: LOCATION-SPECIFIC DESIGN CONCEPTS

Location-specific access management strategies focus on how adjacent properties access the highway system through the proper design and location of intersections , curb cuts, and driveways. Figure 7 demonstrates many of the following key location-specific design concepts:

- Promote access to parcels through collector roads rather than onto higher speed arterials which are designed for mobility, higher volumes, and faster speeds;

- Reduce the number of vehicle potential conflict points by:
  - consolidating and sharing driveways,
  - providing adequate separation distance between driveways, and between driveways and intersections, and
  - aligning driveways on opposite side of a road; and
- Remove turning traffic from through traffic lanes.

Figure 7. Location Specific Access Management Concepts



Examples of good and bad location specific access management techniques.

There are no curbs or other barriers to restrict access from this parking lot to VT 67A (minor arterial)

2.4 REGULATING ACCESS

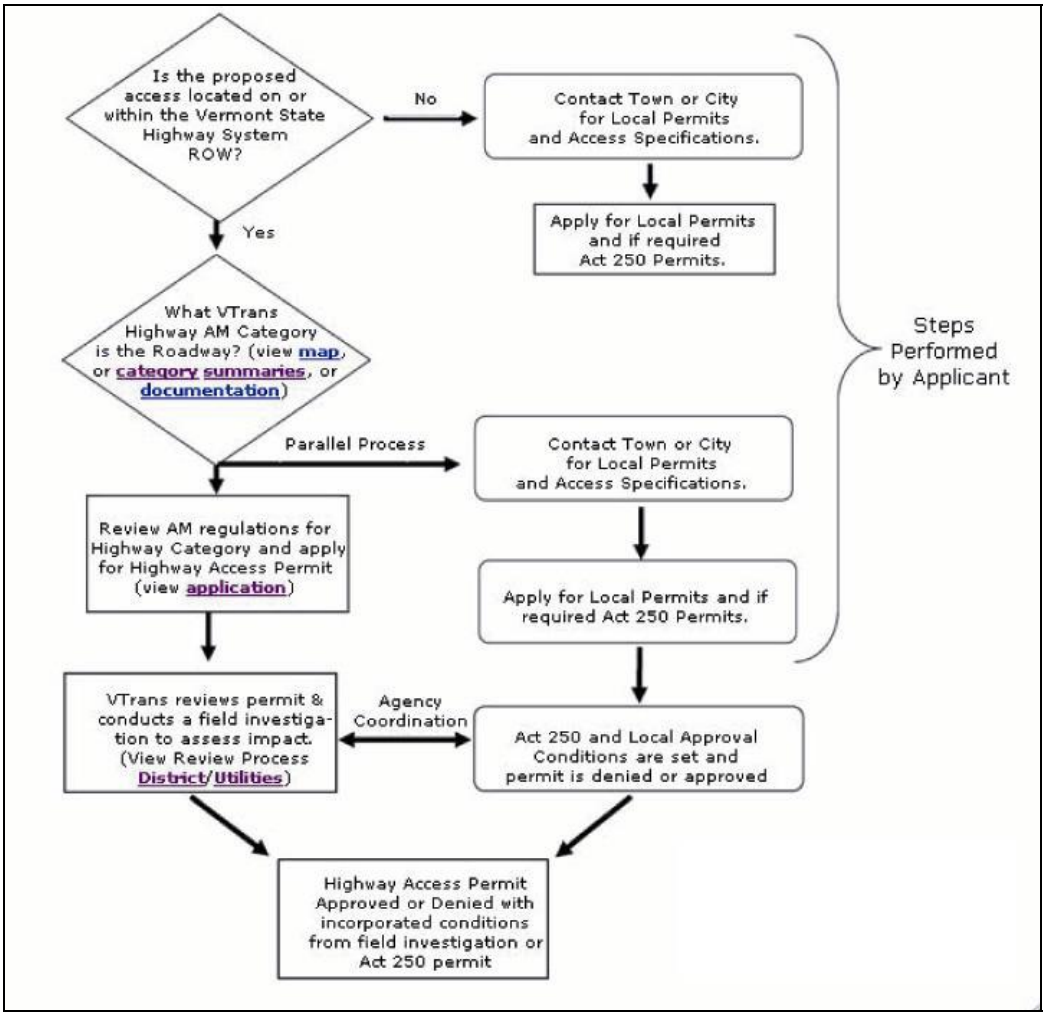
Most of VT 67A and VT 7A within the study area is owned by the State. The exception is the section of VT 67A (Water Street) from West Street to Scarey Lane where VT 67A is a Class 1 town highway, and is therefore owned and maintained by the municipality.

As shown in Figure 8, jurisdiction affects the process for granting access permits. For sections of VT 67A/7A owned by the State of Vermont, an access permit is required by the state and will be issued if the access management guidelines described below are satisfied. However, 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. As a result the parallel process indicated in Figure 8 is required for development projects seeking access to state highways.

Along Class 1 town highways, it is not necessary to obtain an access permit from VTrans, although a local permit is required. VTrans is allowed, however, to invoke *joint jurisdiction* on Class 1 town

highways when necessary to ensure safety and operational standards are not significantly affected by a proposed access or change in highway design.[1]

Figure 8. VTrans Highway Access Permit Process[2]



[1] According to Al Wright, VTrans Utility and Permits Unit, VTrans has only invoked joint jurisdiction once. VTrans invoked joint jurisdiction to require changes in the design of a roundabout on a class 1 town highway in Manchester because the design did not accommodate buses or trucks.

[2] Source: VTrans Access Management Website: http://www.vtaccessmanagement.info/FlowChart/FlowChartMainPage.htm

3.0 SUMMARY OF EXISTING TRANSPORTATION AND LAND USE CONDITIONS

This section provides an overview of the existing traffic, access management, safety, and land use conditions within the study area. These existing conditions will serve as a basis for projection of future conditions and in identifying issues and recommendations.

3.1 EXISTING CONDITIONS - TRAFFIC VOLUMES

Figure 9 shows the Average Annual Daily Traffic (AADT) data at various locations along the study area from north to south. The three locations on the left of the figure represent the more rural section of the study area while the three on the right are located along the more suburban section. The figure shows volumes increasing as one moves south along the corridor, with a peak south of Waite Drive of over 15,000 vehicles per day. During the period 1990-2002, the traffic volumes along the corridor grew at an average rate of 1% per year.

Figure 9: 2004 Average Annual Daily Traffic Along the Corridor[1]

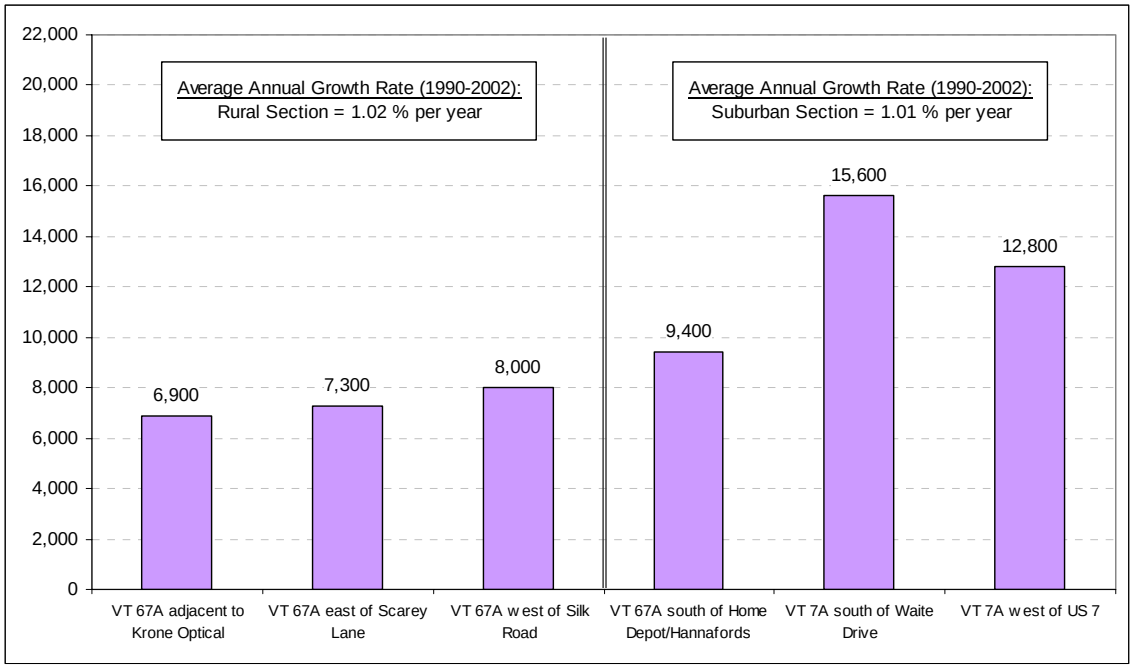


Table 3 shows the peak traffic hours during the morning and afternoon at the eleven identified study intersections along with their total volume (for all approaches) adjusted to 2004 design hour conditions[1].

[1] 2004 AADT determined by applying a 1% annual growth factor to the most recent VTrans AADT count.

During the morning period, it is interesting to note that the intersections north of the Hannafords Plaza peak earlier than those intersections further south in the study area. This difference is likely due to the fact that commuter traffic (typically earlier in the day) predominates in the northern section of the corridor, while the southern section experiences *both* commuter traffic and shopping-related traffic. All but the US 7-VT 7A-Kocher Drive intersection have afternoon peak hours between 3:00 and 5:30 PM. The intersection volumes generally increase as one moves south, in this case peaking at the VT 7A-Benmont Avenue intersection with over 3,500 vehicles passing through the intersection during the peak hour.

Table 3: Intersection Peak Periods and Through Volumes

Intersection	AM Peak Peak Period	PM Peak Peak Period	2004 Design Hour Volume *(All Approaches)*
VT 67 - VT 67A	9:45 - 10:45 peak	4:15 - 5:15 peak	1,070
VT 67A - West Street - Prospect Street	9:30 - 10:30 peak	3:15 - 4:15 peak	960
VT 67A - River Road - Hillside Street	7:00 - 8:00 peak	4:30 - 5:30 peak	980
VT 67A - Mattison Road - Silk Road - Bennington College Driveway	7:45 - 8:45 peak	4:30 - 5:30 peak	1,770
VT 67A - Hannafords - Home Depot Driveways	10:00 - 11:00 peak	3:00 - 4:00 peak	1,510
VT 67A - VT67A Connector	10:45 - 11:45 peak	3:00 - 4:00 peak	1,390
VT 7A - VT 67A	10:45 - 11:45 peak	4:30 - 5:30 peak	1,560
VT 7A - WalMart Drive - Price Chopper	10:45 - 11:45 peak	3:45 - 4:45 peak	2,430
VT 7A - Hicks Avenue - Willow Road	11:00 - 12:00 peak	4:30 - 5:30 peak	2,220
VT 7A - Benmont Avenue	11:00 - 12:00 peak	3:45 - 4:45 peak	3,510
US 7-VT 7A-Kocher Drive	7:45 - 8:45 peak	12:00 - 1:00 peak	3,130

3.2 EXISTING CONDITIONS - ACCESS MANAGEMENT

RSG conducted a field inventory and assessment of access points along VT 67A and VT 7A within the study area in March 2004. The field inventory captured information such as driveway location, land use, parcel address, an assessment of the current site access, and constraints and opportunities for access management improvements.

Table 4 provides a generalized driveway assessment for the study area by segment. The table identifies the general segment area type, the total number of driveways within the segment (both sides), the length of the segment, and the density of driveways. As expected, the two segments with the highest density of driveways are located in the village and suburban settings (Segment 1, which falls within the Village of North Bennington and Segment 5, which includes the densely-developed Northside Drive commercial strip). It is interesting to note that the segment with the lowest density, Segment 4, is also a potential location of current and future commercial and industrial growth.

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[1] The Design Hour Volume (DHV) represents the 30th highest hour for a given location and is often used as the standard for design in Vermont. VTrans Continuous Traffic Count Station B041 located on VT 9 west of Bennington was used for the DHV adjustment.

Table 4: Driveway Assessment by Study Segment

	Area Type	Total Driveways	Length *(miles)*	Driveway Density *(per mile)*
1 - North Bennington Village Section	Village	12	0.1	120
2 - Industrial Section	Industrial/Suburban	37	1.1	34
3 - Bennington College Section	Suburban/Rural	44	1.1	40
4 - Emerging Commercial and Industrial Section	Commercial	22	1.0	22
5 - Northside Drive Section	Suburban	58	0.8	73

See Appendix D for a summary of the identified access management deficiency areas and an overview of the screening criteria used to identify the focus areas.

3.3 EXISTING CONDITIONS - CONGESTION

Providing efficient transitions from one roadway classification to another is a key principal of access management. The transition is provided primarily by the study intersections that connect the local and collector streets to VT 67A and VT 7A. Congestion occurring at these intersections interferes with the user's ability to efficiently transition between different roadway classification levels, while congestion along segments of roadway can interfere with the operational efficiency of the road.

3.3.1 Level of Service

Level of Service (LOS) is the standard measure used to quantify the operational performance of intersections and road segments as perceived by the driver. The grades A, B, C, D, E, and F are the five possible LOS ratings. An LOS A indicates that the facility is operating exceptionally well with free-flowing traffic, while an LOS F indicates that demand exceeds capacity and the facility is failing.

There is almost universal agreement that levels of service A, B, and C are acceptable and LOS F is not. Whether or not LOS D is acceptable depends on the location of the intersection or road segment in question. On rural highway facilities where speeds are often higher and drivers expect a higher level of mobility, LOS D may not be acceptable. In urban areas and activity centers where drivers expect and are accustomed to greater delays, an LOS D is often wide spread and considered acceptable. In some cases, LOS E may be acceptable in urban areas and activity centers.

The VTrans policy on level of service is:

- LOS C is desirable for rural facilities;
- LOS D is desirable for urban facilities; and
- LOS E or F may be permitted in an urban setting if the remedy, such as adding new lanes, would significantly impact the surrounding natural or built environment.

3.3.2 Intersection Level of Service

Level of service for both signalized and stop-controlled intersections is measured in terms of average delay per vehicle. The delay, referred to as *control delay*, includes the time required to slow down when approaching an intersection, the time a vehicle is stopped, the time required for a line of vehicles (the

queue) to move up to the intersection, and the time required to accelerate. **Table 5** presents the relationship between LOS and control delay.

Table 5. Relationship between Level of Service and Delay for Intersections

LOS	Characteristics	Stop-Controlled (Seconds)	Traffic Signal (Seconds)
A	Little or no delay	< 10	< 10.0
B	Short delays	> 10 and < 15	> 10 and < 20
C	Average delays	>15 and < 25	>20 and < 35
D	Long delays	> 25 and < 35	> 35 and < 55
E	Very Long delays	> 35 and < 50	> 55 and < 80
F	Extreme delays	> 50	> 80

Table 6 and Table 7 shows the 2004 LOS for all approaches to each study intersection, as well as overall LOS for signalized intersections.

Inefficient transitions currently exist between VT 67A/7A and the surrounding arterial, collector, and local network at the following locations:

- LOS E for Eastbound VT 67 approach to VT 67A
- LOS F for Westbound Houghton Street approach to VT 67A
- LOS F for Northbound Silk Road approach to VT 67A
- LOS F for Southbound Bennington College/Mattison Road approach to VT 67A

Table 6: 2004 Signalized Intersection Level of Service

	AM Peak Hour			PM Peak Hour		
VT 67A/Hannafords/Home Depot	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
Overall	**B**	**14**	**0.39**	**B**	**14**	**0.44**
Eastbound: Hannafords	C	29		C	22	
Westbound: Home Depot	C	21		B	20	
Northbound: VT 67A	B	13		B	10	
Southbound: VT 67A	A	10		B	17	
VT 67A/VT 67A Connector/Shopping Center Driveway						
Overall	**A**	**9**	**0.29**	**A**	**8**	**0.37**
Eastbound: VT 67A Connector	C	24		B	19	
Westbound: Shopping Center	C	26		B	16	
Northbound: VT 67A	A	5		A	6	
Southbound: VT 67A	A	4		A	5	
VT 67A/VT 7A						
Overall	**A**	**8**	**0.59**	**A**	**9**	**0.60**
Eastbound: VT 67A	A	9		A	9	
Westbound: VT 67A	A	7		A	9	
Southbound: VT 7A	A	10		B	10	
VT 7A/Price Chopper/Emma Street						
Overall	**C**	**31**	**0.91**	**D**	**44**	**1.00**
Eastbound: VT 7A	D	35		D	50	
Westbound: VT 7A	C	32		D	41	
Northbound: Price Chopper	C	23		D	41	
Southbound: Emma Street	C	31		D	36	
VT 7A/Hicks Avenue/Willow Road						
Overall	**C**	**21**	**0.73**	**C**	**23**	**0.88**
Eastbound: VT 7A	C	21		B	17	
Westbound: VT 7A	C	22		C	26	
Northbound: Hicks Avenue	C	20		C	27	
Southbound: Willow Road	C	22		D	35	
VT 7A/Benmont Avenue/Aldi						
Overall	**C**	**21**	**0.72**	**C**	**33**	**0.95**
Eastbound: VT 7A	C	22		C	24	
Westbound: VT 7A	C	21		D	36	
Northbound: Benmont Avenue	B	19		D	38	
Southbound: Aldi Driveway	B	17		C	24	
VT 7A/US 7/Kocher Drive						
Overall	**C**	**22**	**0.68**	**D**	**40**	**0.88**
Eastbound: Northside Drive	B	19		D	48	
Westbound: Kocher Drive	C	22		D	40	
Northbound: US 7	C	25		D	36	
Southbound: US 7	C	21		C	33	

Table 7: 2004 Unsignalized Intersection Level of Service

	AM Peak Hour			PM Peak Hour		
VT 67A/VT 67/Houghton Street	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
Eastbound: VT 67	C	16	0.49	E	39	0.77
Westbound: Houghton St.	D	30	0.23	F	77	0.43
Northbound: VT 67A	A	5	0.14	A	6	0.27
Southbound: VT 67	A	0	0.00	A	0	0.00
VT 67A/West Street/Prospect Street						
Eastbound: West St.	C	18	0.13	C	24	0.20
Westbound: Mechanic St.	B	15	0.26	C	18	0.38
Northbound: (VT 67A)	A	0	0.01	A	0	0.01
Southbound: (VT 67A)	A	2	0.06	A	2	0.06
VT 67A/River Road/Hillside Street						
Eastbound: River Rd + Hillside St	B	14	0.22	C	17	0.26
Westbound: VT 67A	A	1	0.02	A	2	0.08
Southbound: VT 67A	A	0	0.27	A	0	0.21
VT 67A/Mattison Road/Silk Road/Bennington College ^						
Eastbound: VT 67A	A	1		A	1	
Westbound: VT 67A	A	0		A	1	
Northbound: Silk Road	E	47		F	100*	
Southbound: Bennington Coll + Mattison	E	48		F	100*	

* HCS does not accurately model delays > 100 seconds

^ For Synchro/HCS analysis, Bennington College and Mattison Road approaches were combined

3.3.3 Rural Road Segment Level of Service

Level of service for rural, two-lane highways is measured in terms of the percent of time vehicles spend following other vehicles and average travel speed.[1] The key inputs include shoulder and lane width, terrain type (level, rolling, mountainous), directional traffic split, percentage of trucks, percentage of no-passing zones, the number of access points per mile, the posted speed, and traffic volumes. This methodology applies only to rural, two-lane road segments and is therefore not applicable within the Northside Drive study segments, where the signalized intersections are the controlling factor for corridor traffic flow and congestion.

Table 8. Two Way Road Segment LOS Parameters – Class II Highway

LOS	% Time Spent Following
A	< 40%
B	40 - 55%
C	55 - 70%
D	70 - 85%
E	> 85%

[1] The average travel speed is only a consideration for Class I highways. A Class 1 highway is typically used for long distance travel where the driver expects higher travel speeds. VT 67A/7A is a Class II highway which serves both through and local trips at typically slower speeds.

Table 9 presents the results of the two-way road segment analysis for the rural segments 1 through 3. The table shows the estimated volume to capacity ratio, the percent time spent following another vehicle, the average travel speed, and segment Level of Service.

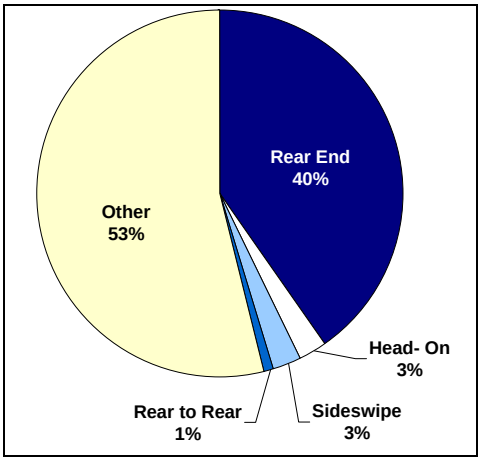
Table 9. Level of Service for Segments

	Volume/ Capacity	Percent Time Spent Following	Average Travel Speed	LOS
Segment 1 VT 67 to West Street	0.22	64%	26 mph	C
Segment 2 West Street to Scarey Lane	0.23	65%	31 mph	C
Segment 3 Scarey Lane to Silk Road	0.25	66%	31 mph	C

3.4 SAFETY ANALYSIS

Between 1997 and 2001, there were 234 reported accidents within the study area. Of these, 100 involved injuries and 2 resulted in fatalities. The remaining 133 accidents were damage-only accidents[1]. As shown in Figure 10, 40% of the accidents were rear-end type accidents. Of the rear end accidents, 40% were attributed to inattention and 36% attributed to motorists following too closely. The most common contributing factors are shown in Table 10.

Figure 10: Accidents by Collision Type



[1] Damage only accidents are those where the property damage equals or exceeds $4,000 and there are no incapacitating injuries.

Table 10: Five Most Common Contributing Accident Factors

	Number of Accidents	Percent of Total
Inattention	54	23%
Failed to yield right of way	51	22%
Followed too closely	36	15%
Other improper action	32	14%
Disregarded traffic signs, signals, road markings	16	7%

As shown in Table 11, only 15% of the accidents occurred in wet or snowy conditions. All three accidents that occurred in snowy conditions were rear end type crashes, and occurred between January and March. It does not appear that snowy conditions are a major factor in reported accidents in the study area.

Table 11: Accidents by Weather Condition

	Number of Accidents	Percent of Total
Clear	121	52%
Cloudy	72	31%
Rain	33	14%
Snowy	3	1%
Other / Unknown	5	2%

3.4.2 High Crash Locations

High Crash Locations are road segments or intersections where the number of collisions is greater than one per year and the rate of crashes (measured in crashes per million vehicles) exceeds a threshold known as the critical rate. Crashes within the stopping sight distance of an intersection are included in the crash rate for that intersection. The road segment between Benmont Avenue and Hicks Avenue is the only High Crash Location segment. The 0.4 mile segment had 42 accidents over five years and registered an actual/critical ratio of 1.18.

Two of the study intersections exceeded the critical rate and can be considered High Crash Location intersections. The intersection of US 7-VT 7A-Kocher Drive had 52 accidents in 5 years and an actual/critical ratio of 1.09 while the intersection of US 7-Hannafords-Home Depot had 26 accidents in 5 years and an actual/critical ratio of 1.41.

3.5 MUNICIPAL ZONING

The establishment and enforcement of municipal zoning district boundaries and standards assist a town to plan for and direct growth in a prescribed manner. The zoning district standards typically identify the district's purpose, permitted and acceptable uses, and required dimensional standards (e.g. lot area, setback, building height, etc.). Within the study area, the zoning district boundaries and standards are established by the Town of Bennington and the Village of North Bennington for their respective jurisdictions.

Figure 11 shows the zoning district boundaries identified within the study area[1]. The following zoning districts fall within a 100-foot buffer of the study corridor:

- Rural Residential *(Bennington)*
- Industrial *(Bennington)*
- Planned Commercial *(Bennington)*

[1] At the time this report was written, the North Bennington zoning district boundaries were being revised.

***Figure 11: Study Area Zoning*[1]**

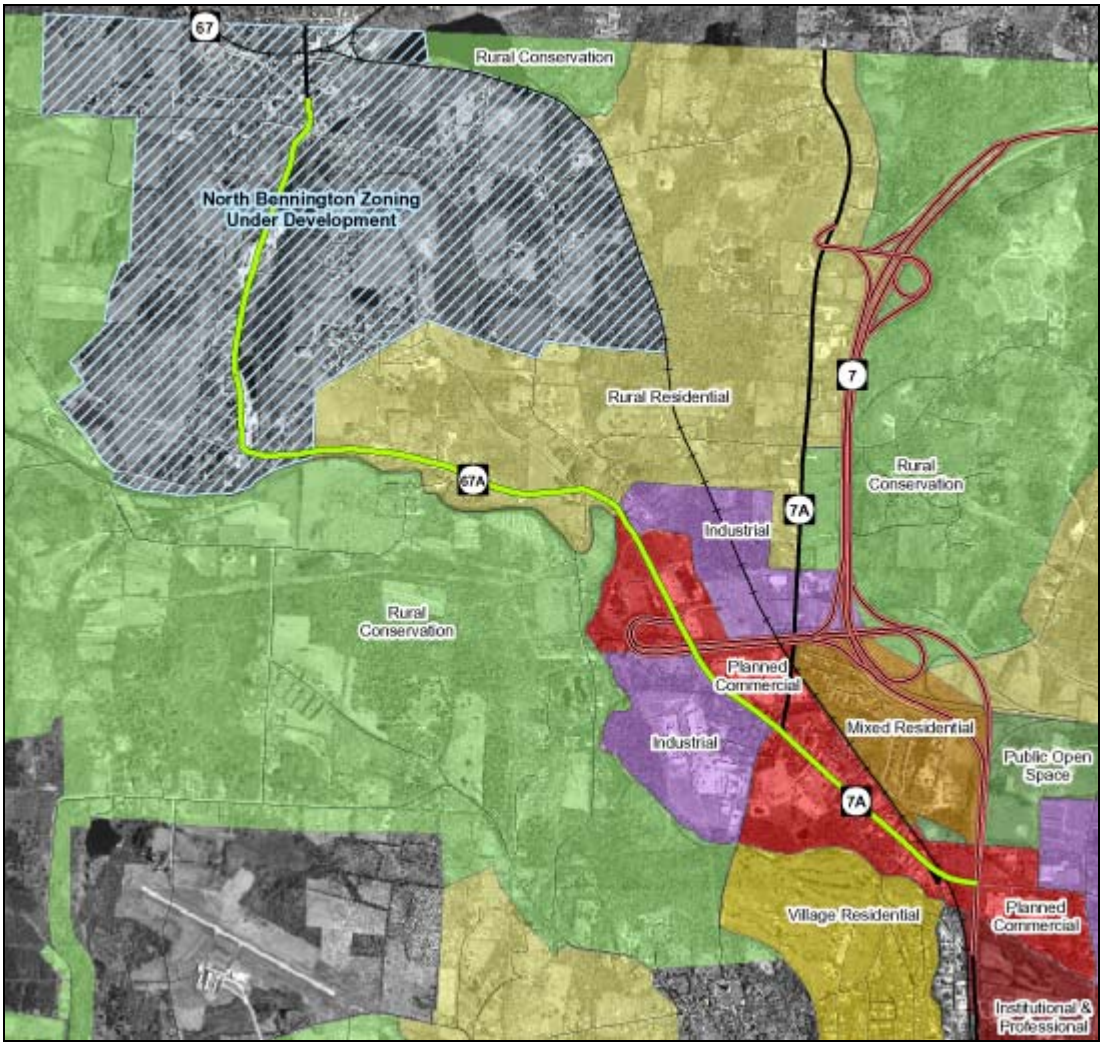


Table 12 summarizes the zoning district standards for the districts that lie along the study corridor. The table shows the permitted and conditional uses, dimensional standards, and access management requirements. All three zoning districts have minimum lot sizes between 0.7 acre and 1 acre (30,000 – 40,000 square feet), minimum frontage requirement of 50 feet, a maximum of one driveway per parcel, and minimum lot widths between 120-150 feet.

[1] At the time this report was written, the North Bennington zoning district boundaries were being revised.

Table 12: Bennington Zoning Districts and Land Use Standards

ZONING DISTRICT	Rural Residential	Industrial	Planned Commercial
JURISDICTION	Bennington	Bennington	Bennington
PERMITTED USES	Accessory Apartment Accessory Use/Structure Agriculture Forestry Home Child Care Home Occupation Single Family Dwelling	None - all uses require DRB approval	None - all uses require DRB approval
CONDITIONAL USES	Accessory Use/Structure Agricultural Retail Bed & Breakfast Cemetary College/University Cultural Facility Community Care Facility Day Care Facility Extraction of Earth Resources Golf Course Mixed Use Mobile Home Park Multi-Family Dwelling Neighborhood Grocery Public Facility Veterinary Clinic	Accessory Use/Structure Adult-Oriented Business Contractors Yard Correctional Facility Day Care Facility Hazardous Waste Facility Manufacturing Mixed Use Motor Vehicle Service Petroleum Bulk Storage Professional & Business Office Public Facility Research & Development Facility Retail Self-Storage Solid Waste Management Facility Taxi Garage Trucking/Shipping Terminal Warehouse	Accessory Use/Structure Car Wash Correctional Home Day Care Facility Dry Cleaner Financial Institution Funeral Home Gas Station Hotel Medical Clinic Miniature Golf Mixed Use Motor Vehicle Sales and Service Multi-Family Dwelling Nightclub Personal Service Establishment Private Club Professional/Business Office Public Facility Restaurant Recreation/Indoor Retail Establishment Retail Self Storage RV Parks Secure Care Facility Taxi Garage Warehouse
MINIMUM LOT AREA	No sewer & water: 40,000 sq. ft. With sewer & water: 30,000 sq. ft.	40,000 sq. ft.	40,000 sq. ft.
MINIMUM LOT WIDTH	No sewer & water: 150 feet With sewer & water: 120 feet	150 feet	150 feet
MINIMUM FRONT YARD SETBACK	No sewer & water: 40 feet With sewer & water: 30 feet	75 feet from VT 67A 25 feet from all other roads	35 feet
MINIMUM FRONTAGE*	50 feet or with DRB approval	50 feet or with DRB approval	50 feet or with DRB approval
CURB CUTS - NUMBER*	No more than 1 per parcel (except for agricultural or forestry uses, emergency access, or with DRB approval	No more than 1 per parcel (except for agricultural or forestry uses, emergency access, or with DRB approval	No more than 1 per parcel (except for agricultural or forestry uses, emergency access, or with DRB approval
CURB CUTS - LOCATION*	At least 150 feet from intersections. Access to 1- and 2-family homes must be at least 50 feet from intersections.	At least 150 feet from intersections. Access to 1- and 2-family homes must be at least 50 feet from intersections.	At least 150 feet from intersections. Access to 1- and 2-family homes must be at least 50 feet from intersections.
DRIVEWAY APRON*	All accesses to paved roads must have at least 20 foot paved apron.	All accesses to paved roads must have at least 20 foot paved apron.	All accesses to paved roads must have at least 20 foot paved apron.

* Per Section 4.3 of Bennington Land Use and Development Regulations (4/04). See the next report section for detailed requirements.

The Planned Commercial (PC) zone, which includes Northside Drive and the southern portion of VT 67A, was created in 2004 as a Design Review district (i.e. all uses require approval by the Design Review Board). This district will likely be the focus of a significant amount of development and re-

development in the near future, particularly with the opening of the western segment of VT 279. The stated purpose of the PC zone is to, "promote a mix of commercial uses, in an area with convenient access to major transportation corridors, in a manner that ensures the compatibility of different uses, complements the downtown's function as a regional commercial and employment center, and fosters attractive, well planned and efficient site design". To that end, the Town of Bennington has developed a set of design standards to help the Design Review Board identify and implement appropriate site planning, landscaping, building scale, height, and material designs for all new construction and re-development within the PC district[1]. Regarding access management, the design standards recommend elements such as sharing driveways, minimizing curb cuts, and locating curb cuts as far as possible from intersections.

3.6 EXISTING LAND USE

Figure 12 shows the existing land use along the study corridor based on a site inventory taken in March 2004. The figure shows the mixed-use nature of North Bennington Village, the predominance of industrial uses along Water Street, the residential and institutional (Bennington College) uses along the Walloomsac River, and commercial uses along Northside Drive.

[1] At the time this report was written, the Town of Bennington, Planned Commercial District Design Standards were in a final draft state.

Figure 12: Study Area Existing Land Use[1]

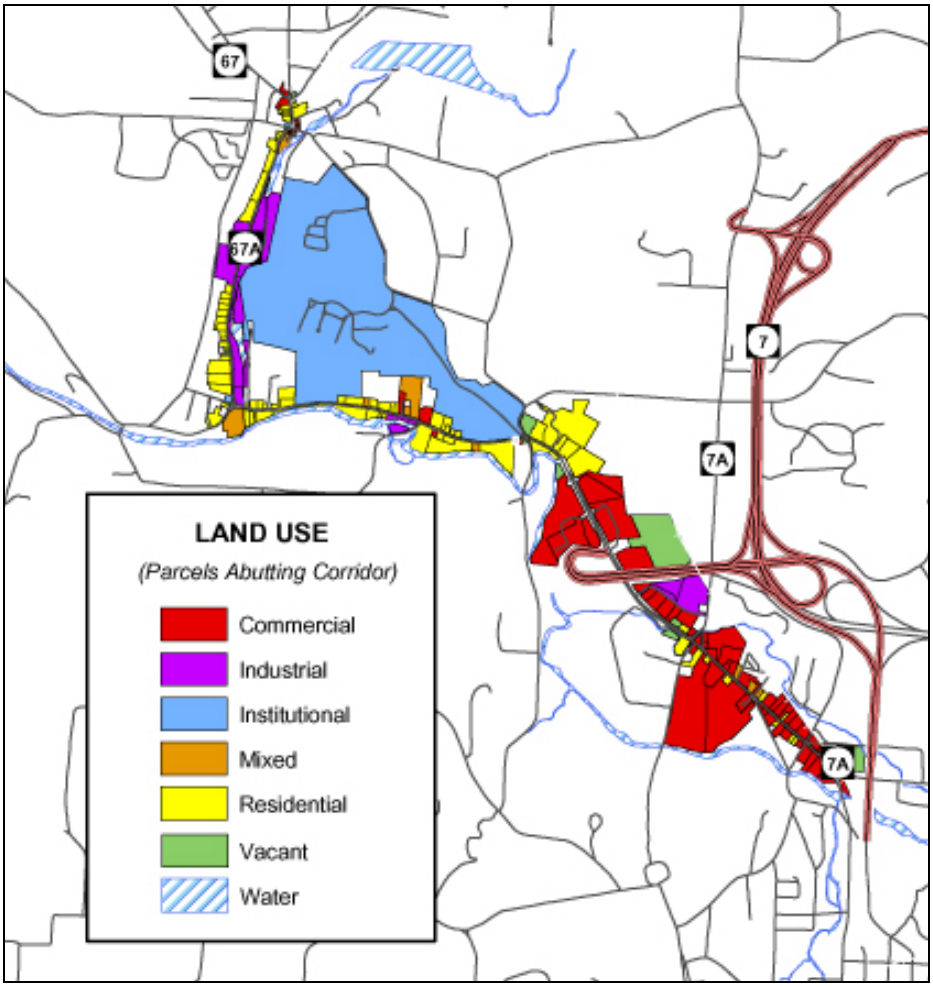


Table 13 shows a summary of the total acreage, number of parcels, and average parcel size for those parcels abutting the VT 67A/7A study area. In terms of total area, institutional use makes up almost half of the total parcel land area abutting the corridor. However, nearly all of the institutional land area is Bennington College which lies off of the study corridor. Residential and commercial uses comprise the highest number of parcels along the corridor, with 44% and 36% of the corridor's share, respectively.

[1] Existing land use based on drive-by field survey of study area.

Table 13: Summary of Parcels Abutting VT 67A/7A Study Area

	Acres	**%**	**Parcels**	**%**	**Average Parcel Size** (acre)
Commercial	149	24%	63	36%	2.4
Industrial	49	8%	12	7%	4.1
Institutional	**288**	**46%**	3	2%	**96.1**
Mixed	14	2%	9	5%	1.6
Residential	91	15%	**78**	**44%**	1.2
Vacant	29	5%	12	7%	2.4

4.0 PROJECTION OF FUTURE CONDITIONS

This section develops a methodology for projecting future land use and traffic conditions to facilitate an assessment of future system impacts and to identify measures to mitigate these future issues. For this analysis, land use and traffic conditions have been projected out to the year 2025. The amount of traffic generated along the study corridor within this 20-year timeframe is developed by combining the following components:

1) regional background traffic growth rates;
2) traffic from developments along or near the study area that are anticipated in the near term but are not yet built; and
3) traffic adjustments resulting from the completion of VT 279.

The impact of the increased traffic volumes on intersection and road segment congestion and corridor safety is presented in this section as well.

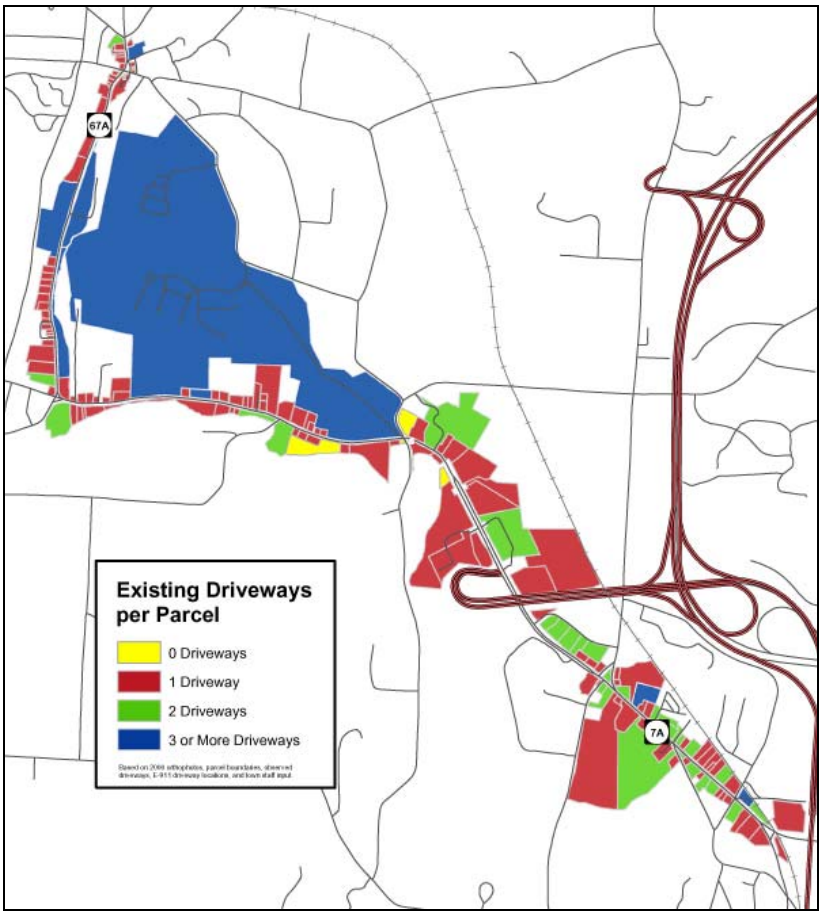
4.1 CORRIDOR DRIVEWAY ANALYSIS

A number of important performance measures being examined in this planning study vary based on the number, type, and density of driveways along the corridor. These performance measures include: corridor travel time, segment level of service, and accident rate. In general, the more frequent the curb cuts or driveways, the more intense the "side friction" experienced by drivers contributing to irregular travel speeds, frequent stops, and a greater risk for crashes.

An examination of the existing driveway locations, parcel boundaries, and current land use and zoning regulations along the corridor was conducted to better understand the potential for additional driveways along the study corridor. Using orthophotograhs of the corridor, site observations, parcel boundaries, E-911 driveway locations, and municipal staff comments, an assessment of the total number of driveways per parcel for all parcels along the study corridor was conducted.

Figure 13 shows the number of current driveways per parcel along the study corridor.

Figure 13: Existing Driveways Per Parcel (parcels fronting study corridor)



The current Bennington Land Use and Development Regulations (2004) state, with a few exceptions[1], that no lot may be served by more than one access or curb cut. Therefore, it was assumed for this analysis that all of the parcels identified in Figure 13 with more than one driveway could not add any new driveways onto the corridor in the future. Only parcels identified with no driveways could potentially add a driveway in the future. As shown in Figure 13, only four parcels (shown in yellow) currently exist with the potential to add driveways onto the corridor. One of these parcels already shares an access with its abutting parcels, and two parcels do not have necessary frontage along VT 67A to permit a new curb cut. This leaves only one parcel along the 4.1 mile

[1] With the exception of accesses (curb-cuts) used solely for agricultural or forestry purposes, or for the exclusive use of emergency vehicles, or with Development Review Board approval.

corridor with the ability under existing regulations to add a new driveway[1]. For the purposes of the subsequent analysis, we have assumed that there will be no new driveways added along the corridor over the next twenty years.

4.2 2025 TRAFFIC PROJECTIONS

The following three components were used to develop the 2025 traffic volumes along VT 67A and VT 7A:

- regional background traffic growth;
- traffic from developments along or near the study area that are anticipated in the near term but are not yet built, and
- traffic adjustments resulting from the completion of VT 279 around Bennington.

The methodology used to develop the 2025 traffic projections is described in detail in Appendix F.

Table 14 shows how background growth, anticipated development, and the opening of VT 279 affects the total traffic volume traveling through each study intersection during the 2025 design hour[2]. Traffic volumes are projected to increase by an average of 50% through the study area intersections. The percentage increases ranges from a low of 20% at the US 7-VT 7A-Kocher Drive intersection to a high of 80% at the VT 67A-Hannaford-Home Depot intersection.

Table 14: Summary of Traffic Growth by Intersection

	2004 Design Hour Volume (All Approaches)	*2004 to 2025 Volume Increase Due to:* Background Growth	Anticipated Development	VT 279	*2025 Traffic Volume* Total	Total Increase	% Increase
VT 67 - VT 67A	1,070	313	115	55	1,554	484	45%
VT 67A - West Street - Prospect Street	960	280	237	49	1,526	566	59%
VT 67A - River Road - Hillside Street	980	286	274	51	1,591	611	62%
VT 67A - Mattison Road - Silk Road - Bennington College	1,770	517	343	91	2,722	952	54%
VT 67A - Hannafords - Home Depot Driveways	1,510	364	797	53	2,725	1,215	80%
VT 67A - VT67A Connector	1,390	335	462	72	2,259	869	63%
VT 7A - VT 67A	1,560	375	524	-202	2,257	697	45%
VT 7A - WalMart Drive - Price Chopper	2,430	584	835	-245	3,604	1,174	48%
VT 7A - Hicks Avenue - Willow Road	2,220	533	807	-365	3,195	975	44%
VT 7A - Benmont Avenue	3,510	843	614	-574	4,393	883	25%
US 7-VT 7A-Kocher Drive	3,130	753	517	-630	3,770	640	20%

Table 15 shows how traffic from background growth, anticipated development, and the opening of VT 279 affects the total daily traffic volume on each of the five study segments. These values differ

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[1] It would be possible for some of the larger parcels abutting VT 67A to add new driveways by subdividing into smaller parcels that maintain the minimum road frontage for a new driveway. The potential for new driveways added in the subdivision process should be part of the municipal and state evaluation conducted as part of the driveway permitting and subdivision review process. This coordinated review process is discussed in more detail in Section 5.0.

[2] The Design Hourly Volume (DHV) is generally taken to be the 30th highest hourly volume during the year and is the standard in Vermont for traffic engineering design.

from those shown in Table 14 in the following ways: 1) they reflect average *daily* volumes, and 2) they only reflect through traffic on VT 7A and VT 67A (i.e. not side street traffic). Daily traffic volumes are projected to increase by an average of 27% through the study segments.

Table 15: Summary of Traffic Growth by Segment

Segment	2004 AADT (avg.)	*2004 to 2025 Volume Increase Due to:* Background Growth	Anticipated Development	VT 279	*2025 Traffic Volume* Total	Total Increase	% Increase
1 North Bennington Village Section	6,900	2,000	240	400	9,500	2,600	38%
2 Industrial Section	7,300	2,100	270	400	10,100	2,800	38%
3 Bennington College Section	8,000	2,300	340	400	11,000	3,000	38%
4 Emerging Commercial & Industrial Section	9,400	2,300	800	-1,900	10,600	1,200	13%
5 Northside Drive Section	15,600	3,800	830	-3,100	17,100	1,500	10%

4.3 2025 CONGESTION SUMMARY

Congestion at the study intersections and road segments is quantified using Level of Service (LOS). Level of Service (LOS) is the standard measure used to quantify the operational performance of intersections and road segments as perceived by the driver. The grades A, B, C, D, E and F are the five possible LOS ratings. An LOS A indicates that the facility is operating exceptionally well with free flow, while an LOS F indicates that demand exceeds capacity and the facility is failing.

4.3.1 2025 Intersection Level of Service Summary

The congestion analysis assumes existing geometries (i.e. number of lanes, speeds, allocation of turn lanes) at all intersections in the 2004 analysis. For the 2025 analysis, existing geometries are assumed at all intersections except the following:

- VT 67A-River Road-Hillside Street: Assumed that River Road and Hillside Road approaches are combined per current VTrans reconstruction specifications.
- VT 7A – Benmont Avenue: Assumed two northbound left turn lanes and extended northbound right turn lane per recommended STPG TSIG(4)SC design alternative D-1.
- VT 7A -US 7-Kocher Drive: Assumed extended turn lanes on Kocher Drive approach per recommended STPG TSIG(4)SC design alternative D-1.

Table 16 shows the 2004 and 2025 LOS and delay for each signalized intersection. The additional traffic generated by background growth and development within the study area caused delays to increase at all intersections. The largest increases in delay are projected at the Northside Drive-Emma Street-Monument Plaza intersection and at the Northside Drive-Hicks Avenue-Willow Road intersection, primarily due to the increased traffic loadings generated by the anticipated development within the corridor.

Table 16: 2004 & 2025 Signalized Intersection Level of Service

	2004 DESIGN HOUR		2025 DESIGN HOUR	
VT 67A/Hannafords/Home Depot	LOS	Delay (sec)	LOS	Delay (sec)
Overall	**B**	**12**	**C**	**27**
Eastbound: Hannafords	B	20	C	20
Westbound: Home Depot	B	20	D	49
Northbound: VT 67A	B	12	C	24
Southbound: VT 67A	A	10	C	27
VT 67A/VT 67A Connector/Shopping Center Driveway				
Overall	**A**	**9**	**B**	**11**
Eastbound: VT 67A Connector	C	24	C	22
Westbound: Shopping Center	C	21	B	20
Northbound: VT 67A	A	7	B	10
Southbound: VT 67A	A	5	A	8
VT 67A/VT 7A				
Overall	**A**	**10**	**B**	**16**
Eastbound: VT 67A	B	10	B	18
Westbound: VT 67A	A	9	B	11
Southbound: VT 7A	B	10	C	23
VT 7A/Price Chopper/Emma Street				
Overall	**D**	**44**	**F**	**100+**
Eastbound: VT 7A	D	42	F	100+
Westbound: VT 7A	D	46	F	100+
Northbound: Price Chopper	D	46	F	100+
Southbound: Emma Street	D	40	F	100+
VT 7A/Hicks Avenue/Willow Road				
Overall	**C**	**25**	**F**	**100+**
Eastbound: VT 7A	B	19	F	100+
Westbound: VT 7A	C	28	F	100+
Northbound: Hicks Avenue	C	30	D	50
Southbound: Willow Road	D	39	F	100+
VT 7A/Benmont Avenue/Aldi				
Overall	**B**	**20**	**C**	**30**
Eastbound: VT 7A	B	19	C	29
Westbound: VT 7A	B	17	C	26
Northbound: Benmont Avenue	C	23	D	39
Southbound: Aldi Driveway	B	17	B	19
VT 7A/US 7/Kocher Drive				
Overall	**D**	**43**	**E**	**65**
Eastbound: Northside Drive	D	51	E	66
Westbound: Kocher Drive	D	42	E	66
Northbound: US 7	D	43	E	68
Southbound: US 7	C	31	E	56

* HCS does not accurately model delays > 100 seconds

Table 17 shows the 2004 and 2025 LOS and delay for each unsignalized intersection. As anticipated, the additional traffic generated through background growth, development within the study area, and the opening of VT 279 resulted in increased delays at all study intersections. All four unsignalized intersections are projected to experience significant increases in delay primarily due to the high through volumes on VT 67A and lack of available gaps for vehicles from the minor approaches to enter the traffic stream.

Table 17: 2004 & 2025 Unsignalized Intersection Level of Service

	2004 DESIGN HOUR		2025 DESIGN HOUR	
VT 67A/VT 67/Houghton Street	LOS	Delay (sec)	LOS	Delay (sec)
Eastbound: VT 67	E	39	F	100+
Westbound: Houghton St.	F	77	F	100+
Northbound: VT 67A	A	6	A	8
Southbound: VT 67	A	0	A	0
VT 67A/West Street/Prospect Street				
Eastbound: West St.	C	24	F	100+
Westbound: Mechanic St.	C	18	F	100+
Northbound: (VT 67A)	A	0	A	0
Southbound: (VT 67A)	A	2	A	3
VT 67A/River Road/Hillside Street				
Eastbound: River Rd + Hillside St	C	17	F	76
Westbound: VT 67A	A	2	A	4
Southbound: VT 67A	A	0	A	0
VT 67A/Mattison Road/Silk Road/Bennington College ^				
Eastbound: VT 67A	A	1	A	2
Westbound: VT 67A	A	1	A	5
Northbound: Silk Road	F	100+	F	100+
Southbound: Bennington Coll + Mattison	F	100+	F	100+

* HCS does not accurately model delays > 100 seconds
^ For Synchro/HCS analysis, Bennington College and Mattison Road approaches were combined

4.3.2 2025 Road Segment Level of Service

4.3.2.1 Rural Road Segment Analysis

Level of Service for rural, two-lane highways is measured in terms of the percent of time vehicles spend following other vehicles and average travel speed. The key inputs include shoulder and lane width, terrain type, directional traffic split, percentage of trucks, percentage of no-passing zones, the number of access points per mile, the posted speed, and traffic volumes. This methodology applies only to two-lane road segments without traffic signals and is therefore not applicable within Segments 4 and 5.

Table 18 presents the results of the rural road segment LOS analysis for unsignalized segments 1 through 3 for 2004 and 2025. The table shows the change in the percentage of roadway capacity utilized, the percent time spent following another vehicle, the average travel speed, and segment Level of Service. In general, the service measures all decrease slightly from 2004 to 2025.

Table 18: Rural Segment Level of Service: 2004 & 2025

	Segment 1 VT 67 to West Street		**Segment 2** West St. to Scarey Lane		**Segment 3** Scarey Lane to Silk Road	
	2004	***2025***	***2004***	***2025***	***2004***	***2025***
% of Capacity Utilized	22%	30%	23%	32%	25%	34%
% Time Spent Following	64%	70%	65%	72%	66%	74%
Average Travel Speed	26 mph	25 mph	31 mph	30 mph	31 mph	29 mph
Level of Service	C	D	C	D	C	D

4.3.2.2 Suburban Road Segment Analysis

Due to the added measure of delay caused by traffic signals, the methodology used to calculate segment LOS on urban and suburban arterials differs from the rural road methodology presented above. Table 19 presents the results of the suburban road segment LOS analysis for segments 4 and 5 in 2004 and 2025. The table shows the service measures decreasing slightly across segment 4 and decreasing rather significantly across segment 5 (Northside Drive).

Table 19: Suburban Segment Level of Service: 2004 & 2025

	Segment 4 Silk Road to VT 7A				Segment 5 VT 67A to US 7			
	2004		2025		2004		2025	
	North	South	North	South	North	South	North	South
Signal Delay (sec)	13.7	29.9	25.8	59.3	50.5	182.1	195.4	575.0
Travel Time (sec)	96.7	367.3	108.8	396.7	150.1	315.8	295	708.7
Arterial Speed (mph)	25.1	27.4	22.3	25.4	18.2	11.7	9.3	5.2
Level of Service	B	B	C	B	C	E	F	F

4.4 2025 SAFETY ANALYSIS

The projected number of accidents in 2025 was calculated by applying the 2004 accident rate to the 2025 projected traffic volumes along each segment. Table 20 shows that between 2004 and 2025, the number of total crashes along the study corridor is projected to increase by 7 per year (15%).

Table 20: Change in Annual Crashes (2004-2025)

Segment	2004 Annual Crashes	2025 Annual Crashes	Change in Crashes (2004-2025)
1. VT 67 to West Street/Prospect	1	1	37%
2. West Street to Scarey Lane	2	3	34%
3. Scarey Lane to Silk Road	3	5	40%
4. Silk Road to VT 7A	19	21	13%
5. VT 7A to US 7	20	22	9%
Total:	**45**	**52**	**15%**

The safety benefit of consolidating driveways along the corridor has been estimated based on a methodology provided in *NCHRP Report 420 – Impacts of Access Management Techniques.* The methodology estimates the percentage change in accident rates along a roadway segment based on the number of un-signalized intersections and driveways per mile, the volume of traffic, the speed limit, and the area type.

Table 21 shows the number of annual accidents projected to occur in 2025 under the following three conditions: 1) with the existing driveways and, 2) driveways consolidated or eliminated by 25%. The table shows that a 25% reduction of driveways from 52 to 43, would result in 7 fewer accidents per year within the study area.

Table 21: Change in Annual Accidents with Reduction of Access Points

Segment	Existing Driveways	Driveways Reduced by 25%	Change in Crashes (25% Driveway Reduction)	# Driveways Closed (25% Driveway Reduction)
1. VT 67 to West Street/Prospect	1	1	-20%	3
2. West Street to Scarey Lane	3	3	-14%	9
3. Scarey Lane to Silk Road	5	4	-15%	11
4. Silk Road to VT 7A	21	18	-14%	6
5. VT 7A to US 7	22	19	-12%	15
Total:	**52**	**45**	**-13%**	**43**

5.0 RECOMMENDATIONS AND IMPLEMENTATION PLAN

Based on the existing and future traffic and land use issues identified in the above analysis, and on input from members of the project committee and the public, recommendations were developed to improve access, mobility, and safety throughout the study area. This section presents the site-specific recommendations, the regulatory and policy recommendations, and an implementation plan which identifies a path for moving forward with the identified recommendations.

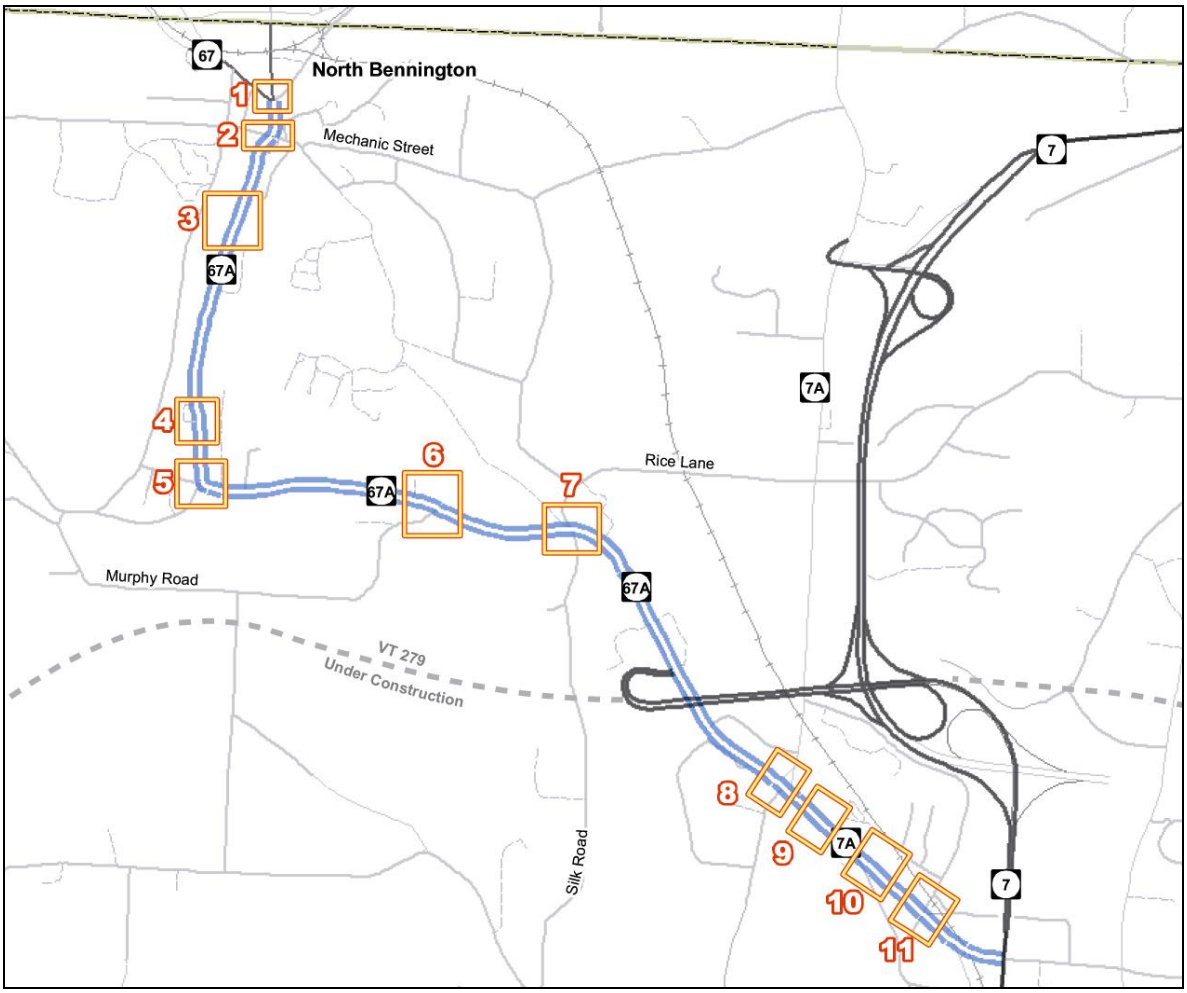
5.1 SITE SPECIFIC RECOMMENDATIONS

Existing geometric conditions that contribute to poor access management along the study corridor were identified based on existing and future traffic conditions, crash history, land use data , site observations, and an analysis of orthophotographs. In general, the identified access management issues typically fell into one of the following categories:

- Long, continuous curb cuts;
- Poorly defined driveways;
- Driveways located too closely together;
- Poor site distance;
- Lack of interconnectivity; and
- Lack of pedestrian network.

Eleven focus areas were identified along the study corridor for potential improvement (see Figure 14).

Figure 14: Identified Access Management Focus Areas



Sketch plans were developed that delineate potential solutions to the identified deficiencies in each of the eleven focus areas. In instances where recommendations for improvement have been made in previous plans, those elements were carried forward into these conceptual drawings and noted accordingly. Those previously identified improvements have been extracted from the following plans:

- North Bennington Village Center Improvements Plan, Engineered Solutions (2003)
- Water Street Surface Rehabilitation Project Plans, Clough, Harbour and Associates (2003)
- Northside Drive Transportation Study and Plan, Wilbur Smith and Associates (2003)
- Northside Drive to Kocher Drive Improvements – Alternative D1, VHB (2002)

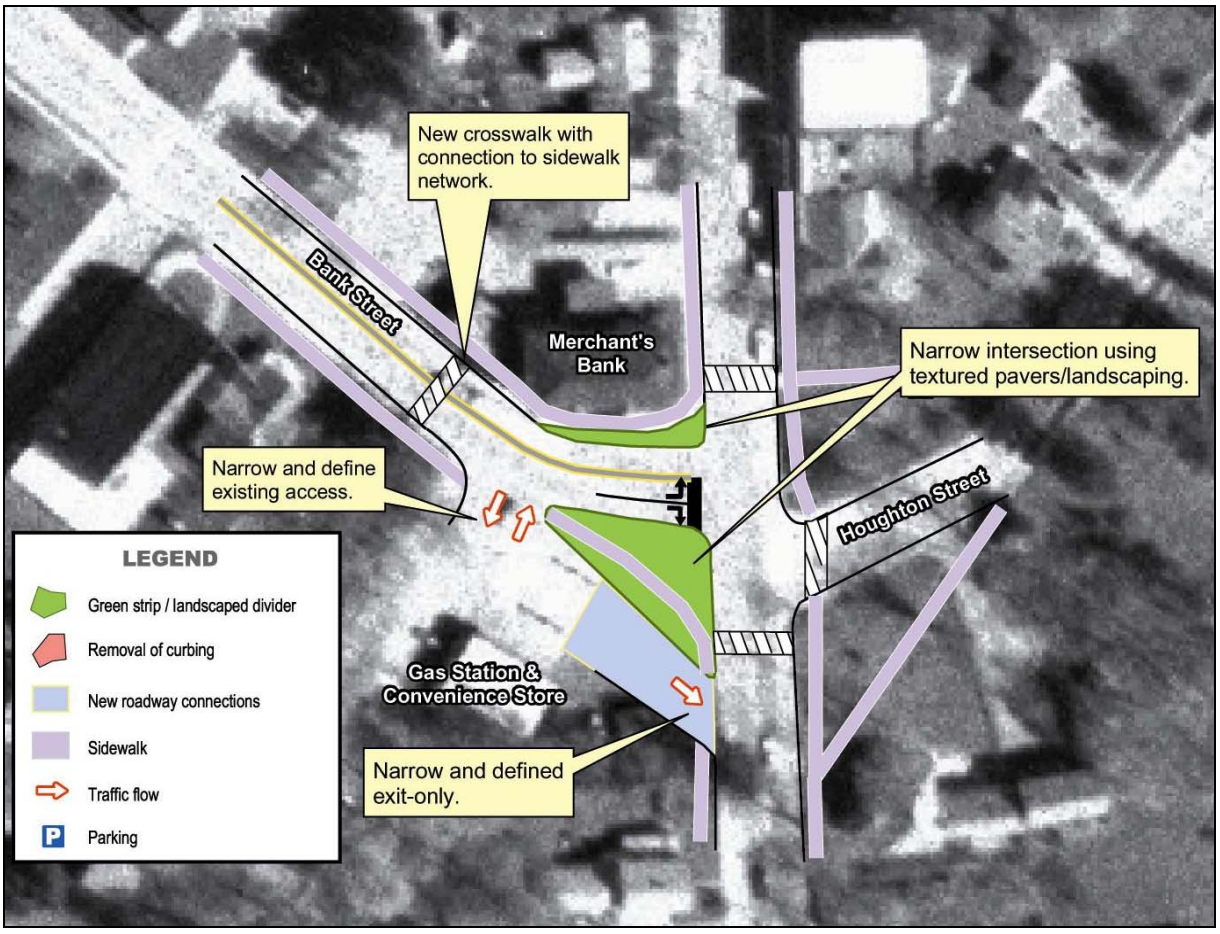
The eleven focus area sketch plans and recommendations are shown on the following pages (Figure 15 through Figure 28).

5.1.2 Focus Area #1: North Bennington – Bank Street

The recommended improvements at the intersection of VT 67A and VT 67 in North Bennington include the following components:

- Provide a narrowed and more defined access to the gas station/convenience store/laundromat with a two-way driveway onto Bank Street and an exit-only drive onto VT 67A.
- New crosswalks providing enhanced connections with the sidewalk network.
- Narrowed pavement at the Bank Street approach to VT 67A providing a more typical "T" shaped, stop-controlled intersection.

Figure 15: Focus Area #1 – Bank Street in North Bennington[1]



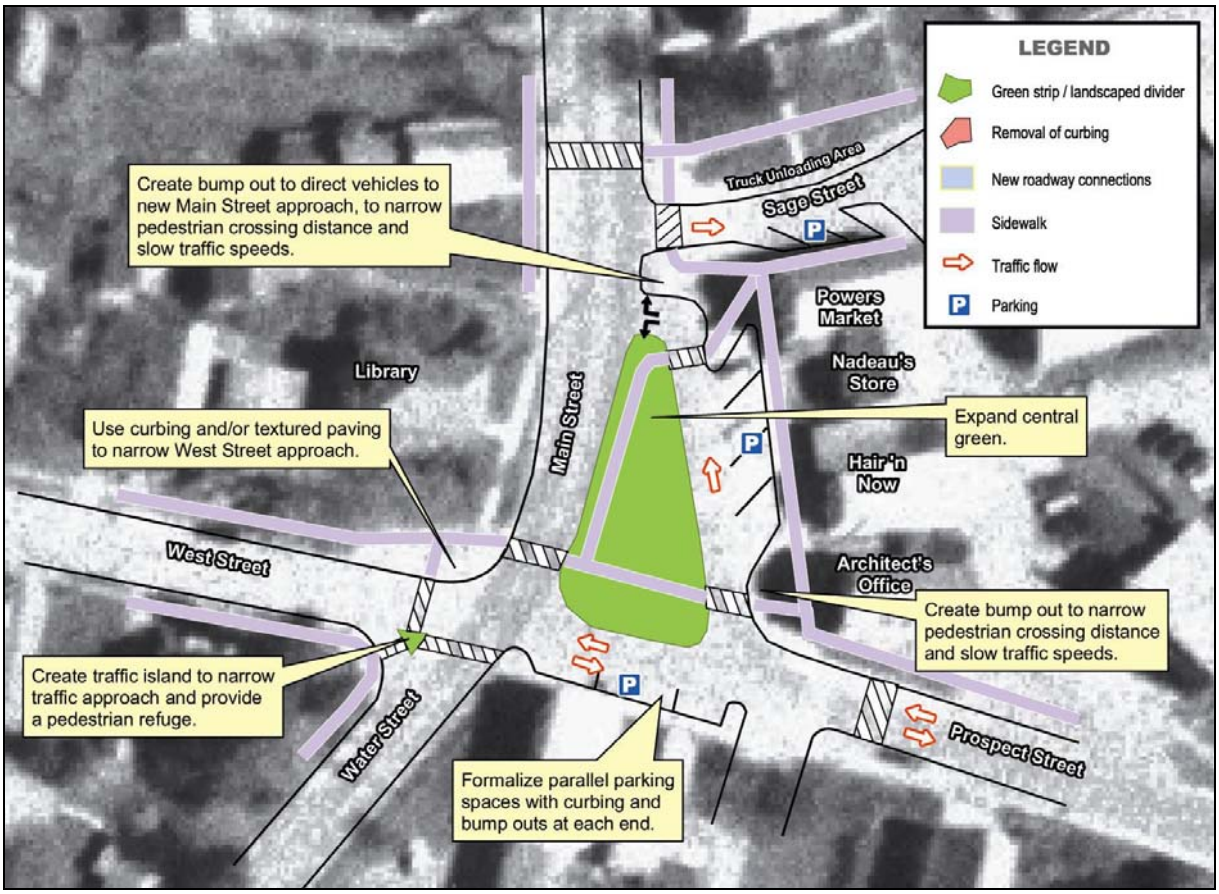
[1] Certain recommendations extracted from: *North Bennington Village Center Improvements Plan*, Engineered Solutions (2003)

5.1.3 Focus Area #2: North Bennington – Lincoln Square

The recommended improvements at Lincoln Square in North Bennington include the following components:

- An expanded central green to slow traffic, narrow pedestrian crossing distances, and enhance traffic flow around the green.
- A new traffic island and narrowed approach at the West Street approach to Water Street to facilitate safe and efficient vehicular and pedestrian traffic.
- Bump outs along Prospect Street and along the Main Street storefronts to formalize parking locations, narrow pedestrian crossing distances, and slow traffic speeds.

Figure 16: Focus Area #2 – Lincoln Square in North Bennington[1]



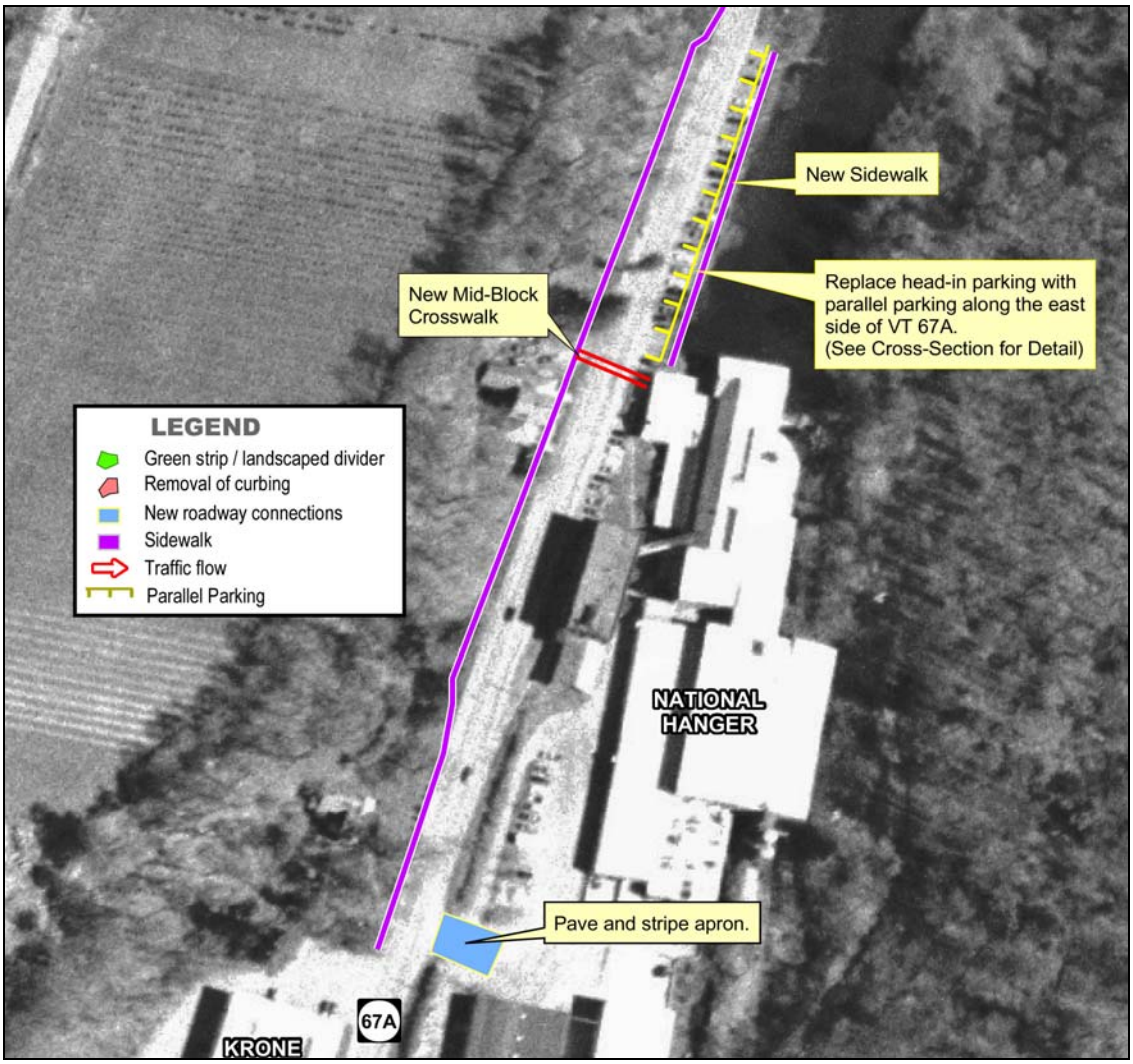
[1] Certain recommendations extracted from: *North Bennington Village Center Improvements Plan*, Engineered Solutions (2003)

5.1.4 Focus Area #3: Water Street / National Hanger Mill

The recommended improvements adjacent to the National Hanger Mill on Water Street in North Bennington include the following components:

- Replace existing head-in parking north of the mill with parallel parking along the east side of VT 67A. Add sidewalks along the east side parking lane to provide access to the mill. Add new mid-block crosswalk to connect mill to west side sidewalks. (See Figure 18 on the following page for existing and recommended cross-sections)
- Pave a 20-foot apron at the central mill driveway and paint a center line and stop bar at the approach to facilitate safe access and egress movements.

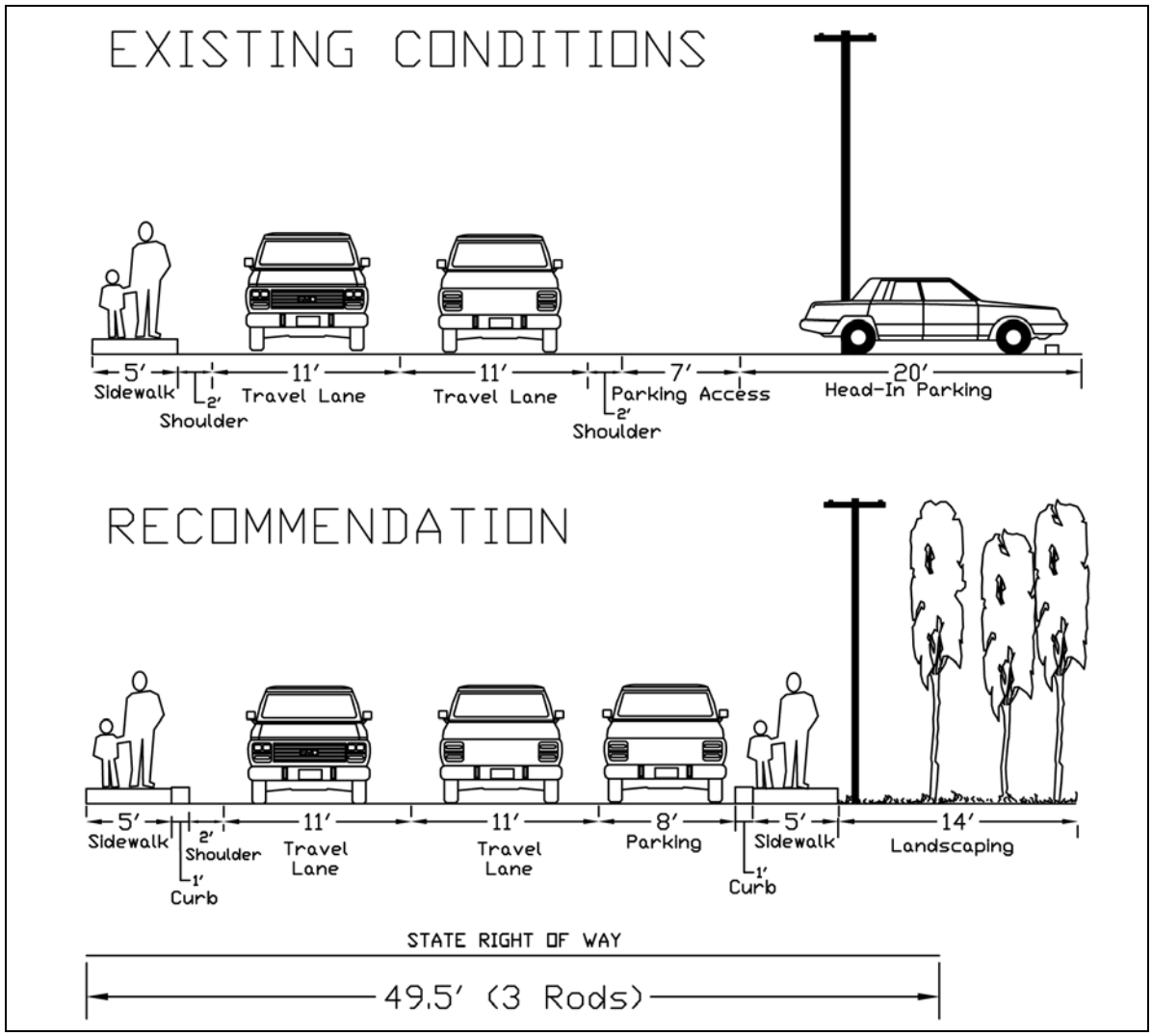
Figure 17: Focus Area #3 – Water Street / National Hanger Mill



The parking area north of the National Hanger Mill is currently one long, continuous curb cut providing uncontrolled access for head-in parking. The current configuration could lead to potential safety problems as drivers can turn into or out of parking spaces at any point along Water Street.

Figure 18 shows the existing and proposed typical VT 67A cross-section north of the mill. The existing cross-section is comprised, from west to east (left to right on the sketches) of a sidewalk, shoulder, one travel lane in each direction, a poorly defined shoulder, and approximately 27 feet of head-in parking area. The proposed cross-section consists of a sidewalk, curb, shoulder, one travel lane in each direction, a northbound parallel parking lane, curb, sidewalk, and approximately a 14-foot landscaped buffer to the mill pond.

Figure 18: Cross-Section: Existing and Proposed Conditions Along VT 67A North of Hanger Mill



The recommended changes would decrease the available on-street parking along Water Street from approximately 30 spaces to 15 spaces. However, there is additional employee parking available south of the facility.

As of the drafting of this report, VTrans is preparing to begin a major reconstruction of Water Street from River Road to West Street. All of the approved recommendations along Water Street should be forwarded to the appropriate VTrans project manager for inclusion in the reconstruction project.

Other options considered at this location include: 1) extending parallel parking along the west side of Water Street adjacent to the mill to increase the available on-street parking supply, and 2) eliminating the existing head-in parking area for National Hanger, requiring that all employees park in the remaining off-street lots, and providing wider through travel lanes (12 feet) on Water Street.

During the course of this project's public outreach process, the alternative that includes parallel parking on both sides of Water Street was rejected for the following reasons:

- Difficulty to plow with vehicles parked on both sides of the street;
- A perception that on-street parking along both sides of the street would reduce the roadway's capacity; and
- Increased difficulty for trucks to drive through.

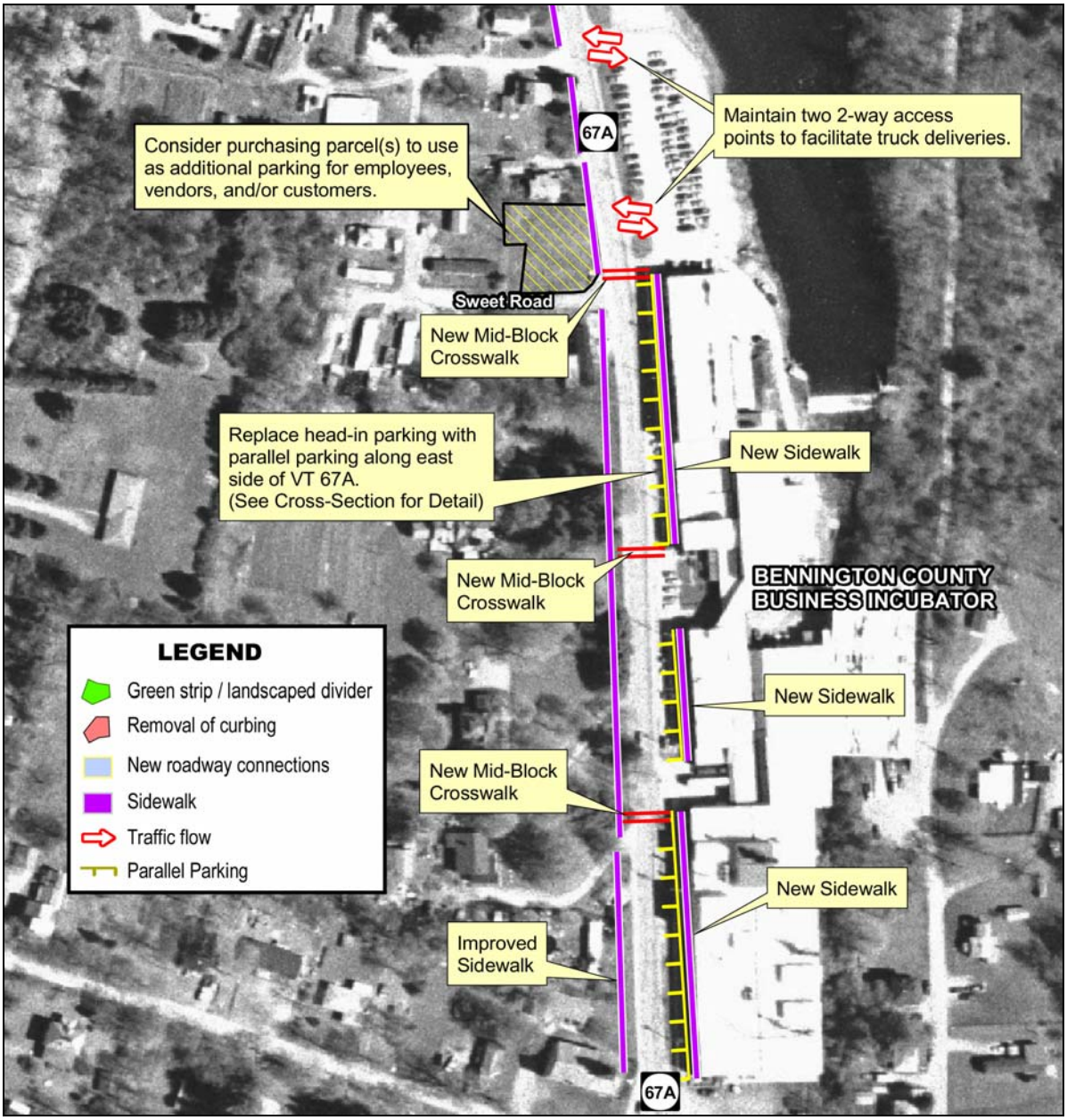
The Bennington County Regional Commission and the Village of North Bennington should work closely with residents, business owners, and elected officials to reach consensus on the function of Water Street – i.e. whether its desired function is to serve local traffic (where slower speeds, narrower lanes, crosswalks, and on-street parking are more appropriate), through traffic (where higher speeds, wider lanes, and off-street parking are more appropriate), or a reasonable mix of both local and through traffic.

5.1.5 Focus Area #4: Water Street / Bennington County Business Incubator

The recommended improvements at the Bennington County Business Incubator on Water Street in North Bennington include the following components:

- Replace existing head-in parking adjacent to the business incubator with parallel parking along the east side of VT 67A. Provide sidewalks adjacent to parking and crosswalks across VT 67A to provide access to the incubator as shown in Figure 19. (See Figure 20 on the following page for existing and recommended cross-sections)
- Consider purchasing vacant parcel at northwest corner of VT 67A-Sweet Road intersection to use as additional parking for employees, vendors, and/or customers of the incubator.

Figure 19: Focus Area #4 – Water Street / Bennington County Business Incubator

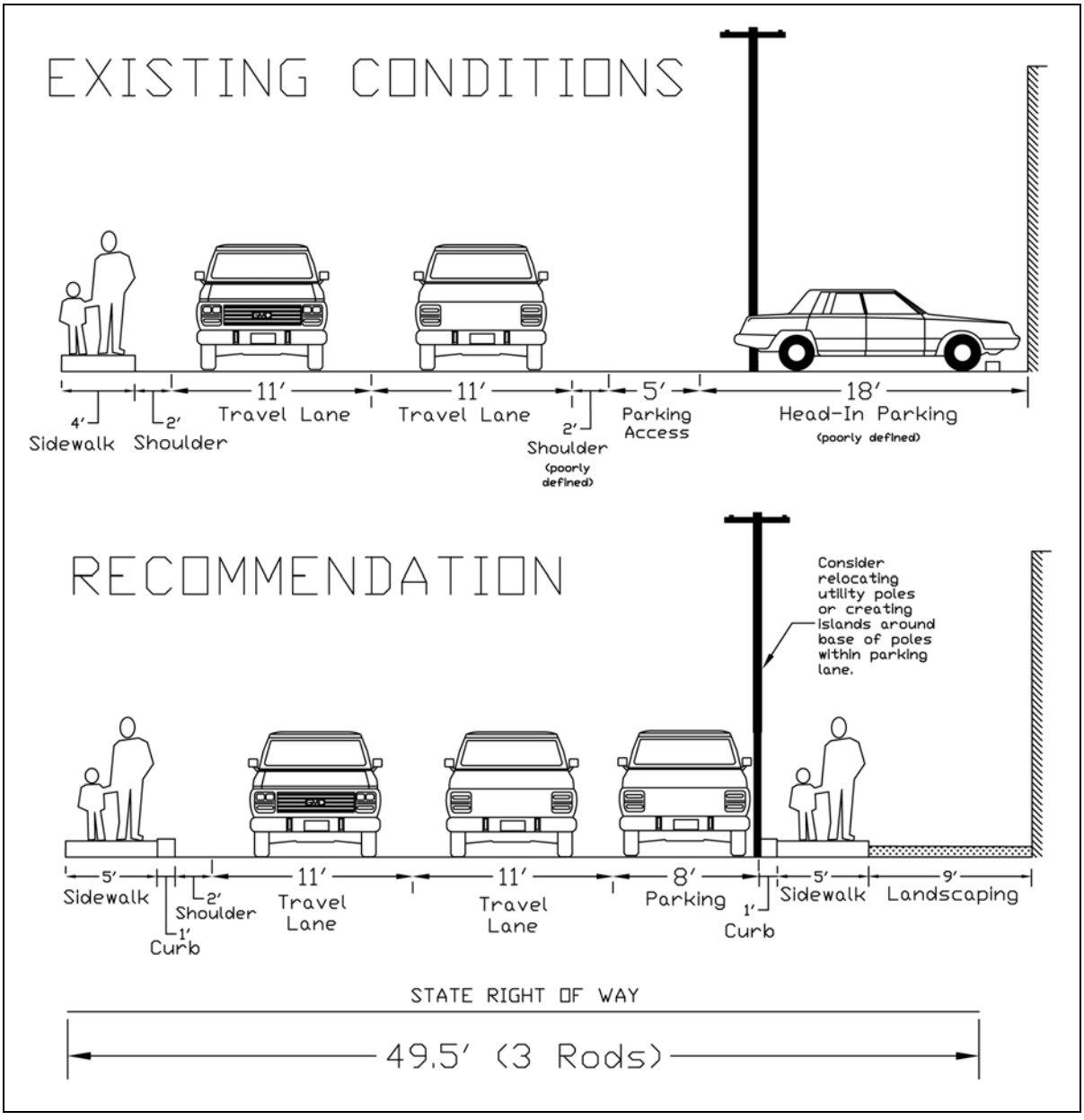


The parking area adjacent to the incubator is currently a series of continuous curb cuts providing uncontrolled access for head-in parking. The current configuration could lead to potential safety problems as drivers may turn into or out of parking spaces at any point.

Figure 20 shows the existing and proposed typical cross-sections across VT 67A adjacent to the incubator. The existing cross-section is comprised, from west to east (left to right on the sketches) of a sidewalk, shoulder, one travel lane in each direction, a poorly defined shoulder, and approximately

20 feet of head-in parking space (varies). The proposed cross-section consists of a sidewalk, curb, shoulder, one travel lane in each direction, a northbound parallel parking lane, curb, sidewalk, and approximately a 9-foot landscaped buffer to the building face.

Figure 20: Cross-Section: Existing and Proposed Conditions Along VT 67A Adjacent to BCIC Building



The recommended changes would decrease the available on-street parking in front of the incubator from approximately 60 spaces to 35 spaces. Depending on the parking needs of the incubator's tenants, additional parking capacity may be needed.

As of the drafting of this report, VTrans is preparing to begin a major reconstruction of Water Street from River Road to West Street. All of the approved recommendations along Water Street should be forwarded to the appropriate VTrans project manager for inclusion in the reconstruction project.

Other options considered at this location include: 1) extending parallel parking along the west side of Water Street adjacent to the mill to increase the available on-street parking supply, and 2) eliminating all of the existing head-in parking area for the incubator and providing wider through travel lanes (12 feet) on Water Street. Both of these options would require the identification of additional off-street parking capacity, potentially at the vacant lot at the corner of Water Street and Sweet Road as shown in Figure 19 above.

During the course of this project's public outreach process, the alternative that includes parallel parking on both sides of Water Street was rejected for the following reasons:

- Difficulty to plow with vehicles parked on both sides of the street;
- A perception that on-street parking along both sides of the street would reduce the roadway's capacity; and
- Increased difficulty for trucks to drive through.

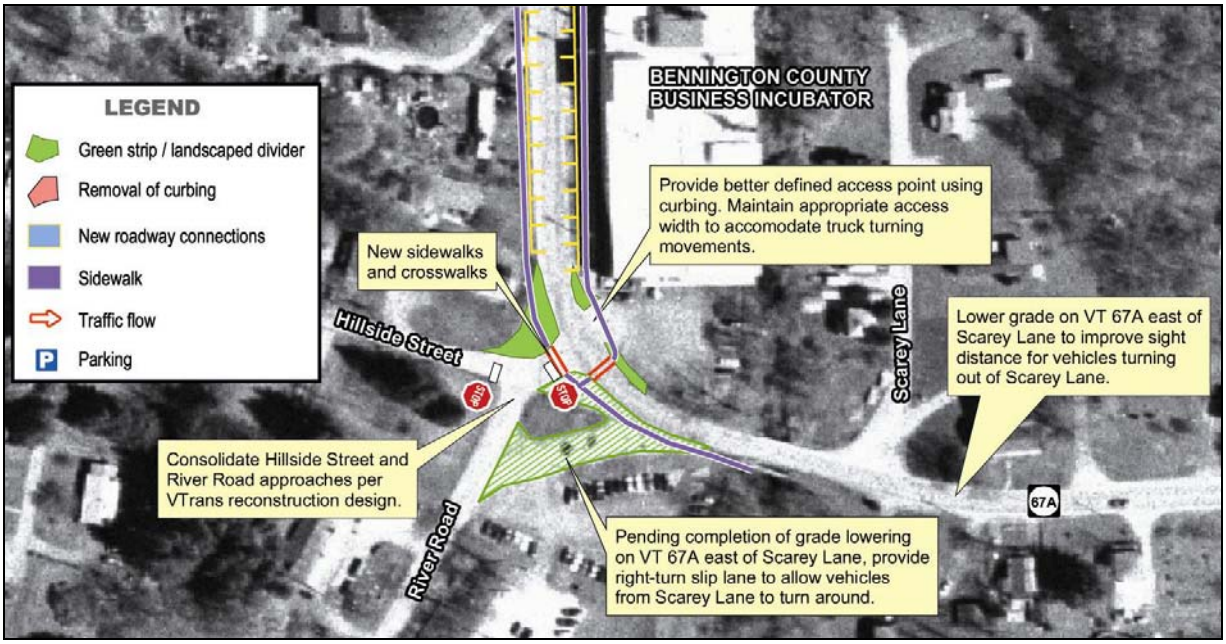
The Bennington County Regional Commission and the Village of North Bennington should work closely with residents, business owners, and elected officials to reach consensus on the function of Water Street – i.e. whether its desired function is to serve local traffic (where slower speeds, narrower lanes, crosswalks, and on-street parking are more appropriate), through traffic (where higher speeds, wider lanes, and off-street parking are more appropriate), or a reasonable mix of both local and through traffic.

5.1.6 Focus Area #5: Water Street / River Road / Hillside Street

The recommended improvements at the Water Street / River Road / Hillside Street intersection in North Bennington were derived in part from the Water Street Surface Rehabilitation Project (Clough, Harbour & Assoc., 2003) and include the following components:

- Consolidate the Hillside Street and River Road approaches to provide a more traditional "T" approach to Water Street. Provide a stop control for Hillside Street approach to River Road.
- Narrow existing southern delivery access to Bennington County Business Incubator. Existing wide access is located along a dangerous curve in Water Street. Ensure that any driveway narrowings allow sufficient space for truck turning movements.
- Lower the grade of VT 67A east of Scarey Lane to improve the sight distance for vehicles turning out of Scarey Lane. Until this has been completed, provide a right turn slip lane to allow right turns onto VT 67A from River Road/Hillside Street. This slip lane will allow vehicles that want to turn left out of Scarey Lane to turn right onto VT 67A and then reverse direction at the River Road/Hillside Road intersection.
- Continue sidewalk network south along VT 67A from incubator and provide crosswalks across VT 67A and River Road adjacent to intersection. Future residential growth along Royal Street could warrant the extension of the sidewalk network farther east in the future.

Figure 21: Focus Area #5 – Water Street / River Road / Hillside Street

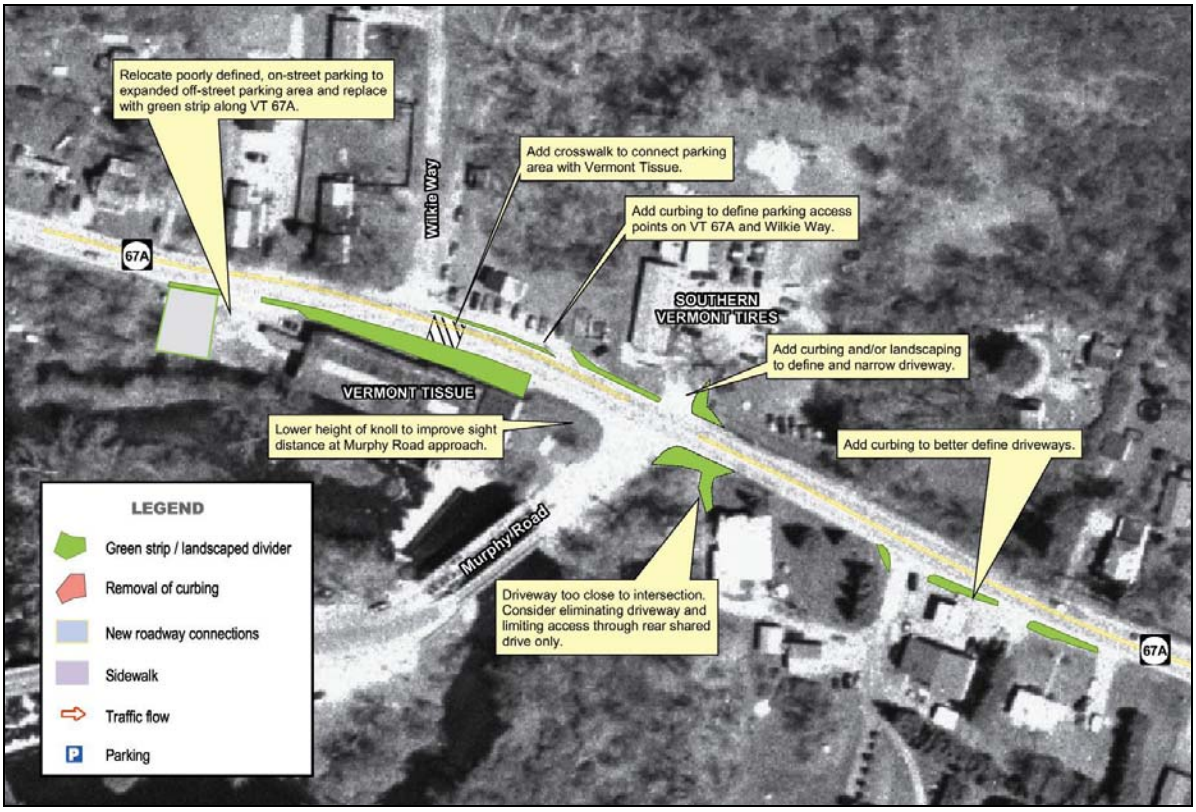


5.1.7 Focus Area #6: Paper Mill Village

The recommended improvements near Paper Mill Village along VT 67A include the following elements:

- Remove current Vermont Tissue parking area along southern shoulder of VT 67A and relocate to expanded parking lot east of building.
- Add curbing to the Vermont Tissue parking lot across VT 67A to separate it from VT 67A traffic and to provide a more defined access point.
- Add crosswalk across VT 67A to connect Vermont Tissue with parking area.
- Cut back the bank between the Vermont Tissue building and Murphy Road to improve sight distance to the west from the Murphy Road approach.
- Narrow and define Southern Vermont Tires' driveway using curbing and/or landscaping.
- Relocate residential driveway currently accessing at southeast corner of VT 67A-Murphy Road intersection to access existing shared drive via Smith's Variety Store.
- Narrow and define Smith's Variety Store's accesses using curbing and/or landscaping.

Figure 22: Focus Area #6 – Paper Mill Village

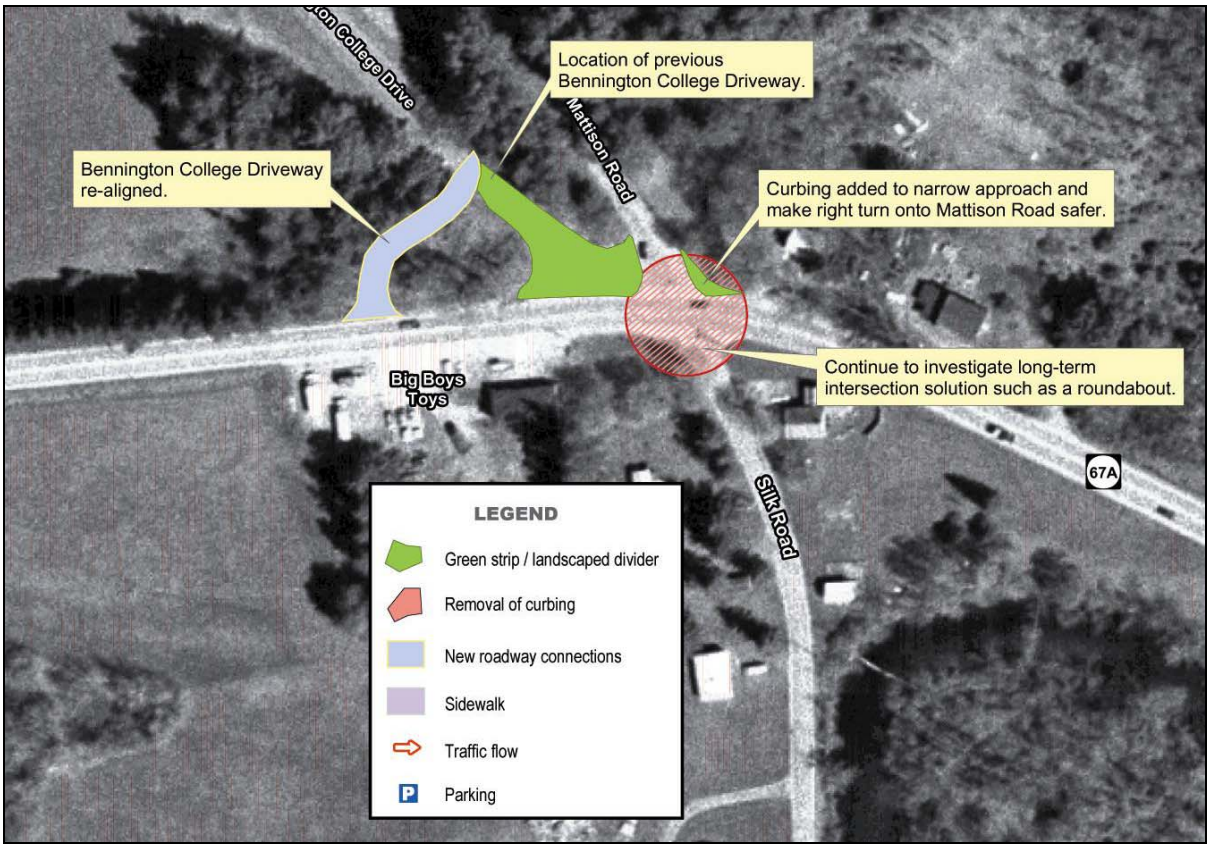


5.1.8 Focus Area #7: Bennington College Entrance

In August 2004, VTrans closed the existing Bennington College driveway approach and re-located it approximately 140 feet to the west to intersect with VT 67A in the proximity of the Big Boys' Toys driveway. By separating the Bennington College traffic from the Mattison Road-Silk Road-VT 67A intersection, this re-alignment should improve safety and reduce overall delay at the intersection. In addition, VTrans crews added curbing to narrow the Mattison Road approach to improve safety by slowing vehicles, particularly northbound VT 67A vehicles turning right onto Mattison Road.

However, even with the reconfiguration, the Mattison Road, Silk Road, and relocated Bennington College Drive approaches are still projected to operate at LOS F during the 2025 design hour. A scoping study has been completed for this intersection which recommends replacing the current configuration with a roundabout. This recommendation is currently in the VTrans project development pipeline with final design, right of way purchase, and construction currently scheduled for 2008-09. The relocation of the Bennington Driveway is an acceptable short-term improvement. However, a long-term solution (such as a roundabout) should continue to be pursued.

Figure 23: Focus Area #7 – Bennington College Entrance



5.1.9 Focus Area #8: VT 67A/VT 7A Intersection[1]

The recommended improvements at the VT 67A-VT 7A intersection include the following elements:

- Close curb cuts adjacent to Haynes & Kane along both VT 67A and VT 7A and provide on-street, parallel parking to serve adjacent businesses.
- Eliminate long, continuous curb cuts at the Northside Salon, and provide one-way entrance from Northside Drive and full access from Harmon Road.
- Provide a new access road to serve the American Legion and adjacent businesses connecting to the Vermont Quality Homes access drive.
- Remove the raised curb in front of the American Legion to improve internal circulation and close northerly American Legion driveway which is located too close to the existing signal.
- Relocate bridge railing along VT 67A east of Harmon Road to improve sight distance for vehicles turning onto VT 67A from Harmon Road or Berard Street.
- Conduct a scoping study to fully evaluate long-term design alternatives to traffic flow at this intersection. A variety of alternatives may be developed and analyzed. Two concepts that received significant discussion at the public meetings include:

    1. Roundabout: The Northside Drive Transportation Study and Plan[2] (NSD) evaluated the effect of a single lane roundabout on congestion for the 2025 design hour. With a single-lane roundabout in place, the Level of Service remains a C or better overall and on each approach (Table 24, Page 48, NSD report). The potential layout and right-of-way impacts of a single lane roundabout at this intersection are shown below in Figure 25. The sketch shows significant impacts to the parking lot and possibly the building housing the Haynes-Kane furniture store and to the American Legion parking lot. However, a refined design may be able to minimize or even eliminate these impacts. The safety and operational benefits of a roundabout justify a more detailed evaluation.
    2. One-way Traffic Flow Incorporating Berard Street: A concept discussed at the September public meeting was to re-configure the Northside Drive-VT 7A-VT 67A-Berard Street intersection into a one-way traffic flow configuration a follows:
        - Berard Street: one-way southbound;

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[1] Earlier technical evaluation at this intersection included making the Monument Plaza access drive two-way. Subsequent traffic analysis showed that overall delay would be decreased at the existing Monument Plaza/VT 67A and would be increased slightly at the VT 7A/VT 67A intersection. However, based on public comment, this element was not included in the final report.

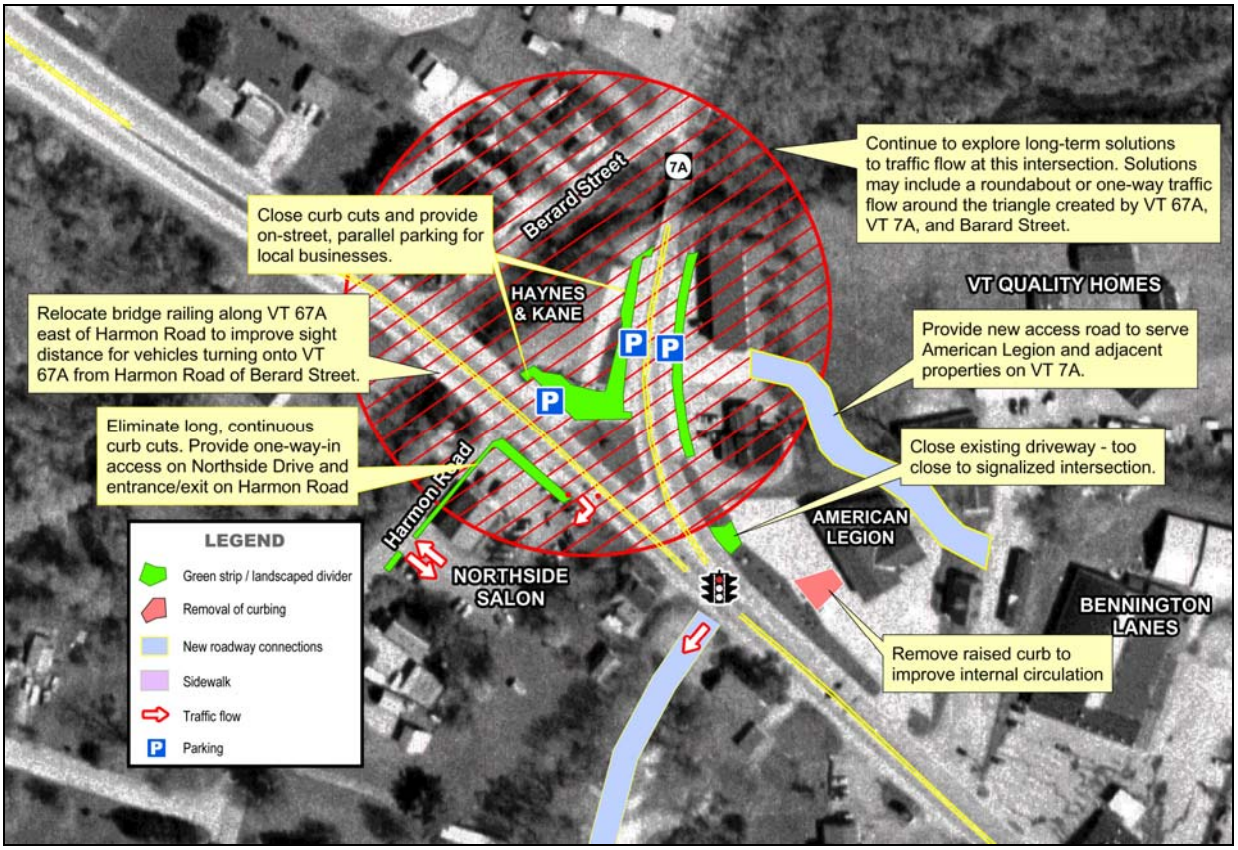
[2] Northside Drive Transportation Study and Plan, Wilbur Smith Associates, 2003.

- VT 7A from VT 67A to Berard Street: one-way northbound; and
- VT67A from Berard Street to VT 7A: one-way eastbound.

This one-way configuration could operate somewhat like an elongated roundabout with traffic approaching from VT 67A, VT 7A, or Northside Drive yielding to traffic already within the "roundabout". Certain geometric changes and new signs would likely be needed to facilitate safe and efficient traffic flow.

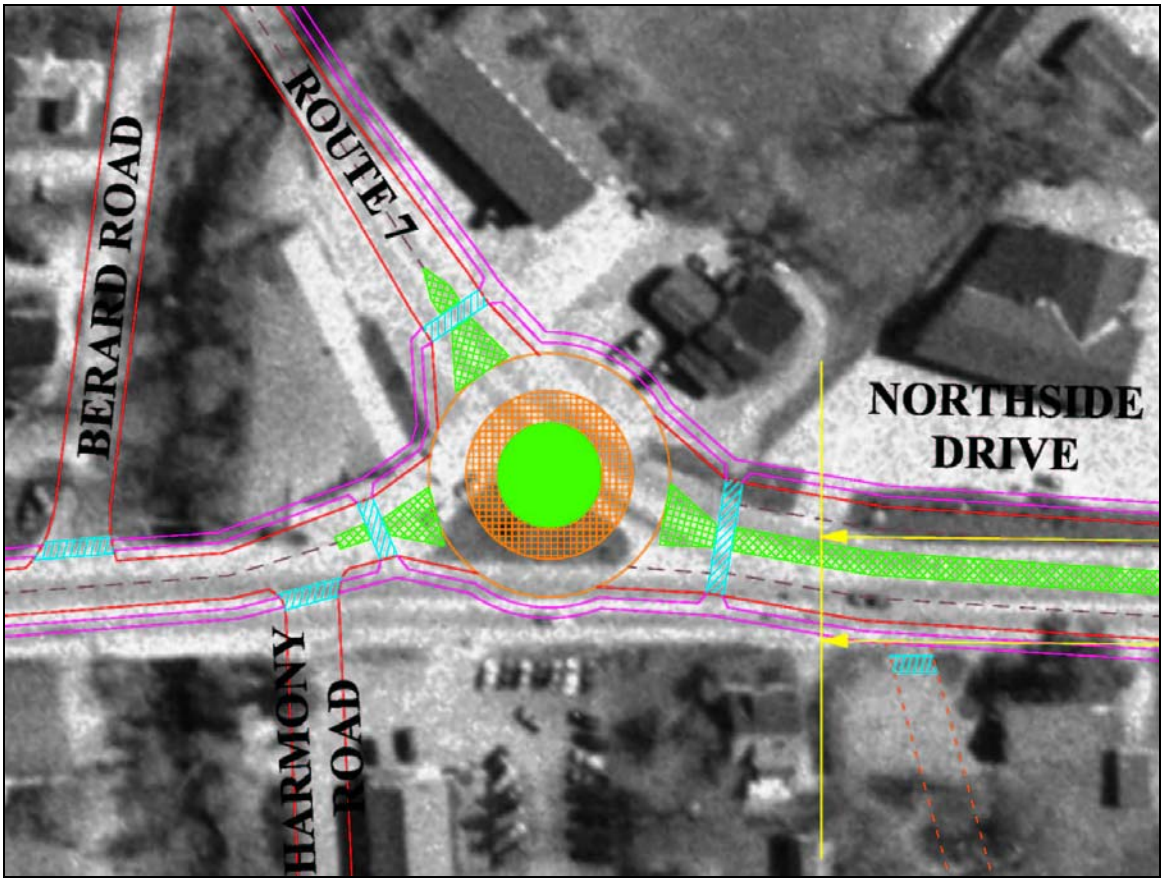
Other one-way alternatives incorporating Berard Street may be identified and evaluated through the scoping process.

Figure 24: Focus Area #8 – VT 67A / VT 7A Intersection[1]



[1] Certain recommendations extracted from: Northside Drive Transportation Study and Plan, Wilbur Smith Associates, 2003.

Figure 25: Potential Layout and Right-of-Way Impacts of Roundabout at VT 7A-VT 67A-Northside Drive Intersection[1]



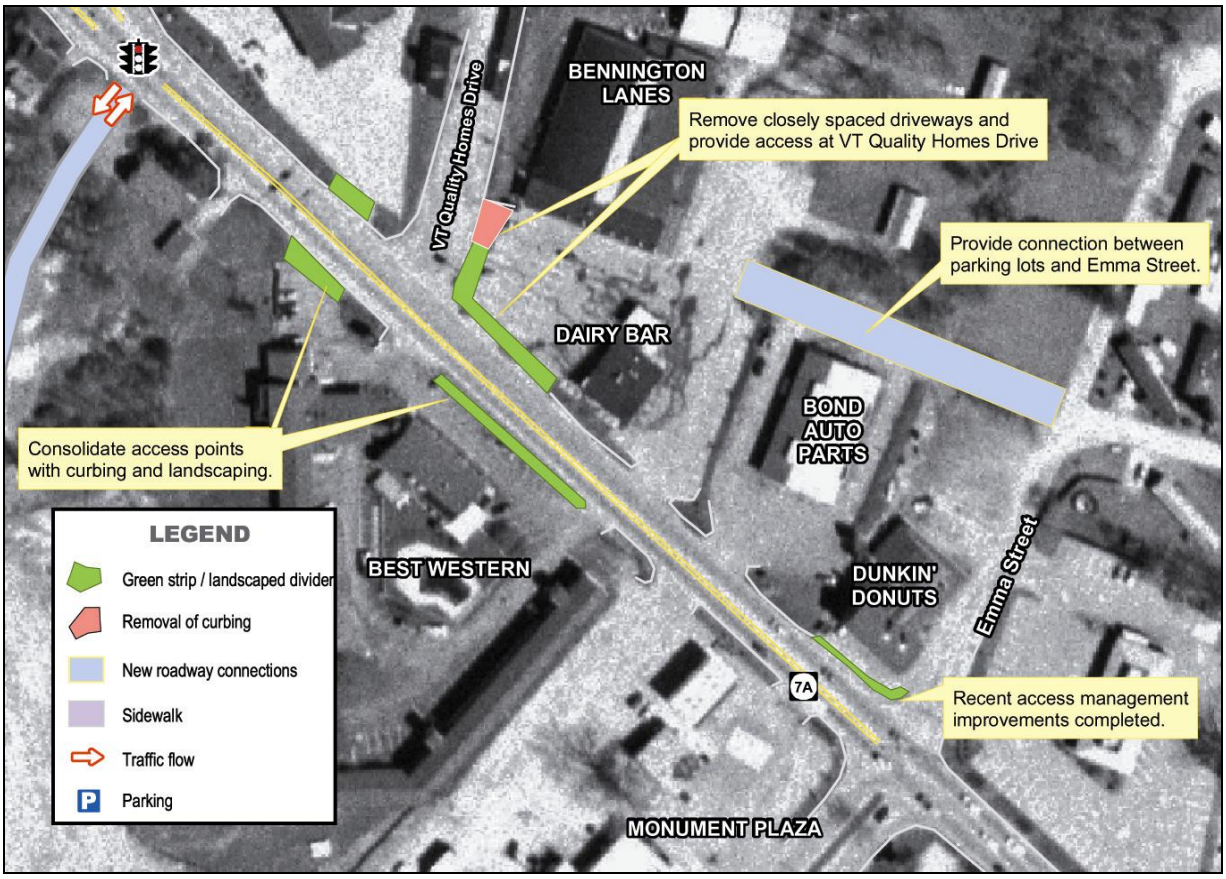
[1] From: Northside Drive Transportation Study and Plan, Wilbur Smith Associates, 2003.

5.1.10 Focus Area #9: Monument Plaza

The recommended improvements adjacent to Monument Plaza on Northside Drive include the following elements:

- Consolidate access points to the Best Western using curbing and landscaping treatments.
- Remove closely-spaced driveways at the Bennington Lanes and Dairy Bar and provide access to Vermont Quality Homes access road.
- Provide rear connection between Bennington Lanes and Emma Street to facilitate internal circulation.

Figure 26: Focus Area #9 – Monument Plaza[1]



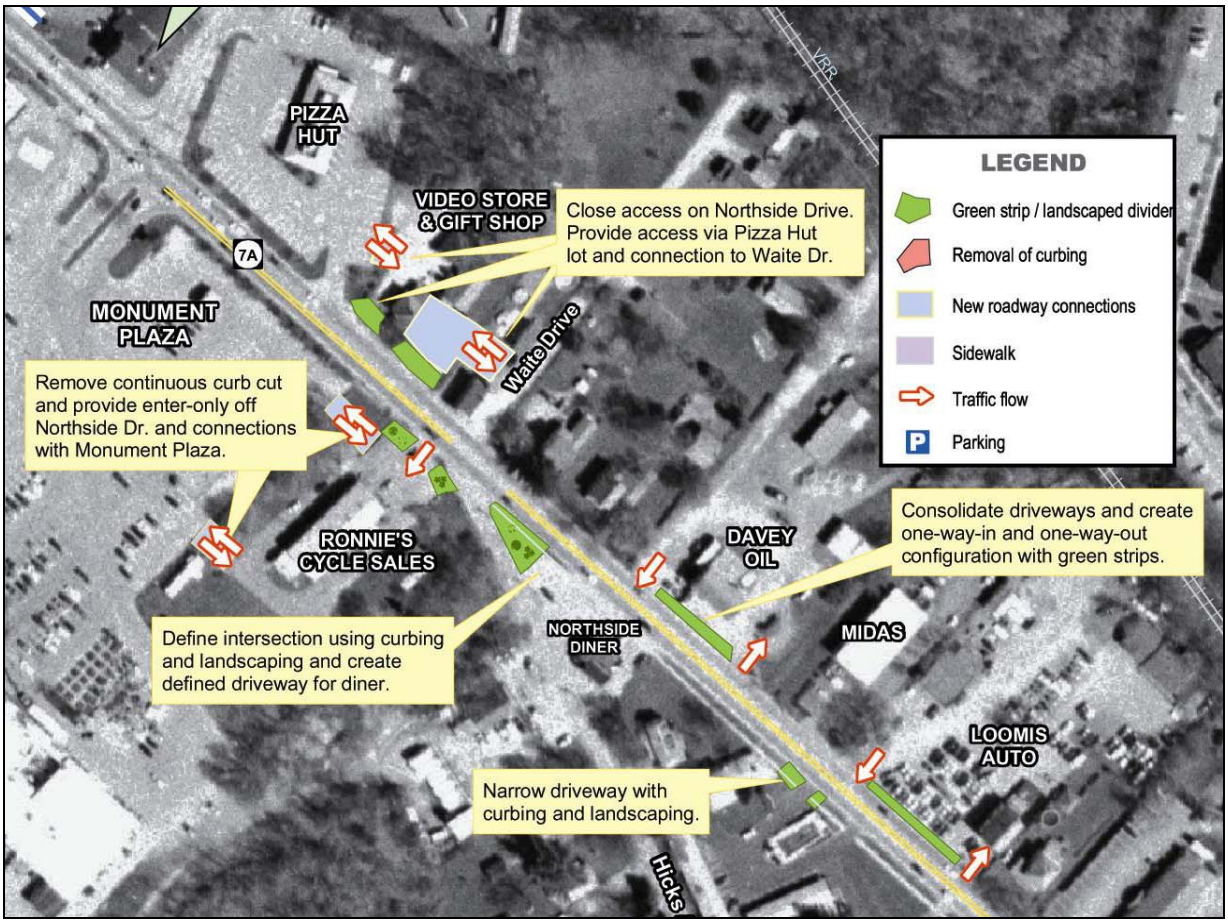
[1] Certain recommendations extracted from: Northside Drive Transportation Study and Plan (2003)

5.1.11 Focus Area #10: South of Monument Plaza

The recommended improvements south of Monument Plaza on Northside Drive include the following components:

- Narrow and define existing access to Ronnie's Cycle Sales from Northside Drive and provide internal connections to Monument Plaza.
- Consolidate, narrow and define curbing and access to Diner to improve traffic flow at the Northside Drive – Hicks Avenue intersection.
- Consolidate access points to video store and gift shop and provide access via Pizza Hut lot and Waite Drive.

Figure 27: Focus Area #10 – South of Monument Plaza[1]



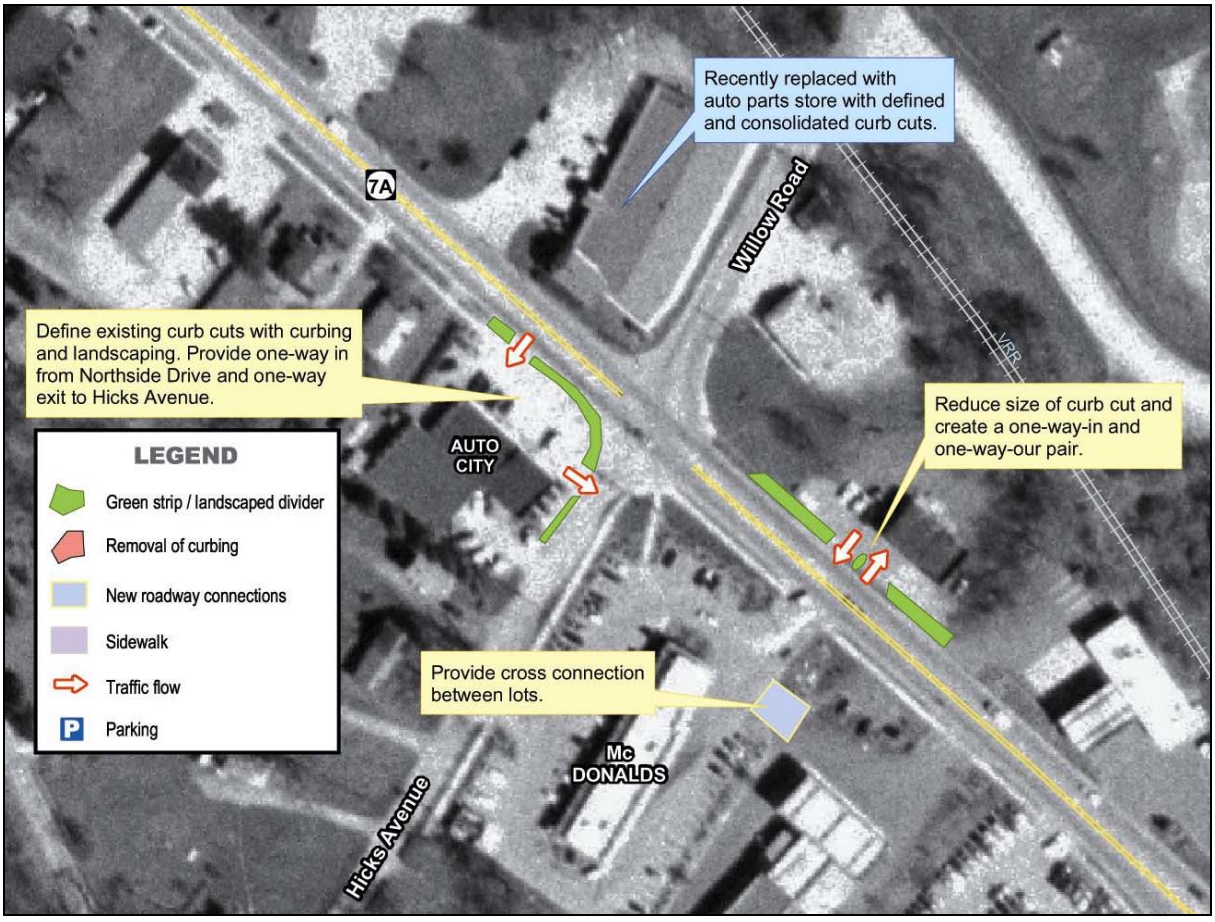
[1] Certain recommendations extracted from: Northside Drive Transportation Study and Plan (2003)

5.1.12 Focus Area #11: Northside Drive / Hicks Avenue

The recommended improvements at the Hicks Avenue - VT 7A (Northside Drive) intersection include the following components:

- Define existing driveways to Auto City with curbing and landscaping and provide one-way access from Northside Drive and one-way exit to Hicks Avenue.
- Provide cross-connection between McDonalds and adjacent property to facilitate internal circulation.
- Reduce size of curb cut adjacent along parcel north of Cumberland Farms and create a one-way in / one-way out pair.

Figure 28: Focus Area #11 – Northside Drive / Hicks Avenue[1]



[1] Certain recommendations extracted from: Northside Drive Transportation Study and Plan (2003

5.2 POLICY AND REGULATORY RECOMMENDATIONS[1]

This study has addressed both the need for and potential benefits of improved access management within the study area. As state highways, direct access to VT 67A and VT 7A, outside of Water Street between Bank Street and Scarey Lane, is under the direct control of the Vermont Agency of Transportation. Municipalities, however, have the ability to manage development along VT 67A and VT 7A through local land use regulations and other locally applied access management techniques. And, under state law (19 V.S.A. §1111) state highway access approval must be consistent with local land use regulations.

Existing access points are grandfathered under state and local regulation – however they can be brought into conformance when changes to a property are proposed that trigger development review. This could result simply from a request to relocate an existing access, but typically also involves:

- subdivision or re-subdivision of an existing lot,
- development or redevelopment of an existing property,
- a change in the use of a property, or
- an addition or expansion that results in significant increases in trip generation rates, or alters on- or off-site site circulation patterns.

This section describes various transportation and land use policy and regulatory recommendations that can help to improve access management (and thus improve safety, mobility and access) throughout the corridor.

5.2.1 Overview of Regulatory Access Management Options

There are a number of ways in which municipalities can limit or control the location and density of accesses along their roadways. Whether through the municipal plan, zoning standards and maps, the subdivision and site plan review process, or the driveway permitting process, what is important is that Bennington and North Bennington develop consistent access policies in all of these documents and establish a coordinated review process with VTrans.

Table 22 provides an overview of the various access management options available to municipalities for implementing through zoning, site plan review, conditional use review, and subdivision review.

[1] Excerpts from *VT 100 Access Management Study*, Resource Systems Group & Burnt Rock, Inc., 2004

Table 22: Summary of Regulatory Access Management Options[1]

Regulatory Access Management Options	May be Defined or Applied Under:					
	Zoning Map	Zoning District Standards	General Zoning Standards	Site Plan Review	Conditional Use Review	Subdivision Review
Zoning District Designations						
1. Avoid "ribbon" or "strip" zoning along road corridors	Y					
2. Define compact development districts –nodes, villages, growth centers – in appropriate locations (e.g., adjacent to existing centers, major intersections)	Y					
3. Define "Access Management Overlay District(s)" to apply access management criteria to a particular corridor or intersection	Y					
Land Uses (by Zoning District)						
1. Consider allowed uses in relation to context, trip generation, transit		Y				
2. Rural: agriculture, forestry, low density residential		Y				
3. Village/Growth Center: mixed commercial, residential, civic		Y				
Densities of Development (by Zoning District)						
1. Limit scale, density of development along undeveloped sections		Y				
2. Rural: low overall density, large lots, wide frontage, deep setbacks and/or clustered development off the road		Y				
3. Village/Growth Center: high density, small lots, reduced frontage and setbacks, increased height, coverage		Y				
General Access Standards						
1. Limit access (curb cuts) to one per lot, or one per specified length of road frontage, consistent with access separation guidelines			Y	Y	Y	Y
2. Require access from a secondary road where feasible			Y	Y	Y	Y
3. Require that new or relocated driveways be aligned with facing driveways where feasible			Y	Y	Y	Y
4. Allow driveway and parking areas within side yard setbacks			Y	Y	Y	
5. Separate curb cuts and road intersections; set minimum distances			Y	Y	Y	
6. Require the relocation, consolidation or elimination of non-conforming accesses upon development or redevelopment			Y	Y	Y	
7. Define access and driveway design standards (e.g., width, length, alignment, grade) which may vary by the type of use			Y	Y	Y	
8. Limit access and driveway widths to the design width, require curbing or other access control features			Y	Y	Y	
9. Require adequate driveway length for storage and stacking			Y	Y	Y	
10. Require driveway turn around areas; prohibit direct parking that requires backing into rights-of-way (except for on-street parking)			Y	Y	Y	
11. Specify access requirements for Class IV (seasonal) roads			Y			
Site Layout Standards						
1. Rural: minimize the linear density of development along roads, maximize internal site circulation (access to outparcels)				Y	Y	Y
2. Village/Growth Center: maximize connectivity, create or maintain a pedestrian scale and orientation				Y	Y	Y
Site Layout Standards, continued						
3. Village/Growth Center: reduce or eliminate on-site parking requirements (e.g., based on the availability of on-street, shared or public parking, or the use of parking or transit credits)				Y	Y	Y
4. Limit parking to the side or rear of buildings				Y	Y	Y
5. Require shared access and interconnected parking with adjoining properties and uses (joint and cross access) where feasible; or access easements that connect to adjoining parcels in the event they are developed or redeveloped.				Y	Y	Y
6. Require pedestrian sidewalks or paths between buildings, parking areas, and where feasible to adjoining parcels.				Y	Y	Y
7. Require the installation of mid-block pedestrian crossings where appropriate				Y	Y	Y
8. Require the installation of public transit facilities, where served.				Y	Y	Y
9. Require the installation of bicycle racks for commercial, industrial, civic, multi-family and recreational uses.				Y	Y	Y
Multi-Property Standards						
1. Allow for or require planned unit (and planned residential development); to include requirements for clustering					Y	Y
2. Require the submission of a master plan for phased development, showing planned access points, road and pedestrian extensions						Y
3. Require that the pattern of subdivision ensures proper access and street layout in relation to existing or proposed roadways						Y
4. Discourage or prohibit the creation of flag and other irregularly shaped lots that do not meet access or frontage requirements						Y
5. Require that newly subdivided parcels be served by existing or planned accesses; limit the creation of new accesses associated with resubdivisions						Y
6. Require access to individual lots from internal (e.g., service, development) roads						Y
7. Define road and road intersection standards						Y
8. Discourage the creation of dead-end roads, including cul-de-sacs						Y
Infrastructure Requirements						
1. Require traffic impact analyses for larger projects, to be paid for by the developer, to determine traffic and infrastructure impacts associated with a proposed development					Y	Y
2. Require the installation of on- and/or off-site access, road and/or traffic management improvements necessitated by the development, to be paid for by the developer				Y	Y	Y
3. Require bonding to ensure that required improvements are installed and maintained				Y	Y	Y

[1] From *VT 100 Access Management Study*, Resource Systems Group & Burnt Rock, Inc., 2004

5.2.2 Zoning and Subdivision Regulations

The establishment and enforcement of municipal zoning and subdivision/site plan regulations can assist a town to: 1) plan for and direct growth in a prescribed manner, and 2) ensure that the development does not significantly impact existing infrastructure (i.e. road capacity, school capacity, water and sewer capacity, etc.).

A detailed overview of the existing zoning and land use conditions along the study corridor was provided in Section 3.5. This section will focus on recommendations to improve access management through the State and local planning process in Bennington and North Bennington.

5.2.2.1 Town of Bennington

The Town of Bennington recently completed an update of their *Land Use and Development Regulations* (March 2004), and *Planned Commercial District Design Standards* (April 2004). Both of these plans include many recommendations that serve to improve access management throughout Bennington.

Bennington Land Use and Development Recommendations

Some examples of access management-related policies outlined in the *Land Use and Development Regulations* include the following:

- Curb Cuts: "With the exception of…curb cuts used solely for agricultural or forestry purposes…no lot in existence as of the effective date of these regulations may be served by more than one access (curb cut)."
- Required Frontage: "No land development may be permitted on lots which have a frontage of less than fifty (50) feet on a public street."
- Driveway Consolidation: "Applicants for a zoning permit for any parcel where the number of existing accesses exceeds the number allowed under this section must eliminate or combine accesses in order to meet the applicable standard…"
- Driveway Spacing: "An access shall be located at least 150 feet from the intersection of public road rights-of-way, for all uses except for single and two family dwellings, which shall be located at least 50 feet from such intersections…"
- Shared Access: "In appropriate instances, including the presence of compatible adjacent uses, areas characterized by congestion and frequent and/or unsafe turning movements, or parcels having direct access to more than one public road, the Development Review Board may require provision for shared access between adjoining properties or may limit access to the property to a side street or secondary road."

Bennington Planned Commercial District Design Standards

The *Planned Commercial District Design Standards* was created to govern the development design standards within the Planned Commercial (PC) zone as a Design Review district. The PC zone,

which includes Northside Drive and the southern portion of VT 67A, will likely be the focus of a significant amount of development and re-development in the near future, particularly with the opening of the western segment of VT 279. While primarily focused on building and site design elements (e.g. building materials, colors, sizes, etc.), the *Planned Commercial District Design Standards* does include the following access management-related policies:

- Shared Access: Whenever possible, attempt to link with adjacent parking lots or provide shared parking areas which can serve neighboring buildings simultaneously. This provides a secondary means of access to the site and can ease congestion on the main road.
- Curb Cuts: Minimize the amount of curb-cuts by having a single driveway in and out of the property from the main road whenever possible. Secondary access points from side roads are encouraged on larger projects when warranted. Curb cuts should only be as wide as necessary to accommodate needed lanes.
- Driveway Location: Alternative gas station layouts include placing the pumps near the rear of the lot while having the convenience store out in front near the street. This helps to…[pull] the curb-cuts away from the intersection, creating easier access.

Bennington Planning and Policy Recommendations

The recently adopted *Land Use and Development Regulations* (March 2004) and *Planned Commercial District Design Standards* (April 2004) contain many of the Planning and Policy techniques identified earlier in the access management toolbox. It will be important that the Bennington Planning Commission ensures that these access management policies are being implemented in all new and non-compliant developments and periodically reviews the regulations and updates them as necessary. The Planning Commission should also ensure coordination is maintained between their development review process, the VTrans driveway permitting process, and the Vermont Environmental Board's Act 250 development review process.

See Appendix G for additional access management policy and regulatory recommendations developed for the VT 100 corridor in Central Vermont.

5.2.2.2 Village of North Bennington

The latest version of the *Village of North Bennington Zoning Bylaws* were approved in 1994. As of the writing of this report, the Village Planning Commission and Development Review Board are working on an extensive revision to the Zoning Bylaws to coincide with the 2000 Master Plan recommendations. In addition to revising the Zoning Bylaws, the Planning Commission is also currently working on developing design review criteria for the recently designated Village Center District and North Bennington Historic District.

North Bennington Zoning Bylaws

The *North Bennington Zoning Bylaws* (1994) include only a few access management-related recommendations:

- Frontage Requirements: "No land development may be permitted on lots which have a frontage of less than 50 feet on a public street."
- Driveway Setbacks (Village Residential District): "All driveways…shall maintain a minimum setback requirement of five (5) feet from front, side, and rear lot lines."
- Curb Cuts (Industrial District): "…[T]here shall not be more than one highway access driveway for lots with less than 200 feet of frontage and one additional highway access driveway for each 200 feet of frontage in excess of 200 feet. Driveways shall be located not less than 150 feet from street intersections…Driveways shall not exceed 40 feet, nor be less than 20 feet in width…"

North Bennington Recommendations

The Bennington County Regional Commission and the Village of North Bennington should work together with residents to determine whether the desired function of Water Street is to serve local traffic (where slower speeds, narrower lanes, crosswalks, and on-street parking are more appropriate), or through traffic (where higher speeds, wider lanes, and off-street parking are more appropriate).

The following access management recommendations should be considered by the North Bennington Village Planning Commission and Board of Trustees as they revise the 1994 *Zoning Bylaws*:

- With the exception of the Industrial District, and to some degree the Village Residential District, the 1994 *Zoning Bylaws* do not provide specific allowances or limitations on: 1) the number of curb cuts permitted per parcel, 2) required minimum spacing between driveways/curb cuts, 3) requirement for shared driveways and/or driveway consolidation, or 4) requirement to provide access to side street rather than through street where applicable.
- Detailed access management requirements (i.e. minimum distance in feet, maximum number of driveways, etc.) may either be inserted as a stand along section within the 'General Regulations' section, or it may be applied to each zoning district individually.
- The following resources may be consulted for assistance with language and/or access management requirements:
    - Town of Bennington Land Use and Development Regulations: Most of the access management-related recommendations included in Section 5.2.2.1. http://www.bennington.com/government/zbrp.PDF
    - Vermont Access Management Handbook: Includes an access management primer, definitions and examples, sample regulations, and links to other resources. http://www.vtaccessmanagement.info

- Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads, and Streets: Issued by VTrans in July 1997, provides standards for all aspects of roadway construction and reconstruction.
  http://www.aot.state.vt.us/progdev/standards/statabta.htm
- VTrans Design Standard Drawings: including "Standards for Residential and Commercial Drives" (B-71) and "Standards for Town & Development Roads" (A-76).
  http://www.aot.state.vt.us/Caddhelp/DownLoad/Standards/standards.htm
- Transportation Resource Board Access Management Homepage:
  http://www.accessmanagement.gov/

See Appendix G for additional access management policy and regulatory recommendations.

5.2.3 Access Management Classification

VTrans has established an Access Management Program that assigns all segments of the State's Highway System into one of six access management categories. The standards 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 design standards. However, the standards are applied to all new access permits and construction projects.

The access management standards, which are summarized in Table 23 below specify whether or not direct access to adjacent property is permitted, the type of driveway design factors to be considered, and type of turning movement allowed.

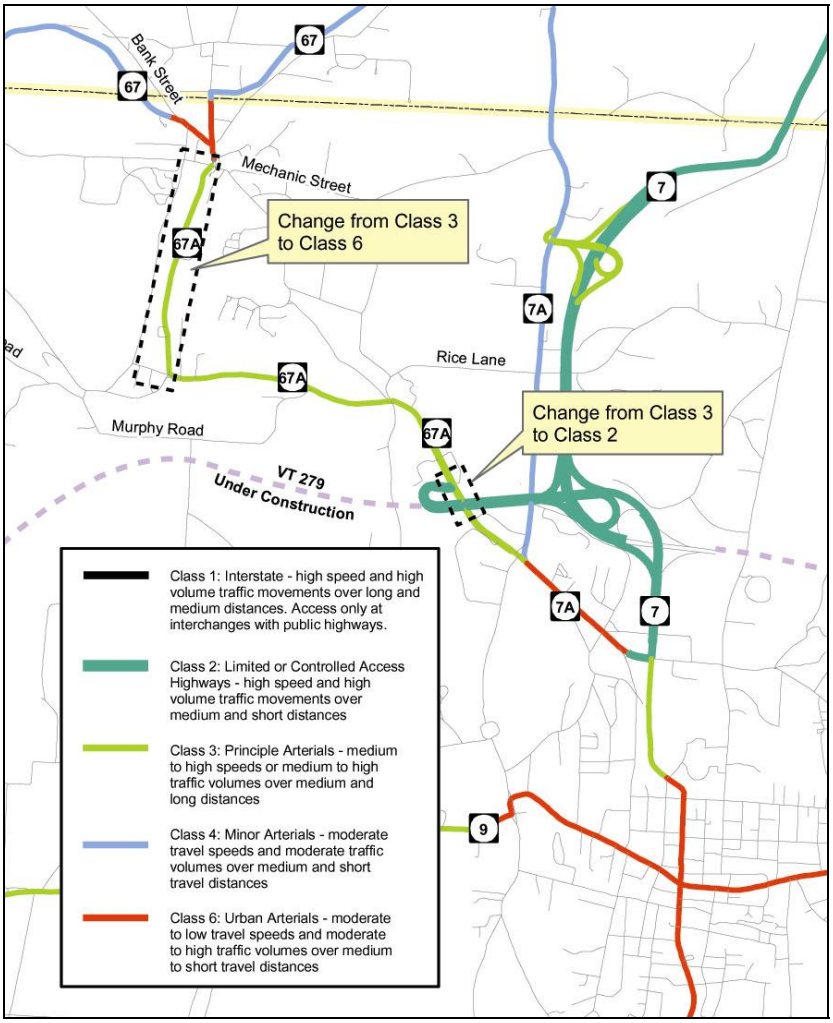
Table 23: VTrans Access Management Categories[1]

Access Category	Functional Class and AADT Characteristics	Direct Property Access	Driveway Design Factors	Traffic Operations and Movements Allowed	Design Features
1	- Interstates	No	Not Applicable	Access only provided at Interchanges with public highways	Grade-Separated Interchanges
2	- Other Principal Arterials - Limited Access Major Collectors	No – Except by Access Rights	Number, Spacing and Locations	Access at intersections with public highways	At-Grade or Grade-Separated intersections at ½ to 1 mile intervals
3	- Other Principal Arterials - Minor Arterials (AADT > 5,000) - Non-limited Access Major Collectors on State Highway and Class 1 Town Highways (AADT greater than 5,000)	Deny, Restrict or Allow	Number, Spacing and Locations	May limit turning movements	- Physical Barriers (Medians or Islands) - Traffic signal spacing requirements - Left and/or Right Turn Lanes Required - Spacing of public highway intersections that are or may be signalized (1/4 to ½ mile)
4	- Minor Collectors - Minor Arterials and Class 1 Town Highways (< 5,000 AADT) - Non-limited Access Major Collectors on State Highway and Class 1 Town Highways (Less than 5,000 AADT)	Yes	Number, Spacing and Locations	All turns in & out May limit turning movements	- Spacing of public highway intersections that are or may be signalized (1/4 to ½ mile)
5	- Frontage or Service Road	Yes	Number and location	All turns in and out	- Traffic signal spacing not less than 500 feet.
6	- May have any functional class but are urban in nature.	Deny, restrict, or allow	Number and location		- Traffic signal spacing not less than 500 feet.

Figure 29 shows the existing access management classifications along and adjacent to the study area and recommended changes to particular access management classifications.

[1] Modified from Table 1-1, page 22 in *Vermont Agency of Transportation Access Management Program Guidelines;* Utilities and Permits Unit Technical Service Division, Revised July 17, 2000.

Figure 29: VTrans Access Management Classifications[1]



The following changes to access management categories are recommended:

- Change the portion of VT 67A from approximately 300 feet south of the interchange to approximately 300 feet north of the interchange from Class 3 to Class 2. This change would limit access and preserve the capacity and the current function of this section of VT 67A around the future VT 279 interchange.

[1] These categories were designated by the Transportation Advisory Committees (TAC) of the Bennington County Regional Commission in consultation with VTrans based on functional classification, average annual daily traffic (AADT), local plans and zoning, and existing and future land use.

- Change the portion of VT 67A (Water Street) from River Road north to West Street from Class 3 to Class 6. This change would reflect the more urban conditions recommended along this section of VT 67A such as on-street parking, sidewalks, crosswalks, and lower speeds.

5.3 IMPLEMENTATION MATRIX

An implementation matrix has been developed for each of the recommendations developed in this report. Figure 30 and Figure 31 on the following pages list each recommendation by focus area and include the following details:

- Estimated timeline (i.e. short term, intermediate, long term)
- Order of magnitude cost estimate
- Implementing party(s)
- Relevant notes related to the recommendation

In instances in which cost estimates for particular elements were developed in previous reports, those figures were utilized in the matrix and noted as such. For the other recommendations, the cost estimates are based on the VTrans Preliminary Engineering unit price list and other engineering cost estimation resources. These costs are order of magnitude and based upon rough estimates of the quantities associated with each element.

Under the 'Potential Funding Sources' column, the following sources are noted:

- Transportation Enhancement (TE): Transportation Enhancement activities offer communities the opportunity to expand transportation choices. Activities such as safe bicycle and pedestrian facilities, scenic routes, beautification, and other investments increase opportunities for recreation, accessibility, and safety for everyone beyond traditional highway programs. The TE program requires a 20% local match and should be coordinated with the Bennington County Regional Commission. More information can be found here: http://www.aot.state.vt.us/progdev/Documents/LTF/Enhancements/2005%20APPLICATION1.pdf
- VTrans Statewide Transportation Improvement Program and specific funding pools (STIP): The Statewide Transportation Improvement Program (STIP) is a staged, multi year, statewide, multi-modal program of transportation projects which are consistent with the Statewide Long Range Transportation Plan and its planning processes. The STIP displays the Agency of Transportation's proposed allocation of federal and state funding for: Statewide Planning, Rest Areas Programs, Statewide Maintenance Programs, Bike/Pedestrian Programs, Enhancement Programs, National Highway System, Surface Transportation Program, Bridge Replace & Rehab Programs, Public Transportation Program, and Discretionary Funding for Specified Projects. More information can be found here: http://www.aot.state.vt.us/planning/STIPgeneral.htm
- Municipal Capital Budget (Municipal): 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.

- Property Owners (PO): For projects, or elements of projects, encroaching on private property, the property owner may choose to implement the recommendation to improve traffic circulation, safety, etc. at his/her site. Recommendations made on private property may also be enforced during the permitting process if the property owner seeks a change or expansion of use on the site.

Figure 30: Implementation Matrix - Part 1

Focus Area	Recommendation	ESTIMATED TIMELINE Short Term (<2 years)	Mid Term (<5 years)	Long Term (> 5 years)	Cost Estimate* (Order of Magnitude)	Potential Funding Sources**	Implementation	Notes/Comments
1 - North Bennington / Bank Street	Add new crosswalks across VT 67, VT 67A, and Houghton Street	X			↑	TE, STIP (Bike/Ped), Municipal	North Bennington, VTrans, BCRC	
	Narrow access to gas station. Provide two-way driveway onto Bank Street and exit-only drive onto VT 67A.		X		$125,000	TE, STIP, Municipal, PO	North Bennington, VTrans, BCRC, Property Owners	From *Village Center Improvements*, Engineered Solutions, 2003
	Narrow pavement at Bank Street approach to VT 67A to provide a more typical "T" shaped intersection.		X		↓	TE, STIP, Municipal	North Bennington, VTrans, BCRC	
2 - North Bennington / Lincoln Square	Expand central green.		X		↑	TE, STIP, Municipal	North Bennington, VTrans	
	Construct a new traffic island and narrowed approach at the West Street approach to Water Street.	X			$85,000	TE, STIP, Municipal	North Bennington, VTrans	From *Village Center Improvements*, Engineered Solutions, 2003
	Add curbed bump outs along Prospect Street and along the Main Street storefronts.		X		↓	TE, STIP, Municipal	North Bennington, VTrans	
3 - Water Street / National Hanger Mill	Replace existing head-in parking north of mill with parallel parking along the east side of VT 67A.	X			$50,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	North Bennington, VTrans, BCRC, Property Owners	- Parallel parking will result in increased snow removal costs. - Consider increasing lane width from two 11 ft. travel lanes to two 12 ft. lanes - BCRC needs to verify project with North Bennington
	Provide sidewalks adjacent to east side parking lane.		X		$10,000	TE, STIP (Bike/Ped), Municipal, PO	North Bennington, VTrans, BCRC	
	Pave 20 foot apron at the central mill driveway with center line and stop bar.	X			$5,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	Property Owners, North Bennington	
4 - Water Street / Bennington County Business Incubator	Replace existing head-in parking adjacent to the business incubator with parallel parking along the east side of VT 67A.	X			$70,000	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S), Municipal, PO	North Bennington, VTrans, BCIC, BCRC	- Parallel parking will result in increased snow removal costs. - Consider increasing lane width from two 11 ft. travel lanes to two 12 ft. lanes
	Provide sidewalks adjacent to parking and crosswalks across VT 67A.		X		$20,000	TE, STIP (Bike/Ped), Municipal, PO	North Bennington, VTrans, BCRC	
	Purchase and use vacant parcel at northwest corner of VT 67A-Sweet Road intersection for additional parking.			X	$15,000	Municipal, PO	North Bennington, BCIC, Property Owner(s)	Cost does not include land purchase price
5 - Water Street / River Road / Hillside Street	Consolidate Hillside Street and River Road approaches to provide a more traditional "T" approach to Water Street.	X			NA	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S)	VTrans, North Bennington, BCRC	Project to be completed by VTrans in 2005
	Narrow existing southern delivery access to Bennington County Business Incubator with curbing and guard rail.		X		$2,500	Municipal, PO	BCIC, North Bennington, VTrans, BCRC	
	Lower the grade of VT 67A east of Scarey Lane.			X	$50,000	STIP (Resurfacing/Reconstruction)	VTrans, Bennington, BCRC, Property Owners	
	Continue sidewalk south along VT 67A and provide crosswalks across VT 67A and River Road.	X			NA	STIP (Existing VTrans Reconstruction/Resurfacing Project #STP 9646(1)S)	VTrans, North Bennington, BCRC	Project to be completed by VTrans in 2005
6 - Paper Mill Village	Remove current Vermont Tissue parking area along VT 67A and relocate to expanded parking lot east of building.		X		$10,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Add curbing to Vermont Tissue parking lot across VT 67A.	X			$5,000	TE, STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Add crosswalk across VT 67A.	X			$1,000	TE, STIP (Bike/Ped), Municipal	Bennington, VTrans, BCRC	
	Cut back the bank between the Vermont Tissue building and Murphy Road.	X			$5,000	STIP, Municipal, PO	Bennington, VTrans, Property Owners	
	Narrow and define Southern Vermont Tires' driveway using curbing and/or landscaping.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Close residential driveway at southeast corner of VT 67A-Murphy Road intersection.	X			$2,000	Municipal, PO	Property Owners, Bennington, VTrans	
	Narrow and define Smith's Variety Store's accesses using curbing and/or landscaping.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	

* Cost estimate is to be used for planning purposes only. Does not include preliminary engineering or right of way purchase costs.

** TE = Transportation Enhancement
STIP = State Transportation Improvement Program
Municipal = Municipal Capital Budget
PO = Property Owner(s)

Figure 31: Implementation Matrix - Part 2

Focus Area	Recommendation	ESTIMATED TIMELINE Short Term (<2 years)	Mid Term (<5 years)	Long Term (> 5 years)	Cost Estimate* (Order of Magnitude)	Potential Funding Sources**	Implementation	Notes/Comments
7 - Bennington College Entrance	Close existing Bennington College driveway and re-locate approximately 140 feet to the west.	X			NA	Completed	VTrans	Completed
	Add curbing and narrow the Mattison Road approach to VT 67A.	X			NA	Completed	VTrans	Completed
	Replace existing stop-controlled intersection with roundabout		X		$200,000	STIP, Municipal	Bennington, BCRC, VTrans	Based on 1996 VTrans Scoping Report
8 - VT 67A / VT 7A Intersection	Close curb cuts adjacent to Haynes & Kane along both VT 67A and VT 7A and provide on-street parallel parking			X	$20,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate curb cuts at the Northside Salon to provide one-way entrance from Northside Dr. and full access from Harmon Rd.		X		$5,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Provide a new access road to serve the American Legion and adjacent businesses connecting to the Vermont Quality Homes access drive.		X		$40,000	Municipal, PO	Property Owners, Bennington, VTrans	
	Remove the raised curb in front of the American Legion to improve internal circulation and close northerly driveway.	X			$2,500	Municipal, PO	Property Owners, Bennington	
	Relocate bridge railing along VT 67A east of Harmon Road to Improve sight distance for vehicles turning onto VT 67A from Harmon Road of Berard Street.	X			$10,000	STIP (Bridge Replacement & Rehabilitation)	VTrans, Bennington	To improve sight distance.
	Conduct a scoping study to fully evaluate long-term design alternatives to traffic flow at this intersection (to include roundabout and one-way flow options)		X		$30,000	VTRans Transportation Planning Initiative, Municipal	VTrans, BCRC, Bennington	
9 - Monument Plaza	Consolidate access points to the Best Western using curbing and landscaping treatments.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Remove closely-spaced driveways at the Bennington Lanes and Dairy Bar and provide access to Vermont Quality Homes access road.		X		$10,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Provide rear connection between Bennington Lanes and Emma Street to facilitate internal circulation.		X		$30,000	Municipal, PO	VTrans, Bennington	
10 - South of Monument Plaza	Narrow and define existing access to Ronnie's Cycle Sales from Northside Drive.		X		$2,500	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate, narrow and define curbing and access to Diner.		X		$2,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	
	Consolidate access points to video store and gift shop and provide access via Pizza Hut lot and Waite Drive.		X		$5,000	STIP, Municipal, PO	VTrans, Bennington	
11 - Northside Drive / Hicks Avenue	Define existing driveways to Auto City with curbing and landscaping and provide one-way access from Northside Drive and one-way exit to Hicks Avenue.		X		$5,000	STIP, Municipal, PO	Property Owners, Bennington, VTrans	

* Cost estimate is to be used for planning purposes only. Does not include preliminary engineering or right of way purchase costs.

** TE = Transportation Enhancement
STIP = State Transportation Improvement Program
Municipal = Municipal Capital Budget
PO = Property Owner(s)

6.0 SUMMARY

The VT 67A and VT 7A corridor serves the Greater Bennington Region as both an important through connection for vehicles looking to access US 7 and VT 9 as well as an important local connection for employment locations in the northern end of the corridor, residential and educational locations in the central portion of the corridor, and commercial locations along the southern section of the study area.

However, the very nature of these two trip types (local and through trips) are very different; through trips should be located on roads geared towards a high level of mobility, higher speeds, and controlled access points while local trips should be located on roads which maximize access to adjacent parcels. Attempting to serve both trip types along the same roadway can lead to less than efficient operations for all drivers. This potential conflict can be mitigated through the development and implementation of a comprehensive access management plan for the corridor.

Through an examination of existing and future transportation and land use conditions along the corridor, a review of access management mitigation elements, and input from the project committee and members of the public, this Plan develops both site-specific and regulatory recommendations to help maintain or improve local access while preserving the capacity of the road network to safely and efficiently handle traffic.

This Plan identifies eleven access management focus areas along the corridor and develops specific recommendations within each. The recommendations included consolidating or eliminating curb cuts, increasing internal connections, narrowing existing access points, reconfiguring traffic circulation patterns, and providing on-street parking in appropriate areas.

Improving access design and location over the long term can be accomplished through municipal plans, regulations, and the development review processes. To ensure that access management requirements are fairly, effectively and consistently applied, there is a need to improve the coordination between VTrans and the local officials responsible for adopting and administering local road ordinances and land use regulations. This study has identified regulatory and policy recommendations that can be referenced and applied as plans and regulations are updated.

APPENDIX A:

SUMMARY OF RECENT REPORTS & PLANS

The following section provides a summary of recent transportation reports of relevance to the VT 67A/7A study area.

BENNINGTON COUNTY REGIONAL TRANSPORTATION PLAN – *BENNINGTON COUNTY REGIONAL COMMISSION*

The Bennington County Regional Transportation Plan (September 2002) identifies needs and issues for the BCRC region. Specific to the study corridor, the Plan notes high pedestrian traffic on Northside Drive, North Bennington and along VT 67A east of Silk Road and high truck traffic along VT 7A and VT 67A. The Plan recommends general safety improvements, pedestrian and streetscape improvements, pedestrian connections to both the Northside Drive commercial area and North Bennington, and gateways at entrances to towns. The Plan also recommends:

- Improve viewing areas at the covered bridge at Murphy Road by providing a small amount of parking, landscaping, picnic tables and information;
- Improve the bridge at River Road and accommodate bicycles and pedestrians;
- Improve pedestrian facilities on Northside Drive between Kocher Drive and Hannafords;
- Provide a roundabout at the VT 67A-Silk Road-Mattison Road-Bennington College intersection;
- Improve the US 7-Kocher Drive intersection; and
- Improve signage along Northside Drive.

The regional transportation plan includes a section that discusses access management, specifying Northside Drive as a location where strip development has led to increased traffic congestion and has therefore been targeted for access management improvements. The Plan notes that each access creates a point of potential conflict due to vehicles turning on or off the main road. Too many accesses cause traffic to slow down, increases congestion, and increases the risk of potential accidents. The access management improvements include the following:

- Minimize the number of driveways;
- Clearly define accesses with curbing and landscaping;
- Locate accesses away from intersections;
- Require properties to share driveways and have alternative access off the main arterial;
- Raise medians to prevent left turns in or out of driveway; and
- Separate turning traffic from through traffic by adding lanes at access point.

NORTHSIDE DRIVE TRANSPORTATION STUDY AND PLAN – *WILBUR SMITH ASSOCIATES*

The study (April 2003) describes the land use and transportation system characteristics of Northside Drive between Kocher Drive and Berard Street/Harmon Road. The study identified several critical issues on Northside Drive:

- Most of the residential properties along Northside Drive would be converted to non-residential uses by 2025. The background traffic growth and increased traffic due to development will likely increase congestion along Northside Drive;
- Traffic congestion is a concern with problems aggravated by the number, spacing and design of accesses;
- The continuous curb cuts increase the number of conflict points, obscure sidewalks, and reduce safety;
- There is a lack of safe and connected sidewalk network to serve the pedestrian demand; and
- The lack of a drainage system results in maintenance problems and safety concerns from motorists driving in the middle of the road to avoid standing water.

Immediate Recommendations

- Add pedestrian phase to Monument Plaza/Emma Street and provide crosswalk;
- Provide striped crosswalk in front of Auto City and Northside Diner and on the west end of Hicks Avenue;
- Perform street sweeping more frequently; and
- Install an automated "No-right-turn-on-red" sign at Hicks Avenue to be activated with pedestrian crossing signal for Northside Drive.

Short Term Recommendations

- Develop drainage plan that incorporates access management projects;
- Design and implement access management improvements in conjunction with new sidewalks, including extending sidewalks and consolidating driveways;
- Connect adjacent properties, including Pizza Hut with the Video Store, Ronnie's Cycle Sales with Monument Plaza, and Bennington Lanes to Emmas Street behind Northside Dairy Bar and Bond Auto; and
- Review and update traffic signal timing plans after the opening of the New Highway or any significant development along Northside Drive.

BENNINGTON M1000(10) VERMONT ROUTE 67A FINAL SCOPING REPORT – *VTRANS*

The scoping report (February 1996) investigated potential solutions to the intersection of VT 67A-Silk Road-Mattison Road and the entrance to Bennington College. The intersection has been a High

Accident Location during known periods of accident statistics between 1978 and 1994. A large proportion of accidents involved a vehicle traveling northbound from Silk Road, and the report noted poor visibility for northbound motorists. The intersection had a 1996 Level of Service (LOS) of B, a predicted 2000 LOS of C and a projected 2020 LOS of F.

The report examined three alternatives: do nothing; a roundabout ($189,000); and a reconstruction of the intersection off alignment ($320,000). The roundabout was chosen as the preferred alternative.

NORTH BENNINGTON VILLAGE CENTER IMPROVEMENTS – *ENGINEERED SOLUTIONS*

The report (October 2003) addresses the existing conflict between the mobility of vehicles in North Bennington and the pedestrian environment and village scale character, especially at the intersections of VT 67-VT 67A and in the proximity of Lincoln Square. The report followed up on the recommendations of a 1996 study entitled, "North Bennington Intersection and Pedestrian Facility Analysis," by Southern Vermont Engineering and the Office of Robert A. White.

The report notes that the wide expanses of pavement promotes disordered traffic and hinders pedestrian movements. The report made recommended improvements at each intersection:

Lincoln Square

- Narrow lanes to reduce pedestrian crossing distances and increase green space;
- Create clockwise traffic pattern around green to help define traffic flow; and
- Provide additional parking.

VT 67/VT 67A/Bank Street

- Improve access controls at the gas station;
- Offset Bank Street and Houghton Street with stop;
- Narrow Bank Street and remove "slip-ramp" condition to define traffic flow and create more green space and reduce speeds; and
- Improve pedestrian safety.

NORTH BENNINGTON VT67A HIGHWAY IMPROVEMENTS – *VTRANS, CLOUGH HARBOUR & ASSOCIATES*

The plans (September 2003) along VT 67A (Water Street) from West Street to River Road include:

- Repaving and/or rehabilitation of the road surface and reconstruction of shoulders;
- Upgrading of pavement markings and signing;
- Construction of new sidewalks and curb;
- Modifying the intersection of River Road and Hill Side Street to create a single, narrower access to VT 67A with improved pedestrian crossings and rationalized signing;

- Improving guardrail and replacing of old signs; and
- Providing portable variable message signs

NORTHSIDE DRIVE IMPROVEMENTS: BENMONT TO KOCHER - *VANASSE HANGEN BRUSTLIN*

This scoping report examined improvements to intersection operations, mobility, and safety along Northside Drive. The project involved several alternatives for the corridor, and in February 2002, the Bennington Selectboard voted for a revised Alternative D1. This alternative involved:

- Extending turn lanes on Kocher Drive at US 7;
- Extending left turn lanes on Benmont Avenue;
- Providing shoulders for bicycle access on all roadway segments;
- Upgrading traffic signals and providing a new signal at the Kocher Drive-Bennington Square Shopping Center intersection;
- Providing sidewalks and crosswalks throughout the project;
- Constructing a pedestrian underpass north of Kocher Drive under US 7; and
- Removing and replacing existing asphalt pavement and base material.

THE BENNINGTON ACCESS MANAGEMENT GUIDEBOOK – *RESOURCE SYSTEMS GROUP*

The Bennington Access Management Guidebook (September 1997) details successful access management strategies including:

- Minimize the number of accesses by limiting one access per property, encourage sharing of driveways and providing accesses off a side road;
- Eliminate curb cuts and provide defined edge driveways;
- Locate accesses directly opposite each other;
- Provide vehicular and pedestrian links between generators;
- Provide alternative routes with access off main road;
- Manage left turns by directing turning vehicles to controlled intersections, installing left turn lanes, or prohibiting left turns;
- Maximize the distance between curb cuts to at least 200'.

Access issues are not limited to vehicles. The report suggests that pedestrian connections should be enhanced and connected. The report recommends providing sidewalks that are separated from the road by a strip of vegetation and installing a pedestrian phase to the traffic signal at Northside Drive/Benmont Avenue and Kocher Drive/US 7.

BENNINGTON LOCAL ROADWAY NETWORK TRAFFIC ANALYSIS - *RESOURCE SYSTEMS GROUP*

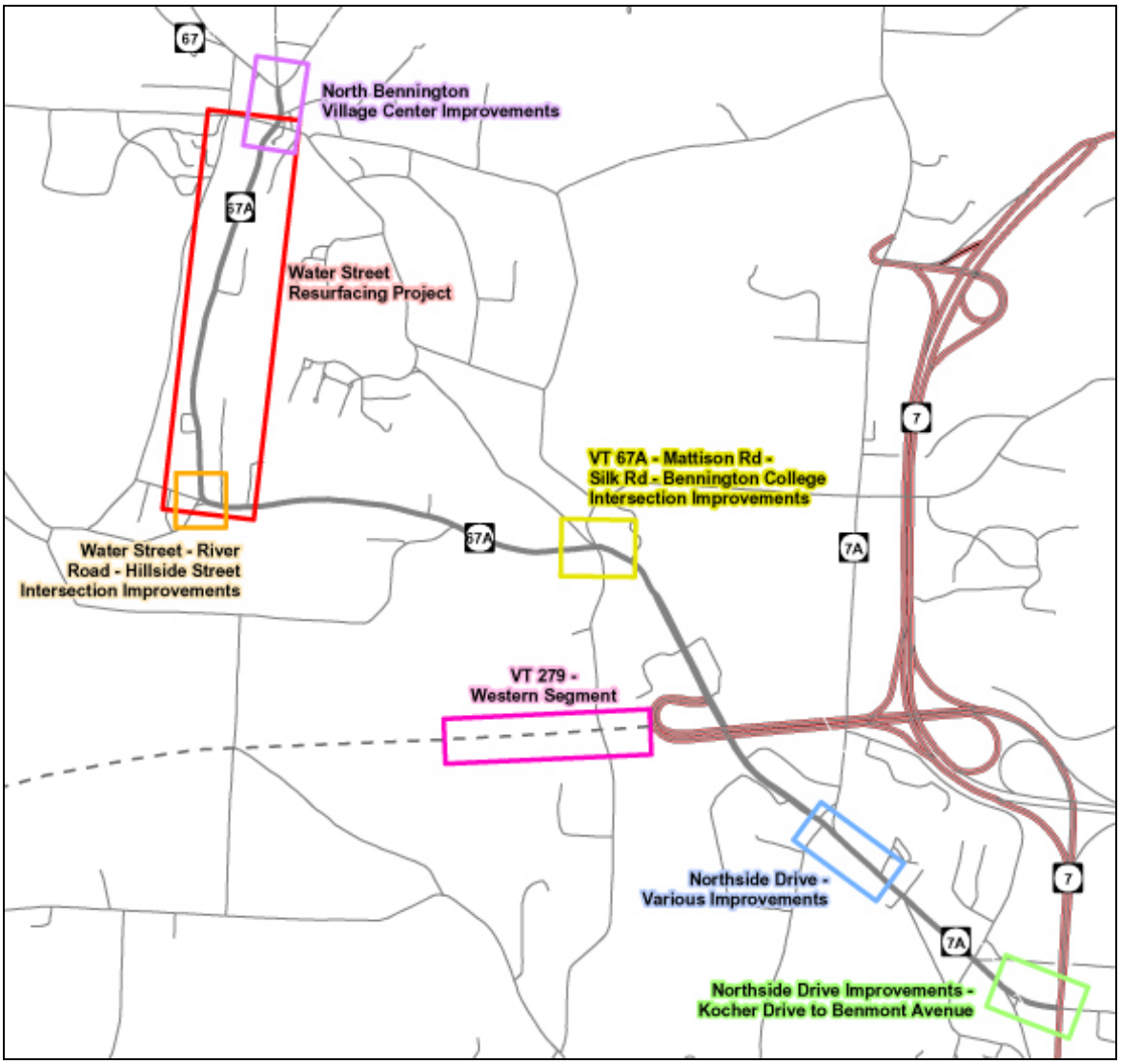
The report (August 2003) addresses the potentially adverse impacts of traffic that may be re-routed through Bennington after the western phase of VT 279 is opened. The report identifies key intersections that are likely to be affected by the re-routed traffic and develops alternative truck routing schemes. One of the intersections identified is Kocher Drive-US 7-VT 7A. The report outlines the following recommendations for this intersection:

- Examine visibility of traffic signals for southbound approaching vehicles, and possibly relocate sign mast arm preceding signal;
- Review long cycle length at existing traffic signal during peak periods for efficiency as well as signal coordination plans along Northside Drive;
- Install additional vehicle detectors that can sense the length of the queue to optimize allotment of green time extension;
- Monitor effects of VTrans Kocher Drive and Benmont Avenue project and adjust signal timings as necessary to compensate for opening of Western Segment. This project will involve the installation of a newer signal controller which should be coordinated with the current plan on Northside Drive;
- Deter cut-through truck traffic by posting truck restrictions (local deliveries only) on eastern leg of intersection; and
- Consider provision of pedestrian facilities such as a crosswalk/pedestrian signals or overpass/tunnel to connect retail, commercial and institutional uses on east and west side of US 7.

SUMMARY OF PREVIOUSLY IDENTIFIED ROADWAY IMPROVEMENT PROJECTS

Figure 1 shows roadway improvement projects identified in one (or more) of the studies summarized above. These projects are at various stages of development, from concept to construction, and are shown here to highlight the planning and engineering efforts already conducted along the study corridor.

Figure 1: Previously Identified Roadway Improvement Projects



APPENDIX B - ACCESS MANAGEMENT TOOLBOX

Access management is the *systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway*[1]. Some of the primary benefits of access management include the following:

- Improved traffic flow by decreasing delays and occurrences of vehicle blockages;
- Improved vehicular safety by eliminating conflict points;
- Support for economic development through improved access;
- Support for local land use plans; and
- Improved aesthetics and community character by incorporating landscaping, sidewalks, and lighting into design of intersections and driveways.

Figure 1 shows a general example of poor access management (with frequent, irregular spaced driveways) and one potential solution of closing direct access to the main road and interconnecting the driveways with access to the secondary road.

Figure 1: Example of Access Management[2]

Example of **Poor** Access Management: Frequent, irregularly-spaced curb cuts.

Example of **Good** Access Management: Interconnected driveways, access to side roads.

There are many more way to improve access, efficiency, and safety through access management than just providing interconnected driveways. A toolbox of potential access management solutions is presented below and sorted into the following categories:

- Planning Level Access Management Techniques (Table 1) – This category include regulation related access management techniques.

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[1] Access Management Manual, Transportation Research Board, 2003

[2] Images courtesy: Access Management Guidebook, Northwest Regional Planning Commission and Humstone & Campoli, 1996.

- Driveway and Minor Intersection Access Management Techniques (Table 2) – This category includes access management techniques that would be implemented at a site driveway or minor intersection.
- Turning-Related Access Management Techniques (Table 3) – This category includes changes to the actual roadway to improve turning related access management.

The elements included in the access management toolbox were considered in the development of area-wide and site-specific recommendations along the study corridor. The access management elements considered within the VT 67A/VT7A study area are highlighted in yellow.

***Table 1: Planning Level Access Management Techniques*[1]**

Access Management Technique	Description	Advantages	Disadvantages
Acquisition of Access Rights	State or city/town taking ownership of property along a major route.	Access restriction runs with the land and provides assurance of long-term access control. Negotiated dedication avoids the expense of purchase or condemnation. Compensating property owners for access rights avoids concerns over individual property rights.	Cost may be prohibitive. May be difficult to dedicate a funding source with competing needs. An effective tracking mechanism is required for enforcement. Condemnation is required when a negotiated purchase fails.
Joint and Cross Access	Circulatory system that is shared by two or more adjacent lots or developments that includes shared driveways and internal cross access between abutting properties.	Reduces number of individual driveways and therefore increases driveway spacing. Increased customer convenience. Gets people out of their cars and encourages walking. Access helps remove a portion of short local trips. Amount of corridor frontage is increased and available for landscaping. May improve internal circulation.	Existing properties cannot be forced to interconnect with developing properties. Closure of temporary driveways can be contentious. It is difficult to establish without coordination between local and state agencies. Typically must be created as a permit condition during subdivision proceedings.
Internal Access to Outparcels	Outparcels are on the perimeter of a larger parcel that break its frontage along the abutting roadway. Access to these outparcels can be achieved through internal access instead of driveways on the main roadway.	Regulation promotes unified access and circulation systems for major developments. Reduces the number of driveway connections on major roadways. Number of turning movements onto roadway are reduced. Area available for landscaping is increased.	Property owners may avoid regulation by incrementally splitting off and selling outparcels. Regulation is controversial, often owners of outparcels lobby intensely for direct thoroughfare access on the basis that direct access is essential to their business (common with fast-food chains.)
Access Management Overlay District	Special access management requirements added to existing zoning districts through smaller overlay districts that would be applied along a thoroughfare or near a major intersection.	Versatile tool that can be tailored to an area's unique circumstances. Can be applied as needed in local areas or along segments of roadways to prevent access problems. Typically does not require changes to underlying zoning or an overhaul of existing ordinances.	May be tough to get local support for this in Vermont. If overused, overlay district can lead to overly complex regulations and administrative procedures. Would need to follow same approval process as zoning ordinance amendments.
Land Division and Subdivision Regulations	Regulations that manage the division or subdivision of lots which ensures proper access and street layout in relation to existing or planned roadways.	Most local governments have the authority to regulate land subdivision. Attention to access management in subdivision review helps ensure that street systems and access connections are safe and properly designed.	After a subdivision is approved and lots have been sold, it is difficult to correct inappropriate access to public roadways. Minor land division is difficult to regulate and requires interagency coordination.
Vehicular Use Limitations	Vehicular use restrictions can be applied for nonconforming access connections. Visa versa, properly designed connections can have greater vehicular use.	Vehicular use limitation serves as an incentive for lot reassembly, alternative access, and shared access. Provides agencies with a mechanism for addressing land use problems. Helps mitigate the adverse impacts of nonconforming access connections.	Such limitations may require a more complex traffic impact study than would otherwise be necessary. More complex approach requires a skilled staff to administer.
Service Road	Public or private road auxiliary to an arterial that provides access to parcels adjacent to the arterial (typically for non-residential development).	Allow development of small tracks adjacent to major roadway. Separation between service road and major road is adequate for good traffic operations and safety. Businesses are visible from major roadway. Often less costly and more functional than frontage roads.	Rely heavily on new development or redevelopment where implemented through land development process. Conflicts can occur between state and local agencies where coordination is lacking.

[1] Transportation Research Board Committee on Access Management, *Access Management Manual* (Appendix A), Washington, D.C. 2003.

Table 2: Driveway and Minor Intersection Access Management Techniques[1]

Access Management Technique	Description	Advantages	Disadvantages
Uniform Signal Spacing	Signalized intersections and those that might be signalized are spaced at long, uniform intervals.	Decreased travel time and delay. Improved safety. Improved fuel economy and decreased vehicular emissions.	Difficulties in resolving terrain conflicts, existing development and street patterns. High planning level involvement determining which roadways/developments are to be signalized. Funding.
Upstream Corner Clearance on Major Road	Upstream access points are located a sufficient distance away from an intersection such that access is not blocked by queuing and drivers only have to think and react to one intersection at a time.	Enhanced safety because through traffic is allowed to maneuver through the intersection without conflicts from turning vehicles at the access point. Improved intersection capacity.	May be difficult to implement in areas with small isolated corner lots, short block spacing, and/or small property frontages.
Downstream Corner Clearance on Major Road	Downstream access points are located a sufficient distance away from an intersection such that a driver can pass through the intersection without having to react to an event taking place at the access point.	Improved safety because conflicts occurring at the intersection are separated from those occurring at the access point.	May be difficult to implement in areas with small isolated corner lots, short block spacing, and/or small property frontages.
Driveway Channelizing Islands	Channelizing in the driveway to restrict left turn maneuvers into or out of the driveway.	Driveway channelization islands are less controversial than construction of a median. The islands provide a refuge for pedestrians.	Violations are common because drivers can make the prohibited movements with relative ease.
Nontraversable Medians	A divider separates opposing traffic streams with a design that actively discourages or prevents crossing the divider.	Increased safety. Space for left turn bays. The islands provide a refuge for pedestrians. Space for landscaping. Number and complexity of conflicts are reduced.	Difficult to implement in developed areas due to right-of-way constraints. Opposition to left-turn restrictions from business proprietors or other effected parties.
Directional Median Openings for Left Turns and U-Turns	An opening in a median for left turn or U-turns and discourages/prevents all other movements.	Improves safety. Can be signalized without interfering with traffic progression.	Cross-median movements are limited to specific locations and to specific turns. Not always practical to design for large vehicles.

[1] Transportation Research Board Committee on Access Management, *Access Management Manual* (Appendix A), Washington, D.C. 2003.

Table 3: Turning Related Access Management Techniques[1]

Access Management Technique	Description	Advantages	Disadvantages
Isolated Left Turn Bay on Undivided Roadways	An auxiliary lane which removes left-turning vehicles from the through-traffic lane.	Rear-end and left-turn collisions are reduced. Capacity is increased. Left-turning vehicle can clear opposing gap with sufficient speed.	May require considerable construction to attain additional pavement width. Alternatively achieving the lane by paint stripping results in loss of shoulder. A transition by through traffic is required.
Paved Shoulder Bypass at Three-way Intersection	Allows through vehicles to bypass a stopped turning vehicle using the shoulder.	Reduces rear-end collisions. Reduces through traffic delays. Inexpensive especially if paved shoulder already exists. Takes less space than an isolated left-turn bay.	A transition by through traffic is required. Less safe than isolated left-turn lane. Driver expectancy is violated. Additional right-of-way and construction may be needed to widen roadway.
Continuous Two-way Left Turn Lane	Flush painted median lane intended for vehicles that are making left turns from both directions on a roadway.	Safer than undivided roadways. Increased capacity. Reduces delay. Less controversial than nontraversable median.	Less safe than nontraversable medians. Promote strip development. No pedestrian refuge. Necessitates long pedestrian clearance intervals. Potential for conflicting left turns. Difficult to provide dual left turn lanes at intersections in the future. :Left turns from abutting properties are difficult then roadway is operating at high volumes.
Left-Turn Bay at Median Opening	Median opening large enough for deceleration and storage of left turn movements.	Refuge for drivers making left turns. Left turn lane may help maintain an acceptable speed on the through lane. Reduced crash rates. Increased capacity. Delay to through traffic is reduced.	Cannot be used if median is too narrow. Proximity of the bay to any other median opening may limit the length of the turn lane.
Indirect Left Turn and U-Turn	Often referred to as "Jug handle". Forces traffic for left turns and U-turns to the outside of the roadway and crosses both directions of traffic at a signal.	Can accommodate left/U- turns where the median is too narrow for a turn bay. Multiple lanes can be provided for the redirected left/ U- turn traffic. Allows two phase traffic signal control. Can be easily designed to accommodate trucks.	Right-of-way can be costly if property needed for construction of the indirect left turn is developed.
Right-Turn Bay	An auxiliary lane which removes high volumes of right-turning vehicles from the through-traffic lane.	Improved safety. Right turning vehicles can leave through traffic at an acceptable speed. Increased capacity. Reduced delay.	Require roadway widening. Longer pedestrian crossing length.

[1] Transportation Research Board Committee on Access Management, *Access Management Manual* (Appendix A), Washington, D.C. 2003.

APPENDIX C - ACCESS MANAGEMENT TERMS AND DEFINITIONS[1]

Acceleration Lane – A lane, typically on the right side of a roadway, that lets a vehicle increase its speed to where it can safely merge with traffic.

Access – A driveway, street, turnout, or other means of providing for the right of access to or from the highway system.

Access Point – the point at which a driveway or secondary road intersects a primary road.

Access Management – The optimization of driveways and intersections to maintain safety at a roadway's full traffic-carrying capacity. A balance between access to properties and the necessity to preserve roadway capacity.

Access Management Program – The sum of all actions taken by a town or state to maintain the safety and efficiency of its roads. These actions can include regulations that manage driveway location and design. Adopting and implementing a plan to guide overall growth can also be a part of an access management program if it is aimed at providing reasonable access to properties while preserving the functional integrity of the highway.

Annual Average Daily Traffic (AADT) – The annual average two-way daily traffic flow. It represents the total annual traffic on a road per year, divided by 365.

Arterial – A highway intended primarily for through traffic and where access is carefully managed.

Backage Road – A local street or road running parallel to an arterial intended to serve abutting properties and for managing access onto and off of the arterial. Buildings may continue to front on the arterial or on the backage road dependant on the historical character of the community and most likely will be controlled by local planning and zoning regulations.

Collector Roads – Roads intended to move traffic from local roads to secondary arterials.

Compact Area – A segment of road along which structures are spaced less than 200 feet apart for a distance of ¼ mile or more.

Conflict Point– Any point where the paths of two through or turning vehicles diverge, merge, or cross.

Congestion – The result of more vehicles trying to use a road than the road can handle with an acceptable delay.

Controlled Access Highways – A highway or segment of highway where access is allowed at intersections with public highways (at grade) and/or at points designated at the time of project development. The primary function of theses highways is to move traffic at higher speeds.

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[1] Source: VTrans Access Management Website: http://www.vtaccessmanagement.info

Corner Clearance – The distance from an intersection of a public or private road to the nearest access along the state or town highway. This distance is measured from the closest edge of pavement of the intersecting road to the closest edge of the access measured along the traveled way (through lanes).

Corner Lot – A single lot with frontage on two intersecting roads.

Cross Access – A service drive providing access between two or more adjacent sites so a driver passing between the sites does not have to use a public road.

Cul-de-sac – A dead-end road with a circular or T-shaped turnaround at the end, usually found in residential developments.

Curb Cuts – An access or driveway providing ingress and/or egress to or from the highway system, typically along a "curbed" section of highway.

Deceleration Lane – A lane, typically on the right side of a roadway, that lets a vehicle decrease its speed to where it can safely stop or turn.

Driveway – An entrance used to access property abutting a highway. It includes private residential driveways as well as commercial and other driveways.

Design Hour Volume – The hourly traffic volume count used to design highways and driveways usually projected 10 to 20 years into the future.

Driveway Width – The narrowest point of the driveway, measured parallel to the public road right-of-way at the end of the turning radius.

Easement – A grant of one or more property rights by the owner to or for use by any person or entity.

Frontage – The width of a single lot, measured parallel to the right-of-way.

Frontage Road – A public or private drive that generally parallels a public road. The frontage road provides access to private properties while separating them from the main road.

Highway Capacity – The maximum number of vehicles that a highway can handle at a given time period considering prevailing roadway and traffic conditions.

Highway System – All public highways and roads in Vermont. These include limited access highways, controlled access highways, arterials, collector roads, and local roads and streets.

Joint Access (or Shared Access) – A driveway connecting two or more contiguous sites to the public road system.

Lane – The portion of a roadway for the movement of a single line of vehicles. It does not include the shoulders.

Level of Service – The classification of general traffic conditions. The level of service ranges from "A" (the best), to "F." It is a measure of how a highway or an intersection performs in terms of speed, travel time, freedom to maneuver, traffic interruptions, and delays.

Local Street – A road that provides links from adjacent properties to higher capacity roads.

Peak Hour Traffic – The highest number of vehicles passing over a section of road during any 60 minute period.

Right-of-Way – Land reserved, used, or slated for use for a road or other public purpose.

Service Road (Frontage Road, Backage Road, Slow Road) – A public or private road, normally located parallel to a controlled access roadway, that provides access to parcels adjacent to the controlled access road.

Shared Driveway – A single driveway serving two or more lots.

Side Friction – Delays and conflicts caused by vehicles turning into and out of driveways and sideroads.

Strip Development – A pattern of roadside development along and adjacent to roads. It commonly includes residential and/or commercial development.

Traffic Congestion – The result of more vehicles trying to use a road than the road can handle with an acceptable delay.

Traffic Impact Study – A report, sometimes required by the permitting process, that examines traffic patterns and volumes with and without the proposed development.

Trip Generation – The estimated traffic going to and from a particular location.

Turn Radius – A vehicle's turning circle.

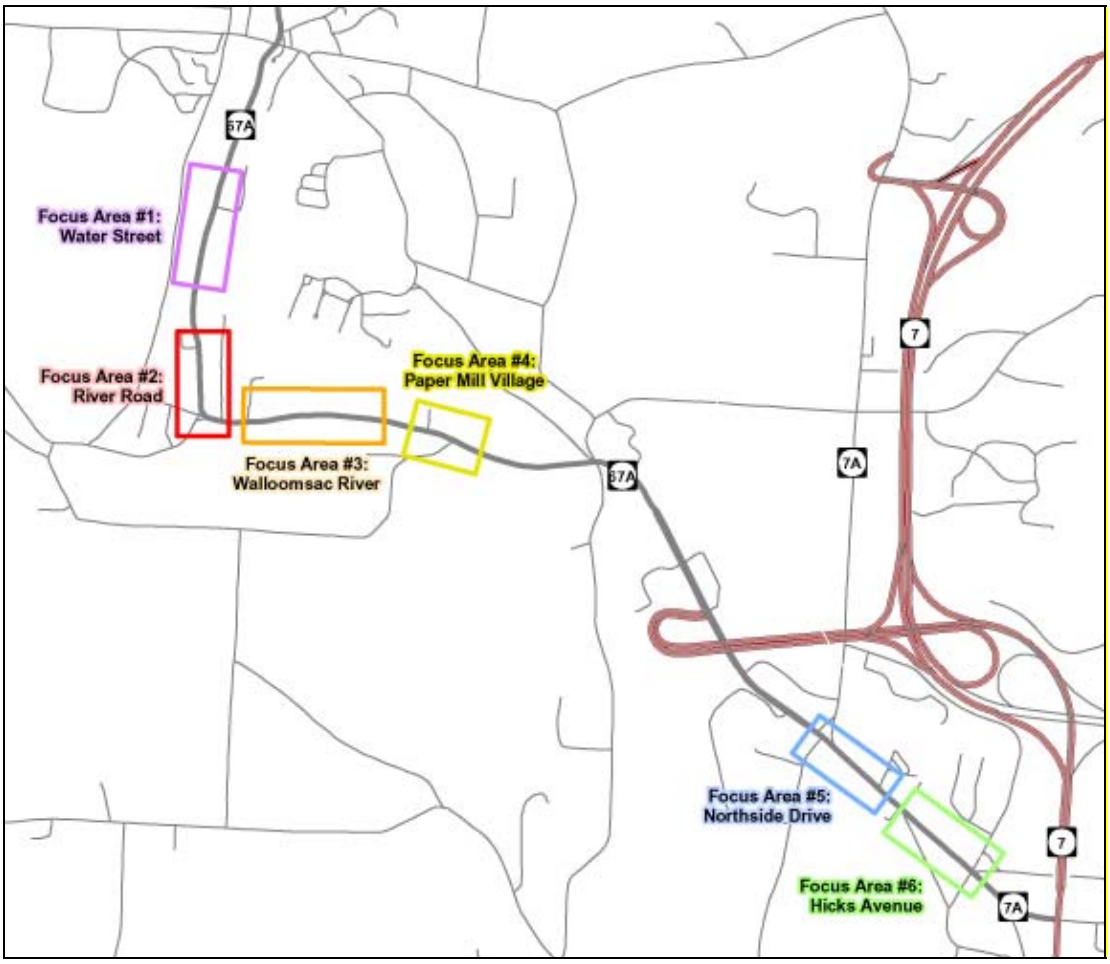
Volume Warrants – The conditions under which traffic management techniques such as

a left-turn lane, traffic signal, or roundabout are justified.

APPENDIX D - FOCUS AREA IDENTIFICATION

Based on a field inventory and subsequent assessment of conditions, six access management deficiency areas were identified within the corridor. These identified deficiency areas are shown in Figure 1 below.

Figure 1: Access Management Identified Deficiency Areas



The identified deficiency areas were identified based on the following screening criteria taken from the *Access Management Program Guidelines* and other literature:

- ***Adequate spacing of public highway intersections that are currently or may be signalized.*** If traffic signals are necessary along a major road, their spacing will greatly affect its ability to efficiently serve through traffic at a desired speed. The spacing requirements are significantly different for the two access categories in the study as follows:

- Category 3 (VT 67A): ¼ to ½ mile
- Category 6 (VT 7A): Minimum of 500 Feet

- ***Limit direct access from adjacent parcels to VT 67A/7A.*** No more than one access point should be provided from VT 67A/7A to an individual parcel or to contiguous parcels under the same ownership. If the parcel is adjacent to a local street that intersects with VT 67A/7A, access to that parcel should be eliminated and provided via the local street (as long as the relocated access would not cause safety or operational problems on the local street).
- ***Well defined edges and proper access width.*** Driveways should be designed with clearly defined borders that safely channel traffic from the street to parking area(s). Wide open curb cuts cause confusion by mixing entering and exiting traffic, creating additional conflict points, and often obscuring sidewalks.
- ***Adequate spacing between driveways to allow the distance and time necessary for drivers to react to vehicles entering and exiting a driveway.*** There are currently no national standards for driveway spacing. In the *Bennington Access Management Guidebook*, completed by RSG for the Bennington County Regional Planning Commission in 1997, a review of national literature found that driveway spacing guidelines ranged from 150 to 200 feet. VTrans uses the lower limit of the AASHTO stopping sight distances listed in **Table 1** as a guideline for driveway spacing. RSG considered both the VTrans guidelines and the general guideline of 150 to 200 feet in identifying sections with inadequate driveway spacing.

Table 1. Unsignalized Driveway Spacing Guidelines[1]

Posted Speed or Design Speed (mph)	Unsignalized Access Spacing (Feet)
20	125
25	150
30	200
35	225
40	275
45	325
50	400
55	450

- ***Adequate corner clearance between driveways and major intersections.*** Traffic entering and exiting driveways that are located too close to the functional area of an intersection cause serious traffic conflicts. An intersection's functional area is where vehicles accelerate and decelerate, maneuver between turn and through lanes, and form queues while waiting to pass through the intersection. The size of a functional area will vary at each intersection based on

[1] *Vermont Agency of Transportation Access Management Program Guidelines*; July 2000; page 29.

lane configurations, traffic signal timings ,and traffic volumes. Corner clearance distance recommended in the *Access Management Program Guidelines* vary from 75 feet to 230 feet depending on whether or not the driveway is located on an entering or exiting approach to an intersection, and the turning movement allowed at the driveway.

Figure 2 to Figure 7 on the following pages identify specific access management issues identified within each of the six identified deficiency areas. Opportunities to improve access management apparent during the field inventory are also noted in the figures.

Figure 2: Access Management Identified Deficiency Area #1 - Water Street

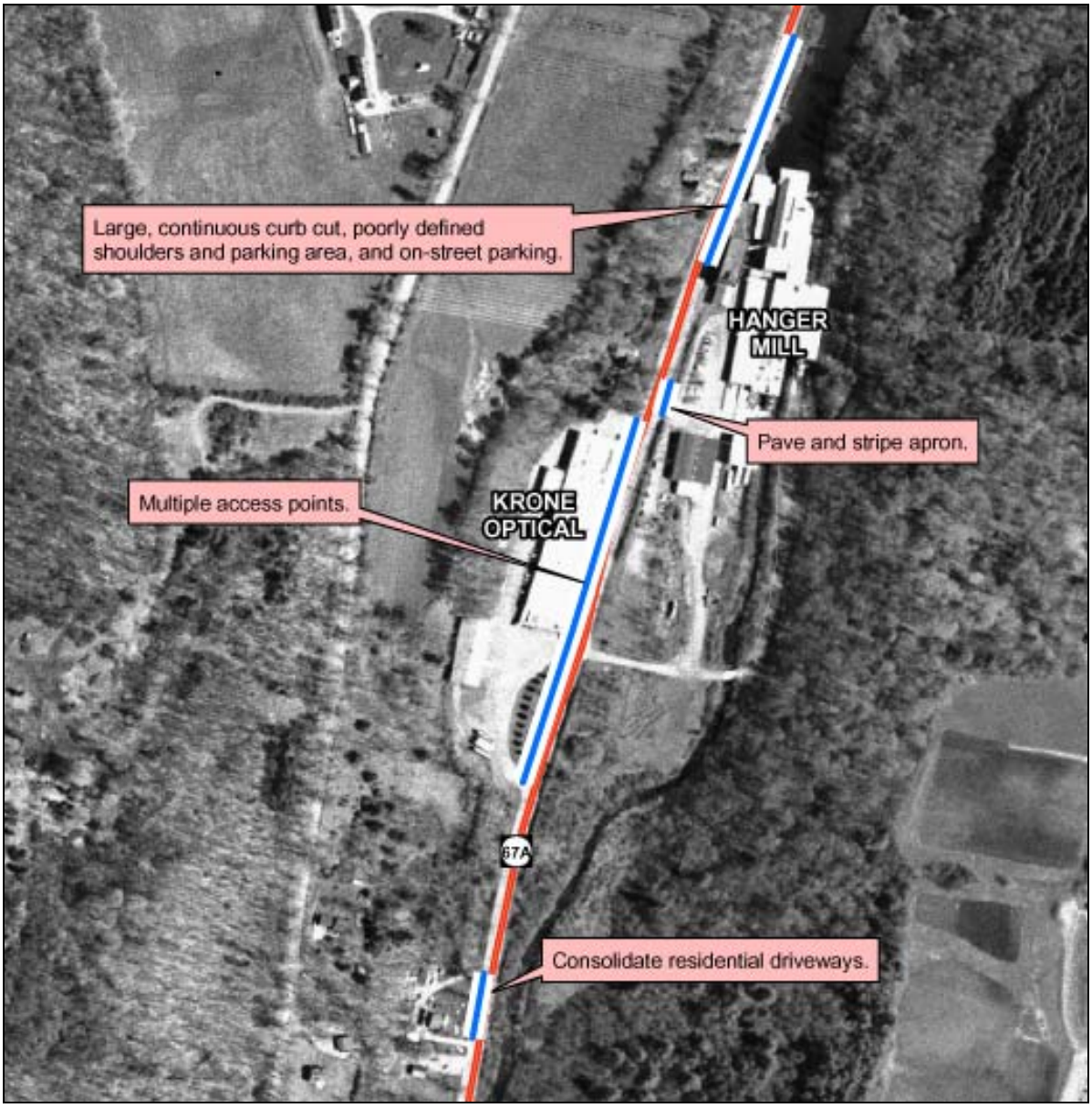


Figure 3: Access Management Identified Deficiency Area #2 - River Road Intersection

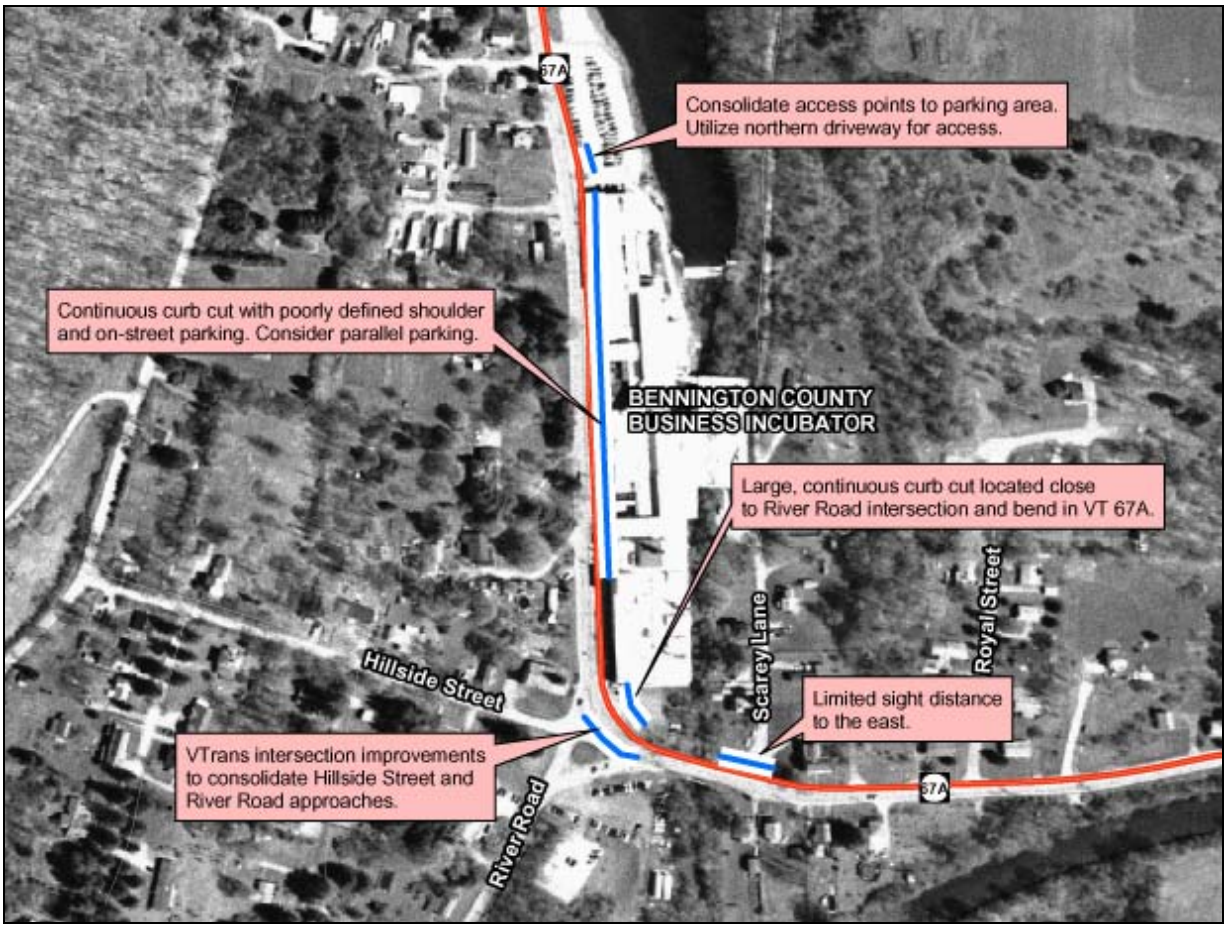


Figure 4: Access Management Identified Deficiency Area #3 - Walloomsac River

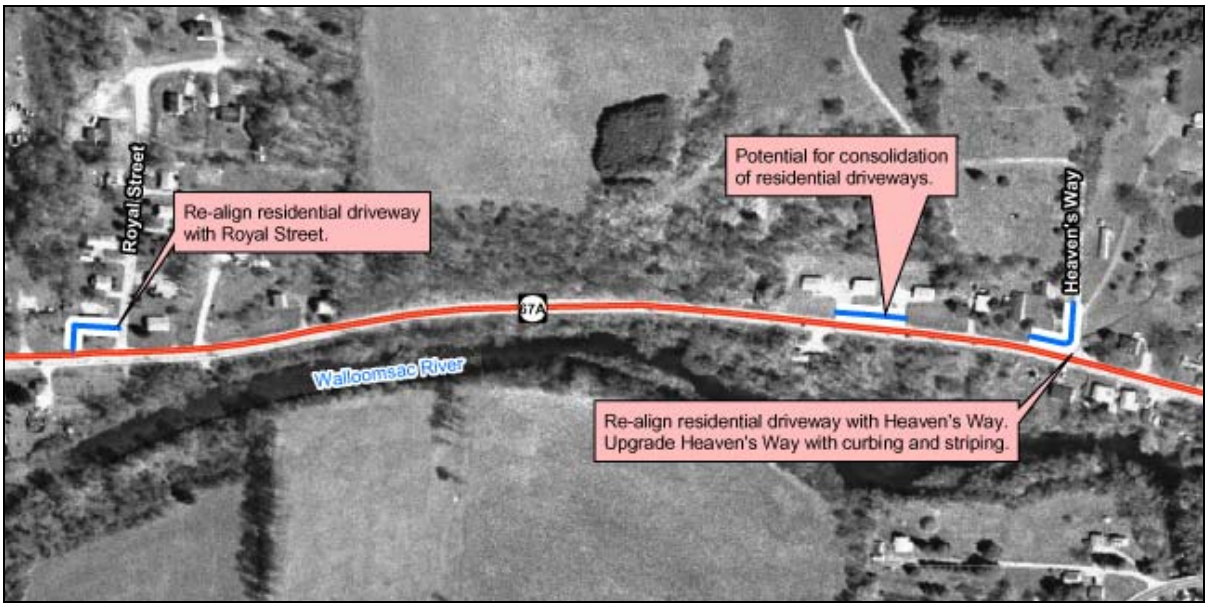


Figure 5: Access Management Identified Deficiency Area #4 - Paper Mill Village

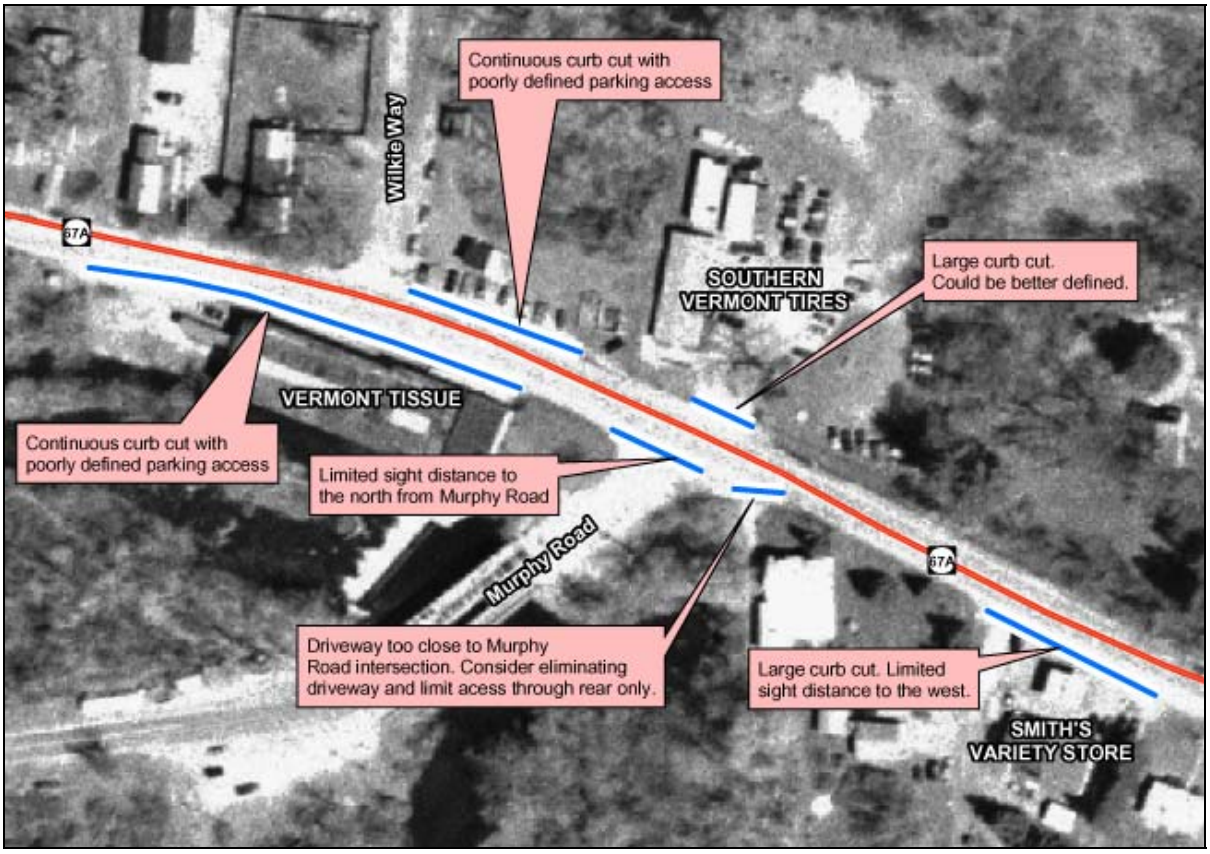


Figure 6: Access Management Identified Deficiency Area #5 - Northside Drive

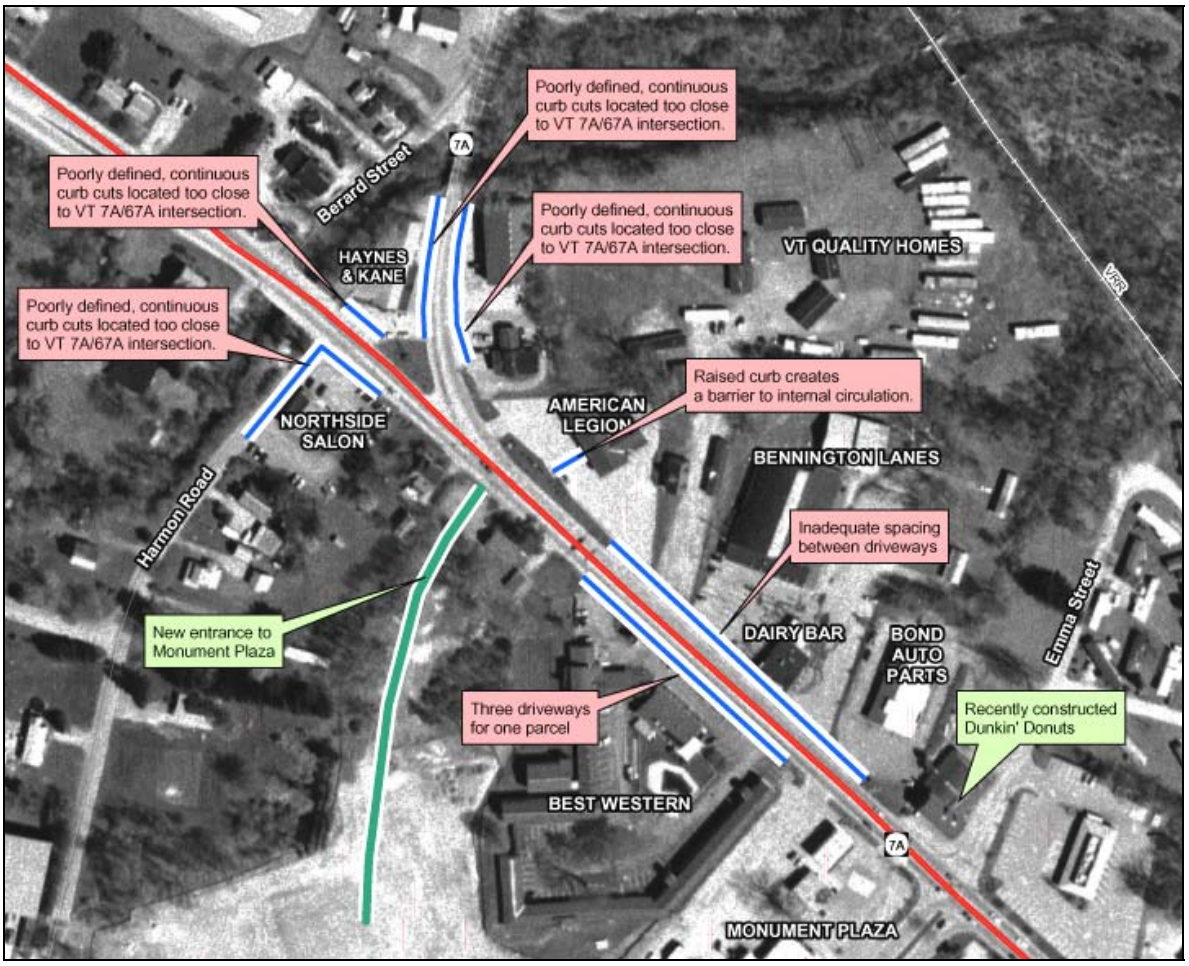
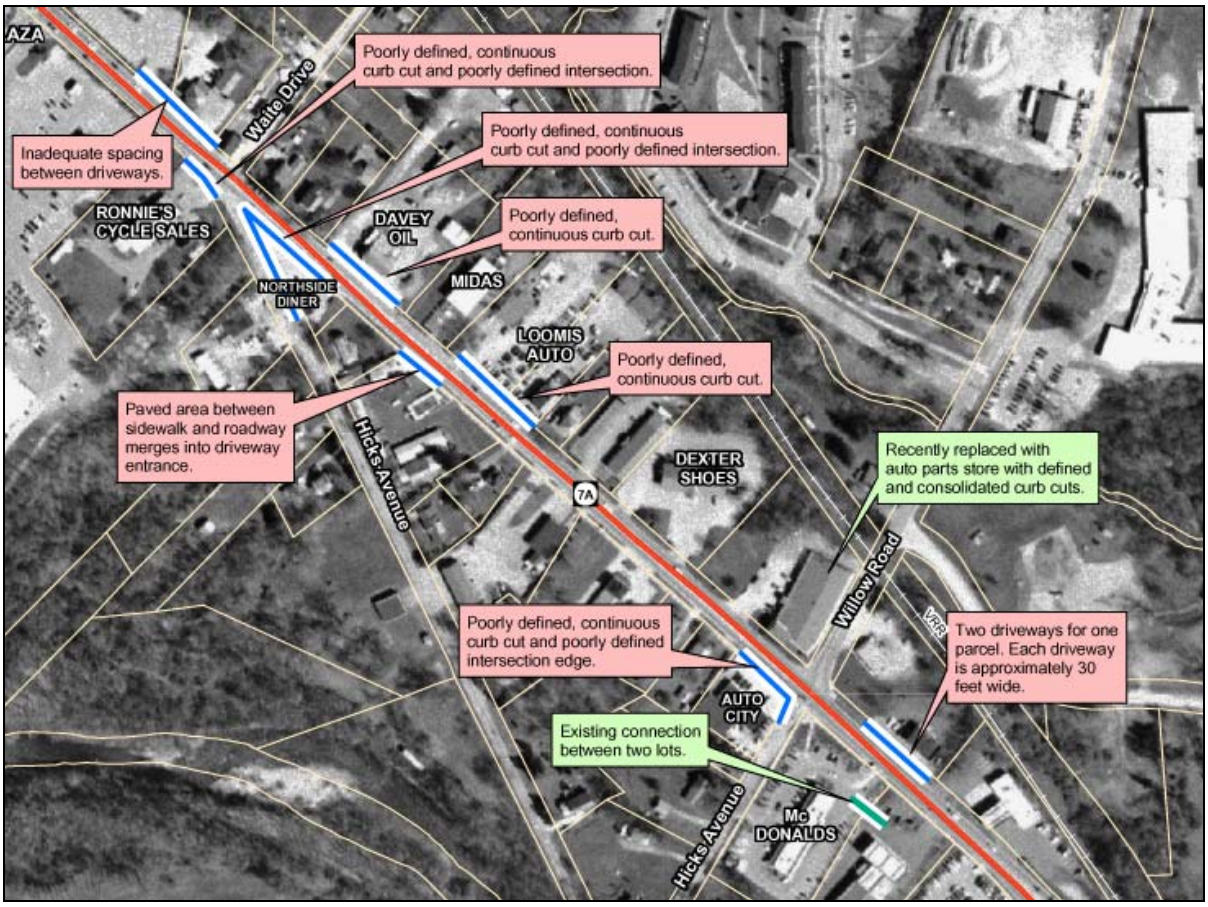


Figure 7: Access Management Identified Deficiency Area #6 - Hicks Avenue



APPENDIX E - SUMMARY OF CRASHES BY FOCUS AREA

The crash characteristics in each focus area are summarized below.

Segment #1 – North Bennington

Between 1997 and 2001, there were 12 crashes in this study area, eight of which were at the intersection of Prospect Street and two were at the intersection of Bank Street. The majority of crashes at Prospect Street were described as "other" and attributed to failure to yield and inattention. Half the crashes were in the southbound direction.

Segment #2 – Industrial Corridor

There were eight crashes in this study are between 1997 and 2001, four at River Road and four at Scarey Lane. The main contributing factors include failing to yield to the right of way, speeding and other improper actions. There were five injury crashes (63%) resulting in eleven injuries. The severity of the crashes on this section is greater than the overall average for the entire study area, where 43% the crashes involved injuries.

It was noted during a site visit that the layout of the intersection with River Road may be confusing with the openings of the side roads being very large. It was also noted that the pavement was in poor condition with ponding occurring on the inside bend of northbound traffic on VT 67A. This may lead to loss of control type crashes in wet or icy conditions. It was also noted that several signs were located in front of the guardrail on the bend. These signs may be a hazard to vehicles that come off the road at that location, and should be relocated behind the guardrail.

Figure 1: VT 67A-River Road-Hillside Street Intersection

Segment #3 – Bennington College Section

The section of VT 67 between Scarey Lane and Silk Road had 30 crashes between 1997 and 2001, 67% of which occurred at the VT 67A-Silk Road-Mattison Road-Bennington College intersection. A majority of the accidents at this intersection were described as 'other' with 60% of them attributed to a failure to yield right of way. More than half the crashes occurred between 3 and 5:30 PM. The awkward alignment and limited sight distance at the minor approaches to this intersection are the likely contributing factors to the high accident rate. The majority of the crashes west of the Silk Road intersection occurred on Friday and Saturday afternoons, and were attributed primarily to undefined improper actions.

Segment #4 – Emerging Commercial and Industrial Section

East of the Silk Road intersection, the landscape changes to a more suburban strip with the number of driveways and intersections increasing significantly. The stopping and starting traffic associated with frequent curb cuts and intersections results in the greater percentage of rear-end type crashes found in Segments 4 and 5.

There were 26 crashes at the VT 67A-Hannaford-Home Depot signalized intersection, including one fatality. A majority of the crashes at this intersection (70%) occurred in the eastbound direction. The main contributing accident factors at this intersection were failing to yield the right of way, making an improper turn, and disregarding traffic signals or signs.

There were 20 crashes at the intersection of VT 67A of VT 7A. 20% of these crashes occurred during wet or snowy conditions, greater than the average for the rest of the study area. Rear-end type crashes made up 45% (8 crashes) of the total collisions at this intersection, with 7 of those attributed to driver inattention. Half of the crashes at this intersection resulted in injuries, which is greater than the average of 43% for the rest of the study area.

Segment #5 – Northside Drive

Northside Drive has a high density of driveways and access points and thus a relatively high number of starting and stopping traffic, turning traffic, and conflict points. There were 107 crashes in this segment between 1997 and 2001. Sixty-three percent (67 crashes) of the crashes in this section were rear-end type crashes, of which 39% were attributed to following too closely and 37% were attributed to driver inattention. These types of crashes are typical on roads with frequent and erratic starting and stopping traffic.

APPENDIX F - 2025 TRAFFIC PROJECTIONS

The following three components were used to develop the 2025 traffic volumes along VT 67A and VT 7A:

- regional background traffic growth;
- traffic from developments along or near the study area that are anticipated in the near term but are not yet built, and
- traffic adjustments resulting from the completion of VT 279 around Bennington.

Each of these elements is described in more detail below.

Regional Background Traffic Growth

Over the next twenty years, population and employment growth outside of the study area will contribute to traffic growth along VT 67A and VT 7A. To best represent this, historic traffic growth rates at VTrans traffic count stations located within each of the five segments were projected out to 2025 using a standard regression analysis. The results of this analysis, including the twenty year growth and annual growth rate, are shown in Table 1.

Table 1: Background Traffic Growth Rates by Segment

Segment	Description	Segment Area Type	Count Station	R-Squared	2004 to 2025 Growth	Annual Growth Rate
1	North Bennington Village Section	Rural	S6B185	0.97	37%	1.5%
2	Industrial Section	Rural	S6B184	0.75	26%	1.1%
3	Bennington College Section	Rural	S6B126	0.79	25%	1.1%
4	Emerging Commercial and Industrial Section	Suburban	S6B235	0.99	28%	1.2%
5	Northside Drive Section	Suburban	S6B038	1.00	20%	0.9%
				Average All	27%	1.1%
				Average Rural	**29%**	**1.2%**
				Average Suburban	**24%**	**1.0%**

The statewide average twenty-year growth rate for rural primary and secondary highways is 31%[1]. The average for the study area as a whole is 27%, which is slightly below the statewide average. For this analysis, the average rates for the rural and suburban segments were calculated separately revealing a slightly higher growth rate within the rural segments (29% vs. 24%).

Traffic From Anticipated Development

Traffic generated by anticipated but not yet built developments along or near the study corridor were quantified for each segment based on information provided by Bennington and North Bennington

[1] "Continuous Traffic Counter Grouping Study and Regression Analysis Based on 2003 Traffic Data", Vermont Agency of Transportation.

town officials, Bennington County Industrial Corporation staff, and from the recent *Northside Drive Transportation Study and Plan*[1] assumptions.

Table 2 shows the development name or assumptions, the anticipated size of the development, trip generation characteristics[2], and relevant notes. In segments 1 and 3, no significant development is anticipated over the next twenty years, so only the background traffic growth is applied in these sections.

Table 2: Trip Generation Details

Segment	Development/Assumptions	Size	Units	ITE Trip Generation Code	PM Trip Gen Rate	% In	% Out	Notes
1 North Bennington Village Section	*- none -*							
2 Industrial Section	BCIC Incubator (Assume full capacity)	153,000	SF	General Light Industrial (110)	0.98	12%	88%	Currently about 40% occupied
	Krone Optical (Assume full capacity)	45,000	SF	General Light Industrial (110)	0.98	36%	64%	Currently 35 employees
	National Hangar (Assume full capacity)	110,250	SF	General Light Industrial (110)	0.98	36%	64%	Currently 120 employees
3 Bennington College Section	*- none -*							
4 Emerging Commercial & Industrial Section	Hampton Inn	80	Rooms	Hotel (310)	0.59	53%	47%	New
	Chilis	5,000	SF	High-Turnover Restaurant (932)	10.92	61%	39%	New
5 Northside Drive Section	Northside Drive Report assumptions	108,000	SF	General Office Building (710)	1.49	17%	83%	SF based on Northside Drive Study, 2003
	Northside Drive Report assumptions	315,000	SF	Shopping Center (820)	3.75	48%	52%	SF based on Northside Drive Study, 2003

Table 3 shows the total number of new trips projected to be added to the network in 2025 by segment. The new trips generated by the three developments within segment 2 reflect the *additional* trips created if the BCIC Incubator, Krone Optical, and National Hanger buildings were to be completely occupied[1].

Table 3: New PM Peak Hour Trips Added to the Network in 2025

Segment	Description	Development/Assumptions	NEW PM Peak Hour Trips Added to Network Total	In	Out
1	North Bennington Village Section	*- none -*			
2	Industrial Section	BCIC Incubator (Assume full capacity)	90	11	79
		Krone Optical (Assume full capacity)	18	7	12
		National Hangar (Assume full capacity)	24	9	15
3	Bennington College Section	*- none -*			
4	Emerging Commercial and Industrial Section	Hampton Inn	47	25	22
		Chilis	55	33	21
5	Northside Drive Section	Northside Drive Report assumptions	1,342	594	748

The traffic generated by the anticipated but not yet built development is assumed to distribute onto the network in proportion to existing traffic volumes. For the 1,342 trips expected to be generated in along Northside Drive, we have assumed that they load onto the network at the following intersections and in the following proportions[2]:

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[1] The *Northside Drive Transportation Study and Plan* utilized ITE 6th edition trip generation rates. Thus, the total trips generated in this analysis within segment 5 differ due to the use of the most recent Trip Generation manual.

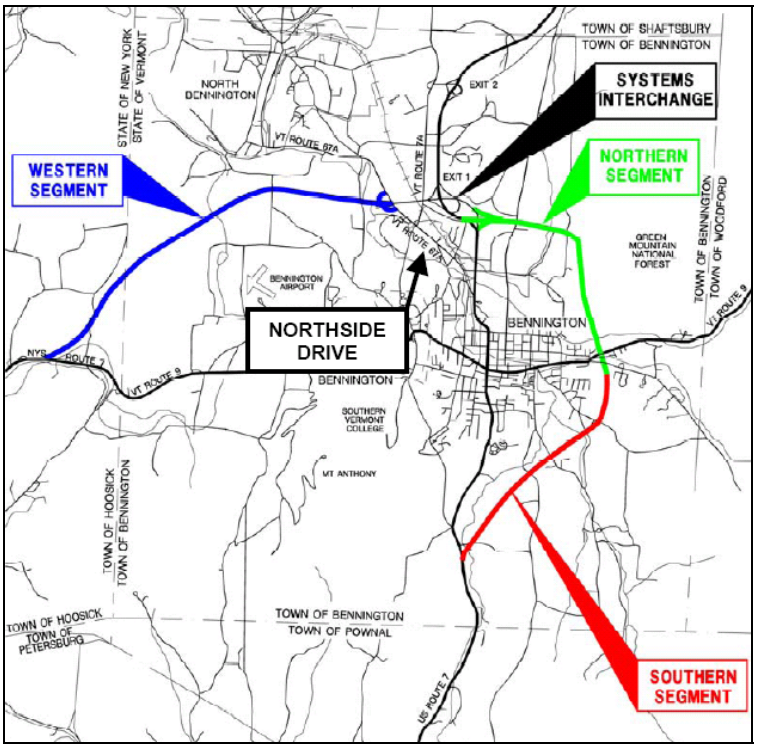
[2] From *Trip Generation*, Institute of Transportation Engineers, 7th Edition, 2003.

- VT 67A-Hannafords-Home Depot: 40%
- VT 7A-Price Chopper: 30%
- VT 7A-Hicks Avenue: 30%

Traffic Adjustments from Completion of VT 279

The third major impact on traffic along VT 7A and VT 67A in the study corridor over the next twenty years will be the construction of VT 279, a new, limited access, circumferential route planned to connect NY 7 near Hoosick, NY with VT 67A, VT 7A, US 7, and VT 9 around Bennington (see Figure 1).

Figure 1: Segments of VT 279



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[1] Building sizes and current number of employees based on information obtained from the Bennington County Industrial Corporation and the Town of Bennington.

[2] These intersections and the traffic distribution were chosen to reflect anticipated conditions in twenty years. It should be noted that by loading the anticipated Northside Drive development trips onto the network at these three intersections, the resulting through and turning movement volumes at these intersections may be higher than if the trips were assumed to load at individual driveways along Northside Drive or via other intersections on Northside Drive.

The completion of each segment of VT 279 will have measurable impacts on traffic patterns in and around Bennington. Table 4 shows the estimated change in Average Annual Daily Traffic (AADT) at two locations within the study area based on the results of a study completed for VTrans in 1999[1]. It is interesting to note that while the completion of VT 279 will result in significant traffic reductions along Northside Drive (-20%), the new highway is projected to increase traffic on VT 67A north of the interchange (+5%)[2].

Table 4: Estimated Change in AADT Resulting from various Stages of VT 279 Completion

	Estimated Change in AADT	
	VT 7A (Northside Drive)	**VT 67A** (North of VT 279 Interchange)
Western Segment Only	-7.5%	4.1%
Western and Northern Segment	-14.5%	5.2%
Western, Northern, and Southern Segments	-20.1%	5.2%

For the subsequent congestion and safety analysis, we have assumed the following:

- All three segments of VT 279 are open to traffic in 2025;
- The change in AADT on VT 7A shown in Table 4 only applies to the Northside Drive segment traffic while the change in AADT on VT 67A applies to traffic on Study Segments 1-4; and
- For the commercial sections and intersections within segments 4 and 5, the VT 279 adjustments are only applied to through traffic, as the turning trips are assumed to have an origination or destination within the study corridor already and will not be affected by the opening of VT 279.

Summary of 2025 Traffic Volumes

Table 5 shows how background growth, anticipated development, and the opening of VT 279 affects the total traffic volume traveling through each study intersection during the 2025 design hour[3]. Traffic volumes are projected to increase by an average of 50% through the study area intersections. The percentage increases ranges from a low of 20% at the US 7-VT 7A-Kocher Drive intersection to a high of 80% at the VT 67A-Hannaford-Home Depot intersection.

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[1] *Traffic Impact Study and Analysis for the Greater Bennington Area*, Clough Harbor & Associates, 1999.

[2] This traffic increase north of the interchange may be a result of more cars (particularly from points north of North Bennington into New York) using VT 67A, rather than River Road, to access NY 7 and points west.

[3] The Design Hourly Volume (DHV) is generally taken to be the 30th highest hourly volume during the year and is the standard in Vermont for traffic engineering design.

Table 5: Summary of Traffic Growth by Intersection

	2004 Design Hour Volume (All Approaches)	*2004 to 2025 Volume Increase Due to:* Background Growth	Anticipated Development	VT 279	*2025 Traffic Volume* Total	Total Increase	% Increase
VT 67 - VT 67A	1,070	313	115	55	1,554	484	45%
VT 67A - West Street - Prospect Street	960	280	237	49	1,526	566	59%
VT 67A - River Road - Hillside Street	980	286	274	51	1,591	611	62%
VT 67A - Mattison Road - Silk Road - Bennington College	1,770	517	343	91	2,722	952	54%
VT 67A - Hannafords - Home Depot Driveways	1,510	364	797	53	2,725	1,215	80%
VT 67A - VT67A Connector	1,390	335	462	72	2,259	869	63%
VT 7A - VT 67A	1,560	375	524	-202	2,257	697	45%
VT 7A - WalMart Drive - Price Chopper	2,430	584	835	-245	3,604	1,174	48%
VT 7A - Hicks Avenue - Willow Road	2,220	533	807	-365	3,195	975	44%
VT 7A - Benmont Avenue	3,510	843	614	-574	4,393	883	25%
US 7-VT 7A-Kocher Drive	3,130	753	517	-630	3,770	640	20%

Table 6 shows how traffic from background growth, anticipated development, and the opening of VT 279 affects the total daily traffic volume on each of the five study segments. These values differ from those shown in Table 5 in the following ways: 1) they reflect average *daily* volumes, and 2) they only reflect through traffic on VT 7A and VT 67A (i.e. not side street traffic). Daily traffic volumes are projected to increase by an average of 27% through the study segments.

Table 6: Summary of Traffic Growth by Segment

Segment	2004 AADT (avg.)	*2004 to 2025 Volume Increase Due to:* Background Growth	Anticipated Development	VT 279	*2025 Traffic Volume* Total	Total Increase	% Increase
1 North Bennington Village Section	6,900	2,000	240	400	9,500	2,600	38%
2 Industrial Section	7,300	2,100	270	400	10,100	2,800	38%
3 Bennington College Section	8,000	2,300	340	400	11,000	3,000	38%
4 Emerging Commercial & Industrial Section	9,400	2,300	800	-1,900	10,600	1,200	13%
5 Northside Drive Section	15,600	3,800	830	-3,100	17,100	1,500	10%

APPENDIX G - LAND USE PLANNING AND REGULATIONS: OPTIONS[1]

***NOTE**: This appendix has been modified from recommendations contained in the VT 100 Access Management Study. Some recommendations are specific to the VT 100 study area (Waterbury, Stowe, and Morristown). However, the concepts listed are also applicable to the Bennington VT67A-7A Access Management Study Area. A full copy of the VT 100 Access Management Plan may be obtained from the Lamoille County Planning Commission and/or the Central Vermont Regional Planning Commission*

Administrative Access Management Tools

The purpose of access management, as discussed previously, is to provide reasonable or improved vehicular and pedestrian access to properties and development along a road corridor, while preserving the capacity of the road network to safely and efficiently handle traffic. Administrative access management tools and techniques include both regulatory and non-regulatory options for managing the pattern of development, and access to that development, along a state or municipal highway system. As such, these generally focus on the land rather than the road side of the right-of-way. Several access management tools and techniques are described briefly here, and in more detail in the following publications available from VTrans through its "Vermont Access Management" web site (www.vtaccessmanagement.info/):

- VTrans' *Access Management Program Guidelines* (July 1999, Rev. February 2004)
- *Vermont Best Practices for Access Management* (Resource Systems Group, March 2004)
- A listing of access management tools and techniques (with local examples)
- Access management definitions,
- A permitting flow chart, and
- Useful links to other state and national access management resources.

Other key state design standard publications often referenced in local road policies and, where appropriate, under municipal ordinances and regulations include:

- *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways Roads and Streets* (July 1997), and
- VTrans' Standard Drawings, including "Standards for Residential and Commercial Drives" (B-71) and "Standards for Town & Development Roads" (A-76).

[1] Source: *VT 100 Access Management Study – Preliminary Draft*, Resource Systems Group and Burnt Rock, Inc., 2004

The focus here is on administrative access management that may be employed by a municipality, for state highways in coordination with Vermont Agency of Transportation, and locally along the interconnecting town highway system.

Conformance with the Municipal Plan

Under statutory changes to the Vermont Planning and Development Act (24 VSA Chapter 117) that went into on July 1, 2004 (Act 115), municipal programs and land use regulations intended to implement the municipal plan must now clearly conform to plan policies and recommendations. Accordingly, prior to adoption, the Planning Commission must determine that a proposed bylaw:

- Conforms with or furthers the goals and policies contained in the municipal plan;
- Is compatible with future land uses and densities of development proposed in the plan; and
- Carries out, as applicable, any specific proposals for any planned community facilities.

THE MUNICIPAL PLAN

Comprehensive municipal plans are intended to serve as the basis for local policies, ordinances, land use regulations and infrastructure improvement programs. Municipal plans are also given weight in regional transportation and land use planning, in the identification of needed transportation improvements and priorities, and project development, and in state regulatory proceedings such as Act 250 where traffic and access management issues are a common consideration.

There are two required elements of the municipal plan in which access management should be addressed – the land use and transportation elements. Proposed patterns and densities of development along a corridor, and elsewhere along the road network, should be identified in the land use element and on the proposed land use map. These could include recommended changes to underlying zoning districts along the corridor, and/or the adoption of an "access management overlay district" as described below.

Access management techniques recommended for use locally, and associated access management policies or guidelines, should be identified in the transportation element of the plan. For consistency, this should include consideration and incorporation of state access management guidelines noted above, as appropriate.

Proposed access, road and intersection improvements – including relevant recommendations from this study – also should be identified and addressed in the transportation element. Road functional classes and access management categories should be identified on the transportation map, along with the general locations of proposed road and intersection improvements and rights-of-way for new roads.

In addition to local bylaw and ordinance amendments, the municipal plan also provides the basis for other implementation tools that may have a direct or indirect bearing on local access management, which are described in more detail below, and must also be in conformance with plan goals, policies and recommendations:

- Supporting plans, including access management or road improvement plans,

- Land acquisition programs,
- A municipal capital budget and improvement program, and
- An "official map" that identifies the location of proposed public rights-of-way,

The recommendations in this study should be considered by local planning commissions and select boards for incorporation in updated or amended municipal plans, in order to be given weight in the update of local bylaws and in regional and state project development and regulatory proceedings (see sidebar). At minimum, the recommendations should be incorporated by reference as appropriate.

Non-regulatory Access Management Tools

Access Management Plan

An access management plan is a type of strategic plan that is more focused and limited in scope than the comprehensive plan, and more detailed in the level of analysis, alternatives, and recommendations presented. An access management plan should include sufficient information to identify access management improvements for specific properties as they come under review, or as needed to support project development and financing. An access management plan may also serve as the basis for the creation and administration of an "access management overlay district" under local zoning; or for interagency agreements or memoranda that coordinate access permitting and required improvements along a particular stretch of highway or at key intersections.

Where it is determined that an overall access management plan includes enough detail for managing access at particular locations it may also serve as an access management plan for these areas. Recommended intersection improvements, and associated analyses, should also be sufficient to support and further project development as appropriate.

Land Acquisition

The public acquisition of land or interests in land – through negotiated dedication or condemnation – may serve two purposes related to access management: acquisition may be used to obtain ownership or interest in property fronting a road specifically to control access or rights-of-way within that area (e.g., at the Exit 10 interchange area); or to control or limit the development of adjoining parcel, for example through the purchase of development rights in support of land or open space conservation.

Land acquisition compensates property owners and ensures long-term control or protection; however, it can be prohibitively expensive, particularly in areas undergoing active development. Locally supported land conservation efforts along a corridor – particularly along rural segments in the vicinity of village centers – may serve local access management as well as land conservation goals. Such projects may also more effectively compete for available funding through the Vermont Housing and Conservation Board, VTrans' Enhancement Grant Program, and other programs that help fund land acquisition.

Capital Budget & Program

A municipal capital budget and program, often referred to as a "capital improvement program," is a locally adopted fiscal management tool that schedules needed capital projects – including proposed road and infrastructure improvements or land acquisitions – for the coming fiscal year, and for the following five-year period. It also identifies estimated costs and sources of financing for each project – which may include local property taxes, impact fees, state funding, and other available loan and grant programs.

Publicly funded access management and infrastructure improvements, such as those recommended in this plan, should be considered for incorporation local capital improvement programs that are coordinated with regional and state transportation improvement programs.

Impact Fee Ordinance

If a municipality has an adopted capital budget in program in place it can also, with some additional analysis of growth trends, adopt a local impact fee ordinance (e.g., a road impact fee) to help pay for capital improvements necessitated by growth within the corridor – including road, intersection, access or sidewalk improvements, and associated land or right-of-way acquisition. This is one method used to allocate the costs of needed public improvements among several development projects. Costs are assigned to each, generally by formula, in proportion to their relative impact. Since impact fee ordinances require the adoption of a capital budget and program, an analysis of growth trends in relation to the local tax base, and the local capacity to administer the funds collected, few Vermont municipalities have adopted them to date.

Official Map

Even fewer Vermont municipalities have adopted official maps, but where they exist (e.g., South Burlington) they can be an effective tool for promoting the development of a planned, interconnected, road network. The intent 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; or it may be denied if the municipality is willing to initiate proceedings to acquire its interests within 120 days of denial. This may have particular application in areas where new connecting roads are proposed, or where road widening, intersection improvements, or public parking areas are recommended.

Regulatory Access Management Tools

Regulating access in association with the regulation of land development is a much more common method of managing access at the local level. Local road ordinances and land use regulations are a

cost effective, if sometimes politically challenging, way to preserve road and intersection capacity and thereby reduce or delay the need for costly infrastructure improvements.

Statutory Requirements

Existing lots, development and associated accesses are grandfathered under state and local regulation – however they can be brought into conformance when changes to a property are proposed that trigger development review. This could result simply from a request to relocate an existing access, but typically also involves:

- subdivision or re-subdivision of an existing lot,
- development or redevelopment of an existing property,
- a change in the use of a property, or
- an addition or expansion that results in significant increases in trip generation rates, or alters on- or off-site site circulation patterns.

The content of local bylaws is governed in part by the requirements of state statutes, found in the Vermont Planning and Development Act (24 V.S.A. Chapter 117). As noted, under recent amendments to the Act, proposed municipal bylaws or amendments pertaining to access management should support and conform to goals, polices and recommendations included in the municipal plan.

Under Chapter 117, local bylaws must include one required statutory protection, intended to ensure that opportunity is provided for reasonable access to existing non-frontage, or landlocked, lots (see sidebar). Often municipalities limit this type of access approval to pre-existing, nonconforming parcels that do not meet applicable frontage requirements (e.g., landlocked or "flag" lots) and, for purposes of access management, require that all newly subdivided lots meet applicable lot frontage (or width) requirements on both public and private roads.

Required frontage on, or access to, public roads or public waters: Land development may be permitted on lots that do not have frontage either on a public road or public waters, provided that access through a permanent easement or right-of-way has been approved in accordance with the standards and processes specified in the bylaws. This approval shall be pursuant to subdivision bylaws adopted in accordance with §4418, or where subdivision bylaws have not been adopted or do not apply, through a process pursuant to standards defined in bylaws adopted for the purpose of assuring safe and adequate access. Any permanent easement or right-of-way providing access to such a road or waters shall be at least 20 feet in width [24 V.S.A. §4412 3)].

Under the Act, a municipality also may prohibit the development of a pre-existing lot that is less than 40 feet in width, thereby limiting the need to provide direct access to small, nonconforming frontage lots.

Chapter 117 also enables several methods of development review that may incorporate access management and related infrastructure requirements, as briefly described below. Specific access management provisions found in local regulations, by type of regulation, are presented in Table 1.

Important considerations in developing a regulatory access management program include: 1) determining the type, magnitude and/or location of development that should trigger access review

and, 2) determining the appropriate type or level of review that will be required. For access management purposes all development – including access to single family homes – should be reviewed. For smaller projects on existing lots, administrative access approval under a local road ordinance or zoning bylaw may be sufficient. For subdivisions or larger development projects, reviewed by the Planning Commission, Board of Adjustment or Development Review Board should be required.

A distinction should also be made between recommended guidelines and regulatory standards. Guidelines – such as local road policies or state access management guidelines – allow for more flexible application in the real world, but may be difficult to enforce under local regulations. Regulatory standards or requirements are more easily enforceable, however, without some provision for their modification or waiver, may be unreasonable, especially when applied to a nonconforming lot.

Table 1. Regulatory Access Management Options

Regulatory Access Management Options	May be Defined or Applied Under:					
	Zoning Map	Zoning District Standards	General Zoning Standards	Site Plan Review	Conditional Use Review	Subdivision Review
Zoning District Designations						
1. Avoid "ribbon" or "strip" zoning along road corridors	Y					
2. Define compact development districts –nodes, villages, growth centers – in appropriate locations (e.g., adjacent to existing centers, major intersections)	Y					
3. Define "Access Management Overlay District(s)" to apply access management criteria to a particular corridor or intersection	Y					
Land Uses (by Zoning District)						
1. Consider allowed uses in relation to context, trip generation, transit		Y				
2. Rural: agriculture, forestry, low density residential		Y				
3. Village/Growth Center: mixed commercial, residential, civic		Y				
Densities of Development (by Zoning District)						
1. Limit scale, density of development along undeveloped sections		Y				
2. Rural: low overall density, large lots, wide frontage, deep setbacks and/or clustered development off the road		Y				
3. Village/Growth Center: high density, small lots, reduced frontage and setbacks, increased height, coverage		Y				
General Access Standards						
1. Limit access (curb cuts) to one per lot, or one per specified length of road frontage, consistent with access separation guidelines			Y	Y	Y	Y
2. Require access from a secondary road where feasible			Y	Y	Y	Y
3. Require that new or relocated driveways be aligned with facing driveways where feasible			Y	Y	Y	Y
4. Allow driveway and parking areas within side yard setbacks			Y	Y	Y	
5. Separate curb cuts and road intersections; set minimum distances			Y	Y	Y	
6. Require the relocation, consolidation or elimination of non-conforming accesses upon development or redevelopment			Y	Y	Y	
7. Define access and driveway design standards (e.g., width, length, alignment, grade) which may vary by the type of use			Y	Y	Y	
8. Limit access and driveway widths to the design width, require curbing or other access control features			Y	Y	Y	
9. Require adequate driveway length for storage and stacking			Y	Y	Y	
10. Require driveway turn around areas; prohibit direct parking that requires backing into rights-of-way (except for on-street parking)			Y	Y	Y	
11. Specify access requirements for Class IV (seasonal) roads			Y			
Site Layout Standards						
1. Rural: minimize the linear density of development along roads, maximize internal site circulation (access to outparcels)				Y	Y	Y
2. Village/Growth Center: maximize connectivity, create or maintain a pedestrian scale and orientation				Y	Y	Y
Site Layout Standards, continued						
3. Village/Growth Center: reduce or eliminate on-site parking requirements (e.g., based on the availability of on-street, shared or public parking, or the use of parking or transit credits)				Y	Y	Y
4. Limit parking to the side or rear of buildings				Y	Y	Y
5. Require shared access and interconnected parking with adjoining properties and uses (joint and cross access) where feasible; or access easements that connect to adjoining parcels in the event they are developed or redeveloped.				Y	Y	Y
6. Require pedestrian sidewalks or paths between buildings, parking areas, and where feasible to adjoining parcels.				Y	Y	Y
7. Require the installation of mid-block pedestrian crossings where appropriate				Y	Y	Y
8. Require the installation of public transit facilities, where served.				Y	Y	Y
9. Require the installation of bicycle racks for commercial, industrial, civic, multi-family and recreational uses.				Y	Y	Y
Multi-Property Standards						
1. Allow for or require planned unit (and planned residential development); to include requirements for clustering					Y	Y
2. Require the submission of a master plan for phased development, showing planned access points, road and pedestrian extensions						Y
3. Require that the pattern of subdivision ensures proper access and street layout in relation to existing or proposed roadways						Y
4. Discourage or prohibit the creation of flag and other irregularly shaped lots that do not meet access or frontage requirements						Y
5. Require that newly subdivided parcels be served by existing or planned accesses; limit the creation of new accesses associated with resubdivisions						Y
6. Require access to individual lots from internal (e.g., service, development) roads						Y
7. Define road and road intersection standards						Y
8. Discourage the creation of dead-end roads, including cul-de-sacs						Y
Infrastructure Requirements						
1. Require traffic impact analyses for larger projects, to be paid for by the developer, to determine traffic and infrastructure impacts associated with a proposed development					Y	Y
2. Require the installation of on- and/or off-site access, road and/or traffic management improvements necessitated by the development, to be paid for by the developer				Y	Y	Y
3. Require bonding to ensure that required improvements are installed and maintained				Y	Y	Y

Zoning Regulations

Zoning regulations typically govern the type and density of development on existing lots, within designated zoning districts. They may also include access management standards that apply to all development (general standards), or that are specific to a particular zoning district (district standard) or type of use (use standard).

Zoning Districts. For purposes of access management, zoning district designations should be reviewed in relation to recommended access management strategies. For example:

- Zoning districts should be delineated to avoid strip (or ribbon) commercial and residential development along a corridor; and to promote higher densities of concentrated, mixed use development in areas served by an interconnected road network, shared or on-street parking, pedestrian paths and sidewalks, and public transit. Such districts may be defined to include expanded historic village centers, or new growth centers at key intersections or areas that allow for the development of an interconnected road network. Zoning districts may also incorporate specific access management standards for identified "transitional areas" that are intended for further development or redevelopment.
- Allowed uses within each district should be reviewed in relation to potential trip generation rates and associated access requirements.
- District dimensional requirements – and in particular minimum lot size and frontage (or lot width) requirements – should be reviewed in relation to desired densities of development. This helps promote relatively low overall densities of development. District frontage requirements should be reviewed in relation to minimum lot sizes to avoid the creation of long, narrow lots; and also in relation to recommended access separation distances which vary based on the posted or design speed of the adjoining road. In districts where the minimum frontage requirement is less than the recommended access separation distance (e.g., within a village area), provisions for shared access and parking, and access to on-street or other off-site parking will be necessary.

General Access Standards. Typically, general standards apply to all development including the development or redevelopment of existing lots for which other types of access approval may not be required, such as single- or two-family dwellings. Access guidelines or standards that apply to all development – including curb cut and driveway standards – should be considered for incorporation under a local road policy or ordinance that is referenced in the zoning regulations, or under general zoning requirements along with parking and other similar standards. Consideration should be given to whether access management requirements under state rules (for state highways) and local road policies or ordinances (for local roads), if adopted by reference, are sufficient to manage the siting and design of accesses and driveways, or whether additional general standards may be needed.

For purposes of coordination, general access management standards under zoning regulations should at minimum reference the need for an applicant to obtain access approval from VTrans for state highways, or from the Selectboard for access to local roads, prior to the issuance of a zoning permit. This is an easy way to ensure under zoning that the access to a lot that is being developed is consistent with existing state and local access requirements. In addition, the following standards or guidelines should be considered under general regulations, or incorporated by reference to related state and municipal guidelines as appropriate:

- A limit of one access per lot, or specified length of road frontage (in relation to separation distances),
- A requirement that lot frontage and access requirements shall apply to both public and private road rights-of-way,
- A requirement that if a lot has frontage on two roads, access shall be provided from the secondary or less traveled road,
- A requirement that new accesses shall either be aligned with facing accesses or intersections, or be offset in accordance with specified separation distances.
- Access separation distances from adjoining and facing accesses and intersections – based on posted or design speeds, minimum stopping distances and intersection function areas (e.g., as recommended under VTrans' *Access Management Program Guidelines*),
- Corner sight distances (e.g., as recommended under VTran's *Access Management Program Guidelines*),
- Access design standards (dimensions, grade, surfacing) which vary in relation to the type of development to be served (e.g., VTrans' Standard Drawing B-71 for residential and commercial drives),
- Requirements for curbing or other edge defining features that limit vehicular access to the approved access, and
- Requirements for driveway turnaround areas to avoid the need to back out into the road right-of-way.

Provisions under this section could also allow for modifications or waivers of required standards on appeal to the Board of Adjustment or Development Review Board, or for projects that are otherwise subject to review by the Planning Commission, Board

Access Management Overlay Districts

An access management overlay district is a special type of zoning district that overlays one or more underlying zoning districts along a road corridor, or within an interchange or intersection area. Typically such districts are designated to implement an adopted access management plan.

Access management overlay districts are used to apply access management requirements to development within specific corridor segments or at key intersections where access management improvements are anticipated or required. They are especially effective for regulating access along developing commercial corridors or in the vicinity of interchange areas.

Such districts also may allow for the application of access management standards along a particular corridor such, which other-wise may be considered too restrictive for town-wide application.

of Adjustment or Development Review Board. These should include related determinations that such modifications are necessary and appropriate:

- to ensure reasonable, safe and adequate emergency, vehicular or pedestrian access to and from the site; and/or
- to allow for more functional site layout and design where physical constraints or lot limitations exist.

District & Use Standards. In cases where the town-wide application of stringent access management standards is considered unnecessary, inappropriate, or politically untenable, the case can often be made for applying such standards only within certain zoning districts – for example in areas zoned for commercial development, or within a designated "**access management overlay district**" (see Sidebar). Another option is to apply more stringent access standards to particular uses that generate a lot of traffic (e.g., in excess of 75 trips per day). For example, gas stations standards often include specific access management requirements.

Site Plan Review

Site plan review by the Planning Commission or Development Review Board typically regulates site layout and design of an individual lot that is intended for single or mixed use, and may be applied under zoning (or through a separately adopted bylaw) to all but single and two-family dwellings, which are exempted by statute. Site plan review generally includes standards for adequate traffic access, parking and circulation, and landscaping and screening. Site design standards appropriate for consideration under site plan include the following:

- Reference to general access management requirements (access and driveway standards) described above.
- Provisions for the elimination, relocation and/or consolidation of nonconforming accesses.
- Allowances for on-street or other off-site parking where appropriate (e.g., in village areas).
- A requirement to site or cluster structures on the lot in a manner that minimizes the need for multiple, individual road accesses, and that accommodates a pedestrian scale of development where buildings and parking areas are sited within easy walking distance of each other.
- Requirements for shared access and shared or interconnected parking areas, to be used by all structures or uses on the site, and by any adjoining parcels which currently or subsequently come under common ownership.
- Prohibitions against parking within front setback areas, particularly immediately adjacent to road rights-of-way; and a requirement that, to the extent feasible, parking areas are to be located to the side or rear of buildings, to limit access and parking within or adjacent to road frontage areas, and to allow for interconnected access (cross connections) with adjoining parking areas.

- Requirements that off-street parking areas must be visually and functionally separated from the road right-of-way through the use of curbing, green strips, fencing, landscaping or other edge defining features that also serve to limit vehicular access.
- Requirements that off-street parking areas include adequate on-site maneuvering areas and aisles, which may include detailed parking design and layout standards as appropriate.
- Requirements for the installation of pedestrian sidewalks or paths that link structures and parking areas on the site, and connect the site to adjoining parcels and/or the existing pedestrian network.
- Provisions for handicapped access and parking.
- Requirements for the installation of safe, well-defined, crossing areas where vehicular accesses cross or otherwise affect pedestrian, bicycle or handicapped access facilities.
- Requirements for easements to adjoining parcels to accommodate future cross connections for shared parking, and for shared or interconnected vehicular and pedestrian access.
- Provisions for the installation of public transit facilities (e.g., bus shelters) where appropriate.
- Provisions allowing for connections to existing recreation and bicycle paths where appropriate.
- A requirement that the developer pay for any necessary site and infrastructure improvements necessitated by the proposed development.
- Requirements for bonding or other forms of surety acceptable to the Selectboard, to ensure that required improvements are installed and maintained.

Again, it may be appropriate to allow for modifications or waivers from these provisions under circumstances specified in the bylaw.

Conditional Use Review

Conditional use review by the Board of Adjustment or Development Review Board is intended to evaluate the impacts of a proposed development, identified in the bylaw as "a conditional use," on traffic and roads in the vicinity, other municipal facilities and services, adjoining properties, and the character of the area. Conditional use review criteria should at minimum include:

- Reference to general access management and site plan standards described above.
- Requirements for the review of development within rights-of-way or other areas identified on the official map, to include the negotiated dedication of land or interests in land where agreed to by the applicant.
- Requirements for traffic impact analyses that identify trip generation rates, evaluate potential impacts to local traffic patterns and to the functional capacity of roads and intersections in

the vicinity of the development (e.g., in relation to anticipated or required levels of service), and recommend needed traffic control and/or infrastructure improvements.

- A requirement that the developer must pay for any on- or off-site access and infrastructure improvements necessitated by the proposed development – particularly in accordance with any adopted capital budget and program or impact fee ordinance.
- A requirement for bonding or another form of surety acceptable to the Selectboard, to ensure that required improvements are installed and maintained.

Where site plan review does not exist, conditional use review standards may incorporate access standards more often found under site plan review – for example standards that require the elimination, consolidation or relocation of nonconforming accesses. Where site plan and conditional use review both apply to a particular project, access management standards under each should be reviewed to make sure they are consistent. In order to ensure that such standards are consistently applied, Chapter 117 now includes provisions for site plan review criteria to be incorporated under conditional use review, effectively eliminating the need for duplicate review processes. Specifying the sequence of review and/or consolidating review procedures and standards under one review process can help avoid the potential for two boards to apply conflicting access management requirements to the same project.

Subdivision Review

Subdivision review by the Planning Commission or Development Review Board, which regulates the creation of new lots through the subdivision (or re-subdivision) or existing parcels, is perhaps one of the most effective tools for controlling the pattern of development, and associated access requirements, along a highway corridor. Subdivision regulations can be used to control access to multiple properties, and typically include related infrastructure requirements.

For purposes of access management, subdivision review standards should be reviewed and updated with consideration given to the following guidelines or requirements:

- Subdivided lots in village areas should reflect village patterns of development, share access and on-site parking or incorporate on-street or other off-site parking as appropriate, and provide sidewalks or other pedestrian connections between adjoining lots.
- Subdivided lots in rural settings should be clustered or grouped (e.g., in association with a planned unit or planned residential development) to allow for shared access, common or interconnected parking areas, and pedestrian connections between lots.
- The pattern of subdivision should ensure adequate and safe access and street layout in relation to existing and planned roads and intersections – including those depicted on the official map, if one exists.

- Newly subdivided parcels should be served only by existing or planned accesses, which should be designed to accommodate any further subdivision or re-subdivisions.
- Access to individual lots shall be provided only from shared driveways or from an internal development or service road.
- The Commission/Board may require the elimination, relocation and/or consolidation of nonconforming accesses serving subdivided properties.
- Subdivisions of up to three lots may be required to share a driveway, even if each lot meets district frontage requirements
- Access or development roads serving four or more lots should meet specified road and intersection standards (e.g., VTrans' Standard Drawing A-76, or *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets,* October 1997).
- Permanent dead-end roads and cul-de-sacs should be avoided, except where physical site constraints prohibit through connections to adjoining parcels.
- Access or road easements to the boundaries of adjoining parcels shall be provided to accommodate future cross connections, and shall be shown on the subdivision plat.
- Traffic impact studies, the installation of needed traffic control, road and intersection improvements necessitated by the proposed subdivision, the phasing of development in accordance with an adopted capital improvement program, and/or bonding may also be required to ensure that the transportation infrastructure serving the subdivision is adequate.

Subdivision regulations may also include requirements for the submission of "master plans" and phasing schedules for larger projects that extend over several years, and associated requirements – as specified in the conditions of approval, or through a development agreement with the town – regarding the construction specifications, timing and installation of necessary access, road and intersection improvements.

ACCESS MANAGEMENT COORDINATION

At the local level, effective access management requires close coordination and communication between the Select Board, which is responsible for adopting and administering local road ordinances (including the issuance of highway access permits), and those local officials responsible for administering local land use regulations – including the Zoning Administrator, Planning Commission, Board of Adjustment or Development Review Board. For access management along the state highway system, this level or coordination should extend to the Agency of Transportation, which is responsible for approving access to the state highway system. The following are options for ensuring the access management requirements are fairly, effectively and consistently applied.

Adoption of Consistent Review Standards

Access management guidelines or standards included in local land use regulations should be reviewed for consistency with similar standards found under local road ordinances. In turn, the municipality should consider the adoption of state access management and design standards where appropriate, particularly as they apply to development to be accessed by the state highway network. Often local or state guidelines or standards are incorporated by reference in local bylaws.

As noted above, the access management standards within the land use regulations that apply to different types or levels of development review should be reviewed for consistency.

Referral Requirements

Local ordinances and regulations should specify the timing and sequence of highway access approval in relation to development review, and any related requirements for application referrals to the Selectboard or VTrans for highway access approval. At minimum, the regulations should allow for, or require, consultation with local and state officials (by the applicant and/or the local official or board) prior to the issuance of zoning permits and approvals under local land use regulations. In addition local land use regulations should also include:

- For projects that require only administrative review (e.g., the issuance of a zoning permit), a requirement that no zoning permit shall be issued until access approval is obtained, to ensure that access to the proposed development meets local or state access requirements.[1]
- For projects that require Planning Commission or Board approval under zoning (e.g., site plan or conditional use review), the regulations should specify that highway access approval be obtained after the issuance of site plan or conditional use approval, to ensure that access requirements are consistent all other requirements of local development approval.
- For subdivision review, it is often common that highway access approval be obtained following preliminary plat approval, but prior to final plat approval, to ensure that proposed roads, intersections and accesses are consistent with both local and/or state requirements.

Access Management Agreements

An especially effective way of coordinating access management and permitting along state highways is the use of an "Intergovernmental Access Management Agreement" or memorandum of understanding. Such agreements are increasingly being used in Vermont, and around the country, to coordinate access management between multiple jurisdictions along specified road corridors or interchange areas. The agreement, entered into between the state and one or more municipalities, typically:

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[1] Unfortunately, for access management purposes, the statutory requirement under Chapter 117 that all applications for development within 500 feet of interstate entrance or exit ramps be referred to the Agency of Transportation for review and comment was eliminated under Chapter 117 as of July 1, 2004 with the adoption of Act 115.

- Identifies the road segment or interchange area covered under the agreement, as shown on an accompanying map,
- Identifies those parties having jurisdiction and their respective permitting authority and responsibilities,
- Identifies the access management category of the segment(s) in question,
- References an attached comprehensive access management plan, accepted by all parties, to meet current and future capacity demands and public safety requirements, while also providing reasonable access to local development within the designated area,
- Specifies that all parties regulate access and development in accordance with the agreement, and associated procedures to coordinate state agency and local development review,
- Limits new accesses to approved locations shown on the map, and requires that existing accesses be brought into conformance when they come under review,
- Specifies that transportation planning and traffic management operations will be consistent with the adopted agreement, and
- Includes provisions for amending the agreement, and/or the access management plan.

Examples of such agreements are available from the Agency of Transportation's Utilities and Permits Unit.

Participation in Joint Planning, Project Development and Permitting

Where a corridor crosses municipal lines, continued coordination can be accomplished through a number of means, including:

- Municipal incorporation and adoption of an access management plan's recommendations in updated municipal plans and bylaws as appropriate.
- Ongoing municipal participation in the joint transportation planning efforts of the regional planning commissions, through active municipal representation on transportation advisory committees.
- Continued municipal participation, through regional planning commission representation and staff, in the development of regional land use plans, transportation plans and transportation improvement programs.
- A joint interagency access management agreement, as described above, that is intended to coordinate access management and development review along the corridor.
- Collective participation in the development and legislative approval of the state's transportation improvement program, including project planning and development efforts, and the scheduling of priority infrastructure improvements for state and federal funding.

- Collective participation through the regional planning commission and/or individual municipal participation in state Act 250 review proceedings, to ensure that traffic, development, and associated access management concerns are adequately addressed in the state permitting process.

RESOURCE SYSTEMS GROUP INCORPORATED

Bennington VT 67A/7A Access Management Study

Kick-Off Meeting: 3/3/04

MEETING SUMMARY

In attendance:
Dan Monks –*Bennington Planning and Zoning Administrator*
Scott Creedy – *North Bennington Zoning Administrator*
Jim Sullivan – *Bennington County Regional Commission Senior Planning Director*
Marty Cummings – *North Bennington Development Review Board*
Joe Segale – *Resource Systems Group*
David Saladino – *Resource Systems Group*

The meeting was held in the Town of Bennington Planning Conference Room and began at 10:30 AM. Following introductions, Joe Segale distributed handouts summarizing the following elements of the study:

- The benefits of access management;
- Definition and elements of access management;
- Access management principles;
- Overview of functional classification in the study area;
- VTrans access management classifications;
- Study scope of work;
    - Task 1: Comprehensive Survey and Inventory – it was suggested that the VT 67A-River Road-Hillside Street intersection be added to the list of study intersections.
    - Task 2: Future Conditions and Highway Impacts – the group agreed to convene a work session at an appropriate time to follow through with the land use growth component of the future conditions analysis. The future growth scenario would follow a similar structure as the Northside Drive analysis and will not include design sketches for recommended improvements. It was mentioned that large parcels along the corridor belonging to Bennington College will likely remain vacant. Additionally, certain segments of residentially zoned land along the west side of Water Street in North Bennington are currently not reflecting the recommendations of the Master Plan and may be rezoned.
    - Task 3: Develop Alternatives and Recommendations – it was recommended that the alternatives focus on short- to intermediate-term improvements. A potential recommendation would be to re-classify VT 67A from an arterial to a collector.
    - Task 4: Final Report and Presentation.
- Project Schedule – the study committee agreed that rather than hold public meetings at the end of both Task #1 and Task #2, a joint meeting with the Bennington and North Bennington Planning Commissions would be held after Task #1 to review the results of the comprehensive survey and inventory of conditions. A public meeting would then be held after Task #2 to

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present the findings of the first two tasks. It is anticipated that this project will be completed by the end of September 2004.

The following recent studies/reports will be included in the RSG analysis:

- VT 67A (Water Street) Reconstruction Plans – VTrans
- VT 67A-Silk Road-Mattison Road-Bennington College Drive Intersection Scoping Report – VTrans
- North Bennington Village Center Improvements – Engineered Solutions
- Bennington Access Management Guidebook – Resource Systems Group
- Bennington Local Roadway Network Traffic Analysis – Resource Systems Group
- Northside Drive Transportation Study and Plan – Wilbur Smith Associates
- Northside Drive Improvements: Benmont to Kocher - VHB
- Bennington County Regional Transportation Plan – BCRC
- Town of Bennington Land Use and Development Regulations

RESOURCE SYSTEMS GROUP INCORPORATED

Bennington VT 67A/7A Access Management Study

PHASE I – Existing Conditions: 5/12/04

MEETING SUMMARY

In attendance:

Rachel Schumacher – *North Bennington Planning Commission Chair*
Dan Monks –*Bennington Planning and Zoning Administrator*
Barry Horst – *Bennington Planning Commission*
Bob Burgess – *Bennington Planning Commission*
Michael McDonough – *Bennington Planning Commission*
Matthew Patterson – *North Bennington Trustee*
Marty Cummings – *North Bennington Planning Commission*
Daniel Taub – *North Bennington Planning Commission*
Sharon Yorke – *Bennington Planning Commission*
Charles Copp – *Bennington Planning Commission*
Jim Sullivan – *Bennington County Regional Commission Senior Planning Director*
Joe Segale – *Resource Systems Group*
David Saladino – *Resource Systems Group*

The meeting was held in the Town of Bennington Planning Conference Room and began at 4:05 PM.

Jim Sullivan summarized the origins of this project and work completed to date. Following introductions, Joe Segale began a presentation covering the following topic areas:

- Goals of this project and study organization;
- Overview of study area;
- Definition and elements of access management;
- Access management principles; and
- Examples of Access Management;

David Saladino continued the presentation covering the following elements:

- Summary of existing conditions (access management, traffic, congestion, safety, land use, zoning)

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- Overview of recent studies and projects within and adjacent to the study area; and
- Next steps in the project

After the presentation, the following comments/questions were made:

- The State access management classification of US 7 north of Kocher Drive ("Super 7") has recently been reclassified as a Class 1 roadway.
- It was agreed upon to change the name of the "Access Management Focus Areas" to "Identified Deficiency Areas".
- Change the label for the American Legion building in Figure 12 from "VFW" to "American Legion".
- Jim Sullivan pointed out the past and current problems associated with the VT 7A-VT 67A intersection and suggested focusing particular attention on this intersection.
- Jim Sullivan suggested following up with VTrans and Clough Harbor to pass along any recommendations for the Water Street segment for incorporation into the reconstruction project.
- The sense of the group is that the study corridor is primarily used as an arterial to connect residents to the north and west with the retail/commercial and employment locations located along VT 67A and Northside Drive.
- Marty Cummings noted that he is working on a plan for bicycle connections along and adjacent to the study area.
- It was suggested that RSG send a survey form to residents/stakeholders in advance of the July public meeting so they can still provide comments without attending the meeting.
- David Saladino stated that the Technical Memorandum #2 should be mailed out by the end of June with a public meeting (at a location to be determined) scheduled for early July.

RESOURCE SYSTEMS GROUP INCORPORATED

Bennington VT 67A/7A Access Management Study

PUBLIC MEETING SUMMARY

14 July 2004, North Bennington Depot

In attendance:

Bob Howe
David Monks
Al Carbone
Marty Cummings
Don Carbone
Tim Smith
Virginia Couch
Doris Pratt
Edd Cutler
Jeff Sheldon
Joe Awald
Rachel Schumacher
Dan Monks –*Bennington Planning and Zoning Administrator*
Jim Sullivan – *Bennington County Regional Commission Senior Planning Director*
Joe Segale – *Resource Systems Group*
David Saladino – *Resource Systems Group*

The Public Meeting was held in the North Bennington Depot and began at 7:00 PM.

Jim Sullivan began with an overview of the project and introductions of project team.

Joe Segale provided the project presentation covering the following areas:

- Overview of study area and project purpose
- Definition and examples of Access Management
- Benefits of Access Management

David Saladino continued the presentation covering the following areas:

- Local and regional context of study area corridor

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- Existing and projected traffic growth and congestion along the corridor in 2004 and 2025
- Overview of recent planning and engineering studies/designs along the corridor
- Overview of traffic safety conditions within the study area
- Corridor access assessment examining current and projected future driveways
- Preliminary Access Management recommendation in seven identified focus areas
- Overview of upcoming schedule

The following comments, concerns, and/or questions were raised following the presentation:

- Why not develop preliminary Access Management designs at the VT 67A/Mattison Road/Silk Road/Bennington College intersection?
    - Jim Sullivan noted that he attended a meeting earlier that day on the intersection with VTrans officials. The preliminary plan would be to relocate the Bennington College driveway approximately 100 feet to the west to improve safety until a more final design could be developed.
    - Joe Segale noted that while the temporary recommendation to relocate the Bennington College driveway was not good Access Management, it would likely improve the situation over current conditions.
- Recommend to keep both BCIC parking lot driveways open for tractor trailer deliveries
- The preliminary recommendation for separating BCIC parking from VT 67A with a grass strip might not provide enough room for parking.
    - RSG will conduct a more detailed investigation of BCIC parking along VT 67A as well as an examination of parking alternatives.
- The proposed new Hillside Road/River Road alignment eliminates the chance for vehicles exiting from Scarey Lane to turn around and head east on VT 67A.
- Lowering the grade of VT 67A east of Scarey Lane would help improve sight distance for vehicles exiting from Scarey Lane.
- Look at possibility of converting current Monument Plaza access driveway adjacent to the VT 67A/VT 7A intersection from one-way in to two-way.
    - A traffic count will be conducted at this intersection and further analysis will be conducted to determine impacts and viability of converting access to two-way.

RESOURCE SYSTEMS GROUP INCORPORATED

Bennington VT 67A/7A Access Management Study

PUBLIC INFORMATION DISPLAY

Bennington Price Chopper
14 July 2004
12:30 – 4:30 PM

The following comments, concerns, and/or questions were raised during the public information display:

- Bennington needs more big box stores. Currently going to Saratoga, NY to do shopping and taking money out of Vermont.
- How will Access Management improve traffic flow on Northside Drive?
- The goal should be to slow traffic down not make it able to travel faster.
- Need to widen Northside Drive to provide more capacity but not higher speeds.
- Emergency vehicles heading north travel from Benmont Avenue to Northside Drive to VT 67A and must travel through congestion. There is nowhere for vehicles to go to get out of the emergency vehicle's path.
- Service roads are good. How/who pays landowner for access to land?
- Access Management makes it more difficult to find places to enter – without curbs it is much easier to pull in anywhere.
- Good luck fixing the problem along Northside Drive – it's a "disaster".
- Sometimes avoid shopping at Price Chopper because of the time it takes to get through the traffic on Northside Drive.

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RESOURCE SYSTEMS GROUP INCORPORATED

Bennington VT 67A/7A Access Management Study

PUBLIC MEETING SUMMARY

7 October 2004, Bennington Public Library

In attendance:

Eleanor and Mike Tunesy, *Residents*
Larry Johnson, *Bond Auto Parts*
James A. Gulley, Sr., *Bennington Selectboard*
Barry Horst, *Bennington Planning Commission*
Charles Copp, *Bennington Planning Commission*
Samuel Reston, *Resident*
John Gostal, *Parks and Recreation*
Laura Raskin, *Bennington Banner*
Jim Colvin, *Business Owner*
Lodie Colvin, *Bennington Selectboard*
Jeanna Gelston, *Bennington County Regional Commission*
Dan Monks, *Bennington Planning and Zoning Administrator*
Jim Sullivan, *Bennington County Regional Commission Senior Planning Director*
Joe Segale, *Resource Systems Group*
David Saladino, *Resource Systems Group*

The Public Meeting was held in the Bennington Public Library and began at 7:00 PM.

Joe Segale began with an overview of the project and introductions of attendees.

Joe Segale provided the project presentation covering the following areas:

- Work completed to date
- Overview of study area and project purpose
- Definition and examples of Access Management

David Saladino continued the presentation covering the following areas:

- Focus area recommendations
- Planning/policy level recommendations

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- Implementation plan
- Next steps

The following comments, concerns, and/or questions were raised during and following the presentation:

- The parallel parking proposed along both sides of Water Street will make snow plowing difficult. Snow will have to be removed rather than piles adjacent to the roadway. Therefore, the design as proposed will have higher snow removal costs.
- Concern was expressed about the 11 ft travel lanes and 8 ft parking lanes proposed for Water Street relative to truck traffic. Does that cross section provide enough room for trucks?
- The proposed design of Water Street does not necessarily support VT 67A's function as a minor arterial. An alternative to the proposed design would be to provide all parking in private off-street lots. Removing all on-street parking would make it possible to provide 12 foot travel lanes with wide paved shoulders. Bennington County Regional Commission will discuss the intended function of Water Street with the Village of North Bennington and potential design options.
- The bridge on VT67A just west of Scarey Lane is too narrow. Jim Sullivan replied that the bridge is on the VTrans list. Although the bridge is functionally obsolete, it is not a high priority at VTrans because there are many other bridges in worse condition.
- Why wasn't a sidewalk proposed along VT 67A between Water Street and Bennington College/Mattison Road? That segment of road serves residential areas and has some commercial uses that generate pedestrian travel. Jim Sullivan stated that BCRC has looked at a sidewalk along that section of VT 67A . Physical constraints (steep banks for example) and the numerous properties that could be impacted by a sidewalk make that segment a challenging location. However, the growing residential areas along this section will continue to increase demand for sidewalks.
- The Bennington College Road intersection with VT 67A has been relocated approximately 150 feet to the west. This modification was implemented by VTrans. Meeting participants agreed that the relocation has improved safety near the intersection of Mattison-Silk-VT 67A.
- There were several comments made regarding the VT67A-7A intersection and the nearby intersections of VT 67A-Harmon Road and Berard Street:
    - The proposal to convert the entrance from this intersection into Monument Plaza from one-way-in to two-way was not supported by the meeting participants. Concerns included: the change would overcomplicate movements at an already

akward intersection; and the change woild result in reducing the amount of green time for vehicles turning right from Northside Drive to VT 7A.

- Sight distance is restricted by the railing of the bridge on VT 67A just west of Harmon Road on to VT 67A.
- Sight distance is limited for vehicles attempting to turn left from Berrad Street onto VT 7A
- The entire complex of intersections involving VT 67A, 7A, Berard Street, and Harmon Road needs to be re-designed. Support was expressed for a roundabout and the possibility of one-way flow configuration that built around the triangle created by Berard Street, VT 7A, and VT 67A.

- Meeting participants felt that the Western Segment of the Bennington Bypass would cause an increase in traffic volumes along Northside Drive arguing that people with destimations in downtown Bennington would follow the Western Segment into downtown rather than staying on VT 9. Projections prepared by VTrans however, indicate a 7.5% decreae in traffic on Northside Drive when the Western Segment is complete.
- One Northside Drive business owner (of Bond Auto) noted that he has seen an increase in customers coming from New York. He believes the Western Segment of the Bypass will accelerate this trend.
- The Davis Oil property on Northside Drive is a large parcel that may be redeveloped when and if the business is sold.
- Add funding and next steps to the implementation chart.