Village of Essex Junction, Vermont

Pearl Street (Route 15)
Multimodal Transportation Study

Final Report

Submitted by:

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In conjunction with

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Tables are placed in the text after their initial reference, except Table 11, which follows page 44.

Figures 3, 4, and 5 are located in the text after their initial reference.

Figures 1, 2a-e, 6, 7, 8, 9a-f, 10a-f and 11a-f are larger figures located at the end of the report text.

Appendix A: Summary and Update of Previous and On-going Studies and Plans
Appendix B: Informal Corridor Survey and Responses
Appendix C: Multimodal Transportation Corridor Principles Application

I. INTRODUCTION

A. GOAL OF THIS STUDY

The primary goal of this project is the completion of a Comprehensive Multimodal Transportation Study for Pearl Street (Route 15) in the Village of Essex Junction. The Study builds upon, expands, and unifies concepts developed in numerous past studies of the Route 15 corridor. Further, the Study prioritizes potential improvements to the existing facilities and describes the necessary steps to complete those improvements in both the short, medium, and long term. It identifies potential issues and barriers to implementing selected strategies and presents a course of action to overcome them.

B. BACKGROUND

Over the past 20 years, there have been numerous studies focusing on various aspects of transportation and development in the Pearl Street Corridor. Some of these studies focused exclusively on specific modes and the recommendations did not consistently take into account the connectivity and interdependence of different transportation modes or the vital connection between land use and transportation decisions. Due to the sometimes conflicting nature of the recommendations, the Village of Essex Junction has been unable to adequately coordinate, prioritize, or weigh the relative importance of the various recommendations relating to commuter rail development, bus rapid transit instigation, improved bicycle and pedestrian circulation, or roadway upgrades. The current Pearl Street Multimodal Transportation Study will assist the Village in its future planning of the Pearl Street corridor in accordance with the Village's vision and Comprehensive Plan.

C. STUDY AREA

The Study Area for this report includes Pearl Street from the intersection with Susie Wilson Road on the west to the intersection with VT Routes 2A and 117 at the Five Corners in the Village Center on the east. It extends approximately one property deep to the north and to the New England Central Railroad to the south. **Figure 1** provides an overview of the Study Area for the Pearl Street Multimodal Transportation Study. **Figures 2a** through **2e** provide a more detailed look at the Study Area's existing conditions.

D. ORGANIZATION

The report is formatted for double sided printing, which results in several blank pages at the end of some sections. After this introduction, the report is divided into four additional sections addressing:

- Village Goals for Pearl Street,
- Current Conditions,
- Integrated Multimodal Transportation Recommendations, and
- Implementation.

E. STUDY PROCESS

This project began with a thorough review of the various studies relevant to the future of Pearl Street, updating them as needed to take into account current conditions. These reports include:

- The 2008 *Village of Essex Junction Comprehensive Plan*;
- The 2008 *Route 15 Corridor Study*;
- The *Route 15 Corridor Bicycle and Pedestrian Facility Feasibility Study*;
- VT Route 15 – Modeling of Existing Conditions and Optimized Signal Operations;
- *Transit Oriented Development Opportunities for the Route 15 Corridor*;
- *TOD Planning: Market Analysis, Development Opportunities, and Fiscal/Economic Impacts*;
- *Burlington-Essex Route 15 Corridor Analysis Phase 1A Report*;
- *Burlington-Essex Rail Project Environmental Assessment*;
- *Financial and Institutional Strategy: Burlington-Essex Rail Project*;
- Route 15 Corridor Improvement Plan Burlington-Essex Rail Project Travel Demand Modeling Methodologies and Results;
- Analysis of Opportunities and Constraints for Transit-Friendly Development;
- Pearl Street Corridor Enhancement Plan;
- *Downtown Streetscape Plan for Essex Junction*;
- Route 15 Road Diet;
- CCMPO *2025 Metropolitan Transportation Plan*;
- *Regional Pedestrian and Bicycle Plan Update*;
- *Transit Oriented Design Master Plan for the Susie Wilson Corridor*;
- SWR Corridor Improvement Plan + Plans and Designs; and
- Five Corners Traffic Operations Evaluation.

Appendix A includes a summary review of each of the reports examined as part of this project.

The work continued with an informal survey of local businesses, landowners, and residents along Pearl Street to gauge their views on current and future transportation options. **Appendix B** includes a copy of the survey and a summary of the results. The project team also conducted additional analyses using updated traffic data and related information to evaluate transportation recommendations. They also proposed land use and development strategies along the corridor. Phase 1 concluded with a summary of the issues associated with the various modes of transportation and their relationship to each other and the Village goals for Pearl Street. The work of Phase 2 includes a set of recommendations for prioritizing and pursuing still relevant recommendations from the previous studies.

The Study Team reviewed the draft recommendations with the Village of Essex Junction Trustees and the public during several work sessions. Working with the Village and the CCMPO, the Study Team addressed the comments received at these sessions and to the extent possible incorporated them into the recommendations of this report.

II. VILLAGE GOALS FOR PEARL STREET CORRIDOR

A. VILLAGE COMPREHENSIVE PLAN

Many elements of the *Village of Essex Junction 2008 Comprehensive Plan* provide support for transforming Pearl Street into a true multimodal transportation corridor. Several points within the Transportation section of Chapter V of the Plan, "Comprehensive Plan Elements," are particularly important:

- Maintaining the interconnected street network and connecting streets in new development are central transportation policies with the Village.
- It is necessary to develop multi-modal approaches to transportation planning.
- Included in the Village multi-modal planning are the street network, bike paths and sidewalks, public transit and the possibility of railroad transit.
- Public safety is an important consideration in multi-modal improvements considered by the Village.
- A multi-modal approach can lead to an improved, cost effective, and energy-efficient transportation network.
- Increased vehicular capacity is in direct conflict with Village transportation goals and therefore is not supported to the extent it would involve additional vehicle lanes and road widening.
- Access management is an important planning consideration of the Village.

The goals and objectives in several different sections of the 2008 Comprehensive Plan provide guidance for the future of Pearl Street, even though there are no specific goals related to the future nature of Pearl Street. In particular, those associated with Sections V.3 "Business and Economic Development," V.4 "Open Space," V.8 "Transportation," and V.9 "Land Use" specifically relates to Pearl Street and begins to create an overall image of Pearl Street in the future.

V.3 "Business and Economic Development"

- Objective 1.2: Encourage the development of market rate residential development in the Pearl Street zoning districts.
- Goal 2: To increase the Village's involvement with the local business community.
- Objective 2.1: Look for strategic opportunities to work with willing business and property owners on economic development.
- Objective 5.4: Continue streetscape and landscaping efforts to attract private sector investment.

V.4 "Open Space"

- Objective 1.2 Implement a program of selective planting of trees adjacent to existing road right-of-ways.

- Objective 2.2: Require a minimum of eight foot sidewalks and pedestrian amenities in the creation of new public streets in the Transit Oriented Development Districts.

V.8 "Transportation"

- Objective 2.4: Encourage the use of joint access driveways and shared parking lots when physically possible.
- Objective 2.5: Monitor the timing and sequence of all traffic lights to optimize traffic and pedestrian safety.
- Objective 2.9: Study and consider options for reducing traffic at the two high crash locations on Pearl Street.
- Objective 3.3: Encourage school age children to walk or ride a bike to school to reduce traffic congestion.
- Objective 4.2: Encourage bus and pedestrian access to all parking facilities.
- Objective 4.6: Consider policies to require or encourage the installation of bicycle parking racks at major activity centers such as shopping centers.
- Goal 5: To promote and implement strategies to encourage the use of bicycles as alternate transportation modes.
- Objective 5.2: Consider the construction or signage of bicycle lanes on all future street construction projects.
- Goal 6: To encourage increased usage of the public transportation system.
- Objective 6.1: Cooperate with the Chittenden County Transportation Authority to increase access to bus routes including the use of 15 minute cycles during peak hours.
- Objective 6.2: Encourage the use of bus turn-offs and shelter on major streets.
- Goal 8: To cooperate with state and regional entities pursuing efforts to establish commuter trains.

V.9 "Land Use"

- Objective 1.2: Encourage the development of market rate residential development in the Pearl Street Districts.
- Objective 1.3: Study the purchase of key properties in and around the Village Center for public use.
- Goal 5: To coordinate land use decisions with associated public infrastructure needs including streets, sidewalks, bicycle paths, drainage, water sewer, schools recreation and other public needs.
- Goal 6: To provide mechanisms which encourage innovative development while maintaining the existing urban character of the Village.
- Objective 6.1: Consider the use of Design Review, Overlay Districts, Development Agreements, and Tax Increment Districts as appropriate.
- Goal 11: To place a high priority in development review on pedestrian and vehicle access and safety.
- Objective 12.1: Consider design review criteria for main corridors upon approach to the Village Center, such as Pearl Street from Champlain Valley Exposition (CVE) to Five Corners.

Additionally, the Village has enacted zoning regulations that implement and/or reinforce these goals and objectives.

B. OTHER VILLAGE ACTIONS AND REPORTS

The Village of Essex Junction participated in the development of the 2008 *Route 15 Corridor Study*, which formulated a vision as well as corresponding goals and objectives for Route 15 from Winooski to Essex. The Vision indicates that the community would like Pearl Street, as a portion of Route 15, to:

- Be a fully integrated multimodal corridor;
- Balance mobility and access needs;
- Have a safe, well-connected network of bicycle and pedestrian facilities;
- Have convenient and effective transit service;
- Provide gateways announcing transition; and
- Include high quality streetscape.

Goals and objectives from the *Route 15 Corridor Study* that are relevant to the Pearl Street portion of the corridor indicate that the community intends to:

- Develop a flexible roadway network by:
  - Improving local circulation;
  - Balancing mobility and access.

- Enhance corridor safety by:
  - Providing safe highway sections and intersections;
  - Providing safe pedestrian crossings;
  - Creating safe bicycle network; and
  - Minimizing conflicts with access management.

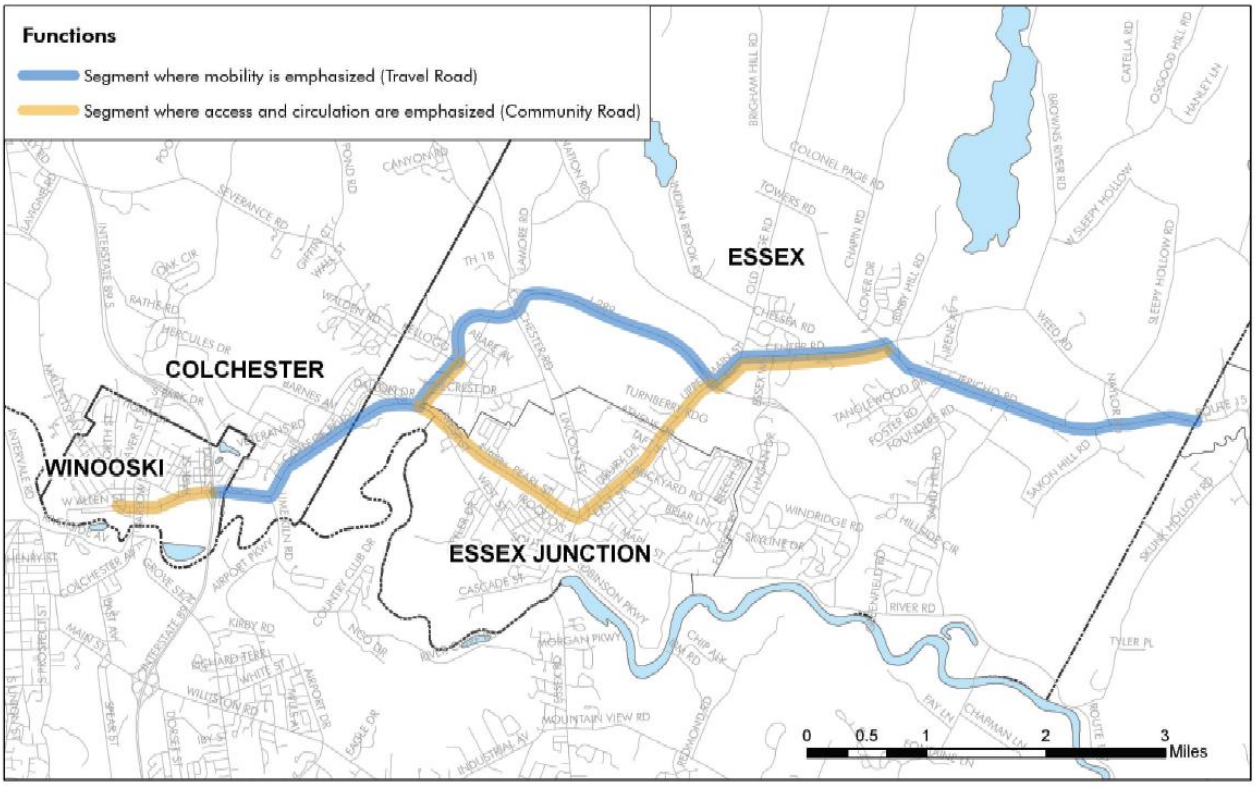
- Provide travel options by;
  - Optimizing traffic flow;
  - Improving and increasing public transit; and
  - Providing convenient connections.

- Provide land use and transportation strategies by:
  - Improving aesthetics;
  - Developing gateways; and
  - Concentrating growth in villages.

The *Route 15 Corridor Study* also clearly defines the different functions of the corridor. **Figure 3** provides a graphic representation of the two different types of functions for Route 15, as shown in a figure from the *Route 15 Corridor Study* Final Report dated August 2008. It shows that Pearl Street is

intended to be a portion of the route that is a community road where access and local circulation are emphasized.

Figure 3: VT Route 15 Corridor Study – Figure 4.1: Functions of Pearl Street and Route 15



Figured prepared by BFJ Planning and Resource Systems Group

III. CURRENT CONDITIONS

A. REGULAR BUS SERVICE

1. Overview and Previous Recommendations

Chittenden County Transportation Authority (CCTA) operates a bus route in the Pearl Street corridor. The Essex Junction Route provides a connection between Burlington, Winooski and Essex Junction. The route also includes Summit Street, South Street, IBM and the Amtrak Station in Essex Junction. **Figure 4** shows the route of this bus service.

Figure 4: CCTA Essex Junction Route

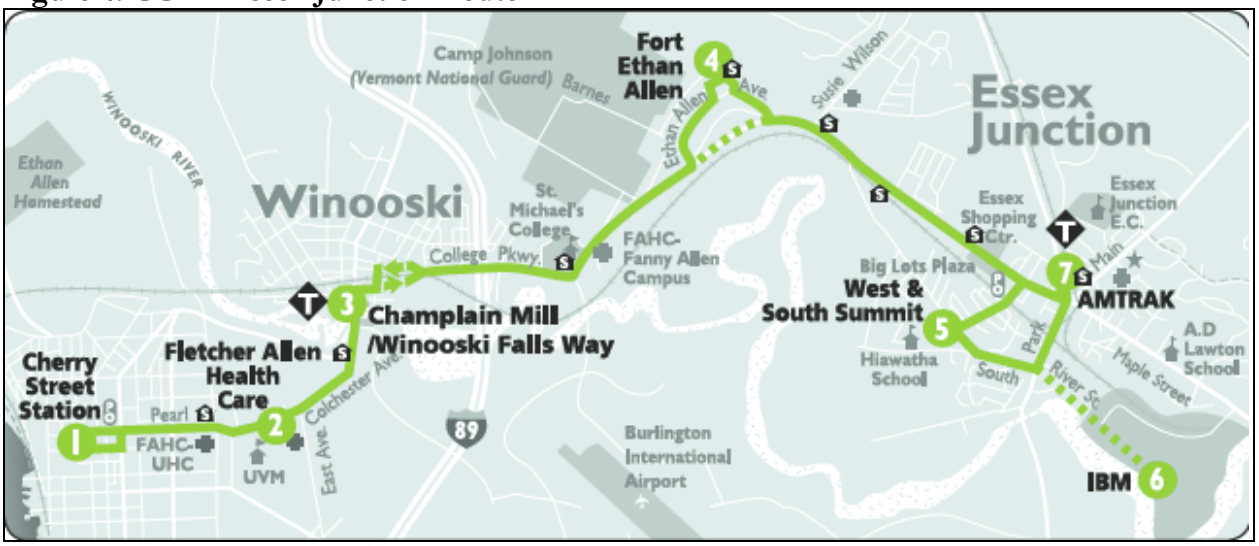


Figure prepared by Chittenden County Transportation Authority

The July 2008 to June 2009 ridership on the Essex Junction route along Pearl Street, linking Cherry Street in Burlington to the Amtrak Station in Essex Junction, was 444,784. This translates to an average weekday ridership of 1,573 and an average Saturday ridership of 835. These numbers made it the Chittenden County Transportation Authority's (CCTA) highest ridership route, surpassing the University Mall/Airport route ridership of 402,495 for the first time in many years.

The *Route 15 Corridor Study* recommended implementing 15-minute service frequency for the Essex Junction Route. CCTA was able to implement the 15-minute service frequency in February 2008. From February 2008 to February 2009, the route grew by 40 percent. Between just July 2008 and June 2009, the last fiscal year, the route grew by 27 percent. It appears that since implementing the 15-minute service, the percentage of weekday riders boarding in Essex Junction grew from 19 percent to 23 percent.

The ridership data suggests the 15-minute frequency service is a great success. Some of the increase may also be attributed to the growing use of bus transit due to economics, the price of fuel, and the desire to contribute to a greener society.

On weekdays, the Amtrak Train Station is the most popular boarding location in Essex Junction on the Essex Junction route for those heading inbound towards Burlington. The Essex Junction Shopping Center on the north side of Pearl Street next to CVE is the second. Coincidentally, there is an existing bus shelter to serve passengers boarding at the Amtrak Station and the Shopping Center. On Saturdays, the Shopping Center is the second most popular boarding location in Essex Junction for those heading inbound to Burlington; the stop across the street is the second most popular de-boarding location for those heading outbound to Essex Junction.

Except for a new pull-off close to the West Street Extension intersection, buses currently stop in the travel lane to board passengers. This provides a priority to transit by reducing bus stop times but it creates delays in vehicle traffic.

In addition to recommending the 15 -minute service, the *Route 15 Corridor Study* also recommended other service improvements by extending weekday and Saturday service to 11 PM and expanding Sunday service to 6 AM to 9 PM.

2. Relations to Village Goals

Village goals clearly support expanded and more efficient bus service. The current necessity of buses stopping in the travel lane, even though it supports the village goal of promoting transit usage over single occupancy vehicles, is not in line with current village objectives. Objective 6.2 clearly states that the Village encourages the use of bus turn-offs on major streets, even though CCTA does not favor them. It is sometimes difficult for buses to reenter the flow of traffic when they pull out of the travel lane and into a pull-off, which results in slower service for bus riders.

3. Regular Bus Service Opportunities

- Bus transit use is spread across the day and not solely concentrated during morning and evening hours.
- Bus transit use is projected to continue to grow, although not necessarily as quickly as it did in the last year.
- Maintaining current bus transit service on Pearl Street does not require additional investment of capital funds.
- A majority of those responding to an informal survey about Pearl Street transportation thought that an excellent bus system on Pearl Street would be of value either to them, to businesses, to customers, or to workers.
- Expanding opportunities to switch between transit and walking and bicycling can expand the use of transit in the Pearl Street corridor.
- Municipalities along the CCTA Essex Junction Route between Essex Junction and Burlington support the increased use of bus service in the corridor.

4. Constraints

- Maintaining current transit service on Pearl Street requires an annual infusion of funding in addition to fares to keep it operational.

- Not all of the municipalities along the CCTA Essex Junction Route between Essex Junction and Burlington provide financial support to CCTA.

B BUS RAPID TRANSIT

1. Overview and Previous Recommendations

Bus Rapid Transit (BRT) is a flexible, rubber-tired rapid transit mode that combines stations, vehicles services, running ways, amenities, and intelligent transportation system (ITS) elements into an integrated service that collectively improves the speed and reliability of bus transit. Typically, BRT services also strive to create a strong positive identity that evokes a unique image. BRT almost always has greater flexibility and potentially lower capital and operating costs than light rail transit systems.

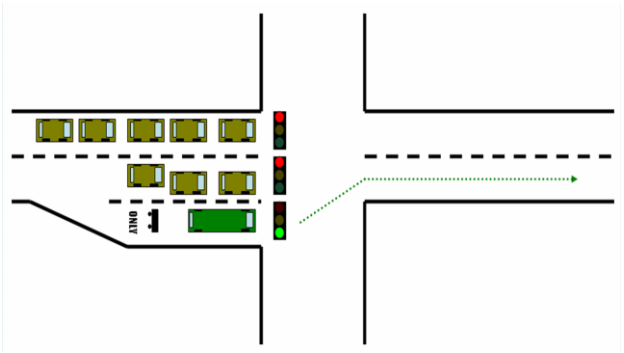
Characteristics of a successful BRT system include providing adequate parking at stations, having integrated land use planning in station areas, having accessible station designs, and accommodations at the stations for numerous modes of transportation.

The *Route 15 Corridor Study* included a long term recommendation to implement BRT service for the Burlington to Essex Route. BRT improvements are expected to increase ridership by another 500 passengers per day. Implementing BRT service would include:

- Increasing service to 10 minute intervals during peak periods;
- Enhancing passenger facilities at major stops;
- Limiting BRT stops to ½ mile intervals with parallel local service;
- Implementing signal priority system;
- Constructing queue jumper lanes at congested intersections; and
- Implementing BRT when existing bus ridership reaches approximately 2000 passengers per day.

Runways for BRT along streets in other urban areas include mixed traffic lanes, curb bus-only lanes, median bus-only lanes, and reserved bus lanes during peak periods. Given the constraints and existing development along Pearl Street, adding additional traffic lanes or bus-only lanes would have significant impacts and costs. This suggests mixing the BRT operations with the existing traffic; the success of this arrangement requires maintaining traffic mobility and providing limited traffic and queues delays for buses and/or providing queue jumps for buses at critical intersections. The critical intersection approaches along Pearl Street that have significant queues and delays are the eastbound approaches at West Street Extension and Post Office Square. **Figure 5** shows a typical queue jump arrangement.

Figure 5: Typical Queue Jumping Configuration



2. Relations to Village Goals

Village transportation goals and objectives support the development of a BRT system within the Pearl Street corridor.

3. Opportunities for Bus Rapid Transit

- Greater use of the Essex Junction route in the last year increases the likely success of a BRT line along Pearl Street.
- The costs of starting BRT service is considerably less than similar start up costs for commuter rail.

4. Constraints for Bus Rapid Transit

- Neither CCTA nor the Village has explored the locations of specific BRT stops or facilities.
- There is still insufficient transit use to justify the development of a BRT line on Pearl Street.

C. COMMUTER RAIL

1. Over view and Previous Recommendations

The Pearl Street Corridor includes a parallel rail line from Burlington to Essex Junction. It is owned and operated by New England Central Rail (NECR). This track, known as the NECR Burlington Branch, is an important linkage between the Vermont Railway's (VTR) western rail line (Albany to Burlington) and the New England Central rail line (Brattleboro to St. Albans).

Current operations are solely for freight, and include:

- Typically two trains per day total;
- Trains traveling at approximately 10 mph, which for current freight operations is not an issue since it is for a limited distance;

- The Electric Department McNeil Plant woodchip deliveries Tuesday through Friday (AM & PM) - ±20 cars; and
- Approximately four trains per week resulting from VTR freight transfers from Burlington to NECR.

The Vermont Agency of Transportation has an increasing program of rail improvements. The *Vermont State Rail and Policy Plan 2006* outlines the following system initiatives:

- Upgrade bridge and track for 286,000 pound cars – the prioritize upgrade improvements due to limited funding:
  - The first priority route is the Western Corridor (Florence to Vernon); and
  - The second priority routes are Western Corridor (Vernon to Burlington), the NECR Burlington Branch, and NECR Essex Junction to Alburgh;
- Provide double stack car clearance for all tracks;
- Improve transload freight facilities; and
- Enhance passenger rail:
  - First priority is continued Amtrak service; and
  - Second priority is Western Corridor and NECR Burlington Branch.

Under the current federal surface transportation program, "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)," the Vermont rail system received specialized benefit in the establishment of a pilot program to demonstrate the benefits to rural rail corridors of a freight transportation gateway program. It is called Gateway Rural Improvement Pilot Program (GRIPP). The establishment of the GRIPP pilot project does not ensure future funding of the program. Funding of this program stated as "such sums as may be necessary" shall be appropriated from the General Fund. This program has not advanced much in the last year but is a potential for significant funds for rail improvements.

Federal Transit Administration (FTA) funding for major projects may be available under the New Starts Program, which funds the start up of new commuter rail service. SAFETEA-LU authorized over $8 billion for New Starts, in order to support transit "guideway" capital investments (heavy and light rail, commuter rail, bus rapid transit). FTA evaluates projects based upon "New Starts Criteria," assigning ratings based upon cost effectiveness, local financial commitment, and transit support land use. FTA New Starts funds can be used only for capital improvements. Operating and maintenance funds need to come from other sources.

The Federal stimulus package passed in February 2009, American Recovery and Reinvestment Act (ARRA) included $8 billion for capital grants for Federal Rail Administration (FRA) high-speed rail corridors and intercity passenger rail service (HSIPR). VTrans developed applications for this funding, but did not include funding for improvements to the NECR Burlington Branch. The VTrans application for $50 million in ARRA funds to improve the Amtrak Vermonter line was approved. The Vermonter line includes the NECR mainline through Essex Junction Village. Vtrans has an agreement with NECR to construct the improvements which includes rail and track bed upgrades, rail crossing upgrades and rail bridge improvements.

With SAFETEA-LU expiring, a federal transportation reauthorization is needed. This provides an opportunity to pursue earmarks on transportation projects including rail improvements.

The potential to create a commuter rail service between Burlington and Essex Junction in the Pearl Street corridor has been examined in several studies over the past ten years. The commuter rail studies assumed that future commuter rail service in the Pearl Street corridor would travel from Union Station in Burlington to the IBM facility in Essex Junction. It would include improvements to the existing freight rail infrastructure, five new stations, feeder bus service to each station, and upgrades to the existing single-track Winooski Branch to Class III standards.

A 2002 Environmental Assessment (EA) studied the potential for this commuter rail. The service was estimated to have the ability to attract travelers to rail and increase transit mode share in the corridor. The EA predicted commuter rail daily ridership within the Burlington-Essex corridor would be 910 based on hourly service and 1,135 with half-hour service during peak periods at its instigation. The specific daily commuter rail ridership for a commuter rail and feeder bus system was also estimated as part of Burlington-Essex Corridor Alternative Analysis using an enhanced CCMPO transportation model. The methodology and results of that estimate were subjected to a peer review so that the results would be appropriate for submission to the FTA under the New Starts Guidelines. **Table 1** includes the pertinent results.

Table 1: 2025 Daily Commuter Rail Ridership Boarding Projections

Station	IBM	Essex Jct.	Fairgrounds	FEA	Winooski	Burlington	Total
IBM	0	50	10	51	13	41	165
Essex Jct	50	0	54	71	39	131	345
Fairgrounds	10	54	0	20	10	41	135
FEA	51	71	20	0	34	145	321
Winooski	13	39	10	34	0	100	196
Burlington	41	131	41	145	100	0	458
Total	**165**	**345**	**135**	**321**	**196**	**458**	**1620**

The analysis assumed the Champlain Flyer, commuter rail service from Charlotte to Burlington, was operational and the commuter rail service to Essex Junction would be an extension of this existing service. Because the Champlain Flyer is no longer operational, the rail ridership as calculated for the entire system has been reduced to include just the Essex to Burlington portion, which is 1,620 daily riders in 2025. Given the extensive analysis that went into the projection in the EA and its comparison to other modes of travel, the projected number of rail riders is still considered to be realistic.

In order to bring the introduction of commuter rail closer to reality, the Village has been working closely with NECR and VTrans on potential rail improvements. For the existing rail operations, the greatest challenge with the introduction of a commuter rail operation is coordination and impact on the NECR main line operations. NECR has indicated this could be avoided by terminating the commuter rail prior to connecting to the mainline at the Five Corners. This option would not maximize the potential for a proposed commuter line without at a minimum a link to the existing Amtrak line via the Amtrak Station in Essex Junction, so additional work to overcome impacts to main line operations will still need to be done if the concept is pursued further.

2. Relations to Village Goals

The eventual development of commuter rail service in the Pearl Street Corridor is directly supported by the Village transportation goals.

3. Opportunities for Commuter Rail

- The NECR is amenable to the introduction of commuter rail service on their Burlington Line.
- A majority of those responding to an informal survey about Pearl Street transportation thought that a commuter rail system between Burlington, Essex, and Montpelier with stops along Pearl Street would be of value either to them, to businesses, to customers, or to workers.
- Other municipalities along the proposed commuter rail line are also supportive of the creation of a commuter rail service.
- There are good examples of how the municipalities can work together to mobilize local financial support for the commuter rail support facilities that are not funded by the New Starts Program.

4. Constraints for Commuter Rail

- The capital cost per rider for the introduction of commuter rail service is approximately ten times higher than the comparable cost per rider for the introduction of bus rapid transit in the Pearl Street/Route 15 corridor.
- Funding for the New Starts Program to enable the initiation of commuter rail service has been extremely competitive for the past several years, with most funding going to those applications showing the highest need and the most organized communities along the proposed route.
- Local communities or the State will need to raise initial construction and on-going operation and maintenance costs for commuter rail support facilities, such as train stations and parking areas.

D. BICYCLE AND PEDESTRIAN CIRCULATION

1. Overview and Previous Recommendations

The current sidewalks along Route 15 are continuous from the Five Corners to West Street Extension. The sidewalk on the north side continues to Susie Wilson Road and beyond. While not always in the best condition, this sidewalk meets the needs of most pedestrians. However, its current condition does not always encourage walking as a means of transportation:

- The sidewalk is close to or in some cases adjacent to the roadway;
- Many locations lack shade trees or other pedestrian scaled streetscape elements;
- There are few delineated pedestrian connections between the sidewalk and the adjacent businesses, restaurants, or stores; and

- Many of the side streets lack connecting sidewalks to link to the Pearl Street sidewalk.

The Village has recently installed bicycle lanes on Pearl Street between West Street Extension and Gate B to the Champlain Valley Exposition. It is too soon to gauge the amount of use these lanes will receive, but the change definitely enhances current bicycle facilities along Pearl Street and advances the recommendations of the *VT Route 15 Corridor Study*. Given the amount of motor vehicle traffic along Pearl Street, it can be assumed that only those bicyclists that are comfortable or at least willing, even if uncomfortable, to go riding in traffic will constitute most of the users of the new bicycle lanes. The bicycle lanes currently do not provide a continuous route for bicyclists along Pearl Street. Further extensions of bicycle facilities to the Five Corners, as outlined in the *VT Route 15 Corridor Study*, would be very beneficial to bicycle travel along Pearl Street. This still leaves a significant portion of bicyclist without an appropriate, suitable way to move along or through the Pearl Street corridor.

Previous studies have examined the most appropriate means of improving bicycle and pedestrian circulation in the Pearl Street corridor. The potential users of an improved bicycle and pedestrian circulation system include school children, families, bicycle commuters, and recreational walkers or bicyclists. No one facility appears as if it will meet the needs of all these potential users. An on-road bicycle facility would serve the needs of more advanced bicyclists and bicycle commuters, but due to the amount of vehicular traffic, on-road facilities may not meet the needs of children or less experience bicyclists. An off-road facility developed in the corridor, potentially within or close to the railroad right-of-way (rail with trail), would meet the needs of most users due to its directness combined with its separation from Route 15 vehicular traffic. Both of these types of facilities appear to be appropriate for the corridor. The off-road facility would have the added benefit of providing an additional means of pedestrian circulation.

When constructed properly, a rail with trail would provide a more universal shared use path available to those that are not comfortable bicycling directly along Pearl Street. It would still provide direct linkages to the properties and businesses along the south side of Pearl Street. Cross paths and connections would be essential to help gain access to those businesses and properties on the north side of Pearl Street. A shared use path along the railroad would also enhance pedestrian access to the area. The development of a rail with trail would need to be coordinated closely with NECR to eliminate conflicts with their operations and to insure no increase in unauthorized bicyclists or pedestrian crossings of the railroad tracks.

Improved bicycle and pedestrian circulation within the corridor would also enhance access to transit facilities along Pearl Street.

The *Route 15 Bicycle and Pedestrian Facility Feasibility Study* identified the potential of creating a rail with trail along the New England Central Railroad (NECR). Initially the NECR was opposed to the creation of a rail trail along the railroad. The recent collaboration between the Village and NECR on efforts to gain funding to improve the railroad tracks has resulted in NECR's willingness to consider the creation of a rail with trail in or partially in their right-of-way. They have indicated that they will not actively oppose the use of the corridor for a rail trail, but it is with the understanding that the Village will continue to work with them on securing funding for track improvements.

Figure 6 shows the general location of the proposed rail with trail and several of the issues that need to be addressed if development of the shared use path is pursued.

The various reports relating to Pearl Street have made numerous—and sometimes contradicting—short and longer term recommendations on how to improve bicycle and pedestrian travel in the Pearl Street corridor:

- Develop a consistent, identifiable, and accessible pedestrian network linking proposed transit station areas.
- Construct wider sidewalks to accommodate additional pedestrian traffic.
- Enhance pedestrian crossings (painted and/or textured crosswalks) of major arterials.
- Reinforce and clarify the identity of village and transit areas by marking important entry areas, including the intersections with West Street Extension and South Summit Street.
- Add vehicular and pedestrian gateways within the Pearl Street right-of-way west of the School Street intersection.
- Enhance pedestrian comfort and safety along the street.
- Delineate crosswalk at the Five Corners with asphalt stamping.
- Add small trees within the five-foot apron and larger street trees in the setbacks of adjacent properties along Pearl Street.
- Add new street lighting, some with banner poles.
- Construct continuous five-foot wide shoulder or designated bike lanes along Pearl Street.
- Install eight-foot wide marked crosswalk and pedestrian signals at CVE.
- Eliminate green buffer and widen sidewalks on both sides to eight feet between CVE Gate B and Summit Street and provide five-foot wide sidewalks on both sides from Summit Street to Five Corners.

2. Relations to Village Goals

The recommendations for better pedestrian and on-road bicycle facilities are in keeping with the Village's general vision of Pearl Street. The development of the rail with trail is in direct opposition to the Village's Comprehensive Plan, which states: "On major arterial roads such as Pearl Street, the high number of curb cuts makes an off-road bike path infeasible and does not adequately address the needs for local access if the path is not immediately adjacent to the Street. On street bike facilities should be considered in these areas and supported at the regional level." Furthermore, the rail with trail is not included as part of a regional shared use path network in the recently completed *Regional Pedestrian Bicycle Plan Update*.

Even though the rail with trail shared use path is not supported in either of these documents, it should be considered as part of the overall multimodal mix for Pearl Street because:

- The trail would provide a direct off-road, east west route in the Pearl Street Corridor between Route 2A and West Street Extension;
- The NECR is ready to accept a trail within the right-of-way;
- The trail could provide access to the rear of most of the businesses on the south side of Pearl Street;

- The trail could provide access to CVE and other destinations on the north side of Pearl Street via roadway or new linking paths to Pearl Street; and
- The trail would provide an acceptable off-road alternative for a large portion of the bicyclists in Essex Junction that are not ready to use bike lanes or wide shoulders on Pearl Street.

3. Opportunities for Bicycle and Pedestrian Circulation

- Existing bicycle lanes on Pearl Street west of Gate B increase the visibility of bicyclists.
- Support for extending bicycle lanes toward the Five Corners is increased by the presence of existing bicycle lanes west of the CVE Gate B.
- The NECR will not oppose the development of a shared use path (rail with trail) along the railroad.
- A continuous sidewalk exists along the north side and most of the south side of Pearl Street, much of it with a green strip between the sidewalk and the curb.
- Crosswalks and pedestrian signals are located at signalized intersections.
- The vast majority of individuals responding to an informal survey about Pearl Street transportation thought that a complete sidewalk system along Pearl Street would be of value either to them, to businesses, to customers, or to workers.
- Providing an advanced interval pedestrian phase at the Post Office Square intersection could improve pedestrian movement without significantly reducing vehicular Level of Service (LOS).

4. Constraints for Bicycle and Pedestrian Circulation

- Existing width between the curbs for Pearl Street east of Summit Street limits changes to the existing lane alignments.
- The variable width of the railroad right-of-way creates limitations on the development of a rail with trail.
- Development of a new shared use path includes costs that typically average $1,000,000 per mile.
- A little more than half of the individuals responding to an informal survey about Pearl Street transportation thought there was value in a shared use path along the railroad right-of-way either for themselves or their businesses, but less than half thought the shared use path would be beneficial to their customers, or employees.

E. VEHICULAR TRAFFIC

1. Overview

One of the goals for Pearl Street, as articulated in the *Route 15 Corridor Study*, is to balance access and local circulation needs with the mobility of through traffic. The Susie Wilson Road and VT-289 corridor, which circumvents the Five Corners, currently serves most of the Route 15 through traffic

from areas east of Essex Junction to the urban core of Chittenden County. Traffic data (2009 annual average daily traffic - AADT) support this assertion:

- VT 15 from Exit 15 to Susie Wilson Road – 29,000 vehicles per day,
- VT 15 from Susie Wilson Road to West Street Extension – 20,0000 vehicles per day,
- VT 15 (Pearl Street) from West Street Extension to Five Corners – 15,000 vehicles per day,
- Susie Wilson Road from VT 15 to I-289 – 14,000 to 20,000 vehicles per day, and
- West Street from VT 15 to VT 2A – 6,000 vehicles per day.

These volumes indicate a drop in VT 15 traffic volumes from almost 30,000 vehicles per day west of Susie Wilson Road to half of that along the Pearl Street portion of VT 15 east of West Street Extension.

Recognizing the emphasis on access and circulation, the Village recently initiated a road diet concept on Pearl Street from West Street Extension to CVE Gate A. As part of a Vermont Agency of Transportation (VTrans) resurfacing project, they changed the existing four-lane section to three lanes, including a center two-way left turn lane, and bike lanes along the curb. VTrans also reconfigured the Pearl Street eastbound approach at West Street Extension to one through lane and one right turn lane with a median dividing these lanes.

2. Current and Future Conditions

The Study Area includes two roadway segments that are High Crash Locations (HCL) as reported in the most recent VTrans HCL report from 2003-2007. **Table 2** provides a summary from this listing as follows:

Table 2: High Crash Information

Ranking	Segment	# Crashes	Injuries	Actual/Critical Ratio	Severity
436	VT 15 - Wiley Court to P O Square	66	12	1.203	$16,209
412	VT 15 - Summit thru Five Corners	60	13	1.239	$17,962

These two segments are considered to be HCLs because they have at least five crashes over a five year period and the actual crash rate, the number of crashes per million vehicles, exceeds the critical crash rate. The critical crash rate is based on the average crash rates of similar roadways in Vermont and is related to the functional class of a highway and whether it is located in an urban or rural area. Neither of these segments has a significant statewide ranking or actual to critical ratio. The Summit Street through Five Corners HCL segment had mostly crashes related to the Five Corners operations. This intersection has received some recent improvements and is beyond the extent of this review.

The VTrans crash data for 2003 to 2007 for the Willey Court to Post Office Square segment shows that 25 crashes, the greatest concentration of crashes for this time period, occurred at the CVE Gate B intersection. The second highest location is the Post Office Square intersection with 17 crashes. The largest percentage of crashes was the rear end type due to inattention. This crash type is indicative of stopping and/or turning traffic. There were no reported crashes involving pedestrian or bicycles. With the recent change to a three-lane section on Pearl Street for a portion of the HCL segment, the crashes should be monitored to determine if the change has addressed some of the crash issues. **Figures 2a** through **2e** show the high crash locations in the study area.

Three signalized intersections on Pearl Street in Essex Junction are the principal influence on traffic flow west of the Five Corners. The signals are located at the Pearl Street intersection with:

- West Street Extension,
- Post Office (PO) Square, and
- Summit Street.

The Study Team developed updated existing and future design hour volumes and used the updated data for an intersection capacity analysis on these intersections. This analysis involved the use of Synchro 7.0 software. Existing traffic counts indicate hourly traffic volumes on Pearl Street are highest during the evening from 4:30 to 5:30 PM, the PM peak hour. **Table 3** shows the most recent traffic count data for Pearl Street.

Table 3: Traffic Count Dates and PM Peak Hour Volume on Pearl Street

Location	Count Date	Pearl Street PM Peak Hour Vehicles*	
		EB	WB
West Street	June 15, 2009	1,133	621
PO Plaza	July 13, 2009	723	540
South Summit Street	June 26, 2007	729	558

*Turning Movement Count (TMC) observations 4:30 to 5:30 PM

The three traffic signals at these locations operate semi-actuated with vehicle detection generally on the minor street approaches and the left turn lanes on Pearl Street, as well as with pedestrian pushbuttons for pedestrian crossing phases. Due to the semi-actuation, large distance between West Street Extension and Post Office Square, and differing vehicular demands, the signals operate with varying cycle lengths and are not coordinated. **Table 4** presents the observed average cycle lengths during the PM peak hour.

Table 4: Traffic Signal Cycle Lengths

Location	PM Peak Hour Cycle Lengths With and Without Pedestrian Phase (seconds)	
	Without	With
West Street **	59	59 *
PO Plaza	80	103
South Summit Street	102	117

* Pedestrian phase operates concurrently with West Street

** For analysis purposes it was assumed a 90-second cycle is the existing condition since this cycle length will eventually be modified as part of the recent road diet project.

The first step to analyze existing and projected future traffic conditions for the intersections is to establish the design hour volumes (the 30th highest hour) for 2009 and 2030. The Study Team adjusted existing intersection turning movement counts from 2007 and 2009 and projected to 2009. The traffic growth from 2009 to 2030 was previously developed in the VT *Route 15 Corridor Study*. This projected traffic growth was added to the 2009 traffic volumes to provide the 2030 volumes. These growth projections include planned Metropolitan Transportation Plan (MTP) projects and the Circumferential Highway Parts A & B, which are assumed will be constructed by 2030. These future transportation improvements will influence demand for automobile travel in the Pearl Street Corridor. The traffic projections reflect an estimated growth of motor vehicle traffic of 18 percent eastbound and 22 percent westbound at West Street Extension and 13 percent eastbound and 29 percent westbound at South Summit Street.

The Synchro traffic capacity analysis software analyzed each intersection's performance for 2009 and a 2030 No Build condition. The 2030 no build condition assumes the intersection's lane assignment and signal cycle lengths remain unchanged from existing conditions in 2009.

For the West Street Extension intersection, the analysis used the assumption that the signal operated on a 90-second cycle length and the lane configuration reflected the recent road diet geometry. Due to the traffic volume growth, the analysis showed that existing overall Levels of Service (LOS) at the three signalized intersections are projected to be reduced by 2030. Overall, however, averaging the delay of all intersection movements, these three intersections should operate no worse than LOS D by 2030. **Tables 5a, 5b,** and **5c,** provide summaries of each intersection for 2009 and 2030 conditions. The future conditions results reflect the future operations under existing signal timing and lane configurations.

Table 5a Summary of Intersection Performances – Pearl Street at West Street Extension

EXISTING INTERSECTION GEOMETRY AND SIGNAL TIMING														
		Pearl Street			Pearl Street			West Street			2-way Jug Handle			
		Eastbound			Westbound			Northbound			Southbound			
		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
Lane Use		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	Overall LOS
2009 DHV Cycle Length (90_sec) actuated	Volume	37	831	322		635	17	270	0	26		20	3	
	HCM LOS	A	B	A		A			D			C		
	Delay (sec)	7.3	15.9	8.2		8.4			48			23.9		B
	V/C	0.08	0.73	0.23		0.3			0.85			0.04		
	95% Queue (ft.)	24	509**	55		128**			265			26		
2030 NoBuild Cycle Length (90_sec) actuated	Volume	37	974	450		735	17	386	0	33		20	3	
	HCM LOS	B	D	B		B			D			B		
	Delay (sec)	11.1	45.8	13.5		12.9			50.4			19.2		C
	V/C	0.12	0.99	0.39		0.4			0.92			0.03		
	95% Queue (ft.)	29	835	132		179			383			23		

Notes 1. 06/15/09 Traffic Count

Table 5b: Summary of Intersection Performances – Pearl Street at Post Office Square

EXISTING INTERSECTION GEOMETRY AND SIGNAL TIMING														
		Pearl Street			Pearl Street			PO Square			Plaza			
		Eastbound			Westbound			Northbound			Southbound			
		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
Lane Use		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	Overall LOS
2009 DHV Cycle Length (96_sec) actuated	Volume	10	709	171	23	530	98	133	31	64	16	19	118	
	HCM LOS	E	C		E	B		D	D		C	D		
	Delay (sec)	66.7	26.1		56.4	15.1		53.7	35		34.1	50.8		C
	V/C	0.56	0.85		0.56	0.58		0.76	0.15		0.01	0.74		
	95% Queue (ft.)	26	982		44	516		189	69			191		
2030 NoBuild Cycle Length (101sec) actuated	Volume	14	780	256	39	606	128	175	31	82	23	19	133	
	HCM LOS	D	F		D	C		E	C		C	D		
	Delay (sec)	51.4	80.3		52.2	21.9		63.7	34		33.1	46.2		D
	V/C	0.39	1.09		0.55	0.72		0.84	0.14		0.01	0.7		
	95% Queue (ft.)	32	1259		63	716		275	73			228		

Notes

1 07/13/09 Traffic Count

Table 5c: Summary of Intersection Performance – Pearl Street at South Summit Street

EXISTING INTERSECTION GEOMETRY AND SIGNAL TIMING														
		Pearl Street			Pearl Street			South Summit Street						
		Eastbound			Westbound			Northbound						
		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt				
Lane Use		Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt				Overall LOS
2009 DHV Cycle Length (113 sec) actuated	Volume		709	100	42	577		115		50				B
	HCM LOS		B		A	A			E					
	Delay (sec)		16.8		9.3	6.8			56.1					
	V/C		0.69		0.12	0.4			0.69					
	95% Queue (ft.)		862		27	338			194					
2030 NoBuild Cycle Length (113 sec) actuated	Volume		802	114	96	700		122		75				C
	HCM LOS		C		B	A			E					
	Delay (sec)		28.4		18.1	8.7			56.7					
	V/C		0.86		0.35	0.5			0.73					
	95% Queue (ft.)		1057		52	445			228					

Notes 1. 6/26/07 Traffic Count
2. Option 1 - Coordination with Plaza Intersection under 90 second cycle.
3. Option 2 - No Coordination with full actuation (Detection added to Pearl Street through movements to reduce South Summit delay)

Table 6 shows the specific movements where deficient operations are expected. It is important to note these will develop over time and numerous steps may be taken to address them. Potential improvements are described and analyzed in a subsequent section.

Table 6: LOS Degradation on Approaches

Intersection	Approach / Movement	Existing	2030
West Street Extension*	Pearl Street EB Through	B	D
PO Plaza	Pearl Street EB Through	C	F
	PO Plaza NB Lefts	D	E
South Summit Street	S. Summit St. NB All	E	E

* Reflects signal timings proposed with the "Road Diet" improvements.

3. Previous Recommendations

In the commuter rail EA, the highway alternative, which included continued expansion of vehicular capacity on the roadway, predicted an increase in overall travel speed of approximately five percent and an increase in overall vehicle miles traveled of eight percent over current conditions on Pearl Street. This was primarily due to more efficient intersection operations and capacity. The results of continued increases in roadway capacity by expanding roadways would not be in line with the current Village goals and vision for Pearl Street, and provides another rationale for advancing transit options in conjunction with roadway improvements for the corridor.

Past highway specific improvements recommended for this area in several different studies have included:

- Implement signal coordination between Post Office Square and Summit Street,
- Implement access management,
- Optimize signal timing,
- Tame the roadway traffic on Pearl Street,
- Advance/implement coordinated regional traffic management plan and integrate with transit and regional network planning,
- Coordinate curb cuts with site development plans,
- Add second northbound lane on West Street Extension,
- Add Pearl Street eastbound right turn lane at Post Office Square,
- Consider traffic signal at CVE Gate B,
- Reduce posted speed limit to 30 mph, and
- Reduce posted speeds west of the Exposition.

4. Relations to Village Goals

The first six recommendations are directly supported by the existing goals and objectives for Pearl Street.

The addition of a second northbound lane on West Street Extension in general is not supported by the Village goals and objectives because it widens a roadway, but to the extent that it could help improve traffic flow on Pearl Street without widening of Pearl Street itself, it could potentially be considered acceptable. The same holds true for the addition of a right turn lane on eastbound Pearl Street at the Post Office Square intersection. If the addition of a single short turning lane improves overall circulation and eliminates or reduces the need for a full second lane, then it also may be considered acceptable.

While currently not warranted, future development at CVE could warrant the addition of a traffic signal or a roundabout at the CVE Gate B intersection. Such a signal could be considered consistent with Village goals because it would facilitate easier pedestrian crossings of Pearl Street at this location and/or could serve as the end of an eastward extension of the existing boulevard.

Reducing speed limits on Pearl Street also seems to be in line with Village goals for Pearl Street, because it helps improve traffic flow for access and creates better pedestrian and bicycle conditions. To help encourage lower speeds, the physical layout of the roadway should also be modified to incorporate additional traffic calming measures. This is typically done most effectively by using a complementing series of traffic calming measures, such as narrower lanes, additional street trees, or raised crosswalks, that create a slower speed environment.

There could be other ways to achieve each of these last three improvements other than the recommended actions.

5. Opportunities for Roadway Improvements

- Public opinion is split as to whether the recent geometric changes to Pearl Street between the West Street Extension and Gate B have helped or hindered the movement of traffic. (New geometric configurations typically get poor ratings directly after installation.)
- The roundabout at Post Office Square discussed during work sessions with the Village Engineer in 2008 could function even better in combination with a single travel lane in each direction on Pearl Street.
- Streetscape treatments recommended in the *Downtown Streetscape Plan for Essex Junction* are possible within the existing configuration of Pearl Street and could be continued west beyond School Street.
- Adding a second West Street Extension lane for left turns could improve LOS for this movement.
- An increase in the signal time for Pearl Street could reduce the queuing condition on the eastbound approach to the West Street Extension intersection.
- Providing detection on the Pearl Street through lanes at the Post Office Square intersection would improve the operation and reduce the Square's drive queues during the middle of the day.
- Adding Pearl Street through lane detection at the South Summit Street intersection could enable the reduction of the minimum green time for Pearl Street.
- Setting the minimum green, maximum green, and passage time (allowed green time between vehicle detections) at the South Summit Street intersection could facilitate the reduction of the cycle if shorter cycles can be tolerated during the morning and evening peak hours.

6. Constraints on Roadway Improvements

The addition of an eastbound right turn lane at the Post Office Square intersection, as suggested in the *VT Route 15 Corridor Study,* requires the relocation of the existing curb and sidewalk.

F. LAND USE

1. Overview and Previous Recommendations

a. Existing Land Use and Zoning

The 2008 Village Comprehensive Plan provides an updated map of the land use in the Study Area. With the exception of the closing of one business west of the West Street Extension intersection, the land use remains the same. The Future Land Use map in the Comprehensive Plan provides a clear picture of how the Village sees the land use in the Study Area in the future. The existing zoning districts clearly reflect the future land uses.

Within the Study Area, there are six different zoning districts:

- The Highway Arterial District,
- The Multi Family Mixed Use 1 District,
- The Residential 2 District,
- The Residential Office District,
- The TOD District, and
- The Village Center District.

Figure 7 shows the general limits of the zoning districts within the Study Area.

b. Transit Oriented Development

The potential for transit oriented development (TOD) along Pearl Street and nearby Susie Wilson Road has been examined in several independent studies over the past few years.

Key factors for TOD success in the Route 15 Corridor include:

- The existing site characteristics,
- Accessibility or transit station,
- Supportive zoning and land use controls and design standards,
- Real estate market conditions,
- Probability of residential and commercial development being attracted to the transit station area,
- Major attractions near transit stations,
- Available land for TOD,
- Public sector investment and/or support,
- Private sector investment and/or support, and
- Joint public/private development potential.

Local governments, in particular, play a significant role in promoting TOD through development of transit and pedestrian-supportive plans, policies, zoning provision, and incentives.

In addition to increased interest in TOD within the Pearl Street Study Area, pedestrian-scale infill development has been on the increase within the Study Area in the past few years. Despite this, one review of the Study Area found that the existing buildings are nondescript, with an uninviting pedestrian environment and an overwhelming utility infrastructure.

The numerous studies of Pearl Street and Route 15 have included a flood of recommendations on how development in the Study Area should proceed:

- Development of a mix of transit-supportive land uses also supports bus transit and reduces dependence on the automobile, so these developments could take place in advance of rail or express bus service.

- Evaluate densely developed, mixed-use TOD developments in order to provide an opportunity for local jurisdictions to increase their tax base by creating higher value.
- Encourage compact development on any given parcel of land.
- Use lighting types to create a hierarchy of spaces along the corridor and within TOD development.
- Major streets and intersections in transit areas should have larger and brighter fixtures capable of serving both roadway and pedestrian lighting needs.
- Lighting should be coordinated with signs, sign hardware, street tree planting, and subsurface utilities.
- Establish a transit area sign system with distinctive graphics for the transit area district.
- Coordinate information signs with ITS displays.
- Reinforce signs with landscape treatment.
- Enhance Essex Junction as a special place by creating a walkable, safe, pleasant community with employment, services, restaurants, shops, and entertainment centers.
- Enhance and expand the success of the Five Corners redevelopment with further infill; connect and reinforce the size of the commercial district with Pearl Street mixed-use commercial and residential development.
- Create infill development parcels.
- Achieve consistent commitment to development quality through Development Standards.
- Provide zoning incentives in exchange for improvements to road, pedestrian, bicycle, and streetscape facilities.
- Expedite permitting for development consistent with corridor plan.
- Establish infrastructure impact fees.
- Transfer development rights to promote compact development.
- Remove sign clutter.
- Create gateways.
- Establish illustrated design standards.

2. Relationship to Village Plan

Nearly all of the recommendations are for the creation of more pedestrian-friendly, compact development, which is in keeping with the overall goals of the Village Comprehensive Plan. Several points within the Village Plan relate directly to development on Pearl Street:

- Work with property owners along Pearl Street to develop underused sites for residential and mixed-use development.
- The Village should work with CVE and other Pearl Street businesses to realize the future vision for the Pearl Street frontage of CVE.
- The Village should carefully consider and encourage businesses that support the events at the CVE such as hotels and restaurants.

3. Opportunities for Appropriate Land Use

a. Overview

The current land uses on Pearl Street in Essex Junction provide numerous opportunities for redevelopment that could increase both economic development and the overall vitality of the corridor. **Figure 8** identifies several properties that could be redeveloped to provide greater economic development. There are at least five different types of redevelopment options that may be appropriate for these properties along Pearl Street in the Study Area:

- Upgrade larger commercial developments, while keeping all or most of the existing buildings, to focus more on mixed uses, often including residential uses, while minimizing auto-oriented uses;
- Aggregate smaller, underdeveloped lots to create larger mixed use lots such as hotel/conference center, commercial business, office and/or residential uses by redeveloping after removing all or most of the existing buildings;
- Provide incentives for creating upper floor or outbuilding residential uses to add to existing ground floor retail or office uses while not changing the overall character of the site;
- Increase existing residential densities by adding new development or replacing all or most of the existing development; and
- Create more compact commercial development after removing all or most of the existing development.

In addition to identifying potential redevelopment parcels, **Figure 8** also provides suggestions about which of the redevelopment options may be most appropriate for the identified properties. **Figure 8** and **Table 7** also provide estimates of at least one type of possible redevelopment scenario for several of the properties identified in the corridor for additional development.

Table 7: One Potential Development Scenario for Selected Properties

Parcel #	Existing Development	Potential Development	Coments
1		20 Units Total	Existing Stuctures Removed
2		30,000 SF Commercial Total	Existing Structures Could Remain
3		20,000 SF Commercial & 18 Units Total	Existing Structures Could Remain
4		25,500 Commercial SF and 22 Units Total	Existing Structure Possibly Removed
5		24,000 SF Commercial & 20 Units Additional	Existing Structure Remains
6		22,500 SF Commercial & 20 Units Total	Existing Structure Possibly Removed
7		10 Units Additional	Existing Structures Remain

Unit = 1,000 SF Residential Unit

b. Redevelop Larger Commercial Developments

There are several larger parcels within the corridor that could still accommodate additional infill development. Ideally, the additional development added to the sites would be mixed uses that can typically rely on greater transit use, have alternate timing for parking needs, and/or increase

residential options, but would otherwise not generate significant new amounts of vehicular traffic. The overall goal is to increase the density on the site through additional companion land uses to those that are already there that would minimize the need for more surface parking and increase 24-hour occupancy of the site. The existing development, other than the parking areas, would remain as part of the additional development.

These potential redevelopment sites are already located close to some of the highest density residential developments within the corridor. While the residences of these developments are not enough on their own to support new business, they do represent a potentially growing number residences in the corridor that could support new and existing business without generating significant new vehicular traffic, if good multi-modal transportation facilities allowed residents to reach the businesses by walking, bicycling, or even short transit trips. Several of these sites could also provide a potential location for a multimodal transportation center to facilitate connections between different modes of transportation and one could provide a location for a new joint commuter rail stop/ multimodal transportation center.

c. Aggregated Smaller Lots

There are numerous small parcels along Pearl Street that have been developed individually with no internal links to the adjacent properties. Several of these sites are typically oriented towards access only by automobile directly from Pearl Street. Others are developed with a single small building on a large lot that no longer fits well with the existing surroundings. It is currently difficult to move from most of these properties to adjacent properties without either driving from one to the other, using Pearl Street as the link, or walking through parking lots to the Pearl Street sidewalk and walking back through another parking lot at the next building.

Aggregating these parcels into larger entities could allow a wide variety of improvements to occur that would facilitate greater multimodal transportation. At the most basic level, a cooperative parking agreement could allow inter-parcel vehicular and pedestrian access. This would allow pedestrian and motorist customers to move between adjacent businesses without reentering the Pearl Street corridor. A more extensive conglomeration could create larger parcels that could be redeveloped, even while maintaining the existing uses in newer, multiuse buildings. These redevelopments could encourage land uses that, like the redevelopment potentials listed above, rely on greater transit use, have alternate timing for parking needs, and/or increase residential housing options in the corridor, but would otherwise not generate significant new amounts of vehicular traffic.

d. Upper Floor/Outbuilding Residential

Several existing older residential buildings on the eastern portion of Pearl Street, close to the Five Corners, have already been converted from residential to commercial uses of some sort. Some do not currently appear to have significant uses on either their second floor or their open rear yards. These areas could provide opportunities for residential units. Residential uses would complement the existing commercial uses, in that they would typically occupy the sites at times when the

commercial uses are not there or are there on a limited basis. They would also not increase parking demands on the parcels.

Several communities in Chittenden County have made special zoning provisions that could potentially work in Essex Junction to encourage such residential uses in the village areas by:

- Not counting the residential units towards maximum coverage that may exist in the district;
- Not requiring additional parking for the residential units;
- Waiving permit fees for the development of the units; and/or
- Relaxing setbacks or other zoning requirements to facilitate the residential development.

The goal of these modifications would be to encourage more residential units developed in conjunction with business uses in former residential buildings. The buildings themselves, however, help to create the character of Essex Junction and the BRPD team does not believe that encouraging total redevelopment of these sites, which would eliminate the existing older residential structure, would be in the best long term interest of the Village.

e. Increased Residential Densities

Several parcels along Pearl Street are already supporting multiple residential units. The existing density on these units could be increased, and the apparent age and condition of the buildings suggests that replacing them with higher density, better quality residential units could be appropriate and would help to increase residential uses along the corridor.

f. More Compact Development

There are several parcels along Pearl Street that could be redeveloped with much higher density of mixed use, commercial or residential development than they now support. The redevelopment could include retention of the existing building and/or business if it made economic sense to do so. It is more likely, however, that at least the existing buildings on these particular parcels would be removed as part of the redevelopment.

g. Village Participation

In each case, the redevelopment has to make economic sense to the parcel or business owner. To make sure that the work is economically viable to the private sector, the Village may need to participate in the process by:

- Facilitating preferred development/redevelopment scenarios through appropriate revisions to the zoning and subdivision regulations,
- Expediting the development review process for preferred redevelopment scenarios,
- Working with property owners and potential investors in securing loans or grants to facilitate redevelopment and infrastructure improvements,

- Establishing a tax increment financing district to provide a funding source for necessary infrastructure improvements,
- Serving as a leader or partner in the aggregation of property where necessary, or even
- Purchasing and reselling properties with preferred redevelopment requirements or guidelines.

h. Compatibility with Existing Zoning

Figure 7 shows the existing zoning districts within the Pearl Street corridor Study Area. In general, the regulations of these districts are supportive of most of the potential redevelopments identified on **Figure 8**, with the exceptions being those noted in Section 3 below.

4. Constraints on Appropriate Land Use

The potential redevelopment of sites 6 and 7 highlighted in **Figure 8** is not currently possible under existing zoning. The Residential Office District limits residential density to four units per lot and the Residential 2 District limits residential density to one unit per lot. Thus sites 6 and 7 could not be developed as densely as described on the figure under these existing zoning districts. These potential conflicts should be examined to see if it may be in the Village's interest to consider modifying the zoning district limits, revising the specific requirements of the districts, or creating a special Pearl Street overlay for just those properties that front on Pearl Street.

5. Economic Impacts

The potential redevelopment described in **Table 7** would result in increased tax revenue for the Village. Based on the current tax rates for residential and commercial property in the Village, the redevelopment could have the potential to generate over $900,000 a year in tax revenue. **Table 8** provides details on how this number was calculated.

Table 8: Potential Tax Revenue

Parcel	Potential Development	Approx. Value	Tax Rate /$100	Yearly Tax Revenue
1	20 Units	$ 5,000,000	1.9102	$ 95,510
2	30,000 SF Comm.	$ 6,000,000	1.9742	$118,452
3	20,000 SF Comm. & 18 Units	$ 8,500,000	1.9742/1.9102	$164,927
4	25,500 SF Comm. & 22 Units	$10,600,000	1.9742/1.9102	$205,745
5	24,000 SF Comm. & 20 Units	$ 9,800,000	1.9742/1.9102	$190,271
6	22,500 SF Comm. & 20 Units	$ 5,000,000	1.9742/1.9102	$ 98,390
7	10 Units	$ 2,500,000	1.9102	$ 47,755
Total	122,000 SF Comm. & 100 Units	$47,400,000		$921,050

IV. COMMON THEMES & FUTURE ANALYSES

A. COMMON THEMES

During the review of the numerous studies and reports relating to Pearl Street, several common themes emerged:

- Transportation is provided by an interconnected system.
- Design standards should be enacted for Pearl Street.
- New development should create pleasant, enjoyable places to walk so that walking is easy and desirable.
- Traffic calming is important in the corridor.
- Street trees are important for improved pedestrian activity and traffic calming.
- Bicycling and pedestrian circulation should be easy and safe.
- Access management is essential.
- The Village should create gateways either close to West Street Extension or east of Summit Street.
- Better transit is feasible in the Pearl Street corridor to reduce reliance on automobiles.
- Future development should be designed to make greater transit use easy.
- Future development on private properties and on the roadway itself should provide for all modes of travel.

Recommendations for future actions within the corridor should address these common themes.

B. CHARACTERISTICS OF OUTSTANDING MULTIMODAL STREETS

Examining the characteristics of well rounded, multimodal roadways can provide a basis for understanding how Pearl Street can be improved to encourage and sustain greater economic development. One of the sources examined for potential examples is the Great Streets program sponsored by the American Planning Association. Since its inception in 2007, the Great Streets program has recognized 30 streets in the United States considered exemplary for a number of reasons.

Another source of information is the Complete Street concept, which calls for addressing the needs of all users of a street, not just those of motor vehicles, which has typically been the case in the past.

The characteristics of a Great Street developed for that program or the principles of a Complete Street actually provide an exemplary set of lessons and guidelines that can provide direction for the future of Pearl Street. These guidelines indicate that great or complete streets help to create more vibrant, livable communities when they:

- Accommodate multiple users and connect to the broader street network;
- Provide orientation to their users;
- Connect well to the larger pattern of traffic movement;

- Balance the competing needs of the street—driving, transit, walking, bicycling, servicing, parking, drop-offs and pick-ups, and the like—without focusing only on one mode of travel;
- Accommodate social interaction, encourage pedestrian activity, and/or serve as social networks;
- Use hardscaping, landscaping, street furniture, and/or other physical elements to create a unique personality and capture a sense of public space;
- Benefit from community involvement and participation in events on the street;
- Reflect local culture and/or history;
- Provide interesting visual experiences, vistas, natural features, or other qualities and fit the existing topography;
- Use green infrastructure or other sustainable strategies such as minimizing stormwater runoff, ensuring groundwater quality, minimizing heat islands, and responding to climatic demands;
- Have good urban design or architectural features that are exemplary;
- Include adjacent properties that provide internal connections, circulation, and shared access between properties;
- Meet parking needs through a mix of on-street parking and off-street parking that is designed to meet actual demand and is often shared between adjacent uses;
- Are well maintained and capable of being maintained without excessive costs;
- Promote safety of pedestrians and vehicles; and
- Promote use over the 24 hour day.

Most of these guidelines make sense when considered in light of Pearl Street. They are meant to create a street that can handle existing and future traffic, has a high level of pedestrian activity, and has a good economic climate. Several of these principles are either in place or in the process of being implemented; some are not yet being considered as this review indicates. **Appendix C** contains more detailed information on the applicability of the guidelines to Pearl Street.

C. TRANSPORTATION ANALYSES

1. Rail, Bus Rapid Transit, and Bus Service

Several studies evaluating the benefits of increased bus services frequency, rapid transit, and a system of commuter rail / bus feeders in the Pearl Street/Route 15 Corridor have been completed over the years. These have included:

- Burlington-Essex Corridor Alternative Analysis, August 2001.
- *VT Route 15 Corridor Study*, August 2008.

Table 9 shows a compilation and comparison of the results from the studies, including the ridership and cost for a commuter rail service, the existing bus service, the 2008 *VT Route 15 Corridor Study* alternative of extended PM and weekend service, and BRT.

Table 9: Projected Ridership in the Route 15 Corridor

PROJECTED RIDERSHIP TABLE					
	Additional	**Annual**	**Daily (weekday)**	**Capital Costs**	**Annual Operating Costs**
Bus Transit – Essex Junction Route					
Route 15 Study (08/06)		370,000	1,250		
CCTA (FY08-09)	75,000	445,000	1,570		
Route 15 Study (PM & weekends)	40,000	485,000	1,715		$160,000
Route 15 w/Bus Rapid Transit (BRT)	150,000	635,000	2,240	$3.2 - $4.0 million	$820,000
Commuter Rail with Bus Feeder System					
Travel Demand Model (2025)		460,000	1,620	$27 - $69 million	$2.0 - $3.3 million

It should be noted that the EA analysis indicated that the rail alternative produced 1,100 or 16 percent more daily transit riders than a BRT system. The BRT service had limited stops with a bus feeder system servicing those stops. However, given the rail capital cost of $21 million and operating costs of $2 million for less than 2000 riders, it is unlikely that this particular commuter rail service proposal would be competitive in the Federal Transit Authority's New Starts program.

2. Roadway and Intersection Capacity Analyses

The capacity analyses results for the recommended roadway and intersection improvements measures are provided in **Tables 10a, 10b,** and **10c** for West Street, Post Office Square and Summit Street, respectively. The table references the improvement numbers identified in the *Unified Recommendations* section of this report (page 37).

Table 10a: Future Intersection Performance - Pearl Street at West Street

		Pearl Street Eastbound			Pearl Street Westbound			West Street Northbound			2-way Jug Handle Southbound			Overall LOS
A 5 and C 5 2030 Cycle Length (90_sec) Semi-actuated	**Lane Use**	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
	DH Volume	37	974	450		735	17	386	0	33		20	3	
	HCM LOS	B	D	A		C			D			D		**D**
	Delay (sec)	14	52.6	1.5		23.2			53.5			44.6		
	V/C	0.22	1.01	0.28		0.78			0.92			0.5		
	95% Queue (ft.)	25	773	99		196			395			36		
C 11 2030 Cycle Length (90_sec) Semi-actuated	**Lane Use**	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
	DH Volume	37	974	450		735	17	386	0	33		20	3	
	HCM LOS	A	B	A		B		D	D			D		**B**
	Delay (sec)	7.5	20	1.5		13.1		40.7	52.1			44.6		
	V/C	0.12	0.84	0.28		0.65		0.73	0.81			0.5		
	95% Queue (ft.)	25	748	13		412		203	220			36		
D 7 2030 Cycle Length (90_sec) Semi-actuated	**Lane Use**	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
	DH Volume	37	974	450		735	17	386	0	33		20	3	
	HCM LOS	A	B			B		D	D			D		**C**
	Delay (sec)	8	18.5			13.8		40	50.5			41.1		
	V/C	0.13	0.84			0.66		0.72	0.8			0.36		
	95% Queue (ft.)	26	519			437		203	220			35		

Notes

1. A 5 - Phase & controls added for EB Bus use of right turn lane for "jumping the queue". C 5 Pearl Street WB through lane dropped.
2. C-11 - Added NB left turn lane. EB Bus "jump the queue" provisions.
3. D-7 Thrus added EB rights with short receiving lane on east side.
4. Semi-actuated - Minor movements are detected.

Table 10b: Future Intersection Performance - Pearl Street at P.O. Square

		Pearl Street			Pearl Street			PO Plaza			Plaza			
		Eastbound			Westbound			Northbound			Southbound			Overall
														LOS
A 12 2030 Cycle Length (90 sec) Semi-actuated	Lane Use	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
	DH Volume	14	780	256	39	606	128	175	31	82	23	19	133	
	HCM LOS	F	D		E	A		F	C		C	D		C
	Delay (sec)	123.8	39.4		62.7	8.7		70.1	31.3		30.4	46.2		
	V/C	0.74	0.97		0.64	0.64		0.89	0.15		0.01	0.74		
	95% Queue (ft.)	27	901		46	118		205	59		20	163		
C 12 2030 Cycle Length (90 sec)	Lane Use	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt	Rt	Thru	Left	
	DV Volume	14	780	256	39	606	128	175	31	82	23	19	133	
	HCM LOS		E			C			C			B		D
	Delay (sec)		43			22			21			11		
	V/C		0.99			0.85			0.64			0.35		
	95% Queue (ft.)		450			270			100			40		

Notes

1. A-12 Concurrent pedestrian Phasing with Leading pedestrian Interval and Coordinated Operation with S Summit
2. C-12 - Roundabout with EB Right turn flare - Analysis per NCHRP 572
3. Semi-actuated - Minor movements are detected.

Table 10c: Future Intersection Performance - Pearl Street at Summit Street

		Pearl Street			Pearl Street			South Summit Street						Overall
		Eastbound			Westbound			Northbound						LOS
A 16 2030 Cycle Length (90 sec)	Lane Use	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt				
	Volume		802	114	96	700		122		75				
	HCM LOS		C		C	A			D					C
	Delay (sec)		31.4		29.6	9.8			36.9					
	V/C		0.92		0.67	0.56			0.66					
	95% Queue (ft.)		831		79	397			190					
B 11 2030 Cycle Length (90 sec)	Lane Use	Left	Thru	Rt	Left	Thru	Rt	Left	Thru	Rt				
	Volume		802	114	96	700		122		75				
	HCM LOS		C		B	A			D					C
	Delay (sec)		25		18.1	8.8			49.7					
	V/C		0.91		0.4	0.53			0.74					
	95% Queue (ft.)		1049		51	397			190					

Notes

1. A-16 &17 - No Coordination with full actuation (Detection added to Pearl Street to reduce South Summit delay)
2. B-11 - Coordination with Plaza Intersection with 90 second cycle.

3. Coordinated Multimodal Transportation

Ideally, the various different transportation modes should enhance and reinforce each other. The various studies have specifically considered this to some degree in the relationship between transit use and pedestrian circulation and between roadway improvements and bicycle facilities. There is little other coordination between bus and rail transit use, roadway improvements, and bicycle travel.

There is evidence that providing coordinated transportation facilities not only increases overall efficiency but also helps foster greater use of more fuel efficient modes of transportation and more livable communities in general. It is also the Village's goal to provide a more balanced transportation system on Pearl Street and throughout the Village. Examples of such a system that can be a part of upgrading transportation services on Pearl Street include:

- A complete sidewalk system that easily and comfortably links residential areas, businesses, commercial areas, and transit stops;
- Transit points or centers where it is easy to switch modes of travel, such as between rail and bus, rail or bus and bicycle, bicycle and walking, or automobile and bus, rail, bicycling or walking; and
- Roadway improvements that also foster faster rapid bus transit movement.

V. UNIFIED RECOMMENDATIONS

A. OVERVIEW

To be most successful in improving the Pearl Street corridor, the Village should consider developing the various recommendations for the different transportation modes in conjunction with each other. This is emphasized by the fact that several of the recommendations are relevant to two or more modes of transportation.

The lists of recommendations are divided into near-term, mid-term, and long-term corridor improvements. While some of the recommendations are sequential, many of them can be pursued individually or simultaneously. Near term recommendations are those that should be pursued in less than five years. Mid-term improvements are those that should be pursued in less than 10 years, while long term improvements are those that will most likely be pursued eleven or more years into the future. To help the Village establish some order in which to pursue the recommendations, the short term recommendations are further divided into two phases, less than three and less than five years. **Table 11** provides an overview of the various recommendations, as well as additional information that may help the Village initiate work on implementing them.

Figures 9a through **9e** provide an overview of the locations of the recommended improvements.

B. NEAR TERM RECOMMENDATIONS – PHASE 1 (Less than three years)

A1. Position corridor for reduced bus travel times and reduced headways with incremental improvements to regular service.
A2. Provide new bus shelters at Summit Street, Willey's Court, West Street Extension (South side), and new CVE Gate A entrance.
A3. Provide improved bus shelters at the Essex Village Shopping Plaza on both sides of the road with, at a minimum, bicycle storage, improved lighting, and seating.
A4. Work with New England Central Railroad (NECR) to seek corridor rail improvement funding for the Burlington Branch line to support future passenger rail service (commuter and/or expanded Amtrak service), leveraging NECR funds to support matching Federal funds.
A5. Increase signal time for Pearl Street at the West Street Extension intersection to reduce the queuing condition.
A6. Relocate the existing bus shelter at the jug handle to the current bus stop location to the west of the intersection.
A7. Continue to implement the improvements to the entrance to the Champlain Valley Exposition (CVE).
A8. Install 8 foot marked crosswalk with center island pedestrian refuge opposite the new CVE pedestrian entrance.
A9. Add vehicular and pedestrian gateway elements east of the West Street Extension intersection, including a welcome sign, plantings, and a road narrowing (by converting

the painted bump out to one defined by a six inch curb) within the Pearl Street right-of-way.

A10. Add small or medium trees within the five-foot apron and, as possible, larger street trees in the setbacks of adjacent properties along Pearl Street.

A11. Add "sharrows" to Pearl Street between the end of the bicycle lanes and the Five Corners.

A12. Modify the pedestrian phase at the Pearl Street/Post Office Square intersection to provide additional green time for traffic but still provide some exclusive crossing time for pedestrians by implementing an advanced pedestrian interval.

A13. Continue negotiations to secure a long-term easement agreement with NECR for a shared use path in the railroad ROW (rail-with-trail).

A14. Resolve legal issues pertaining to private property use of the railroad right-of-way on three properties and develop plans to free space for a future rail-with-trail shared use path.

A15. Update the Village's Comprehensive Plan language to indicate acceptance of off-road shared use paths in appropriate locations.

A16. Monitor the operations, performance, and safety of the recently implemented three lane section west of CVE.

A17. Provide vehicle detection on the Pearl Street through lanes at Post Office Square and Summit Street to improve the operation and reduce the Post Office Square drive queues during the middle of the day.

A18. Set the minimum green, maximum green, and passage time (allowed green time between vehicle detections) at Summit Street to facilitate shorter queues.

A19. Implement access management, by updating Village zoning regulations to create an access management overlay district; requiring interconnections between adjacent parking areas, and consolidating of access drives during redevelopment at locations shown on the plan.

A20. Check current speed conditions to determine if it may be possible to reduce posted speed limits west of CVE and lower the speed limit if appropriate.

A21. Initiate discussions with the Town of Essex and VTrans on the medium term recommendation of implementing a road diet on Pearl Street (one lane each direction plus designated bike lanes) between the Susie Wilson and West Street Extension intersections.

A22. Update Village Zoning regulations to allow greater residential density along Pearl Street in the Residential 2 district.

A23. Encourage development of clearly delineated pedestrian connections between the public sidewalk and the entrances to businesses along Pearl Street.

A24. Set up regular maintenance procedures for Route 15 including:

– Regular pavement marking schedule,

– On-going signal updates,

– Street tree and green strip maintenance, and

– Detection loop service.

C. NEAR TERM RECOMMENDATIONS – PHASE 2 (Less than five years)

B1. Add at least one westbound bus stop between the Five Corners and Summit Street, possibly close to School Street to accommodate west bound travelers.
B2. Relocate bus stops, as possible, at Complex 159 and Willey's Court closer to locations where crosswalks on Pearl Street are feasible to make pedestrian road crossings at the bus stops easier and more convenient.
B3. Implement signal priority system for transit.
B4. Investigate the feasibility of adding at least one center pedestrian refuge island in conjunction with a crosswalk at a bus stop between West Street Extension and the CVE Gate B intersections.
B5. Improve lighting at new and existing crosswalks.
B6. Re-examine the potential of developing a rear roadway connection for the properties on the south side of Pearl Street west of Post Office Square.
B7. Enhance pedestrian crossings (painted and/or textured crosswalks) at the West Street Extension, Post Office Square, Summit Street, and School Street intersections.
B8. Adapt VT 15 eastbound right turn lane and signal operations at West Street Extension to provide a transit queue jump.
B9. Implement signal coordination between Post Office Square and Summit Street.
B10. Conduct a study to investigate the feasibility of implementing a road diet on Pearl Street between the Susie Wilson and West Street Extension intersections.
B11. Calm the roadway traffic on Pearl Street, with reduced lane widths, vehicle activated signs, streetscape, and gateway treatments.
B12. Initiate a scoping study for the Post Office Square intersection focusing on the benefits of converting it to a roundabout.
B13. Review the benefits and costs of creating a Tax Increment Financing District (TIF) for Pearl Street and begin work on instituting a TIF District if the review shows there is a viable benefit to the Village.
B14. Develop design guidelines for commercial zoning districts on Pearl Street.

D. MID-TERM RECOMMENDATIONS (Less than ten years)

C1. As ridership on existing buses increases, evaluate the suitability of a BRT application to the FTA Small Starts program with the aim of beginning a new limited-stop overlay BRT on the Pearl Street service.
C2. Seek earmarks in Federal authorizations for BRT planning and development.
C3. Begin planning a commuter rail station close to or within Post Office Square that could easily link with a bus rapid transit (BRT) stop on Pearl Street, initially using the station site as a seasonal stop and transitioning towards a mini transit center where easy connections between and among bicyclists, pedestrians, transit riders, and motorists.
C4. Based on the results of the feasibility study and negotiations with VTrans and Essex Town, proceed with the implementation of a road diet for the Pearl Street section west of the West Street Extension intersection—convert the existing two lanes in each direction to one lane with an adjacent bike lane and provide adequate bicycle routing through the intersection.
C5. Add new pedestrian scale street lighting, some with banner poles.

C6. Construct sidewalks on Warner, Hillcrest, West Hillcrest, and Curtis Streets to accommodate additional pedestrian traffic.
C7. Prepare design plans for a shared use path in the railroad right-of-way.
C8. Investigate the need for a second West Street Extension lane for left turns.
C9. Based on the scoping study's outcome, reconstruct the Post Office Sqaure to better accommodate projected increases in vehicular traffic as well as bicycle and pedestrian travel, including consideration of a modern roundabout and conventional capacity improvements with signal. (Note: The figures show a roundabout so that a possible arrangement of this potential significant change to the intersection can be more easily visualized.)
C10. Check the signal warrants at CVE Gate B as well as the overall traffic management operations of CVE of to determine if a signal or other upgrades to the intersection may be warranted as CVE adds additional buildings or activities.
C11. Create a wide curb lane along Pearl Street east of the Post Office Square intersection by relocating the southern curb outward at least two feet to facilitate bicycle travel.

E. LONG TERM RECOMMENDATIONS (More than ten years)

D1. Develop BRT as a means of increasing transit ridership in the corridor; BRT should include the following elements:
- Attractive stations,
- Distinctive and easy-to-board vehicles,
- Off vehicle fare collection,
- Ten minute headways during peak periods,
- Automatic vehicle location systems,
- Passenger information systems, and
- Transit priority at signalized intersections.

D2. Work with Chittenden County Transportation Authority (CCTA) to establish a transit area sign system with distinctive graphics for the BRT services that may be developed for the region.
D3. Following lease agreements with NECR, construct a shared use path in the railroad right-of-way.
D4. Implement a rear roadway connection for the properties on the south side of Pearl Street west of Post Office Square.
D5. As BRT ridership increases, start planning for a transition to commuter rail service between Burlington and the Essex Junction.
D6. Investigate the operation of the Pearl/West Street Extension Intersection—if needed, convert the existing eastbound right turn lane to a combined thru and right turn lane and create a short receiving lane on the east side to enable through traffic in two lanes that would taper to the existing three lane section east of the intersection.
D7. Expand access management by adding driveway channelizing islands and restricting turning movements during redevelopment in locations shown on the plan.

D8. Investigate the feasibility of a "complete street" plan for the Pearl Street corridor that includes planted median and roundabouts to enable u-turns and facilitate access to businesses; based on the results of the feasibility study, develop a "complete street" plan for the corridor.

VI. IMPLEMENTATION

Because of the limited availability of transportation funding, the Village of Essex Junction must pursue as many different sources of funding as possible to create a multimodal transportation corridor along Pearl Street. Additionally, the Village must work with multiple partners to coordinate improvements and/or secure non-traditional funding and can actually take on the implementation of recommendations.

The following list highlights some of the important partnerships and actions that the Village should begin implementing so that the near term and long term recommendations for Pearl Street can be pursued, moving it towards its multimodal future.

- Work with the Town of Essex to implement a road diet on Pearl Street east of the Susie Wilson Road intersection to the West Street Extension intersection.
- Work with the Chittenden County Metropolitan Planning Organization (CCMPO), the Vermont Agency of Transportation (VTrans), and state and federal elected officials to coordinate and secure funding for roadway and overall transportation improvements in the corridor.
- Establish close working relationship with CCTA.
- Establish close working relationship with CVE to implement aesthetic and transit improvements to the Pearl Street corridor.
- Work with landowners and business to implement changes to access and development along the roadway.
- Continue working with the NECR to improve railroad facilities.
- Continue to pursue an expanded growth center/downtown designation for the eastern portions of the Pearl Street corridor.
- Work with local organizations and interns to implement portions of the plans that can be done with their input, such as the gateway treatments, street tree plantings, bike racks, railroad easements, seasonal railroad service, and aesthetic improvements.
- Pursue tree planting grants to cover inventory, planning, and planting of street trees.
- Seek Federal funding through FTA and FHWA programs, including Small Starts, ARRA/Job Bill, and Transportation Reauthorization.

Table 11a: Near Term Recommendations - Phase 1

#	Description	Potential Funding Source	Lead	Partners	Next Steps	Comments
A1	Undertake incremental improvements to bus service	CCTA	CCTA	VTrans/VEJ/ CCMPO		
A2	Provide new bus shelters (Summit ST, Willey's CT, West ST Ext.)	CCTA/Private	CCTA	VTrans/VEJ/Private	Establish proposed locations, and review with the Village	
A3	Add bus shelter upgrades at Post Office Square intersection	FTA/VTrans/VEJ/Private	CCTA	VTrans/VEJ/Private	Finalize design, establish proposed locations, and review with the Village	
A4	Seek rail funding for Burlington Branch RR line	NECR/AMTRAK/ Federal Funding/ VTrans/	VEJ	VTrans/CCMPO/ NECR	Explore new funding sources with NECR and VTrans while pursuing existing actions	
A5	Monitor Pearl Street signal at West Street Ext. Intersection and increase signal time for Pearl Street if needed.	VEJ	VEJ	CCMPO	Completed	More green for Pearl Street will increase queues on West St Extension - monitor
A6	Relocate jug handle bus shelter	CCTA	CCTA	VTrans/VEJ	Establish proposed locations, and review with the Village	
A7	Proceed with CVE entrance improvements	Federal Earmarks	VEJ	CVE/VTrans	Proceed with current process	
A8	Add CVE pedestrian entrance crosswalk & refuge island	Federal Earmarks	VEJ	CVE/VTrans	Proceed with current process	
A9	Add gateway treatment close to West St. Ext. Intersection	VEJ/Private	VEJ	Private	Prepare more detailed plans of the specific recommendations and secure funding	
A10	Add street trees in open areas along Pearl Street	VEJ/Private/UCFC	VEJ	Private	Conduct an inventory and prepare a planting plan for new trees	Keep sight distances open at intersections
A11	Add "sharrows" on the eastern portion of Pearl St. where there are no bicycle lanes	VEJ/VTrans	VEJ	CCMPO/Local Motion	Add "sharrows" according to the 2009 MUTCD	
A12	Add advance pedestrian signal at Post Office Square Intersection	VEJ	VEJ	CCMPO	Request assistance from CCMPO	This allows pedestrians to initiate their crossing before a concurrent pedestrian phase.
A13	Secure Rail-with-Trail easement from NECR	VEJ/NECR	VEJ	CCMPO/Local Motion/VTrans	Work with NECR to finalize the easement	
A14	Resolve private property use of railroad ROW issues	VEJ	VEJ	NECR	Begin title searches for affected properties and/or work with NECR to check their title records	
A15	Update Essex Junction Comprehensive Plan to include off-road bicycle and pedestrian facilities	VEJ/DHCA	VEJ	CCRPC	Prepare plan edits and submit to the Village for approval, either as part of a larger update or as a stand alone edit.	
A16	Monitor operations of reconfigured Pearl Street section	CCMPO	VEJ	CCMPO	Set up a monitoring program with assistance from CCMPO and implement it.	
A17	Vehicle detection at PO Square and Summit Street Intersections	VEJ	VEJ	CCMPO	Work with Village Engineer or request assistance from CCMPO	
A18	Modify signal time at Summit Street intersection	CCMPO	VEJ	CCMPO	Work with Village Engineer or request assistance from CCMPO	
A19	Implement access management	VEJ/Private	VEJ	Private	Prepare edits to Village regulations	
A20	Check speeds and change speed limits appropriately	CCMPO	VEJ	CCMPO	Request assistance from CCMPO	
A21	Initiate discussions with Essex Town and VTrans on possible Pearl St. road diet between Susie Wilson and West Street Extension intersections	VEJ/CCMPO	VEJ	Town of Essex/VTrans/ CCMPO	Continue recently initiated participation with the Town of Essex Selectboard and add VTrans to the discussion	
A22	Update Zoning to allow greater residential density	VEJ	VEJ	CCRPC	Prepare edits to Village regulations	
A23	Encourage well-defined pedestrian connections between the sidewalk and building entrances.	VEJ/CCMPO	VEJ	CCMPO/ Private Businesses/Local Motion	Propose guidelines and/or site development requirements to describe how to address the issue.	
A24	Set up regular maintenance schedules	VEJ	VEJ		Review maintenance requirements for proper motor vehicle, bicycle, and pedestrian circulation along Pearl Street	

Table 11b: Near Term Recommendations - Phase 2

#	Description	Potential Funding Source	Lead	Partners	Next Steps
B1	Add westbound bus stop between five corners and Summit St.	CCTA/VTrans	CCTA	VTrans/VEJ	Identify best location
B2	Relocate bus stops closer to roadway intersections for crosswalk availability	VEJ/CCTA/VTrans	CCTA	VTrans/VEJ	Identify best location
B3	Implement traffic signal transit priority	CCTA/VTrans	CCMPO/CCTA	CCTA/VEJ/CCMPO/ VTrans	
B4	Identify location and add a center pedestrian refuge island between West Street Ext. and CVE Gate B	VEJ/CCTA/VTrans	VEJ	CCTA	Identify location and construct
B5	Improve lighting at crosswalks	VEJ/Federal Earmark	VEJ	CCTA	
B6	Re-examine rear roadway potential for properties on south side of Pearl Street west of Post Office Square	VEJ/Private Businesses/CCMPO	VEJ/CCMPO	Landowners/CCMPO	Review conclusions of previous study, Discuss option with landowners and businesses, Request funding from CCMPO for study
B7	Enhance pedestrian crosswalks	VEJ	VEJ		Review available methods of enhancing crosswalks, Review options with Pubic Works, Select most appropriate method
B8	Modify the West St Extension operation to provide transit queue jump capability	CCMPO/VEJ/CCTA	CCTA/CCMPO	VTrans	Conduct a feasibility study
B9	Implement signal coordination between Post Office Square and Summit Street	CCMPO/VEJ	CCMPO	VEJ/VTrans	Develop signal timing plans for peak and off peak times
B10	Investigate the Feasibility of implementing a road diet between the Susie Wilson and West St. Extension intersections	CCMPO/VEJ/Essex Town	CCMPO	VEJ/VTrans/Essex Town	Request assistance from CCMPO
B11	Introduce traffic calming	VEJ	VEJ	Residents/Local Business	Develop recommendations from this report in more detail for review and discussion by Village residents and businesses
B12	Initiate Scoping for Post Office Square intersection	CCMPO/VEJ	CCMPO	VEJ/CCTA/Local Motion	Add scoping study to the CCMPO's UPWP
B13	Explore implementation of a Pearl Street TIF	VEJ/Local Businesses/Land owners	VEJ		Conduct a study on benefits and costs of a TIF district, including a review of what improvements could be funded, the size and location of the district, the cost of potential improvements, and the expected pay back period
B14	Develop design guidelines for commercial zoning districts on Pearl Street	VEJ/DHCA	VEJ		

Table 11c: Mid Term Recommendations

#	Description	Potential Funding Source	Lead	Partners	Next Steps
C1	Pursue BRT Application to the FTA Small Starts Program	FTA/CCTA	CCTA	VEJ/ Other Towns/ VTRans/CCMPO	
C2	Seek Earmarks for BRT planning and development	Federal Legislation	VEJ	CCMPO/CCTA	Discuss the potentials with congressional staff members
C3	Plan for a commuter rail station near Post Office Square	VEJ/CCTA/CCMPO/ NECR	VEJ	NERC/CCTA/CCMPO/ VTrans	
C4	Implement reccomendations from the feasibility study on the road diet for the the western most portion of Pearl Street	VEJ/Town of Essex/ VTrans	VEJ	VTrans/Town of Essex	
C5	Add pedestrian scale street lighting	VEJ/Federal Earmarks	VEJ	Local Businesses	
C6	Construct sidewalks on Warner, Hillcrest, West Hillcrest and Curtis Streets	VEJ/CCMPO/VTrans	VEJ	CCMPO	
C7	Prepare Design Plans for Rail-with Trail	VEJ/NECR/ VTRans	VEJ	CCMPO	
C8	Investigate need for second West St. Ext lane for left turns	CCMPO/VEJ	CCMPO	VEJ	Gather information on the success to manage queues with signal timing adjustments to determine need for added capacity
C9	Reconstruct the Post Office Square intersection based on the scoping study's prefered alternative	Federal Earmark/VEJ	VEJ	CCMPO	
C10	Check signal warrants for Gate B	CCMPO/VEJ/VTrans	VEJ	CCMPO	
C11	Create wid curb lanes on the eastern portion of Pearl Street to facilitate safer bicycle travel	Federal Earmark/VEJ	VEJ	CCMPO/VTrans	

Table 11d: Long Term Recommendations

#	Description	Potential Funding Source	Lead	Partners	Next Steps
D1	Develop BRT system	FTA/CCTA/VTrans	CCTA	VTrans/VEJ	
D2	Establish BRT service graphic system	CCTA	CCTA	VEJ	
D3	Construct Rail-with-Trail	VTrans/Federal Earmarks/NECR	VEJ	VTrans/NECR	
D4	Implement rear road on properties south of Pearl Street west of Post Office Square	Local Businesses/VTrans	VEJ	CCMPO/Local Businesses	
D5	As BRT ridership is increasing, plan for a transition to Commuter Rail Service	FTA	CCTA	VEJ/ Other Municipalities/CCMPO/ VTrans	
D6	If needed (based on intersection operation) add a second eastbound through lane on Pearl Street at West St. Extension Intersection	VEJ	VEJ	CCMPO	
D7	Expand access management by adding driveway channelizing islands and restricting turning movements	VEJ	VEJ	Local Businesses	
D8	Plan for a "complete street" by adding center medians and/or roundabouts in the Pearl Street corridor	Federal Earmarks/VEJ	VEJ	Local Businesses	

APPENDIX A
SUMMARY AND UPDATE OF
PREVIOUS AND ON-GOING STUDIES AND PLANS

INTRODUCTION

This review provides an outline of studies relevant to the Route 15 corridor. It is based on and formatted the same as the Summary provided in appendix B of the recently completed VT 15 Corridor Study (2008). The first section contains updates to the summaries included Appendix B. The second section includes summaries of new reports or studies that were not included in Appendix B. The last section contains additional summaries that were included in Appendix B that are still relevant to this Multimodal Transportation Study but were not included in this subsequent update and review.

This report is formatted for double sided printing.

EXISTING RELEVANT REPORTS OR STUDIES REVIEWED AND UPDATED

Report Title: ***Burlington-Essex Corridor Alternatives Analysis: Phase 1A Report*** **and Appendix**
Author: DMJM+ Harris
Date: August 2001
Sponsor: CCMPO
Purpose: To explore alternatives for addressing transportation problems in the Burlington-Essex corridor using a variety of transportation modes. Considered transportation systems management alternatives, highway alternative, express bus alternative, commuter rail alternative.

Findings:

- Improvements to signal timing along the length of the corridor.
- Fifteen-minute service in peak hours should be implemented on CCTA Route #2, with close monitoring of ridership, on-time performance and costs to further assess the viability of this alternative.
- Bus system improvements resulted in only small increases in ridership.
- Express bus service did not generate sufficient ridership to offset relatively high capital and operating costs.
- Evaluate potential benefits of additional bus routes in the area of Susie Wilson Road/Kellogg Road.
- Commuter rail alternative demonstrated an ability to attract travelers to rail and increase transit mode share. Results indicated it would be cost effective. Due to its potential for increasing capacity of the corridor, the concept of the commuter rail alternative should be further refined to assess its costs, benefits, and impacts.
- Highway alternative demonstrated increased travel speed (5%) and VMT increases (8%).
- For express bus alternative projected bus trips within the corridor for 2025 increases from 4,212 to 5,492 (5.4%).
- For commuter rail alternative predicted daily ridership within the Burlington-Essex corridor was 910 with hourly service and 1,135 with half-hour service during peak periods.
- Changes since report: There is now no Charlotte-Burlington commuter rail.

Traffic Analysis Results:

	VT/15 West Street		VT 15/Susie Wilson Rd	
	LOS	**Delay**	**LOS**	**Delay**
2025 Highway Alt (PM peak)	B	16.3	C	33.7
2025 Rail Alt. (PM peak)	B	16.2	C	34.0
2025 Bus Alt. (PM Peak)	B	16.5	C	34.2

Report Title: ***Draft Environmental Assessment for the Burlington-Essex Rail Project***
Author: DMJM+ Harris
Date: June 2002
Sponsors: CCMPO, VTrans and the U.S. Department of Transportation/Federal Transit Administration
Purpose: To analyze the potential environmental impacts associated with the Burlington-Essex Rail Project for each of the impact categories required by the Federal Transit Administration.

Findings:

- The Preferred Alternative would consist of an extension of the existing Charlotte to Burlington commuter rail service from Union Station in Burlington to the IBM facility in Essex Junction.
- The service would be implemented as a continuation of the Champlain Flyer commuter rail service using existing equipment and maintenance facilities.
- It would include improvements to the existing freight rail infrastructure; five new stations, including feeder bus service to each station; and upgrades to the existing single-track Winooski Branch to Class III standards.

Alternative considered: No Build, Transportation System Management Highway, Express bus, Commuter rail.
Ridership: Daily commuter rail ridership 2025

No Build Alt (Charlotte-Burlington)	1,305
Build Alt. (Add Burlington-Essex)	1,990
TOTAL	3,295

Note ridership includes connections to IBM with 183 riders.
Noise mitigation: Use quiet zone option with some wayside noise barriers.

Remaining question**:** Is equipment from Champlain Flyer available and adequate?

Report Title: ***Financial & Institutional Strategy Route 15 Corridor Improvement Plan-Burlington-Essex Rail Project***
Author: DMJM+ Harris
Date: July 2002
Sponsor: CCMPO
Purpose: To present the institutional and financial strategy for implementing the Rt. 15 Corridor Improvement Plan, including the Burlington to Essex Rail Project, and to address the larger transit funding and institutional issues raised by the plan.

Findings:

- Establish one transit authority in Chittenden County.
- Reform transit funding in Chittenden County.
- Prioritize the Burlington-Essex commuter rail proposal.

Report Title: ***Transit-Oriented Development Planning-Market Analysis, Development Opportunities and Fiscal/Economic Impact***
Author: DMJM+ Harris
Date: March 2003
Sponsors: CCMPO, VTrans, and the CCRPC
Purpose: To outline TOD opportunities for the areas surrounding four of the proposed Burlington-Essex passenger rail stations along the Route 15 corridor and their potential economic and fiscal impact to the local jurisdictions.

Findings:

- Identify TOD opportunities for the areas surrounding four of the proposed Burlington-Essex passenger rail stations along the Route 15 corridor.
- Development of a mix of transit-supportive land uses in the four areas also supports bus transit and reduces dependence on the automobile, so these developments could take place in advance of rail or express bus service.
- Evaluate densely developed, mixed-use TOD developments in order to provide an opportunity for local jurisdictions to increase their tax base by creating higher value.
- Encourage compact development on any given parcel of land.
- Local governments play a significant role in promoting TOD through development of transit and pedestrian-supportive plan, policies, zoning provision, and incentives.
- The proposed Fairgrounds station is located off Route 15 behind the former A&P shopping center. There are 1,845 people living within one-half mile of this proposed station.

Updates or Edits:

- The economic climate has changed since the completion of this analysis.
- The shopping center has undergone some upgrades since the completion of the analysis.

Report Title: ***Transit-Oriented Development Opportunities for the Route 15 Corridor***
Author: DMJM+ Harris
Date: November 2003
Sponsors: CCMPO, VTrans, and the CCRPC
Purpose: To strengthen the link between transportation and land use planning and to provide communities with an understanding of how TOD might be implemented within the Route 15 Corridor.

Report Title: *Analysis of Opportunities and Constraints for Transit-Friendly Development*
Author: DMJM+ Harris
Date: November 2003
Sponsor: CCMPO
Purpose: To address the continuing efforts by CCMPO to encourage transit-supportive land use within the Route 15 Corridor communities by extending a transit-supportive planning study to the Susie Wilson Road area in Essex.

Findings:

- Develop a consistent, identifiable, and accessible pedestrian network linking proposed transit station areas.
- Construct wider sidewalks to accommodate additional pedestrian traffic.
- Enhance pedestrian crossings (Painted/textured crosswalks) of major arterials.
- Plan for walkable neighborhoods.
- New or infill development should have little or no setback and minimize and consolidate curb cuts to parking areas located at the rear of the buildings, with rear parcel connections.
- Use lighting types to create a hierarchy of spaces.
- Major streets and intersections in transit areas should have a larger and brighter fixture capable of serving both roadway and pedestrian lighting needs.
- Lighting needs to be coordinated with signs, sign hardware, street tree planting and subsurface utilities.
- Establish a transit area sign system with distinctive graphics for the transit area district.
- Coordinate information signs with ITS displays.
- Reinforce signs with landscape treatment.
- Optimize signal timing.
- Develop on-street parking as possible.
- Reinforce and clarify the identity of village and transit areas by marking important entry areas.
- Require blighted landscapes adjacent to public ways to be cleaned and maintained.
- Maintain and reinforce important open space areas and significant vistas along street corridors.
- Ensure roadway is compatible with higher density development.
- Consider reducing lane widths on Susie Wilson Road to 11.5 feet.
- Reduce posted speed limit to 30 mph.
- Key factors for TOD Success in the Route 15 Corridor –
  - Existing site characteristics,
  - Accessibility or transit station,
  - Supportive zoning and land use controls and design standards,
  - Real estate market conditions,
  - Probability of residential and commercial development being attracted to the transit station area,
  - Major attractions near transit stations,
  - Available land for TOD,
  - Public sector investment and/or support,
  - Private sector investment and/or support, and
  - Joint public/private development potential.

Report Title: ***VT Route 15-Modeling of Existing Conditions and Optimized Signal Operations***
Author: Dufresne-Henry
Date: July 2004
Sponsor: CCMPO
Purpose: To compare the existing traffic signal system with an optimized system using a model developed and calibrated through field observations.

Findings:

- There should be specific signal timing and infrastructure improvements were recommended at the following Route 15 intersections:
  - Spring Street
  - Exit 15 Ramps
  - Essex Plaza (Former A&P)
  - Summit Street
  - 5 Corners

Analysis Results:

1. VT 15/Wiley Court – No improvements.
2. VT 15/A&P Shopping Plaza – Run at 90 second cycle length, coordinate with South Summit, queues on A&P approach extend into parking lot intersection existing geometry provides LOS B/C.
3. VT 15/N&S Summit Streets – Run at 90 second cycle length, coordinate with A&P Plaza signal, shorter pedestrian phase, existing geometry provides LOS B/C.

Report Title: ***Pearl Street Corridor Enhancement Plan***
Author: Saratoga Associates
Date: June 2005
Sponsor: Village of Essex Junction
Purpose: To establish positive and negative elements of Pearl Street and identify elements that should be protected.

Findings:

- Pedestrian-scale infill development is on the increase.
- Existing buildings are non-descript , with an uninviting pedestrian environment with an overwhelming utility infrastructure.
- Enhance Essex Junction as a special place by creating a walkable, safe, pleasant community with employment, service, restaurants, shops and entertainment center.
- Enhance and expand the success of the 5 Corners redevelopment with further infill; connect and reinforce the size of the commercial district with Pearl Street mixed-use commercial and residential development.
- Create infill development parcels.
- Achieve consistent commitment to development quality through Development Standards.
- Reconnect the Exposition to the Village fabric; create an active "front yard" to convey exposition activities.
- Enhance pedestrian comfort and safety along the street.
- Tame the roadway traffic on Pearl Street.
- Advance/implement coordinated regional traffic management plan and integrate with transit and regional network planning.
- Coordinate curb cuts with site development plans.
- Reduce posted speeds west of the Exposition.
- Have Village assume control of the roadway.
- Maintain and enhance a mixed use, affordable community.

Updates or Edits:

- The Exposition has finalized a plan for the "Front Yard" that does not create an active area that conveys Exposition activities but has opted to develop a parking area adjacent to the Pearl Street.

Report Title: *Downtown Streetscape Plan for Essex Junction*
Author: LandWorks
Date: August 2005
Sponsor: Village of Essex Junction
Purpose: To investigate pedestrian facilities, landscape enhancements, and amenities upon entering downtown Essex Junction as a means of revitalization.

Findings:

- Business vitality is one of the key purposes for creating a streetscape plan.
- Ten ingredients of successful plan: Effective lighting, single sidewalks, sidewalk zones, on-street parking, street trees, public art, traffic calming, walkability, wayfinding, and active participation and contribution from all stakeholders.
- On Pearl Street:
  - Delineate crosswalk at the 5 Corners with Imprint®,
  - Add vehicular and pedestrian gateways within R-O-W west of the School Street intersection,
  - Add small trees within the five-foot apron and larger street trees in the setbacks of adjacent properties,
  - Delineate 8' wide pedestrian crossing with Imprint® across fire station driveway
  - Add new street lighting, some with banner poles, and
  - Reorient sidewalk in front of municipal building to be setback evenly from the roadway and add stonewall with seating, pavers/landing area, and gardens in front of village offices with option to provide village lettering on stonewall.

Updates or Edits:

- The Village has proceeded on securing funding to begin implementing some of the recommendations.

Report Title: *Route 15 Corridor Bicycle and Pedestrian Facility Plan*
Author: Wilbur Smith Associates
Date: 2007
Sponsor: Chittenden County Metropolitan Planning Organization
Purpose: To investigate the most appropriate type and location for a bicycle and pedestrian facilities in or near the Route 15 corridor linking the 5 Corners area in the Village of Essex Junction with the eastern edge of Winooski

Findings:

- There are numerous residential, institutional, and commercial uses along the corridor that could benefit from good bicycle and pedestrian facilities in this portion of the Route 15 Corridor.
- The potential users include school children, families, bicycle commuters, and recreational walkers and bicyclers.
- No one facility appears as if it will meet the needs of all the potential users.
- An on road bicycle facility would serve the needs of more mature bicyclist but due to the amount of vehicular traffic, on road facilities may not meet the needs of children or less experience bicyclists.
- Sidewalks along Route 15 would meet the needs of most pedestrians.

- An off road facility developed within or close to the railroad right-of-way would meet the needs of most users due to its directness combined with its separation from Route 15 vehicular traffic.

Updates or Edits:

- The alternate alignment in or close to the railroad right-of-way, if pursued, will need to be modified to take into account the proposed train stations.
- The Village has been working with the railroad operator to secure funding upgrades to the railroad track, which has made the railroad operator more receptive to the use of the railroad-right-of-way for a shared use path.
- The on-road bicycle lane alternative is being implemented for the portion of Route 15 between the Route 15/West Street Extension intersection and the eastern edge of the Exposition property.

Report Title: ***Village of Essex Junction Comprehensive Plan***
Author:
Date: January 2008
Sponsor: Village of Essex Junction
Purpose: To provide a comprehensive plan for the orderly Village transition into the future.

The Village of Essex Junction updated and adopted its Comprehensive Plan in January 2008. The goals of the Plan are to define/update Essex Junction's priorities, goals, and strategies for the next five years and beyond, update information regarding data, current issues, and development and to review accomplishments from the previous five years.

Relevant goals and policies from the Village Comprehensive Plan include:

- Maintain an aesthetically attractive urban environment which is sensitive to the natural environment.
- Design publicly financed improvements to preserve the character of the Village Center.
- Preserve the natural beauty of Vermont through implementation of selective tree plantings in road right-of-ways.
- Consider benches on long stretches of sidewalk.
- Encourage bus and pedestrian access to all parking facilities.
- Support the completion of the Circumferential Highway; improve level of service at Five Corners and develop and implement a Transportation Management Plan for the entire village network
- Cooperate with the state and regional entities pursuing efforts to establish commuter rail
- Coordinate land use decisions with associated public infrastructure needs including streets, sidewalks, bicycle paths, drainage, water, sewer, school, recreation and other public needs.
- Provide sufficient locations within the village to accommodate a variety of land uses: (1) increase densities in the Village center (2) redefine zoning district boundaries and uses for

the Village Center and for commercial areas and main corridors that are close to the Village Center. Redefine uses for central commercial areas and corridors

NEW RELEVANT REPORTS OR STUDIES REVIEWED AND SUMMARIZED

Report Title: ***Route 15 Corridor Improvement Plan Burlington to Essex Rail Project Travel Demand Modeling Methodology and Results.***
Author: Smart Mobility
Date: July 2002
Sponsor: CCMPO
Purpose: To determine more realistic demand forecasts for alternative transportation modes using an enhanced transportation model and specifically estimate the rail ridership for Burlington-Essex rail services.
Findings:

Daily Regional Trips by Mode

Person Trips	2025 No Build	2025 Rail Build
Auto	1,030,182	1,026,547
Walk	37,578	37,154
Bus	7,276	6,786
Rail	1,305	3,295
Total Transit	8,581	10,081
TOTAL	1,076,341	1,073,783

- Assumes completion of CCCH Segments A&B, and connection to IBM. Model enhancements included a peer review group.
- Limited information specific to corridor or traffic.

Report Title: ***Route 15 Road Diet***
Author: CCMPO
Date: March 20, 2009
Purpose: Evaluate effects of a "road diet" on VT 15 Eastbound at the intersection with West Street Extension.
Findings:

- Performed intersection capacity analysis for new lane configuration in years 2008 and 2019.
- Capacity analysis suggests VT 15 movements operate at acceptable levels of service which the West Street Extension would see increased delay and may benefit with an added line.

Report Title: ***VT 15 Corridor Study Final Report***
Author: BFJ Planning
Date: August 2008
Purpose: Establish short and long term strategies for the corridor.

Findings:

VISION FOR VT 15

- Be a fully integrated multimodal corridor.
- Remain a principal east-west arterial.
- Have well connected network of bicycle and pedestrian facilities.
- Have convenient and effective transit service.
- Preserve scenic resources.
- Provide gateways announcing transition.
- Include high quality streetscape.

GOALS AND OBJECTIVES

- Develop flexible roadway network.
  - Improve local circulation
  - Improve mobility
  - Balance mobility and access
- Enhance Corridor Safety
  - Provide safe highway sections and intersections.
  - Provide safe pedestrian crossings.
  - Create safe bicycle network.
  - Minimize conflict with access management.
- Provide travel options.
  - Optimize traffic flow.
  - Improve and increase public transit.
  - Provide convenient connections.

- Provide transportation and land use strategies.
  - Improve aesthetics.
  - Develop gateways.
  - Concentrate growth in villages.

EXISTING CONDITIONS

- TRAFFIC VOLUMES
  - Susie Wilson Road to West Street 20,000 vpd
  - West Street to Five Corners 12,000-15,000 vpd
- ACCESS MANAGEMENT
  - West Street to Five Corners – 67 accesses, 46 with issues.
- HIGHWAY PERFORMANCE – 2005

Intersection	Delay	Overall LOS	Worst approach	Delay	LOS
Susie Wilson	25.8	C	EB left	45	D
West Street	10.6	B	NB	17.9	B
P.O. Square	25.3	C	EB left	48.3	D
So. Summit St.	17.2	B	NB	52.1	D

  - Arterial segments LOS – varies from C to E from west to east in project area.
  - Highway Safety
  - High crash location (1998-2002)
  - CVE to Essex Plaza, 27 crashes, 23 injuries, A/C ratio 1.084, severity index $33,463
  - Update using 2003-2007 VTrans HCLL report is as follows:

Ranking	Intersection / Segment	# Crashes	Injuries	A/C Ratio	Severity
90	VT 15/Susie Wilson Rd.	55	12	1.157	$17,951
436	Wiley Court to CVE	66	12	1.203	$16,209
412	Summit to Five Corners	60	13	1.239	$17,962

- PUBLIC TRANSIT
  - CCTA Essex Jct. Route – Connects Burlington, Winooski & Essex Junction, operations 15 minute intervals in peak periods (5:45am – 9:15) (2:45 – 6:15 pm)
- 2030 HIGHWAY PERFORMANCE
  - With Circ Segments A-F, LOS E or F is projected for Post Office Square and South Summit Street intersections.

IMPROVEMENT STRATEGIES

- HIGHWAY IMPROVEMENT STRATEGIES
  - Implement signal coordination between P.O. Square and Summit Street.
  - Implement access management.
  - Install 4th NB lane Susie Wilson Road.
  - Add 2nd NB lane on West Street.
  - Consider traffic signal at CVE Gate B.
  - Add EB right turn lane at P.O. Square.
- PUBLIC TRANSIT STRATEGIES
  - Service improvements – Extend weekday and Saturday service to 11pm and Sunday service to 6am-9pm.
  - Capital Improvements – more were suggested for this area.
  - Bus Rapid Transit – Long term recommendation for a future upgrade of truck service.
    - Increase to 10 minute intervals during peak periods.
    - Enhance facilities at major stops.
    - Limit stops to 2 ½ mile intervals.
    - Implement signal priority system.
    - Contract queue jumpers at congested intersections.
    - Implement BRT at approx. 2000 passengers per day.
    - BRT improvement expected to increase ridership by another 500 passengers per day.

- BICYCLE AND PEDESTRIAN STRATEGIES
  - Construct continuous 5 foot shoulder or designated bike lanes.
  - Install 8 ft. marked crosswalk and pedestrian signals at CVE.
  - Eliminate green buffer and widen sidewalks on both sides to 8 feet between CVE Gate B and Summit Street and provide 5' sidewalks on both sides from Summit Street to Five Corners.
- LAND USE STRATEGIES.
  - Provide zoning incentives in exchange for improvements to road, pedestrian, bicycle, streetscape facilities.
  - Expedite permitting for development consistent with corridor plan.
  - Establish infrastructure impact fees.
  - Transfer development rights to promote compact development.
  - Remove sign clutter.
  - Create gateways.
  - Establish illustrated design standards.

Report Title: ***CCTA Update since February 2008 Improved 15-Minute Service Interval During Peak Periods.***
Author: Stantec
Date: September 2009
Sponsor: Village of Essex Junction
Purpose: Seek changes in transit use since February 2008 improvements.
Findings:

- Current Essex Junction route ridership:
  - The FY09 (July 08 to June 09) ridership on the Essex Junction route (linking Cherry Street to Amtrak) was 444,784. This translates to an average weekday ridership of 1,573 and an average Saturday ridership of 835.
  - In FY09, the Essex Junction route was CCTA's highest ridership route, surpassing the Umall/Airport route (402,495) for the first time in many years.
- The highlights of the stop-by-stop ridership for the project area along Pearl Street in Essex Junction include:
  - On weekdays, 23% of all passengers on the Essex Junction route either board or de-board between Susie Wilson Road and Amtrak
  - On Saturdays, 35% of all passengers on the Essex Junction route either board or de-board between Susie Wilson Road and Amtrak.
  - On weekdays, the Shopping Center on the north side of Pearl Street (next to CVE) is the second most popular boarding location in Essex Junction on the Essex Junction route for those heading inbound towards Burlington (second only to Amtrak). Note: There is an existing bus shelter to serve passengers boarding at the Shopping Center.

  - On Saturdays, the Shopping Center on the north side of Pearl Street (next to CVE) is the second most popular boarding location in Essex Junction for those heading inbound and is the second most popular de-boarding location for those heading outbound.
- CCTA implemented the 15-minute frequency service in February 2008. From February 2008 to February 2009, the route grew by 40%. During just FY09 (July 08-June09), the route grew by 27%.
- It appears that since implementing the 15-minute service, the percentage of weekday riders boarding in Essex Junction grew from 19% to 23%.
- CCTA does not have any plans for major changes to this route within Essex Junction. We make slight timepoint and stop adjustments on an ongoing basis, but the route itself will likely remain the same in the village baring a major event (loss of funding for 15-min service, changes at IBM, etc).
- The major project CCTA is working on with respect to this route is a traffic signal at the east entrance of Fort Ethan Allen. Currently, the bus must double back through FEA as it heads from Burlington to Essex (because the bus must use the light at the west entrance to continue heading east towards Essex). This lengthens the route by up to five minutes and makes the service much less convenient for those passengers traveling east beyond FEA.
- The stop at Pearl Street @ Willey's Court is the stop with highest number of average daily boardings that does not currently have a shelter, so that is certainly a contender. Better lighting at all of our stops along Pearl Street would also encourage ridership, especially at Amtrak and at the Shopping Center shelter.

Weekday - Outbound to Essex

Stop Description	Total Ons	Total Offs	Total Usage	RANK
Pearl St. @ West St. Ext.	5	7	12	6
Pearl St. @ Opp. Complex 159	0	2	2	13
Pearl St. @ Begins Sunoco	1	13	14	4
Pearl St. @ KFC	2	9	11	6
Pearl St. @ McDonalds	1	8	9	7
Pearl St. @ Shopping Center	1	18	19	3
Pearl St. @ Summit St.	4	29	33	2
Total	14	86	100	

Weekday - Inbound to Burlington

Stop Description	Total Ons	Total Offs	Total Usage	RANK
Pearl St. @ School St.	0	0	0	11
Pearl St. @ Summit St.	3	1	4	9
Pearl St. @ Hillcrest Rd.	4	0	4	9
Pearl St. @ Jiffy Lube	1	0	1	10
Pearl St. @ Essex Jct. Shopping Ctr.	26	1	27	2
Pearl St. @ Gate A Fairgrounds	9	1	10	5
Pearl St. @ Gate B Fairgrounds	1	0	1	10
Pearl St. @ Willey's Ct.	13	2	15	3
Pearl St. @ Complex 159	3	1	4	9
Pearl St. @ U-Turn	7	0	7	7
Pearl St. @ 197 Pearl Inc.	0	0	0	11
Stop Description	**Total Ons**	**Total Offs**	**Total Usage**	**RANK**
Pearl St. @ Contois Music	1	0	1	10
Pearl St. @ 241 Pearl Apartments	5	1	6	8
Pearl St. @ Susie Wilson Dr.	12	2	14	4
Total	85	9	94	

Report Title: ***Interview with VTrans Rail Section, Trini Brassard, Asst. Director of Operations.***
Author: Stantec
Date: September 2009
Sponsor: Village of Essex Junction
Purpose: To learn potential rail improvements and funding available.
Findings:

- Transit proposed improvements include a Fort Ethan Allen signal to optimize bus transit route performance.
- VTrans is seeking approximately $135 million in ARRA funding for rail improvements. This includes:
  - Track 1 (Oct 2009) - $50 million for Amtrak improvements.
  - Track 2 (Jan 2010) - $80 million for Western Corridor including Burlington to Essex section.
  - Track 3 (2010) - $5 million for study/planning.
  - Burlington-Essex Rail Corridor is not part of the GRIPP pilot project, which is not very active at this time.
- Additional or future funding opportunities include:
  - FRA – loan program.
  - FTA – new starts program
  - FHWA – no dedicated funds for rail, except highway / rail crossings.

- Matching funds from rail operators.

EXISTING RELEVANT REPORTS OR STUDIES NOT REVIEWED IN THIS UPDATE

(As presented in Appendix B of the VT 15 Corridor Study)

Report Title: *CCMPO 2025 Metropolitan Transportation Plan*
Author: CCMPO & Wilbur Smith Associates
Date: January 2005
Sponsor: CCMPO
Purpose: To address current problems of congestion, accessibility and mobility; to lay out the framework for the transportation system of the future; to better integrate the disciplines of transportation and land use planning through regional collaboration.

Findings:

Transportation Demand Management (TDM)

- TDM efforts focused on employers in the Essex Center, Sand Hill Road, and Saxon Hill areas through the potential establishment of corridor Transportation Management Associations.
- New park and ride facilities near Fort Ethan Allen, Lang Farm, Allen Martin Parkway, Underhill Flats, and Westford Village.

Intelligent Transportation Systems and Transportation System Management

- Intersection modifications/improvements along VT 15 at East Spring Street, Lime Kiln Road, Five Corners, VT 289, Essex Way, Sand Hill Road, Allen Martin Drive, and Lee River Road.
- VT 15 Urban Traffic Management System —ITS investments to improve signalization, emergency vehicle preemption, transit priority timing, and traveler information.
- Application of access management techniques throughout the VT15 corridor, especially within the growth areas in Essex Junction, Essex Town, and Jericho.

Bicycle/Pedestrian

- Shared use path connecting Lime Kiln Road to Essex Junction Village.
- Shared use path extension from Lang Farm area through Essex Center out to Underhill Flats paralleling VT 15.
- On-road bicycle accommodation, wherever feasible, for road rehabilitation or reconstruction projects.
- Sidewalk improvements as identified by municipalities and/or the *2003 Regional Bicycle-Pedestrian Plan Update*.

Transit

- Higher frequency bus service on VT 15.
- Transit shuttle service to a future park and ride facility.
- Passenger Rail with coordinated bus service.
- Bus feeder services to the VT 15 corridor.
- Rural area demand response service.
- Commuter bus service to Underhill Flats and beyond Lamoille County.

Improvements/expansions to Arterials/Collectors

- VT 15 Between VT-289 to Sand Hill Road.
- VT 15 from Jericho to Underhill Flats.

Report Title: ***CCMPO Regional Bicycle Transportation Plan***
Author: Wilbur Smith Associates
Date: August 2005
Sponsor: CCMPO
Purpose: To provide guidance for the implementation of interconnected bicycle and pedestrian networks for transportation.

Findings:

- VT Route 15 Bike Path (design & ROW), included in the CCMPO TIP 2002-2004.
- Shared Use Path from the Town of Jericho to the Saxon Hill Road in Essex.
- Shared Use Path from Saxon Hill Road to Essex Center via Frederick Road on an alignment outside of the Route 15 ROW.
- Proposed On-Road Bicycle facilities between Butlers Corner and Jericho.

Report Title: ***Chittenden County Park and Ride Facility Prioritization***
Author: CCMPO
Date: February 2004
Sponsor: CCMPO
Purpose: To prioritize an expanded list of twenty-seven Park and Ride locations; recommend strategies to implement priority sites; select specific facility locations for project development (scoping); and identify other ways to expand the region's Park and Ride network by combining these facilities with other transportation projects.

Findings:

- VT 15/Barnes Road (Colchester) – Seek earmarked fund for all recommended VT 15 improvements as identified in the VT 15 Corridor Study.
- VT 15/I-289 (Essex) – CCMPO scoping priority.
- VT 15/Underhill Flats (Jericho) – CCMPO scoping priority.

Report Title: ***Chittenden County TDM Education, Outreach, and Support Plan***
Author: URS
Date: December 2005
Sponsor: CCMPO
Purpose: To focus on expanding and enhancing the Transportation Demand Management (TDM) program that helps meet the county's goals for mobility, transportation system efficiency, and environmental protection.

Findings:

- Recommendations do not explicitly mention VT 15, but outlines TDM for the county.

Report Title: ***Countywide Signal Optimization Plan***
Author: Resource Systems Group
Date: October 2002
Sponsor: CCMPO
Purpose: To identify signal systems, estimate costs of maintaining efficient timing plans, identify funding sources, and recommend a management approach.

Findings:

- Updated signal timing plans should begin with an inventory of the intersection geometry, existing timing/phasing plans, and controller hardware (and related detection).
- Obtain recent traffic volumes, adjust them to average peak hour conditions and peak hour factor, and use traffic simulation software.
- Update timing every 5 years.

Report Title: ***Blue Bridge Scoping Study*** **(Winooski West of 2 & 7)**
Author: McFarland-Johnson, Inc. (MJ)
Date: June 2002
Sponsor: CCMPO
Purpose: To determine the best location for a bicycle/pedestrian bridge to connect the cities of Burlington and Winooski.

Findings:

- MJ recommended Alternative 1, an independent structure within the railroad right of way. MJ also recommended that Alternatives A and B (multi-use paths at termini) be constructed in conjunction with Alternative 1.
- The final report was not endorsed by the New England Central Railroad (NECR) - they decided that it was not in their "best interests to further entertain a bike/pedestrian path within the right of way for reasons of safety and liability." For this reason the report was never finalized.

Report Title: ***Final Scoping Report: Campus Connector Road***
Author: McFarland-Johnson, Inc. (MJ)
Date: June 2005
Sponsor: CCMPO
Purpose: To provide a local multi-modal connection between St. Michael's College facilities, improve access to Route 15 from the Johnson Avenue area, and improve the intersection alignment of Camp Johnson's entrance and Route 15.

Findings:

- The traffic study found that by 2028, daily traffic on Route 15 would grow by 56%, the design hourly volume would grow by 46%, and local traffic would increase by 10%. Independent of the Campus Connector Road Project, growth along Route 15 would require an additional lane in each direction, and all side roads would require two lane approaches.
- Alternative 1 was selected to move forward to construction and would include the reconstruction of Johnson Avenue with curbing and sidewalks.

Report Title: ***Susie Wilson Road Committee Report***
Author: Susie Wilson Road Committee
Date: February 2004
Sponsor: Town of Essex
Purpose: To make recommendations about future development in terms of types of land uses and densities.

Findings:

- Bike and recreation paths for non-motorized use should be incorporated in new developments.
- Pedestrian crosswalks with safety zones in the median could be created at Kellogg, David, Pinecrest, and Route 15.

- The Susie Wilson Road B1 zone should be re-designated to a mixed use district.
- Existing curb cuts should be minimized and the green median on Route 15 should be extended the length of Susie Wilson Road.
- Land uses that promote short-stop, high volume activity should only be allowed with controlled access to Susie Wilson Road to stem the high rate of accidents.
- Infrastructure funding for a regional parking structure would be necessary.

Report Title: ***Final Report on the Susie Wilson-VT 15 Jughandle***
Author: Smart Mobility
Date: May 2005
Sponsors: CCMPO and Village of Essex Junction
Purpose: To evaluate the operations and safety concerns related to the westbound Route 15 jughandle lane at the Susie Wilson Road/Route 15 intersection in Essex Junction. Alternatives have been proposed and evaluated to allow for safe direction reversal for eastbound Route 15 traffic.

Findings:

- In the short/medium term the Rite Aid entrance and connection to Pinecrest should be designated as the U-turn option for Route 15 traffic.
- In the long-term, the VT15-Susie Wilson Road intersection should be considered for project scoping; a modern two lane roundabout should be considered.

Report Title: ***Transit Oriented Design Master Plan for the Susie Wilson Corridor***
Authors: ORW+RSG
Date: January 2006
Sponsor: Town of Essex
Purpose: To explore the potential for a new transit-oriented development in the Route 15/Susie Wilson Road corridor in Essex.

Findings:

- The TOD master plan showed that the proposed TOD design can reduce the amount of traffic added to Susie Wilson Road by as much as 40%. Additional intersections on VT 15 could help create a grid network and reduce traffic required to pass through the VT15-Susie Wilson Road intersection.
- Traffic generated by the TOD master plan could be accommodated by adding lanes at the VT 15/Susie Wilson Road intersection or a 2-lane roundabout. However, if the Circumferential Highway is not completed, a roundabout was shown not to provide adequate level of service.

Report Title: ***SWR Corridor Improvement Plan+plans, designs***
Author: Lamoureux & Dickinson
Date: June 2005
Sponsor: Town of Essex
Purpose: To provide alternatives for specific intersections along the Susie Wilson Road corridor that have been discussed and analyzed in previous plans.

Findings:

- Convert two left-turn lanes exiting Susie Wilson Road to two right-turn lanes.
- Remove the VT15-Susie Wilson Road Jughandle and require traffic to use Rite Aid drive to reverse direction.

Report Title: *Five Corners Traffic Operations Evaluation*
Author: DMJM+ Harris
Date: October 2002
Sponsor: CCMPO
Purpose: To examine the existing and future traffic operating conditions at the Five Corners intersection.

Findings:

- There should be a two-lane roundabout:
    - The roundabout would drastically improve operations from LOS F to LOS A during the AM and PM peak hours.
    - The roundabout would require land taking in the Historic District; impact the center of the village.
    - Pedestrian and bicycle treatments would need to be considered.

APPENDIX B
Informal Corridor Survey and Responses

Pearl Street Multimodal Transportation Plan
October 6, 2009

BROADREACH
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Business & Property Owner Survey

The Village of Essex Junction is working to coordinate the various studies and recommendations that have been made for Pearl Street/ Route 15 corridor. As part of the work, they are interested in understanding how the businesses and property owners in the corridor view some of the recent recommendations. We would greatly appreciate you assistance in completing this short survey. You can either return it by mail to Broadreach Planning & Design at the address above, scan and email it to bikeped@gmavt.net, or drop it off at the Planning Office in the Village offices at 2 Lincoln Street.

Thanks!

RESULTS

1. Would a bus rapid transit system with 10 minute intervals on Pearl Street be of value to you, your business, your customers, or your employees?

You	6 ☐ Yes	☐ No 8
Your Business	8 ☐ Yes	☐ No 6
Your Customers	9 ☐ Yes	☐ No 4
Your Employees	6 ☐ Yes	☐ No 7

Additional thoughts about bus service on Pearl Street?

2. Would a commuter rail system between Burlington/Essex Junction/Montpelier with stops at the 5 Corners, the Champlain Valley Fairgrounds (behind the shopping center), and at Susie Wilson Road be of value to you, your business, your customers, or your employees?

You	7 ☐ Yes	☐ No 8
Your Business	9 ☐ Yes	☐ No 4
Your Customers	10 ☐ Yes	☐ No 3
Your Employees	8 ☐ Yes	☐ No 5

Additional thoughts on a commuter rail system?

3. Would a complete sidewalk system on Pearl Street and in the surrounding neighborhoods be of value to you, your business, your customers, or your employees?

You	9 ☐ Yes	☐ No 6
Your Business	7 ☐ Yes	☐ No 6
Your Customers	8 ☐ Yes	☐ No 5
Your Employees	8 ☐ Yes	☐ No 5

Additional thoughts on a sidewalk system?

4. Would a multiuse off-road path along the rail line (connecting to 5 Corners and the High School) in the Pearl Street corridor be of value to you, your business, your customers, or your employees?

You	9	☐ Yes	☐ No	6
Your Business	6	☐ Yes	☐ No	7
Your Customers	6	☐ Yes	☐ No	7
Your Employees	3	☐ Yes	☐ No	9

Additional thoughts on a multiuse path close to Pearl Street?

5. Do you think that Pearl Street is congested? 10 ☐ Yes ☐ No 5

6. Has the recent change on Pearl Street west of the Champlain Valley Fair Grounds helped keep traffic moving? 7 ☐ Yes ☐ No 8

7. Do you think that your business could grow or have greater revenues if there were more higher-density housing along Pearl Street? 4 ☐ Yes ☐ No 12

8. Do you think more higher-density housing along Pearl Street is appropriate? 6 ☐ Yes ☐ No 11

9. Do you think that your business could grow or have greater revenues if the area was served by commuter rail or rapid bus service? 6 ☐ Yes ☐ No 9

10. Do you experience difficulty crossing Pearl Street as a pedestrian? 11 ☐ Yes ☐ No 4

11. Does you onsite parking meet your present needs? 9 ☐ Yes ☐ No 5

12. If you took the bus or parked at a remote location, how far would you walk to your destination?
1 mile; ¼ mile; 15 MINUTES; 0(3); 100 YARDS (2); ½ mile; A FEW BLOCKS (2)

13. Do you own a business along Pearl Street? 9 ☐ Yes ☐ No 8

14. Do you own property along Pearl Street? 9 ☐ Yes ☐ No 8

15. Do you live along Pearl Street? 5 ☐ Yes ☐ No 11

16. Do you work along Pearl Street? 11 ☐ Yes ☐ No 14

17. Do you currently use the existing bus service on Pearl Street? 13 ☐ Yes ☐ No 3

18. Any other thoughts on transportation along Pearl Street?
- CHANGE IT BACK (5)
- STOP HIRING STUPID PEOPLE
- 25 mph speed limit
- SIGNS SAYING 'DO NOT BLOCK DRIVEWAYS'

APPENDIX C
Multimodal Transportation Corridor Principles Application

MULTIMODAL TRANSPORTATION CORRIDOR PRINCIPLES

Examining the characteristics of well rounded, multimodal roadways can provide a basis for understanding how Pearl Street can be improved to encourage and sustain greater economic development. One of the sources examined for potential examples is the Great Streets program sponsored by the American Planning Association. Since its inception in 2007, the Great Streets program has recognized 30 streets in the United States that they consider exemplary for a number of reasons.

Another source of information is the Complete Street concept, which calls for addressing the needs of all users of a street, not just those of motor vehicles, which has typically been the case in the past.

The characteristics of a Great Street developed for that program or the principles of a Complete Street actually provide an exemplary set of lessons and guidelines that can provide direction for the future of Pearl Street. These guidelines indicate that great or complete streets help to create more vibrant, livable communities when they:

- Accommodate multiple users and connect to the broader street network;
- Provide orientation to its users;
- Connects well to the larger pattern of traffic movement;
- Balance the competing needs of the Street, driving, transit, walking, bicycling, servicing, parking, drop-offs and pick-ups, and the like without focusing only on one mode of travel;
- Accommodate social interaction, encourage pedestrian activity and/or serve as social networks;
- Use hardscaping, landscaping, street furniture, and/or other physical elements to create a unique personality and capture a sense of public space;
- Benefit from community involvement and participation in events on the street;
- Reflect local culture and/or history;
- Provide interesting visual experiences, vistas, natural features, or other qualities and fit the existing topography;
- Use green infrastructure or other sustainable strategies such as minimizing stormwater runoff, ensuring groundwater quality, minimizing heat islands and responding to climatic demands;
- Have good urban design or architectural features that are exemplary;
- Include adjacent properties that provide internal connections, circulation and shared access between properties;
- Meet parking needs through a mix of on-street parking and off-street parking that is designed to meet actual demand and is often shared between adjacent uses;
- Are well maintained and capable of being maintained without excessive costs; and
- Promote safety of pedestrians and vehicles; and
- Promote use over the 24 hour day.

Most of these guidelines make sense when considered in light of Pearl Street. They are meant to create a street that can handle existing and future traffic, has a high level of pedestrian activity, has a good economic climate, and does not constitute an economic drain on the community. Several of these principles are either in place or in the process of being implemented; some are not yet being considered as this review indicates.

Accommodate multiple users and connect to the broader street network – The Village is actively working to have Pearl Street provide transportation equally for pedestrians, transit riders, bicyclists, and motorist.

Provide orientation to its users – This principle is has not been actively pursued to date.

Connects well to the larger pattern of traffic movement – Pearl Street provides good connections to adjacent streets.

Balance the competing needs of the Street, driving, transit, walking, bicycling, servicing, parking, drop-offs and pick-ups, and the like without focusing only on one mode of travel – Essex Junction is addressing several of these needs, but more can be done.

Accommodate social interaction, encourage pedestrian activity and/or serve as social networks – Pearl Street currently does not facilitate much social interaction or pedestrian activity.
Use hardscaping, landscaping, street furniture, and/or other physical elements to create a unique personality and capture a sense of public space – The Village has begun to address this issue through the Downtown Streetscape Plan for Essex Junction, but most of the recommendations of the plan have yet to implemented; the recommendations should be expanded to include more or Pearl Street and to incorporate the work anticipated in front of the Exposition.

Benefit from community involvement and participation in events on the street – This still does not happen for Pearl Street.

Reflect local culture and/or history – Pearl Street still appears rather homogeneous and similar to many other streets in Vermont and the northeast.

Provide interesting visual experiences, vistas, natural features, or other qualities and fit the existing topography - This principle is has not been actively pursued to date.

Use green infrastructure or other sustainable strategies such as minimizing stormwater runoff, ensuring groundwater quality, minimizing heat islands and responding to climatic demands - This principle is has not been actively pursued to date.

Have good urban design or architectural features that are exemplary - This principle is has not been actively pursued to date.

Include adjacent properties that provide internal connections, circulation and shared access between properties - This principle does not appear to have been actively pursued to date.

Meet parking needs through a mix of on-street parking and off-street parking that is designed to meet actual demand and is often shared between adjacent uses - This principle does not appear to have been actively pursued to date.

Are well maintained and capable of being maintained without excessive costs – Pearl Street appears well maintained and does not appear to be maintenance drain on the Village.

Promote safety of pedestrians and vehicles - The Village is actively working to keep Pearl Street a safe place for both pedestrian and motorist.

Promote use over the 24 hour day – The Village has instituted zoning regulations that will encourage greater residential density, and some increases have occurred in the past few years.

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