Executive Summary

This study analyzes different alignments for the intersections of US Route 7 and VT Route 105, US Route 7 and Seymour Road (VT Route 105 Approach), and VT Route 105 and Seymour Road[1]. The proposed alternatives are based on the existing conditions in the study area, and the effect each alternative has on the existing conditions.

The purposes of this study is to address pedestrian and vehicle safety in the study area, improve the level of service for vehicles on VT Route 105, and promote commercial/industrial development in the study area and west of US Route 7. Each alternative should accommodate proposed future developments such as the Seymour & MacCallum Nine Lot Subdivision, and Federal Street Extension. Other issues that the alternatives must address are utilities, Missisquoi Valley Rail Trail, and cut-through traffic on High Street.

Alternative A – No Build. Alternative A proposes no changes to the intersections in the study area. With no changes within the study area, the purpose of this study is not met. However, there are no construction costs or disruption to the residents, businesses, or traffic in the study area.

Alternative B – St. Albans Traffic Circulation Study Recommendation. Alternative B proposes signalizing the intersection of US Route 7 and Seymour Road, and addition of turning lanes at the intersection. Traffic would be directed towards the signalized intersection and off of VT Route 105. VT Route 105 would be realigned at US Route 7 and at Seymour Road to create 90° intersections. VT Route 105 would serve as an access road for the existing businesses and residents on the road.

This alternative addresses vehicle safety, level of service, and future development projects in the study area. However pedestrian safety and commercial/industrial development are not improved; and this alternative impacts the most utilities. The estimated construction costs for this alternative are more than Alternatives C or D. This alternative does not meet the entire purpose and need statement of the study, and portions of this alternative oppose the statement.

Alternative C – Reconstruct Off Alignment. Alternative C realigns US Route 7, VT Route 105, and Rewes Drive to create at 4-way signalized intersection; with additional turning lanes. Seymour Road at the intersection of VT Route 105 and Seymour Road will be changed to a dead-end street; therefore all through traffic on Seymour Road will be directed toward the realigned intersection of US Route 7 and VT Route 105. The Rail Trail entrance will be relocated onto Seymour Road, and the existing parking lot will be expanded.

This alternative improves the safety of vehicles and pedestrians in the study area. Future development projects are accommodated, and commercial/industrial development is enhanced. This alternative impacts many of the utilities in the study area, and the estimated construction costs are between Alternative B and D.

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[1] For the purpose of this study all roads are referred to by their existing name regardless of any change in traffic pattern.

Alternative D – Signalization of US Route 7 and Seymour Road. Alternative D proposes signalizing the intersection of US Route 7 and Seymour Road, with no additional turning lanes at the intersection. The intersection geometry of US Route 7 and VT Route 105, and intersection of VT Route 105 and Seymour Road are unchanged. The superelevated curve at VT Route 105 and Seymour Road will be removed to direct vehicles towards the signal. VT Route 105 will remain a two lane road with bi-directional traffic. This alternative proposes and additional entrance to the Rail Trail with an expanded parking area.

Alternative D only addresses vehicle level of service, and future development projects in the study area. However, safety of pedestrians in the study area is not improved, and commercial/industrial development is not encouraged. This alternative does not satisfy the entire purpose and need statement, and portions of this alternative oppose the statement.

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Introduction

Hoyle, Tanner & Associates, Inc. (HTA) shall develop with the assistance of Northwest Regional Planning Commission (NRPC) design alternatives to present to the Town of Saint Albans, City of Saint Albans, and Vermont Agency of Transportation (VAOT to improve the intersection of US Route 7 and VT Route 105 to meet Vermont State Standards. The study area begins at the intersection of US Route 7 and VT Route 105, extends north to the intersection of US Route 7 and Seymour Road (VT Route 105 Approach), and east to include the intersection of VT Route 105 and Seymour Road. Currently, VT Route 105 intersects US Route 7 at a 30° angle. The boundary between the Town of Saint Albans and the City of Saint Albans is located along the southeast corner of the intersection; the study area is primarily within the Town of Saint Albans.

Purpose

The purpose of improving the intersection of US Route 7 and VT Route 105 is to address safety issues for all modes of transportation, decrease vehicle cut-through traffic on High Street, and allow for continued commercial and industrial development around the intersection.

Need

The current intersection alignment and capacity is not adequate for the existing and future traffic volumes.

1) Alignment: the intersection geometry is difficult for vehicles and trucks to navigate safely, increasing the risk for accidents.
2) Level of Service: the VT Route 105 leg of the intersection currently has a failing level of service.

Problem Description & Location Maps

The existing intersection geometry of US Route 7 and VT Route 105 does not accommodate vehicles southbound on US Route 7 turning east onto VT Route 105; or vehicles on VT Route 105 turning north onto US Route 7. Therefore vehicles making these movements are directed to use the intersection of US Route 7 and Seymour Road. Resulting in a large volume of traffic on a road lined with residential houses, as well as the Missisquoi Valley Rail Trail crossing. The estimated Average Annual Daily Traffic (AADT) from the VAOT in 2002 for Seymour Road is 1,400 vehicles; this compares to an expected 100 vehicles per day for the 8 residents and Rail Trail access.

The existing level of service for the intersection of US Route 7 and VT Route 105, as calculated in the 2002 St. Albans Traffic Circulation Study, is a service level D. This service level is only for the traffic volumes managed at this intersection, the traffic volumes at US Route 7 and Seymour Road are counted separately. If traffic volumes for Seymour Road and VT Route 105 were added to create one intersection the level of service for the intersection would decrease without other traffic control measures.

Location Map

Background Information

General

The NRPC has hired HTA to assist in developing design alternatives for the intersection of US Route 7 and VT Route 105. The intersection is located on the border between Saint Albans Town and City. US Route 7 and VT Route 105 have a mix of local businesses and residents that line the roadway. In addition, Seymour Road is included in the study area, which is lined with residential housing; and the start of the Missisquoi Valley Rail Trail.

Existing Conditions

Within the study area US Route 7 is a two lane paved urban road receiving traffic between the Town of Saint Albans, Vermont and City of Saint Albans, Vermont. VT Route 105 is a two lane paved road seeing traffic between the Town of Saint Albans, Vermont and Town of Swanton, Vermont. VT Route 105 intersects US Route 7 at a 30° angle, the geometry of this intersection is difficult for vehicles turning north onto US Route 7, or southbound vehicles on US Route 7 turning east onto VT Route 105. As a result of the difficult intersection configuration, vehicles are directed to use Seymour Road to travel between US Route 7 and VT Route 105. In addition, High Street receives large volumes of commuter traffic, avoiding the hazardous unsignalized intersection. Therefore, the study area was enlarged to include all roads and intersections that receive traffic intended for the intersection of US Route 7 and VT Route 105.

The speed limit in the City of Saint Albans along US Route 7 is 35 miles per hour up to the intersection of US Route 7 and Rewes Drive, the speed limit on US Route 7 then increases to 40 miles per hour in the Town of Saint Albans. On VT Route 105, the speed limit is 40 miles per hour throughout the study area. Seymour Road is posted as 40 miles per hour.

When deliveries are made to the Saint Albans Messenger, located on the southeast corner of US Route 7 and VT Route 105, the trucks take up a portion of the northbound travel lane of US Route 7.

The Right of Way[2] (R.O.W.) on US Route 7 is 99 feet. The R.O.W. for VT Route 105 and Seymour Road is 49.5 feet according to the Vermont Agency of Transportation and Town of Saint Albans. A list of current landowners in the study area is included in the Appendix A of this study.

Missisquoi Valley Rail Trail

The entrance to the Rail Trail parking area is located on US Route 7, just north of the VT Route 105 intersection, opposite Rewes Drive. The trail is located on an rail bank corridor that was converted to multi-season/multi-use trail in 1993. The Rail Trail is owned by the VAOT and managed by the Northwestern Vermont Rail Trail Council. The trail head of the Missisquoi Valley Rail Trail is north of Seymour Road, and the parking area is south of Seymour Road. Rail Trail users are required to cross Seymour Road to access the trail.

[2] The location of the VAOT R.O.W. has been called into question, and will be resolved at a later date.

During the summer months the trail is used by walkers, runners, and bicyclists; in the winter the trail is open to walking, snowshoeing, cross-country skiing, and snowmobiling. In the winter there is a network of snowmobile trails that cross farming fields and connect with the Rail Trial. One of these trails extends west from Rewes Drive towards Lake Champlain. Therefore snowmobiles are required to cross US Route 7 to access other trials in the network.

Proposed Development

There are two proposed developments within the study area that influence the proposed intersection alignment alternatives; the Federal Street Extension and the Seymour & MacCallum Nine Lot Subdivision.

The Federal Street Extension, proposed in the Federal Street Corridor Study, is the extension of Federal Street from Lower Newton Street, in the City of Saint Albans, north to a proposed intersection with VT Route 105. The proposed West Side Collector is a connection between the Federal Street Extension and VT Route 207. The purpose of the Federal Street Extension and West Side Collector is to connect the Price Chopper Plaza and proposed Walmart Plaza with the downtown area of the City of Saint Albans without adding traffic to US Route 7.

The Seymour & MacCallum Nine Lot Subdivision is a subdivision of the property north of Seymour Road. The proposed subdivision has entrances on US Route 7, north of the study area, and on Seymour Road south of the Rail Trail. Fifty-one new housing units are proposed for the subdivision, the new units will be a mix of townhouses and apartments. In addition to the proposed housing are two commercial lots.

Environmental Resources

HTA has sent letters to the following environmental resources:

Historical – Mr. Scott Newman
Archaeological – Mr. Duncan Wilkie
VT Department of Forests, Parks & Recreation – Ms. Sherry Smecker
Department of Agriculture – Mrs. Marian White
Nongame and Natural Heritage Program – Mr. Everett Marshall

Copies of these letters and available responses are included in the Appendix B of this study.

Utilities

Within the study area several types of utilities are present. Saint Albans Department of Public Works (DPW) identified three water mains in the area, two (2) that parallel US Route 7 on the east side of the road, and a third that parallels the Rail Trail. The Saint Albans DPW also identified sewer structures on the northeast and northwest corners of the US Route 7 and VT Route 105 intersection, a sewer pipe crosses US Route 7 between these structures. At the sewer structure on the northwest corner sewer pipes extend south across Rewes Drive toward the City of Saint Albans.

The other major utilities in the area include:

Telephone:	Verizon
Electric:	Central Vermont Public Service (CVPS)
Cable:	Adelphia Communications
Gas:	Vermont Gas Systems, Inc.

Verizon utilities are located with the overhead wires, and in a system of underground wires in the study area. These utility wires within the study area can be located by contacting Dig Safe System, Inc. prior to construction.

CVPS has two (2) types of power lines in the area: transmission and distribution. The transmission lines pass through the area connecting different distribution areas; the distribution lines provide power to individual residents and businesses in the distribution area. Transmission lines enter the study area on the south side of Rewes Drive, cross US Route 7 and connect with a 3 foot diameter steel utility pole, at this point the transmission lines take a 120° turn north and run parallel to the Rail Trail. The distribution lines in the area run north and south along US Route 7, with connection lines crossing US Route 7 to individual residents and businesses. At the intersection of US Route 7 and Seymour Road, the distribution lines branch off and go east along the north side of Seymour Road. With the exception of two distribution poles that are located on the south side of the road, one on each side of the Rail Trail parking area.

Natural gas pipes in the study area are located along the west side of US Route 7, the south side of Rewes Drive, and the east side of VT Route 105. The natural gas pipes cross US Route 7 to the south of the intersection of US Route 7 and VT Route 105. In addition, natural gas pipes are present on Seymour Road, however Vermont Gas did not specify if the pipes are located on the north or south side of the road. Adelphia cable lines in the study area, as well as the other utilities mentioned in this section can be located by Dig Safe System, Inc. prior to construction. All communications with local utilities is included in Appendix B. The approximate locations of the utilities mentioned in this section are presented in Figure 2.

Traffic Studies

Traffic data within the study area is from a variety of sources. For this study the turning movement data and Average Annual Daily Traffic (AADT) information from the VAOT was used. Other traffic related information was from the St. Albans Traffic Circulation Study done in 2002, US Route 7 Corridor Study completed in 1996, and Federal Street Corridor Study finished in 1995. Traffic data is included in Appendix C of this study.

Meetings

A meeting was held with the Steering Committee to present the proposed alternatives for this study. The Committee agreed with the alternatives presented, at the meeting. The committee chose Alternative C as the preferred alternative.

A draft of the study was sent to the Rail Trail Council, VAOT Bicycle & Pedestrian Program, VAOT Traffic Operations, and VAOT Utilities & Permits Unit. Each office returned questions and comments to be addressed before the study was finalized.

At the public meetings held Thursday, December 4, 2003 and Thursday, January 29, 2004 four alternative alignments were presented. The advantages and disadvantages of each alternative were reviewed, as well as the purpose and need for the study and the cost for each alternative. From the first public meeting the preferred alternative was Alternative C. At the second meeting the favored alternative was Alternative C. A copy of the minutes from the public meetings and related newspaper article are included in Appendix D.

Utility Map here

Alternatives

Alternative A – No Build

The no build alternative will keep all existing conditions. The benefits of this option include no construction costs, and no disturbance to residents and businesses in the study area. However, the purpose of this study will not be met; safety will not be improved, cut-through traffic will not be eliminated, and future commercial and industrial development will remain in its present condition. This alternative is presented in Figure 3 in Appendix E.

Alternative B – St. Albans Traffic Circulation Study Recommendation

The recommended alignment from the 2002 St. Albans Traffic Circulation Study changes Seymour Road into the primary connection of VT Route 105 with US Route 7. It is recommended to place a traffic signal at the intersection of US Route 7 and Seymour Road; since traffic volumes will increase with the change in roadway geometry. Turning lanes would be added to each approach of the signalized intersection to add capacity and increase the level of service at the intersection. The Circulation Study changes the roadway geometry of VT Route 105 between US Route 7 and Seymour Road into an access road for existing businesses; the intersections of this road are realigned to create 90° intersections with US Route 7 and the Seymour Road. The realignment of VT Route 105 with Seymour Road will include removing the existing superelevated curve, extending residential driveways to the proposed access road and VT Route 105, and removing and reseeding areas of the existing intersection.

Additional capacity from the turning lanes will reduce the distance vehicles will back-up at the intersection. Based on the intersection traffic volumes projected for 2024 and signal timing[3], the southbound leg of US Route 7 at the intersection will require 100 feet of queue length for the through lane and 50 feet for the left turn lane. The northbound leg of US Route 7 at the intersection will require 100 feet for the through lane, and 50 feet of queue length for the right turn lane. Seymour Road requires 50 feet of queue length for both the left and right turn lanes. Traffic on Seymour Road includes VT Route 105, a portion of the cut-through traffic from High Street, and existing traffic on Seymour Road. The proposed Seymour & MacCallum subdivision will increase the left and right turning lane queue length to 75 feet on Seymour Road.

The benefits of this alternative are improved intersection geometry for US Route 7 and VT Route 105, and increased vehicle capacity at the intersection of US Route 7 and Seymour Road. Vehicle safety is improved with the geometry change and signalization of the intersection. The signalized intersection will encourage commuters to use the intersection of Seymour Road and US Route 7 when traveling into the City of Saint Albans instead of High Street.

Alternative B does not satisfy the purpose and need statements of this study, portions of this alternative go against the statement, and cost of construction is more than other alternatives. The proposed alignment redirects the traffic away from the existing businesses located along

[3] The queue lengths are based on a preliminary signal cycle analysis, and are subject to change with the final signal timing cycle.

VT Route 105 between US Route 7 and Seymour Road, reducing the exposure to these businesses to traffic. In addition, this alternative does not promote future development of the land to the west of US Route 7 along Rewes Drive.

The narrow R.O.W. on Seymour Road can not accommodate the additional turning lanes, and required turning radiuses. Therefore land will need to be acquired from the property owners at the intersection. The residences on Seymour Road are currently close to the road, the proposed expansion of the road will move the road closer to the houses. The location of the residences on Seymour Road, and narrow R.O.W. will limit future roadway expansion projects and make the residences less desirable.

Utilities

This alternative requires the relocation of all major utilities in the study area. The expansion of US Route 7 and Seymour Road will require relocating storm water structures at the intersection and along Seymour Road. The additional turning lanes around the intersection will require relocation of Verizon, CVPS, Adelphia, and Vermont Gas utilities.

The realignment of US Route 7 and VT Route 105 will require relocation of CVPS transmission lines, and large steel transmission pole. The realignment of VT Route 105 with Seymour Road will require relocating CVPS distribution poles, overhead wires, and installing storm water culvert under the realigned intersection and driveways. During construction the contractor will have to work around the existing water lines that run along US Route 7 and the Rail Trail. The cost for relocated Verizon, CVPS, Adelphia, and Vermont Gas lines will be the responsibility of the individual companies. However, relocating the storm water structures and other utilities outside the VAOT Highway R.O.W. are included in the project construction costs for this alternative.

Missisquoi Valley Rail Trail

Alternative B directs traffic from VT Route 105 to Seymour Road as the proposed alignment, decreasing safety for bicycles, pedestrians, and others who uses the Missisquoi Valley Rail Trail. The existing and proposed parking area for Rail Trail users is located on the south side of Seymour Road, and the existing trail begins on the north side of the road. Therefore, Rail Trail users are required to cross traffic on Seymour Road; the location of the parking lot and trail results in a mid-block pedestrian crossing, on a road where traffic volumes have increased.

The speed limits of VT Route 105 east of the study area and on Seymour Road limit the safety measures that can be made to increase the safety of the Rail Trail users. There are no shoulders on Seymour Road to provided bicycles and pedestrians a safe place to travel. In addition, large swales on either side of Seymour Road limit the area where pedestrians can find refuge from oncoming vehicles. As a result of the speed limit, narrow roadway, and swales, the mid-block crossing will consist of a painted crosswalk and roadway signs indicating the location of the path and crossing location. Other safety measures such as bulb-outs or raised crossings are not possible due to the speed limit of the road, traffic volumes, and R.O.W on Seymour Road.

The existing entrance to the Rail Trail on US Route 7 would be closed and replaced with a proposed entrance on VT Route 105. Therefore the Rail Trail would intersect VT Route 105 at the realigned intersection of US Route 7 and VT Route 105. It is not safe to allow Rail Trail users to access the trail south of the parking area without modifications, which are not included in this alternative.

Federal Street Extension

Connection of the Federal Street Extension to US Route 7 would be made at the proposed signalized intersection of US Route 7 and Seymour Road. As stated in the Federal Street Corridor study additional turning lanes would be required to accommodate the additional traffic at the intersection. For this alternative only an exclusive left turning lane for the northbound approach on US Route 7 would be required.

Two residential properties would be affected by the required intersection changes to accommodate the proposed extension. For the connection of the Federal Street Extension land for the R.O.W. would need to be acquired from Harry O'Lena who owns the land north of the proposed Federal Street Extension connection. In addition, the land, house, and barn belonging to Edith O'Lena would need to be acquired and demolished. Upon completion of the proposed extension, Rewes Drive east of the Federal Street Extension would be removed.

Construction Costs

The cost of construction is the highest of the proposed alternatives. Costs for this alternative will include signalization of US Route 7 and Seymour Road, addition of turning lanes, intersection realignments on VT Route 105, modifications to residential driveways, and utilities. Utility costs include relocation of power transmission lines and poles, relocating storm water structures, driveway culverts, and all other utilities that are not within the R.O.W. will be included in the project construction cost.

The construction costs do not include the relocation of utilities in VAOT Highway R.O.W. as the individual companies are required to cover their utility relocation costs. These utilities include Verizon, CVPS distribution lines and poles, Adelphia, and Vermont Gas Systems. In addition, construction costs for the Federal Street Extension are not included in the cost estimate. Costs for the Federal Street Extension at the intersection would cover additional turning lanes, purchase of R.O.W. and the residence at the intersection, and roadway construction. The estimated construction costs for the Federal Street Extension are $1,070,000 more than Alternative C.

Summary of Alternative B

This alternative proposes signalizing US Route 7 and Seymour Road, increasing the capacity of the intersection with turning lanes, and directing traffic towards the intersection. The intersections of US Route 7 and VT Route 105, and VT Route 105 and Seymour Road will be realigned to create 90° intersections. The realignment of these intersections will encourage traffic to remain on the primary roads and discourage the use of VT Route 105 as a short cut to avoid the signal.

Alternative B does not increase the safety of bicycles, pedestrians, and other Rail Trail users at the Seymour Road crossing. This alternative does not accommodate Rail Trail users who wish to cross US Route 7 and use the snowmobile trails west of US Route 7, or for the future expansion of the Rail Trail. This alternative does not increase the safety for snowmobiles crossing US Route 7, or access to the existing trail which would need modifications for continued use.

Utility work in the study area is extensive for this alternative, and will increase the construction time. This alternative isolates businesses along VT Route 105, and therefore is not promoting commercial and industrial development in the area. The Federal Street Extension is the connection to future growth west of the study area; however the extension has not been designed and has the potential to face numerous delays before it is constructed.

Alternative C – Reconstruct Off Alignment

Alternative C proposes the realignment of US Route 7 and VT Route 105 to create a 4-way signalized intersection with Rewes Drive; locating the intersection to the north of its existing location. Alternative C redirects vehicles using Seymour Road to access US Route 7, to the realigned intersection of US Route 7 and VT Route 105. For this alternative Seymour Road at the intersection of VT Route 105 will be closed to all traffic, transforming Seymour Road into a dead-end street. The street closure requires construction of a cul-de-sac or turning area to allow plow trucks and other emergency vehicles the ability to negotiate the road closure.

Additional capacity from the turning lanes at the realigned intersection will reduce the distance vehicles will back-up at the intersection. Based on the intersection traffic volumes projected for 2024 and signal timing[4], the southbound leg of US Route 7 will require 100 feet of queue length for the through lane and 50 feet for the left turn lane. The northbound leg of US Route 7 will require 100 feet for the through lane, and 50 feet of queue length for the right turn lane. VT Route 105 requires 50 feet of queue length for both the left and right turn lanes; this includes the traffic from Seymour Road, a portion of the cut-through traffic from High Street, and existing traffic on VT Route 105.

The queue length on VT Route 105 will not impact vehicles turning in and out of the business driveway near the realigned intersection. The queue length, for 2024 traffic conditions, does not pass the business driveway; therefore vehicles will still be able to enter and exit the businesses with minimal delay. Access to the businesses on the northwest and southwest corners of US Route 7 and Rewes Drive would be moved from US Route 7 to Rewes Drive. Relocating these business accesses will increase the safety to vehicles at the intersection and vehicles entering and exiting these businesses.

The realigned intersection of US Route 7 and VT Route 105 proposes a R.O.W. swap between VAOT Highway R.O.W. and VAOT Rail Operations R.O.W. The R.O.W. swap would provide the land needed for the intersection realignment and the proposed Rail Trail parking area. The Missisquoi Valley Rail Trail is owned by the VAOT Rail Operations Division. This alternative is presented in Figure 5 in Appendix E.

[4] The queue lengths are based on a preliminary signal cycle analysis, and are subject to change with the final signal timing cycle.

This alternative fulfills the purpose and the need for the study. The intersection of US Route 7 and VT Route 105 is realigned improving the intersection geometry, adding capacity to the intersection, and managing traffic volumes with a 4-way signalized intersection. Cut-through traffic on High Street in the City of Saint Albans will be reduced, and safety of residences along the road will be increased. The proposed signalization and change in geometry of US Route 7, VT Route 105, and Rewes Drive increases the safety for all movements through the intersection.

Currently vehicles turning from Rewes Drive experience long delays at the intersection from the high volumes of traffic on US Route 7. Signalization of Rewes Drive and US Route 7 will encourage commercial and industrial development as a result of the increased access to the area. Businesses along VT Route 105 will have increased exposure from vehicles redirected onto VT Route 105. In addition the Saint Albans Messenger will have the opportunity to realign their loading platform to eliminate pick-up and delivery trucks that were occupying portions of US Route 7 when using the platform.

This alternative also increases the safety for Rail Trail users by eliminating through traffic at the trail crossing on Seymour Road. The expanded parking area can accommodate parking for more users, and vehicles with snowmobile trailers. The layout of the parking area and realigned intersection of US Route 7 and VT Route 105 allows for continued use of the trail south of the parking area. The signalized intersection with a phase for pedestrians or snowmobiles allows for a safe crossing of US Route 7.

Utilities

The realignment of the US Route 7 and VT Route 105 requires the relocation of CVPS transmission lines, and large transmission pole. Portions of the sewer lines around the intersection, and storm water structures will need to be replaced. On the west side of US Route 7 the overhead wires that carry Verizon, CVPS distribution lines, and Adelphia lines will need to be relocated; as well as the underground natural gas lines. Finally, for the proposed Rail Trail parking area some overhead wires and CVPS distribution pole will need to be relocated.

Utility costs for this alternative include the replacement of the sewer and storm water lines north of the Saint Albans City-Town line. The individual utility companies are responsible for the relocation costs of their utilities because they are located within the State Highway R.O.W. Coordination with the utility companies for the design and construction of this alternative may affect the length of construction.

Missisquoi Valley Rail Trail

Proposing a dead-end street on Seymour Road increases the safety of the residences along the road. Traffic volumes are significantly reduced and vehicle speeds are expected to decrease with the addition of a cul-de-sac at the end of Seymour Road. Bicycles, pedestrians, and other users of the Rail Trail will be able to cross Seymour Road safely to access the start of the Rail Trail. The only vehicles Rail Trail users will encounter are from a single residential access and the proposed Rail Trail parking area.

The expanded parking area can accommodate parking for more users, and vehicles with snowmobile trailer. The layout of the parking area and realigned intersection of US Route 7 and VT Route 105 allows for continued use of the trail south of the parking area. The signalized intersection with a phase for pedestrians or snowmobiles allows for a safe crossing of US Route 7.

Federal Street Extension

The Federal Street Corridor Study proposes a connection with US Route 7 at Seymour Road. However for this alternative the extension would only extend from Federal Street north until Rewes Drive, where the extension would use Rewes Drive to connect to US Route 7 and VT Route 105. Connection of the Federal Street Extension to US Route 7 at Rewes Drive would eliminate approximately 1,275 feet of road to be built, R.O.W. that would need to be obtained, and demolition of personal property.

The proposed signalized intersection of US Route 7 and VT Route 105 provides adequate capacity for the additional traffic from the Federal Street Extension. This Federal Street Extension alignment impacts fewer properties, therefore reducing the potential delays of this project during design and construction. The cost for the Federal Street Extension for this alternative is $1,070,000 less than Alternatives B and $1,130,000 less than Alternative D.

Construction Costs

Construction costs for this alternative include realignment and expansion of the US Route 7 and VT Route 105 intersection, closure of Seymour to through traffic, expanding the Rail Trail parking area and relocating the entrance, relocation of power transmission lines and poles, sewer, and storm water structures.

The construction costs do not include the relocation of utilities in VAOT Highway R.O.W. as the individual companies are required to cover their utility relocation costs. During construction the contractor will have to work around the existing water lines that run along US Route 7 and the Rail Trail. In addition, construction costs for the Federal Street Extension are not included in the cost estimate. Costs for the Federal Street Extension at the intersection would cover additional turning lanes and roadway construction. The estimated construction costs for the Federal Street Extension are less than Alternative B or D.

Summary of Alternative C

Alternative C realigns the intersection of US Route 7 and VT Route 105 with Rewes Drive to create a 4-way signalized intersection, with each approach approximately 90° to each other. Seymour Road would be changed to a dead-end road, and all through traffic would be diverted to the realigned intersection. The realigned intersection would be signalized with turning lanes added to increase the capacity of the intersection and improve the level of service.

The entrance to the Missisquoi Valley Rail Trail parking area would be moved from US Route 7 to Seymour Road, and the parking lot would be expanded to for additional vehicles, and vehicles with small trailers. The realigned intersection will have a bicycle and pedestrian

crossing for the expansion of the Rail Trail to connect with other trails or facilities and safe crossing at US Route 7. Safety of the Rail Trail users is greatly increased with the road closure on Seymour Road. Rail Trail users crossing from the parking area to the start of the Rail Trail will only encounter traffic from one residential house, and vehicles traveling to the Rail Trail parking area.

With the realignment and signalization of US Route 7, VT Route 105, and Rewes Drive future development of the land west of the study area is not dependant on the Federal Street Extension, or connection with US Route 7. Commercial and industrial development would be able to use Rewes Drive. In addition, this alternative keeps traffic flowing past the existing businesses on US Route 7 and VT Route 105.

Alternative D – Signalize US Route 7 & Seymour Road

Alternative D proposes the signalization of US Route 7 and Seymour Road. Vehicles would be directed to the intersection by changing roadway signs and line striping at the intersection of VT Route 105 and Seymour Road. The superelelevated curve at the intersection of VT Route 105 and Seymour Road would need to be modified to direct vehicles towards Seymour Road instead of VT Route 105. This alternative proposes an additional entrance to the expanded Rail Trail parking area. The proposed entrance would be located on VT Route 105, and become the primary entrance to the parking area.

Signalization of US Route 7 and Seymour Road improves vehicle safety by controlling the intersection by allowing vehicles from Seymour Road to turn on to US Route 7 safely. Signalization of the intersection will reduce the number of cut-through vehicles using High Street to reach a signalized intersection on US Route 7.

However, Alternative D does not increase the capacity of the intersection; as a result vehicles when stopped at the signalized intersection will back up significantly in each direction. Based on the intersection traffic volumes projected for 2024 and signal timing[5], the southbound leg of US Route 7 will require 100 feet of queue length. The northbound leg of US Route 7 will require 125 feet of queue length. Seymour Road requires 100 feet of queue length with the traffic from Seymour Road, VT Route 105, and a portion of the cut-through traffic from High Street. With the proposed Seymour & MacCallum subdivision an additional 25 feet of queue length is required on Seymour Road.

At the intersection of US Route 7 and Seymour Road, the turning radius of the northeast and southeast corners will need to be increased to allow northbound tractor trailers to turn on and off of Seymour Road. Increasing the radius of these corners will require all available room within the R.O.W. to allow trucks to make this movement without traveling off the pavement or into other travel lanes. The relocated storm water structures and swales will be located outside the existing R.O.W.; therefore additional land will need to be purchased or an easement obtained to accommodate the drainage structures.

The narrow R.O.W. and location of residences on Seymour Road will limit future expansions at the intersection of US Route 7 and Seymour Road. The residences on

[5] The queue lengths are based on a preliminary signal cycle analysis, and are subject to change with the final signal timing cycle.

Seymour Road are currently close to the road, a proposed expansion of the road will move the road closer to the houses making the residences less desirable.

VT Route 105

No changes are proposed to the intersection of US Route 7 and VT Route 105 or VT Route 105 and Seymour Road. VT Route 105 would remain a two lane road as discussed under Option 1 of this alternative. The possibility of changing VT Route 105 into a one-way eastbound road is discussed under Option 2 of this alternative. Regardless of the choice between one-way and two-way traffic on VT Route 105, the geometry of these intersections remains unsafe. By not realigning these intersection vehicles traveling southbound on US Route 7 will continue to access the residences or businesses on VT Route 105 by making a 150° turn at the intersection of US Route 7 and VT Route 105, or at the intersection of VT Route 105 and Seymour Road. These turns are very difficult for delivery trucks or tractor trailer trucks.

In addition trucks using the loading docks at the Saint Albans Messenger will continue to occupy portions of US Route 7 northbound when making pick-ups or deliveries. Without a change in alignment of US Route 7 and VT Route 105 the Messenger cannot change the orientation of the loading docks to safely accommodate pick-up and delivery trucks.

Option 1: VT Route 105 – Two Lane Road

Option 1 of Alternative D proposes to keep VT Route 105 as a two lane road. As stated above the only intersection change at either US Route 7 and VT Route 105 or VT Route 105 and Seymour Road are signs, striping, and removing the superelevated curve. The unchanged intersection geometry of VT Route 105 with US Route 7 and with Seymour Road results in two areas of unclear access management, and does not improve the unsafe geometry of these intersections. Two-way traffic on VT Route 105 will not prevent vehicles that choose to avoid the signal.

Option 1 allows vehicles to access to the proposed primary entrance to the Rail Trail parking area from most approaches in the study area. Vehicles traveling westbound on VT Route 105 from Swanton are able to turn onto the two lane road and access the parking area from the proposed entrance. Rail Trail users traveling northbound on US Route 7 have a similar option; users veer right onto VT Route 105 and continue until they reach the proposed entrance. Users who are southbound on US Route 7 are required to access the proposed parking area by using the existing entrance on US Route 7. It is unsafe to require vehicles southbound on US Route 7 to make a 150° turn to access the parking area through the proposed entrance. Traffic flow in the parking area will continue to be one-way therefore rail trail users will continue to use the existing exit to the parking area on Seymour Road.

Option 2: VT Route 105 – One-way Road

Option 2 is to have VT Route 105 be a one way eastbound road. As stated in Option 1 minimal changes will be made at the intersections on each end of the proposed one-way section of VT Route 105. This option for Alternative D is proposed in the Final Report of the US 7 Corridor Study and the Federal Street Corridor Study. This

option requires all vehicles traveling westbound on VT Route 105, in the study area, to use the signal at the intersection of US Route 7 and Seymour Road.

Vehicles on VT Route 105, who are traveling to a residence or business on the proposed one-way section of VT Route 105 will be required to turn southbound on to US Route 7 at the proposed signal, and make the 150° turn onto VT Route 105 one-way eastbound. The Rail Trail users traveling westbound on VT Route 105 will be able to use the signal to turn south onto US Route 7 and then use the existing entrance on US Route 7 to access the Rail Trail parking area. This option requires vehicles from two of the three approaches into the study area to make the unsafe 150° turn onto VT Route 105 to access the residents and businesses.

Utilities

This alternative does not widen the roadway of US Route 7, VT Route 105, or Seymour Road; therefore the existing utilities within the study area are generally unchanged, as well as the CVPS transmission lines do not need to be relocated. It should be noted that cost to relocate utilities for Verizon, CVPS, Adelphia, and Vermont Gas within the VAOT Highway R.O.W. would be the responsibility of the individual company. Therefore the only effect that the minimal utility work would have to the project is a shorter construction schedule, and reduced coordination with the companies.

At the intersection of US Route 7 and Seymour Road, where the northeast and southeast corner is to be expanded for tractor trailer trucks, existing storm water utilities will be impacted. Existing water lines will not have to be moved for this alternative, but are within the construction limits for this alternative. The existing storm water structure manages water from the swale on the south side of Seymour Road; and will need to be relocated for the expansion of the intersection.

Missisquoi Valley Rail Trail

This alternative does not address the issue of pedestrian safety at the Rail Trail crossing on Seymour Road or throughout the study area. The increased vehicle traffic on Seymour Road from the signalization of the intersection decreases the safety for the Rail Trail users.

The speed limits of VT Route 105 east of the study area and on Seymour Road limit the safety measures that can be made to increase the safety of the Rail Trail users. There are no shoulders on Seymour Road to provide bicycles and pedestrians a safe place to travel. In addition, large swales on either side of Seymour Road limit the area where pedestrians can find refuge from oncoming vehicles. As a result of the speed limit, narrow roadway, and swales, the mid-block crossing will consist of a painted crosswalk and roadway signs indicating the location of the path and crossing location. Other safety measures such as bulb-outs or raised crossings are not possible due to the speed limit of the road, traffic volumes, and R.O.W on Seymour Road.

Federal Street Extension

Connection of the Federal Street Extension to US Route 7 would be made at the proposed signalized intersection of US Route 7 and Seymour Road. As stated in the Federal Street

Corridor Study, additional turning lanes would be required to accommodate the additional traffic at the intersection. Exclusive left turning lanes would be required for northbound and southbound approaches on US Route 7, as well as the westbound approach on Seymour Road.

Four residential properties would be affected by the required intersection changes to accommodate the proposed extension. Additional land would need to be acquired from Janet Seymour on the northeast corner and Joeseph Thuot on the southeast corner of the intersection for the additional turning lanes. For the connection of the Federal Street Extension, land for the R.O.W. would need to be acquired from Harry O'Lena who owns the land north of the proposed Federal Street Extension connection. Finally, the land, house, and barn belonging to Edith O'Lena would need to be acquired and demolished. Upon completion of the proposed extension, Rewes Drive east of the Federal Street Extension would be removed.

Construction Costs

The cost of construction is the lowest of the proposed alternatives. Construction costs for this alternative include the signalization of US Route 7 and Seymour Road, removing the superelevated curve at VT Route 105 and Seymour Road, expansion of the Rail Trail parking area, adding an entrance to the parking area on VT Route 105, and modification to residential driveways. Utility costs include relocation of storm water structures.

The construction costs do not include the relocation of utilities in VAOT Highway R.O.W. as the individual companies are required to cover their utility relocation costs. In addition, construction costs for the Federal Street Extension are not included in the cost estimate. Costs for the Federal Street Extension at the intersection would cover additional turning lanes, purchase of R.O.W. and the residence at the intersection, and roadway construction. The estimated construction costs for the Federal Street Extension are $1,130,000 more than Alternative C

Summary of Alternative D

Alternative D proposes the signalization of US Route 7 and Seymour Road. Additional turning lanes would not be added to the intersection until the Federal Street Extension is constructed. VT Route 105 would remain a two lane road with minimal changes to the intersections of US Route 7 and VT Route 105, and VT Route 105 and Seymour Road. An additional entrance to the proposed Rail Trail parking area would be located on VT Route 105, and exit to remain on Seymour Road.

This alternative does not satisfy the purpose and need for the study; only the safety of vehicles is addressed in this alternative. The number of vehicles using the intersection has increase but the capacity has not changed to accommodate the increase in vehicles. The increase in vehicles and lack of designated bicycle and pedestrian areas on Seymour Road decreases the safety of Rail Trail users. In addition, this alternative does not provide a method for Rail Trial users to cross US Route 7 and future expansion of the Rail Trail. The alignment of the intersections on VT Route 105 with US Route 7 and with Seymour Road have not been modified, therefore the safety issues with the alignments have not been addressed.

The diversion of vehicles from VT Route 105 to Seymour Road results in a loss of exposure for the businesses along VT Route 105. Additional commercial and industrial development of the land west of the study area is only possible if the Federal Street Extension is completed. The challenges of construction for the extension may delay the project for many years.

This alternative may have lower construction costs than other alternatives, but it is not the most economical alternative. The cost for the Federal Street Extension is more than other alternatives. Bicycle and pedestrian safety at the Rail Trail crossing should be improved. The alignments of VT Route 105 with US Route 7 and with Seymour Road are unchanged and should be modified to increase vehicle safety. Alternative D only addresses one portion of the problem within the study area

Evaluation Matrix

		Alternative A No Build	Alternative B St. Albans Circulation Study	Alternative C Reconstruct Off Alignment	Alternative D Signalize US Route 7 & Seymour Road
COST	Roadway	$0.00	$1,249,000.00	$1,104,000.00	$370,000.00
	Structure	$0.00	$0.00	$0.00	$0.00
	Temporary Structure	$0.00	$0.00	$0.00	$0.00
	Traffic & Safety	$0.00	$0.00	$0.00	$0.00
	TOTAL ($)	$0.00	$1,249,000.00	$1,104,000.00	$370,000.00
ENGINEERING	Typical Section (meters)	0.5-3.5-3.5-0.5	1-4-4-1	1-4-4-1	1-4-4-1
	Alignment Change	No	Yes	Yes	No
	Bicycle Access	No Change	No Change	Enhanced	No Change
	Hydraulic	No Change	N/A	N/A	N/A
	Utility	No Change	Changed	Changed	Changed
IMPACTS	Agriculture	No	No	No	No
	Archaeological	No	No	No	No
	Historic Structures, Sites & Districts	No	No	No	No
	Hazardous Materials	No	No	No	No
	Floodplain	No	No	No	No
	Fish & Wildlife	No	No	No	No
	Rare, Threatened & Endangered Species	No	No	No	No
	Public Lands - Sec4(f)	No	No	No	No
	LWCF - Section 6(f)	No	No	No	No
	Noise	No Change	No Change	No Change	No Change
	Wetlands	No	No	No	No
LOCAL & REGIONAL ISSUES	Concerns	Not Met	Improved	Satisfied	Improved
	Community Center	No Change	No Change	No Change	No Change
	Economic Impacts	Unknown	Unknown	Unknown	Unknown
	Conformance to Regional Transportation Plan	No	Not Sure	Not Sure	Not Sure
	Satisfies Purpose & Need Statement	No	Partially	Completely	Partially
PERMITS	Act 250	No	Probably Not	Probably Not	Probably Not
	401 Water Quality	No	No	No	No
	404 COE Permit	No	No	No	No
	Stream Alteration	No	No	No	No
	Conditional Use Determination	No	No	No	No
	Stormwater Discharge	No	No	No	No
	Lakes & Ponds	No	No	No	No
	T & E Species	No	No	No	No
	248 Hearing	No	Yes	Yes	Yes
	SHPO	No	No	No	No
OTHER					

Cost Estimate

The cost of the proposed alternatives is presented in the table below; and a detailed estimate is included in Appendix F.

Alternatives	Project Costs	Project Utility	Contingency/ Engineering	Total	Utilities	Federal Street Ext.
Alternative A – No Build	$0	$0	$0	$0	$0	$0
Alternative B – 2002 St. Albans Traffic Circulation Study	$740,000	$255,000	$299,000	$1,249,000	$134,000	$3,880,000
Alternative C – Reconstruct Off Alignment	$621,500	$227,500	$255,000	$1,104,000	$75,000	$2,810,000
Alternative D – Signalization of US Route 7 & Seymour Road	$271,000	$14,000	$85,000	$370,000	$100,000	$3,940,000

Recommendations

HTA recommends Alternative C, the intersection to be constructed off alignment. This option will address the purpose and need of the study area. Safety issues with poor intersection geometry are addressed with the realignment of VT Route 105 and closure of Seymour Road. Safe street crossings are provided for bicycles, pedestrians, and other Rail Trail users on Seymour Road and across US Route 7.

Vehicles in the study area are encouraged to use the proposed intersection, alleviating traffic on residential roads in the Town and City of Saint Albans. The realignment and signalization of US Route 7, VT Route 105, and Rewes Drive will reduce the time a vehicle will wait to turn at this intersection. The signalization will improve traffic flow in the area, thereby encouraging commercial and industrial development around the intersection and along Rewes Drive.

HTA recommends that the reconstruct off alignment option be advanced to preliminary engineering towards final design, plans, and specifications.