Environmental Assessment

Federal Street Multimodal Connector, HPP 8000 (17)

St. Albans,Vermont

Prepared for **Federal Highway Administration, Vermont Agency of Transportation, and the City of St. Albans, Vermont**

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DRAFT FOR PUBLIC REVIEW

FEDERAL STREET MULTIMODAL CONNECTOR PROJECT
ST. ALBANS, VERMONT

ENVIRONMENTAL ASSESSMENT

VTRANS PROJECT ST ALBANS HPP 8000 (17)
Submitted Pursuant to
42 USC 4332(2) (c), 16 USC 470(f), and
33 USC 1344

by the

US Department of Transportation
Federal Highway Administration,
Vermont Department of Transportation,
and the
City of St. Albans

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Acronyms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACM	Asbestos Containing Materials
ACHP	Advisory Council on Historic Preservation
ADAAG	Americans with Disabilities Act Accessibility Guidelines
ALS	Aquatic Life Use Support
ANR	Vermont Agency of Natural Resources
APE	Area of Potential Effect
ARA	Archaeological Resource Assessment
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
CAAA	Clean Air Act Amendments of 1990
CAP	Corrective Action Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
CNE	Common Noise Environments
CO	Carbon Monoxide
CORRACTS	Corrective Action Sites
CVR	Central Vermont Railroad
CWA	Clean Water Act
dB	Decibels
dB(A)	A-Weighted Decibel
DEC	Vermont Department of Environmental Conservation
DHP	Vermont Division for Historic Preservation
DHV	Design Hourly Volume
EA	Environmental Assessment
EFH	Essential Fish Habitat
EJ	Environmental Justice
EO	Elemental Occurrence
EPA	US Environmental Protection Agency
EPR	Environmental Protection Rules
EPSC	Erosion Prevention and Sediment Control
FEMA	Federal Emergency Management Agency
FGIRPC	Franklin-Grand Isle Regional Planning Commission

FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
GIS	Geographic Information System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCL	High Crash Location
HHS	United States Department of Health and Human Services
INDC	Individual Construction Phase Discharge Permit
INDS	Individual Operational Phase Discharge Permit
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
lbs/yr	pounds per year
LOS	Level of Service
LUST	Leaking Underground Storage Tank
LRFD	Load and Resistance Factor Design
LWCF	Land and Water Conservation Fund
MPH	Miles Per Hour
MSAT	Mobile Source Air Toxics
NAC	Noise Abatement Criteria
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NECR	New England Central Railroad
NEPA	National Environmental Policy Act of 1969
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resource Conservation Service
National Register	National Register of Historic Places
NRPC	Northwest Regional Planning Commission
OHM	Oil and/or Hazardous Materials
OHW	Ordinary High Water
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PM	Particulate Matter
PSI	Preliminary Site Investigation
RCRA	Resource Conservation and Recovery Act
ROW	Right-Of-Way
SHPO	State Historic Preservation Office
SPA	Source Protection Area
STP	Stormwater Treatment Practice
SWPPP	Stormwater Pollution Prevention Plan
SWL	Active Solid Waste Landfill Facilities
TIGER	Transportation Investment Generating Economic Recovery
TMC	Turning Movement Counts

TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TSD	Treatment, Storage and Disposal
UA	Urbanized Area
UC	Urban Cluster
UFP	Unanticipated Finds Plan
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
UST	Underground Storage Tank
v/c ratio	volume to capacity ratio
VCGI	Vermont Center for Geographic Information
VTFWD	Vermont Department of Fish and Wildlife
VMT	Vehicle Miles of Travel
VPD	Vehicles Per Day
VTNNHP	Vermont Nongame and Natural Heritage Program
VSA	Vermont Statutes Annotated
VSMM	Vermont Stormwater Management Manual
VTrans	Vermont Agency of Transportation

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Project Overview

1.1 Introduction

The Federal Street Multimodal Connector Project, proposed by the City of St. Albans, Vermont (the City), would reconstruct the Federal Street Corridor to improve its use by automobiles, trucks, pedestrians, bicyclists, and public transit. Currently, US Route 7 (North and South Main Street) bisects the City's downtown which results in heavy north-south passenger and commercial traffic and congestion and detracts from the downtown human environment. The proposed Federal Street Multimodal Connector is intended to provide a parallel urban collector route to divert through and truck traffic from the City's downtown and create an alternative access to Interstate 89 (I-89).

The Federal Street Multimodal Connector Project, also referred to as the "Project" and the "Proposed Action," encompasses the Federal Street Corridor; a series of south to north trending streets one block west of Main Street that currently function as an informal bypass for Main Street traffic through the City. These streets include Lemnah Drive, Allen Street, Market Street, Catherine Street and Federal Street; bounded on the south by Nason Street and on the north by Lower Newton Street. The Federal Street Corridor includes a mix of residential, commercial, and industrial land uses and has inherent problems in its current configuration that make it inadequate as a bypass. The proposed improvements would encompass a total of 2.1 miles of roadway, including a section of new roadway linking the corridor to the Interstate Access Road. The typical roadway section would include 11-ft. travel lanes in each direction, 4-ft. wide (min.) bicycle lanes (5-ft. wide where on-street parking is provided); 2 to 4-ft. wide grass utility strips, and 5-ft. wide sidewalks. Intersection improvements would be carried out at locations with long-standing deficiencies in roadway geometry and pedestrian management, including that at Allen / Catherine / Federal Streets and Lemnah Drive at Lower Welden Street. In addition, a new

bridge would be constructed over Stevens Brook. The Proposed Action and the consideration of alternatives are described in **Chapter 2**.

This Environmental Assessment (EA) was prepared to describe and assess the environmental consequences that may result from the Proposed Action. This document discloses the direct, indirect, and cumulative impacts that would result from the Proposed Action. Environmental, social, and cultural resources were considered, and impacts to these resources were avoided and minimized to the greatest extent practicable. Where appropriate, mitigation of impacts was incorporated into the Project.

This analysis is conducted in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) Regulations 40 CFR 1500 and 1508, and Federal Highway Administration (FHWA) Technical Advisory T6640.8A as well as FHWA regulations implementing NEPA as described in 23 CFR 771.

The FHWA allocated funds for the design and construction of the Federal Street Multimodal Connector through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), a federal transportation bill enacted in 2005, including the following earmarked funds:

- $960,000 for construction of the St. Albans Intermodal Connector with I-89 for the City of St. Albans; and
- $1,500,000 for improvements to Federal Street to allow large trucks to reach destinations without going through downtown. The improvements were described as including 0.3 mile of new road construction, and 2 miles of reconstruction.

Through the course of this Project, coordination with state and federal agencies as well as the general public has occurred and will continue to occur. These coordination efforts are outlined in **Chapter 5**. Further, the Federal Street Multimodal Connector Project would require permitting by state and federal entities. See **Section 5.3** for a list of the anticipated permits that would be required prior to implementing the Proposed Action.

1.2 Study Area Description

The Project is located entirely within the City of St. Albans in the Lake Champlain Valley of northwest Vermont. The City is approximately 2.0 square miles in size and is relatively urbanized with approximately 6,900 residents.[1] The City is surrounded by the Town of St. Albans, which, while larger in terms of area (60.8 sq. mi.), is more

[1] Population data are from the 2010 US Census. http://quickfacts.census.gov/qfd/states/50/5061675.html, accessed March 1, 2012.

rural, with approximately 6,400 residents living among the extensive farmlands which border the adjacent Lake Champlain.

The Study Area is shown in **Figures 1.2-1** and **1.2-2**. The Study Area was developed to encompass potential direct and indirect effects to resources that may result from construction of the Project as well as to circumscribe possible design alternatives.

The Project involves five sections of existing and proposed roadway totaling approximately 2.1miles. From south to north, these sections include:

- **The "Nason Street Connector" (0.30 miles)**. The Nason Street Connector is a proposed new two-lane roadway which would extend the Interstate Access Road (St. Albans State Highway) westerly past US Route 7 across City-owned property to the intersection of Lemnah Drive and Nason Street. The proposed alignment of this connector road lies within an undeveloped area running parallel to Nason Street, which is a residential neighborhood.
- **Lemnah Drive and Allen Street from Nason Street to Stowell Street (0.42 miles)**. Lemnah Drive is situated within commercial/industrial properties including the City's municipal complex. Lemnah Drive crosses Stevens Brook on a short span bridge. Stevens Brook is a perennial stream that has been identified as having impaired water quality by the State of Vermont.[2]
- **Allen/Catherine/ Federal Streets from Stowell Street to Kingman Street (0.60 miles)**. This area is more urban in character and considered a portion of the downtown area of the City of St. Albans. A variety of businesses and multiple-family properties are the predominant land use. The headquarters of the New England Central Railroad (NECR) are located within this segment at the intersection of Federal Street with Lake Street. Catherine and Allen Streets are a mixture of high-density residential and commercial/industrial properties.
- **Federal Street from Kingman Street to Lower Newton Street (0.61 miles).** Federal Street is a mixed neighborhood of single-family homes and small businesses on the east side of the road and commercial/industrial uses on the west. These commercial properties include the St. Albans Cooperative Creamery and portions of the NECR along with associated industrial and commercial buildings.
- **Lower Newton Street from Federal Street to US Route 7 (North Main Street) (0.17 miles).** Land use within this portion of the Study Area is a mix of residential and commercial, with single-family homes and a few businesses lining the street. At the intersection of Lower Newton and Federal Streets is the industrial factory known as the Fonda Group Property, vacated in 2005 when the Solo Cup Company closed the plant. In 2006, the City purchased the plant and with financial assistance from the Environmental

[2] See **Section 3.4** of this EA for additional information on Stevens Brook.

Protection Agency (EPA) brownfield cleanup program. The buildings were demolished in 2011. Additional cleanup activities will be conducted.

An important feature located just west of the Project area is the NECR railroad system and associated headquarters, which are located at the corner of Lake Street and Federal Street. NECR is the successor to the Central Vermont Railway (CVR). The NECR line carries freight traffic and provides Amtrak passenger service to the City of St. Albans. The Amtrak station is located on Federal Street just north of Lake Street. This station is the northern terminus of the Amtrak Vermonter line that makes daily trips to Washington, DC. Freight trips across the at-grade mainline crossings of Nason Street and Lower Welden Street are currently infrequent and their timing is irregular.

1.3 Project Background and Previous Studies

Upgrades to the Federal Street Corridor have been contemplated by the City since at least the 1970s. A number of publicly-funded transportation studies have considered the corridor improvements in increasing levels of detail:

- The need and desire for a new north-south route to accommodate through traffic and to improve access to the City's industrial area was first identified in a 1974 *Economic and Transportation Study* (Environmental Consulting Group 1974).
- In 1976, a study completed by the Franklin-Grand Isle Regional Planning Commission defined the Federal Aid Transportation System in St. Albans, and identified rebuilding and extending Federal Street as a top priority (FGIRPC 1976).
- The need for improvements in the Federal Street Corridor was emphasized again in the 1991 *St. Albans Traffic Circulation Study*, which identified the extension of Federal Street as its most important recommendation.
- The 1995 *Federal Street Corridor Study* (Northwest Regional Planning Commission 1995) reviewed traffic and engineering options for the project. This study evaluates the feasibility of constructing an "arterial bypass" parallel to Main Street in the City of St. Albans. The bypass route would consist of:
    - The Nason Street Connector - A new section of roadway between the US Route 7 intersection with the Interstate Access Road and Nason Street.
    - Reconstruction of existing local roads along Lemnah Drive, Allen Street, Catherine Street, and Federal Street.
    - Construction of a "Northerly Connector" – a new section of roadway between the intersections of Federal Street with Lower Newton Street and US Route 7 with VT Route 105. While this EA refers to this

portion of the project as the "Northerly Connector," it is also known in some previous studies as the "Federal Street Extension."[3]

The 1995 study presented traffic projections and congestion analyses for 1995 and 2015 scenarios, presented concept designs and order of magnitude cost estimates for the Federal Street project, identified right-of-way impacts and acquisition needs, discussed potential land use changes, identified potential natural and cultural resource impacts, and included an implementation plan.

- A 2002 Northwest Regional Planning Commission (NRPC) study entitled *St. Albans Traffic Circulation Study* (NRPC 2002) evaluated existing and future transportation needs in the Town and City of St. Albans and recommended a list of highway, bicycle and pedestrian facilities; and multimodal facility projects as well as land use and development suggestions. The recommendations of this study included the construction of improvements to Federal Street.
- In 2005, the NRPC updated the *Federal Street Corridor Study* (NRPC 2005). This report updated the 1995 design concepts for the Federal Street connector based on the traffic volumes and VTrans policy changes (i.e., 2000 Highway Capacity Manual) that had occurred over the previous decade. This study included the Northerly Connector, but following this report, the City decided to exclude the Northerly Connector from further consideration.

1.4 Project Purpose

The Purpose and Need for the Project was developed following several transportation studies focused on St. Albans as outlined in **Section 1.3**, and in consultation with the citizens and municipal leaders of the City. The Purpose and Need was formally adopted by the St. Albans City Council on November 22, 2011 (see **Appendix A**).

The purpose of the Federal Street Multimodal Connector Project has been defined in accordance with the requirements of NEPA, CEQ Regulations 40 CFR Part 1500-1508, and FHWA's Technical Advisory T6640.8A as follows:

- To increase economic competitiveness and livability in Downtown St. Albans by providing an efficient and convenient alternate north-south route for truck and automobile traffic currently using Main Street (US Route 7);
- To resolve long-standing traffic flow problems that have impacted the competitiveness of commercial and industrial properties using "Complete Street" design principles where appropriate; and

[3] While all studies up to 2005 included the "Northerly Connector" within the definition of the Federal Street Corridor improvements, the City has since decided to exclude this portion of the project from the Proposed Action. More detail on the decision to exclude the Northerly Connector from further action is provided in **Section 2.3** of this EA.

- To harness the economic power of multiple transportation modes located in close proximity to one another in an environment containing commercial, residential, and industrial uses.

1.5 Project Need

The Project need is defined by the concerns and deficiencies identified in the following areas:

Traffic Circulation and Mobility

Main Street (US Route 7) is the primary north-south corridor through the City. Heavy truck and commuter traffic often create congestion and peak hour delay through the downtown, most notably at the intersections of Main Street (US Route 7) at Lake Street and Fairfield Street (VT Route 36, see **Figure 1.2-1**). Motor vehicle congestion has a negative impact on the livability and safety of the otherwise pedestrian-focused commercial downtown.

To avoid vehicular congestion on Main Street, motorists often seek relief by traveling on adjacent residential side streets to access the Federal Street Corridor. This is detrimental to the livability and pedestrian safety of those residential neighborhoods. The Federal Street Corridor includes a mix of residential, commercial, and industrial land uses. Its current function as an informal bypass for Main Street traffic is documented through existing vehicle turn movement counts and origin-destination studies that show that during critical peak hours, motorists that are familiar with the local street network are bypassing the aforementioned congested Main Street intersection with Lake and Fairfield Streets. However, the Federal Street Corridor has inherent problems and in its current configuration it is inadequate as a bypass. These problems are due primarily to the corridor's piecemeal construction history and are exacerbated by the informally routed overflow traffic. Problems along the Federal Street Corridor include:

- inconsistent and substandard roadway geometrics
- inconsistent pedestrian and bicycle accommodations
- poor access management
- lack of provision for turning movements at key intersections
- lack of direct connection to I-89
- generally poor state of repair

Prior studies have shown that points south of Lake Street (Catherine Street, Market Street, Allen Street, and Lemnah Drive) have fewer vehicles using the corridor as a bypass route, due to inconsistent roadway geometrics (**Table 1.5-1**). Motorists unfamiliar with the area will follow the posted routes - US Route 7, VT Route 36, VT

Route 104, VT Route 105 and VT Route 207 and are most likely to continue through the congested downtown area.

In addition to deficiencies in existing lane and shoulder widths, the Federal Street Corridor is not presently suitable as a bypass route because key intersections are not configured to best accommodate through or turn movements and do not have pedestrian crossings that meet current standards. Examples include Lake Street at Federal/Catherine Streets and Federal Street at Lower Newton Street. These intersections experience long vehicle delays and congestion due to bypass traffic. Moreover, vehicular delays are compounded because the corridor does not have direct access to I-89 via the Interstate Access Road. Therefore, vehicles must travel on residential side streets to gain access to Main Street (US Route 7), Federal Street, and the Interstate Access Road.

Table 1.5-1 Existing Roadway Widths

Roadway	Approximate Existing Width
Catherine Street	28 ft. with 5 ft. sidewalk
Allen Street	24 ft.
Lemnah Drive	26 ft. with 4 ft. grass strip & 4 ft. sidewalk (total 34 ft.)

The need exists to manage access and through traffic along the Federal Street Corridor in ways that improve mobility and follow current roadway standards, while protecting and enhancing the economic vitality of the corridor. The need extends beyond vehicular traffic to include improved access, safety, and experience for pedestrians and cyclists. These combined actions are entirely consistent with the downtown master plan (City of St. Albans 2009).

Roadway

The Federal Street Corridor does not have a direct link to the Interstate Access Road and would require a new roadway segment from Lemnah Drive to South Main Street to make the corridor a viable alternate route to Main Street (US Route 7). This proposed roadway link would complete the corridor and provide direct access to the Amtrak station and the commercial/industrial area within the Federal Street Corridor, provide an alternate route for commuter traffic and truck deliveries, reduce vehicle delay in the downtown area and enrich the downtown experience, thus increasing the economic competitiveness of development and redevelopment opportunities in both the downtown and the Federal Street Corridor.

Bicycle and Pedestrian Accommodations

The corridor does have an extensive sidewalk system in place, however many of these facilities do not meet the Americans with Disabilities Act Accessibility Guidelines (ADAAG) for public sidewalks. Overall, the corridor does not meet Complete Street principles. Pedestrians are hindered from traveling within the corridor and crossing to businesses and residences due to the poor existing sidewalk

conditions, the lack of designated crosswalks, the long pedestrian crossing caused by the wide roadway width on Federal Street, and because the sidewalk does not continue south on Lemnah Drive. Bicyclists also are not well accommodated on Catherine Street, Allen Street, and Lemnah Drive due to the existing roadway width of 24 ft. to 34 ft. The minimum standard for travel lanes, pedestrian, and bicycle accommodations is 35 ft. without parking, 43 ft. with parking on one side, and 51 ft. with parking on both sides. In all cases, the existing roadway width does not meet these minimum standards, and safety and livability are hindered with the current configuration.

Intersections

The intersections south of the intersection of Lake Street at Federal/Catherine Street do not have enough roadway width for a tractor trailer (WB-50 or 64) to complete a turn or travel through the intersection without occupying some of the opposing lane. The right-of-way (ROW) width on Catherine Street does not have adequate width to construct a sidewalk, a bicycle lane on both sides of the street, and two travel lanes. The majority of the existing pedestrian facilities do not meet the current ADAAG for public sidewalks and in some locations sidewalks do not exist at all.

The intersection geometry of Lake Street at Federal/Catherine Streets is not well-defined due to the stop-controlled Federal Street and Catherine Street approaches being offset, the excessive extra pavement, missing sidewalk sections, and driveways that are not well defined. During peak periods, these issues cause congestion, delay, and conflicts between all modes of travel. Sight distance is obstructed by utility poles, buildings, and vehicles parked on the north side of Lake Street. Pedestrians have a long, unprotected east-west crossing through the intersection on the southerly side of Lake Street.

The unsignalized intersection of Allen Street, Catherine Street, Market Street, and Stebbins Street has excess pavement that is not well-defined due to existing geometry, driveways that are not well defined, and sight distance which is constrained by the geometry and an existing building location.

The unsignalized intersection of the Interstate Access Road and South Main Street (US Route 7) lacks pedestrian or bicycle accommodations. It resembles a highway on/off-ramp due to the roadway width and geometry, and lacks appropriate traffic control relative to the amount of vehicular traffic traveling through this intersection.

Overall, none of the intersections along this corridor meet Complete Street principles.

Bridge

The existing Lemnah Drive Bridge is posted for 12,000 pounds, which does not meet the current American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specification for HL-93 loading (25 ton). The required HL-93 loading would accommodate truck

traffic (i.e., WB 64) on the bridge for those vehicles traveling through the City to another destination and those trucks stopping at commercial and industrial businesses, such as the St. Albans Cooperative Creamery, Inc. and NECR. The existing roadway width across the bridge of approximately 29 ft. will not accommodate pedestrian and bicycle facilities, which require a minimum width of 35 ft. (two -11 ft. travel lanes, two –4 ft. (min) bicycle lanes and one 5-ft sidewalk).

Lighting

The Federal Street Corridor lacks consistent and adequate street lighting. Like the roads, the street lighting has been developed in segments over time and there are gaps where adequate lighting levels are not currently achieved. Appropriate lighting levels are important for pedestrian and motorist safety and this would be based on the VTrans Roadway Light Policy (0.5 to 2.0 foot-candles) and the standards from the Illuminating Engineering Society of North America.

Drainage

Portions of the Federal Street Corridor are very flat and reportedly experience periodic minor flooding.

Access Management

Many of the existing residential and commercial driveways within the Study Area lack clear definition or do not conform to current driveway design standards. This results in inefficient parking and unmanaged vehicle and pedestrian conflict points, and it detracts from the overall character, safety and efficiency of the corridor.

Parking

The existing on-street parking is relatively informal and uncontrolled within the corridor. A portion of Federal Street is close enough to Main Street and the City parking lots that it should be considered part of the overall downtown parking scheme.

Aesthetics and Community Character

This corridor contains a mix of residential, commercial, and industrial land uses with a varied roadway width, non-standard sidewalks and pedestrian crossings, poor roadway and intersection geometry, lack of access control, and varied or missing streetscape amenities. The result is that the corridor does not have an attractive, consistent, livable identity that would attract people to it for either residential or commercial purposes.

The City completed a downtown master plan in September 2009 (City of St. Albans 2009), which describes a vision for the section of the City bordered by Main, Federal, Lake, and Kingman Streets. The plan describes how this core area should look and feel when it is completed, and any development and investment in public

infrastructure should reflect the City's vision. The plan describes enhancing the "Downtown Core Block" (Main, Kingman, Lake and Federal Streets) to create significant structured parking, an internal circulation system, infill development and redevelopment opportunities while considering and creating a dynamic pedestrian environment.

2

Proposed Action and Alternatives

2.1 Introduction

In order to satisfy the Purpose and Need for the Project, the City of St. Albans has considered a range of alternatives. In this Chapter, the assessment of alternatives is discussed, including the No-Action Alternative, alternatives discussed in a previous study from 2005, and the suite of alternatives that were purposefully developed and analyzed as part of the current Project.

2.2 Development of Alternatives

The Federal Street Purpose and Need Statement (**Chapter 1**) provides a detailed description of the City's objectives for this Project. The purpose includes implementing multimodal transportation improvements that will lead to community benefits such as increased economic competitiveness and improved livability of the downtown. The Purpose and Need also highlights a number of existing conditions that should be addressed, including traffic congestion, inadequate pedestrian / bicycle accommodations and poor access management.

In developing the Project alternatives, several factors and approaches were considered:

- **Previous Study and Design Efforts.** Previous studies were reviewed when first identifying viable alternatives for further review. As the Project definition efforts progressed, it became clear that some prior alternatives were very effective at improving transportation but were perhaps unrealistic given potential environmental impact and cost implications.
- **Local Needs.** The design alternatives were developed on a segment by segment basis to address the localized specific needs, but the overall corridor objectives were also considered.
- **Regional Needs**. The Project should support the relevant provisions in the Regional Transportation Plan, especially as it relates to the connection between land use and transportation and the inclusion of pedestrian and bicycle facilities as part of highway projects.

- **Design Standards.** Design standards and guidelines that were used to develop the alternatives included but were not limited to: the Vermont State Standards for the Design of Roads and Streets, the Manual on Uniform Traffic Control Devices (MUTCD), the Americans with Disabilities Accessibility Guidelines (ADAAG), the Vermont Pedestrian and Bicycle Facility Planning and Design Manual, AASHTO LRFD Bridge Design Specification for HL-93 loading (25 ton) for the Stevens Brook bridge, and the Highway Capacity Manual. The design year selected for the Project was 2030. This date represents the 20 years recommended by the Highway Capacity Manual for new construction or reconstruction. The year 2010 was used as the starting date as it represents the time of Project initiation and collection of baseline information, including the traffic volume data collection program (**Section 3.2.1**). The expected functional classification of the Project following completion is Urban Collector.
- **Complete Street Principles**. Use of Complete Street principles that facilitate all modes of travel was deemed important.
- **Multimodal Enhancement**. There are multiple modes of transportation within the City and the Federal Street Corridor has the opportunity to improve the connectivity between these modes. The City is central to highway access, intercity freight and passenger rail and bus service, an extensive City sidewalk and bicycle system, and it is the western terminus of the Missisquoi Valley Rail Trail. However, efficient connections between these different modes are largely missing. By improving the Federal Street Corridor as a multimodal link and through implementing effective wayfinding signage, travelers can be provided information on how and where to transfer between these modes.
- **Impacts to Environmental and Cultural Resources**. Surveys were conducted within the Study Area to identify environmental, social and cultural resources. Project engineers considered these resources in developing the design of roadway alternatives. For example, in screening a range of potential solution alternatives, the apparent cultural resource impacts were considered and some alternatives were dropped out from further consideration based on the degree of impact.
- **Cost.** The relative cost of construction was considered when evaluating alternatives within the Federal Street Corridor, although factors such as resource impacts and operations were more instrumental in comparing the alternatives.
- **Right-of-Way Impacts.** The Project engineers attempted to design improvements to the roadway facility without the need to expand the facility outside of the existing documented right-of-way in order to minimize impacts to private property.

2.3 Alternatives Corridors and Approaches

The Federal Street Corridor was first identified for transportation improvements in 1974, and subsequent studies have further evaluated the needs and potential benefits for improvements within the corridor. However, alternative corridors and approaches were evaluated during the current planning process to see if the Project's purpose and need could be satisfied by pursuing improvements that were previously not considered in detail. These alternatives are discussed below.

2.3.1 Augmenting Capacity on Main Street

The Purpose & Need for the Project includes increasing economic competitiveness and livability of the downtown by providing an alternate route for traffic. While the Main Street (Route 7) corridor does provides a parallel north-south route, adding capacity through the downtown (i.e., one additional lane in each direction) would require eliminating on-street parking, which would have a negative impact on downtown businesses and accessibility. Furthermore, such an approach would make the downtown less pedestrian friendly since crossing distances would increase with the additional lanes. For these reasons, this alternative was dismissed from further consideration.

2.3.2 One-Way Pairs on Main and Federal Streets

Establishing a one-way pair using Main Street and Federal Street, each having two lanes, was considered. This alternative was not selected for further consideration because it would necessitate making improvements to both streets as opposed to just one. Moreover, it would likely result in an overall reduction in transportation efficiency since Main Street is the highest volume route and this alternative would result in a longer and more time consuming route for one of the two directions. A one-way pair would also make access to Main Street businesses more difficult from one direction.

2.3.3 New Roadway Outside Federal Street Corridor

Constructing a new bypass road either east or west of the downtown area was evaluated. However, no such route was deemed to be feasible for the following reasons:

- The area east of Main Street is zoned entirely as residential. A new bypass road through this area would be inconsistent with zoning, would have adverse impacts on community character, and would potentially require considerable ROW acquisition. The Federal Street Corridor is the only continuous north-south corridor in the City that is almost completely zoned Business and Service-Industrial. Residential areas are also zoned farther to the west.

- The development of a corridor outside of the downtown area would not be consistent with one of the stated purposes of the Project, to "… harness the economic power of multiple transportation modes located in close proximity to one another in an environment containing commercial, residential, and industrial uses.

- In the 2005 Federal Street Corridor Study Update (NRPC 2005), the "Federal Street Connector" was identified as a component of the Western Vermont Freight Gateway Program, and "an important component of a much larger transportation corridor that is significant for Vermont and New England." Alternative corridors would lack this direct link to the railroad should freight or passenger rail service increase.

Based on the unsuitability of the preceding three alternative corridors and approaches, planning focused on improvements within the Federal Street Corridor proper. The current Project includes the same roadway segments as the 2005 Corridor Study with the exception of the northern terminus. The 2005 Study included the so-called "Northerly Connector," which extended the corridor past Lower Newton Street all the way to US Route 7 (Main Street) and VT Route 105 (NRPC 2005). The Northerly Connector was not considered as an alternative in this EA since the City has no plans to include that connection with the Project now or in the foreseeable future. This is because NECR owns property that would be crucial for the construction of the connector, a portion of the Northerly Connector would fall north of the City/Town border, and the City has purchased the former Fonda Group Property (an existing brownfield) for non-transportation redevelopment purposes.

The 2005 study evaluated four alternatives at the Lake Street / Federal Street / Catherine St. intersection. Those included two signalized intersections and two roundabouts (see **Figure 2.3-1**). All four of those alternatives would directly impact the historic Giroux Furniture Company building.

The 2005 study served as a valuable starting point for the current study, but based on direction from the City and input from the VTrans Historic Preservation Officer, the design team worked to develop additional alternatives that would provide multimodal benefits while preserving historic structures.

2.4 Corridor Segment Designations

This EA focuses on improvements within the Federal Street Corridor, consisting of the south to north streets one block west of Main Street from Nason Street in the south to Lower Newton Street in the north.

To facilitate the discussion of the design alternatives considered in this EA within the Federal Street Corridor, the Study Area has been broken into five segments as follows.

- Proposed Nason Street Connector (South Main St. to Nason St.)
- Lemnah Drive and Allen Street (Nason St. to Stowell St.)
- Allen / Catherine / Federal St. Segment (Stowell St. to Kingman St.)
- Federal St. (Kingman St. to Lower Newton St.)
- Lower Newton St. (Federal St. to North Main St.)

These segments are based on roadway geometry, intersection configurations and complexity, and existing land use. They are similar to those used in the 2005 Corridor Study Update (NRPC 2005) and thus provide some continuity with past studies. These five segments total approximately 2.1 miles and are depicted in **Figure 2.4-1** and described in detail from south to north below.

With the exception of Lemnah Drive, all of the existing Federal Street Corridor segments are classified as Urban Collectors. With the completion of this Project it is anticipated that a single Urban Collector functional classification would apply to the entire corridor.

2.4.1 Proposed Nason Street Connector (South Main St. to Nason St.)

The Nason Street Connector is a proposed 0.30-mile, two-lane roadway which would extend the Interstate Access Road westerly past US Route 7 and across City-owned property to the intersection of Lemnah Drive and Nason Street. The proposed alignment of this connector road lies within an undeveloped area running parallel to Nason Street, which is a residential neighborhood. This connection has been envisioned in prior studies, including the 1995 Federal Street Corridor Study (NRPC 1995) and its 2005 update (NRPC 2005).

The Nason Street Connector is intended to provide ease of access to the Federal Street Corridor from I-89. This formal connection would result in reduced traffic on residential side streets such as Nason Street, which currently experience car and truck traffic volumes that impact the quality of life on those streets.

2.4.2 Lemnah Drive and Allen Street (Nason St. to Stowell St.)

This 0.43-mile segment includes Lemnah Drive from Nason Street to Lower Welden Street and Allen Street from Lower Welden Street to Stowell Street. Lemnah Drive has one lane in each direction and a posted speed limit of 25 MPH. There is no on-street parking in this segment and sidewalks are provided only on the east side of Allen Street and on a short (320 ft.) stretch of Lemnah Drive along the east side of the road running north from Nason Street. Lemnah Drive is stop-controlled at both

Lower Welden Street and Nason Street, as both of these streets require free east/west movement due to the lack of available queuing space between the Federal Street Corridor and the railroad crossings. The northern terminus of Lemnah Drive meets Lower Welden Street obliquely, resulting in poor roadway geometry.

Overhead utilities run along the east side of the road. The road is partially curbed and drainage is collected in catch basins and a closed drainage system except where stormwater is allowed to run off to the surrounding land.

Lemnah Drive is a recently improved street; it was extended in 1999 to connect Nason Street to Lower Welden Street. It was extended over three acres of land previously owned by NECR and it now provides continuous access to commercial / industrial properties including the City's municipal complex. Buildings are restricted to the eastern side of the road, with undeveloped lands adjacent to the NECR railroad line lying to the west acting as open air storage yards. The only bridge in the Study Area is located within this reach, crossing over Stevens Brook about midway between Lower Welden Street and Nason Street.

2.4.3 Allen / Catherine / Federal St. Segment (Stowell St. to Kingman St.)

This 0.36 mile roadway segment begins at Stowell Street and extends north to Kingman Street. Federal Street has designated on-street parking on both sides of the street whereas Catherine Street has only a few spaces and Allen Street has no on-street parking. Sidewalks are present on the east side of Allen Street and Catherine Street. The posted speed limit is 25 MPH.

This segment is more urban in character and considered a portion of the downtown area of the City. Land use is varied in this segment. The headquarters of the NECR is located within this segment at the northwest corner of the intersection of Federal Street with Lake Street. Immediately opposite and to the south of the headquarters is the Giroux Furniture Company building, currently a furniture store. Catherine and Allen Streets are fronted by a mixture of high-density residential and commercial / industrial properties. Between Stowell Street and Stebbins Street, the west side of the road is lined with trees, separating the traveled way from a railroad siding and open air storage yard; the east side of the road is characterized by high-density residential buildings.

This road segment, located near the center of the Study Area, is characterized by the intersection of the south terminus of Federal Street with Lake Street and with Catherine Street. Lake Street has free movement east/west, whereas Catherine and Federal Street are stop-controlled. There are a number of deficiencies in this intersection, leading to conflicts between all modes of travel:

- The Federal Street and Catherine Street alignments are offset through this intersection, leading to motorist confusion, increased congestion, and

increased collisions, as evidenced by the intersection being categorized as a high accident location.[4]

- Motor vehicle delay on the stop-controlled side streets can lead to impatience and risk-taking during peak periods.
- The amount of pavement in the intersection and lack of traffic controls and pavement markings or other visual keys adds to the confusion.
- Sight distances are obscured by utilities, buildings, and on street parking.
- There is a general lack of pedestrian accommodations, and the distance required to travel by foot without a sidewalk along the south side of Lake Street between Market Street and Catherine Street (front of the Giroux Furniture Company building) is overly long.

Farther south in this segment, the intersection of Allen Street, Catherine Street, Market Street and Stebbins Street is equally deficient, possessing complicated geometry and poor sightlines due to building interference. There is a significant offset in the alignment between Allen Street and Catherine Street (the principal north/south route) through this intersection. Moreover, because Market Street offers another north/south route, this can complicate the motorist decision-making process. These deficiencies, coupled with the fact that Allen Street and Catherine Street are stop-controlled, whereas Stebbins Street through Market Street has free east/west movement, contributes to the intersection of Stebbins Street with Allen Street being identified as a high-crash location in the Long Range Transportation Plan 2003-2008 (NRPC 2003).

2.4.4 Federal St. (Kingman St. to Lower Newton St.)

The Federal Street segment commences at Kingman Street and runs north for 0.61 miles along Federal Street to Lower Newton Street. This segment has one lane in each direction with informal on-street parking on both sides of the road and a sidewalk that runs along the east side of the road. The posted speed limit is 25 MPH. There are five minor side streets between Kingman Street and Lower Newton Street, two of which are one-way. Each side street is stop controlled, whereas Federal Street has free north/south movement. There are no signalized intersections within this segment.

Overhead utilities run along the east side of the road with poles between the sidewalk and road surface. The road is mostly curbed and drainage is collected in catch basins and a closed drainage system.

Land use in this segment is mostly a mix of single family residential with some high-density residential and some notable commercial and industrial land uses being

[4] VTrans historical crash data, 2005 to 2009, see **Appendix B**.

present, such as the St. Albans Cooperative Creamery north and west of Hudson Street. Commercial and institutional uses such as the District Courthouse at the corner of Federal Street and Kingman Street also front onto Federal Street.

2.4.5 Lower Newton St. (Federal St. to North Main St.)

The Lower Newton Street segment (0.17 miles) represents the northern limit of the Study Area. It commences at the intersection of Lower Newton Street and Federal Street and runs east to North Main Street. This segment has one lane in each direction and a sidewalk running along the south side of the road. The posted speed limit is 25 miles per hour (MPH). The intersection with North Main Street is signalized in an offset four-way configuration. Federal Street is stop-controlled at Lower Newton Street, whereas Lower Newton Street has free east/west movement.

Overhead utilities run along the south side of the road with poles between the sidewalk and road surface. The road is curbed and drainage is collected in catch basins and a closed drainage system.

Land use is predominantly single-family residential with the notable exception being the recently demolished factory formerly known as the Fonda Group Property just north of the intersection of Federal Street and Lower Newton Street.

An inactive at-grade crossing of Lower Newton Street across the NECR line is present just west of this intersection. In its inactive status, the crossing has no adverse effect on traffic operations, though in the future it could revert to active rail use or it could be rail banked and converted to a rail trail that would connect to the Missisquoi Valley Rail Trail that currently terminates at North Main Street less than a mile north of the Federal Street Corridor.

2.5 No-Action Alternative

The No-Action Alternative would consist of maintaining the same roadway system described above. Congested traffic conditions along Main Street would continue and pedestrian connectivity between businesses on Main and Federal Streets would remain poor. Commercial and industrial activities within the corridor would remain challenged by ongoing deficiencies in vehicular circulation and lack of more direct access to I-89 via the Interstate Access Road. The No-Action Alternative would fail to realize the recommended improvements to the Federal Street Corridor as outlined in the draft *Northwest Regional Transportation Plan, 2010-2015* (NRPC 2012) under the Plan's US Route 7 Corridor Goals and Strategies.

The No-Action Alternative does not assume that all improvements in the corridor would cease. For example, the Lemnah Drive bridge and corridor-wide sidewalk upgrades are still foreseeable improvements that the City would undertake over

time. Roadway and traffic signal upgrades would also occur on Main Street (US Route 7), which parallels the Federal Street Corridor to the east.

The No-Action Alternative does not fulfill the Project's Purpose and Need but is analyzed in this EA to establish a baseline to assess the environmental impacts and mitigation measures of the Proposed Action.

2.6 Elements Common to All Action Alternatives

All action alternatives include pavement and related infrastructure reconstruction, bike and pedestrian enhancements, lighting, landscape and utility improvements. For much of the Study Area, because of constraints posed by existing buildings, the relative simplicity of the roadway segment, or the relative lack of traffic flow problems, there are no alternative actions for these improvements. For example, the Federal Street segment is a straight stretch of roadway that contains three 3-way intersections and two 4-way intersections, with no stop-control along Federal Street itself. The Lower Newton Street segment is similarly straightforward. Action alternatives were thus restricted to the two principal roadway segments with deficient intersection geometry, traffic flow problems, recognized high-crash locations, and a lack of pedestrian accommodations. These include the intersection of Lemnah Drive and Lower Welden Street, and the intersection of Lake Street with Federal and Catherine Streets, discussed in **Section 2.7** and **Section 2.8**, respectively.

Figure 2.6-1 provides an overview of the Proposed Action for the entire Study Area. The typical section for the Proposed Action is described in the following section, along with descriptions for the roadway segments for which no alternative approaches were deemed to be warranted.

2.6.1 Typical Roadway Section

To satisfy the Project's Purpose and Need with respect to realizing the potential of multiple transportation modes in close proximity to one another, the typical roadway section for the Project corridor includes the following elements (see **Figure 2.6-2**):

- 11-ft. wide travel lanes for each direction of vehicular traffic;
- 4-ft. wide (min.) bicycle lanes (5-ft. wide where on-street parking is provided);
- 2 to 4-ft. wide grass utility strips; and
- 5-ft. wide sidewalk (on both sides of the road along Federal Street, on one side elsewhere).

Depending on the age and condition of the road surface and the need to repair or relocate buried utilities, full depth reconstruction may be required. In areas where

recent roadwork has been performed, road surface rehabilitation may be possible. The stormwater collection system along the entire corridor would be reconstructed during this process, with runoff collected by curbing and catch basins and routed to treatment areas. As part of making the Federal Street Corridor more attractive to businesses and residents, the City would strive to move the overhead utilities underground so they would be more reliable and unobtrusive. Street trees would be planted in the grass utility strip where appropriate, and energy efficient street lights would also be provided. Access management improvements such as driveway formalization and consolidation would be implemented, and traffic and wayfinding signage would be added and improved as appropriate.

Details on the proposed action by road segment are provided in the following sections.

2.6.2 Proposed Nason Street Connector

Improvements along the proposed Nason Street Connector would include bicycle lanes on both sides of the street, a sidewalk on the north side of the road and dedicated right turning lane at the intersection with South Main Street (see **Figures 2.6-3** and **2.6-4**). The intersection would become signalized, with the addition of left turn lanes on South Main Street. The corner curb radii within this intersection and at the northerly turn onto Lemnah Drive would allow for the easy truck access. This supports the desire to provide trucks an alternate route to US Route 7 through the City and provides a more appropriate path for trucks to access the Federal Street Corridor when compared to the residential side streets that they frequently utilize today. All pedestrian crossings within the signalized intersection would be marked and properly signed, and controlled by pedestrian signals. A privacy fence and/or dense landscape treatment would be installed to provide a visual buffer between the proposed Nason Street Connector and the backyards of the Nason Street neighborhood and the house at the southwest corner of the South Main Street intersection.

2.6.3 Lemnah Drive

Improvements along Lemnah Drive would include bicycle lanes on both sides of the street and a sidewalk on the east side of the road where existing residential, commercial, and industrial developments are present (see **Figures 2.6-4,** and **2.6-5**). A dedicated left turn lane would be added at Nason Street and all pedestrian crossings would be well signed and marked.

2.6.4 Federal St.

Improvements along Federal Street would include bicycle lanes and sidewalks on both sides of the road, left and right turning lanes at Lower Newton Street, and marked pedestrian crossings for all side streets and across Federal Street at Aldis

Street and Kingman Street (see **Figures 2.6-6** through **2.6-9**). The proposed crosswalk across Federal Street at Aldis Street is important since Aldis Street leads to the St. Albans City Elementary School. To provide adequate space for the bicycle lanes, on-street parking would be phased out north of Center Street, but would be provided on both sides of the street from Center Street south.

2.6.5 Lower Newton St.

Lower Newton Street would continue to have one lane in both directions but would have dedicated left turn lanes at both the North Main Street and Federal Street intersections (see **Figure 2.6-9**). The Federal Street intersection would change from being stop-controlled on Federal Street to being signalized.

The narrow right-of-way and the need for dedicated turning lanes preclude the establishment of bike lanes along this road segment. Bicyclists would either share the road on Lower Newton Street as they do today, or they could connect to Main Street on low volume side streets such as Kingman, Center or Hoyt Streets. A sidewalk is proposed along the south side, consistent with existing conditions, with a short segment along the north side west of the Federal Street intersection. All pedestrian crossings would be marked and would include pedestrian-actuated signal heads within the intersection.

The existing outdated traffic signal system at the Lower Newton Street/North Main Street intersection would be replaced with a fully actuated system that would improve efficiency and conform to MUTCD standards. Minor geometric improvements would also be made within the intersection to better accommodate turning trucks.

2.7 Lower Welden Street at Allen Street and Lemnah Drive

Two alternatives have been developed at this intersection, which is currently unsignalized. The first alternative is a one lane roundabout and the second is a traffic signal. These alternatives are described below.

2.7.1 Alternative 1: Roundabout (Proposed Action)

Alternative 1 for the intersection of Lower Welden Street at Allen Street and Lemnah Drive is a standard one-lane roundabout (see **Figure 2.7-1**). This approach is particularly well suited to address the existing configuration, which has Lemnah Drive approaching the intersection obliquely. Pedestrian crossings would be provided along the north, west, and south arms of the roundabout, and bike/pedestrian paths provided around the perimeter.

2.7.1.1 Advantages

Alternative 1 has a variety of advantages:

- Traffic would be able to bypass Lower Welden Street west of the intersection when a train is passing.
- Queue lengths and delay would be short compared to a traffic signal during off-peak times.
- Access to the fire station, located at the southeast corner of the intersection at 30 Lower Welden Street, would be maintained across a mountable/textured median.
- The roundabout would operate at better levels of service (LOS) than would a signalized intersection (B vs. C), which would result in less overall delay and thus improving air quality and reducing noise.
- The roundabout would include landscape amenities, improving the overall visual effect of the intersection.
- The roundabout would create fewer conflict points than would a four-way intersection (8 versus 32, respectively). Conflict points are defined as locations where vehicles could crash because their normal travel paths intersect.
- The damage incurred in roundabout crashes is generally significantly reduced compared to crashes in a signalized intersection.
- Roundabouts are known to have a traffic calming effect on through traffic.

2.7.1.2 Disadvantages

Disadvantages associated with Alternative 1 include:

- The roundabout creates impacts outside of the ROW.
- The roundabout would result in some longer pedestrian routes, although individual roadway crossing distances would be shorter.

2.7.2 Alternative 2: Signalized

This alternative includes modifications to the existing geometric configuration (see **Figure 2.7-2**). This alternative would install a fully-actuated signal with left turn only lanes provided on Lemnah Drive, Allen Street and Lower Welden Street (westbound). The traffic signal would meet MUTCD signal warrants. The improvements would also include the addition of continuous 4-ft (min.) wide bike lanes on both sides of the corridor.

2.7.2.1 Advantages

- This alternative would provide greater control over traffic and pedestrian movements through the intersection.
- Fire station access to the intersection requires that fire pre-emption would be installed, which gives the fire station priority within the signal phasing when leaving the station.
- This alternative would result in less impact outside of the ROW than the roundabout alternative.

2.7.2.2 Disadvantages

- Longer queue lengths would be experienced during the AM and PM peaks, and vehicles would wait longer to pass through the intersection compared to the roundabout during off-peak periods since the roundabout uses yield control on all approaches.
- This alternative would have longer pedestrian crossing distances compared to the roundabout due to the large corner radii required to accommodate turning trucks.

2.8 Lake Street at Catherine / Federal Streets

As previously described, this central unsignalized intersection is characterized by confusing north-south vehicle paths, long delays and poor bike and pedestrian connections. The four solution alternatives that follow are compared in terms of satisfying the Purpose and Need and relative advantages and disadvantages. The resulting levels of service for each of the four alternatives are provided in **Table 2.8-1** at the end of this section.

2.8.1 Alternative 1: Signalized with One-Way Roads (Proposed Action)

Under this alternative the intersection would be signalized with Catherine Street 1-way northbound and Market Street one-way southbound. This alternative includes modifications to the existing intersection geometric configuration. Improvements include the addition of continuous 5-ft wide bike lanes on both sides of the road, fully-actuated signal with left turn only lanes provided on Federal Street and Catherine Street, right turn only lane on Federal Street and a right turn slip lane from Lake Street to Market Street (**Figure 2.8-1**).

2.8.1.1 Advantages

- This alternative would reduce vehicle conflicts by adding traffic signal controls and by improving the intersection geometry.
- The traffic would be assigned right-of-way for each conflicting movement. Conflicting streams of traffic would share the same intersection by means of time separation.
- The pedestrian facilities are better defined and the routes would be shorter than the existing condition.
- This alternative would provide a desirable centralized location for a municipal parking lot, or a mix of parking, green space or buildings.
- The Giroux Furniture Company building would be preserved.

2.8.1.2 Disadvantages

- This alternative would create impacts outside of the ROW. Market Street is currently owned by the railroad.
- Longer average queue lengths would be experienced during the AM and PM peaks, and vehicles would wait longer to traverse through the intersection compared to the roundabout during off-peak times.
- This would result in more overall delay than the other alternatives.

2.8.2 Alternative 2: Roundabout

This alternative is a standard one-lane roundabout with four approaches (**Figure 2.8-2**).

2.8.2.1 Advantages

- Shorter queue lengths and delay compared to traffic signal alternatives during off-peak times.
- The roundabout would operate at better level of service than the traffic signal during the AM peak. (B vs. D)
- This would result in less overall delay, thus improving air quality and reducing noise.
- It would provide landscape opportunities, and change the overall visual impact of the intersection.
- Fewer conflict points then the four-way intersection (32 conflict points for a 4-way intersection versus 8 in a roundabout)
- The damage incurred in roundabout crash is expected to be significantly reduced compared to a standard intersection.

- Roundabouts are known to have a traffic calming effect on through traffic.

2.8.2.2 Disadvantages

- Substantial ROW impacts would be required to accommodate the roundabout and its approaches.
- This alternative would have longer overall pedestrian through routes and it would not accommodate on-road bicyclists well.
- The historic Giroux Furniture Company building would be demolished.

2.8.3 Alternative 3: Signalized, Two-Way Catherine St.

This alternative includes modifications to the existing geometric configuration. This alternative would install a fully-actuated signal with left turn only lanes provided on Catherine Street and Lake Street eastbound and right turn only lane on Federal Street. The improvements include the addition of continuous 4-ft (min.) wide bike lanes on both sides of the road (**Figure 2.8-3**).

2.8.3.1 Advantages

- This alternative would have an exclusive pedestrian phase which provides pedestrian access to the crosswalks with fewer vehicular conflicts.
- The traffic would be assigned right-of-way for each conflicting movement of traffic by permitting conflicting streams of traffic to share the same intersection by means of time separation.
- This alternative would be expected to operate at the best level of service of the four build alternatives, and the north-south approaches would be aligned better than the other alternatives.

2.8.3.2 Disadvantages

- This alternative would require substantial ROW impacts.
- Motorists would wait longer to traverse through the intersection compared to the roundabout during off-peak times.
- The historic Giroux Furniture Company building would be demolished.

2.8.4 Alternative 4: Elongated Roundabout

This alternative is a modified one-lane roundabout (**Figure 2.8-4**).

2.8.4.1 Advantages

- This alternative would result in less overall delay compared to the Proposed Action (traffic signal), thus improving air quality and reducing noise.
- It would provide landscape opportunities, and change the overall visual impact of the intersection.
- The historic Giroux Furniture Company building would remain.

2.8.4.2 Disadvantages

- Excessive paved areas would be required in some areas to accommodate the design vehicle (i.e. a heavy truck), which can result in motorist confusion. For example, in this alternative, it may appear to motorists that a left turn can be made from Federal Street south to Lake Street east, but this is not a permitted movement.
- This alternative would create impacts outside of the ROW.
- The alternative would result in some longer pedestrian routes and it would not accommodate on-road bicyclists well.
- This non-standard roundabout geometry does not include sufficient vehicle deflection in the east-west direction to slow vehicle speeds. This, combined with the potentially confusing expansive paved areas, introduces safety concerns when compared to the standard roundabout and signalized alternatives.

Table 2.8-1 Lake Street at Catherine/Federal Streets Levels of Service

Alternative	2030 A.M. Peak	2030 P.M. Peak
1. Signalized w/ One-Way Roads (Proposed Action)	E	E
2. Roundabout	B	F
3. Signalized (Two-way Catherine St.)	C	D
4. Elongated Roundabout	B	F

2.9 Summary of the Proposed Action

The Proposed Action includes the typical roadway and pedestrian improvements that would be constructed throughout the Federal Street Corridor as described in **Section 2.6**. These include two 11-ft. wide travel lanes, two 4-ft. wide (min.) sidewalks, 2 to 4-ft. wide grass utility strips, and a 5-ft. sidewalk (on both sides of the road along Federal Street, on one side elsewhere). It also includes the intersection improvements at the Lower Welden Street /Allen Street /Lemnah Drive and the Lake Street /Catherine Street /Federal Street intersections as described below.

The Proposed Action at the **Lower Welden Street / Allen Street / Lemnah Drive** intersection is the roundabout alternative (Alternative 1). This alternative would process traffic better than the signalized alternative (Alternative 2).

The Proposed Action at the **Lake Street / Catherine Street / Federal Street** intersection is the signalized intersection with Catherine Street and Market Street converted to one-way legs of the intersection (Alternative 1). This alternative improves multimodal mobility while minimizing impacts to cultural resources. The Proposed Action continues the typical on-road bike lanes through the intersection, and it provides signalized pedestrian crossings within the intersection.

The Proposed Action was endorsed by the attendees of a public alternatives presentation meeting on November 29, 2011. It was subsequently endorsed by the St. Albans City Council on December 28, 2011.

3

Affected Environment, Environmental Consequences, and Mitigation

3.1 Overview

This Chapter describes the existing environmental conditions within the Study Area (see **Figure 1.2-1**) potentially affected by the Proposed Action. This Chapter also describes the environmental consequences of the No Action Alternative and the Proposed Action.

The FHWA defines direct, indirect and cumulative impacts based on CEQ regulations (40 CFR § 1500 – 1508). Direct impacts are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and are later in time or farther removed in distance, but still reasonably foreseeable. Cumulative impacts are the impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.[5]

For purposes of this discussion, impacts resulting from both the roadway improvements (i.e., direct impacts), and temporary construction impacts, as well as the indirect effects were evaluated and are presented for each resource. Cumulative impacts are addressed collectively near the end of this Chapter in **Section 3.18**.

The environmental impact categories considered in this EA include:

- Traffic (Section 3.2);
- Wetlands (Section 3.3);
- Surface Waters (Section 3.4);
- Groundwater and Drinking Water Resources (Section 3.5);

[5] FHWA *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process*, January 31, 2003.

- Floodplains and Floodways (Section 3.6);
- Farmlands (Section 3.7);
- Wildlife (Section 3.8);
- Threatened and Endangered Species (Section 3.9);
- Air Quality (Section 3.10);
- Noise (Section 3.11);
- Parks, Recreation, and Conservation Land (Section 3.12);
- Historic Resources (Section 3.13);
- Archeological Resources (Section 3.14);
- Acquisitions (Right-of-Way) (Section 3.15)
- Environmental Justice (Section 3.16);
- Hazardous Materials (Section 3.17); and
- Cumulative Impacts (Section 3.18).

For each resource category, the Proposed Action is compared to the No Action Alternative to determine its effect. Where impacts could not be avoided, mitigation measures were considered for the Proposed Action and are described where included.

3.2 Traffic

This section summarizes the existing (2010) and future year (2030) traffic operating conditions within the study area. The effects of the No-Action Alternative and the Proposed Action on the transportation system within the defined study area are examined and summarized. A traffic study has also been prepared to provide additional information and detail regarding the traffic evaluation and technical supporting documentation. It is included as **Appendix B**.

3.2.1 Existing Traffic Conditions

Section 2.4 previously described the existing physical characteristics and geometric conditions of the primary corridors and intersections accommodating traffic demands within the Study Area. This section describes the quantity and quality of traffic flow at key locations under the existing conditions for the critical weekday morning and evening commuter peak hours.

A traffic volume data collection program was conducted on Wednesday, September 1, 2010 and Thursday, September 2, 2010 to establish the existing traffic flow characteristics within the Study Area. The traffic volume counts consisted of weekday morning (7:00 – 9:00 AM) and weekday evening (4:00 – 6:00 PM) manual

turning movement counts (TMC) at seven study area intersections. The TMC locations, which are listed below, are also depicted in **Figure 3.2-1** along with the current lane use configuration and traffic control at each intersection. In addition, **Figure 3.2-1** also shows lane use and traffic control at other key intersections within the Study Area to graphically display a more complete roadway system with regard to the physical conditions. The seven TMC locations are:

- US Route 7 (North Main Street) at Upper Newton Street/Lower Newton Street
- Lower Newton Street at Federal Street
- Lake Street at Federal Street/Catherine Street
- Catherine Street/Allen Street at Stebbins Street/Market Street
- Lower Welden Street at Allen Street/Lemnah Drive
- Nason Street at Lemnah Drive
- US Route 7 (South Main Street) at the Interstate Access Road

3.2.1.1 Methodology

As recommended in a Policy on Geometric Design of Highways and Streets[6] and by VTrans, the appropriate volume condition is the 30th highest hour of the year. Given the economic considerations involved in the planning and design of street facilities, this design criterion is selected since the 30th highest hourly volume generally reflects a "point of diminishing return" in that a substantial increase in design requirements would accommodate only very few periods of higher traffic volumes. In fact, VTrans guidelines for traffic studies require that traffic volumes be adjusted to reflect the 30th highest hour, commonly referred to as Design Hourly Volume (DHV).

Historical traffic data obtained from the nearby VTrans Permanent Count Station P6F029 located on US Route 7, 1.7 miles north of I-89 in Georgia indicates that the 30th highest hour typically occurs during the weekday evening peak hour and is approximately nine percent higher than the September weekday evening peak hour volume. Therefore, the September 2010 weekday evening peak hour traffic volumes collected to establish the existing conditions were increased by nine percent to represent the DHV (the 30th highest hour). To determine an appropriate adjustment factor for the weekday morning peak hour condition, the weekday morning volume from Station P6F029 closest to the 30th highest hour was selected for comparison purposes; this weekday morning volume was also found to be nine percent higher than the September weekday morning peak hour volume. Therefore the September 2010 weekday morning peak hour volumes were also adjusted by nine percent. The

[6] American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets 6th Edition, Washington, D.C., 2011.

adjusted 2010 weekday morning and evening peak hour traffic volume networks are presented in **Figures 3.2-2** through **3.2-3**.

Measuring the volume of traffic at Study Area intersections indicates the importance of these intersections to the regional transportation system, but does not necessarily give an indication of the quality of traffic flow. To assess the quality of traffic flow, capacity analyses were conducted to determine how well these intersections serve the traffic demands placed upon them. The traffic performance measures and the evaluation criteria used in the operational analyses are based on the methodology presented in the 2000 Highway Capacity Manual.[7] Proposed roundabouts were evaluated using two analysis tools: SIDRA Intersections[8] software and the National Cooperative Highway Research Program (NCHRP) 572 Roundabout Analysis worksheet.

A primary result of capacity analysis is the assignment of level of service (LOS), which is a qualitative measure describing operational conditions at a given facility under specific traffic volume demands. Level of service is dependent on the effect of a number of factors including roadway geometrics, travel speed, delay, freedom to maneuver, and safety. Six levels of service are defined[9] ranging in letter designation from LOS A to LOS F, with LOS A representing the best operating condition and LOS F representing the worst. LOS C describes a stable flow condition and is considered desirable for design hour traffic flow. LOS D is generally considered acceptable where the cost and impacts of making improvements to provide LOS C are deemed unjustifiable. LOS E reflects a condition of longer delay and poor operations, but can be considered acceptable in a congested area, particularly in cases where traffic control devices and other measures are taken to improve safety or in cases where physical/geometric improvements are not considered feasible because they would result in environmental, historical, or property impacts.

The results of the 2010 existing condition operational analyses, which were conducted for the signalized and unsignalized intersections within the study area, are summarized in **Tables 3.2-1 and 3.2-2**, respectively.

The analysis results indicate that the signalized intersection of US Route 7 at Upper Newton Street/Lower Newton Street operates at LOS B with an average delay of 10 seconds and a volume to capacity ratio (v/c) of 0.39 under the 2010 existing weekday morning peak hour volume. Operations are more congested under the 2010 existing weekday evening peak hour volume where the intersection operates at LOS E with an average delay of 61 seconds and a v/c of 0.82.

▼

[7] 2000 Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C.
[8] SIDRA Intersection Software, Version 5.1, Akcelik and Associates Pty Ltd.
[9] 2000 Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C.

Table 3.2-1 2010 Existing Signalized Intersection Analysis Summary

	Weekday AM Peak Hour			Weekday PM Peak Hour		
Intersection	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c[1]**	**Delay[2]**	**LOS[3]**
US Route 7 at Upper Newton St/Lower Newton St	0.39	10	B	0.82	61	E

Notes:
1 Volume to capacity ratio
2 Average delay per vehicle expressed in seconds
3 Level of service

Table 3.2-2 2010 Existing Unsignalized Intersection Analysis Summary

	Weekday AM Peak Hour			Weekday PM Peak Hour		
Intersection	**Demand[1]**	**Delay[2]**	**LOS[3]**	**Demand[1]**	**Delay[2]**	**LOS[3]**
US Route 7 at Interstate Access Road						
WB lefts from Interstate Access Road	45	72	F	50	99	F
SB lefts from US Route 7	355	12	B	300	12	B
US Route 7 at Nason St						
EB movements from Nason St	145	85	F	110	132	F
NB lefts from US Route 7	90	10	A	125	10	B
Nason St at Lemnah Dr						
EB movements from Nason St	165	4	A	140	5	A
SB lefts from Lemnah Dr	50	13	B	50	13	B
SB rights from Lemnah Dr	65	9	A	65	10	A
Lower Welden St at Allen St/Lemnah Dr						
EB movements from Lower Welden St	210	1	A	265	1	A
WB movements from Lower Welden St	190	1	A	220	1	A
NB movements from Lemnah Dr	135	19	C	135	19	C
SB movements from Allen St	145	18	C	100	18	C
Stebbins St at Catherine St						
EB movements from Stebbins St	100	3	A	80	5	A
SB movements from Catherine St	100	12	B	75	10	B
Lake St at Federal St/Catherine St						
EB movements from Lake St	335	4	A	620	6	A
WB movements from Lake St	250	1	A	315	1	A
NB movements from Catherine St	65	29	D	100	287	F
SB left/through from Federal St	325	20	C	355	433	F
Lower Newton St at Federal St						
WB movements from Lower Newton St	370	6	A	400	6	A
NB movements from Federal St	135	17	C	425	37	F

1 Demand expressed in vehicles per hour
2 Average delay per vehicle expressed in seconds
3 Level of service

As shown in **Table 3.2-2**, two of the six unsignalized study area intersections experience long delays and operate at poor levels of service during the 2010 weekday morning and evening peak hours. Vehicles exiting from the unsignalized approaches of the Interstate Access Road and Nason Street to US Route 7 (Main Street) operate at

LOS F during both peak hours. Vehicles exiting from the unsignalized approaches of Catherine Street and Federal Street at the Lake Street intersection operate at LOS F during the evening peak hour.

The Federal Street unsignalized approach to the Lower Newton Street intersection also experiences moderate delays under the 2010 weekday evening peak hour volume, operating at LOS F; under the weekday morning peak hour volume the approach operates at LOS C. The remaining three unsignalized study area intersections of Catherine Street/Allen Street at Stebbins Street/Market Street, Lower Welden Street at Allen Street/Lemnah Drive, and Nason Street at Lemnah Drive operate with minor delays (LOS C or better) during the 2010 weekday morning and evening peak hours.

3.2.2 Future Year Traffic Conditions

In 2005, the Northwest Regional Planning Commission, the City of St. Albans, and the Town of St. Albans retained the services of Resource Systems Group, Inc. to conduct the Federal Street Corridor Study – 2005 Update (NRPC 2005). As part of that study, a travel demand model was developed to assist with estimating future traffic volumes. The model was created using Paramics software, a micro-simulation program that estimates the behavior of individual vehicles traveling on the transportation network. The model area encompasses the roadway network surrounded by: US Route 7 from St. Albans State Highway to Upper and Lower Newton Streets, Lower Newton Street from US Route 7 to Federal Street; and Federal, Catherine, Market, Allen, and Lemnah Streets. The 2005 Paramics model was updated and recalibrated to reflect the 2010 existing weekday morning and evening peak hours for the purposes of forecasting traffic volumes and evaluating the effect of the Proposed Action on the peak hour volumes within the Study Area.

With a base year condition of 2010 for the existing conditions, a twenty year forecast to 2030 was selected for analysis purposes. The 2030 No-Action traffic volumes were estimated by reviewing recent traffic growth trends recorded along US Route 7 by the VTrans Permanent Count Station P6F029 located in Georgia, combined with the 2009 to 2029 twenty year growth factor by regression analysis group prepared by VTrans for this same segment of US Route 7. Both the historical data and projected growth factors target an average annual growth rate of 0.5 percent per year. To provide a slightly conservative estimate of 2030 traffic volumes, an average annual growth rate of 1.0 percent was used to forecast for the first ten years of growth (2010 to 2020) and an average annual rate of 0.5 percent was used to forecast for the second ten years (2020 to 2030).

It is important to note that the Paramics traffic model includes more US Route 7 intersections than the two intersections (Upper Newton Street/Lower Newton Street and the Interstate Access Road where TMC data were collected. These intersections include the US Route 7 signalized intersections of Lower Welden Street, Fairfield

Street, Lake Street, and JC Penney Plaza and the unsignalized intersection of Nason Street. Volumes at these locations were estimated based on output provided from the 2005 Paramics model update and have been included in the network development for informational purposes. The 2010 and 2030 No-Action traffic volume networks for the weekday morning and evening peak hour conditions are shown in **Figures 3.2-4** through **3.2-7.**

Once calibrated to the existing condition, the Paramics model was modified to reflect the Build condition of the Proposed Action and to assess the sensitivity of traffic volume assignments under improvement options for the intersections of Lake Street at Federal Street/Catherine Street and Lower Welden Street at Lemnah Drive/Allen Street. The raw Paramics model output volumes were adjusted through the typical traffic modeling pivoting procedure to forecast a Build condition for the Proposed Action. The 2010 and 2030 Proposed Action (Build) traffic volume networks for the weekday morning and evening peak hour conditions are shown in **Figures 3.2-8** through **3.2-11.**

Signal warrants were evaluated for several of the intersections along the Federal Street Corridor using the Peak Hour Volume Warrant criteria outlined in MUTCD[10]. These included the intersections of US Route 7 at the Interstate Access Road, Federal Street with Lower Welden Street, Federal Street with Lake Street, and Federal Street with Lower Newton Street. The peak hour warrants indicated that the intersections of US Route 7 at the Interstate Access Road, Lake Street at Federal Street/Catherine Street, and Lower Newton Street at Federal Street would meet peak hour traffic signal warrants. However, the intersection of Federal Street at Lower Welden Street did not meet the peak hour warrant for a traffic signal.

It is important to note that there were a series of assumptions made and incorporated into the traffic operational analysis with regard to the Proposed Action that adversely affect intersection capacity results, but promote overall safer operations for pedestrians and motorists. Items, such as modified signal timing and phasing plans to accommodate split phases where vehicle conflicts can be eliminated or the incorporation of an exclusive pedestrian phase, reduce the overall capacity of an intersection and increase delay, but improve the overall quality of travel. These improvements cannot be measured, but can be described qualitatively. Specific locations where such items were included in the traffic operational analysis include:

- US Route 7 at Upper Newton Street/Lower Newton Street would have new signal controller equipment with coordination and an exclusive pedestrian phase. In addition, it is assumed that the Upper and Lower Newton Street approaches would be split-phased due to the alignment of the intersection (presently running concurrently).

[10] Manual on Uniform Traffic Control Devices, US Department of Transportation, Federal Highway Administration, 2009.

- US Route 7 at the Interstate Access Road would be a new four-way signalized intersection with the Nason Street Connector. This intersection is assumed to have an actuated exclusive pedestrian phase. In addition, the Interstate Access Road and Nason Street Connector approaches are assumed to be split phased to minimize vehicle conflicts.
- Lake Street at Federal Street/Catherine Street would be signalized with coordination to Main Street and an actuated exclusive pedestrian phase. In addition, the Lake Street approaches are assumed to be split-phased to avoid vehicle conflicts through this elongated intersection. Split phasing is less efficient than other possible intersection configurations at this location, but necessary to avoid roadway widening and resulting property impacts.
- Federal Street at Lower Newton Street would be signalized with coordination and an actuated exclusive pedestrian phase.
- The existing signalized Main Street (US Route 7) intersections with JC Penney plaza, Lake Street, Fairfield Street, and Upper Welden Street/Lower Welden Street would operate under coordination with exclusive pedestrian phases. Although these intersections are not part of the Study Area, they were included in the analysis to provide a system-wide review of the Project's impacts (i.e., the entire Main Street corridor is assumed to operate under coordination and the signal vehicle detection improvements currently in progress for the intersections of Main Street with Lake Street and Fairfield Street are assumed to be complete).

3.2.3 Traffic Results

This section describes the results of the traffic operational analyses that were conducted for the 2010 No Action (No Build) and Proposed Action (Build), and the 2030 No Action and Proposed Action conditions.

3.2.3.1 2010 No Action and Proposed Action

The signalized intersection of US Route 7 with Upper Newton Street and Lower Newton Street is expected to degrade slightly from LOS B to LOS C under the 2010 weekday morning peak hour as a result of the Project, and remain unchanged at LOS E under the weekday evening peak hour. As discussed in **Section 3.2.2**, the incorporation of an actuated exclusive pedestrian phase and split phasing of the off-set side streets under the Proposed Action partially contribute toward the minor change in operations. This intersection was classified as a High Crash Location (HCL) by VTrans based on crash data for the five-year period from 2005 to 2009. Based on historical crash trends at this location, the inclusion of the split phasing and the exclusive pedestrian phase could potentially reduce crashes at this location by 33 percent (addressing 8 out of 24 crashes over the five-year period).

The remaining existing signalized intersections along the US Route 7 corridor (JC Penney, Lake Street, Fairfield Street, and Upper Welden Street/Lower Welden Street) are projected to operate at the same or slightly better levels of service with the Proposed Action; all intersections operating at LOS C or better. It is important to point out that the peak hour traffic volume reductions along the US Route 7 corridor associated with the Proposed Action result in an average reduction of 30 percent in the v/c ratios at these existing signalized intersections due to diversion to Federal Street corridor.

The three new signalized intersections included under the Proposed Action include US Route 7 at the Interstate Access Road /Nason Street Connector, Lake Street at Federal Street/Catherine Street, and Lower Newton Street at Federal Street. All three of these locations experience LOS F operations under their existing unsignalized 2010 No-Action condition. Under the 2010 Proposed Action condition, the signalized intersection of US Route 7 at Interstate Access Road (SASH)/Nason Street Connector is projected to operate at LOS D during the weekday morning and evening peak hours and the intersection of Lower Newton Street at Federal Street is projected to operate at LOS C.

The proposed signalized intersection of Lake Street at Federal Street/Catherine Street is projected to operate at LOS D under the weekday morning peak hour and LOS E under the weekday evening peak hour. As discussed in the previous section, the longer delays incurred at this location are a result of selecting a Proposed Action that is focused on minimizing property impacts and providing exclusive pedestrian phases. In addition, it should be pointed out that the anticipated LOS E signalized intersection delay (69 seconds) is substantially lower than the LOS F unsignalized delay (287 seconds from Catherine Street and 433 seconds from Federal Street). As discussed previously, LOS E can be considered acceptable in congested areas where safety improvements are made that reduce potential intersection capacity and/or at locations where physical improvements are not considered due to the environmental, historical, or property impacts they may cause.

The proposed single lane roundabout at the intersection of Lower Welden Street and Allen Street/Lemnah Drive is projected to operate at LOS A under the 2010 Proposed Action condition during the weekday morning and evening peak hours.

The unsignalized intersection of US Route 7 and Nason Street substantially improves under the Proposed Action with vehicle delays exiting from Nason Street improving from LOS F to LOS B during both peak hours. This improvement is a result of motorists using the new signalized intersection at US Route 7 and the Nason Street Connector, resulting in lower through and turning movement volumes at the unsignalized Nason Street intersection. The remaining unsignalized intersections of Nason Street at Lemnah Drive and Stebbins Street at Catherine Street are projected to operate at acceptable levels of service under the 2010 No-Action and Proposed Action conditions during both peak hours.

3.2.3.2 2030 No Action and Proposed Action

Similar to the 2010 condition, the intersection of US Route 7 with Upper Newton Street and Lower Newton Street would be expected to degrade slightly from LOS B to LOS C during the 2030 weekday morning peak hour as a result of the Project. Traffic operations during the 2030 weekday evening peak hour would be expected to degrade from LOS E (67 seconds delay) to LOS F (91 seconds delay) during the weekday evening peak hour as a result of the Project in the year 2022. As discussed in the previous section, these changes in level of service are partially attributed to incorporating safety measures and pedestrian phases into the intersection's operations. The other factor contributing toward the change in level of service is the diversion of traffic from US Route 7 northbound under the Proposed Action condition utilizing Federal Street and Lower Newton Street to access US Route 7 north of the Study Area.

The other existing signalized intersections along the US Route 7 corridor (JC Penney, Lake Street, Fairfield Street, and Upper Welden Street/Lower Welden Street) are projected to operate at the same or slightly better levels of service with the Proposed Action (LOS C or better). Similar to the 2010 condition, these intersections would experience substantially lower v/c ratios (10 to 30% lower) as a result of the Proposed Action.

Two of the three proposed signalized intersections, US Route 7 at Interstate Access Road/Nason Street Connector and Lake Street at Federal Street/Catherine Street, are projected to operate at LOS E under the 2030 Proposed Action condition during the peak hours. As discussed previously, the longer delays at these locations are attributed to the incorporation of safety measures and exclusive pedestrian phases. It should be noted that the v/c ratios at these locations indicate that the intersections are operating well below capacity for the 2030 forecast year. The third proposed signalized intersection of Lower Newton Street and Federal Street is projected to operate at LOS C.

The proposed single lane roundabout at the intersection of Lower Welden Street and Allen Street/Lemnah Drive is projected to operate at LOS B or better under the 2030 Proposed Action condition during the weekday morning and evening peak hours.

Similar to the 2010 conditions, traffic operations at the US Route 7 and Nason Street unsignalized intersection are projected to substantially improve in 2030 with the Proposed Action. Delays for vehicles exiting from Nason Street are projected to decrease from 340 seconds and 526 seconds (LOS F) during the morning and evening peak hours respectively, to only 17 seconds (LOS C) with the Proposed Action.

All traffic movements at the unsignalized intersection of Stebbins Street at Catherine Street are projected to operate at LOS B or better under the 2030 No Action and Proposed Action conditions. At the unsignalized intersection of Nason Street at

Lemnah Drive, left-turns exiting from the stop-controlled side street approaches (Nason Street) are projected to operate at LOS E during the 2030 peak hours with moderate delays (40 seconds or less). Left-turns from Lemnah Drive are projected to operate at LOS A.

The results of the 2010 and 2030 signalized and unsignalized intersection analyses are summarized in **Tables 3.2-3** through **3.2-7**.

Table 3.2-3 2010 and 2030 Signalized Intersection Analysis Summary

		2010 No Action			2010 Proposed Action			2030 No Action			2030 Proposed Action		
Intersection	**Period**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c[1]**	**Delay[2]**	**LOS[3]**
US Route 7 @ Nason St Connector & St Albans State Highway	AM Peak	Unsignalized			0.66	44	D	Unsignalized			0.81	68	E
	PM Peak				0.71	48	D				0.87	73	E
Lake St @ Federal St & Catherine St	AM Peak	Unsignalized			0.61	43	D	Unsignalized			0.67	59	E
	PM Peak				0.80	69	E				0.90	65	E
Lower Newton St @ Federal St	AM Peak	Unsignalized			0.31	33	C	Unsignalized			0.34	31	C
	PM Peak				0.45	29	C				0.53	26	C
US Route 7 @ Upper Newton Street & Lower Newton Street	AM Peak	0.39	10	B	0.41	20	C	0.45	11	B	0.48	20	C
	PM Peak	0.82	61	E	0.85	58	E	0.91	67	E	1.11	91	F
US Route 7 @ JC Penney Plaza	AM Peak	0.42	11	B	0.32	7	A	0.47	11	B	0.38	7	A
	PM Peak	0.66	16	B	0.51	11	B	0.72	16	B	0.59	8	A
US Route 7 @ Lake Street	AM Peak	0.51	24	C	0.36	21	C	0.60	25	C	0.46	21	C
	PM Peak	0.79	28	C	0.57	29	C	0.92	33	C	0.70	25	C
US Route 7 @ Fairfield Street	AM Peak	0.46	26	C	0.33	22	C	0.54	29	C	0.38	25	C
	PM Peak	0.64	33	C	0.47	24	C	0.75	51	D	0.59	29	C
US Route 7 @ Upper Welden Street & Lower Welden Street	AM Peak	0.59	20	C	0.34	15	B	0.71	25	C	0.50	26	C
	PM Peak	0.83	31	C	0.55	24	C	0.98	49	D	0.69	16	B

1 Volume to capacity ratio
2 Average delay per vehicle expressed in seconds
3 Intersection level of service

Table 3.2-4 2010 Unsignalized Intersection Analysis Summary

	2010 No Action						2010 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
Intersection	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]
US Route 7 at St Albans State Highway												
WB lefts from St Albans State Highway	45	72	F	50	99	F	Signalized			Signalized		
SB lefts from US Route 7	355	12	B	300	12	B						
US Route 7 at Nason St												
EB movements from Nason St	145	85	F	110	132	F	60	14	B	30	14	B
NB lefts from US Route 7	90	10	A	125	10	B	45	8	A	35	8	A
Nason St at Lemnah Dr												
EB movements from Nason St	165	4	A	140	5	A	-	-	-	-	-	-
EB lefts from Nason St	-	-	-	-	-	-	95	27	D	95	28	D
EB through/right from Nason St	-	-	-	-	-	-	70	13	B	50	13	B
WB movements from Nason St	-	-	-	-	-	-	55	19	C	40	21	C
NB lefts from Nason St Connector	-	-	-	-	-	-	45	8	A	70	9	A
SB lefts from Lemnah Dr	50	13	B	50	13	B	5	8	A	5	8	A
SB rights from Lemnah Dr	65	9	A	65	10	A	-	-	-	-	-	-
Lower Welden St at Allen St/Lemnah Dr												
EB movements from Lower Welden St	210	1	A	265	1	A	See Roundabout Table 3.2-6			See Roundabout Table 3.2-6		
WB movements from Lower Welden St	190	1	A	220	1	A						
NB movements from Lemnah Dr	135	19	C	135	19	C						
SB movements from Allen St	145	18	C	100	18	C						

1 Demand expressed in vehicles per hour
2 Average delay per vehicle expressed in seconds
3 Level of service

Table 3.2-4 (cont.) 2010 Unsignalized Intersection Analysis Summary

	2010 No Action						2010 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
Intersection	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]
Stebbins St at Catherine St												
EB movements from Stebbins St	100	3	A	80	5	A	45	11	B	35	12	B
WB movements from Stebbins St	-	-	-	-	-	-	25	10	A	50	11	B
SB movements from Catherine St	100	12	B	75	10	B	-	-	-	-	-	-
Lake St at Federal St/Catherine St												
EB movements from Lake St	335	4	A	620	6	A						
WB movements from Lake St	250	1	A	315	1	A		Signalized			Signalized	
NB movements from Catherine St	65	29	D	100	287	F						
SB left/through from Federal St	325	20	C	355	433	F						
Lower Newton St at Federal St												
WB movements from Lower Newton St	370	6	A	400	6	A		Signalized			Signalized	
NB movements from Federal St	135	17	C	425	37	F						

1 Demand expressed in vehicles per hour
2 Average delay per vehicle expressed in seconds
3 Level of service

Table 3.2-5 2030 Unsignalized Intersection Analysis Summary

	2030 No Action						2030 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
Intersection	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]
US Route 7 at St Albans State Highway												
WB lefts from SASH	55	~	F	60	~	F	Signalized			Signalized		
SB lefts from US Route 7	415	15	B	345	15	B						
US Route 7 at Nason St												
EB movements from Nason St	180	340	F	135	526	F	70	17	C	45	17	C
NB lefts from US Route 7	110	10	A	140	11	B	55	9	A	35	9	A
Nason St at Lemnah Dr												
EB movements from Nason St	195	4	A	170	5	A	-	-	-	-	-	-
EB lefts from Nason St	-	-	-	-	-	-	110	32	D	115	40	E
EB through/right from Nason St	-	-	-	-	-	-	85	14	B	50	14	B
WB movements from Nason St	-	-	-	-	-	-	75	37	E	50	24	C
NB lefts from Nason St Connector	-	-	-	-	-	-	45	9	A	45	9	A
SB lefts from Lemnah Dr	70	15	C	60	14	B	5	8	A	5	8	A
SB rights from Lemnah Dr	80	10	A	80	10	A	-	-	-	-	-	-
Lower Welden St at Allen St/Lemnah Dr												
EB movements from Lower Welden St	260	1	A	315	1	A	See Roundabout Table 3.2-7			See Roundabout Table 3.2-7		
WB movements from Lower Welden St	235	1	A	255	1	A						
NB movements from Lemnah Dr	165	33	D	155	28	D						
SB movements from Allen St	180	29	D	120	24	C						

1 Demand expressed in vehicles per hour
2 Average delay per vehicle expressed in seconds
3 Level of service

Table 3.2-5 (cont.) 2030 Unsignalized Intersection Analysis Summary

	2030 No Action						2030 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
Intersection	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]	Demand[1]	Delay[2]	LOS[3]
Stebbins St at Catherine St												
EB movements from Stebbins St	130	4	A	90	5	A	50	11	B	35	12	B
WB movements from Stebbins St	-	-	-	-	-	-	45	10	A	80	11	B
SB movements from Catherine St	125	13	B	90	11	B	-	-	-	-	-	-
Lake St at Federal St/Catherine St												
EB movements from Lake St	390	5	A	720	7	A						
WB movements from Lake St	315	1	A	375	1	A	Signalized			Signalized		
NB movements from Catherine St	90	97	F	120	~	F						
SB left/through from Federal St	385	39	E	95	~	F						
Lower Newton St at Federal St												
WB movements from Lower Newton St	415	6	A	470	6	A	Signalized			Signalized		
NB movements from Federal St	155	22	C	500	115	F						

1 Demand expressed in vehicles per hour
2 Average delay per vehicle expressed in seconds
3 Level of service

Table 3.2-6 2010 Roundabout Capacity Analysis Summary at Lower Welden Street

		2010 Proposed Action[1]		2010 Proposed Action[2]		2010 Proposed Action[3]		2010 Proposed Action[4]	
Period	**Approach**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
AM Peak	NB	9	A	10	A	7	A	6	A
	WB	8	A	7	A	6	A	6	A
	SB	8	A	7	A	6	A	6	A
	EB	14	B	6	A	5	A	6	A
	Overall	10	A					6	A
PM Peak	NB	9	A	8	A	6	A	6	A
	WB	8	A	8	A	6	A	7	A
	SB	9	A	9	A	7	A	8	A
	EB	12	B	7	A	5	A	6	A
	Overall	10	A					7	A

1 Output from Sidra Intersection with HCM 2010 methodology
2 Output from Sidra Intersection with HCM 2000 lower methodology
3 Output from Sidra Intersection with HCM 2000 higher methodology
4 NCHRP spreadsheet

Table 3.2-7 2030 Roundabout Capacity Analysis Summary at Lower Welden Street

		2030 Proposed Action[1]		2030 Proposed Action[2]		2030 Proposed Action[3]		2030 Proposed Action[4]	
Period	**Approach**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
AM Peak	NB	11	B	11	B	8	A	7	A
	WB	8	A	8	A	6	A	7	A
	SB	9	*A*	8	A	6	A	6	A
	EB	17	C	6	A	5	A	7	A
	Overall	12	B					7	A
PM Peak	NB	10	A	9	A	7	A	7	A
	WB	10	B	10	B	8	A	7	A
	SB	10	A	9	A	7	A	9	A
	EB	18	C	7	A	5	A	8	A
	Overall	12	B					8	A

1 Output from Sidra Intersection with HCM 2010 methodology
2 Output from Sidra Intersection with HCM 2000 lower methodology
3 Output from Sidra Intersection with HCM 2000 higher methodology
4 NCHRP spreadsheet

3.3 Wetlands

This section describes the existing wetlands within the Study Area, including jurisdictional and non-jurisdictional wetlands. The environmental consequences of the No-Action and Proposed Action to wetlands are described and avoidance, minimization, and mitigation of impacts to wetlands are discussed. Technical studies supporting this section are provided in **Appendix C.**

3.3.1 Regulatory Context

In Vermont, wetlands comprise less than five percent of the state's surface area. Although they only represent a small portion of overall land cover, wetlands provide important functions, benefiting wildlife, water quality, and the public.

Wetlands are defined as areas inundated by surface water or groundwater sufficient to support a prevalence of vegetative or aquatic life that requires saturated soil conditions. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Areas that do not support hydrophytic vegetation because of lack of hydrology, and perennial streams, reservoirs, and deep lakes, are not considered wetlands and are defined as waterways or waterbodies.

The US Army Corps of Engineers (USACE) has jurisdictional authority over Waters of the United States, which include wetlands and waterways, through Section 404 of the Clean Water Act (CWA). Waters of the US include all waters which are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate wetlands; and all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or drainage ditches leading to regulated Waters of the United States, the degradation or destruction of which could affect interstate or foreign commerce.[11]

Wetlands are federally protected under the Clean Water Act and activities resulting in impacts to them require a permit from the USACE under Section 404 of that same Act. Executive Order 11990 also requires that federal actions which affect wetlands must include a "finding that there are no practicable alternatives" to the proposed construction in wetlands and the Proposed Action includes all practical means to reduce harm to wetlands.

[11] Wetlands Regulatory Program, United States Army Corps of Engineers, (http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx),

The State of Vermont regulates its wetland resources under the Vermont Wetland Rules (VT Code R. 12 004 056), adopted under the authority of the Water Resources Panel of the Vermont Natural Resources Board (the Panel) pursuant to 10 V.S.A § 6025(d)(5). This statute limits the applicability of these rules to those wetlands which are so significant that they merit protection in this program. Significance is determined by an evaluation of the functions provided by the wetland as described in Section 5 of the Vermont Wetland Rules. As defined in the Vermont Wetland Rules, wetlands are classified as one of three classes: Class I wetlands have been deemed by the Panel to be exceptional or irreplaceable and merit the highest level of protection; Class II wetlands are those wetlands that are protected by the state based on an assessment of functions and values per the Vermont Wetland Rules; and Class III wetlands are not regulated under the Vermont Wetland Rules but are subject to federal jurisdiction.

Pursuant to Section 9 of the Vermont Wetland Rules, proposed activities or uses within Class I or Class II wetlands, or their buffers, other than allowed activities as described in Section 6 of the Vermont Wetland Rules require a permit from the Vermont Department of Environmental Conservation (DEC) Wetlands Section or a conditional use determination or order issued by the Secretary.

3.3.2 Methodology

Wetlands within the Study Area were delineated during field investigations conducted in October 2010. Wetland delineations were made pursuant to the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Routine Determination Method (USACE 2009). Wetlands were identified in the field with flagging.

Field notes were taken to record information such as wetland classifications, general characteristics, potential functions and values of the wetland, and any unique qualities observed during the site assessment, along with other considerations relevant to support site findings. Wetlands were classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United Stated (Cowardin, et al. 1979). Wetland functions and values were evaluated based on the field notes and observations according to the USACE Highway Methodology Workbook: Supplement (USACE 1999). Wetland features were located in the field using a total station, with the survey being conducted simultaneously with the existing conditions survey of the corridor.

USACE Wetland Determination Data Forms were completed for onsite wetlands in which data were collected along the wetland and upland boundary. These forms contain detailed information on the vegetation, soils, and hydrology of each wetland as well as the non-jurisdictional upland areas. Wetland Function and Value Evaluation Forms were completed for each wetland delineated. The USACE Wetland Determination Forms and the Highway Methodology Function and Value Forms are

provided in **Appendix C**. The final page of **Appendix C** includes correspondence with the USACE confirming the delineated wetland boundary.

3.3.3 Affected Environment

Two wetlands were identified as a result of the wetland field investigations within the limits of the Study Area. The locations of these wetland resources are displayed on **Figure 3.3-1**. No vernal pools were identified within the Study Area (see also **Section 3.8.3**.) The following summary of delineated wetlands details wetland characteristics relative to the criteria for classifying significant wetlands under the Vermont Wetland Rules, as well as the proposed wetland classifications under these rules. Stevens Brook, a perennial stream and jurisdictional water of the United States is located in the Lemnah Drive segment of the Study Area, is discussed in **Section 3.4**.

Wetland B

Wetland B is approximately 32,200 sq ft in size within the limits of the Study Area and is located in the southern portion of the Study Area to the south of Nason Street (see **Figure 3.3-1**). It is characterized as a palustrine, forested wetland characterized by an overstory of broad-leaved deciduous trees and by seasonal flooding (Code: PFO1C). Wetland B has been very disturbed by past land use, including dumping. The presence of the trash within Wetland B reduces its functional benefit for protection of surface water quality and/or ground water quality as it has the potential to be a problem source. Wetland B does have the potential to store floodwaters, trap sediments and remove them from surface waters.

Under the Vermont Wetland Rules, Wetland B would require a 50-ft. buffer setback from non-exempt activities.

Wetland F

Wetland F is approximately 2,930 sq ft in size and is located adjacent to Wetland B in the southern portion of the Study Area to the south of Nason Street (see **Figure 3.3-1**). Wetland F is characterized by a palustrine forested vegetative community. Under the Vermont Wetland Rules, Wetland F does not appear to be jurisdictional and would not have a regulated buffer.

3.3.4 Environmental Consequences

Potential impacts to wetland areas were evaluated by overlaying the proposed limits of grading for the Proposed Action on mapping of existing conditions. The overlay plans were then assessed to determine direct and indirect effects on wetlands within the Study Area. The resulting estimates of wetland impacts are reported in **Table 3.3-1.**

3.3.4.1 No Action

In the absence of the Proposed Action, the area surrounding Nason Street may be developed incrementally by the various landowners on which the wetland resources are located. The City of St. Albans owns a narrow corridor purchased as part of the planning for this Project that includes portions of the delineated wetlands by Nason Street. In the absence of this Project for the No-Action Alternative, there would not be any direct impact to wetlands on the property owned by the City of St. Albans.

3.3.4.2 Proposed Action

The Proposed Action includes the construction of the Nason Street Connector; a new section of roadway to connect Lemnah Drive to the Interstate Access Road. The new section of roadway runs through the corridor purchased by the City of St. Albans that runs parallel to Nason Street in the vicinity of the two delineated wetlands within the Study Area. Direct impacts to the wetlands were avoided and minimized to the extent practicable given other highway design constraints, including site distance, grade and the ability to create a safe intersection at the intersection of the proposed Nason Street Connector and Lemnah Drive.

Table 3.3-1 summarizes both the direct and the indirect impacts to Wetland B. Total direct impacts are limited to Wetland B and amount to 1,506 sq ft. Additionally, there would be 360 sq ft of temporary impact, corresponding to a 5-ft construction buffer beyond the proposed limits of disturbance. Given the disturbed nature of Wetland B, the overall impact on the functions and values of Wetland B would be minimal.

In addition to wetland impacts, the Project would impact the 50ft buffer zone. Total impacts to the buffer of Wetland B for construction of the Nason Street Connector would be 13,193 sq ft, of which 1,605 sq ft would be temporary during construction. At present, preliminary calculations for the sizing of the proposed stormwater best management practice (BMP) located at the southwest corner of the intersection of Nason Street and Lemnah Drive indicate the BMP can be placed entirely within the ROW and outside the buffer for Wetland B (see **Section 3.4.4.2**, **Figure 3.4-2**). However, constructing the outfall from the BMP to the wetland would result in approximately 1,420 sq ft of permanent wetland buffer impact and approximately 25 sq ft of permanent wetland impact at the location of the pipe outfall. Wetland and buffer impacts are summarized in **Table 3.3-1.**

Other indirect impacts to Wetland B would be primarily temporary during construction when there would be the potential for sediments to be carried from the construction area into the wetland during precipitation events. There would be no direct or indirect impacts to Wetland F.

Table 3.3-1 Impacts to State and Federally Regulated Jurisdictional Wetlands

Type of Impact	Area of Impact (sf)
Permanent Wetland Impact	1,531
Temporary Wetland Impact	360
Subtotal Wetland Impacts (Direct)	**1,891**
Class II Wetland Buffer – Permanent	13,008
Class II Wetland Buffer – Temporary	1,605
Subtotal Wetland Buffer Impacts (Indirect)	**14,613**
Total Impacts	**16,504**

3.3.5 Mitigation

While the degree of direct impact to jurisdictional wetlands of the United States as a result of the construction of the Proposed Action would be classified as a non-reporting Category 1 activity by the Department of the Army Vermont General Permit for the State of Vermont (i.e., activities have less than 3,000 sq ft of impact), the USACE may conclude that wetland buffer clearing would result in a potential secondary or indirect impact to the wetland body. In this case, the activity would be classified as a Category 2 activity and require authorization under the Vermont General Permit. Coordination with the USACE to confirm this categorization would be carried out once design plans are advanced.

A Vermont State Individual Wetland Permit would be required from the DEC Wetland Section for impacts to the Class II Wetland B and its 50 ft. buffer. Compensation for unavoidable wetland impacts is not anticipated to be required by State permitting, provided that the Project's permit application illustrates how the plans for the proposed road alignment have considered alternative approaches to avoid wetlands and propose the least impact feasible while satisfying the Project's stated Purpose and Need.

The Project would also be required to adhere to Required Best Management Practices (BMPs) set forth in Section V.A. of the Vermont Wetland General Permit. BMPs may include:

1. the use of swamp mats in the location of proposed temporary wetland impacts to avoid rutting the wetland soil;
2. minimizing the clearing of vegetation in the wetland buffer;
3. installation of erosion prevention and sediment control (EPSC) measures in accordance with the provisions of an approved EPSC plan, including the use of a wetland seed mix consisting of native species to revegetate areas of temporary wetland impact; and
4. restoring any disturbed wetland or wetland buffer area.

In addition to these BMPs, the potential for temporary impacts to wetlands during construction would be minimized by the requirement for a Construction Phase Stormwater Discharge Permit and the associated development of an EPSC plan (see **Section 3.4.5** for additional information on stormwater permitting). Should a Category 2 General Permit be required, a Section 401 Water Quality Certification from the DEC would be required, the conditions of which would further safeguard water quality at the impact site.

3.4 Surface Waters

This section discusses surface waters that exist within the vicinity of the Study Area, and includes a discussion of potential surface water impacts associated with the No-Action Alternative and the Proposed Action.

3.4.1 Regulatory Context

In Vermont, protection of streams and rivers is under the jurisdiction of the USACE and the DEC. The DEC has jurisdiction over stream alterations and placement of stream crossing structures pursuant to 10 V.S.A. Chapter 41. The DEC River Management Section issues permits for authorized activities. Stormwater discharge (both operational and construction phase) is regulated by the Stormwater Section of the DEC Watershed Management Division. The Stormwater Section administers the following Environmental Protection Rules (EPR):

- EPR Chapter 18, Stormwater Management Rule for the management of stormwater runoff in waters that are not principally impaired by stormwater runoff, adopted July 4, 2005; and
- EPR Chapter 22, Stormwater Management Rule for Stormwater-Impaired Waters, adopted June 6 2006 (Impaired Rule).

Stormwater runoff, especially in urbanized areas, can contribute to the pollutant loading and hydrologic impacts to surface waters. Impervious surfaces such as pavement, concrete and roof tops restrict recharge of rainfall and snowmelt to underlying soils, and can affect both receiving water quantity and quality. Runoff may contain contaminants such as sediment, heavy metals, nutrients, oils and grease, which if untreated can discharge into surface waters or groundwater. When stormwater infiltrates, pollution materials are mainly adsorbed by the soil. Impervious surfaces do not allow this adsorption to take place, so contaminant concentrations remain high as discharge occurs to surface waters down gradient.

Act 250 criterion 1(E) requires that projects will, when feasible, maintain natural stream channel condition, and will not endanger the health safety, or welfare of the public or adjoining landowners [10 V.S.A. § 6086(a)(1)(E)].

3.4.2 Methodology

Stream delineation and assessment work was completed within the Study Area in October 2010. The ordinary high water mark (OHW) in Stevens Brook was delineated according to methods detailed in the "Regulatory Guidance Letter: Subject – Ordinary High Water Identification" (USACE 2005). Stream delineation and flagging was also conducted pursuant to the Agency of Natural Resources (ANR) Riparian Buffer Guidance (ANR 2005), including top of bank. The flow regime (i.e., ephemeral, intermittent, or perennial) was preliminarily classified based on qualitative observations of instream hydrology indicators at the time of observation, as well as geomorphic characteristics.

Stream features were located in the field using a total station, with the survey being conducted simultaneously with the existing conditions survey of the corridor. Stream features collected in the field are described in the following section and represented on **Figure 3.4-1**.

Stormwater infrastructure data for the Study Area including outfall locations, catch basins, and stormwater piping was acquired from existing City mapping resources and from an existing conditions survey. The stormwater infrastructure data provided a context for existing stormwater conveyance and discharges as well as surface water transport within the Study Area.

3.4.3 Affected Environment

3.4.3.1 Stevens Brook

The sole stream feature that intersects the Study Area is Stevens Brook. Stevens Brook flows west to Lake Champlain. It has a watershed area of approximately 14.7 square miles. It is a perennial stream where is crosses the Study Area, flowing from east to west perpendicular to Lemnah Drive south of the midpoint in the Study Area. This portion of Stevens Brook is approximately 8 to 10 ft wide at OHW, with banks approximately 4 to 8 ft high. The banks of the stream are armored upstream (east) of the delineated portion and the streambank shows signs of past manipulation throughout the Study Area. The water depth at the time of the delineation was estimated at 3 inches to greater than 1 ft.. Stevens Brook at this location is classified as a riverine, lower perennial, unconsolidated bottom, mud, permanently flooded (R2UB3H) channel. Lemnah Drive spans Stevens Brook via a bridge.

Downstream and outside of the Study Area, Stevens Brook is listed on the Vermont 303(d) List of Waters (2008) as impaired for stormwater, with consequences for aquatic life use support (ALS). As such, the entire watershed is classified as an impaired watershed due to stormwater runoff. Therefore, the requirements of EPR Chapter 22, *Stormwater Management Rule for Stormwater Impaired Waters* (Impaired Rule) apply. The stream is classified as a Class B waterbody. However,

biomonitoring has determined that it is impaired for ALS, such that it does not meet the criteria for Class B waters. A Total Maximum Daily Load (TMDL) was developed by the DEC in October 2008 and approved by the EPA in February 2009. In accordance with the Impaired Rule, developments within watersheds must meet the "no net increase" criterion, meaning that projects proposing to create new, expanded, or redeveloped impervious surfaces must reduce the washoff sediment load to natural background conditions.

The annual sediment load contributed by land uses within that part of the Study Area lying within the Stevens Brook watershed was estimated using the Simple Method (Schueler 1987). Sediment loads contributed by commercial uses total approximately 1,328 lbs per year while sediment loads contributed by paved transportation surfaces (including driveways) total approximately 15,275 lbs per year, resulting in a total of 16,603 lbs per year.

3.4.3.2 Rugg Brook

The extreme southern portion of the Study Area is located within the Rugg Brook watershed, which is also an impaired watershed due to stormwater runoff, therefore, development within the watershed must also meet the requirements of the Impaired Rule.

Using the Simple Method, the annual sediment load contributed by land uses within that part of the Study Area lying within the Rugg Brook watershed was estimated. Sediment loads contributed by paved transportation surfaces (including driveways) total approximately 1,706 lbs per year, while sediment loads from open/meadow areas total 92 lbs per year, resulting in a total of 1,798 lbs per year.

3.4.4 Environmental Consequences

3.4.4.1 No Action

Under the No-Action Alternative, there would be incremental redevelopment within the Study Area and potentially new development within the forested area south of Nason Street. Assuming that this development is held to the requirements of the Impaired Rule (**Section 3.4.1**), there should not be any adverse impacts to Stevens Brook or Rugg Brook.

The existing stormwater infrastructure is the collective result of many small retrofit projects, and is in generally poor condition. Due to the age of the infrastructure much of the sewer and storm drain systems are combined and discharge to the wastewater treatment plant. The stormwater systems that are not combined have very limited or no treatment practices in place within the Study Area, and therefore, the existing system is not up to current standards. Redevelopment within the Study Area would require compliance with the Vermont Stormwater Management Manual (VSMM)

(ANR 2002), but would be accomplished in piecemeal fashion over time with inherent difficulties/constraints posed by tying into the existing, dilapidated system. Compared to the flexibility afforded by a larger Project footprint, stormwater treatment practices implemented under the No-Action Alternative would be less effective in addressing the stormwater sediment loading that is contributing to the impairment of Stevens Brook.

3.4.4.2 Proposed Action

Stream Impacts

The Proposed Action would include the removal and replacement of the existing bridge that spans Stevens Brook. The streambanks may require slight modification to allow for the removal of the old abutments and installation of new abutments. The design elevation of the bridge structure above the channel would be based on a hydraulic/hydrologic analysis of the contributing watershed and clearance would be sufficient to convey the 25-year storm event plus 1-ft. of freeboard, or the 100-year storm event, whichever is greater.

Stevens Brook has been channelized for some distance upstream and downstream of the Study Area. Within the Study Area, its banks have been armored using stone and gabion, and buildings and parking areas are present less than 30 feet from the top of the stream bank. Given this condition, there is limited opportunity to modify the channel of Stevens Brook as part of the bridge replacement; any channel modifications must tie into the existing stream banks upstream and downstream of the proposed crossing. Due to these constraints, the open area under the proposed bridge would not differ significantly from the open area under the existing structure. Because the existing hydraulic opening would be maintained and the 50± linear feet of stream channel between the new Lemnah Drive bridge and the existing NECR railroad bridge would remain unaltered, the proposed bridge would not impact downstream structures or flood elevations.

Construction of the new bridge span may be possible without the use of construction equipment within the stream channel. However, temporary access to the channel may be required during construction by workers to coordination the installation activities, and accidental disturbance is possible during the overall process. For this reason, 51 linear ft (1,020 sq ft) of temporary impact to the channel have been assumed during construction. This temporary impact would be noted in coordination with the USACE, and would potentially require authorization under a Category 2 General Permit as noted in **Section 3.3.5**. A Stream Alteration Permit may be required from the DEC for this activity, should greater than 10 cubic yards of material be excavated within the cross-sectional limits of the stream.

Stormwater Impacts

The Proposed Action would bring the current stormwater collection, conveyance, and treatment infrastructure to current standards. Due to the linear nature of the Project and site constraints posed by existing infrastructure, several discharge locations would be utilized to most efficiently manage the stormwater runoff. The conceptual stormwater management system for the Proposed Action is included as **Figure 3.4-2** through **Figure 3.4-6**.

The proposed stormwater infrastructure system for the Rugg Brook watershed includes new storm drain piping, manholes, catch basins, and a surface BMP to treat both stormwater quality and detain peak stormwater runoff flows prior to discharge. This surface BMP would be located at the very southern end of the Project, within the Rugg Brook watershed at the southwest corner of the intersection of Nason Street and Lemnah Drive (see **Figure 3.4-2**). Stormwater runoff would be collected in a series of catch basins and stormwater piping before being routed to the surface BMP, discharging ultimately to a Class II wetland within the Rugg Brook watershed (Wetland B, see **Section 3.3**).

The proposed stormwater infrastructure system for the Stevens Brook watershed includes new storm drain piping, manholes, catch basins, and proprietary treatment devices to treat stormwater runoff prior to discharge. Due to the urban site constraints of the Study Area, all water quality treatment devices within the Stevens Brook watershed portion of the Project would be subsurface. These four water quality treatment devices would be spread out along the Federal Street Corridor. Stormwater runoff would be collected in a series of catch basins and stormwater piping, before being routed to subsurface water quality treatment device(s), and ultimately discharged to Stevens Brook.

The Proposed Action would increase the amount of impervious area in both the Stevens Brook and Rugg Brook watersheds, both of which are impaired due to stormwater runoff. Both redeveloped impervious and new impervious areas would be collected and treated prior to discharge, resulting in a much improved stormwater system and overall benefit to both stormwater impaired watersheds. The combined sediment load in both watersheds would decrease from an existing condition of 18,400 lbs per year to 4,575 lbs per year, which represents a 75 percent decrease in loading. This decrease in loading, while appreciable, does not achieve compliance with state statute 10 V.S.A 1264a, which requires no increase in sediment loading over natural background conditions. The sediment loading analysis indicates that natural background loading is 642 lbs per year for both watersheds. Therefore, an additional reduction of 3,932 lbs per year would be required. The means to achieve this additional reduction are discussed in the following section.

3.4.5 Mitigation

With respect to stream impacts, the existing bridge at Stevens Brook would be replaced with a structure that also spans the Brook and which would be designed in accordance with VTrans hydraulic design guidelines.

With respect to stormwater management, as previously discussed, the Proposed Action would be carried out within two stormwater impaired watersheds. While the stormwater management system design is currently conceptual, its proposed improvements reflect an effort to maintain existing hydrologic models and flow paths, while improving stormwater quality, in accordance with the Impaired Rule.

Due to the amount of earth disturbance and new/redeveloped impervious areas associated with the Proposed Action and its position within impaired watersheds, Vermont Individual Construction Phase and Operational Phase Stormwater Discharge Permits (INDC and INDS, respectively) would be required. Conditions required by the INDC permit mitigate surface water impacts during construction via the review and approval of EPSC measures. The INDS permit for this Project would require compliance with state statute 10 V.S.A. 1264a, requiring compliance with the VSMM and demonstrating that the Proposed Action does not increase the sediment or hydrologic load of the receiving waters over natural background conditions.

A preliminary determination of the required offset capacity to achieve the no net increase criterion of the Impaired Rule has been completed using the Simple Method (Schueler 1987). The required offsets would be approximately 625 lbs per year for the Rugg Brook watershed and 3,307 lbs per year for the Stevens Brook watershed.

Baseline conditions will be further assessed in the watershed context for both Stevens and Rugg Brook. As Project design is developed, including proposed stormwater treatment practices (STPs), the required offset capacity to achieve no net increase in pollutant loading to each watershed would be confirmed. In the Stevens Brook watershed, due to the relatively limited space available for the implementation of STPs both above and below ground surface, an offset project may be the required to achieve the additional treatment necessary to satisfy the no net increase criterion of the Impaired Rule. A currently permitted offset project (the Stevens/Rugg Diversion Channel offset project) may have sufficient capacity to meet the Project's needs. If that is not the case, the City will be required to identify an offset project elsewhere in the watershed.

For the Rugg Brook watershed, potential offset projects will be identified for review and approval by the City and VTrans. Offset opportunities may include collecting runoff from adjacent impervious areas (such as the Interstate Access Road), or conducting an offsite improvement project elsewhere in the watershed. Federal funds associated with the Project would not be used for stormwater offset purposes in either watershed.

3.5 Groundwater & Drinking Water Resources

This section identifies the presence and current use of groundwater resources in the vicinity of the Study Area. Groundwater can be an important water supply for residential, commercial, and industrial use, and contamination of these groundwater resources can have social, economic, and health-related consequences to the communities that rely on them.

3.5.1 Regulatory Context

Groundwater is regulated within the jurisdiction of the ANR by the Groundwater Protection Rule and Strategy, adopted under the authority of the 10 Vermont Statutes Annotated (V.S.A.) 1390 – 1394. The purpose of this rule and strategy is to manage groundwater resources, minimizing risks to groundwater quality by limiting human activities that may present unreasonable risks to the use classifications of groundwater in the vicinities of such activities.

3.5.2 Methodology

Digital data available from the Vermont Center for Geographic Information (VCGI) were used to determine the presence/absence of groundwater resources within the Study Area. Ground and Surface Water Source Protection Area (SPA) boundaries have been located on USGS topographic maps by the Water Supply Division of the Vermont Department of Conservation and Vermont Department of Health. Buffered SPA's are based on the point location of the water sources. These data are intended to visually display wellhead protection areas and surface water source protection areas.

3.5.3 Affected Environment

No state designated groundwater protection areas have been identified within a one-mile radius of the Study Area. **Figure 3.5-1** shows that the closest Surface Water Source Protection Area is located approximately 2 miles to the southeast and at a higher elevation from the Study Area. The closest Ground Water Source Protection Area is located approximately 2 miles to the northeast of the Study Area. Both areas are well outside of any influence of the Project.

3.5.4 Environmental Consequences

3.5.4.1 No Action

Under the No-Action Alternative and because there are no groundwater resources or surface drinking water sources within the Study Area, there would be no effect to groundwater resources.

3.5.4.2 Proposed Action

The Proposed Action would have no effect on groundwater resources or surface drinking water sources as state designated resources are located a considerable distance from the Study Area.

3.5.5 Mitigation

Mitigation for impacts to groundwater resources or surface drinking water sources would not be required as no impacts to these resources are expected.

3.6 Floodplains and Floodways

This section identifies the presence of regulated 100-year floodplains within the vicinity of the Study Area and assesses impacts associated with the Proposed Action. Regulated 100-year floodplains are floodplains mapped by the Federal Emergency Management Agency (FEMA).

3.6.1 Regulatory Context

Federal projects potentially affecting floodplains require an evaluation under the provisions of Executive Order 11988, Floodplain Management, May 24, 1977. The regulation that sets forth the policy and procedures of this order is "Floodplain Management and Protection of Wetlands," 44 CFR 9, which is under the authority of FEMA. In addition, the policies and procedures of the FHWA regarding the impact of projects on floodplains are found in "Location and Hydraulic Design of Encroachments on Floodplains," 23 CFR 650A.

A 100-year floodplain is defined as having a one percent chance of flooding in any particular year. The 100-year floodplain is comprised of the floodway, which in most cases approximates the water course, and the so called "floodway fringe" that exists outside the channel. Federal regulations, incorporated in local zoning and subdivision regulations, establish stringent standards for where development is permitted and prohibited in these areas.

The City of St. Albans Land Development Regulations Section 305 Flood Hazard Overlay District refers to the federal and state provisions for compliance with the National Flood Insurance Program (NFIP).

3.6.2 Methodology

The effects of the Proposed Action on floodplains and floodways were determined by comparing the limits of FEMA designated floodplains within the Study Area over the limits of work for the Proposed Action. Where the Proposed Action limits of

work occur in the FEMA designated floodplain or flood zone, the nature of the proposed work was analyzed to determine if any of the proposed activities would result in the placement of fill within the limits of the regulated floodplain.

3.6.3 Affected Environment

Based on the 1978 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), there are no Zone A (100-year) special flood hazard areas within the Study Area. Portions of the Study Area are characterized as a Zone B special flood hazard area. Zone B is listed as a moderate flood risk area. This zone includes the ROW from Lemnah Street at intersection of Allen Street and Lower Welden Street south to a point roughly 300 ft north of the intersection with Nason Street. The source of flooding for this zone is Stevens Brook and Grice Brook, which converge just east of Lemnah Drive near the western terminus of Gilman Street (see **Figure 3.6.-1**). Flooding is exacerbated by an antiquated stormwater collection system in the Study Area.

No other portions of the Study Area lie within a regulated floodplain and/or flood zone. There are no flood hazard zones along Rugg Brook within a one-mile radius of the Study Area.

3.6.4 Environmental Consequences

3.6.4.1 No Action

Under the No-Action Alternative, redevelopment would continue incrementally within the Zone B area. Such development is unlikely to exacerbate flooding over current levels, though a lack of systematic stormwater management improvements may result in increased flooding over time.

3.6.4.2 Proposed Action

There are no Zone A (100-year) special flood hazard areas within the Study Area. The nature of the redevelopment is such that little change is proposed to occur with respect to finished elevation or surface water flow patterns. In addition, the Proposed Action would result in systematic stormwater management improvements that would help alleviate flooding within portions of the Study Area. The replacement of the bridge over Stevens Brook would not change hydraulic/hydrologic conditions at this conveyance. Accordingly, there would be no substantial impact to floodplains and floodways as a result of the Proposed Action.

3.6.5 Mitigation

Because no impacts are anticipated to the 100-year floodplain, no mitigation is proposed. In addition, the Proposed Action would comply with the City of St. Albans Land Development Regulations in Section 305 Flood Hazard Overlay District.

3.7 Farmlands

This section describes the occurrence of farmland (prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance) with the Study Area and describes the environmental consequences of the No-Action Alternative and the Proposed Action with respect to farmland.

3.7.1 Regulatory Context

The Farmland Protection Policy Act (FPPA) of 1984 {Section 1539-1549, Public Law 97-98, 95 Statute 1341-1344 (7 USC. 4201 et seq.)] provides guidelines to Federal agencies involved in projects that may convert existing or potential farmland areas to non-agricultural uses. According to the FPPA, "Farmland" does not include land already in or committed to urban development. For the 2000 Census, the Census Bureau classifies "urban" as all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC).

3.7.2 Methodology

Since the FPPA excludes farmland soils that are in an urbanized area, US Census Bureau digital mapping of UCs was overlaid onto important farmland soil mapping. Farmland soils within the boundary of the UC were deleted from the subsequent analysis. The extent of the UC in the vicinity of the Study Area is shown in **Figure 3.7-1**.

3.7.3 Affected Environment

Figure 3.7-1 shows the limits of the UC as determined by the US Census: 2000. Per the US Census 2000, the entire Study Area lies within a UC. Because the entire Study Area lies within a UC, there are no "Important Farmlands" subject to the provisions of § 658.2 of the FPPA.

3.7.4 Environmental Consequences

This section describes the environmental consequences of the No-Action Alternative and the Proposed Action with respect to farmland.

3.7.4.1 No Action

Although the No-Action Alternative may result in future development to lands currently undeveloped along Nason Street, there would be no impact to important farmlands, as the entire Study Area is disqualified from protection under the FPPA. Additionally, there are no active farmlands within the Study Area.

3.7.4.2 Proposed Action

The Proposed Action would have no effect on important farmland due to the designation of the entire Study Area as a UC.

3.7.5 Mitigation

As there are no active farmlands within the Study Area and there are no qualifying prime, unique, statewide or locally important farmlands protected under the FPPA, no mitigations measures are required or proposed.

3.8 Wildlife

This section identifies wildlife resources in the vicinity of the Study Area as well as impacts to these resources resulting from the Proposed Action. The roles of regulatory agencies, rules, laws, and statutes applicable to the management and protection of these resources are also identified below.

3.8.1 Regulatory Context

The Vermont Fish and Wildlife Department (VTFWD) is responsible for managing and protecting resident fish and wildlife species. VTFWD has promulgated rules for the protection and management of these species; however, these rules pertain almost entirely to the exploitation of the species and not to their habitats. The rules set seasons, bag and creel limits, size requirements, and legal means for the taking of fish, game and furbearing species.

3.8.2 Methodology

The Study Area is within a UC as determined by the US Census Bureau in 2000. The Study Area was evaluated for the occurrence of natural resources and wildlife habitat. From the northern terminus of the Project through to Lemnah Drive at the intersection with Stevens Brook, field scientists made observations on conditions within the existing ROW and just beyond where improvements may be carried out. Because this part of the Study Area is highly developed, improvements would amount to redevelopment activities. The natural resource investigation was therefore restricted to a relatively narrow swath along the southern section of the Project boundary coincident with the proposed Nason Street Connector.

3.8.3 Affected Environment

The majority of the Study Area consists of previously developed roadways, sidewalks and associated infrastructure. The existing wildlife habitat within the Study Area is of relatively low value. It is suitable for use by animal species commonly found in urbanized environments, including the striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), and Virginia opossum (*Didelphis virginiana*). A variety of common songbirds as well as doves and pigeons may also inhabit the Study Area or be present as transients.

With the exception of the southern portion adjacent to Nason Street, the Study Area is completely surrounded by urban development. Main land uses include residential, commercial and industrial. Although the southern portions of the site are forested, there is no connectivity with larger unfragmented habitat blocks and the area has previously been highly disturbed by human activities, including the disposal of rubbish. **Figure 3.8-1** shows the proximity of the Study Area to important wildlife habitat as determined by a GIS search of available State data. Ecologic Core Wildlife Habitat is located well outside of the Study Area.

Field investigations to delineate wetlands and document the presence/absence of vernal pool breeding activity within the Study Area were completed in the spring of 2011.Two wetlands and one stream were identified as a result of the wetland field investigations within the limits of the Study Area. The locations of these wetland resources are displayed on **Figure 3.3-1**. Based on multiple field observations, it was concluded that no vernal pools are present within the Study Area.

Specific wetland descriptions can be found in **Section 3.3.3**. A description of Stevens Brook is contained in **Section 3.4.3**.

3.8.4 Environmental Consequences

3.8.4.1 No Action

Under the No-Action Alternative, lands that are currently undeveloped south of Nason Street may become incrementally developed over time. In the absence of the Project, it is currently unknown what would become of those portions of this area purchased by the City of St. Albans as a connecting ROW from the Interstate Access Road to Lemnah Drive.

3.8.4.2 Proposed Action

The Proposed Action would have minimal effect on wildlife habitat due to the designation of the entire Study Area as a UC and the fact that the majority of the Proposed Action would occur along areas previously developed.

The replacement of the Stevens Brook bridge may result in minor, temporary disturbance to aquatic habitat during construction. Mitigation with respect to bridge construction is discussed below.

3.8.5 Mitigation

Due to the developed nature of the Study Area and the lack of important wildlife habitat there would be minimal impacts to wildlife habitat. Thus, mitigation measures beyond those concerning the Stevens Brook bridge construction are not necessary or proposed.

With respect to the Stevens Brook bridge replacement, coordination with the VTFWD has determined that in-stream work may be subject to a time-of-year restriction to mitigate for impacts to aquatic habitat and fish spawning, with the period of work being June 1 to October 1. Consultation with VTFWD will continue as design plans are advanced.

3.9 Threatened and Endangered Species

This section documents Threatened and Endangered species within, and in the vicinity of, the Study Area, predicts impacts to Threatened and Endangered species, and identifies mitigation measures for any Threatened and Endangered species impacts associated with the Proposed Action.

3.9.1 Regulatory Context

The US Fish and Wildlife Service (USFWS) defines an "Endangered" species as one that is in danger of extinction throughout all or a substantial portion of its range. A "Threatened" species is one that is likely to become endangered in the foreseeable future.[12] The USFWS maintains a list of plants and animals native to the US that are candidates for, or are proposed for, possible addition to the Federal list. Listing, including proposed additions and delistings, are announced through the Federal Register.

The Vermont Nongame and Natural Heritage Program (VTNNHP, of the Vermont Fish and Wildlife Department) defines an "Endangered" species as one that is in immediate danger of becoming extirpated from the state. A "Threatened" species is one with a high possibility of becoming "Endangered" in the near future.[13] The

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[12] *US Fish and Wildlife Service, Endangered Species Program, Laws & Policies, Endangered Species Act* (http://www.fws.gov/endangered/laws-policies/index.html, accessed June 1, 2012).

[13] *Vermont Nongame & Natural Heritage Program, Department of Fish and Wildlife, Explanation of Legal Status and Information Ranks* (http://www.vtfishandwildlife.com/library/Reports_and_Documents/NonGame_and_Natural_Heritage/Rare_Threatened_and_Endangered_Species%20%20---%20lists/Explanation_of_Legal_Status_and_Information_ranks.pdf, accessed June 1, 2012)

VTNNHP maintains a database of rare (Endangered and Threatened) species and Significant Natural Communities in Vermont.

Threatened and Endangered species analyses were conducted in accordance with NEPA, Section 7 of the Federal *Endangered Species Act* (ESA) of 1973, as amended *16 USC 1531 et seq*, and the Vermont Endangered Species Law (10 V.S.A. Chap. 123).

3.9.2 Methodology

A database search was performed to identify state-mapped species of concern within one mile of the Study Area. The results are provided on **Figure 3.9-1**. Two elemental occurrences were identified: one animal species in Stevens Brook downstream of the Study Area; and one plant species in two locations on unnamed tributaries to Rugg Brook, also outside the Study Area. Neither elemental occurrence represents a state or federally listed species.

3.9.3 Affected Environment

Correspondence from the VTFWD in September 2010 indicates that there are no known occurrences of critical wildlife habitat, state listed rare, threatened, or endangered species, or significant natural communities in relation to the Project. A previous letter from the VTFWD dated 2005 indicates that the rare Brook Stickleback may be present in Stevens Brook and requests that the VTFWD be consulted on measures to avoid and minimize potential impacts.

Consultation with US Fish and Wildlife Service databases has concluded that there are no known occurrences of federally listed threatened or endangered species within Franklin County and no federally-designated critical habitat in Vermont.

Consultation with National Oceanic and Atmospheric Administration (NOAA) databases has determined that there is no Essential Fish Habitat (EFH) within the Study Area.

3.9.4 Environmental Consequences

3.9.4.1 No Action

The No-Action Alternative would have no impact on threatened or endangered species as there are no known populations of threatened or endangered species within the Study Area.

3.9.4.2 Proposed Action

The Proposed Action would have no impact on threatened or endangered species as there are no known populations of threatened or endangered species within the Study Area.

3.9.5 Mitigation

Given the absence of threatened or endangered species within the Study Area, no mitigation measures are recommended.

3.10 Air Quality

The air quality study consisted of a local (microscale) air quality analysis to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) by evaluating air quality impacts of the following conditions:

- 2010 Existing Condition
- 2010 Build Condition (estimated opening year with the Project improvements)
- 2030 No-Action (No-Build) Condition (future background condition without the Project improvements)
- 2030 Build Condition (design year with the Project improvements)

The 2030 No-Action Condition includes 2010 existing traffic volumes projected to the future year with no planned transportation improvements.

3.10.1 Regulatory Context

The air quality statutes and regulations that are applicable to the Proposed Action include the 1990 Clean Air Act Amendments (CAAA) and the NAAQS. The CAAA is the basis for most federal air pollution control programs. The purpose of the CAAA is to preserve air quality and protect the public's health and welfare. Under the authority of the CAAA, the EPA regulates air quality nationally. EPA delegates authority to the DEC for monitoring and enforcing air quality regulations in the State of Vermont. Conformity with the State Implementation Plan is not assessed in this analysis because the Proposed Action is located in Chittenden County, which is designated by the EPA as in attainment (i.e., in compliance with applicable standards) for all criteria pollutants. Therefore, this area is exempt from conformity requirements.

Under authority of the CAAA, the EPA established the NAAQS that define allowable limits for atmospheric concentrations of various criteria air pollutants. Primary standards are established at levels designed to protect the public health. Secondary standards are established at levels designed to protect the public welfare by

accounting for the effects of air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare.

3.10.2 Methodology

3.10.2.1 Pollutants of Concern

Air pollution is of concern because of its demonstrated effects on human health. Of special concern are the respiratory effects of the pollutants and their potential toxic effects. Air pollutants of concern include:

- **Carbon monoxide (CO).** Carbon monoxide is a colorless and odorless gas that is a product of incomplete combustion. Carbon monoxide is absorbed by the lungs and reacts with hemoglobin to reduce the oxygen carrying capacity of the blood. At low concentrations, CO has been shown to aggravate the symptoms of cardiovascular disease. It can cause headaches and nausea and, at sustained high concentration levels, can lead to coma and death.
- **Particulate Matter (PM).** Particulate matter is made up of small solid particles and liquid droplets. PM 10 refers to particulate matter with a nominal aerodynamic diameter of 10 micrometers or less, and PM 2.5 refers to particulate matter with an aerodynamic diameter of 2.5 micrometers or less. Particulates can enter the body through the respiratory system. Particulates over 10 micrometers in size are generally captured in the nose and throat and are readily expelled from the body. Particles smaller than 10 micrometers, and especially particles smaller than 2.5 micrometers, can reach the air ducts (bronchi) and the air sacs (alveoli) in the lungs. Particulates, especially PM 2.5, are associated with increased incidence of respiratory diseases, cardiopulmonary disease, and cancer.

The EPA has set the NAAQS for CO and PM 2.5 to protect the public health and welfare. **Table 3.10-1** presents the NAAQS for the major pollutants.

Table 3.10-1 National Ambient Air Quality Standards

Pollutant	Averaging Period	Standard
Carbon Monoxide (CO)	8 hours[1]	9 ppm[2] (10,000 µg/m^3)[3]
	1 hour[1]	35 ppm (40,000 µg/m^3)
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)
Ozone	8 hour	0.08 ppm
	1 hour[4]	0.12 ppm
PM 10	Annual Arithmetic Mean	Revoked[5]
	24 hours	150 µg/m^3
PM 2.5	Annual Arithmetic Mean	15 µg/m^3
	24 hours	35 µg/m^3

Notes:
1 Not to be exceeded more than once a year.
2 Parts per million.

3 Micrograms per cubic meter.
4 Not to be exceeded more than an average of one day per year over a three year period.
5 Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM 10 standard in 2006.

3.10.2.2 Microscale Analysis

The microscale analysis evaluated the carbon monoxide emissions of mobile sources at the most congested intersections based upon EPA's air quality modeling guidelines.[14] The traffic data were evaluated and the intersections that are expected to experience an increase in Project generated traffic were identified. Intersections that were modeled in the microscale analysis were selected based on their level of service and traffic volumes rankings. The ranking of the study area intersections is presented in **Table 3.10-2** *Ranking of Study Area Intersections*.

Table 3.10-2 Ranking of Study Area Intersections

	2030 Build Weekday Evening	
Intersections	**Volume (vph[1])**	**LOS[2]**
US Route 7, Upper Newton St, and Lower Newton St	**2,410**	**F**
Federal St and Lower Newton St	1,425	C
Lake St, Federal St, and Catherine St	**1,845**	**E**
US Route 7, St Albans State Highway, and Nason St Connector	**1,990**	**E**
US Route 7, Upper Welden St, and Lower Welden St	1,550	B
US Route and JC Penny Plaza	1,400	A
US Route 7 and Lake St	1,830	C
US Route 7 and Fairfield St	1,625	C

1. Traffic volumes expressed in vph = vehicles per hour.
2. LOS = Level of Service
Volumes and levels of service in bold represent the three worst results.

[14] Guideline for Modeling Carbon Monoxide From Roadway Intersections, US Environmental Protection Agency, Office of- Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-006-(Revised); September 1995

Three Worst Intersections by Volumes and Level of Service

The ranking of the intersections reviewed resulted in the following three worst intersections by highest traffic volumes and LOS (during the peak hour):

- US Route 7, Upper Newton St, and Lower Newton St
- Lake St, Federal St, and Catherine St
- US Route 7, St Albans State Highway, and Nason St Connector

The ranking of intersections resulted in the evaluation of these three intersections in the microscale analysis. The intersections are presented in **Figure 3.10-1** *Microscale Air Quality Analysis Intersections*.

The microscale analysis calculated maximum 1-hour and 8-hour CO concentrations in the Study Area. The EPA's computer model CAL3QHC[15] was used to calculate maximum 1-hour and 8-hour CO concentrations at receptor locations for each intersection. These receptor locations were selected because they are located where the public has access and where they are expected to be for periods of time equal to the standards. Receptors were placed at the edge of the roadway, but no closer than ten ft (three meters) from the nearest travel lane, so that they were not within the roadway air quality mixing zone. Receptor locations for the microscale analysis are presented in **Figure 3.10-1** *Microscale Air Quality Analysis Intersections.* While the air quality analysis calculated CO concentrations for five areas at each quadrant of each intersection, the results presented in this report represent the highest concentration at each quadrant of each intersection. Receptor locations farther away from the intersections will have lower concentrations because of the CO dispersion characteristics and because the emission rates for vehicles traveling along the roadways are much lower than the emission rates for vehicles queuing at intersections.

The air quality analysis used "worst-case" assumptions for meteorology. The meteorology included a one meter per second wind speed, a stability class “D” (stable air), and multiple wind directions in five degree increments to ensure calculating the highest CO concentration at each site.

The vehicle emission factors used in the microscale analysis were obtained using the EPA’s MOBILE6.2[16] emission factor model. The model calculated vehicle emission factors in grams per vehicle mile for arterial roadways for existing (2010) and future (2030) conditions. The emission rates in this air quality study reflect Vermont-specific conditions. Model input and output are included in **Appendix D**.

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[15] *User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections*, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-006; November 1992.

[16] MOBILE 6.2 (Mobile Source Emission Factor Model), Environmental Protection Agency, The May 19, 2004 official release from US EPA, Office of Mobile Sources, Ann Arbor, MI.

The 1-hour CO concentrations were calculated directly using the EPA's CAL3QHC Version 2 computer model, with evening peak hour traffic volumes and emissions factors. The air quality study used traffic data (volumes, delays, and speeds) calculated for each analysis year and condition. The 8-hour CO concentrations were calculated by applying a persistence factor of 0.70 to the 1-hour CO concentrations. A conservative 1- and 8-hour background concentration of 2.0 ppm was used. The CO concentrations discussed in the subsequent section and presented in **Table 3.10-3** represent the combined total of the Project and the background concentrations.

3.10.3 Environmental Consequences

The Project is located in an area which is an attainment area for CO, particulate matter, and ozone. The air quality analysis evaluated CO concentrations to demonstrate that the Proposed Action would not create any CO violations of the NAAQS.

Table 3.10-3 *Predicted Maximum CO Concentrations* presents the worst-case concentrations for CO. All of the total concentrations are below the NAAQS. With the exception of one instance, the increase in CO concentrations between the 2010 Existing and 2010 Build conditions is equal to or less than 1 ppm. Receptor 8 shows a 1-hr concentration increase of 1.4 ppm. The same comparison for 2030 shows a decrease in CO concentrations of less than 1 ppm. Accordingly, the Project would not substantially change the CO concentrations and all results are well below the NAAQS.

Table 3.10-3 Predicted Maximum CO Concentrations[1]

Intersection	Receptor	2010 Existing		2010 Build		2030 No Build		2030 Build	
		1-hr[2]	8-hr[3,4]	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr
US Route 7, Upper Newton St, and Lower Newton St	1-Southwest	4.2	3.5	4.3	3.6	3.6	3.1	3.2	2.8
	2-Southeast	4.3	3.6	4.3	3.6	3.7	3.2	3.3	2.9
	3-Northeast	4.2	3.5	4.3	3.6	3.8	3.3	3.5	3.1
	4-Northwest	4.0	3.4	4.1	3.5	3.5	3.1	3.2	2.8
Lake St, Federal St, and Catherine St	5-Southwest	3.2	2.8	3.3	3.1	3.0	2.7	2.8	2.6
	6-Southeast	3.5	3.1	4.1	3.5	3.4	3.0	3.1	2.8
	7-Northeast	3.5	3.4	4.6	3.4	3.9	3.0	3.3	2.7
	8-Northwest	3.6	3.8	5.0	4.1	4.0	3.4	3.4	3.0
US Route 7, St Albans State Highway, and Nason St Connector	9-Southwest	4.2	3.5	4.1	3.5	3.7	3.2	3.3	2.9
	10-Southeast	4.6	3.8	4.3	3.6	4.0	3.4	3.6	3.1
	11-Northeast	4.9	4.0	4.8	4.0	4.0	3.4	3.6	3.1
	12-Northwest	4.8	3.9	4.6	3.8	4.1	3.5	3.4	3.1

1. The concentrations are expressed in parts per million (ppm).
2. 1-hour concentrations include a background concentration of 2.0 ppm. The 1-hour NAAQS for CO is 35 ppm.
3. 8-hour concentrations include a background concentration of 2.0 ppm. The 8-hour NAAQS for CO is 9 ppm.
4. The 8-hour averaging period concentration was derived by applying a persistence factor of 0.7 to the 1-hour impact concentration.

3.10.3.1 Particulate Matter

The FHWA has developed criteria[17] to determine if a quantitative PM analysis should be conducted. A quantitative PM analysis is not required for the Proposed Action because it is not a project of air quality concern and does not meet FHWA's criteria. For example, the annual average daily traffic (AADT) for US Route 7 in the design year (2030) is approximately 14,500 vehicles per day (VPD), which is substantially below the 125,000 AADT criteria. In addition, facilities with greater than 125,000 AADT and diesel truck traffic which is 8 percent or more of AADT would require a quantitative PM analysis. Based on the AADT traffic data, the annual average daily truck percentage along US Route 7 is expected to remain below the diesel truck traffic criteria of eight percent or more of the AADT. The Proposed Action is not regionally significant and does not have an adverse impact on diesel truck congestion. Therefore, the Proposed Action does not require a quantitative PM analysis.

The Proposed Action would not result in an adverse construction air quality impact. The temporary air quality impacts from construction are expected to be minor and can be mitigated as described in **Section 3.10.4** below.

3.10.3.2 Mobile Source Air Toxics

The air quality study evaluated the potential for impact due to air toxics, as required in the FHWA Division 2006 interim guidance (updated in September 2009) on how to analyze mobile source air toxics (MSAT) for NEPA documents. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the CAAA of 1990, whereby Congress mandated that the US Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/ncea/iris/index.html). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While

[17] *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*, Federal Highway Administration, dated December 2010.

FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE 6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect environmental documents to address MSAT impacts. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field. The FHWA policies and procedures for implementing NEPA are prescribed by regulation in 23 CFR 771.

Similar to fine particular matter, the FHWA has issued guidance concerning the need to conduct a quantitative MSAT analysis or a qualitative MSAT analysis or no analysis. No analysis is required for a project that qualifies as a categorical exclusion under 23 CFR 771.117 (c), is exempt under the Clean Air Act (CAA) conformity rule under 40 CFR 93.126, or is a project with no meaningful impacts on traffic volumes or vehicle mix. There is not a significant difference in traffic volumes between the No-Action (No-Build) and Proposed Action (Build) Conditions.

A quantitative MSAT analysis is not required for the Proposed Action because it is not a project of air quality concern and does not meet FHWA’s criteria. The Proposed Action also does not create or significantly alter any major intermodal freight facility; it does not create new or add significant capacity to any roadway with an AADT in the range of 140,000 to 150,000, or greater; and it is not located in a populated area with vulnerable populations. The Proposed Action does not meet any of the criteria for a quantitative analysis for MSAT.

3.10.4 Mitigation

The air quality analysis demonstrates that the Proposed Action would not create any exceedances of the CO NAAQS or any other adverse air quality impacts. All of the

CO concentrations are substantially below the NAAQS. The Federal Street Multimodal Connector would not:

- Cause any new violation of the NAAQS;
- Increase the frequency or severity of any existing violations; or
- Delay attainment of any NAAQS.

Mitigating fugitive dust emissions generated during construction involves minimizing or eliminating its generation. Fugitive dust measures would include wetting and stabilization to suppress dust generation, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth. Construction activities would be performed in accordance with the VTrans specifications. The construction mitigation would be in compliance with all applicable local, state, and federal regulations.

Because the Proposed Action would result in an air quality improvement over the future No-Action alternative, no mitigation measures need to be considered.

3.11 Noise

This section discusses the potential effect of Project generated sound levels that might be experienced by adjacent sensitive receptor locations. Changes in traffic levels or the distribution of traffic over a network of streets has the potential to either increase or decrease noise levels in adjacent areas. This phenomenon is discussed below, and impacts associated with the Proposed Action are reviewed.

3.11.1 Regulatory Context

Since the Proposed Action involves new roadway and modified roadway geometry, it is a "Type I" classified project under FHWA noise regulations. Because it is a Type I project, a noise analysis is required in accordance with applicable regulations and guidance.

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, or recreation. How people perceive sound depends on several measurable physical characteristics. These factors include:

- **Intensity**. Sound intensity is often equated to loudness.
- **Frequency**. Sounds are comprised of acoustic energy distributed over a variety of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz. Pure tones have all their energy concentrated in a narrow frequency range.

Sound levels are most often measured on a logarithmic scale of decibels (dB). The human ear does not perceive sound levels from each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A-weighted decibel [dB(A)] is used to evaluate environmental noise levels. **Table 3.11-1** presents a list of common outdoor and indoor sound levels.

Table 3.11-1 Common Outdoor and Indoor Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)*		Sound Level dB(A)**	Indoor Sound Levels
	6,324,555	-	110	Rock Band at 5 m
Jet Over Flight at 300 m		-	105	
	2,000,000	-	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		-	95	
	632,456	-	90	Food Blender at 1 m
Diesel Truck at 15 m		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		-	65	Normal Speech at 1 m
	20,000	-	60	
Quiet Urban Area—Daytime		-	55	Quiet Conversation at 1 m
	6,325	-	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		-	45	
	2,000	-	40	Empty Theater or Library
Quiet Suburb—Nighttime		-	35	
	632	-	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		-	25	Empty Concert Hall
Rustling Leaves	200	-	20	
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

Source: *Highway Noise Fundamentals*. Federal Highway Administration, September 1980.
*μPA – MicroPascals, which describe pressure. The pressure level is what sound level monitors measure.
**dB(A) – A-weighted decibels, which describe pressure logarithmically with respect to 20 μPa (the reference pressure level).

The decibel scale compresses the audible acoustic pressure levels which can vary from the threshold of hearing (0 dB(A)) to the threshold of pain (120 dB(A)). Because sound levels are measured in dB(A), the addition of two sound levels is not linear. Adding two equal sound levels creates a 3 dB(A) increase in the overall level. Research indicates the following general relationships between sound level and human perception:

- A 3 dB(A) increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
- A 10 dB(A) increase is a tenfold increase in acoustic energy but is perceived as a doubling in loudness to the average person.

A variety of sound level indicators can be used for environmental noise analysis. These indicators describe the variations in intensity and temporal pattern of the sound levels. The following is a list of other sound level descriptors:

- L_{10} is the sound level which is exceeded for 10 percent of the time during the time period. During a 100-minute period, the L_{10} would be the sound level which was exceeded by other sound levels for 10 minutes.
- L_{eq} is the A-weighted sound level, which averages the background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time. For highway traffic noise assessment, L_{eq} is typically evaluated over a one-hour time period.
- L_{max} is the maximum sound level measured during the time period.

The assessment of potential future noise impacts associated with the Proposed Action on noise sensitive receptors within the overall Project limits, has been performed in accordance with Title 23 of the Code of Federal Regulations (23 CFR 772), and the most recent version of VTrans Noise Analysis and Abatement Policy[18] (July 13, 2011).

FHWA has established Noise Abatement Criteria (NAC)[19] to help protect the public health and welfare from excessive vehicle traffic noise. The NAC applies to areas having regular human use and where lowered noise levels are desired. They do not apply to the entire tract of land on which the activity is based, but only to that portion where the activity takes place. The NAC is given in terms of the hourly, A-weighted, equivalent sound level in decibels (dB(A)). Recognizing that different areas are sensitive to noise in different ways, the NAC varies according to land use as shown in **Table 3.11-2**.

VTrans has adopted the FHWA NAC and considers noise impacts to occur when:

1) Existing or future sound levels approach (within 1 dB(A)) or exceed the NAC, or;

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[18] *VTrans Noise Analysis and Abatement Policy*, Vermont Agency of Transportation, dated July 13, 2011.
[19] *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, Title 23 Code of Federal Regulation, Part 772, FR Volume 75, No.133 page 39820 dated July 13, 2010.

2) when future sound levels exceed existing sound levels by 15 dB(A) or more. The FHWA regulations require consideration of noise abatement measures whenever a project is found to have noise impacts.

Table 3.11-2 Noise Abatement Criteria (NAC) One-Hour, A-Weighted Sound Levels in Decibels (dB(A))

Activity Category	$L_{eq}(h)$*	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes.
B	67 (Exterior)	Residential
C	67 (Exterior)	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F		Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G		Undeveloped lands that are not permitted

*$L_{eq}(h)$ is an energy averaged, one hour, A-weighted sound level in decibels (dB(A)).
Source: 23 CFR 772 - *Procedures for Abatement of Highway Traffic Noise and Construction Noise,* July 13, 2010.

3.11.2 Methodology

The NAC guidelines apply to areas of regular human activity, where lowered noise levels are desired. For roadway projects, such areas are typically located between the highway and the exterior areas of frequent human use. For this study, Common Noise Environments (CNE) were defined to represent these noise sensitive areas. CNEs are groups of receptors within the same NAC category that are exposed to similar noise sources and levels. Monitoring and modeling receptors were located throughout the Study Area to represent the noise sensitive areas. Four noise monitoring sites were placed in locations that best represented the CNEs and

nineteen receptor locations were located between the highway right of way and the exterior areas of frequent human use, or at specific locations of special concern. The monitoring and receptor locations within the three CNEs are shown in **Figure 3.11-1**. Noise monitoring data are included in **Appendix E**.

Since highway noise can be determined accurately through computer modeling, both existing and design year sound levels were determined by modeling with the FHWA's Traffic Noise Model (TNM) Version (2.5).[20] TNM accounts for such factors as ground absorption, roadway geometry, receiver/site distance, shielding from local terrain and structures, vehicle volume, operating speed, and traffic volumes. Future roadway and traffic conditions were applied to the TNM program to calculate future sound levels at each receptor location and the results were compared to the VTrans and FHWA noise impact criteria. If sensitive receptor locations were determined to be impacted, noise mitigation measures were evaluated.

A review of the traffic data provided in **Section 3.2** revealed that the weekday evening peak hour generally experiences the highest traffic volumes throughout the study area. Existing noise levels were measured in the field during the weekday evening peak period to verify the accuracy of the TNM. While observing and recording traffic volumes, four separate monitoring sites were selected to establish noise model validation values. At each site, field noise levels were recorded using a sound level meter, and compared to the TNM calculated sound level. In order to confirm model accuracy, the four validation sites were verified to be within 3 dB(A) of the TNM prediction model. Additional information with respect to TNM calibration and output is included in **Appendix E**.

3.11.3 Affected Environment

The northerly portion of the study area, identified as CNE-1 between North Main Street and Federal Street (to the east and west) and Lower Newton Street and Hudson Street (to the north and south), is primarily residential with a few commercial properties. Under the Proposed Action, additional turn lanes and signalized traffic control would be provided at the intersections of North Main Street at Upper and Lower Newton Streets, and Federal Street at Lower Newton Street. This would result in minor widening and realignment to the Federal Street Corridor (Federal Street and Lower Newton Street).

The central portion of the Study Area, identified as CNE-2 between North/South Main Street and Federal Street through Lemnah Drive (to the east and west) and Hudson Street and Locke Terrace (to the north and south), is a mix of residential and commercial properties. Under the Proposed Action, additional turn lanes and on-street parking would be provided along Federal Street. A single lane roundabout at the intersection of Federal Street and Lower Welden Street, and a traffic signal (with

[20] *Traffic Noise Model Users Guide*, Federal Highway Administration, dated April 2004

a one-way street pair: Catherine Street northbound and Market Street southbound) at the intersection of Federal Street and Lake Street would accommodate future traffic demands.

The southern portion of the study area, identified as CNE-3 between South Main Street and Lemnah Drive (to the east and west) and Locke Terrace and Nason Street/Nason Street Connector (to the north and south), is primarily residential. Under the Proposed Action, the Federal Street Corridor would be modified with the construction of a new section of roadway known as the Nason Street Connector. This new roadway would connect the southern terminus of Lemnah Drive (at the intersection of (Nason Street) with the western terminus of the Interstate Access Road (at the intersection of South Main Street).

The noise model predicted existing peak hour noise levels for CNE-1 (the northerly portion of the study area) between 51 dB(A) to 65 dB(A). Predicted noise levels range from 60 dB(A) to 64 dB(A) for CNE-2 (the central portion of the study area) and 49 dB(A) to 65 dB(A) for CNE-3 (the southern portion of the study area). These ranges of noise levels represent the existing noise conditions in these receptor locations. See **Table 3.11-3** for a summary of modeled noise levels.

3.11.4 Environmental Consequences

3.11.4.1 No Action

The 2030 No-Action alternative was not evaluated, but the increase in sound levels from a 2030 future year No Action to Proposed Action (i.e., Build) condition would be no greater than the increase in sound levels from the 2010 Existing to 2030 Proposed Action condition as reported in **Table 3.11-3**.

3.11.4.2 Proposed Action

Sound levels in the Study Area have been calculated for the 2030 Proposed Action. The TNM input files were developed to calculate sound levels that represent the worst noise hour, which is when the vehicle volume and operating speed combine to produce the highest noise conditions. The 2030 Proposed Action sound levels were determined based on the realignment of the Federal Street Corridor (Lower Newton Street, Federal Street, Catherine Street, Market Street, Allen Street, Lemnah Drive, and the Nason Street Connector), changes in topography and future year traffic volumes.

The highest sound levels generally occur during the weekday evening peak hour, which according to traffic data occurs at some intersections within the 4:00-5:00 PM peak hour and at others within the 4:30-5:30 PM peak hour. The noise model predicted that the receptor locations within CNE-1 (the northerly portion of the

Table 3.11-3 Sound Levels From Traffic Noise Model, Version 2.5 - Leq dB(A)

Site Number	Site Description	2010 Existing (A)	2030 Build (B)	Increase over Existing	NAC "Approach" Level	Impact Y or N
Common Noise Environment 1 (CNE-1)						
R1 - SE corner of Federal & Newton	Residential	64	65	1	66	No
R2 - SW corner of N Main & Newton	**Residential**	**65**	**66**	**1**	**66**	**YES**
R3 - Federal w/o Best	Residential	62	64	2	66	No
R4 - Best Ct	Residential	51	53	2	66	No
R5 - w/o Federal n/o Aldis	Residential	62	64	2	66	No
R6 - N Main n/o Hoyt	Residential	65	65	0	66	No
R7 - e/o Federal n/o Hoyt	Residential	63	65	2	66	No
R8 - e/o Federal n/o Hoyt	Residential	51	52	1	66	No
Common Noise Environment 2 (CNE-2)						
R9 - n/o Lake (Market-Catherine)	Commercial	62	64	2	71	No
R10 - w/o S Main St n/o Stowell	Residential	60	60	0	66	No
R11 - NE corner of Welden & Allen	Residential	60	61	1	66	No
R12 - S Main s/o Welden	Residential	64	64	0	66	No
Common Noise Environment 3 (CNE-3)						
R13 - NW corner of S Main & Nason	Residential	65	65	0	66	No
R14 - s/o Nason (Front Yard - West)	Residential	59	60	1	66	No
R15 - s/o Nason (Back Yard - West)	Residential	50	59	9	66	No
R16 - s/o Nason (Front Yard - Mid)	Residential	57	54	-3	66	No
R17 - s/o Nason (Back Yard - Mid)	Residential	49	56	7	66	No
R18 - s/o Nason (Front Yard - East)	Residential	58	55	-3	66	No
R19 - s/o Nason (Back Yard - East)	Residential	55	57	2	66	No

Sound levels are from a TNM, Version 2.5 noise model constructed by Vanasse Hangen Brustlin, Inc., March 2012.
Row in bold represent locations that have an NAC impact under 2030 Build conditions.

study area) would experience sound levels for the 2030 Proposed Action that vary from 52 dB(A) to 66 dB(A). Sound levels are expected to range from 60 dB(A) to 64 dB(A) for CNE-2 (the central portion of the study area) and 54 dB(A) to 65 dB(A) for CNE-3 (the southern portion of the study area) for the 2030 Proposed Action.

Only one receptor location (*R2 – SW corner of N Main & Federal in CNE-1)* of the nineteen receptor locations approach (come within 1 dB(A)) the NAC for an impacted location for Land Use Category C (67 dB(A)). This impacted receptor is in the urban downtown area located adjacent to the intersection of North Main Street and Lower Newton Street. All of the other eighteen receptor locations fall below the appropriate NAC threshold. It is important to note that sound level increases throughout the majority of the Study Area would be less than 2 dB(A), which is imperceptible to the human ear and well below the 15 dB(A) classification of a substantial noise increase.

Residents located along the south side of Nason Street in CNE-3 would experience the greatest sound level increases (no more than 9 dB(A)) in their back yards as a result of the construction of the Nason Street Connector Road. These sound level increases (between 1 and 9 dB(A)) fall below both the impact criteria for a substantial noise increase (15 dB(A)) and the NAC threshold. Furthermore, this increase in sound is isolated to the back yards of these residences along the south side of Nason Street; their front yards would actually experience a minor decrease (approximately 3 dB(A)) in sound levels as a result of the reduced traffic volumes on Nason Street.

Sound levels at the existing residence at the southwest corner of the intersection of the proposed Nason Street Connector and South Main Street (Parcel 1) are expected to be very similar to Noise Receptor Location 19 (*R19 - s/o Nason (Back Yard – East)*) in both the 2010 existing conditions and the 2030 Build conditions because of the comparable distances to the same noise sources (South Main Street, Nason Street Connector, and the Interstate Access Road) as well as similar topography. As documented in the noise evaluation, receptor "R19" is expected to experience sound levels of 55 dB(A) in the 2010 existing conditions and 57 dB(A) in the 2030 Build conditions, both of which are well below the NAC. Therefore, no additional noise receptor location at Parcel 1 was required for this evaluation.

3.11.5 Mitigation

FHWA noise regulations require consideration of noise abatement measures wherever a project is found to have noise impacts. Typical abatement measures include the alteration of vertical or horizontal alignments, management of traffic, and construction of noise barriers. The alteration of the horizontal and vertical roadway alignments as a means to reduce or eliminate impacts is not feasible because the Project is a roadway widening. Traffic management measures were considered as part of the Project and included low design speeds to reduce highway noise. The construction of noise barriers was considered at the impacted location but was determined to not be feasible or reasonable because of numerous access driveways, which prevent the construction of a continuous noise barrier of sufficient length to achieve appropriate sound level reductions.

Based on the noise analysis, the properties along the Nason Street Connector would not experience a noise impact and therefore mitigation is not required. However, the City is proposing to address the construction of the new roadway section at the Nason Street Connector. During the design of the Proposed Action, a privacy fence and/or dense landscaping with trees and/or shrubs would be incorporated into the plans. Specifically, such features would be implemented to provide a visual barrier between the proposed Nason Street Connector and the backyards of the residences along Nason Street and that at the southwest corner of the proposed intersection of the Nason Street Connector with Main Street. The existing natural vegetative buffer between at this location should be maintained to the extent feasible. The City would work with the property owners for those lots backing onto the Nason Street

Connector to evaluate what treatment options may be possible and to develop a mutually agreeable solution.

3.12 Parks, Recreation and Conservation Land

This section identifies public parks, wildlife refuges, and public recreation land located within, or in the vicinity of, the Study Area. Potential impacts on public parks and recreation land from the No-Action Alternative and the Proposed Action are evaluated and measures to avoid, minimize or mitigate potential impacts are discussed.

3.12.1 Regulatory Context

Public parks, wildlife refuges, and public recreation land are subject to protection under the *US Department of Transportation Act* of 1966 [Section 4(f)] and may be subject to the *Land and Water Conservation Fund (LWCF) Act* of 1964 [Section 6(f)].

3.12.2 Methodology

Consultation with the City of St. Albans Planning and Zoning was initiated to determine whether public parks, recreation areas, and/or conservation lands occur within, or in the vicinity of the Study Area. Consultation with the Vermont Department of Forests, Parks, and Recreation was also initiated to determine whether LWCF projects occur in, in the vicinity of the Study Area.

A search of the Vermont Conserved Lands Database, produced by the University of Vermont Spatial Analysis Laboratory and distributed by the VCGI was also conducted to determine whether conserved public lands occur within, or in the vicinity of, the Study Area.

3.12.3 Affected Environment

Public lands and recreational areas are shown on **Figure 3.12-1**. There are no such resources within the Study Area. Taylor Park on North Main Street between Fairfield and Bank Streets was enhanced with LWCF monies. This park lies outside the Study Area. No other Section 6(f) properties and/or public recreation areas are located within or near the Study Area.

3.12.4 Environmental Consequences

3.12.4.1 No Action

The No-Action Alternative would not require the use of land from any public park, wildlife refuge, or public recreation land as no additional public lands would be cleared or built upon.

3.12.4.2 Proposed Action

The Proposed Action would have no direct effect on Taylor Park as it lies outside of the Study Area. No other public recreation areas or Section 6(f) properties occur in the Study Area, thus there would be no direct impacts to any of these recreational resources.

The Proposed Action may have an indirect beneficial effect on Taylor Park by improving congestion and mobility within the vicinity of the Park.

3.12.5 Mitigation

Given the absence of impacts to parks, recreation, or conservation lands, no mitigation is necessary.

3.13 Historic Resources

3.13.1 Regulatory Context

Cultural resources are resources that are listed in or eligible for listing in the National Register of Historic Places (National Register). To be eligible for listing, a resource (building, site, structure, object, or district) must be at least 50 years old (unless it meets Criteria Consideration G: Properties That Have Achieved Significance within the Past Fifty Years) and possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historic resources must possess a quality of significance in American history, architecture, engineering, and culture. In addition, the resource must meet at least one of the four Criteria for Evaluation defined by the National Park Service.[21] The four evaluation criteria are:

A. Association with events that have made a substantial contribution to the broad patterns of our history.

B. Association with the lives of persons significant in our past.

C. Embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a substantial and distinguishable entity whose components may lack individual distinction.

[21] 36 Code of Federal Regulations § 60.4 (Criteria for Evaluation), Chapter I. National Park Service. 1 July 2003.

D. Yielding or demonstrating the potential to yield information important in prehistory or history.

Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800), requires federal agencies to consider the effects of their undertakings on properties in or eligible for inclusion in the National Register. Compliance with Section 106 requires consultation with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) if there are possible effects to historic properties (properties that have been determined eligible for listing or are already listed in the National Register). In Vermont, Section 106 review is conducted under alternative procedures provided for in 36 CFR 800. A Programmatic Agreement among FHWA, VTrans, the ACHP and the Vermont SHPO allows VTrans to conduct reviews of its own projects, using qualified historic preservation and archeological professionals on VTrans staff, without further review or input by the Vermont SHPO or the ACHP except in infrequent instances.

Additionally, Section 4(f) of the Department of Transportation Act of 1966 also protects cultural resources. A Section 4(f) discussion is included in this EA as **Chapter 4**.

3.13.2 Affected Environment

The Area of Potential Effects (APE) is defined as the area bounded by the parcels that front on the streets where physical improvements are proposed. The APE includes two historic districts and two individual properties which are individually listed in the National Register. Additionally, through the studies conducted as part of this EA, one new historic district and two new individual properties were identified that have since been determined eligible for listing in the National Register (see **Appendix F**). Each of these historic properties is described in this section, beginning with the listed properties, followed by those determined eligible for the National Register. Historic properties are mapped on **Figure 3.13-1**.

3.13.2.1 Properties Formally Listed in the National Register of Historic Places

Districts

The Central Vermont Railroad Headquarters Historic District

The CVR Headquarters Historic District was listed in the National Register in 1974. The district is recognized as the most intact 19th century railroad complex surviving in Vermont, which included passenger facilities, freight stations, repair and fabricating shops, and the general offices. The historic district nomination states that the district consists of 12 major structures along the main line and yard tracks; however, the nomination's written boundary description circumscribes a much

larger area (see **Figure 3.13-1** for the boundaries) which encompasses a number of non-related buildings which are not historic. These boundaries are not clearly justified in relationship to the complex's significance and the 12 buildings discussed in the nomination.[22] There are five properties within the district that are affected by the Project, but only two of which are contributing:

- The CVR General Office building at the northwest corner of Federal and Lake Streets. This is the only building of those potentially affected that is mentioned in the National Register nomination; and
- The Giroux Furniture Company building at the southwest corner of Federal and Lake Streets.

The CVR General Office building is a 2-½ story brick Second Empire style structure with two flanking three-story mansard-roofed corner towers and fenestration featuring narrow paired and single round-arched windows, with a grass-covered lawn in front. Sidewalks are present on both the Lake and Federal Street sides of the parcel.

The Giroux Furniture Company building at 10-18 Catherine Street, a 2-story brick-veneered wood frame structure dating from 1892 and 1905, is also individually listed in the National Register and is further described below. The Giroux Building is not mentioned in the nomination for the CVR Headquarters Historic District. However, the building is considered as contributing to the district because it is related to the activities of the CVR; railroad shipping to and from the building did occur and it falls within the district's period of significance.

St. Albans Historic District

The St. Albans Historic District (**Figure 3.13-1**), which includes the central business area, Taylor Park, and the buildings to the east of the park on Fairfield and Church Streets and Maiden Lane, was listed in the National Register in 1980. The western boundary of the district is contiguous to sections of the eastern boundary line of the CVR Headquarters Historic District. The district is composed of many of the City's most prominent institutional and commercial buildings, which date from 1812 to 1932. Centered around Taylor Park, a large open park established in 1792, the district is significant for its association with the City's growth as a major commercial and governmental center in northern Vermont and the prosperity engendered by the establishment of the CVR here in the 1850s.

[22] The written boundary description for the Central Vermont Railroad Headquarters Historic District encompasses a much larger area than is discussed in the nomination. Vermont's nomination reviewer from the National Register office in Washington DC determined that the written boundary as stated in the nomination cannot be changed or re-worded (Devin Colman, Vermont Division for Historic Preservation, personal communication, 1/16/2011). Buildings located within that boundary, even if they are not described in the nomination, should be considered to be listed in the National Register provided they meet the following criteria: 1) Based on the dates listed for the buildings, the period of significance would be ca. 1862–1924; 2) The areas of significance are architecture, engineering, and transportation.

There are two buildings within the St. Albans Historic District that are potentially affected by the Project at the intersection of Federal and Lake Streets. The first building is the St. Albans Foundry and Implement Company Building at 1 Federal Street, a two-story brick and frame building dating to *ca.* 1870 that has been converted to a restaurant use. The second building is the 1840 St. Albans House at 60 Lake Street, on the southeast corner of the Federal, Lake and Catherine Street intersection. The four-story structure of brick and wood frame construction features a mansard roof, added with the two upper wood frame stories in the 1870s to the original Greek Revival building.

Individual Properties

Willard Manufacturing Company Building

The Willard Manufacturing Company at 25 Stowell Street was individually listed in the National Register in 2007. The large, flat-roofed two-story timber-framed industrial building from 1896 housed a garment factory and other later industries that were dependent on the CVR line for shipping. Its significance lies in its association with the City's industrial history and its ties with several prominent manufacturing companies in the City and with the CVR. The building's front setback is next to the sidewalk, although this section is a one-story, three-car garage section of the larger main building behind it.

Giroux Furniture Company Building

The Giroux Furniture Company Building at 10-18 Catherine Street, at the southwest corner of Lake and Catherine Streets was individually listed in the National Register in 2006. The building is a large two-story brick-veneered wood frame commercial building, which was built in two sections in 1896 and 1905. The building's north elevation contains a projecting full-width glass-enclosed storefront space that dates to *ca.* 1950-1960. A small number of pull-in parking spaces are located at the storefront's west end.

3.13.2.2 Properties Determined Eligible for the National Register of Historic Places

Within the APE, there is one potentially affected district and two individual properties that were determined by consensus determination to be Eligible for Listing on the National Register by consensus determination.

District

Federal/Lake/Catherine Streets Intersection Historic District

The four buildings and the intersection noted above were evaluated as an entity at the request of the VTrans Historic Preservation Officer as the area had not been evaluated for its collective historic association with the CVR and corollary commercial/industrial activities. The area was determined eligible for the National

Register by the VTrans Historic Preservation Officer for its significance as a small, cohesive district that conveys a strong association with the CVR and the attendant commercial activities that resulted from the railroad's location just west of this intersection. No other buildings exist within this eligible district.

All four corners of this irregularly-configured intersection contain buildings that are already either individually listed in the National Register or are within an established National Register historic district. The intersection is included in one of the district listings – the CVR Headquarters Historic District – although the boundaries of this district are not clearly justified in relationship to the complex's significance and the buildings discussed in the nomination. The four buildings are the General Office building of the CVR at the northwest corner, the St. Albans Foundry and Implement Company building at 1 Federal Street at the northeast corner, the St. Albans House at 60 Federal Street at the southeast corner and the Giroux Furniture Company building at 10-18 Catherine Street at the southwest corner.

The General Office building of the CVR is the most visible and prominent of the complex's structures and is one of the earliest buildings that remain. The St. Albans House at the southeast corner of Lake and Federal streets, although originally built in 1840 to serve travelers on the stage road that would become Lake Street, was greatly expanded in the 1870s and thrived for decades due to its proximity to the railroad. The two remaining structures associated with the St. Albans Foundry – one of the most extensive industrial concerns in the City – are on the intersection's northeast corner at 1 Federal Street. The *ca.* 1890 corner building was part of the foundry until 1911 when it closed and became a cigar-making shop. There is no doubt that the product's shipment via the railroad line contributed to its location here. Two other buildings associated with the foundry were located on the east side of Catherine Street as late as 1980 and were included in the St. Albans Historic District boundaries, but the buildings have since been demolished. The 1980 St. Albans Historic District nomination noted that the buildings in this area were not associated with Taylor Park, the focus of most of the buildings within the district, but with the industrial growth of the community after the railroad line was established here.

The more recent National Register nomination of the Giroux Furniture Company building, the fourth building at the intersection, recognized the strong association of this building with the railroad line. The Giroux Furniture Company/City Feed Store building at 10-18 Catherine Street was originally erected in 1896 to replace an earlier group of buildings that had the same function and owner. The building originally had a Market Street address, signifying the dominance of this street. The flour, feed, and phosphate store and warehouse function is documented here as early as 1884, and likely existed earlier in the 1870s. Although the building did not have its own railroad siding connection to the railroad until after 1920, its long-term occupation of this corner next to Market Square and the freight operations also demonstrates its significant association with the railroad line.

Individual Properties

163 Federal Street – Old Newton House/ Bilodeau House

This 1½ story side hall front gable house is dated *ca*. 1860 according to the Federal Street survey form. The house was determined eligible for the National Register by the VTrans Historic Preservation Officer as a rare example of brick construction for the modest vernacular houses constructed on Federal Street for railroad workers' housing.

The house was owned by "D. Newton" on the 1871 Beers Atlas of St. Albans. Short-return boxed cornices are typical of the houses on the north end of Federal Street, but its brick exterior marks this house as the only extant example of this construction material on the street. The facade has three bays on the first story and two centered windows above, with a south entrance. A front porch that was enclosed in the 20th century with a shed roof and paired windows, which appears in the photograph of the house on the Federal Street survey form, has been removed recently; it has been replaced by a small porch deck with a concrete floor and metal porch rail. There is a small addition in the rear of the house, dating to the original construction. While an internal brick chimney in the roof ridge is still extant, the windows have been replaced with aluminum 1/1 sash, and the roof has been covered in new sheet metal roofing. An entrance porch on the east side of the south elevation dates to *ca*. 1945, and a gable dormer on the north elevation with paired 2/2 sash windows was added *ca.* 1915. Decorative vergeboards were added under the front gable *ca.* 1970, at the same time that an attached garage was constructed in the rear of the house.

174 Federal Street – Wagner House

This three-bay house is 1 ½ stories tall, and was recorded on the Federal Street survey form as dating to *ca.* 1870. The house was determined eligible for the National Register by the VTrans Historic Preservation Officer as a relatively intact example of the modest housing built on Federal Street in the mid-to-late 19th century for employees of the CVR.

The house has a side hall plan, with an original side ell and an enclosed glazed porch with 3/1 sash placed in the space between the main block and the ell. A brick end chimney is visible at the rear of the house. A one-story Queen Anne porch with a hip roof, turned posts, and diagonal brackets extends the full width of the façade. The house retains Italianate details such as a boxed cornice with short returns on the front gable, as well as an Italianate style door with round arched windows. Despite the addition of clapboard siding, original clapboards remain underneath. Likewise, original 2/2 sash windows are extant behind added storm windows.

3.13.3 Environmental Consequences

3.13.3.1 No Action

The No-Action Alternative would have no direct impacts to historic properties. However, some impact to historic resources within the Study Area may occur due to private redevelopment ventures, although the extent of these potential impacts cannot be quantified in the absence of a specific development plan. It is important to note that further development in the Study Area may require approval through the Act 250 process and state historic preservation laws, which would require consideration of impacts to cultural resources.

3.13.3.2 Proposed Action

Impacts to each of the historic properties in the Study Area that would result from the Proposed Action are discussed in this section.

The Central Vermont Railroad Headquarters Historic District

The Proposed Action has several impacts to the historic district. A roundabout at the intersection of Lower Welden, Allen Street and Lemnah Drive requires shifting the centerline of Allen Street to the west to minimize impacts to residential properties on the east side of Allen Street and to achieve appropriate geometry to connect Lemnah Drive on the south to Allen Street on the north of the intersection. This action requires taking a small portion of the west side parcel within the historic district on Allen Street.

Within this district, the Proposed Action also involves the demolition of three non-contributing buildings in the block bounded by Lake, Catherine, Stebbins and Market Street for a municipal parking lot. North of the three buildings in the same block, the Giroux Furniture Company Building parcel would only be impacted by the Proposed Action through the taking of ROW from the east (Catherine Street) side of the historic property parcel and would have minor re-grading on the south side of the parcel to reconfigure the existing parking spaces.

At the northwest corner of the intersection of Federal and Lake Streets, the Proposed Action would involve a ROW taking of the parcel that contains the CVR General Office building in order to construct a required three-lane approach to the intersection from the north. No buildings would be affected. A portion of Market Street within the Study Area would change ownership from NECR to public ownership.

North of this intersection, at 60-68 Federal Street there would be minor re-grading of the parcel opposite Center Street on the west side of Federal Street for installation of new curbing and sidewalks and some new parking spaces that would help define the

street edge. Further north of this area, new sidewalks would be added to the front of the parcels on the west side of Federal Street, which currently have no such amenities.

St. Albans Historic District

The Proposed Action would involve changes at the intersection of Lake and Catherine Streets and along the east side of Federal Street near Center Street. At the St. Albans House parcel on the southeast corner of Lake, and Catherine Streets, there would be minimal use of the property during construction to reconstruct the existing sidewalk along the property's west (Catherine Street) and north (Lake Street) sides. Between Kingman and Center Streets, there would be a minor impact to the district to build streetscape improvements.

Federal/Lake/Catherine Street Intersection Historic District

The Proposed Action would substantially reconfigure the Federal/Lake/Catherine Street Intersection, but there would be no full acquisition or demolition of any building within this district. A permanent ROW acquisition would affect the CVR General Office building on the northwest corner in order to construct a three-lane approach to the intersection from the north. The Proposed Action would also involve re-grading the south end of the Giroux Furniture Company parcel to reconfigure an existing parking lot. Additionally, there would be a minor permanent ROW acquisition along Catherine Street on the east side of the Giroux Furniture Company parcel in order to obtain acceptable geometry at the intersection.

Willard Manufacturing Company Building

The Proposed Action would add streetscape improvements in front (west) of the building; there would be no ROW impact to the parcel. The sidewalk that is currently in front of the building would remain, but would be rebuilt as part of the Project.

Giroux Furniture Company Building

As discussed under the CVR Headquarters Historic District and the eligible Federal/Lake/Catherine Street Intersection District, the Proposed Action would take a relatively small amount of ROW from the east (Catherine Street) side of the historic property parcel. Additionally, there would be minor slope impacts to re-grade the existing parking lot on the south side of the parcel to reconfigure the existing parking spaces.[23]

[23] Note that initial design concepts for the reconstructed Federal/Lake/Catherine Street Intersection involved demolition of the Giroux Furniture Company building. Recognizing the historic nature of this building, additional design alternatives were developed to avoid direct impacts to the building, one of which was subsequently designated as the Proposed Action. Further discussion of these alternatives is provided in Chapter 2.

163 Federal Street

The Proposed Action would involve minor re-grading of the existing driveway of this property to tie into the new grade of the reconstructed Federal Street. There could also be a temporary use of a small portion of the front of the property in order to reconstruct the existing sidewalk adjacent to the parcel.

174 Federal Street

The Proposed Action would make no changes to this property.

Determination of Effect

Based on the results of on-going coordination, the VTrans Historic Preservation Officer has indicated that the Proposed Action would have No Adverse Effect on historic structures or districts. A Conditional No Adverse Effect determination is included in **Appendix G**.

3.13.4 Mitigation

The Conditional No Adverse Effect determination for the Proposed Action contains the following conditions (**Appendix G**):

- The City of St. Albans agrees to include the VTrans Historic Preservation Officer in the discussions regarding the balance of parking spaces and green spaces within the area south of the Giroux Furniture Company building.
- The City of St. Albans agrees that the VTrans Historic Preservation Officer will review and approve the final plans and will not proceed with the proposed work until the VTrans Historic Preservation Officer provides written approval to the plans.

3.14 Archeological Resources

This section describes the archeological resources within the Study Area as identified by a review of available background information at the Vermont Division for Historic Preservation (DHP), field work, and the preparation of an Archeological Resources Assessment (ARA), including Archeological Sensitivity modeling using a Geographic Information System (GIS). Potential impacts on archeological resources from the No-Action Alternative and the Proposed Action are discussed, as well as mitigation actions for Project construction. The APE for the ARA included the five roadway segments described in **Section 2.4** of this EA, and included the existing ROW and areas beyond where takings or easements would be required by the Project alternatives. At the location of the proposed Nason Street Connector, the APE consisted of a 150-ft. wide corridor along the proposed road centerline.

3.14.1 Regulatory Context

Archeological resources are the material remains of past human activity; an archeological site is the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains (NPS 2000). To be eligible for listing, an archeological property must meet at least one of the four Criteria for Evaluation defined by the National Park Service (NPS 2000). These are summarized in **Section 3.13.1**, along with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800).

3.14.2 Methodology

An ARA was conducted in the spring of 2011 (VHB 2011) and is contained in **Appendix H**. It includes the following components.

Background Research

Documentary and map research was conducted at the DHP, including an examination of:

- Archeological and cultural resource reports within the Project vicinity;
- Archeological site file search for recorded sites within or adjacent to the APE;
- National Register listed archeological sites and standing structures or historic districts located within or adjacent to the APE;
- Archeological sites being considered for the National Register;
- Town files for information on archeological sites and standing structures;
- Reference to Burial Grounds of Vermont for the existence of any cemeteries within or adjacent to the Study Area.
- In addition, US Department of Agriculture (USDA) soil maps, prior Federal Street Corridor studies (NRPC 1995; RSG 2005), various survey area reports, an online databases were reviewed.

Historic Site File Research and Sensitivity

The DHP site file search revealed that there are no previously identified archeological sites or cemeteries located within the APE. The closest known site is located about 1 mile northwest of the intersection of Lower Newton and Federal Streets and consists of prehistoric debris (chipped stone scatter, flakes, and one scraper). The site period for these resources is unknown. Additional information regarding previously reported sites within 3 miles of the Study Area can be found in the ARA in **Appendix H**. None of the sites studied contained particularly high densities of prehistoric debris.

Site Inspection

A walkover of the Study Area was conducted by a professional archaeologist qualified under the Secretary of the Interior Guidelines. The walkover was done in October 2010, under good field conditions. The focus of the fieldwork was the area of the proposed Nason Street Connector, as this area has the greatest potential for intact soils and the presence of pre-contact sites. Other segments of the Study Area have been previously disturbed, developed, and redeveloped over time, both within the ROW and in areas beyond the ROW limits into which the Project alternatives may extend.

Phase I Archeological Site Identification Survey

The currently undeveloped and southernmost portion of the Federal Street corridor where the Nason Street Connector is proposed was identified during Project scoping as being archeologically sensitive. For this reason, a Phase I Archeological Site Identification Survey was completed in June 2012 and supplemental testing completed in July 2012. These surveys included the excavation of a total of 49 test pits oriented along 11 linear transects that bisected the proposed route of the Nason Street Connector.

3.14.3 Affected Environment

The area of the proposed Nason Street Connector was subjected to a judgmental walkover consisting of a traverse of the Study Area between the rear fencelines of Nason Street parcels and a point 100 ft south of the proposed centerline of the road alignment (see "Archeological Survey Area" on **Figure 3.14-1**). As described in **Section 3.3**, jurisdictional wetlands are present in the western portion of the proposed road segment. Secondarily deposited debris is scattered across the wetlands and adjacent areas. Some of the debris may be transported to the area via a stormwater outfall, which is present at about the midpoint location of the segment; however, much of it appears to have originated from the houses that back onto the corridor from the north.

A single archeological feature was noted during the walkover: a pile of building debris, probably a collapsed outbuilding. The feature is associated with miscellaneous trash including plastic gas cans, various metal objects, and rope and it may have originally functioned as a utility shed of some sort.

The valley slope, which is relatively gradual, offers easy access to the lower wetland areas and it is marked by occasional flat benches. The proximity of potable water in the basal wetlands and the presence of a channelized stream rising at the stormwater outfall suggest that the valley slope would have been attractive for Native American use. The historic period houses are located nearer to the crest of the ridge but have outbuildings located on the valley slope as well. The presence of the collapsed

outbuilding suggests that the dry slope was utilized for various purposes in the historic era.

3.14.3.1 Archeological Sensitivity

The Proposed Action, with relatively minor exceptions, would be confined to existing ROW. For this reason, a full archaeological sensitivity assessment was not implemented. However, proximity to potable water was mapped using available surface water mapping from the Vermont Hydrography Dataset (Stevens and Rugg Brooks and their tributaries) and mapped wetlands. A 90-meter buffer, applied to these resources, suggests that the portion of the proposed Nason Street Connector on the west-facing valley slope (i.e., east half of the proposed roadway segment) should be identified as a location of archaeological sensitivity.

Two other locations of possible archaeological concern were determined to be along the grassy strip on Allen Street (an area that once hosted historic era warehouses), and Market Street between the railroad and the existing building complex south of Lake Street. Due to the disturbed or developed condition of these locations, the likelihood of identifying intact archaeological features in either of these areas is considered low to moderate. For this reason, additional studies are not deemed to be warranted.

3.14.3.2 Results of Archeological Site Identification Survey

Of the 38 test pits excavated during the Phase I Archeological Site Identification survey (each 20 inches by 20 inches in size), only one test pit was positive, returning a single piece of lithic debitage (a by-product of stone tool making or refurbishment) at a depth between 16 and 20 inches below ground surface. This test pit was located near the proposed centerline of the Nason Street Connector.

In an attempt to determine if the positive test pit was indicative of a larger and potentially significant site, 4 additional close interval test pits were completed during the Phase I survey, each of which was negative. Supplemental Phase I testing was performed in July 2012 to better define the extent, context and integrity of the site. This testing included the excavation of 7 additional test pits and expansion of the original positive test pit to a dimension of 3.3 ft by 3.3 feet. All additional test pits were negative. One additional specimen of lithic debitage was produced from the expanded pit, indicating that minimal lithic reduction activities occurred within this portion of the APE.

The conclusions of the supplemental Phase I testing was that the limited artifact density and negative pits excavated within the proposed Project area indicate that the portion of the archeological site within the APE is not significant. These finds may relate to a larger site area outside of the proposed corridor to the south and west. Based on the results of the Phase I and Supplemental Phase I study, no further

archeological work is recommended at the location of the positive test pit and the construction of the Project would have no adverse effect on archeological resources. The VTrans Archeology Officer has reviewed and concurs with the findings of the Phase I and Supplemental Phase I Archeological Site Identification Surveys.

3.14.4 Environmental Consequences

This section describes the environmental consequences of the No-Action Alternative and the Proposed Action.

3.14.4.1 No Action

As indicated in **Section 3.14.3.2**, archeological surveys of the ROW for the proposed Nason Street Connector determined that the portion of the archeological site within the APE is not significant. Therefore, the No-Action Alternative would have no adverse effect on archaeological resources.

3.14.4.2 Proposed Action

As indicated in **Section 3.14.3.2**, archeological surveys of the ROW for the proposed Nason Street Connector determined that the portion of the archeological site within the APE is not significant and that the Project would have no adverse effect on archaeological resources.

3.14.5 Mitigation

The Phase I and Supplemental Phase I Archeological Site Identification Surveys evaluated a significant portion of the proposed Nason Street Connector and it was determined that no significant archeological sites are present. Nevertheless, unanticipated archaeological sites may be discovered during construction at the proposed Nason Street Connector and elsewhere within the Project limits. In such an event, construction in the vicinity of the discovery would be stopped immediately until such time that the resources are identified and documented and, if the resources cannot be preserved in situ, an appropriate mitigation strategy developed in consultation with the VTrans Archeology Officer. Relevant laws, regulations, guidelines and procedures to be implemented are described in detail in the following sections of the Vermont Statewide Federal Aid Highway Programmatic Agreement (see **Appendix H**):

- Section 4(I): Discovery of Archaeological Sites During Project Construction; and
- Section 4(J): Treatment of Human Remains.

3.15 Acquisitions (Right-of-Way)

This section identifies the type and location of properties that would be acquired as a result of the Proposed Action as well as any businesses and residences that would be relocated. It has been determined that relocation costs would be incurred for tenants located in the block between Market Street and Catherine Street. Along with specific properties identified for acquisition, partial acquisitions of land affected by slope impacts have also been estimated.

3.15.1 Regulatory Context

Acquisition of real property and/or displacement of persons must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (49 CFR 24).

3.15.2 Methodology

The ROW impacts for this Project were calculated by overlaying the slope limits and ROW needs for the Proposed Action on the existing ROW limits/boundaries for the Study Area. Parcel boundaries were field surveyed and were used as a base layer for this analysis. In addition to the surveyed parcel boundaries, property ownership and tax map identifiers were generated. Assessing records from the City were also acquired and used in this analysis. At the southern end of the existing right-of-way, the proposed Nason Street Connector is included, which was recently acquired by the City.

3.15.3 Affected Environment

The Study Area is located within a portion of the City that is relatively urban in character. As such, the affected environment is a highly developed infrastructure that includes residences, commercial buildings, railroads, streets and related infrastructure. Buildings located within the block between Market Street and Catherine Street are commercial use buildings. The majority of this building space is currently vacant with the exception of two tenants that are currently renting. The tenants are Comcast and Franklin Central Supervisory Union.

3.15.4 Environmental Consequences

For purposes of this discussion, three categories of ROW impact were defined:

- **ROW Acquisitions** represent areas of new permanent public ROW for use in construction of new or improved roadways as well as their future maintenance. It should be recognized that ROW for the Nason Street Connector located at the southern end of the Study Area was recently acquired by the City. These areas would be used for new pavement,

sidewalks, crosswalks, drainage, utilities, landscaping *etc.* and are represented with a red dashed line on **Figures 2.6-3** through **2.6-9**. ROW acquisitions can include business and residential relocations.

- **Permanent Easements** would be required for locating new traffic control and stormwater infrastructure outside of the permanent ROW. For this Project, there are only two areas of permanent ROW easement. Permanent ROW would be needed for the installation of a traffic signal pole and utility box, located on the northwest corner of the Federal/Lake/Catherine Streets Intersection. An additional permanent ROW easement is needed for the installation of stormwater drainage outlet at the proposed drainage basin, located at the southwest corner of the Nason Street/Lemnah Drive Intersection. These areas are represented as a purple dashed line on **Figures 2.6-4** and **2.8-1.**
- **Temporary Easements** are those areas outside of the existing ROW that would be used for regrading, landscaping and temporary construction access but would not be subject to additional permanent use by the public in maintaining the roadway facility. For purposes of the EA, temporary easements are not shown but were estimated by incorporating a zone that extends 5 ft beyond the Project slope limits into the Project plans.

3.15.4.1 No Action

The No-Action Alternative would not involve the relocation of residences or businesses or result in the acquisition of any new ROW or easements.

3.15.4.2 Proposed Action

The Proposed Action would result in the total acquisition of three parcels (shown in **Figure 3.15-1**) and partial acquisition of an additional 37 parcels throughout the Study Area. The total area for ROW acquisition is 120,934 sq ft (2.8 ac). In addition, approximately 96,550 sq ft (2.2 ac) of land was previously purchased by the City for construction of the Nason Street Connector. These acquisitions are considered to be Project impacts and also subject to the Uniform Act, as they were purchased for the construction of the Project. Land acquisition by the City from landowners occurred on a voluntary basis during the early planning phase of this Project.

In addition, there would be temporary easements on as many as 91 properties, totaling approximately 95,617 sq ft (2.2 ac). Anticipated ROW impacts are summarized in **Table 3.15-1**. Additional detail on ROW and easements associated with the Proposed Action can be found in **Appendix I**, which contains data on each property affected.

Table 3.15-1 Anticipated ROW Impacts

Impact Classification	No. Properties	Impact Area (sq ft)	Impact Area (ac)
ROW Acquisition (Full/Partial)	3/37	217,484	5.0
Permanent Easement	2	1,200	0.028
Temporary Easement	91	95,617	2.2

Three properties would be acquired in full for the Proposed Action, all of which are commercial (see **Table 3.15-2** and **Figure 3.15-1**). One of the full acquisitions (Acquisition #1) is the parking lot for the Giroux Furniture Company building. Three commercial buildings on Acquisition #2 and Acquisition #3 would be demolished. Tenants that currently reside in the buildings that would be demolished (Comcast and Franklin Central Supervisory Union) qualify for relocation assistance under the Uniform Act.

Table 3.15-2 Full ROW Acquisitions

Acquisition ID	Owner Name	ROW Acquisition (Square Feet)	Property Type	# Buildings
Acquisition #1	N/F Americanadian, LLC	2,762	Commercial	0
Acquisition #2	N/F Bevins Property #3, LLC	22,956	Commercial	2
Acquisition #3	N/F B.A. Gage, LLC	5,291	Commercial	1

3.15.5 Mitigation

The *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, as amended, requires that property owners affected by ROW acquisitions for the Proposed Action would be eligible for a variety of compensation measures, including the following:

- Just compensation for acquired property.
- Relocation assistance advisory services.
- Payments for moving and relocation costs.
- Replacement housing payment for home owners.
- Residential mortgage interest differential payments and closing costs.
- Replacement housing payments for tenants.

Specifically, the acquisition and relocation program would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Furthermore, relocation resources are available to all relocated residential and businesses without discrimination.

3.16 Environmental Justice

This Environmental Justice (EJ) analysis discusses the presence of minority and low-income populations and determines if the impacts of the Project would result in disproportionately high and adverse effects on these populations.

3.16.1 Regulatory Context

This report was prepared to address the requirements of the statutes, regulations, and guidance documents listed below.

- Title VI of the Civil Rights Act of 1964 states "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal assistance."
- *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-income Populations* requires agencies to identify and address potential disproportionate high and adverse impacts on minority and low-income populations.
- USDOT Order 5610.2(a), Environmental Justice in Minority and Low-Income Populations requires all USDOT agencies to determine whether activities will have an adverse impact on minority and low-income populations. This procedure was established by USDOT to implement Executive Order 12898.
- FHWA Order 6640.23 defines FHWA's responsibilities and procedures with respect to considering environmental justice communities, promulgated for purposes of complying with Executive Order 12898 and USDOT Order 5610.2.

Under these authorities, FHWA actions may not have a *"disproportionately high and adverse effect on minority and low-income populations,"* meaning *"an adverse effect that:*

> *(1) is predominately borne by a minority population and/or a low-income population; or*
> *(2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."*

3.16.2 Methodology

The following methodologies were used to determine if the Project would result in disproportionately high and adverse impacts to minority or low-income populations in the Study Area.

3.16.2.1 Identify Environmental Justice Populations

CEQ[24] guidance states that environmental justice populations should be identified where:

- The environmental justice population of the affected area exceeds 50 percent, or;
- The environmental justice population percentage of the affected area is *meaningfully greater* than the minority population percentage in the general population or other appropriate unit of geographic analysis.[25]

However, regionally-defined thresholds are more sensitive to specific conditions and provide a better metric for identifying minority and low-income populations. Therefore, the City averages for minority and low-income populations were used for this analysis. Minority and low-income populations were identified using 2000 and 2010 US Census Data.

Minority populations were identified using 2010 census block data, the smallest unit for which population data are available. Low-income populations were identified using 2000[26] census block group data, the smallest unit for which income data are available. Census blocks are a subset of census block groups.

All census blocks and census block groups that fell within or partially within the "footprint" (i.e., the limits of the proposed grading or ROW acquisition for any of the alternatives) were selected to determine the total population of the Study Area and identify individual census units that contain minority or low-income populations. The analysis considered the entire population within an affected census block or block group, even if only a portion of the census unit would be actually impacted.

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[24] Congress established CEQ within the Executive Office of the President as part of the National Environmental Policy Act of 1969 (NEPA). The Council on Environmental Quality coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives, including developing policy for implementation of NEPA.

[25] Environmental Justice: Guidance under the National Environmental Policy Act. Council on Environmental Quality, p.25, December 10, 1997. Website: http://ceq.eh.doe.gov/nepa/regs/EJ/justice.pdf.

[26] Though FHWA Executive Order 12898 defines "low-income" as "a person whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines," these guidelines are based on the number of persons in the household and this information is currently not available for the Study Area. The 2000 Census was used for the low-income analysis because the 2010 Census did not include a long form questionnaire and American Community Survey data for 2010 were not available at the time this analysis was conducted. Based on anecdotal information from City officials, it is unlikely that any appreciable change has occurred in population dynamics within the Study Area.

Population data from the census blocks and block groups was then compared to the averages for the City using statistical testing (i.e., chi-square test for independence) to determine if the minority or low-income population of the individual unit is meaningfully greater than the minority or low-income population percentage in the general population.

3.16.2.2 Determine if Impacts Disproportionately Affect Environmental Justice Populations

Since environmental justice considerations depend on the potential for environmental or community impacts,[27] the area of analysis for environmental justice is the area of potential impacts for other community and environmental impact categories. A disproportionate impact would occur if the adverse effects on environmental justice populations would be appreciably more severe or greater in magnitude than the adverse effects experienced by the non-minority or non-low-income populations.

For purposes of this analysis, ROW impacts (i.e., the acquisition of private property) were used as one indicator of impact, but other forms of impact were also considered. It is important to note that CEQ and FHWA guidance stipulates that impacts relevant to EJ analysis include a range of potential impacts such as, among others: air, noise, water pollution and soil contamination, impacts to natural resources, aesthetic impacts, and disruption of community cohesion or a community's economic vitality. Of those potential impacts, the Federal Street Project includes a noise impact at one receptor location and the aesthetic (visual) impact of the Nason Street Connector. These were considered in the analysis presented below. The remaining impact topics have no impact or show an improvement (e.g., air quality).

3.16.3 Affected Environment

This section identifies whether environmental justice populations exist within the area of potential impacts.

3.16.3.1 Minority Populations in the Study Area

The City average of minorities (including persons of Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, or two or more races) is 5.9 percent. Any census block with

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[27] According to the DOT Order 5610.2(a) and FHWA Order 6640.23, "Adverse Effects" means the "totality of significant individual or cumulative human health or environmental effects." Impacts which are not significant are not considered "adverse" for the purposes of EJ analyses.

an average population meaningfully greater than 5.9 percent minorities was therefore considered a minority community for the purposes of this analysis.

There are a total of 25 census blocks in the Study Area comprising a total population of 1,928 persons, with a total minority population of 132 persons as of the 2010 census. The minority populations within these blocks range from 0 to 22.9 percent minority (see **Figure 3.16-1**). Of these 25 blocks, only three were determined to contain minority populations meaningfully greater than the surrounding area, including:

- Census Tract 107, Block Group 3, Block 3009;
- Census Tract 107, Block Group 4, Block 4000; and
- Census Tract 107, Block Group 4, Block 4006. [28]

The total population and minority population for each of these blocks is provided in **Table 3.16-1**.

3.16.3.2 Low-Income Populations in the Study Area

Based on available census information, the City low-income population average is 9.6 percent. Any census block group with meaningfully greater than 9.6 percent low-income persons would be considered a low-income community. Analysis of US Census Bureau data from 2000 determined that there are a total of eight block groups located within the Study Area, with low-income populations ranging from 4.4 to 21.7 percent (see **Figure 3.16-2)**. These block groups comprise a total population of 7,602 persons of which 733 fall below the federal poverty level.[29] Of these eight census block groups, only two were determined to have low-income populations that are meaningfully greater than the surrounding area including:

- Census Tract 107, Block Group 1; and
- Census Tract 107, Block Group 4. [30]

These two block groups also lie within a qualifying tract for the New Markets Tax Credit program, created by Congress in 2000 to spur investment of private capital for economic development in both rural and urban low-income communities.

The total population and low-income population for each of these block groups is shown in **Table 3.16-2**.

[28] These three populations were determined to be statistically different from the remainder of the City population by means of the chi-square test at a significance level of $p<0.05$.
[29] Since census block groups include several census blocks, the estimate of the total low-income population within the Study Area would be higher than for minority populations even if the project footprint is the same.
[30] These two populations were determined to be statistically different from the remainder of the City population by means of the chi-square test at a significance level of $p<<0.01$.

Table 3.16-1 Minority Populations in the Study Area[1]

Tract	Block Group	Block	Total Population	Total Minority	Percent Minority	Impacts[3]
107	1	1000	58	4	6.9%	ROW
107	1	1001	44	7	15.9%	None
107	1	1008	6	0	0.0%	ROW
107	1	1014	63	5	7.9%	ROW, Noise
107	1	1015	43	0	0.0%	ROW
107	1	1017	43	5	11.6%	ROW
107	1	1018	268	5	1.9%	None
107	1	1019	34	0	0.0%	None
107	1	1020	28	4	14.3%	None
107	1	1021	15	1	6.7%	None
107	1	1022	122	9	7.4%	None
107	3	3003	480	33	6.9%	None
107	**3**	**3009**	**35**	**8**	**22.9%[2]**	**None**
107	**4**	**4000**	**70**	**10**	**14.3%[2]**	**None**
107	4	4001	0	0	-	ROW
107	4	4002	0	0	-	ROW
107	4	4003	54	2	3.7%	None
107	4	4005	52	2	3.8%	ROW
107	**4**	**4006**	**26**	**5**	**19.2%[2]**	**None**
107	4	4007	0	0	-	ROW
107	4	4008	0	0	-	None
107	4	4009	209	13	6.2%	None
107	4	4010	57	3	5.3%	ROW, None
108	1	1009	73	7	9.6%	None
108	1	1010	148	9	7.4%	None
		Total	**1,928**	**132**	**6.8%**	

Notes:
1. This table shows minority population data for each of the 14 census blocks in the Study Area. Data provided by the US Census Bureau - 2010 Census Redistricting Data (Public Law 94-171) Summary File. Obtained online April 12, 2011.
2. This census block (in bold) was determined to have a minority population that is meaningfully greater than the surrounding area (i.e., meaningfully greater than the City's 5.9% minority population) as determined by the chi-square test at a significance level of $p<0.05$.
3. None of the resource impacts are significant in the NEPA sense. Rather, impacts identified are either minor or negligible.

Table 3.16-2 Low-income Populations in the Study Area[1]

Tract	Block Group	Total Population	Low-income Population	Percent Low-income	Resource Impacts
107	**1**	**949**	**148**	**15.6%[2]**	**ROW, Noise**
107	2	1,169	114	9.8%	ROW
107	3	986	110	11.2%	ROW
107	**4**	**672**	**146**	**21.7%[2]**	**ROW, Visual Impacts**
108	1	875	43	4.9%	
108	2	930	45	4.8%	
108	3	1,068	85	8.0%	
108	4	953	42	4.4%	
	Total	**7,602**	**733**	**9.6%**	

Notes:
1. Data provided by the US Census Bureau - Census 2000 Summary File 3 (SF 3) - Sample Data. Obtained online April 12, 2011.
2. This census block group (in bold) was determined to have a low-income population that is meaningfully greater than the surrounding area (i.e., meaningfully greater than the City's 9.6% low-income population.)

3.16.4 Environmental Consequences

The distribution of Project impacts among the various census units was examined to determine whether the Project would create *"disproportionately high and adverse effect on minority and low-income populations."* Potential impacts to the human environment, social or economic conditions, such as property acquisition were considered.[31] For this EJ analysis, the location and amount of land acquisition was used as one available indicator of impacts to the human environment. As described elsewhere in this EA, the Project would also result in minor impacts to a noise receptor. In addition, construction of the Nason Street Connector introduces a visual impact to existing residences on the south side of Nason Street. Because there are only negligible and/or beneficial impacts to other resources such as air quality, wetlands, surface waters, floodplains and floodways, and community resources, etc., they are not considered below.

A brief description of the Project impacts is presented below, followed by a discussion of how these impacts are distributed among EJ protected populations.

ROW Impacts

With regard to ROW acquisition, as discussed in **Section 3.15** of this EA, properties or portions of properties would need to be acquired in order to construct the Proposed Action. In some cases, these "takings" would be limited to small "strip

[31] Effects of the Proposed Action on wetlands, water quality, and other natural resources would mostly occur in the ROW and would not have an impact on adjacent communities. However, these impacts were considered in this analysis.

takings" (*i.e.,* limited, narrow land acquisition of only the portion of a property directly adjacent to the proposed new or modified roadway). In a few cases, the land acquisition is substantial enough that the entire property is impacted. The roadway construction would require the removal of three existing buildings on two parcels at 26 to 36 Catherine Street. All of these categories of land acquisition were treated as an impact for purposes of this EJ analysis.

Land acquisition would be required in the following locations:

- at the intersection of Federal Street with Lower Newton Street;
- on the west side of Federal Street from Kingman Street to Lake Street;
- on the west side of Catherine Street from Lake Street to Stebbins Street (includes demolition of three buildings);
- on both sides of Allen Street from Stowell Street to Lower Welden Street;
- on the west side of Lemnah Drive from Lower Welden Street to the south; and,
- on the southwest corner of the intersection of Lemnah Drive with Nason Street.

Noise

As discussed in Section 3.11 of this EA, a minor noise impact would occur in order to construction the Proposed Action. A single noise receptor (R2), located at the Lower Newton St/North Main St Intersection exceeded the noise threshold.

Visual Impacts

The proposed Nason Street Connector would introduce a source of visual impact to the backyards of the existing residences along the south side of Nason Street between South Main Street and Lemnah Drive.

3.16.4.1 Effect on Minority Populations

Reviewing the data in **Table 3.16-1**, it becomes apparent that there are no adverse human or environmental effects on the three census blocks which contain minority populations in the Study Area.

3.16.4.2 Effect on Low-income Populations

Inspection of the data in **Table 3.16-2** indicates that two low-income populations exist within the Study Area. Census Tract 107, Block Groups 1 and 4 contain virtually the entire Project extent. Impacts to Block Group 1 include ROW acquisition and

noise impacts. Impacts to Block Group 4 include ROW acquisition as well as visual impacts associated with the Nason Street Connector.

While these impacts are important, they do not rise to the level of significance in the sense defined by NEPA, and therefore are not considered "high adverse impacts" as defined in federal EJ policies. In fact, the Project would have no adverse impact for the following reasons:

- as discussed in **Section 3.11.4.2**, the increase in sound levels at the single receptor [1 dB(A)] would be imperceptible to the human ear and well below the 15 dB(A) classification of a substantial noise increase;
- ROW acquisition for the Nason Street Connector was coordinated with the property owners who participated on a voluntary basis; and
- ROW acquisition, including parcels where building demolition would be required, would be subject to just compensation in accordance with the Uniform Act.

Accordingly, because there are no adverse impacts associated with the Project, there would be no disproportionate impact on low-income populations.

3.16.4.3 Environmental Justice Finding

The Proposed Action would not have a disproportionate and adverse effect on minority and low-income populations.

3.16.5 Mitigation

The Proposed Action would not have a disproportionate and high adverse effect on minority and low-income populations. Therefore, specific environmental justice mitigation measures are not required. Just compensation would be provided for instances of ROW acquisition in accordance with the Uniform Act.

The Proposed Action does, however, incorporate measures to minimize impacts on the adjacent community. As part of mitigating such impacts, the Proposed Action would incorporate "streetscape" design elements as appropriate, such as wider sidewalks, landscaping and benches, which would be further evaluated during the final design effort in coordination with the City and the residents of the affected neighborhoods. The goal of the streetscape would be to create a safer and more livable environment for neighborhood residents.

Additionally, public outreach efforts are recommended during future planning and design phases of the Project to provide meaningful access to public information concerning the Project impacts and soliciting input from the EJ population.

3.17 Hazardous Materials

This section describes potential and confirmed sources of subsurface contamination and/or waste materials within the Study Area, and evaluates the potential impacts that subsurface contamination and/or waste materials would have on construction of the Proposed Action. Assessments of measures to avoid and minimize the impacts of subsurface contamination and waste materials are also included. The precise boundaries of potential contamination sites are not yet known and thus, this section does not attempt to quantify the degree and extent of contaminated material that potentially may be encountered. Accordingly, approaches to mitigate the risks posed by potentially encountering contaminated sites during the construction process are discussed in general terms.

3.17.1 Regulatory Context

Subsurface contamination and waste materials are regulated under several federal and state statutes, including EPA regulations under the *Clean Water Act* (administered by DEC); *Resource Conservation and Recovery Act* (RCRA); *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA), and regulations concerning Asbestos Containing Materials (ACM). The Occupational Safety and Health Administration (OSHA) regulates the protection of worker safety and health at the workplace. OSHA regulations, including regulations pertaining to *Hazardous Waste Operations and Emergency Response* (HAZWOPER), asbestos, and lead based paint, may apply to workers involved in construction. The DEC regulations regarding hazardous and solid waste management, underground storage tanks, petroleum cleanup, and groundwater discharge are applicable to the construction of the Proposed Action.

3.17.2 Methodology

A preliminary Initial Site Assessment (ISA) on the Study Area was performed to identify any constraints or issues posed by environmental contamination.[32] Multiple sources of information were evaluated to assess the confirmed and potential presence of subsurface contamination and oil or hazardous material use and storage areas. Efforts were taken to obtain the most recent and best available data during the preparation of this EA. All assessments and conclusions were made based on the information obtained from the sources described in this section. A computer database search was conducted for the Study Area and immediately adjacent properties to evaluate reported releases that could potentially be within the Study Area.

[32] Such a study is intended to reveal obvious issues associated with multiple properties, and is not to be confused with the detailed site-specific study contained in an ASTM Phase I Environmental Assessment, which is typically performed prior to a property transfer.

A review of federal, state, and proprietary environmental databases was conducted to identify properties in the vicinity of the Study Area that have had a release of oil and/or hazardous materials (OHM). Information from these databases were compiled by Environmental Data Resources, Inc. and provided in a report dated April 25, 2011[33]. VHB confirmed and updated the findings of this report in April 2012.

Numerous environmental databases were reviewed, including: National Priorities List (NPL); Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS); RCRA Treatment, Storage, and Disposal (TSD) facilities list; RCRA generators; RCRA corrective action sites (CORRACTS); state list of hazardous waste sites; state list of spills sites; Active Solid Waste Landfill (SWL) facilities; Leaking Underground Storage Tanks (LUST); Leaking Above Ground Storage Tanks (LAST); and registered underground storage tanks (USTs) and aboveground storage tanks (ASTs). Database search radii were chosen generally in accordance with the ASTM E 1527-05 Standard Practice for Environmental Site Assessments, as shown in **Table 3.17-1**.

The online VDEC environmental database was also reviewed to identify reports regarding releases within and near the Study Area.

Table 3.17-1 Results of OHM Computer Database Search

Database	ASTM Search Radius	Number of Sites within Search Radii	Number of Sites within Study Area
NPL sites	1 mile	0	0
CERCLIS sites	0.5 mile	2	0
RCRA TSD	1 mile	0	0
RCRA Generators	0.25 mile	35	18
RCRA CORRACTS	1 mile	1	0
State Hazardous Waste Sites*	1 mile	19	17
State Spills**	0.25 mile	39	15
LUST	0.25 mile	15	6
LAST	0.50 mile	3	3
SWL facilities	0.5 mile	0	0
Registered UST/ASTs	0.25 mile	49	5

*includes brownfield sites

**State Spills are not georeferenced within the DEC database and were reviewed and determined to be in the search radius based on available address information. An estimated 15 spills are located within the Study Area based on available address information.

[33] Databases in the 4/25/2011 EDR report were updated as follows: CERCLIS, 11/30/2010; CORRACTs, 5/25/2010; RCRA, 2/17/2010; SWHS, LUST, LAST, 3/15/2011; UST, 3/4/2011; AST 12/31/2009; Brownfields, 3/1/2011;US Brownfields, 12/29/2010; MANIFEST 3/29/2010.

3.17.3 Hazardous Sites Database Results

Based on the results of the database searches, several potentially hazardous material sites were identified within and adjacent to the Study Area. A summary of the results is provided in the following sections. **Appendix J** presents five tables which contain additional information on these potential sites identified within the Study Area. **Figure 3.17-1** shows the locations of known sites in the Study Area.

Additionally, City utility plans indicate that the majority of the existing stormwater piping within the Study Area is constructed of asbestos containing concrete. Construction activities that involve the disturbance or removal of the existing stormwater infrastructure would need to be conducted according to state and federal regulations.

3.17.3.1 State Listed Hazardous Waste Database Results

Thirteen of the 17 State Hazardous Waste Sites and Brownfields sites were determined to be of potential concern in the Study Area (**Tables I-1** and **I-2** in **Appendix J**). Based on locations of the remaining non-geocoded sites (per their locations as derived from local maps), along with information obtained from the database search, and distance from the Study Area, the remaining sites are considered unlikely to be of environmental concern to the Study Area.

Two of the 17 State Hazardous Wastes Sites are also listed in the Federal CERCLIS list but these properties are not located immediately adjacent to or within the Study Area.

3.17.3.2 UST/LUST and AST/LAST Database Results

The database search identified 49 active and inactive registered UST facilities within a 0.25 mile radius. Of these, five active USTs facilities have been determined to be located within the Study Area (**Table J-3** in **Appendix J**). The remaining facilities are either not directly located within the Study Area or they no longer have active USTs. Of the 15 LUST sites identified within the specified search radius, five have been linked to hazardous waste sites located within the Study area and are summarized in the **Table J-1** of **Appendix J**. All three LAST sites have been designated as hazardous waste sites due to the release of a hazardous substance and are summarized in **Table J-1** of **Appendix J**.

3.17.3.3 RCRA Database Results

The database search identified 35 RCRA small quantity generators within a 0.25 mile search radius of the Study Area. Eighteen of these generators were determined to be in the Study Area (**Table J-4** in **Appendix J**). Eight releases have been reported at seven of these generator facilities. These include Amtrak at 2 Federal Street, Central Vermont Railway at 2 Federal Street, Clarence Brown at 93 Federal Street and Federal Street (no number provided), Leader Evaporator Co Inc. at 25 Stowell Street, S B Collins Bulk Facility at 54 Lower Welden Street, St. Albans Cooperative at 140 Federal Street, and Franklin Federal Court. Note that several of these sites with releases are included on the list of active State Hazardous Waste Sites and Brownfields sites identified above and in **Tables I-1** and **I-2** of **Appendix J**.

One additional location, the Town and Country Autobody facility, has had past RCRA violations but no releases have been reported for this facility. A RCRA violation can indicate poor hazardous material handling procedures. As a result, it is possible that a previously unidentified release is present at the property.

One RCRA–CORRACTS site was identified within the specified 1-mile search radius. This facility is considered unlikely to be of environmental concern to the Study Area due to its distance from the Study Area (approximately 0.78 miles).

3.17.3.4 DEC SPILLS Database Results

Spills of over two gallons are reported to the DEC along with a description of the cleanup action. Reports for 39 spills within the search radius were identified on the DEC online environmental database, with an estimated 15 spills occurring or potentially occurring within the Study Area. A summary of these releases is provided in **Table J-5** of **Appendix J**. Five of these spills have occurred at two facilities that have necessitated action by the DEC Sites Management Section, and were therefore classified as a hazardous waste site. Four spills have been reported at the Clarence Brown property on Federal Street and one spill has been reported for the SB Collins Bulk Facility at 54 Lower Welden Street. Spills that have not necessitated action by the DEC Sites Management Section, and therefore have not been classified as a hazardous waste site, are considered unlikely to be of environmental concern to the Study Area.

3.17.3.5 Summary of Results

Based on the results of the database searches, summarized in **Tables I-1** through **I-5** of **Appendix J**, the following potential environmental concerns were identified within the Study Area:

- Soil and/or groundwater contamination may remain in the vicinity of the following releases in the Study Area:

- Central Vermont Railway Inc., 2 Federal Street
- Leader Evaporation Co. In., 25 Stowell Street
- Lewis Autobody, 22 Stebbins Street
- Former Fonda Container Company, 15-21 Lower Newton Street
- Brickyard Tavern Building, 29-33 Federal Street
- St. Albans Municipal Parking Lot No. 1, Lake, Federal, and Kingman Streets
- Courthouse, 45 Kingman Street
- SB Collins Bulk Facility, 54 Lower Welden Street
- J&L Service Center, 171 South Main Street
- Clarence Brown Inc., 96 Federal Street
- St. Albans Exxon, Route 7
- Clarence Brown Inc., 8 Aldis Street
- St. Albans Cooperative Creamery, 140 Federal Street
- Town and Country Autobody facility, 23 Stebbins Street (no releases have been reported but Facility has had RCRA violations)

- Five existing UST Facilities (in total, containing 28 USTs) were identified within the Study Area during the database search. USTs that have not been removed are considered to be a potential source of soil and/or groundwater contamination. Existing USTs may require proper management and removal during the construction of the Proposed Action.
- Stormwater piping within the Study Area is known to be constructed of asbestos containing concrete.

3.17.4 Environmental Consequences

The identification of confirmed or potential subsurface contamination and/or waste materials related to the Proposed Action is an important element of environmental assessment for the following reasons:

- direct and indirect effects to human health, welfare, and the environment;
- potential financial and long-term environmental liability associated with the acquisition of contaminated property;
- potential delays during construction from the discovery of unanticipated subsurface contamination;

- unexpected or late-stage design changes that may be required as a result of subsurface contamination;
- defining appropriate DEC and/or EPA response actions that may be required to remediate contamination;
- defining appropriate health and safety provisions to protect construction workers and sensitive receptors during construction; and
- removal and management of other special and hazardous wastes, including oil and/or hazardous materials storage tanks, electrical transformers, and solid waste/demolition debris.

3.17.4.1 No Action

Under the No-Action Alternative, there would be incremental redevelopment of portions of the Federal Street corridor and the installation or repair or subsurface utilities. Such actions may encounter contaminated materials depending on the location within the corridor. The highest density of hazardous material sites lies in the 0.3-mile stretch of Federal Street between Lake Streets on the south and Deal Street on the north.

3.17.4.2 Proposed Action

The sites identified in **Section 3.17.3.5** represent a potential for encountering contamination under the Proposed Action. Without information from subsurface investigations, the likelihood of such encounters cannot be characterized. Such investigations as well as other mitigating actions are discussed in the subsequent **Section 3.17.5**. However, it is notable that the stretch of the corridor with the highest potential for contamination, the 0.3-mile stretch between Lake Street and Deal Street, represents just 14% of the total overall Project length of 2.1 miles.

3.17.5 Mitigation

To determine the limits of soil and/or groundwater contamination at sites along the Study Area, and to quantify amounts and concentrations of contamination that Project construction may encounter, further investigation is recommended including review of contaminant concentration maps on-file with the Vermont DEC for sites where such information exists, and conducting site specific testing where data do not exist. Additional steps are recommended to further evaluate these areas including the following:

- Update the Study Area Initial Site Assessment (ISA) prior to construction to discover any new spills or OHM sites that have been created since the EA.
- Perform site-specific ISAs for the individual properties that are included within the Study Area.

- Based on the ISA results, perform Preliminary Site Investigations (PSIs) if needed. Properties that are identified as currently being monitored for contamination (Active Hazardous Sites) may require further sampling and analysis but would likely not require a full PSI.
- Subsurface investigation would be performed to collect soil and groundwater samples for laboratory analysis if needed. Identification and characterization of each contamination area prior to construction would reduce potential construction schedule delays, logistical problems, and cost concerns of managing the contamination concurrently with construction activities.

In addition to these steps to minimize construction-related impacts, the following mitigation measures would also be implemented:

- Determine responsibility/liability issues in advance of construction so that they may be included in the development of a remedial or Corrective Action Plan (described below).
- Based on the location of confirmed or potential areas of concern, measures that entirely avoid direct impacts from subsurface contamination or waste materials for the Proposed Action would be evaluated. However, in most cases, a remedial plan to contain and/or remove the contamination would be developed in consultation with the DEC and EPA. If necessary, a Corrective Action Plan would be developed, which would specify the procedures to be used in handling any hazardous, contaminated, or special wastes generated through excavation of contaminated soils, and dewatering of contaminated groundwater.
- Stormwater piping from within the Study Area is known to be constructed of asbestos containing concrete. A Corrective Action Plan developed in accordance with state and federal regulations would need to be developed prior to construction to ensure proper handling and disposal of the asbestos containing materials.

3.18 Cumulative Impacts

3.18.1 Cumulative Impact Framework

For purposes of NEPA, a comprehensive evaluation of the impacts of federal actions on the environment must consider not only the direct impacts of the Proposed Action, but must also disclose past, present, and reasonably foreseeable indirect effects and cumulative impacts.

The direct and indirect effects of the Proposed Action are discussed in depth in the preceding sections of this Chapter. The purpose of this section of the EA is to discuss

other actions that contribute to cumulative impacts on the resources affected by the Federal Street Multimodal Connector Project.

Cumulative impacts are "*environmental impacts resulting from the incremental effects of an activity when added to other past, present and reasonably foreseeable future activities regardless of what entities undertake such actions. Cumulative effects can result from individually minor but collectively significant activities taking place over time and over a broad geographic scale, and can include both direct and indirect impacts.*" (40 CFR §1508.7)

FHWA and CEQ guidance states that the purpose of a cumulative impacts analysis is to look for impacts that may be minimal and therefore neither significant nor adverse when examined within the context of the Proposed Action, but that may accumulate and become both significant and adverse over a large number of actions. Cumulative impacts are not causally linked to the federal action, but are of interest where other actions may impact the same resources which are impacted by the federal action.

A cumulative impacts evaluation is therefore resource specific and performed for the environmental resources directly impacted by a federal action under study. However, not all of the resources directly impacted by a project will require a cumulative impact analysis.

For purposes of this EA, a review of other potential actions within and adjacent to the Study Area revealed that the following three projects would contribute to cumulative impacts:

- **St. Albans Downtown Streetscape Project**, which commenced construction in 2012, includes a variety of improvements to sidewalks, pedestrian accommodations, landscaping, lighting, municipal utilities, wayfinding (signage), and roadway intersections.
- **Expansion of the St. Albans Cooperative Creamery**, scheduled to commence construction in 2012.
- A **multimodal transit center**, positioned at the location of the existing Amtrak station.

3.18.2 St. Albans Downtown Streetscape Project

3.18.2.1 Project Description

The City has begun an effort to reconstruct and improve the sidewalks, landscape, lighting, roadway, utilities, and visitor amenities in the downtown area, starting at the north with the intersection of Main Street with Hudson Street and running south to the intersection of Main Street and Stebbins Street. Its purpose is to revitalize the City's economic core, providing physical improvements to the historic downtown that communicate a more compelling sense of place, encourage pedestrian activity

and attract outside investment. Funding for the Project is being obtained from multiple sources. Construction commenced in 2012 and is scheduled to be completed in 2013.

This Project will include:

- reconstructed sidewalks;
- a new sidewalk along Taylor Park;
- new street lighting with historic fixtures;
- new pedestrian amenities, such as benches;
- realigned and rebuilt pedestrian crosswalks;
- new accessibility amenities in compliance with ADA;
- resurfacing Main Street with new striping for automobiles and bicycles;
- replacement of the existing traffic signal system within the intersection of Main, Fairfield and Lake Street;
- new tree plantings along the sidewalk;
- new way-finding signage for visitors and other aesthetic details, such as public art;
- new ways of managing stormwater along Main Street, including low impact development techniques (rain garden); and
- improvements to the municipal utilities under the road and sidewalks.

3.18.2.2 Potential Resource Impacts

The Downtown Streetscape Project would consist entirely of the redevelopment of previously developed, impervious surfaces, including roadways, sidewalks, curbing, and stormwater management systems. No natural resources would be affected by the Project. The Project would provide a number of benefits, including enhanced stormwater treatment and associated water quality improvements in the impaired Stevens Brook watershed, safer pedestrian crossings via enhanced lighting, and realigned and rebuilt crossings,

The Downtown Streetscape Project is currently advancing through the VTrans Local Transportation Facilities project development process, which includes public outreach and environmental compliance such as coordination with the VTrans Historic Preservation Officer (most of the Project occurs within the St. Albans Historic District). Project implementation is expected to require a construction phase stormwater permit from the DEC Watershed Management Division.

3.18.3 St. Albans Cooperative Creamery

3.18.3.1 Project Description

The St. Albans Cooperative Creamery is currently developing plans to expand their existing facility on Federal Street, including:

- a 13,732 sq. ft. expansion of the existing plant in a southerly direction;
- the construction of a new 17,992 sq. ft. retail store and warehouse at the southwest corner of the intersection of Deal Street and Federal Street;
- an area of proposed outdoor storage at the northwest corner of the intersection of the Hoyt Street Extension and Federal Street;
- 30 paved parking spaces located between the store/warehouse and storage area; and
- paved areas around the proposed buildings.

The retail store and warehouse project is expected to be constructed in 2012 and the manufacturing addition is expected to be constructed in 2013.

3.18.3.2 Potential Resource Impacts

Traffic

No traffic projections are available for the proposed development. Local traffic circulation would change somewhat, as a new in/out access drive would be established onto Federal Street at the location of the proposed retail store / warehouse. The Hoyt Street extension is currently used for both residential access and access to the Creamery. As proposed, traffic from the retail store/warehouse would be allowed to exit via the Hoyt Street Extension. Deal Street would remain an in/out drive. The City considered traffic impacts in issuing their planning approval for the Project.

Hazardous Materials

The St. Albans Cooperative Creamery is listed as a hazardous waste site with an open file at the DEC Waste Management Division. The contaminant listed is heating oil, and aboveground and underground storage tanks are present. The site priority is listed as low. Approximately 30 cubic yards of potentially contaminated material are noted as being present at the site. In addition, the property at 96 Federal Street is listed as a medium priority hazardous waste site with an open file at the DEC Waste Management Division. The contaminant noted is heating oil, waste oil, and some dissolved metals and the groundwater plume is moving toward the west (into the proposed area of development).

It is possible that the construction of the proposed improvements, including the installation of utilities and building foundations, would encounter contaminated materials during site excavation. Site remediation may be required. Also, the proposed demolition of nine residential buildings and associated outbuildings may involve the handling and disposal of hazardous materials such as ACM.

Environmental Justice / ROW

Nine residences are scheduled to be demolished to construct the proposed development. The buildings have already been acquired and are vacant. St. Albans Cooperative Creamery negotiated the land acquisition process privately with landowners. No City or federal funds are earmarked for the property acquisition or project development process. Therefore, these acquisitions are not subject to either the Uniform Act or EJ.

Historic Resources

A review of residences within the Federal Street Corridor determined that none of the buildings proposed for demolition are eligible for listing on the National Register (see **Section 3.13-1**). The proposed development lies outside any historic district.

3.18.4 Multimodal Transit Center

3.18.4.1 Project Description

A multimodal transit center within the Federal Street Corridor was first recommended in the St. Albans Traffic Circulation Study (NRPC 2002). In the 2005 Federal Street Corridor Study, this center was envisioned to provide an efficient connection between different modes of transportation, including highway traffic, intercity rail and bus service (stations for which are currently separated by approximately one mile), and local pedestrian/bicycle traffic. A study and conceptual plan for the multimodal transit center was drafted in 2006 (NRPC 2006).

The proposed location for the multimodal transit center would be the existing Amtrak station on Federal Street just north of Lake Street (see **Figures 2.6-1** and **2.6-6**). This station is the northern terminus of the Amtrak Vermonter line that makes daily trips to Washington, DC. This location is already served by existing sidewalks, though many of the curb ramps and sidewalk surfaces currently do not meet the ADAAG standards for public sidewalks. Sidewalk and pedestrian improvements are included in the Proposed Action, including ADAAG compliance. The 2005 Study indicated that reasonable bicycle access is currently provided to the location of the multimodal transit center.

The 2005 Study suggested that, in addition to providing centralized facilities for efficient transfers between bus, rail, and other potential future transit services, as well as parking for such uses, the multimodal transit center could provide other amenities such as showers, information kiosks, and communication services. The conceptual design for the facility included in the 2006 Study includes berthing for five buses, a plaza which would include bicycle parking, on-site parking, a covered waiting area for car-pool and shuttle service, a drop-off lane, and landscaping and lighting.

Currently, there is no plan to develop the multimodal transit center in the near future. Its realization is tied in large part to the future development of a commuter rail project between Essex and St. Albans, which has yet to progress past the planning stage.

3.18.4.2 Potential Resource Impacts

Traffic

The 2006 Study (NRPC 2006) provided estimated daily usage for the multimodal transit center broken down into the various modes of transportation. These are summarized in **Table 3.18-1** below.

Table 3.18-1 Potential Use of & Parking at the St. Albans Multimodal Transit Center

Mode	Daily Use	Annual Use	Parking Spaces Required	Parking Duration
LINK Express	90	23,400	80	Long Term
Future St. Albans – Essex Commuter Rail	60	15,600	54	Long Term
Amtrak Vermonter	20	5,200	4	Short Term
NETWORK Local Transit Service	50	13,000	8	Long Term
Missisquoi Valley Rail Trail*	50	13,000	10	Short Term
Vermont Transit / Greyhound	10	2,600	4	Short Term
Total Potential Users	**280**	**72,800**	**160**	

Source: NRPC 2006
* contingent upon implementation of the Northerly Connector

The multimodal transit center as described in the 2006 Study would require approximately 160 parking spaces (150 without the Missisquoi Valley Rail Trail component, see **Table 3.18-1**). Portions of this parking need would be provided in the off-street lot behind the NECR office building and via on-street parking immediately adjacent the facility, with the bulk of the spaces located in a parking facility on the east side of Federal Street where an existing off-street lot is present. Structured parking may be required at this location to provide the long-term spaces required.

The 2006 Study for the multimodal transit center did not assess the potential impact of the facility on traffic within the Federal Street Corridor. It is possible that vehicular traffic within the corridor and beyond may experience a slight drop in response to alternative means of transportation being made available at a centralized location. Traffic in the immediate vicinity of the facility may increase, reflecting the change in land use from single mode to multi-mode.

Historic Resources

The location of the multimodal transit center and off-site parking area proposed in the 2006 Study are located in the CVR Headquarters Historic District and St. Albans Historic District, respectively. Accordingly, coordination with the VTrans Historic Preservation Officer would be required to determine if the proposed facilities would have any effect on these districts.

Environmental Justice

A facility offering multimodal connectivity at a location adjacent to a low-income population would provide a positive impact; enhancing personal mobility and diminishing the dependency on and costs of personal transportation, including gas, vehicular maintenance, and parking. Public transportation provides dependable access to job opportunities.

Hazardous Materials

At the location of the multimodal transit center, the Amtrak station is listed as a fully regulated generator of small quantities of hazardous waste (see **Table J-4** of **Appendix J**). The location of the existing off-site parking (St. Albans Municipal Parking Lot No. 1) is a former brownfield site listed as having site management activity completed and closed in July 2011. The contaminants present at the parking lot were noted to be polycyclic aromatic hydrocarbons (PAHs) in soil and metals in groundwater. The depth to which site remediation efforts were carried out is not currently known. Construction of the multimodal transit center and any required structured parking would require excavation for utilities and foundations. Contamination may be encountered at the parking lot depending on the depth of remediation. Contamination is possible at the Amtrak station based on the prior land use, although there is no record of such contamination.

3.18.5 Conclusion

The incremental effects of the Federal Street Multimodal Connector Project, when considered in combination with that of the past, present, and reasonably foreseeable actions noted above constitutes only a minor cumulative impact. They do not rise to a significant level and each project would mitigate its individual impacts. In fact, coupled with the Downtown Streetscape Project and multimodal transit center, the Project would result in positive impacts with respect to Traffic, Bicycle and Pedestrian access and Surface Water quality.

Based on this finding, no additional mitigation or action is warranted beyond that provided for the direct and indirect impacts.

3.19 Summary of Mitigation and Project Commitments

The following commitments have been or would be made by the City of St. Albans, to avoid or mitigate possible impacts associated with the Proposed Action.

Surface Water

1. The Proposed Action would implement stormwater BMPs to offset the increase in impervious surface area created by the Project improvements.
2. As part of the stormwater discharge permitting requirements associated with construction phase activities, an EPSC Plan consistent with the Vermont Stormwater Management Manual (Vermont ANR, April 2002), would be implemented to minimize potential for sediment laden runoff to reach surface waters or wetlands.

Acquisitions (Right-of-Way)

3. Since the required acquisition of property necessary for this Project may result in displacement of businesses, the acquisition and relocation of affected businesses would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Furthermore, relocation resources would be made available to all relocated business without discrimination.
4. Privacy fencing and/or dense landscaping using trees and/or shrubs will be installed to provide a visual barrier between the proposed Nason Street Connector and the backyards of the residences along Nason Street and that at the southwest corner of the proposed intersection of the Nason Street Connector with Main Street. The existing natural vegetative buffer at these locations will be maintained to the extent feasible. The City will work with the property owners for those lots backing onto the Nason Street Connector to evaluate what treatment options may be possible and to develop a mutually agreeable solution.
5. Specifically, the owners of the affected properties would be compensated for the impacts and eligible for relocation benefits which could include:

    - Just compensation for acquired property
    - Relocation advisory assistance services
    - Payments for moving and relocation costs

Hazardous Materials

6. The Study Area Initial Site Assessment (ISA) would be updated prior to construction to discover any new spills or OHM sites that may have been created since publication of the EA.

7. Site specific ISAs would be compiled for the individual properties that are included within the Study Area.

8. Based on the individual ISA results, Preliminary Site Investigations (PSIs) would be performed if needed. These investigations would include subsurface investigations to collect soil and groundwater samples for laboratory analysis as required.

9. If an individual PSI finds the presence of subsurface contamination or waste materials above action levels, a remedial plan to contain and/or remove the contamination would be developed in consultation with the DEC and EPA. If necessary, a Hazardous Waste and Special Waste Management Plan would be developed, which would specify the procedures to be used in handling any hazardous, contaminated, or special wastes generated through excavation of contaminated soils, dewatering of contaminated groundwater, and building demolition activities.

Archeological Resources

10. It would be made necessary that the contractor responsible for Project construction be familiar with the content and requirements of the following sections of the Vermont Statewide Federal Aid Highway Programmatic Agreement:

    - Section 4(I) Discovery of Archaeological Sites During Project Construction; and
    - Section 4(J) Treatment of Human Remains.

Construction Impacts

11. Traffic Control Plans that specify minimum lane use, hours of operation, and maintenance of driveways to abutting properties would be developed during final design.

12. The contractor would be required to install temporary traffic signs to inform and direct motorists within work zones. In high traffic locations the contractor may be required to maintain variable message signs that alert motorists to the construction activities and/or detours.

13. As part of stormwater discharge permitting requirements associated with construction phase activities, EPSC measures would be designed and

implemented to minimize potential for sediment laden runoff to reach receiving waters (Stevens Brook, Wetland B, etc.).

14. The EPSC would include routine monitoring and maintenance (replacement/ repair) of erosion control BMPs.

15. Areas disturbed by construction activities within the proposed Nason Street Connector area would be revegetated using native plantings to supplement and enhance local ecological values and prevent the establishment of invasive species. A qualified botanist would determine the seed mix to be used for temporary erosion control during construction.

16. Temporary fences would be erected around construction areas to prevent disturbance to adjacent upland and wetland communities.

17. In order to minimize the potential for construction-related dust emissions construction specifications would include the following:

    - Areas of disturbed soils and areas of open excavation will be minimized to the extent possible.

    - Stockpiling will be minimized by coordinating excavation and spreading throughout compaction and importation activities. Stockpiles will be located outside hazardous areas.

    - Stockpiles will be stabilized to minimize wind erosion (e.g. water sprays and covering of stockpiles).

    - Water and/or calcium chloride will be applied to active earthwork areas, stockpiles and loads of soil being transported to reduce dust as required.

4

Section 4(f) Resources

4.1 Introduction and Purpose of this Chapter

Under Section 4(f) of the Department of Transportation Act as amended by the Federal-Aid Highway Act of 1968 (Public Law 90-495, 49 USC 1653), the Secretary of Transportation shall not approve any program or project which:

> *"requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as so determined by federal, state, or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."*

In 2005, Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), made the first substantive revision to Section 4(f) since the Department of Transportation Act, simplifying the process and approval of projects that have only a *de minimis* impact on Section 4(f) resources.

The degree of use of Section 4(f) properties resulting from the construction of the Federal Street Project has been found to result in a *de minimis* impact. The purpose of this chapter is to document the Section 4(f) resources within the Study area, characterize the impacts and explain why they are considered *de minimis*, present the measures to minimize harm, and document the degree of coordination with state and federal agencies.

4.1.1 Definition of "Use"

Per 23 CFR 774.17 (and with the certain exceptions noted in 23 CFR 774.11 and 774.13), the use of Section 4(f) resources occurs

- when land is permanently incorporated into a transportation facility;
- when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes as determined by the criteria in 774.13(d); or
- when there is a constructive use of land as described in 774.15.

Per 771.15:

> *A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished.*

Section 4(f) protects several types of resources including public parks, recreation areas, wildlife and waterfowl refuges and land from historic sites. However, for the Federal Street Project, only **historic sites** would be affected.

4.2 Proposed Action

The Proposed Action would reconstruct the Federal Street Corridor to improve its use by automobiles, trucks, pedestrians, bicyclists, and public transit, alleviating heavy north-south passenger and commercial traffic and congestion on Main Street by providing a parallel urban collector route to divert through and truck traffic from the City's downtown and create an alternative access to I-89. The Proposed Action includes the reconstruction of pavement and related, bike and pedestrian enhancements, lighting, landscape and utility improvements throughout the corridor. To satisfy the Project's Purpose and Need with respect to realizing the potential of multiple transportation modes in close proximity to one another (see **Sections 1.4 and 1.5**), the typical roadway section for the Project corridor includes the following elements:

- 11-ft. wide travel lanes for each direction of vehicular traffic;
- 4-ft. wide bicycle lanes (5-ft. wide where on-street parking is provided);
- 2- to 4-ft. wide grass utility strips; and
- 5-ft. wide sidewalk (on both sides of the road along Federal Street, on one side elsewhere).

Additional information about the Proposed Action, including details for the reconfiguration of specific intersections, is contained in **Chapter 2: Proposed Action and Alternatives**.

4.3 Description of Section 4(f) Resources

Section 4(f) protects several types of resources including public parks, recreation areas, wildlife and waterfowl refuges and land from historic sites. The following sections describe these resources with respect to the Federal Street Project.

4.3.1 Public Parks, Recreation Areas, Wildlife and Waterfowl Refuges

No public parks or recreation areas are present within the Federal Street corridor (see **Figure 3.12-1**). The nearest public park is Taylor Park just east of Main Street. Also, no state or federal wildlife or waterfowl refuges are present within the corridor.

4.3.2 Archeological Resources

As described in Section 3.14 Archeological Resources, the currently undeveloped and southernmost portion of the Federal Street corridor where the Nason Street Connector is proposed was identified during Project scoping as being archeologically sensitive. A Phase I Archeological Site Identification Survey performed in May and June, 2012 and supplemental field testing in July 2012 determined that no significant archeological resources are present within the APE for the Project. Accordingly, a determination of No Adverse Effect on archeological resources was made and therefore no archeological resources worthy of protection under Section 4(f) are present within the Federal Street corridor.

4.3.3 Historic Properties

For the Federal Street Project, a Section 4(f) use of land is proposed only for historic properties, including:

- Willard Furniture Manufacturing Company – Listed
- Giroux Furniture Company – Listed
- 163 Federal Street – Determined Eligible
- 174 Federal Street – Determined Eligible
- Central Vermont Railroad Headquarters Historic District – Listed
- St. Albans Historic District – Listed
- Federal/Lake/Catherine Streets Intersection Historic District – Determined Eligible

Each of these resources is described in detail in **Section 3.13** of the EA.

4.4 Use of Historic Properties

This section discusses the use of land from historic properties associated with the Proposed Action. Use of land from each individually listed or eligible property, as well as each of the contributing resources within each of the three affected districts, are presented in **Figures 4.4-1** through **4.4-8**. These drawings were produced by overlaying the proposed ROW and slope limits for the Proposed Action onto the property or district boundaries to measure the area affected. All areas of new permanent ROW were included in impact calculations, including slope impacts in the relatively few occurrences where the permanent slope limits extend beyond the permanent ROW.

4.4.1 Central Vermont Railroad Headquarters Historic District

Because of its large size, acquisition from the CVR Headquarters Historic District would occur in three of the five Project design segments.[34] Impacts to the District are summarized by segment in **Table 4.4-1** and shown on **Figures 4.4-1** through **4.4-3**.

Table 4.4-1 Impacts to the Central Vermont Railroad Headquarters Historic District

Segment	Permanent ROW Impacts (sq ft)	Slope Impacts (sq ft)
Segment 1 - Proposed Nason Street Connector (South Main St. to Nason St.)	0	0
Segment 2 - Lemnah Drive and Allen Street (Nason St. to Stowell St.)	20,877	4,155
Segment 3 - Allen / Catherine / Federal St. (Stowell St. to Kingman St.)	82,445	12,179
Segment 4 - Federal St. (Kingman St. to Lower Newton St.)	1,164	4,731
Segment 5 - Lower Newton St. (Federal St. to North Main St.)	0	0
Total	104,486	21,065

4.4.2 St. Albans Historic District

The St. Albans Historic District spans two of the five design segments (i.e., Segments 2 and 3). Use of land from the District is summarized by segment in **Table 4.4-2** and shown on **Figure 4.4-4**. No permanent ROW impacts are proposed.

[34] For a definition of the five design segments, see **Section 2.4** of this EA.

Table 4.4-2 Impacts to the St. Albans Historic District

Segment	Permanent ROW Impacts (sq ft)	Slope Impacts (sq ft)
Segment 1 - Proposed Nason Street Connector (South Main St. to Nason St.)	0	0
Segment 2 - Lemnah Drive and Allen Street (Nason St. to Stowell St.)	0	0
Segment 3 - Allen / Catherine / Federal St. (Stowell St. to Kingman St.)	0	2,324
Segment 4 - Federal St. (Kingman St. to Lower Newton St.)	0	500
Segment 5 - Lower Newton St. (Federal St. to North Main St.)	0	0

4.4.3 Willard Furniture Manufacturing Company

No direct ROW impacts to the Willard Furniture Manufacturing Company property would result from the Proposed Action. There would be approximately 2,347 sq ft of slope impact to this property (see **Figure 4.4-5**), consisting of minor grading and construction phase access in order to install streetscape improvements in front (west) of the building. The sidewalk that is currently in front of the building would remain, but would be rebuilt as part of the Project.

4.4.4 Giroux Furniture Company

Use of land from the Giroux Furniture Company property is outlined in **Table 4.4-3** and depicted on **Figure 4.4-6**. Avoiding impact to this property was a critical parameter in developing and evaluating Project alternatives. Initial design concepts for the reconstructed Federal/Lake/Catherine Street Intersection involved demolition of the Giroux Furniture Company building. Recognizing the historic nature of this building, additional design alternatives were developed to avoid direct impacts to the building.

The Proposed Action would avoid demolition of the Giroux building, but would require some minor ROW acquisition from the east (Catherine Street) side of the parcel, totaling 636 sq ft. Additionally, there would be slope impacts totaling 6,597 sq ft to re-grade the existing parking lot on the south side of the parcel to reconfigure the existing parking spaces.

Table 4.4-3 Impacts to the Giroux Furniture Company Building Parcel

	ROW Impacts (sq ft)	Slope Impacts (sq ft)	Requires Demolition of Giroux Bldg
Proposed Action	636	6,597	No

4.4.5 Federal/Lake/Catherine Streets Intersection Historic District

This Historic District is not yet listed on the National Register, but was determined eligible by the VTrans Historic Preservation Officer during Section 106 consultations for this Project. The entire District, which consists of four properties on the corners of the intersection of Federal, Lake and Catherine Streets, lies within either the CVR Headquarters Historic District or the St. Albans Historic District, use of which is discussed in the preceding sections. Use of land from this eligible Historic District is shown in **Figure 4.4-7**.

4.4.6 163 Federal Street

The Proposed Action would not result in any permanent incorporation of land from the National Register eligible property at 163 Federal Street and therefore no use of a Section 4(f) resource. The Proposed Action would involve minor re-grading of the existing driveway of this property to tie into the new grade of the reconstructed Federal Street. There would also be a temporary use of a small portion of the front of the property in order to reconstruct the existing sidewalk adjacent to the parcel. These slope impacts would total 471 sq ft. See **Figure 4.4-8**.

4.4.7 174 Federal Street

The Proposed Action would make no changes to this National Register eligible property and therefore there would be no use of a Section 4(f) resource. See **Figure 4.4-8**.

4.5 Section 4(f) De Minimis Determination

In order for the Federal Street Multimodal Connector Project to qualify as a *de minimis* impact in accordance with 23 CFR 774.3(b), it must satisfy the three requirements contained within question 2A of the FHWA's Final Guidance for Determining De Minimis Impacts to Section 4(f) Resources, dated December 13, 2005. Each requirement and the determinations made (**in bold**) are provided below.

Question A: What are the requirements for a finding of *de minimis* impact on a historic site?

Answer: A finding of *de minimis* impact on a historic site may be made when:

1) The process required by Section 106 of the National Historic Preservation Act results in the determination of "no adverse effect" or "no historic properties affected" with the concurrence of the SHPO and/or THPO, and ACHP if participating in the Section 106 consultation;

Per the terms of the April 5, 2000 Programmatic Agreement among FHWA, VTrans, ACHP, and the Vermont SHPO, qualified professionals within VTrans are authorized to implement the Federal-Aid Highway Program in Vermont, to document and make Section 106 determinations of effect for transportation projects on behalf of the Vermont SHPO. The VTrans Historic Preservation Officer and VTrans Archaeology Officer have concurred on a Conditional No Adverse Effect Determination, dated November 20, 2012 and included in Appendix G.

2) The SHPO and/or THPO, and ACHP if participating in the Section 106 consultation, is informed of FHWA's or FTA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination; and

Under the terms of the April 5, 2000 Programmatic Agreement, VTrans provides copies of Section 106 determinations of effect and supporting documents to the Vermont SHPO. The SHPO has been informed of the intent to make a *de minimis* finding under Section 4(f) based on the Conditional No Adverse Effect determination.

3) FHWA or FTA has considered the views of any consulting parties participating in the Section 106 consultation.

The City of St. Albans conducted three public meetings to present the Purpose and Need for the Project and Project alternatives (see Section 5.2 of this EA). At each of these meetings, information was disclosed with respect to potential impacts to historic resources. The Proposed Action was endorsed by the attendees of a Project alternatives presentation public meeting on November 29, 2011. It was subsequently endorsed by the St. Albans City Council during a public City Council meeting on December 28, 2011.

4.6 Measures to Minimize Harm

Based on coordination with the VTrans Historic Preservation Officer and the VTrans Archeology Officer, it has been determined that the Project will have no adverse effect on above-ground historic properties and no adverse effect on archeological resources that meet the Section 4(f) provisions of preservation in place. The finding is that there is only a *de minimis* effect on historic properties.

In order to make the determination of no adverse effect on above-ground historic properties, the VTrans Historic Preservation Officer requires the following conditions be met (see **Appendix J**):

- The City of St. Albans agrees to include the VTrans Historic Preservation Officer in the discussions regarding the balance of parking spaces and green spaces within the area south of the Giroux Furniture Company building.

- The City of St. Albans agrees that the VTrans Historic Preservation Officer will review and approve the final plans and will not proceed with the proposed work until the VTrans Historic Preservation Officer provides written approval to the plans.

4.7 Coordination

Coordination and consultations among federal, state, and local agencies with jurisdiction over historic properties has occurred both prior to and during the preparation of this EA. A summary of these coordination meetings is provided in **Chapter 5** of this EA.

4.8 Section 4(f) Conclusion

The Proposed Action involves *de minimis* impacts to three of the seven Section 4(f) resources determined to be present within the Study area:

- Giroux Furniture Company – Listed
- Central Vermont Railroad Headquarters Historic District – Listed
- Federal/Lake/Catherine Streets Intersection Historic District – Determined Eligible

No public parks, recreation areas, wildlife or waterfowl refuges are present within the Project corridor. No archeological sites that are eligible for protection under Section 4(f) are present within the Project corridor.

Impacts to Section 4(f) resources are restricted to ROW impacts and impacts caused by regrading within the Project slope limits where such regrading extends beyond the ROW. Measures to minimize harm include the conditions imposed by the VTrans Historic Preservation Officer (**Appendix G**) as well as Project mitigation and commitments as described in **Section 3.19** of this EA, which include measures to minimize construction related impacts.

5

Agency Coordination/Public Participation

5.1 Agency Coordination

The dates and topics of agency coordination meetings are provided in **Table 5.1-1** below.

Table 5.1-1 Agency Coordination

Date	Location	Agency Present	Topic
April 14, 2011	Project Corridor	USACE	Wetland Delineation, Confirmation

Coordination between the City, VTrans (including Historic Preservation and Archaeology Officers), and other state agencies is ongoing and will continue through final design of the Project.

5.2 Public Meetings

Three Public Meetings were held during development of this Project, one of which being with the St. Albans City Council. A list of the meetings along with the date, locations and topics are provided in **Table 5.2-1** below.

Table 5.2-1 Public and City Council Meetings

Meeting Forum	Date / Location	Topic
Public Meeting	November 10, 2010 Library, Bellows Free Academy	Local Concerns Meeting to introduce Project limits and proposed intersection improvements and solicit public comment.
Public Meeting	November 29, 2011 Library, Bellows Free Academy	Alternatives Presentation Meeting to provide residents, business owners, City officials, VTrans, and regulatory and consulting agencies with the proposed alternatives and to solicit feedback in order to identify an alternative to move forward as the Proposed Action.
City Council	December 28, 2011 St. Albans City Hall	Description of the Project Alternatives formulated through the refinement of conceptual designs, the public outreach process, and coordination with City officials, VTrans and FHWA.

5.3 Permit Requirements

The Federal Street Multimodal Connector (the Proposed Action) would require permitting by state and federal entities. **Table 5.3-1** lists the anticipated permits that would be required prior to implementing the Proposed Action.

Table 5.3-1 Anticipated Permit Requirements and Agreements

Permitting Agency	Anticipated Permit Requirement
US Army Corps of Engineers	Department of the Army Vermont General Wetland Permit[1] (Section 404 of the Clean Water Act)
Vermont Department of Environmental Conservation	Vermont Individual Wetland Permit
Vermont Department of Environmental Conservation	Water Quality Certification[2] (Section 401 of the Clean Water Act)
Vermont Department of Environmental Conservation	Stream Alteration General Permit[3]
Vermont Department of Environmental Conservation	Individual Construction Phase Stormwater Discharge Permit (INDC)
Vermont Department of Environmental Conservation	Individual Operational Phase Stormwater Discharge Permit (INDS)
District 6 Environmental Commission	Act 250 Land Use Permit (or amendment to #6F0277-8 for Lemnah Drive extension)

1 While direct impacts to jurisdictional wetlands and streams fall within the threshold for a non-reporting activity (Category 1), indirect impacts to wetland buffer areas may prompt the USACE to require authorization under a Category 2 permit (greater than 3,000 square feet and less than 1 acre of impact).
2 Required only if the USACE requires issuance of a Section 404 permit.
3 The degree of work required to replace the abutments to the Stevens Brook bridge is subject to additional design work. Should work require the excavation of greater than 10 cubic yards within the cross-sectional limits of the stream, a Stream Alteration Permit will be required.

6
References

American Association of State Highway and Transportation Officials. 2011. *A Policy on Geometric Design of Highways and Streets, 6th Edition*. Washington, DC.

Agency of Natural Resources. 2002. *The Vermont Stormwater Management Manual.* Fifth Printing. April 2002. 100 pp plus Appendices.

City of St. Albans. 2009. *Saint Albans Downtown Master Plan Report.* Prepared for the City of St. Albans by Arnett Muldrow & Associates, Ltd. 76pp.

Council on Environmental Quality. 1997. *Environmental Justice: Guidance under the National Environmental Policy Act*. 40 pp. Website: http://www.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf.

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. US Fish and Wildlife Biological Services Program. FWS/OBS-79/31, Washington, DC. 103 pp.

US Department of Transportation – Research and Special Programs Administration. 2004. *FHWA Traffic Noise Model User's Guide (Version 2.5 Addendum).* Prepared for USDOT – Federal Highway Administration. 36pp.

Federal Highway Administration. 2005. *Section 4(f) Policy Paper.* Office of Planning, Environment and Realty.

Federal Highway Administration. 2012. FHWA Section 4 (f) Policy Paper Draft. Draft version prepared for comment, January, 2012

Federal Register, Final DOT 5610.2, *Order to Assess Environmental Justice in Minority Populations*, Volume 62, No. 72.15. United States Department of Transportation, April 1997.

Northwest Regional Planning Commission. 1995. *Federal Street Corridor Study, City of St. Albans, VT.* Technical Report Prepared by Cross Consulting Engineers and Resource Systems Group, Inc., August 1995. 76 pp plus Appendices.

Northwest Regional Planning Commission. 2002. *St. Albans Traffic Circulation Study.* Technical Report Prepared by Lamoureux & Dickinson Consulting Engineers for St. Albans. May 2002.

Northwest Regional Planning Commission. 2003. *Northwest Regional Long Range Transportation Plan 2003 – 2008.* 115 pp.

Northwest Regional Planning Commission. 2005. *Federal Street Corridor Study - 2005 Update.* Technical Report Prepared by Resource Systems Group, Inc. for the City of Saint Albans and the Town of Saint Albans. Final Draft December 22, 2005. 86 pp plus Appendices.

Northwest Regional Planning Commission. 2006. *Saint Albans Multimodal Center Planning Criteria*. Technical Report Prepared by Resource Systems Group, Inc. for the Northwest Regional Planning Commission. Final Report November 2006. 16 pp plus Appendices.

Northwest Regional Planning Commission. 2012. *Northwest Regional Transportation Plan, 2010 – 2015, Draft.* 50 pp.

Schueler, Thomas R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs.* Metropolitan Washington Council of Governments, Washington, DC.

Transportation Research Board. 2000. *Highway Capacity Manual, Special Report 209.* Washington D.C.

US Army Corps of Engineers. 1995. *The Highway Methodology Workbook Supplement/Wetland Functions and Values – A Descriptive Approach.* US Army Corps of Engineers New England Division. 32 pp. NEDEP-360-1-30a.

US Army Corps of Engineers. 2005. *Regulatory Guidance Letter: Subject – Ordinary High Water Identification.* US Army Corps of Engineers New England Division.

US Department of Transportation. 1980. *Fundamentals and Abatement of Highway Traffic Noise.* Federal Highway Administration. Washington DC.

US Department of Transportation – Research and Special Programs Administration. 2004. *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process.*

US Department of Transportation. 2009. *Manual on Uniform Traffic Control Devices.* Federal Highway Administration. Washington DC. 864pp.

US Environmental Protection Agency. 1992. *User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway*

Intersections. Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-006; November 1992.

US Environmental Protection Agency. 1995. *Guideline for Modeling Carbon Monoxide From Roadway Intersections*. Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-006 (Revised); September 1995.

US Environmental Protection Agency. 2004. *MOBILE 6.2 (Mobile Source Emission Factor Model), The May 19, 2004 official release*.US EPA, Office of Mobile Sources, Ann Arbor, MI.

US Fish and Wildlife Service. *Endangered Species Program (http://www.fws.gov/endangered/*). Accessed June 1, 2012.

Vermont Agency of Natural Resources. 2005. *Riparian Buffer Guidance*.

Vermont Agency of Transportation. 2011. *VTrans Noise Analysis Abatement Policy*.

Vermont Nongame & Natural Heritage Program, Department of Fish and Wildlife. *Explanation of Legal Status and Information Ranks (http://www.vtfishandwildlife.com/library/Reports_and_Documents/NonGame_and_Natural_Heritage/Rare_Threatened_and_Endangered_Species%20%20---%20lists/Explanation_of_Legal_Status_and_Information_ranks.pdf)* Accessed June 1, 2012.