

Federal Street Multi-Modal Connector, HPP 8000 (17)

St. Albans,
Vermont

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

Prepared by **Vanasse Hangen Brustlin, Inc.
North Ferrisburgh, VT**

March 2012
DRAFT

FEDERAL STREET MULTI-MODAL 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

March 2012

Table of Contents

Table of Contents	i
Project Overview	1-1
1.1 Introduction	1-1
1.2 Study Area Description	1-2
1.3 Project Background and Previous Studies.....	1-3
1.4 Project Purpose	1-4
1.5 Project Need	1-5
Proposed Action and Alternatives	2-1
2.1 Introduction	2-1
2.2 Development of Alternatives	2-1
2.3 Corridor Segment Designations.....	2-2
2.3.1 Lower Newton St. (North Main St. to Federal St.).....	2-3
2.3.2 Federal St. (Lower Newton St. to Kingman St.)	2-3
2.3.3 Federal / Catherine / Allen St. Segment (Kingman St. to Stowell St.).....	2-3
2.3.4 Allen Street and Lemnah Drive (Stowell St. to Nason St.)	2-5
2.3.5 Proposed Nason Street Connector (Nason St. to South Main St.)	2-5
2.4 No-Action Alternative	2-6
2.5 Alternatives from the 2005 Corridor Study.....	2-6
2.6 Elements Common to All Action Alternatives.....	2-6
2.6.1 Typical Roadway Section	2-7
2.6.2 Lower Newton St.....	2-8
2.6.3 Federal St.....	2-8
2.6.4 Lemnah Drive.....	2-8
2.6.5 Proposed Nason Street Connector	2-8
2.7 Lower Welden Street at Allen Street and Lemnah Drive	2-9
2.7.1 Alternative 1: Roundabout (Proposed Action).....	2-9
2.7.2 Alternative 2: Signalized.....	2-10
2.8 Lake Street at Catherine / Federal Streets	2-11
2.8.1 Alternative 1: Signalized with One-Way Roads (Proposed).....	2-11
2.8.1.1 Advantages.....	2-11
2.8.1.2 Disadvantages	2-11
2.8.2 Alternative 2: Roundabout.....	2-11
2.8.2.1 Advantages.....	2-12
2.8.2.2 Disadvantages	2-12
2.8.3 Alternative 3: Signalized, Two-Way Catherine St.	2-12
2.8.3.1 Advantages.....	2-12
2.8.3.2 Disadvantages	2-13

2.8.4	Alternative 4: Elongated Roundabout	2-13
2.8.4.1	Advantages	2-13
2.8.4.2	Disadvantages	2-13
2.9	Summary of the Proposed Action	2-14
2.10	Elements Considered but Dismissed	2-14
Affected Environment, Environmental Consequences, and Mitigation		3-1
3.1	Overview	3-1
3.2	Traffic	3-2
3.2.1	Existing Traffic Conditions	3-2
3.2.2	Future Year Traffic Conditions	3-6
3.2.3	Traffic Results	3-8
3.2.3.1	2010 No-Action and Proposed Action	3-8
3.2.3.2	2030 No-Action and Proposed Action	3-9
3.3	Wetlands	3-17
3.3.1	Regulatory Context	3-17
3.3.2	Methodology	3-18
3.3.3	Affected Environment	3-19
3.3.4	Environmental Consequences	3-20
3.3.4.1	No-Action Alternative	3-20
3.3.4.2	Proposed Action	3-20
3.3.5	Mitigation	3-21
3.4	Surface Waters	3-22
3.4.1	Regulatory Context	3-22
3.4.2	Methodology	3-23
3.4.3	Affected Environment	3-24
3.4.3.1	Stevens Brook	3-24
3.4.3.2	Rugg Brook	3-24
3.4.4	Environmental Consequences	3-24
3.4.4.1	No-Action Alternative	3-24
3.4.4.2	Proposed Action	3-25
3.4.5	Mitigation	3-26
3.5	Groundwater & Drinking Water Resources	3-27
3.5.1	Regulatory Context	3-27
3.5.2	Methodology	3-27
3.5.3	Affected Environment	3-28
3.5.4	Environmental Consequences	3-28
3.5.4.1	No-Action Alternative	3-28
3.5.4.2	Proposed Action	3-28
3.5.5	Mitigation	3-28
3.6	Floodplains and Floodways	3-28
3.6.1	Regulatory Context	3-28
3.6.2	Methodology	3-29
3.6.3	Affected Environment	3-29
3.6.4	Environmental Consequences	3-29
3.6.4.1	No-Action Alternative	3-29
3.6.4.2	Proposed Action	3-30
3.6.5	Mitigation	3-30

3.7	Farmlands	3-30
3.7.1	Regulatory Context	3-30
3.7.2	Methodology.....	3-31
3.7.3	Affected Environment.....	3-31
3.7.4	Environmental Consequences	3-32
3.7.4.1	No-Action Alternative	3-32
3.7.4.2	Proposed Action	3-32
3.7.5	Mitigation.....	3-32
3.8	Wildlife	3-32
3.8.1	Regulatory Context	3-32
3.8.2	Methodology.....	3-33
3.8.3	Affected Environment.....	3-33
3.8.4	Environmental Consequences	3-33
3.8.4.1	No-Action Alternative	3-33
3.8.4.2	Proposed Action	3-34
3.8.5	Mitigation.....	3-34
3.9	Threatened and Endangered Species	3-34
3.9.1	Regulatory Context	3-34
3.9.2	Methodology.....	3-35
3.9.3	Affected Environment.....	3-35
3.9.4	Environmental Consequences	3-36
3.9.4.1	No-Action Alternative	3-36
3.9.4.2	Proposed Action	3-36
3.9.5	Mitigation.....	3-36
3.10	Air Quality	3-36
3.10.1	Regulatory Context	3-36
3.10.2	Methodology.....	3-37
3.10.2.1	Pollutants of Concern	3-37
3.10.2.2	Microscale Analysis	3-38
3.10.3	Environmental Consequences	3-40
3.10.3.1	Particulate Matter.....	3-41
3.10.3.2	Mobile Source Air Toxics.....	3-41
3.10.4	Construction Emissions.....	3-43
3.10.5	Conclusion	3-43
3.11	Noise.....	3-43
3.11.1	Regulatory Context	3-43
3.11.2	Methodology.....	3-47
3.11.3	Affected Environment.....	3-47
3.11.4	Environmental Consequences	3-49
3.11.4.1	Proposed Action	3-49
3.11.4.2	Mitigation	3-50
3.11.5	Conclusions.....	3-50
3.12	Parks, Recreation and Conservation Land	3-51
3.12.1	Regulatory Context	3-51
3.12.2	Methodology.....	3-51
3.12.3	Affected Environment.....	3-51

	3.12.4	Environmental Consequences	3-52
	3.12.4.1	No-Action Alternative	3-52
	3.12.4.2	Proposed Action	3-52
	3.12.5	Mitigation.....	3-52
3.13		Historic Resources.....	3-52
	3.13.1	Regulatory Context	3-52
	3.13.2	Affected Environment.....	3-53
	3.13.3	Environmental Consequences	3-58
	3.13.4	Mitigation.....	3-60
3.14		Archeological Resources	3-61
	3.14.1	Regulatory Context	3-61
	3.14.2	Methodology.....	3-62
	3.14.3	Affected Environment.....	3-63
	3.14.3.1	Archeological Sensitivity	3-64
	3.14.4	Environmental Consequences	3-64
	3.14.4.1	No-Action Alternative	3-64
	3.14.4.2	Proposed Action	3-65
	3.14.5	Mitigation.....	3-65
	3.14.5.1	Proposed Nason Street Connector.....	3-65
	3.14.5.2	Previously Disturbed Areas	3-66
3.15		Acquisitions (Right-of-Way)	3-66
	3.15.1	Regulatory Context	3-66
	3.15.2	Methodology.....	3-66
	3.15.3	Affected Environment.....	3-66
	3.15.4	Environmental Consequences	3-67
	3.15.4.1	No-Action.....	3-67
	3.15.4.2	Proposed Action	3-67
	3.15.5	Mitigation.....	3-68
3.16		Socio-Economics & Environmental Justice.....	3-69
	3.16.1	Regulatory Context	3-69
	3.16.2	Methodology.....	3-70
	3.16.2.1	Identify Environmental Justice Populations	3-70
	3.16.2.2	Determine if Impacts Disproportionately Affect Environmental Justice Populations.....	3-71
	3.16.3	Affected Environment.....	3-71
	3.16.3.1	Minority Populations in the Study Area.....	3-72
	3.16.3.2	Low-Income Populations in the Study Area.....	3-72
	3.16.4	Environmental Consequences	3-73
	3.16.4.1	Right-of-Way Impacts	3-73
	3.16.4.2	Effect on Environmental Justice Populations.....	3-74
	3.16.4.3	ROW Acquisition.....	3-74
	3.16.4.4	Environmental Justice Finding.....	3-75
	3.16.5	Mitigation.....	3-75
3.17		Hazardous Materials.....	3-76
	3.17.1	Regulatory Context	3-76
	3.17.2	Methodology.....	3-76
	3.17.3	Hazardous Sites Database Results	3-77
	3.17.3.1	RCRA Database Results	3-78

	3.17.3.2	DEC SPILLS Database Results.....	3-78
	3.17.4	Environmental Consequences	3-79
	3.17.4.1	No-Action Alternative	3-79
	3.17.4.2	Proposed Action	3-79
	3.17.5	Mitigation.....	3-80
3.18		Cumulative Impacts	3-81
	3.18.1	Cumulative Impact Framework	3-81
	3.18.2	St. Albans Downtown Streetscape Project.....	3-82
	3.18.2.1	Project Description.....	3-82
	3.18.2.2	Potential Resource Impacts.....	3-83
	3.18.3	St. Albans Cooperative Creamery.....	3-84
	3.18.3.1	Project Description.....	3-84
	3.18.3.2	Potential Resource Impacts.....	3-84
	3.18.4	The Northerly Connector.....	3-85
	3.18.4.1	Project Description.....	3-85
	3.18.4.2	Potential Resource Impacts.....	3-86
	3.18.5	Multi-Modal Transit Center.....	3-88
	3.18.5.1	Project Description.....	3-88
	3.18.5.2	Potential Resource Impacts.....	3-89
	3.18.6	Conclusion	3-90
3.19		Summary of Mitigation and Project Commitments.....	3-90
		Section 4(f) Evaluation.....	4-1
4.1		Introduction	4-1
4.2		Proposed Action & Alternatives Considered	4-1
	4.2.1	Proposed Action.....	4-1
	4.2.2	Alternatives Considered	4-3
	4.2.2.1	No-Action Alternative	4-3
	4.2.2.2	Alternatives from the 2005 Corridor Study.....	4-4
	4.2.2.3	Lake Street at Catherine / Federal Streets	4-4
	4.2.2.4	Alternatives at Lower Welden Street /Allen Street/ Lemnah Drive Intersection.....	4-6
4.3		Description of Historic Resources.....	4-7
	4.3.1	Willard Furniture Manufacturing Company.....	4-8
	4.3.2	Giroux Furniture Company.....	4-8
	4.3.3	163 Federal Street	4-8
	4.3.4	174 Federal Street	4-9
	4.3.5	Central Vermont Railroad Headquarters Historic District.....	4-9
	4.3.6	St. Albans Historic District.....	4-10
	4.3.7	Federal/Lake/Catherine Streets Intersection Historic District.....	4-11
4.4		Impacts to Historic Properties	4-12
	4.4.1	Central Vermont Railroad Headquarters Historic District.....	4-13
	4.4.1.1	Segment 1 - Lower Newton St. (North Main St. to Federal St.).....	4-13
	4.4.1.2	Segment 2 - Federal St. (Lower Newton St. to Kingman St.).....	4-13
	4.4.1.3	Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.).....	4-13

4.4.1.4	Segment 4 – Allen Street and Lemnah Drive (Stowell St. to Nason St.)	4-14
4.4.1.5	Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)	4-14
4.4.2	St. Albans Historic District	4-14
4.4.2.1	Segment 1 - Lower Newton St. (North Main St. to Federal St.)	4-15
4.4.2.2	Segment 2 - Federal St. (Lower Newton St. to Kingman St.)	4-15
4.4.2.3	Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.)	4-15
4.4.2.4	Segment 4 – Allen Street and Lemnah Drive (Stowell St. to Nason St.)	4-16
4.4.2.5	Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)	4-16
4.4.3	Willard Furniture Manufacturing Company	4-16
4.4.4	Giroux Furniture Company	4-16
4.4.5	Federal/Lake/Catherine Streets Intersection Historic District	4-17
4.4.6	163 Federal Street	4-17
4.4.7	174 Federal Street	4-18
4.5	Alternatives Which Avoid the Use of Section 4(f) Properties	4-18
4.6	Measures to Minimize Harm	4-18
4.7	Least Harm Analysis	4-19
4.8	Coordination	4-20
4.9	Section 4(f) Conclusion	4-20
Agency Coordination/Public Participation		5-1
5.1	Agency Coordination	5-1
5.2	Public Meetings	5-1
5.3	Permit Requirements	5-2
References		6-1

Appendices:

- Appendix A: Purpose and Need Statement Adopted by the St. Albans City Council
- Appendix B: Request for Preliminary Jurisdictional Determination and USACE Correspondence
- Appendix C: Air Quality Analysis
- Appendix D: Noise Analysis
- Appendix E: National Register of Historic Places Eligibility Analysis
- Appendix F: Archeological Resources Assessment
- Appendix G: Right-of-Way Acquisition Impacts
- Appendix H: Hazardous Materials

Figures

Figure No.	Description
1.2-1	Project Location Map (USGS)
1.2-2	Project Location Map (Aerial)
2.3-1	Corridor Segment Designations
2.5-1	Proposed Alternatives Presented in the 2005 Corridor Study
2.6-1	Proposed Action Overview (Sheet 1 of 2)
2.6-1	Proposed Action Overview (Sheet 2 of 2)
2.6-2	Typical Roadway Sections
2.6-3	Proposed Action
2.6-4	Proposed Action
2.6-5	Proposed Action
2.6-6	Proposed Action
2.6-7	Proposed Action
2.6-8	Proposed Action
2.6-9	Proposed Action
2.7-1	Lower Welden St. Alternative 1 – Proposed Action
2.7-2	Lower Welden St. – Alternative 2
2.8-1	Lake St. Alternative 1 – Proposed Action
2.8-2	Lake Street – Alternative 2
2.8-3	Lake Street – Alternative 3
2.8-4	Lake Street – Alternative 4
3.2-1	Turning Movement Count Locations w. Existing Lane Use & Traffic Control
3.2-2	2010 Weekday Design Hour Volumes – AM Peak Hour
3.2-3	2010 Weekday Design Hour Volumes – PM Peak Hour
3.2-4	2010 Weekday Design Hour Volumes – No-Action AM Peak Hour
3.2-5	2010 Weekday Design Hour Volumes – No-Action PM Peak Hour
3.2-6	2030 Weekday Design Hour Volumes – No-Action AM Peak Hour
3.2-7	2030 Weekday Design Hour Volumes – No-Action PM Peak Hour
3.2-8	2010 Weekday Design Hour Volumes – Proposed Action AM Peak Hour
3.2-9	2010 Weekday Design Hour Volumes – Proposed Action PM Peak Hour
3.2-10	2030 Weekday Design Hour Volumes – Proposed Action AM Peak Hour
3.2-11	2030 Weekday Design Hour Volumes – Proposed Action PM Peak Hour
3.3-1	Wetlands Map
3.4-1	Surface Waters
3.4-2	Conceptual Stormwater Management Plan
3.4-3	Conceptual Stormwater Management Plan
3.4-4	Conceptual Stormwater Management Plan
3.4-5	Conceptual Stormwater Management Plan
3.4-6	Conceptual Stormwater Management Plan
3.5-1	Groundwater and Drinking Water Resources
3.6-1	Flood Hazard Areas
3.7-1	Prime Farmland and US Census Bureau Urbanized Centers
3.8-1	Wildlife Habitat
3.9-1	Special Species Status
3.10-1	Microscale Air Quality Analysis Intersections
3.11-1	Noise Monitoring & Receptor Locations – Sheet 1 of 3
3.11-1	Noise Monitoring & Receptor Locations – Sheet 2 of 3

3.11-1	Noise Monitoring & Receptor Locations – Sheet 3 of 3
3.12-1	Public Parks and Recreation Lands
3.13-1	Historic Districts and Sites
3.14-1	Archeological Resources
3.15-1	Right-of-Way Acquisitions
3.16-1	Minority Populations
3.16-2	Low-Income Populations
3.17-1	Hazardous Materials
3.18-1	Previously Considered Alignments for the Northerly Corridor
5.4-1	Section 4(f) Impacts
5.4-2	Section 4(f) Impacts
5.4-3	Section 4(f) Impacts
5.4-4	Section 4(f) Impacts
5.4-5	Section 4(f) Impacts
5.4-6	Section 4(f) Impacts
5.4-7	Section 4(f) Impacts
5.4-8	Section 4(f) Impacts

Tables

Table No.	Description	Page
Table 1.5-1	Existing Roadway Widths	1-6
Table 3.2-1	2010 Existing Signalized Intersection Analysis Summary	3-4
Table 3.2-2	2010 Existing Unsignalized Intersection Analysis Summary	3-5
Table 3.2-3	2010 and 2030 Signalized Intersection Analysis Summary	3-11
Table 3.2-4	2010 Unsignalized Intersection Analysis Summary	3-12
Table 3.2-5	2030 Unsignalized Intersection Analysis Summary	3-14
Table 3.2-6	2010 Roundabout Capacity Analysis Summary at Lower Welden Street	3-16
Table 3.2-7	2030 Roundabout Capacity Analysis Summary at Lower Welden Street	3-16
Table 3.3-1	Impacts to State and Federally Regulated Jurisdictional Wetlands	3-21
Table 3.7-1	Soils Present within the Study Corridor	3-31
Table 3.11-1	Common Outdoor and Indoor Sound Levels	3-45
Table 3.11-2	Noise Abatement Criteria (NAC) One-Hour, A-Weighted Sound Levels in Decibels (dBA)	3-46
Table 3.11-3	Sound Levels From Traffic Noise Model, Version 2.5 - Leq dB(A)	3-49
Table 3.15-1	Anticipated ROW Impacts	3-68
Table 3.15-2	Full ROW Acquisitions	3-68
Table 3.17-1	Results of OHM Computer Database Search	3-77
Table 3.18-1	Potential Use of and Parking at the St. Albans Multi-Modal Transit Center	3-89
Table 4.4-1	Impacts to the Central Vermont Railroad District	4-13
Table 4.4-2	Impacts to the St. Albans Historic District	4-15
Table 4.4-3	Impacts to the Giroux Furniture Company	4-17
Table 5.1-1	Agency Coordination	5-1
Table 5.2-1	Public and City Council Meetings	5-2
Table 5.3-1	Anticipated Permit Requirements and Agreements	5-3

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 Railway
CWA	Clean Water Act
dB	Decibels
dba	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
ft	feet
GIS	Geographic Information System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCL	High Crash Location
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
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
NRHP	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
Project	Federal Street Multimodal Connector Project
PSI	Preliminary Site Investigation
RCRA	Resource Conservation and Recovery Act
ROW	Right-Of-Way
SASH	St. Albans State Highway
SHPO	State Historic Preservation Office
SPA	Source Protection Area
sq ft	square feet
STP	Stormwater Treatment Practice
SWPPP	Stormwater Pollution Prevention Plan
SWL	Active Solid Waste Landfill Facilities
TMC	Turning Movement Counts
TMDL	Total Maximum Daily Load

TNM	Traffic Noise Model
TSD	Treatment, Storage and Disposal
UA	Urbanized Area
UC	Urban Cluster
UFT	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
VCGI	Vermont Center for Geographic Information
VDFW	Vermont Department of Fish and Wildlife
VMT	Vehicle Miles of Travel
VPD	Vehicles Per Day
VVNNHP	Vermont Nongame and Natural Heritage Program
VSA	Vermont Statutes Annotated
VSMM	Vermont Stormwater Management Manual
VTrans	Vermont Agency of Transportation

1

Project Overview

1.1 Introduction

The Federal Street Multimodal Connector, 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 which detracts from the downtown human environment. The improved 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 attractive alternative access to Interstate 89.

This Environmental Assessment (EA) was prepared to describe and assess the environmental consequences that may result from the proposed Federal Street Multimodal Connector (i.e., "the Project" or "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.

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 SAFETY-LU, the Federal Transportation Bill approved in 2005, including the following earmarked funds:

- \$960,000 for construction of the St. Albans inter-modal 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, substantial coordination with state and federal agencies as well as the general public has occurred. These coordination efforts are outlined in **Chapter 5**. Further, the Federal Street Multimodal Connector 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 rural, with approximately 6,400 residents living among the extensive farmlands which border the adjacent Lake Champlain.

The project involves five sections of existing and proposed roadway totaling approximately 2.1 miles:

- ▶ **Lower Newton Street from US Route 7 (North Main Street) to Federal 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 now vacant industrial factory known as the Fonda Group Property, which is now City owned and the focus of a federal brownfield cleanup program.
- ▶ **Federal Street from Lower Newton Street to Kingman 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 Central Vermont Railway (CVR) along with associated industrial and commercial buildings.
- ▶ **Federal/Catherine/Allen Streets from Kingman Street to Stowell Street (0.60 miles).** This area is urban 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 CVR 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.

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

- ▶ **Allen Street and Lemnah Drive from Stowell Street to Nason Street (0.42 miles).** Lemnah Drive is a recently improved street which provides access to commercial/industrial properties including the City's municipal complex. Lemnah Drive crosses Stevens Brook, a perennial stream that has been identified as having impaired water quality by the State of Vermont.²
- ▶ **The "Nason Street Connector" (0.30 miles).** The Nason Street Connector is a proposed 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.

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.

1.3 Project Background and Previous Studies

Upgrades to the Federal Street corridor have been contemplated by the City of St. Albans since at least the 1970s. A number of publicly-funded transportation studies have considered the project 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 the Federal Street project was emphasized again in the 1991 in the *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. The 1995 Federal Street Corridor 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 7 intersection with the Interstate Access Road (St. Albans State Highway, or "SASH") and Nason Street.



² See Section 3.4 of this EA for more information on Stevens Brook.

- 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 (VT Route 38) 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 facility, and multi-modal 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 policy changes that had occurred over the previous decade. This study included the Northerly Connector, but following this report, the City decided to drop 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 Multi-Modal 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);*

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 drop the Northerly Connector from further action is provided in Sections 2.2 and 3.18 of this EA.

- *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*
- *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 delay through the downtown, most notably at the intersections of Main Street (US Route 7) at Lake Street and Fairfield Street (VT Route 36). 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 streets. 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 and Lake Street and Fairfield Street intersections. 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 deficient roadway geometrics
- inconsistent pedestrian accommodations
- poor access management
- lack of provision for turning movements at key intersections
- lack of direct connection to Interstate 89 (I-89)
- generally poor state of repair

Prior studies have shown that points south via Catherine Street or Market Street, Allen Street, and Lemnah Drive have fewer vehicles using the corridor as a bypass route, due to inconsistent roadway geometrics (see chart below). 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 pavement widths (**Table 1.5-1**), the Federal Street corridor is not presently suitable as a bypass route because key intersections are not configured to best accommodate through or bypassing 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 pre-existing bypass traffic. Moreover, vehicular delays are compounded because the corridor does not have direct access to I-89 via the Interstate Access Road (SASH). Therefore, vehicles must travel on residential streets to gain access to Main Street (US Route 7), Federal Street, and the Interstate Access Road (SASH).

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 (SASH) 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, and thus increase 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” standards. 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. These issues, during peak periods, cause congestion, delay, and conflicts between all modes of travel. The sight distance is obstructed by utility poles, buildings, and vehicles parked on the north side of Lake Street. Pedestrians have a long way to travel to progress from one side of the street to the other on the southerly side of Lake Street, due to the lack of pedestrian facilities.

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 (SASH) 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 Streets” standards.

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). This proposed loading would accommodate truck traffic (i.e. WB 64) on the bridge for those vehicles traveling through St. Albans to another destination and those trucks stopping at commercial and industrial businesses, such as the St. Albans Cooperative Creamery, Inc. and New England Central Railroad. The existing roadway width across the bridge of approximately 29 ft. will not accommodate pedestrian and bicycle facilities, which require a minimum width of 39 ft. (2-12 ft. travel lanes, 2-5 ft. bicycle lanes and 1 – 5 ft. sidewalk).

Lighting

The Federal Street corridor lacks consistent 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 of St. Albans completed a downtown master plan in September 2009 (City of St. Albans 2009), which describes their 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.

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 (**Appendix A**) provides a detailed description of the City's objectives for this project. The purpose includes implementing multi-modal 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 accommodations and poor access management.

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

- ▶ **Previous Study and Design Efforts.** The design team reviewed previous studies 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 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.

- **Complete Street Principles.** Use of “complete streets principles” that facilitate all modes of travel was deemed important.
- **Multi-modal 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 rail and bus service, an extensive City sidewalk system, and it is the western terminus of the Missisquoi Valley Rail-Trail. However, efficient connections between these different modes are largely missing. Improving the Federal Street corridor as a multi-modal link and through 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.
- **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 Corridor Segment Designations

To facilitate the discussion of the Alternatives considered in this EA, the Study Area has been broken into five segments. These segments are based on roadway geometry, intersection configurations and complexity, and existing land use. They are similar to those used in the report entitled *Federal Street Corridor Study – 2005 Update* (NRPC 2005) and thus provide some continuity with past studies. These five segments total approximately 2.1 miles and are depicted in **Figure 2.3-1** and described in detail from north to south below.

With the exception of Lemnah Drive, all of the existing streets within the Study Area 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.

2.3.1 Lower Newton St. (North Main St. to Federal 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 North Main Street and runs west to Federal 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 abandoned at-grade crossing of Lower Newton Street across the New England Central Railroad (NECR) line is present just west of this intersection.

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

The Federal Street segment commences at Lower Newton Street and runs south for 0.61 miles along Federal Street to Kingman 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 side streets between Lower Newton Street and Kingman Street, all of which are either one lane in each direction or one-way. Each side street is stop controlled, whereas Federal Street has free north/south movement. There are no signalized intersections in 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 from Lower Newton Street through Hudson Street is predominantly single family with some high-density residential and some notable commercial and industrial land uses being present, such as the St. Albans Cooperative Creamery north of Hudson Street. Commercial and public and institutional uses also front onto Federal Street.

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

This 0.36 mile roadway segment begins at Kingman Street and extends south to Stowell Street. All roads have one lane in each direction. Federal Street has

designated on-street parking on both sides of the street whereas Catherine Street has a few parallel 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 urban and considered a portion of the downtown area of the City of St. Albans. Land use is varied in this segment. The headquarters of the Central Vermont Railway (CVR) are located within this segment at 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 Stebbins Street and Stowell 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 likelihood of vehicular collisions.
- 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, 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 an alternate 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).

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

This 0.43-mile segment includes Allen Street from Stowell Street to Lower Welden Street and Lemnah Drive from Lower Welden Street to Nason 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 foot) 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 proximity to the railroad crossing. 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 since 1995 to connect Nason Street to Lower Welden Street. It provides 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.

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

The Nason Street Connector is a proposed 0.30-mile, two-lane roadway which would extend the Interstate Access Road (SASH) 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 preceding studies, including the 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 Interstate 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 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 (SASH). 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 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.

2.5 Alternatives from the 2005 Corridor Study

The 2005 Corridor Study includes the same segments as the current project 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 and VT Route 105. The Northerly Connector is not included in the project because NECR owns critical pieces of the required land and because the City has purchased the former Fonda Group Property (an existing brownfield) for non-transportation redevelopment purposes.⁴

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 2.5-1**) 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 office, the design team worked to develop additional alternatives that would provide multi-modal benefits while preserving the historic structures.

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.

▼
⁴ Additional information regarding the dismissal of the Northerly Connector as a project alternative is included in Section 3.18-1.

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-foot wide travel lanes for each direction of vehicular traffic;
- 4-foot wide bicycle lanes (5-foot wide where on-street parking is provided);
- 2 to 4-foot wide grass utility strips; and
- 5-foot 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. Overhead utilities would be buried. 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 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 2.6-3**). 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 precludes the establishment of bike lanes along this road segment. 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.

2.6.3 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 2.6-4** through **2.6-6**). 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.

2.6.4 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 2.6-7** and **2.6-8**). A dedicated left turn lane would be added at Nason Street and all pedestrian crossings would be well signed and marked.

2.6.5 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 2.6-8** and **2.6-9**). 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.

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 modern 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 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 southeast corner of the intersection at 30 Lower Welden, 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 standard 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 right-of-way.
- The roundabout would result in some longer pedestrian routes.

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. The improvements would also include the addition of continuous 5-ft 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.

2.7.2.2 Disadvantages

- This alternative would create impacts outside of the right-of-way.
- 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 existing due to the large corner radii required to accommodate turning trucks.
- The required fire preemption for the adjacent fire station would result in more overall delay.
- The close proximity of the railroad crossing to the intersection introduces the potential for vehicles that are queued at the light to become trapped on the tracks. There is also a concern that the train would create long delays within the intersection when the Lower Welden approach is effectively shut down while a train passes.

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.

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

Under this alternative the intersection would be signalized with Catherine Street 1-way northbound and Market Street 1-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.

2.8.1.1 Advantages

- This alternative would improve the overall operation of the intersection.
- The traffic would have assigned right-of-way for each conflicting traffic movement. It does this by permitting conflicting streams of traffic to 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 right-of-way. 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.

2.8.2 Alternative 2: Roundabout

This alternative is a standard one-lane roundabout with four approaches.

2.8.2.1 Advantages

- Shorter queue lengths and delay compared to a traffic signal 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 than 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 removed.
- This alternative provides a similar level of service as a traffic signal alternative during the PM peak.

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 5-ft wide bike lanes on both sides of the road.

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 have assigned right-of-way for each conflicting movement of traffic, and it does this 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 well.

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 removed.

2.8.4 Alternative 4: Elongated Roundabout

This alternative is a greatly modified one-lane roundabout.

2.8.4.1 Advantages

- This alternative would result in less overall delay compared to the 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

- Excess pavement 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 appears that a left turn can be made from Federal Street to Lake Street east.
- This alternative would create impacts outside of the right-of-way.
- 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 directions to slow vehicle speeds. This, combined with the potentially confusing expansive pavement areas, this alternative introduces safety concerns when compared to the standard roundabout and signalized alternatives.

2.9 Summary of the Proposed Action

The Proposed Action includes the corridor-wide improvements described in **Section 2.6**. It also includes the selected alternatives at the Lower Welden Street / Allen Street / Lemnah Drive and the Lake Street / Catherine Street / Federal Street intersections. 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.

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) and it would provide better mobility when trains occupy the nearby at-grade railroad crossing on Lower Welden Street.

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 multi-modal mobility while minimizing impacts to cultural resources. The Proposed Action signalized alternative continues the typical on-road bike lanes through the intersection, and it provides signalized pedestrian crossings within the intersection.

The roundabout alternative (Alternative 2) and the other signalized intersection alternative (Alternative 3) would both result in demolition of the historic Giroux Furniture Company building. During the development of Project alternatives, the Vermont Agency of Transportation (VTTrans) indicated that this demolition would likely pose a difficult permitting hurdle, and acquisition of the building would also add to project costs. The elongated roundabout alternative (Alternative 4) would preserve the Giroux Furniture Company building, but its unconventional configuration was predicted to lead to congestion and safety concerns for motorists, bicyclists and pedestrians.

2.10 Elements Considered but Dismissed

A traffic signal was considered to control the Nason Street Connector / Nason Street / Lemnah Drive intersection, however this was dismissed since it does not meet traffic signal warrants and since the intersection would be close to the existing railroad crossing. In addition, the proposed unsignalized intersection configuration with stop controlled side streets promotes north-south travel, which is consistent with the Purpose and Need.

The Northerly Connector was previously studied by the City but is not included in the proposed action since the City has no plans to include that connection with the

project now or in the foreseeable future. The railroad controls property that would be crucial for the construction of the northern connector and the City has also acquired property in that area that it plans to utilize for future non-transportation purposes⁵.

▼
⁵ Additional information regarding the dismissal of the Northerly Connector as a project alternative is included in Section 3.18-1.

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.⁶

For purposes of this discussion, impacts resulting from both the roadway improvements (i.e., direct impacts), as well as the indirect effects were evaluated and are presented for each resource. Cumulative impacts are addressed at the end of this chapter.

The environmental impact categories considered in this EA include:

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



⁶ 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)
- Socio-Economics and 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, proposed measures to mitigate for the Proposed Action impacts are described.

3.2 Traffic

This section describes a transportation vision for the area as well as summarizes the existing and future year 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.

3.2.1 Existing Traffic Conditions

Section 2.3 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 (SASH)

As recommended in a Policy on Geometric Design of Highways and Streets⁷ 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).

Based on historical traffic data from the nearby VTrans Permanent Count Station P6F029 located on US Route 7, 1.7 miles north of I-89 in Georgia, the 2010 traffic volumes were increased by nine percent to represent the DHV (the 30th highest hour). The adjusted 2010 weekday morning and evening design 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.⁸



⁷ American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets 6th Edition, Washington, D.C., 2011.

⁸ 2000 Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, D.C.

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 defined⁹ 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 an urbanized area.

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 design hour volume. Operations are more congested under the 2010 existing weekday evening design hour volume where the intersection operates at LOS E with an average delay of 61 seconds and a v/c of 0.82.

Table 3.2-1 2010 Existing Signalized Intersection Analysis Summary

Intersection	Weekday AM Peak Hour			Weekday PM Peak Hour		
	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

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 design hours. Vehicles exiting from the unsignalized approach of the Interstate Access Road (SASH) to US Route 7 (Main Street) operate at LOS F during both design hours and vehicles exiting from the unsignalized approaches of Catherine Street and Federal Street at the Federal Street intersection operate at LOS F during both the evening design hours.

▼
 9 Ibid.

Table 3.2-2 2010 Existing Unsignalized Intersection Analysis Summary

Intersection	Weekday AM Peak Hour			Weekday PM Peak Hour		
	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
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
EB lefts from Nason St	-	-	-	-	-	-
EB through/right from Nason St	-	-	-	-	-	-
WB movements from Nason St	-	-	-	-	-	-
NB lefts from Nason St Connector	-	-	-	-	-	-
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
EB lefts from Lower Welden St	-	-	-	-	-	-
WB lefts from Lower Welden St	-	-	-	-	-	-
WB movements from Lower Welden St	190	1	A	220	1	A
NB movements from Lemnah Dr	135	19	C	135	19	C
NB lefts from Federal St	-	-	-	-	-	-
NB through/rights from Federal St	-	-	-	-	-	-
SB movements from Allen St	145	18	C	100	18	C
SB lefts from Federal St	-	-	-	-	-	-
SB through/right from Federal St	-	-	-	-	-	-
Stebbins St at Catherine St						
EB movements from Stebbins St	100	3	A	80	5	A
WB movements from Stebbins St	-	-	-	-	-	-
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
WB lefts from Lower Newton St	-	-	-	-	-	-
NB lefts from Lower Newton St	-	-	-	-	-	-
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

The Federal Street unsignalized approach to the Lower Newton Street intersection also experiences moderate delays under the 2010 weekday evening design hour

volume, operating at LOS F under the weekday morning design 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 design 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 2005 Paramics model was updated and recalibrated to reflect the 2010 existing weekday morning and evening design hours for the purposes of forecasting traffic volumes and evaluating the effect of the Proposed Action on the design 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 (SASH) where TMC data was 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 design hour conditions are shown in **Figures 3.2-4** through **3.2-7**.

Once calibrated to the No-Action (No Build) 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 design 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 the Manual on Uniform Traffic Control Devices¹⁰. These included the intersections of US Route 7 at the Interstate Access Road (SASH), 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 (SASH), 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. Therefore, the improvement provided at some locations cannot be measured or quantified through traditional metrics such as LOS, delay, and v/c ratios. Specific locations where such items were included in the traffic operational analysis include:

- ▶ US Route 7 at Upper Newton Street/Lower Newton Street is assumed to 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 concurrent).
- ▶ US Route 7 at the Interstate Access Road (SASH) is a new four-way signalized intersection with the Nason Street Connector. This intersection is assumed to have an exclusive pedestrian phase. In addition, the Interstate Access Road (SASH) and Nason Street Connector approaches are assumed to be split phased to minimize vehicle conflicts.
- ▶ Lake Street at Federal Street/Catherine Street is assumed to be signalized with coordination and an exclusive pedestrian phase. In addition, the Lake



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

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 property impacts.

- Federal Street at Lower Newton Street is assumed to be signalized with coordination and an exclusive pedestrian phase.
- The existing US Route 7 intersections with JC Penney plaza, Lake Street, Fairfield Street, and Upper Welden Street/Lower Welden Street are assumed to operate under coordination with exclusive pedestrian phases. Although these intersections are not part of the primary Study Area, they were included in the analysis to provide a system-wide review of the Project's impacts.

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 design hour as a result of the project, and remain unchanged at LOS E under the weekday evening design hour. As discussed in **Section 3.2.2**, the incorporation of an 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.

The three new signalized intersections included under the Proposed Action include US Route 7 at the Interstate Access Road (SASH)/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 design hour and LOS E under the weekday evening design 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 facilities. 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).

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 design 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 design 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 design 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 design hour as a result of the project. Traffic operations during the 2030 weekday evening design hour would be expected to degrade from LOS E to LOS F during the weekday evening design hour as a result of the project. As discussed in the previous section, these changes in level of service are partially attributed to incorporating safety measures and pedestrian facilities 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 as a result of the Proposed Action.

Two of the three proposed signalized intersections, US Route 7 at Interstate Access Road (SASH)/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 design hours. As discussed previously, the longer delays at these locations are attributed to the incorporation of safety measures and exclusive pedestrian facilities. 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 design 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 design 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 design 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

Intersection	Period	2010 No-Action			2010 Proposed Action			2030 No-Action			2030 Proposed Action		
		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	Unsignalized			0.71	48	D	Unsignalized			0.87	73	E
Lake St @ Federal St & Catherine St	AM Peak	Unsignalized			0.61	43	D	Unsignalized			0.67	59	E
	PM Peak	Unsignalized			0.80	69	E	Unsignalized			0.90	65	E
Lower Newton St @ Federal St	AM Peak	Unsignalized			0.31	33	C	Unsignalized			0.34	31	C
	PM Peak	Unsignalized			0.45	29	C	Unsignalized			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

Intersection	2010 No-Action						2010 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
	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	Roundabout			Roundabout		
EB lefts from Lower Welden St	-	-	-	-	-	-						
WB lefts from Lower Welden St	-	-	-	-	-	-						
WB movements from Lower Welden St	190	1	A	220	1	A						
NB movements from Lemnah Dr	135	19	C	135	19	C						
NB lefts from Federal St	-	-	-	-	-	-						
NB through/rights from Federal St	-	-	-	-	-	-						
SB movements from Allen St	145	18	C	100	18	C						
SB lefts from Federal St	-	-	-	-	-	-						
SB through/right from Federal St	-	-	-	-	-	-						

- 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

Intersection	2010 No-Action						2010 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
	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	Signalized			Signalized		
WB movements from Lake St	250	1	A	315	1	A	Signalized			Signalized		
NB movements from Catherine St	65	29	D	100	287	F	Signalized			Signalized		
SB left/through from Federal St	325	20	C	355	433	F	Signalized			Signalized		
Lower Newton St at Federal St												
WB movements from Lower Newton St	370	6	A	400	6	A	Signalized			Signalized		
WB lefts from Lower Newton St	-	-	-	-	-	-	Signalized			Signalized		
NB lefts from Lower Newton St	-	-	-	-	-	-	Signalized			Signalized		
NB movements from Federal St	135	17	C	425	37	F	Signalized			Signalized		

- 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

Intersection	2030 No-Action						2030 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
	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	Roundabout			Roundabout		
EB lefts from Lower Welden St	-	-	-	-	-	-						
EB through/rights from L. Welden St	-	-	-	-	-	-						
WB lefts from Lower Welden St	-	-	-	-	-	-						
WB through/rights from L. Welden St	-	-	-	-	-	-						
WB movements from Lower Welden St	235	1	A	255	1	A						
NB movements from Lemnah Dr	165	33	D	155	28	D						
NB lefts from Federal St	-	-	-	-	-	-						
SB movements from Allen St	180	29	D	120	24	C						
SB lefts from Federal St	-	-	-	-	-	-						

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

Intersection	2030 No-Action						2030 Proposed Action					
	Weekday AM			Weekday PM			Weekday AM			Weekday PM		
	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	Signalized			Signalized		
WB movements from Lake St	315	1	A	375	1	A	Signalized			Signalized		
NB movements from Catherine St	90	97	F	120	~	F	Signalized			Signalized		
SB left/through from Federal St	385	39	E	95	~	F	Signalized			Signalized		
Lower Newton St at Federal St												
WB movements from Lower Newton St	415	6	A	470	6	A	Signalized			Signalized		
WB lefts from Lower Newton St	-	-	-	-	-	-	Signalized			Signalized		
NB lefts from Lower Newton St	-	-	-	-	-	-	Signalized			Signalized		
NB movements from Federal St	155	22	C	500	115	F	Signalized			Signalized		

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

Period	Approach	2010 Proposed Action ¹		2010 Proposed Action ²		2010 Proposed Action ³		2010 Proposed Action ⁴	
		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

Period	Approach	2030 Proposed Action ¹		2030 Proposed Action ²		2030 Proposed Action ³		2030 Proposed Action ⁴	
		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 B**.

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/inet/functions/cw/cecwo/reg/index.htm>),

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:

- ▶ is identified on the Vermont significant wetlands inventory maps as a Class I wetland; or
- ▶ the Panel determines, based on an evaluation of the extent to which the wetland serves the functions and values set forth at 10 V.S.A. § 6025(5)(A)-(K) and in Section 5 of the Vermont Wetland Rules, is exceptional or irreplaceable in its contribution to Vermont's natural heritage and, therefore, merits the highest level of protection.

Class II:

- ▶ is a wetland identified on the Vermont significant wetlands inventory maps; or
- ▶ the Secretary determines merits protection, based on an evaluation of the extent to which the wetland serves the functions and values set forth at 10 V.S.A. § 6025(d)(5)(A)-(K) and Section 5 of the Vermont Wetland Rules, either taken alone or in conjunction with other wetlands. See 10 V.S.A. § 902(7).

Class III:

- ▶ any wetland that is neither a Class I or Class II wetland, and is not regulated under the Vermont Wetland Rules.

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 pink flagging.

Field notes were taken to record information such as proposed 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 States (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 B**. The final page of **Appendix B** 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**. 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. It is a presumed Class II wetland based on its ability to provide flood storage benefits per criteria 5.1 and 5.2 of the Vermont Wetland Rules. This classification is pending confirmation by the DEC. 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 trap sediments however and remove them from surface waters.

Class II wetlands are jurisdictional under the Vermont Wetland Rules and therefore would require a 50-foot 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. Wetland F has been preliminarily classified as a Class III wetland due to the small size of the wetland which limits its ability to provide functional benefits per criteria 5.1 and 5.2 of the Vermont Wetland Rules. This classification is subject to confirmation by the DEC. Class III wetlands are not jurisdictional under the Vermont Wetland Rules and do 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 Alternative

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 (SASH). 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, assumed to be a Class II wetland. Total direct impacts are limited to Wetland B and amount to 1,506 sq ft. This includes 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. **Table 3.3-1** also summarizes the impacts to Stevens Brook that would be necessary for the removal and replacement of the existing bridge that spans Stevens Brook within the Study Area. As described in **Section 2.6.4** and **Section 3.4.4.2**, the Proposed Action would span Stevens Brook at an elevation above ordinary high water (OHW) that meets or exceeds the existing hydraulic opening. Removal of the existing structure and replacement with the proposed structure however, may require working within the channel of the brook and its banks.

Indirect impacts to the Study Area wetlands are primarily associated with clearing and grading within the 50-ft buffer zone for Class II wetlands. Total impacts to the buffer of Wetland B would be 13,193 sq ft, of which 1,605 sq ft would be temporary during construction. Buffer impacts are also 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.

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

Type of Impact	Area of Impact (sf)
Permanent Wetland Impact	1,506
Perennial Stream Channel Impact (51' x 20')	1,020
Temporary Wetland Impact	360
Subtotal Wetland Impacts (Direct)	2,886
Class II Wetland Buffer - Permanent	11,588
Class II Wetland Buffer - Temporary	1,605
Subtotal Buffer Impacts (Indirect)	13,193
Total Impacts	16,079

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 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 and indirect impact to the wetland body. In this case, the activity would be classified as a Category 2 activity and require authorization under the 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 foot 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 Rules. 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. restoring any disturbed wetland or wetland buffer area in accordance with the provisions of an approved erosion control and sediment prevention (EPSC) plan, including the use of a wetland seed mix consisting of native species to revegetate areas of temporary wetland impact.

In addition to these BMPs, the potential for temporary impacts to wetlands during construction would be minimized by the development of a Stormwater Pollution Prevention Plan (SWPPP) and adherence to BMPs during construction. 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.

The existing bridge at Stevens Brook would be replaced with a structure that also spans the Brook and which would be designed to meet or exceed the existing hydraulic opening (see following **Section 3.4.4.2**).

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 Corridor is Stevens Brook. Stevens Brook rises just east of the Study Area and flows west to Lake Champlain. It has a watershed area of approximately 14.7 square miles. It is a perennial stream where it 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 foot. Stevens Brook at this location is classified as a riverine, lower perennial, unconsolidated bottom, mud, permanently flooded (R2UB3H) channel. Stevens Brook is the only surface water feature within the Study Area. 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 Environmental Protection Agency (EPA) in February 2009. In accordance the Impaired Rule, developments within watershed must meet the “no net increase” criterion, meaning that projects proposing create new, expanded, or redeveloped impervious surfaces must reduce the washoff sediment load to natural background conditions.

3.4.3.2 Rugg Brook

The extreme southern portion of the Study Corridor 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.

3.4.4 Environmental Consequences

3.4.4.1 No-Action Alternative

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 a 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 do not have any or very limited 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 be required to be designed in 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. It may not be feasible to incorporate necessary stormwater treatment practices given both the combined system and the lack of flexibility / lack of involved lands otherwise afforded by a larger project footprint.

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-foot of freeboard, or the 100-year storm event, whichever is greater.

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 coordinate 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 collection, conveyance, and treatment stormwater 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.

3.4.5 Mitigation

As discussed above, 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.

The required offset capacity to achieve the no net increase criterion of the Impaired Rule will be developed with a sediment washoff loading model, using the Simple Method (Schueler 1987). 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 determined. 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 or pay an offset fee.

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/SASH), or conducting an offsite improvement project elsewhere in the watershed or pay an offset fee.

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 Alternative

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 the 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 Alternative

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 total area of direct impact associated with the Project within Zone B (500-year) is 139,261 sq ft or 3.2 acres. 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 system 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 special flood hazard areas as a result of the Proposed Action.

3.6.5 Mitigation

The Proposed Action would comply with the City of St. Albans Land Development Regulations in Section 305 Flood Hazard Overlay District. The Flood Hazard Overlay District refers to the federal and state provisions for compliance with the NFIP.

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. The FPPA directs Federal agencies to “...*(a) identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative actions, as appropriate, that could lessen adverse effects, and (c) to ensure that their programs o, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland...*” (7 CFR 658.1). FHWA’s Technical Advisory T6640.8A (October 30, 1987) further directs that impacts on farmlands be assessed as part of the environmental assessment for all transportation projects.

Farmland impacts are defined as those activities that render prime, unique, or statewide- or locally-important farmland soils unusable for farming. Farmland that is cleared or built upon is subject to a direct impact, while farmland that is made inaccessible or otherwise indirectly unusable for farming is subject to an indirect effect.

3.7.2 Methodology

According to § 658.2 of the Farmland Policy Protection Act (FPPA), “Farmland” does not include land already in or committed to urban development. For the 2000 Census, the Census Bureau classifies as “urban” all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC).

Since the FPPA excludes farmland soils that are in an urbanized area, US Census Bureau digital mapping of UC’s 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

The entire Study Area is underlain by the soil types in **Table 3.7-1**. The Table also shows their farmland classification as either Prime Farmland or Farmland of Statewide Importance. The “(b)” designation refers to the fact that the soil(s) in the mapped unit have a severe wetness limitation due to the presence of a shallow water table during the cropping season. Areas of this soil unit do not qualify as either Prime Farmland or Farmland of Statewide Importance if artificial drainage is not installed.

Table 3.7-1 Soils Present within the Study Corridor

Soil Symbol	Description	Farmland Category
MeA	Massena stony loam, 0 to 3 percent slopes	Prime (b)
GeB	Georgia stony loam, 3 to 8 percent slopes	Prime
GeC	Georgia stony loam, 8 to 15 percent slopes	Statewide
Ru	Rumney variant silt loam	Statewide (b)
CpB	Copake fine sandy loam, 2 to 8 percent slopes	Prime
FaC	Farmington loam, very rocky, 8 to 15 percent slopes	NPSL

Figure 3.7-1 displays the extent of important farmland soils as originally mapped by the Natural Resources Conservation Service (NRCS) prior to the development of this area. With the exception of the new road connector to be constructed parallel to Nason Street, the Study Area primarily includes existing roads, sidewalks and limited areas of landscaped medians or lawns.

Figure 3.7-1 also 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 Alternative

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 Department of Fish and Wildlife (VDFW) is responsible for managing and protecting resident fish and wildlife species. VDFW 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 an 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. Improvements in this part of the Study Area would amount to redevelopment activities. The majority of the Study Area is highly developed. The limits of the natural resource investigation area were 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. 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 Alternative

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 (SASH) 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 VDFW 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.

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.

▼
¹² US Fish and Wildlife Service, *Species Information: Threatened and Endangered Animals and Plants* (<http://www.fws.gov/engangered/wildlife.html>, accessed September 19, 2006).

The Vermont Nongame and Natural Heritage Program (VVNNHP, 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 VVNNHP 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

VHB environmental scientists performed a database search to identify state-mapped species of concern within one mile of the investigation area. The results are provided on **Figure 3.9-1**. Two element occurrences (EOs) 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 investigation area. Neither EO represents a state or federally listed species.

3.9.3 Affected Environment

Correspondence from the VFWD 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 FWD dated 2005 indicates that the rare Brook Stickleback may be present in Stevens Brook and requests that the FWD 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 the Vermont.

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

▼
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/Explanation_of_Legal_Status_and_Information_ranks.pdf, accessed September 19, 2006)

3.9.4 Environmental Consequences

3.9.4.1 No-Action Alternative

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 an area designated by the EPA as attainment (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 was 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**.

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 Intersections**.



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

Table 3.10-2 Ranking of Study Area Intersections

Intersections	2030 Build	
	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.

The microscale analysis calculated maximum 1-hour and 8-hour CO concentrations in the Study Area. The EPA's computer model CAL3QHC¹⁵ 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 Receptor Locations**. 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.

▼
 4 *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.

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 MOBILE6.2¹⁶ 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 C**.

The 1-hour CO concentrations were calculated directly using the EPA's CAL3QHC 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 presented later 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 project would not create any CO violations of the NAAQS and to demonstrate compliance with project level Transportation Conformity.

Table 3.10-3 Predicted Maximum CO Concentrations presents the worst-case concentrations for CO. All of the total concentrations are below the NAAQS. The increase in CO concentrations is equal to or less than 1 ppm. The Project would not substantially change the CO concentrations.

▼
5 MOBILE 6.2 (Mobile Source Emission Factor Model), The May 19, 2004 official release from US EPA, Office of Mobile Sources, Ann Arbor, MI.

Table 3.10-3 Predicted Maximum CO Concentrations¹

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 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 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. Proposed Action is not regionally significant and does not have an adverse impact on diesel truck congestion. Therefore, the Project does not require a qualitative PM analysis.

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 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 MOBILE6.2 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 particulate 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. The Project does not result in 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 Project 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 Construction Emissions

The Proposed Action would not result in an adverse construction air quality impact. The temporary air quality impacts from construction would not be expected to be significant. 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.

3.10.5 Conclusion

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.

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 St Albans Project are reviewed.

3.11.1 Regulatory Context

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

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

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.

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:

- L10 is the sound level which is exceeded for 10 percent of the time during the time period. During a 100 minute period, the L10 would be the sound level which was exceeded by other sound levels for 10 minutes.
- Leq 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, Leq is typically evaluated over a one-hour time period.
- Lmax is the maximum sound level measured during the time period.

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.

* μ PA – 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 μ Pa (the reference pressure level).

The assessment of potential future noise impacts associated with the proposed transportation improvement project 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 Policy¹⁷ (July 13, 2011).

FHWA has established Noise Abatement Criteria (NAC)¹⁸ 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



¹⁷ *VTrans Noise Analysis and Abatement Policy*, Vermont Agency of Transportation, dated July 13, 2011.

¹⁸ *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.

portion where the activity takes place. The NAC is given in terms of the hourly, A-weighted, equivalent sound level in decibels (dBA). 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 endorses the FHWA procedures and considers noise impacts to occur when existing or future sound levels approach (within 1 dB(A)) or exceed the NAC, or when future sound levels exceed existing sound levels by 15 dB(A) or more. These guidance criteria are the recommended minimum levels for identifying locations that may be affected by noise. The FHWA guidelines¹⁹ require that the feasibility of noise mitigation be evaluated for receptors that have been found to have noise impacts.

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

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 (dBA).

Source: 23 CFR Part 772 - Procedures for Abatement of Highway Traffic Noise and Construction Noise, July 13, 2010.



¹⁹ Highway Traffic Noise Analysis and Abatement Guidance, Federal Highway Administration, January 2011

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 twenty 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 D**.

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 2.5²⁰. 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 D**.

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



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

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, and includes a park (between Bank Street and Fairfield Street, east of North Main Street). 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 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 St 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 Interstate Access Road (SASH) (at the intersection of South Main Street).

The noise model predicted existing peak hour sound levels for CNE-1 (the northerly portion of the study area) between 51 dBA to 65 dBA. Sound levels range from 60 dBA to 66 dBA for CNE-2 (the central portion of the study area) and 49 dBA to 65 dBA for CNE-3 (the southern portion of the study area). These ranges of noise levels represent the existing noise conditions in these sensitive receptor locations. It is important to note that one receptor location under the existing condition approaches (come within 1 dBA) the NAC for an impacted location for Land Use Category C (67 dBA). See **Table 3.11-3** for a summary of modeled noise levels.

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

<i>Site Number</i>	<i>Site Description</i>	<i>2010 Existing (A)</i>	<i>2030 Build (B)</i>	<i>Increase over Exist (B)-(A)</i>	<i>NAC "Approach" Level</i>	<i>NAC Impact Y or N</i>
R1 - SE corner of Federal & Newton	<i>Residential</i>	<i>64</i>	<i>65</i>	<i>1</i>	<i>66</i>	<i>No</i>
R2 - SW corner of N Main & Newton	<i>Residential</i>	<i>65</i>	<i>66</i>	<i>1</i>	<i>66</i>	<i>YES</i>
R3 - Federal w/o Best	<i>Residential</i>	<i>62</i>	<i>64</i>	<i>2</i>	<i>66</i>	<i>No</i>
R4 - Best Ct	<i>Residential</i>	<i>51</i>	<i>53</i>	<i>2</i>	<i>66</i>	<i>No</i>
R5 - w/o Federal n/o Aids	<i>Residential</i>	<i>62</i>	<i>64</i>	<i>2</i>	<i>66</i>	<i>No</i>
R6 - N Main n/o Hoyt	<i>Residential</i>	<i>65</i>	<i>65</i>	<i>0</i>	<i>66</i>	<i>No</i>
R7 - e/o Federal n/o Hoyt	<i>Residential</i>	<i>63</i>	<i>65</i>	<i>2</i>	<i>66</i>	<i>No</i>
R8 - e/o Federal n/o Hoyt	<i>Residential</i>	<i>51</i>	<i>52</i>	<i>1</i>	<i>66</i>	<i>No</i>
R9 - n/o Lake (Market-Catherine)	<i>Commercial</i>	<i>62</i>	<i>64</i>	<i>2</i>	<i>71</i>	<i>No</i>
R10 - NW corner of Lake & Main	<i>Park/ Commercial</i>	<i>66</i>	<i>67</i>	<i>1</i>	<i>66 / 71</i>	<i>YES / no</i>
R11 - w/o S Main St n/o Stowell	<i>Residential</i>	<i>60</i>	<i>60</i>	<i>0</i>	<i>66</i>	<i>No</i>
R12 - NE corner of Welden & Allen	<i>Residential</i>	<i>60</i>	<i>61</i>	<i>1</i>	<i>66</i>	<i>No</i>
R13 - S Main s/o Welden	<i>Residential</i>	<i>64</i>	<i>64</i>	<i>0</i>	<i>66</i>	<i>No</i>
R14 - NW corner of S Main & Nason	<i>Residential</i>	<i>65</i>	<i>65</i>	<i>0</i>	<i>66</i>	<i>No</i>
R15 - s/o Nason (Front Yard - West)	<i>Residential</i>	<i>59</i>	<i>60</i>	<i>1</i>	<i>66</i>	<i>No</i>
R16 - s/o Nason (Back Yard - West)	<i>Residential</i>	<i>50</i>	<i>59</i>	<i>9</i>	<i>66</i>	<i>No</i>
R17 - s/o Nason (Front Yard - Mid)	<i>Residential</i>	<i>57</i>	<i>54</i>	<i>-3</i>	<i>66</i>	<i>No</i>
R18 - s/o Nason (Back Yard - Mid)	<i>Residential</i>	<i>49</i>	<i>56</i>	<i>7</i>	<i>66</i>	<i>No</i>
R19 - s/o Nason (Front Yard - East)	<i>Residential</i>	<i>58</i>	<i>55</i>	<i>-3</i>	<i>66</i>	<i>No</i>
R20 - s/o Nason (Back Yard - East)	<i>Residential</i>	<i>55</i>	<i>57</i>	<i>2</i>	<i>66</i>	<i>No</i>

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

3.11.4 Environmental Consequences

3.11.4.1 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 loudest noise conditions. The 2030 Proposed Action sound levels were determined based on the realignment of the Federal Street corridor (Lower Newton, Federal, Catherine, Market, Allen, Lemnah, and Nason), changes in topography and future year traffic volumes.

The noise model predicted that the receptor locations within CNE-1 (the northerly portion of the study area) would experience peak hour sound levels for the 2030

Proposed Action that vary from 52 dBA to 66 dBA. Sound levels are expected to range from 60 dBA to 67 dBA for CNE-2 (the central portion of the study area) and 54 dBA to 65 dBA for CNE-3 (the southern portion of the study area) for the 2030 Proposed Action.

Only two receptor locations (*R2 – SW corner of N Main & Federal in CNE1 and R10 – NW corner of Lake & Main in CNE2*) of the twenty receptor locations approach (come within 1 dBA) the NAC for an impacted location for Land Use Category C (67 dBA). These two impacted receptor locations are in the urban downtown area located adjacent to busy existing intersections along Main Street. All of the other 18 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 dBA which is just barely perceptible to the human ear.

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

3.11.4.2 Mitigation

Typical abatement measures that were considered include acquisition of real property to serve as a buffer zone alteration of vertical or horizontal alignments, management of traffic, and construction of noise barriers. Examination of the corridor reveals that there are no opportunities for the acquisition of real property as almost all of the property adjacent to the roadway is developed. 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 impacted locations along the Study Area 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.

3.11.5 Conclusions

The conclusion of this noise evaluation is that the future sound levels throughout the Study Area would not substantially exceed the existing sound levels. The vast majority of the receptors within the study area would be expected to experience little to no sound level increase (less than 2 dBA). However, two receptor locations (*R2 –*

SW corner of N Main & Federal in CNE1 and R10 – NW corner of Lake & Main in CNE2) are expected to be impacted. Noise at those locations would approach (come within 1 dBA) the NAC for an impacted location for Land Use Category C (67 dBA). Although these two locations do approach the NAC, the construction of a noise barrier is not feasible along Main Street because of the urban nature of the area, which has numerous curb-cuts and cross streets. As a result, no noise mitigation is proposed. All other 18 receptor locations fall below the NAC threshold.

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 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 Land and Water Conservation Fund (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 Alternative

Although the No-Action Alternative may result in future development of public parks and/or outdoor recreation areas within the Study Area, 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 and/or proposed.

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 (NRHP). To be eligible for listing, a resource (building, site, structure, object, or district) must be at least 50 years old (unless they meet Criteria Consideration G) 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:

- Association with events that have made a substantial contribution to the broad patterns of our history.
- Association with the lives of persons significant in our past.



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

- 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.
- 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 of Historic Places). In Vermont, Section 106 review is conducted under alternative procedures provided for in 36 CFR 800. A Programmatic Agreement among FHWA, VTTrans, the ACHP and the Vermont SHPO allows VTTrans to conduct reviews of its own projects, using qualified historic preservation and archeological professionals on VTTrans staff, without further review or input by the Vermont SHPO or the ACHP except in rare instances.

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

3.13.2 Affected Environment

The Study Area includes two historic districts and two individual properties which are individually listed in the National Register of Historic Places. 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 of Historic Places (see **Appendix E**). Each of these historic properties is described in this section, beginning with the listed properties, followed by those determined eligible for the National Register.

3.13.2.1 Properties Formally Listed in the National Register of Historic Places

Districts

The Central Vermont Headquarters Railroad Historic District

The Central Vermont Headquarters Railroad 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. 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:

- ▶ The Central Vermont Railroad General Office building at the northwest corner of Federal and Lake Streets. This is the only building of those affected that is mentioned in the National Register nomination;
- ▶ The Giroux Furniture Company building at the southwest corner of Federal and Lake Streets; and
- ▶ Three commercial buildings adjacent and to the south of the Giroux Furniture Company.

The CVRR General Office building is a 2-1/2 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, 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 three buildings to the south of the Giroux Building all post-date the 1924 ending date for the period of significance for the Central Vermont Headquarters Historic District and none have any associations with the areas of significance – architecture, transportation, and engineering – for which the district was listed. This suggests that these buildings are not contributing elements.²³

The largest of the three, directly south of the Giroux Furniture Company building, at 26-34 Catherine Street, currently houses commercial offices and is a one-story brick and vinyl-sided building with a wide gable roof and narrow grouped windows. The

▼
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 (NR) office in Washington DC determined that the written boundary as stated in the NRHP 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 NRHP 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.

²³ Formal evaluation and determination is underway as to whether these three buildings should be excluded from the historic district, or at least be determined non-contributing.

building dates from after 1962, based on a review of an aerial photograph from that year. A second small building is directly south of it on the same lot and assigned the same address of 26-34 Catherine Street. This building is a shed-roofed one-story warehouse or garage clad with vertical metal profile siding, which dates from between 1946 and 1962, based on a review of Sanborn maps and an aerial photograph dated 1962. South of this building is a one-story structure at the northeast corner of Allen and Market Streets. The small gable front building has a raised concrete foundation, vinyl siding, and metal corrugated roof covering. It dates from between 1946 and 1962, based on a review of Sanborn maps and an aerial photograph dated 1962.

St. Albans Historic District

The St. Albans Historic District, 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 of Historic Places in 1980. The western boundary of the district is contiguous to sections of the eastern boundary line of the Central Vermont Headquarters Railroad 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 Central Vermont Railroad here in the 1850s.

The buildings within the St. Albans Historic District that are affected by the project are at the intersection of Federal and Lake Streets. These buildings are the St. Albans Foundry and Implement Company Building at 1 Federal Street, a two-story brick and frame corner building dating to *ca.* 1870 that has been converted to a restaurant use. Other buildings associated with this company are adjacent to the corner buildings. The other building is the 1840 St. Albans House at 60 Lake Street, on the southeast corner of the Federal, Lake and Catherine Street intersections. 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 Central Vermont Railroad 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 Central Vermont Railroad. 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 2006.²⁴ 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

Districts

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 Central Vermont Railroad 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 Central Vermont Railroad and the attendant commercial activities that resulted from its location just west of this intersection. No other buildings were recommended to be included within this eligible district.

All four corners of this irregularly-configured intersection contain buildings that are already either individually listed in the National Register of Historic Places or are within an established National Register historic district. The intersection is included in one of the district listings – the Central Vermont Railroad 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 Central Vermont Railroad 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 Central Vermont Railroad 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,

▼
²⁴ The Giroux Furniture Building is technically within the boundaries of the Central Vermont Railroad Headquarters Historic District as it is currently defined.

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 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.

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 workers' housing built on Federal Street in the mid-to-late 19th century for employees of the Central Vermont Railroad.

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 Alternative

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 Railroad Historic District

The Proposed Action has several impacts to the historic district as it is currently defined. 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 district on Allen Street.

Within this district, the Proposed Action also involves the demolition of three buildings in the block bounded by Lake, Catherine, Stebbins and Market Street for a municipal parking lot.²⁵ 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 a small amount of right-of-way from the east (Catherine Street) side of the historic property parcel and would have slope impacts, basically 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 right-of-way taking of the parcel that contains the Central Vermont Railroad General Office building in order to construct a required three-lane approach to the intersection from the north.

North of this intersection, there would be minor re-grading involved to the parcel opposite Center Street on the west side of Federal Street for a raised island with new 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 several 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. At 53 Federal Street, between Kingman and Center Streets, there would be minor use of the property during construction to build streetscape improvements.

Willard Manufacturing Company Building

The Proposed Action would add streetscape improvements in front (west) of the building; there would be no right-of-way 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

The Proposed Action would only take a small amount of right-of-way from the east (Catherine Street) side of the historic property parcel. Additionally, there would be

▼
²⁵ The three buildings are in the process of being evaluated by the VTrans historic preservation officer as to their contributing or non-contributing status within the district.

minor slope impacts to re-grade the existing parking lot on the south side of the parcel to reconfigure the existing parking spaces.²⁶

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 right-of-way acquisition would affect the Central Vermont Railroad 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 right-of-way acquisition along Catherine Street on the east side of the Giroux parcel in order to obtain acceptable geometry at the intersection. At the St. Albans House parcel on the southeast corner, there would be temporary use of the property during construction to reconstruct the existing sidewalk along the property's west (Catherine Street) and north (Lake Street) sides.

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.

3.13.4 Mitigation

Based on the results of on-going coordination with the VTrans historic preservation officer, final determination of effect for each of the potentially-affected historic properties will be completed. A set of mitigation measures will be developed and documented in a Memorandum of Agreement between the City, VTrans and FHWA for each property or district where an "Adverse Effect" is determined. Mitigation measures could include:

- Addition of landscaping or other design features to the Proposed Action in order to minimize direct or indirect impacts;



²⁶ 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 5.

- Further research and/or documentation of the affected property following standards of the Historic American Building Survey/Historic American Engineering Record;
- Installation of historic markers at affected historic properties to increase public knowledge of the affected site; or
- Other measures deemed appropriate by the City, FHWA and VTrans.

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.

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), listed below. The use of Criteria A, B, and C for archeological sites is appropriate in limited circumstances, though it is important to consider other Criteria besides Criterion D.

- Criterion A – Event(s) and Broad Patterns of Events: Association with events that have made a substantial contribution to the broad patterns of our history.
- Criterion B – Important Persons: Association with the lives of persons significant in our past.
- Criterion C – Design, Construction, and Work of a Master: 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.
- Criterion D – Information Potential: 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 ACHP and the 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 rare instances.

Section 4(f) of the Department of Transportation Act of 1966 also protects cultural resources. Section 4(f) stipulates that, prior to taking an action that requires the use of land from a substantial publicly-owned park, recreation area, wildlife or waterfowl refuge, or from a historic property or archaeological site on or eligible for the NRHP, the agency proposing the action must determine that there is no feasible and prudent alternative to the use of the land from that property, and that the Proposed Action includes all possible planning to minimize harm to the property resulting from the use.

3.14.2 Methodology

An ARA for the Study Area was conducted in the spring of 2011 (VHB 2011). The Area of Potential Effect (APE) for the Study Area included the five roadway segments described in **Section 2.3** of this EA, and included the existing ROW and areas beyond where takings or easements would be required by the project alternatives.

The ARA, which is contained in **Appendix F**, included 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 F**. None of the sites studied contained particularly high densities of prehistoric debris.

Site Inspection

A walkover of the APE 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.

3.14.3 Affected Environment

The area of the proposed Nason Street Connector was subjected to a judgmental walkover consisting of a zig-zap 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. The utility shed noted as 57414-CRM-01 was not recommended for further study and the VTrans Archeology Officer concurred with that assessment.

3.14.4 Environmental Consequences

This section describes the environmental consequences of the No-Action Alternative and the Proposed Action. The area of archaeological sensitivity identified at the south end of the Project will be subjected to systematic shovel testing at the first available opportunity in the spring of 2012. The results of this work will be reported to the VTrans Archeology Officer and included in a subsequent draft of this EA. According, the discussion of potential impacts in this draft EA is preliminary.

With respect to the two areas of possible archeological concern at Allen Street and Market 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. However, mitigation for potential impacts during construction is discussed under **Section 3.14.5**.

3.14.4.1 No-Action Alternative

The area of the proposed Nason Street Connector is currently zoned as Business 2 along its east/west stretch and Service-Industrial along its north/south stretch. The ROW for this proposed road segment has already been secured by the City of St. Albans in anticipation of realizing the Proposed Action. For the No-Action

Alternative, it is possible that the area of the proposed Nason Street Connector would be subject to incremental development, with access to the area being provided from either the south end of Lemnah Drive or from South Main Street. Such development would likely proceed in a less coordinated manner and consist of land uses consistent with the zoning.

These future developments may have associated impacts on archeological resources, 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 of the site would likely need approval through the State of Vermont Act 250 process and state historic preservation laws, which would require consideration of impacts to archeological resources.

3.14.4.2 Proposed Action

For four of the five roadway segments would involve work predominantly within the existing ROW. Where improvements would require additional ROW, these areas have all been previously disturbed. Therefore, the likelihood of encountering intact archeological resources is low. With respect to the proposed Nason Street Connector, the forthcoming shovel testing will confirm the presence or absence of archaeological resources. If sites are encountered they will be evaluated for significance.

3.14.5 Mitigation

3.14.5.1 Proposed Nason Street Connector

The ARA identified areas of archaeological sensitivity within the Project. Of these, however, only one is being advanced for further study as the other two are in areas considered highly disturbed. The additional study is scheduled for Spring 2012 to determine if intact sites are present. This will involve the excavation of shovel test pits to identify any artifacts present, to assess disturbance, to define approximate horizontal and vertical boundaries, identify stratigraphy and components, and assess site integrity. This will be accompanied by research on associated context and qualities of individual sites if warranted. Depending on the nature of the archaeological resource identified, mitigation may be required if avoidance of the resource is not possible. If preservation in-place of a site is found to be important, then a Section 4(f) Evaluation would need to be performed. The Section 4(f) Evaluation would determine if avoidance of the archaeological resource is feasible and prudent. For example, the location of the street alignment may be moved slightly or work adjacent to the site may be modified so that the site will not be impacted by the Proposed Action. One advantage of preservation-in-place is that it preserves the site for future archaeological study when it may address new research needs that may not be currently identified. Also, if preservation-in-place is not required and data recovery becomes the appropriate form of mitigation, then Section 4(f) does not apply to the resource.

3.14.5.2 Previously Disturbed Areas

While the likelihood of identifying intact archaeological features in the grassy swale along Allen Street or in the Market Street area is considered low to moderate an Unanticipated Finds Plan would be developed prior to construction which clearly outlines the needed responses if intact archaeological features are encountered during construction. The UFP would apply to the entire Study Area.

3.15 Acquisitions (Right-of-Way)

This section identifies the type and location of properties that would be acquired or relocated as a result of the Proposed Action. Along with specific properties identified for acquisition, partial acquisitions of land affected by slope impacts have also been estimated. These estimates are based on conceptual design and may be revised once a final ROW boundary has been determined during the final design of the project.

3.15.1 Regulatory Context

Socioeconomic impacts are those that involve the relocation of a residence or business, the alteration of surface transportation patterns, the disruption of established communities, or any appreciable change in employment. If acquisition of real property or displacement of persons is involved, 49 CFR 24 (implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended) must be met for federal projects.

3.15.2 Methodology

The socioeconomic impacts for this project were calculated by overlaying the slope limits and right-of-way needs for the Proposed Action on the existing right-of-way 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 of St. Albans were also acquired and used in this analysis. Highway design engineers were consulted to determine when and where the need for a “total acquisition” would occur.

3.15.3 Affected Environment

The Study Area is within the relatively urbanized City of St. Albans. As such, the affected environment is a highly developed infrastructure that includes residences, commercial buildings, railroads, streets and related infrastructure.

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 the improved roadway as well as its future maintenance. These areas would be used for new pavement, sidewalks, crosswalks, utilities, landscaping *etc.* and are represented with a red dashed line on **Figures 2.6-3** through **2.6-9**.
- **Permanent Easements** would be required for locating new traffic control infrastructure outside of the permanent ROW. For this project, there is only one area of permanent ROW easement and that is for the installation of a traffic signal pole and utility box, located on the northwest corner of the Federal/Lake/Catherine Streets Intersection. This area is represented as a purple dashed line on **Figure 2.8-1**.
- **Temporary Easements** are those areas outside of the existing ROW that extend 5 ft beyond the back of the project slope limits. This area would be used for regrading, landscaping and temporary construction access but would not be subject to additional use by the public in maintaining the roadway facility.

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. There would be no change in the socioeconomic environment, and none of the socioeconomic benefits of traffic improvements would be realized.

3.15.4.2 Proposed Action

Up to 98 properties within the Study Area would be affected by permanent or temporary property impacts. The total impact area in square feet for property impacts as a result of the Proposed Action is 208,685 sq ft or about 4.8 acres. (see **Table 3.15-1**.)

Of this impact, the Proposed Action would result in the total acquisition of three parcels (shown in **Figure 3.15-1**) and partial acquisition to an additional 25 parcels throughout the Study Area. The total area for ROW acquisition is 111,851 sq ft.

The most common impact by far is temporary easement (91 properties, totaling approximately 96,600 sq ft). Temporary easements represent the possible impact to a property during construction for minor use for construction of adjacent sidewalk,

utilities, landscaping appurtenances or minor grading. These areas would be temporary and would not require any acquisition of property.

Table 3.15-1 Anticipated ROW Impacts

Impact Classification	No. Properties	Impact Area (SF)
ROW Acquisition (Full/Partial)	3/25	111,851
Permanent Easement	1	175
Temporary Easement	91	96,660
Total		208,685 SF (4.8 Ac)

Additional detail on ROW and easements associated with the Proposed Action can be found in **Appendix G**, which contains data on each property to be affected.

Three properties would be acquired in total for permanent ROW for the Proposed Action, all of which are commercial (see **Table 3.15-2**). One of the full acquisitions is the parking lot for the Giroux building. Three commercial buildings on Acquisition #2 and Acquisition #3 would be demolished.

Table 3.15-2 Full ROW Acquisitions

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

3.15.5 Mitigation

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

- Fair market value for acquired property.
- Relocation advisory assistance 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 Socio-Economics & Environmental Justice

This Environmental Justice (EJ) analysis discusses the presence of minority and low-income populations and determines if the impacts of the Federal Street Multi-Modal Connector 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 impact on minority, ad low-income populations.
- Department of Transportation (DOT) Order 5610.2, *Environmental Justice in Minority and Low-Income Populations* requires all DOT agencies to determine whether activities will have an adverse impact on minority and low-income populations. DOT agencies must determine if adverse effects are predominantly borne by a low-income or minority population and if adverse effects are appreciably more severe than the adverse effect that would be suffered by the non-minority or non-low-income population.
- FHWA Order 6640.23 defines FHWA’s responsibilities and procedures with respect to considering environmental justice communities. It indicates that where there is a potential impact, FHWA must provide for meaningful public involvement by minority and low-income populations and must conduct analysis to identify and address potential impacts on these populations that may be disproportionately high and adverse.
- The EPA defines environmental justice as “The fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of

environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socio-economic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.” EPA has responsibility for the consideration of environmental justice in Clean Air Act reviews.

3.16.2 Methodology

The following methodologies were used to determine if the Federal Street Multi-Modal Corridor 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

The Council on Environmental Quality (CEQ)²⁷ guidance states that environmental justice populations should be identified where either:

- 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.²⁸

Regionally-defined thresholds are more sensitive to specific conditions and provide a better metric for identifying minority and low-income populations. Therefore, the City of St. Albans averages for minority and low-income populations were used for this analysis.

- The City of St. Albans 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 an average population of meaningfully greater than 5.9 percent minorities was therefore considered a minority community for the purposes of this analysis.²⁹



²⁷ 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.

²⁸ 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>.

²⁹ The Council on Environmental Quality Guidance does not define a standard or methodology for “meaningfully greater than the minority population percentage in the general population.” This analysis therefore adopts this conservative operational definition, as has become the standard procedure for EJ analyses.

- The average percentage of the population in the City of St. Albans living below the poverty level is 9.6 percent. Any census block group with an average population of meaningfully greater than 9.6 percent low-income persons would be considered a low-income community for the purposes of 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 2000³⁰ census block group data, the smallest unit for which income data are available.

All census blocks and census block groups that fell within or partially within the impact Study Area were included to determine the total population. Census blocks are a subset of census block groups.

3.16.2.2 Determine if Impacts Disproportionately Affect Environmental Justice Populations

Since environmental justice considerations depend on the potential for impacts in other environmental categories, the area of analysis for environmental justice is the area of potential impacts for the other community and environmental impact categories.

Census blocks or census block groups within the area of potential impacts were evaluated to identify any census block or census block group that exceeds the environmental justice population thresholds. 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.

3.16.3 Affected Environment

This section identifies and explains whether environmental justice populations exist within the area of potential impacts and then assesses if these populations would experience disproportionately high and adverse impacts. Potential impacts for analysis include right-of-way (ROW) acquisition (*i.e.*, area outside of the existing roadway right-of-way which would need to be used for the new and/or modified roadways).



³⁰ The 2010 Census did not include a long form questionnaire. In 2006, the American Community Survey (ACS) replaced the long form. Currently the ACS does not publish poverty data at the census block group level for the City of St. Albans.

Figure 3.16-1 depicts 2010 US Census Data to identify census blocks and census block groups above the threshold for minority populations in neighborhoods surrounding the Federal Street Multi-Modal Connector Study Area. **Figure 3.16-2** depicts 2000 US Census Data to identify census block groups above the threshold for low-income populations in neighborhoods surrounding the project.

Only those minority and low-income communities in the vicinity of the Federal Street Multi-Modal Connector Study Area where there would be property acquisitions for the Proposed Alternative are described below. Those census block groups where minority populations would be impacted are shown with a cross-hatch pattern on **Figure 3.16-1**.

3.16.3.1 Minority Populations in the Study Area

The City of St. Albans minority population average is 5.9 percent. Any census block with a minority population meaningfully greater than 5.9 percent would be considered a minority community. The census blocks in the Study Area have minority populations ranging between 6 and 23 percent minority.

- The neighborhood at the northerly end of the Study Area (intersection of Lower Newton St. and Federal St.) is within two census blocks that range between 6.9 percent and 7.9 percent minority populations, both of which exceed the 5.9 percent threshold.
- The census block group that includes the Central Vermont Railroad Historic District on the west side of Federal Street between Aldis Street and Lake Street has a minority population of 11.6 percent.
- As shown on **Figure 3.16-1**, several of the census blocks in the Study Area have a minority population near or less than the threshold of 5.9 percent.

3.16.3.2 Low-Income Populations in the Study Area

The City of St. Albans 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. The census block groups in the Study Area have low-income populations ranging between 4.4 and 21.7 percent. Half of the Study Area is within low-income census block groups, and therefore low-income communities.

- The census block groups to the west of Lemnah Drive and Federal Street have populations below the poverty level that range from 9.8 percent low-income to

21.7 percent low income, all of which exceed the 9.6 percent threshold (**Figure 3.16-2**).

- Approximately half of the census blocks in the Study Area have a low-income population greater than 9.6 percent (**Figure 3.16-2**).

3.16.4 Environmental Consequences

Potential impacts to the human environment, social or economic conditions, such as property acquisition are of primary concern.³¹ For this EJ analysis, the best available indicator of impacts to the human environment was used: the location and amount of land acquisition.

3.16.4.1 Right-of-Way Impacts

In order to accommodate the proposed Federal Street Multi-Modal Connector, properties or portions of properties would need to be acquired. In some cases, these “takings” would be limited to small “strip 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. In a very limited number of cases, the roadway construction would require the removal or relocation of an existing building. 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;
- 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.



³¹ Effects of the Federal Street Multi-Modal Connector on wetlands, water quality, and other natural resources would mostly occur in the ROW and would not have an impact on adjacent communities.

3.16.4.2 Effect on Environmental Justice Populations

The following section discusses the effect of land acquisition and traffic impacts on Environmental Justice populations. The detailed population information by census block and block group is contained in **Appendix G**.

This analysis considered the entire population within an affected census block or block group to be impacted, even if only a portion of the census block would be included within the acquisition area or the area impacted by traffic. Since census block groups include several census blocks, the estimate of the total low-income population impacted would be higher than for minority populations even if the physical area impacted would be the same.

3.16.4.3 ROW Acquisition

The number of minority and low-income populations impacted by land acquisition are shown in **Table 3.16-1**. This section evaluates whether a minority or low-income population would be disproportionately affected by land acquisition.

Minority Populations

Eight of the 14 populated census blocks affected exceed the 5.9 percent minority threshold. When considering the total population within the land acquisition area, there are disproportionate impacts. The total census block population within the land acquisition area is 2,030 persons. Of the total population impacted, 18.4 percent is identified as a minority. This percentage exceeds the threshold of 10.8 percent for a minority population. Minority populations would be disproportionately impacted by land acquisition when compared to non-minority populations.

Low-Income Populations

Four of the five populated census block groups³² affected exceed the 9.6 percent low-income threshold. The total census block group population within the land acquisition area is 5,835 persons. Of the total population, 14.9 percent is identified as low-income. This percentage exceeds the threshold for low-income impacts and is therefore disproportionate. Low-income populations would be disproportionately impacted by land acquisition when compared to other populations.



³² Census blocks are a subset of census block groups. Data for low-income populations are only available at the block group level.

Table 3.16-1 Populations Affected by Land Acquisition¹

Environmental Justice Population	Population
Black or African-American	3
American Indian and Alaska Native	3
Asian	1
Native Hawaiian and Other Pacific Islander	0
Some Other Race	0
Mixed Race	7
Total Minority Population Affected	13
Total Population in Affected Census Blocks	164 ²
Percent Minority Affected	8.5%³
Low-Income Population	294
Total Population in Affected Census Block Groups	1,621 ²
Percent Low-Income Affected	18.1%³

1 Population data are the sum of all 2010 US Census blocks (minority) and 2000 census block groups (low-income) within areas of impact.

2 The total population is different for minority and low-income because the minority census data are available by census block and the low-income data are available by census block group.

3 The City of St. Albans minority average is 5.9 percent and the low-income average is 9.6 percent of the total population.

3.16.4.4 Environmental Justice Finding

The Federal Street Multi-Modal Connector Project would have a disproportionate and adverse effect on minority or low-income populations.

3.16.5 Mitigation

The Federal Street Multi-Modal Connector Project would have a disproportionate and high adverse effect on minority and low-income populations. Therefore, specific environmental justice mitigation measures are required.

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, nicer environment for neighborhood residents.

Additionally, public outreach efforts are recommended for future 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.³³ 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.

▼
³³ 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).

Numerous environmental databases were reviewed, including: National Priorities List (NPL); Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS); Resource Conservation and Recovery Act (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); 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	0	0
RCRA TSD	1 mile	0	0
RCRA Generators	0.25 mile	35	18
RCRA CORRACTS	1 mile	1	1
State Hazardous Waste Sites*	1 mile	19	17
State Spills**	0.25 mile	39	39
LUST	0.25 mile	15	6
SWL facilities	0.5 mile	0	0
Registered UST/ASTs	0.25 mile	49	5

*includes brownfield sites

**State Spills were reviewed and determined to be in the search radius based on available addressing information because they are not georeferenced within the DEC database

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 H** presents four tables which contain additional information on these potential sites. **Figure 3.17-1** shows the locations of known sites in the Study Area.

Thirteen of the State Hazardous Waste Sites and Brownfields sites, which are contaminated by a release of hazardous substances, were determined to be of

potential concern in the Study Area (**Table H-1 in Appendix H**). 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.

Additionally, St. Albans utility plans indicate that the majority of the 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 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 close proximity to the Study Area. 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.

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).

3.17.3.2 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 Study Area were identified on the DEC online environmental database. A summary of these releases is provided in **Table H-5, Appendix H**. 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.

3.17.4 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;
- 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 Alternative

Under the No-Action Alternative, roadway improvements within the Study Area would likely proceed incrementally and amount to routine maintenance and the localized repair of underground utilities such as stormwater and sewer pipes. Accordingly, the likelihood of encountering potentially contaminated sites would depend on the location of the work in the corridor and the degree of excavation required to carry out the work. Impacts to contaminated sites would be addressed as necessary and in accordance with state law. Each such maintenance or repair procedure may require the development of a Corrective Action Plan.

3.17.4.2 Proposed Action

Based on the results of the database searches, the following potential environmental concerns were identified for the construction of the Proposed Action:

- 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 from within the Study Area is known to be constructed of asbestos containing concrete.

3.17.5 Mitigation

The sites identified above represent a potential for encountering contamination under the Proposed Action. 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 project site.
- 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.
- 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 USEPA. 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 Proposed Action 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 Multi-Modal 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 generally 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 four projects would contribute to cumulative impacts:

1. **St. Albans Downtown Streetscape Project**, scheduled to commence construction in 2012, including a variety of improvements to sidewalks, pedestrian accommodations, landscaping, lighting, municipal utilities, wayfinding (signage), and roadway intersections.
2. **Expansion of the St. Albans Cooperative Creamery**, scheduled to commence construction in 2012.
3. The **Northerly Connector**, proposed in past studies but not currently supported by the City (NRPC 1995; NRPC 2005), which would link the northern end of Federal Street to US Route 7 via a new road.
4. A **multi-modal 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 of St. Albans 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, and construction is planned to begin in 2012.

This project will include:

- reconstructed sidewalks with new materials;
- a new sidewalk for people parking along Taylor Park;
- new pedestrian lighting with historic fixtures;
- new pedestrian amenities, such as benches;
- realigned and rebuilt pedestrian crosswalks;
- new accessibility amenities, bringing Main Street up to code;
- a re-paved 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 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 square foot expansion of the existing plant in a southerly direction;
- the construction of a new 17,992 square foot 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.

This development would be privately funded and is not in any way linked to the Federal Street Multi-Modal Connector Project.

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.

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.

Socioeconomics

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.

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 the any historic district.

3.18.4 The Northerly Connector

3.18.4.1 Project Description

As described within the 1995 and 2005 Federal Street Corridor Studies (NRPC 1995; 2005), the original conceptual plans for the Federal Street Multi-Modal Connector included a new roadway section referred to as the “Northerly Connector,” which joined US Route 7 (North Main Street) to Lower Newton Street. Two alternate alignments were provided in both the 1995 and 2005 Studies (see **Figure 3.18-1**). In the 1995 Study, the first location was a “T” intersection with the VT Route 105 approach (also known as Old Sheldon Road) and the second location is a “Y” intersection with the VT Route 105 approach near the St. Albans Messenger office. In the 2005 Study, a similar alignment to the “Y” intersection was discussed, joining US Route 7 via the existing Rewes Drive. The second alternative in the 2005 Study was a more westerly route along Sunset Meadows Road to Rewes Drive.

In the time since the 2005 corridor was published, the City decided to eliminate the Northerly Connector from the Project and removed reference to it from the cooperative agreement with VTrans in January 2010. As described in **Chapter 2**, it would not be designed or constructed as part of the Proposed Action. Although the

City does not intend to pursue construction of the Northerly Connector, the Proposed Action does not preclude its development at some point in the future.

There are several reasons for the City's decision not to advance the Northerly Connector as part of the Proposed Action:

1. The Northerly Connector is not essential to satisfy the proposed Purpose and Need of the project (see **Sections 1.4** and **1.5**).
2. It would require acquisition of railroad land, a portion of which contains railroad tracks. Land acquisition from the Railroad would be complicated and time consuming.
3. Significant right of way would be needed from at least two private landowners.
4. There is the potential for wetland impacts and primary agricultural soils impacts in this section.
5. Grades along the railroad are steep on the west side and would make widening of the rail bed costly to accommodate the new roadway.
6. The proposed Federal Street Connector would cross the City/Town boundary and put part of the roadway alignment in the Town of St. Albans. This would complicate the design and permitting process.
7. It would impact a brownfield site that would require an extensive remediation effort.

This portion of the Federal Street Corridor project was the most complex section to design, due to significant engineering constraints, construction costs, natural resource impacts and right of way acquisition. It was the City's position that to include this section would delay the overall project and extend their costs beyond their ability to establish funding, and because it was not essential to the Purpose and Need, the City elected to eliminate the Northerly Connector from the scope of the project, with the understanding that it could become a future project on its own.

3.18.4.2 Potential Resource Impacts

If the project were to move forward, there are a number of potential resource impacts associated with the Northerly Connector. These include the following:

Wetlands

The 1995 Study notes the presence of Class III wetlands within the area of the proposed Northerly Connector. Correspondence from the ANR included in this report suggests that these features may be Class II wetlands based on the presence of known Class II features in the vicinity. The 2005 report recognizes that Class II wetlands may be present here. Also, since the date of the latter Study's publication, revisions to the Vermont Wetland Rules and the functional criteria by which wetland significance is determined could result in these features being reconsidered as Class II wetlands. This would mean they would be subject to State jurisdiction under the

Vermont Wetland Rules. Regardless of their classification, these wetlands would be subject to federal jurisdiction and therefore impacts to these features may require a Department of the Army permit. No fieldwork was performed to delineate these features as part of the current Project.

Farmlands

Unlike the footprint of the Proposed Action, that portion of the Northerly Connector within the Town of St. Albans lies outside an UC, and thus is not similarly exempted from a farmlands classification per § 658.2 of the FPPA. Prime Agricultural Soils are present in this relatively undeveloped area and may be impacted by the construction of the Northerly Connector.

Historic Resources

The 1995 Study notes that the construction of the Northerly Connector would require the acquisition and demolition of a certain buildings that may be historically significant. The 2005 Study did not provide specific detail regarding potential impacts to historic resources.

ROW Acquisition

The 1995 Study notes that the more southerly of the two connections to VT Route 105 (i.e., the “Y” intersection, **Figure 3.18-1**) would have challenging intersection geometry and may require the acquisition of properties with viable businesses. Moreover, the area has numerous curb cuts to existing businesses and experiences traffic congestion. This led to the recommendation to pursue the more northern, four-way intersection at VT Route 107. This option would require the acquisition and demolition of existing buildings at the current intersection of US Route 7 and the VT Route 105 approach. An 80-foot ROW through two properties was also recommended by the Study. As the “T” intersection option turns south, the limited space available for the road would require joint use of the NECR ROW.

The 2005 Study did not identify properties to be acquired for the Northerly Connector, though the alternative presented suggests that an existing building at the southwest corner of Rewes Drive and US Route 7 would be required to be demolished.

Hazardous Materials

As noted in **Section 3.17**, the former Fonda Container Company building immediately north of the intersection of Federal Street with Lower Newton Street is an active brownfield site. The contaminants listed in the file information for this site include chlorinated solvents and polychlorinated biphenyl (PCB). The status of the site is that an interim corrective action plan (CAP) is to be implemented. The development of a roadway through this area, which may require the installation of a retaining wall to address topographic challenges (NRPC 1995), would require

expensive and long-term site remediation. An existing power transmission line would also need to be relocated.

3.18.5 Multi-Modal Transit Center

3.18.5.1 Project Description

A multi-modal 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 traffic. A study and conceptual plan for the multi-modal transit center was drafted in 2006 (NRPC 2006).

The proposed location for the multi-modal 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 multi-modal transit center. As described in **Chapter 2** and depicted on **Figure 2.6.1**, the Proposed Action would provide at least one dedicated bicycle lane throughout the corridor (with the exception of Lower Newton Street) and bicycle lanes along both sides of Federal Street. The Proposed Action would also maintain the curb cuts currently present at the proposed location of the multi-modal 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 multi-modal 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 5 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 multi-modal 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.

3.18.5.2 Potential Resource Impacts

Traffic

The 2006 Study (NRPC 2006) provided estimated daily usage for the multi-modal 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 and Parking at the St. Albans Multi-Modal 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 multi-modal 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 multi-modal 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 multi-modal transit center and off-site parking area proposed in the 2006 Study are located in the Central Vermont Railroad 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.

Socioeconomics

A facility offering multi-modal 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 multi-modal transit center, the Amtrak station is listed as a fully regulated generator of small quantities of hazardous waste (see **Appendix H**). 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 multi-modal 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.

3.18.6 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. In fact, coupled with the Downtown Streetscape Project and multi-modal transit center, the Project would result in positive impacts with respect to Traffic, Surface Water, and Socioeconomics.

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

A summary of mitigation and Project commitments is currently being finalized by the City of St. Albans and will be provided in a subsequent draft of the EA and upon approval of the preceding **Chapter 3** analysis.

4

Section 4(f) Evaluation

4.1 Introduction

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.”

This Section 4(f) Evaluation provides the required documentation to evaluate potential impacts to Section 4(f) resources and determine whether there are prudent and feasible alternatives to the use of land from historic and recreational 4(f) resources associated with the construction of the Federal Street Multimodal Connector in St. Albans, Vermont. This evaluation also outlines the coordination that has occurred and the measures proposed to minimize harm to these resources.

4.2 Proposed Action & Alternatives Considered

4.2.1 Proposed Action

The Proposed Action includes the following elements:³⁴

- **Pavement and related infrastructure reconstruction, 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

▼
³⁴ This combination of actions was strongly 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.

potential of multiple transportation modes in close proximity to one another, the typical roadway section for the project corridor includes the following elements:

- 11-foot wide travel lanes for each direction of vehicular traffic;
- 4-foot wide bicycle lanes (5-foot wide where on-street parking is provided);
- 2- to 4-foot wide grass utility strips; and
- 5-foot 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. Overhead utilities would be buried. 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.

- **Improvements to Lower Newton Street.** Lower Newton Street would continue to have one lane in both directions but dedicated left turn lanes at both the North Main Street and Federal Street intersections would be reconstructed. 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 precludes the establishment of bike lanes along this road segment. 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.
- **Improvements to Federal Street.** 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 2.6-4** through **2.6-6**). 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.
- **Construction of a Signalized Intersection with One-Way Roads at the Intersection of Lake, Catherine and Federal Streets.** Under this alternative the intersection would be signalized with Catherine Street traffic patterns converted to one-way northbound and Market Street converted to one-way southbound. This alternative includes relatively substantial 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, a right-turn-only lane on Federal Street and a right-turn slip lane from Lake Street to Market Street.

- **Construction of a Roundabout at the Intersection of Lower Welden Street with Allen Street and Lemnah Drive.** The intersection of Lower Welden Street at Allen Street and Lemnah Drive would be reconstructed to a standard one-lane roundabout (see **Figure 2.7-1**). Pedestrian crossings would be provided along the north, west, and south arms of the roundabout, and bike/pedestrian paths provided around the perimeter.
- **Improvements to 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 2.6-7** and **2.6-8**). A dedicated left turn lane would be added at Nason Street and all pedestrian crossings would be well signed and marked.
- **Construction of a new section of roadway known as the Nason Street Connector.** A new section of roadway would be constructed parallel to and south of Nason Street to provide a better connection between the Interstate Access Road (SASH) and the Federal Street corridor. 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 turn lane at the intersection with South Main Street (see **Figures 2.6-8** and **2.6-9**). 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 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.

4.2.2 Alternatives Considered

4.2.2.1 No-Action Alternative

The No-Action Alternative would consist of maintaining the existing roadway system. 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 (SASH). 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 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.

4.2.2.2 Alternatives from the 2005 Corridor Study

The 2005 Corridor Study includes the same segments as the current project 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 and VT Route 105. The Northerly Connector is not included in the project in part because NECR owns critical pieces of the required land and because the City has purchased the former Fonda Group Property (an existing brownfield) for non-transportation redevelopment purposes.³⁵

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 2.5-1**) 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 revised these alternatives in a way that would provide multi-modal benefits while preserving the historic structures. Importantly, the Proposed Action avoids demolition of the Giroux Furniture Building. More information on the alternatives that were developed to avoid this impact are described in **Section 4.2.2.3** below.

4.2.2.3 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. Aside from the Proposed Action (i.e., Construction of a Signalized Intersection with One-Way Roads), three additional alternatives were developed and evaluated at this intersection but were eventually dismissed.

▼
³⁵ Additional information regarding the dismissal of the Northerly Connector as a project alternative is included in Section 3.18-1.

Alternative 2: Roundabout

This alternative is a standard one-lane roundabout with four approaches.

Advantages

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

Disadvantages

- The historic Giroux Furniture Company building would be demolished, which is the primary reason this alternative was dismissed.
- 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.
- This alternative provides a similar level of service as a traffic signal alternative during the PM peak.

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 5-ft wide bike lanes on both sides of the road.

Advantages

- This alternative would have an exclusive pedestrian phase which provides pedestrian access to the crosswalks with fewer vehicular conflicts.
- The traffic would have assigned right-of-way for each conflicting movement of traffic, and it does this 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 well.

Disadvantages

- The historic Giroux Furniture Company building would be demolished, which is the primary reason this alternative was dismissed.
- This alternative would require substantial ROW impacts.
- Motorists would wait longer to traverse through the intersection compared to the roundabout during off-peak times.

Alternative 4: Elongated Roundabout

This alternative consists of a highly modified one-lane roundabout.

Advantages

- This alternative would result in less overall delay compared to the 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.

Disadvantages

- Excess pavement 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 appears that a left turn can be made from Federal Street to Lake Street east.
- This alternative would create impacts outside of the right-of-way.
- 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 directions to slow vehicle speeds. This, combined with the potentially confusing expansive pavement areas, this alternative introduces safety concerns when compared to the standard roundabout and signalized alternatives.

4.2.2.4 Alternatives at Lower Welden Street /Allen Street/ Lemnah Drive Intersection

Aside from the Proposed Action (i.e., a one-lane roundabout), one additional design alternatives was developed at this intersection, which is currently unsignalized. This alternative is described below.

Alternative 2: Signalized Intersection

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. The improvements would also include the addition of continuous 5-ft wide bike lanes on both sides of the corridor.

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 will be installed, which gives the fire station priority within the signal phasing when leaving the station.

Disadvantages

- This alternative would create impacts outside of the right-of-way.
- 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 existing due to the large corner radii required to accommodate turning trucks.
- The required fire preemption for the adjacent fire station would result in more overall delay.
- The close proximity of the railroad crossing to the intersection introduces the potential for vehicles that are queued at the light to become trapped on the tracks. There is also a concern that the train will create long delays within the intersection when the Lower Welden approach is effectively shut down while a train passes.

4.3 Description of Historic Resources

Section 4(f) protects several types of resources including public parks, recreation areas, wildlife and waterfowl refuges and land from historic sites. For the Federal Street project, only historic properties would be affected. A description of each of these resources is presented in the following section. Historic resources which would be affected by the project include the following individual properties:

- Willard Furniture Manufacturing Company - Listed
- Giroux Furniture Company - Listed
- 163 Federal Street – Determined Eligible
- 174 Federal Street – Determined Eligible

Additionally, the following historic districts are present within the study area:

- 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 the following section roughly in order as they occur from south to north in the study area.

4.3.1 Willard Furniture Manufacturing Company

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 Central Vermont Railroad 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 Central Vermont Railroad. 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.

4.3.2 Giroux Furniture Company

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 2006.³⁶ 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.

4.3.3 163 Federal Street

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

▼
³⁶ The Giroux Furniture Building is technically within the boundaries of the Central Vermont Railroad Headquarters Historic District as it is currently defined.

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.

4.3.4 174 Federal Street

This three-bay house is 1½ 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 workers' housing built on Federal Street in the mid-to-late 19th century for employees of the Central Vermont Railroad.

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.

4.3.5 Central Vermont Railroad Headquarters Historic District

The Central Vermont Headquarters Railroad 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 3.14-1** for the boundaries) which encompasses a number of non-related buildings. These boundaries are not clearly justified in relationship to the complex's significance and the 12 buildings discussed in the nomination.³⁷ There are five properties within the district that are affected by the project:

- **The Central Vermont Railroad General Office building at the northwest corner of Federal and Lake Streets.** This is the only building of those affected that is mentioned in the National Register nomination;



³⁷ 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 (NR) office in Washington DC determined that the written boundary as stated in the NRHP 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 NRHP 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.

- **The Giroux Furniture Company building** at the southwest corner of Federal and Lake Streets; and
- **Three commercial buildings** adjacent and to the south of the Giroux Furniture Company.

The CVRR General Office building is a 2½ 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, 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 three buildings to the south of the Giroux Building all post-date the 1924 ending date for the period of significance for the Central Vermont Headquarters Historic District and none have any associations with the areas of significance – architecture, transportation, and engineering – for which the district was listed. This suggests that these buildings are not contributing elements.³⁸

The largest of the three, directly south of the Giroux Furniture Company building, at 26-34 Catherine Street, currently houses commercial offices and is a one-story brick and vinyl-sided building with a wide gable roof and narrow grouped windows. The building dates from after 1962, based on a review of an aerial photograph from that year. A second small building is directly south of it on the same lot and assigned the same address of 26-34 Catherine Street. This building is a shed-roofed one-story warehouse or garage clad with vertical metal profile siding, which dates from between 1946 and 1962, based on a review of Sanborn maps and an aerial photograph dated 1962. South of this building is a one-story structure at the southwest corner of Allen and Market Streets. The small gable front building has a raised concrete foundation, vinyl siding, and metal corrugated roof covering. It dates from between 1946 and 1962, based on a review of Sanborn maps and an aerial photograph dated 1962.

4.3.6 St. Albans Historic District

The St. Albans Historic District, 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 of Historic Places in 1980. The western boundary of the district is contiguous to sections of the eastern boundary line of the Central Vermont Headquarters Railroad Historic District. The district is composed of many of the City's most prominent institutional and commercial



³⁸ Formal evaluation and determination is underway as to whether these three buildings should be excluded from the historic district, or at least be determined non-contributing.

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 Central Vermont Railroad here in the 1850s.

The buildings within the St. Albans Historic District that are affected by the project are at the intersection of Federal and Lake Streets. These buildings are the St. Albans Foundry and Implement Company Building at 1 Federal Street, a two-story brick and frame corner building dating to *ca.* 1870 that has been converted to a restaurant use. Other buildings associated with this company are adjacent to the corner buildings. The other building is the 1840 St. Albans House at 60 Lake Street, on the southeast corner of the Federal, Lake and Catherine Street intersections. 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.

4.3.7 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 Central Vermont Railroad 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 Central Vermont Railroad and the attendant commercial activities that resulted from its location just west of this intersection. No other buildings were recommended to be included within this eligible district.

All four corners of this irregularly-configured intersection contain buildings that are already either individually listed in the National Register of Historic Places or are within an established National Register historic district. The intersection is included in one of the district listings – the Central Vermont Railroad 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 Central Vermont Railroad 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 Central Vermont Railroad 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 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.

4.4 Impacts to Historic Properties

This section discusses the impacts to historic properties associated with each alternative. Figures impacts to 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 each alternative onto the property or district boundaries to measure the area affected. All areas of new permanent ROW were included in impact calculations; temporary easements are not considered impacts under Section 4(f) if they do not directly impact the important features of the resource. However, slope impacts were identified in the relatively few occurrences where the permanent slope limits extend beyond the permanent right-of-way.

In addition to the impact calculations, a Section 106 Determinations of Effect memorandum was developed by the City, VTrans, FHWA and VTDHP which describes the historic impacts of the Proposed Action and is included in **Appendix X**. In some cases, small slope or ROW impacts were determined to have no adverse effect. Nevertheless, these impacts are included in the analysis below. *NOTE: This Development of this memo is in progress.*

4.4.1 Central Vermont Railroad Headquarters Historic District

Because of its large size, impacts to the Central Vermont Railroad Headquarters Historic District occur in three of the five project design segments.³⁹ 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 District

Segment/Alternative	ROW Impacts	Slope Impacts
Segment 1 - Lower Newton St. (North Main St. to Federal St.)	0 sq ft	0 sq ft
Segment 2 - Federal St. (Lower Newton St. to Kingman St.)	26	4,010
Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.)		
Proposed Action (Signalized, One-Way)	88,759	6,989
Alternative 2 (Roundabout)	48,970	11,487
Alternative 3 (Signalized Two-Way Catherine St.)	53,167	55,044
Alternative 4 (Elongated Roundabout)	85,970	3,007
Segment 4 - Allen Street and Lemnah Drive (Stowell St. to Nason St.)		
Proposed Action (Roundabout)	13,478	4,461
Alternative 2 (Signalized)	9,553	2,178
Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)	0	0

4.4.1.1 Segment 1 - Lower Newton St. (North Main St. to Federal St.)

The Central Vermont Railroad Historic District does not occur within Segment 1.

4.4.1.2 Segment 2 - Federal St. (Lower Newton St. to Kingman St.)

Within Segment 2, only one alternative was evaluated. The Proposed Action would require minor re-grading on the parcel opposite Center Street on the west side of Federal Street in order to construct a raised island with new 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. Impacts to the District within this design segment would total about 26 sq ft of new ROW and about 4,010 sq ft of slope easement.

4.4.1.3 Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.)



³⁹ For a definition of the five design segments, see Section 2.3 of this EA.

Four alternatives were evaluated within Segment 3, including the Proposed Action. These four alternatives differ substantially with regard to their potential impact on the Giroux Furniture Company building which is included in this District. These impacts are discussed in **Section 4.4.4** below.

All four alternatives, including the Proposed Action, would require the demolition of three buildings in the block bounded by Lake, Catherine, Stebbins and Market Street in order to achieve appropriate roadway geometries and to construct a municipal parking lot.⁴⁰

At the northwest corner of the intersection of Federal and Lake Streets, all alternatives would require acquisition of a portion of the parcel that contains the Central Vermont Railroad General Office building in order to reconstruct the approach to the intersection from the north. The alternatives vary in the amount of new ROW required, depending on their geometry. Although Alternatives 2 and 3 would minimize the impact on this parcel, they would both require the demolition of the Giroux building which was deemed unacceptable.

4.4.1.4 Segment 4 – Allen Street and Lemnah Drive (Stowell St. to Nason St.)

Within Segment 4, both evaluated alternatives would require ROW and slope impacts to the Central Vermont Railroad Historic District. For example, the proposed roundabout at the intersection of Lower Welden, Allen Street and Lemnah Drive (i.e., the Proposed Action) would require 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 would involve acquiring a small portion of the Central Vermont Railroad parcel on the west side of Allen Street.

4.4.1.5 Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)

The Central Vermont Railroad Historic District does not occur within Segment 5.

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). Impacts to the District are summarized by segment in **Table 4.4-2** and shown on **Figure 4.4-4**.

▼
⁴⁰ The three buildings are in the process of being evaluated by the VTrans historic preservation officer as to their contributing or non-contributing status within the district.

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

Segment/Alternative	ROW Impacts	Slope Impacts
Segment 1 - Lower Newton St. (North Main St. to Federal St.)	0 sq ft	0 sq ft
Segment 2 - Federal St. (Lower Newton St. to Kingman St.)	0	500
Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.)		
Proposed Action (Signalized, One-Way)	0	1,825
Alternative 2 (Roundabout)	651	413
Alternative 3 (Signalized Two-Way Catherine St.)	580	1,101
Alternative 4 (Elongated Roundabout)	537	1,008
Segment 4 - Allen Street and Lemnah Drive (Stowell St. to Nason St.)		
Proposed Action (Roundabout)	0	0
Alternative 2 (Signalized)	0	0
Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)	0	0

4.4.2.1 Segment 1 - Lower Newton St. (North Main St. to Federal St.)

The St. Albans Historic District does not occur within Segment 1.

4.4.2.2 Segment 2 - Federal St. (Lower Newton St. to Kingman St.)

Within Segment 2, at 53 Federal Street, between Kingman and Center Streets, there would be minor use of the property for slope impacts and during construction to build streetscape improvements (approximately 500 sq ft).

4.4.2.3 Segment 3 - Federal St. / Catherine St. / Allen St. (Kingman St. to Stowell St.)

Within Segment 3, the Proposed Action would involve several 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. There would be no new permanent ROW acquired for these improvements, but the Proposed Action would result in approximately 1,825 sq ft of slope impacts.

The three Segment 3 alternatives would also involve several changes at the intersection of Lake and Catherine Streets and along the east side of Federal Street near Center Street. All of the rejected alternatives would require the acquisition of some new permanent ROW (about 500 to 600 sq ft) as well as requiring slope

impacts. For example, at the St. Albans House parcel, 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.

4.4.2.4 Segment 4 – Allen Street and Lemnah Drive (Stowell St. to Nason St.)

The St. Albans Historic District does not occur within Segment 4.

4.4.2.5 Segment 5 - Proposed Nason Street Connector (Nason St. to South Main St.)

The St. Albans Historic District does not occur within Segment 5.

4.4.3 Willard Furniture Manufacturing Company

No direct ROW impacts to the Willard Furniture Manufacturing Company property would result from the Proposed Action or any of the three alternatives considered in the vicinity of this property.

However, there would be approximately 2,347 sq ft of temporary slope impact to this property. (See **Figure 4.4-5**.) The slope impact would consist 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. All four alternatives considered in this design segment would require this impact to the Willard Manufacturing Company property.

4.4.4 Giroux Furniture Company

Impacts to the Giroux Furniture Company property are 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 a small amount of ROW acquisition from the east (Catherine Street) side of the historic 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

Alternative	ROW Impacts	Slope Impacts	Demolition of Giroux Bldg?
Alternative 1 (Proposed Action)	636 sq ft	6,597 sq ft	No
Alternative 2 (Roundabout)	16,933	0	Yes
Alternative 3 (Signalized Two-Way Catherine St.)	16,933	0	Yes
Alternative 4 (Elongated Roundabout)	884	6,349	No

Alternative 2 (Roundabout) and Alternative 3 (Signalized Two-way Catherine Street) would both require the demolition of the building for permanent ROW acquisition for larger intersections. Primarily for this reason, Alternatives 2 and 3 were dismissed from further consideration as the historic impact was deemed avoidable.

Alternative 4 (Elongated Roundabout) would not require the demolition of the Giroux building, but would cause both slope and minor ROW impacts. However, the unconventional configuration of the elongated roundabout was predicted to lead to congestion and safety concerns for motorists, bicyclists and pedestrians which caused it to be dismissed.

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 Central Vermont Railroad District or the St. Albans Historic District.

A total of four alternatives were evaluated which would all substantially reconfigure the Federal/Lake/Catherine Streets intersection within this District (see **Figure 4.4-7.**) As discussed above, all alternatives would involve impact to the Giroux property and the Central Vermont Railroad General Office Building. At the St. Albans House parcel on the southeast corner, there would be temporary use of the property during construction to reconstruct the existing sidewalk along the property's west (Catherine Street) and north (Lake Street) sides.

4.4.6 163 Federal Street

Only one alternative (i.e., the Proposed Action) was evaluated in the vicinity of 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 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

Only one alternative (i.e., the Proposed Action) was evaluated in the vicinity of 174 Federal Street. The Proposed Action would make no changes to this property and therefore there would be no Section 4(f) impact to this property. See **Figure 4.4-8**.

4.5 Alternatives Which Avoid the Use of Section 4(f) Properties

The No-Action Alternative would consist of maintaining the existing roadway system. Because it does not involve construction of an improved transportation facility, the No-Action Alternative would avoid direct impacts to historic resources.

The No-Action Alternative, however, would not alleviate the existing congested operations along Main Street downtown, nor would it adequately accommodate projected increased traffic demands through the design year. 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 (SASH). 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. For these reasons, the No-Action Alternative does not fulfill the project's Purpose and Need (see **Chapter 1**).

Although an effort was made to avoid all impacts to historic properties through the design of the Proposed Action and build alternatives, no design could be developed which avoided all impacts, given the number of historic properties and districts in the project Study Area.

4.6 Measures to Minimize Harm

The Proposed Action was developed in consultation with the City, FHWA and VTrans to eliminate or reduce impacts to historic properties in the project Study Area, particularly the Giroux Furniture Company property. The following features of the Proposed Action help to minimize its impact on these resources:

- To the degree possible, all improvements were designed to maintain the existing roadway alignment and to remain within the existing documented ROW.

- Demolition of the Giroux Furniture Company building was eliminated by refining the design to use existing site access drives and roadways within the Millyard versus new connector roads and driveways.
- Additionally, impacts to the three Historic Districts in the project Study Area were minimized by alteration of traffic patterns in a manner that will minimize property impacts (i.e., providing one-way circulation).

Based on the results of on-going coordination with the VTrans historic preservation officer, final determination of effect for each of the potentially-affected historic properties will be completed. As needed, a set of mitigation measures will be developed and documented in a Section 106 Memorandum of Agreement executed by the City, VTrans and FHWA for each property or district where an “Adverse Effect” is determined. Mitigation measures could include:

- Addition of landscaping or other design features to the Proposed Action in order or minimize direct or indirect impacts;
- Further research and/or documentation of the affected property following standards of the Historic American Building Survey/Historic American Engineering Record;
- Installation of historic markers at affected historic properties to increase public knowledge of the affected site; or
- Other measures deemed appropriate by the City, FHWA and VTrans.

4.7 Least Harm Analysis

Under FHWA regulations, if there is no feasible and prudent alternative to avoid harm to Section 4(f) properties, then only the alternative that causes the least overall harm in light of the statute’s preservation purpose can be chosen. The least overall harm is determined by balancing the:

1. Ability to mitigate adverse impacts to each Section 4(f) resource;
2. Relative severity of the remaining harm, after mitigation, to the protected activities and attributes or features;
3. Relative significance of each Section 4(f) property;
4. Views of the officials with jurisdiction over each Section 4(f) property;
5. Degree to which each alternative meets the Purpose and Need;
6. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
7. Substantial differences in costs among alternatives.

Because all of the Federal Street Multi-modal Connector alternatives require use of Section 4(f) properties, a Least Harm Analysis will be developed in consultation with the FHWA and the VTrans Historic Preservation Office. This analysis will be conducted once the Section 106 Determination of Effect process and negotiation of a

draft Memorandum of Agreement is concluded. The results of the Least Harm Analysis will be included in the Environmental Assessment.

4.8 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 and Section 4(f) Evaluation. A summary of these recent coordination meetings is provided in **Chapter 5** of this EA.

4.9 Section 4(f) Conclusion

The Section 4(f) conclusion will be drafted upon acceptance of the Section 4(f) evaluation and review by interested parties.

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
June 7, 2011	VTrans Montpelier, VT	VTrans	Resource Evaluation, NEPA Compliance
June 22, 2011	VTrans Montpelier, VT	VTrans FHWA	Resource Evaluation, Alternative Actions, NEPA Compliance
January 4, 2011	VTrans Montpelier, VT	FHWA	NEPA Compliance

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, VTTrans, 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, VTTrans and FHWA.

5.3 Permit Requirements

The Market Street Improvements (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 and secondary 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*. 25 pp.
Website: <http://ceq.eh.doe.gov/nepa/regs/EJ/justice.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.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1*. US Army Engineer Waterways Experiment Station, Vicksburg, MS.
- US Department of Transportation – Research and Special Programs Administration. 2004. *FHWATraffic 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 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. *Species Information: Threatened and Endangered Animals and Plants* (<http://www.fws.gov/endangered/wildlife.html>). Accessed September 19, 2006).
- 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/Explanation_of_Legal_Status_and_Information_ranks.) Accessed September 19, 2006