

1.0 INTRODUCTION

This chapter provides an overview of the purpose of this Final Environmental Impact Statement (FEIS) and the context and history of the Circ-Williston Transportation Project (proposed project). This FEIS has been prepared by the Vermont Agency of Transportation (VTTrans) in cooperation with the Federal Highway Administration (FHWA). A Notice of Intent to Prepare an Environmental Impact Statement was published by FHWA in the Federal Register on November 26, 2004. The Notice of Availability for the Circ-Williston Transportation Project Draft Environmental Impact Statement (DEIS) was published in the Federal Register on August 10, 2007.

A Note About Appendices

This FEIS summarizes and incorporates by reference the following appendices to the DEIS:

- Appendix A: Scoping Memorandum
- Appendix B: Alternatives Screening Technical Report
- Appendix C: Alternatives Screening Memorandum
- Appendix D: Public Involvement and Agency Coordination
- Appendix E: Air Quality and Energy Technical Report
- Appendix F: Biological Resources Technical Report
- Appendix G: Cultural Resources Technical Report
- Appendix H: Geology, Soils and Water Resources Technical Report
- Appendix I: Hazardous Materials Technical Report
- Appendix J: Indirect Effects and Cumulative Impacts Technical Report
- Appendix K: Land Use Technical Report
- Appendix L: Noise Technical Report
- Appendix M: Socioeconomics Technical Report
- Appendix N: Visual Resources Technical Report
- Appendix O: Transportation Technical Report
- Appendix P: Preliminary Engineering Technical Report

The responses to the comments on the DEIS and the new or revised technical studies conducted since the release of the DEIS are provided in appendices to the FEIS. The appendices to the FEIS do not repeat information from the DEIS appendices that has not changed. The letter designations of the FEIS appendices are sequential with the DEIS appendices, and therefore begin with "Appendix Q." The appendices to the FEIS are listed below.

- Appendix Q: Comment Response Document
- Appendix R: Redmond Road Alignment Alternatives Screening Memorandum
- Appendix S: Public Involvement and Agency Coordination Addendum
- Appendix T: Biological Resources Technical Report Addendum
- Appendix U: Geology, Soils and Water Resources Technical Report Addendum
- Appendix V: Transportation Technical Report Addendum
- Appendix W: Socioeconomics Technical Report Addendum
- Appendix X: Preliminary Engineering Technical Report Addendum
- Appendix Y: Historic Effects Update Memorandum

Throughout this FEIS, references to the appendices of the DEIS will be referred to in the following format: “DEIS Appendix A: *Scoping Memorandum*.” Appendices to the FEIS will be referred to in the following format: “FEIS Appendix Q: *Comment Response Document*.”

1.1 Purpose of the FEIS

The Final Environmental Impact Statement (FEIS) has been prepared to assess the potential environmental impacts associated with the construction and operation of the proposed project. The National Environmental Policy Act (NEPA) requires federal agencies to prepare a “detailed statement” disclosing the environmental impacts of, and alternatives to, “major federal actions significantly affecting the quality of the human environment” (42 U.S.C. § 4332 et seq.).

The FEIS provides government decision-makers, other agencies and the public information about the potential environmental consequences of the proposed alternatives, including the No Build or No Action Alternative. The No Build Alternative describes future conditions without the proposed project. The FEIS compares the Build Alternatives to the No Build Alternative and to each other. The FEIS identifies the extent to which impacts to the environment may be anticipated and the degree to which the potential impacts can be avoided or limited. Where appropriate and required, the FEIS identifies appropriate mitigation measures which, when considered as part of the implementation of the proposed project, can serve to limit any potential adverse impacts. The FEIS provides detailed responses to the public and agency comments received on the DEIS, corrections and clarifications to the information presented in the DEIS and the results of new and revised analyses conducted since the publication of the DEIS. The FEIS also identifies and explains the rationale for VTrans and FHWA’s Preferred Alternative.

Regulatory Compliance

The FEIS has been prepared pursuant to the rules and regulations of the National Environmental Policy Act (NEPA) of 1969 (as amended) as implemented by the Council on Environmental Quality Regulations at 40 C.F.R. parts 1500-1508 and FHWA’s Environmental Impact and Related Procedures at 23 C.F.R. part 771. In particular, the FEIS has been prepared in compliance with FHWA Technical Advisory TA 6640.8A (1987) and it is being submitted pursuant to the policies and goals of NEPA (42 U.S.C. § 4332 (c)), the National Historic Preservation Act (16 U.S.C. § 470) and Section 4(f) of the Department of Transportation Act (49 U.S.C § 303).

This FEIS is also being prepared in cooperation with the U.S. Army Corps of Engineers under the NEPA/Section 404 Permit Merger process as outlined in *The New England District’s Highway Methodology Workbook*. The purpose of this methodology is to merge the FHWA requirements of NEPA at 23 C.F.R. part 771, with the guidelines for Section 404 of the Clean Water Act at 40 C.F.R. part 230. This methodology integrates the requirements of the Section 404 process with those of the NEPA process with the objective of achieving more timely and cost effective decision-making and permitting.

This FEIS was prepared in compliance with:

- Section 4(f) of the Department of Transportation Act
- Uniform Relocation Assistance and Real Property Acquisition Policies Act
- Executive Order 12898 – Environmental Justice
- Section 106 of the National Historic Preservation Act
- Executive Order 11990 – Protection of Wetlands
- Executive Order 11988 – Floodplain Management
- Clean Water Act
- Federal Farmland Protection Policy Act
- Endangered Species Act
- Clean Air Act

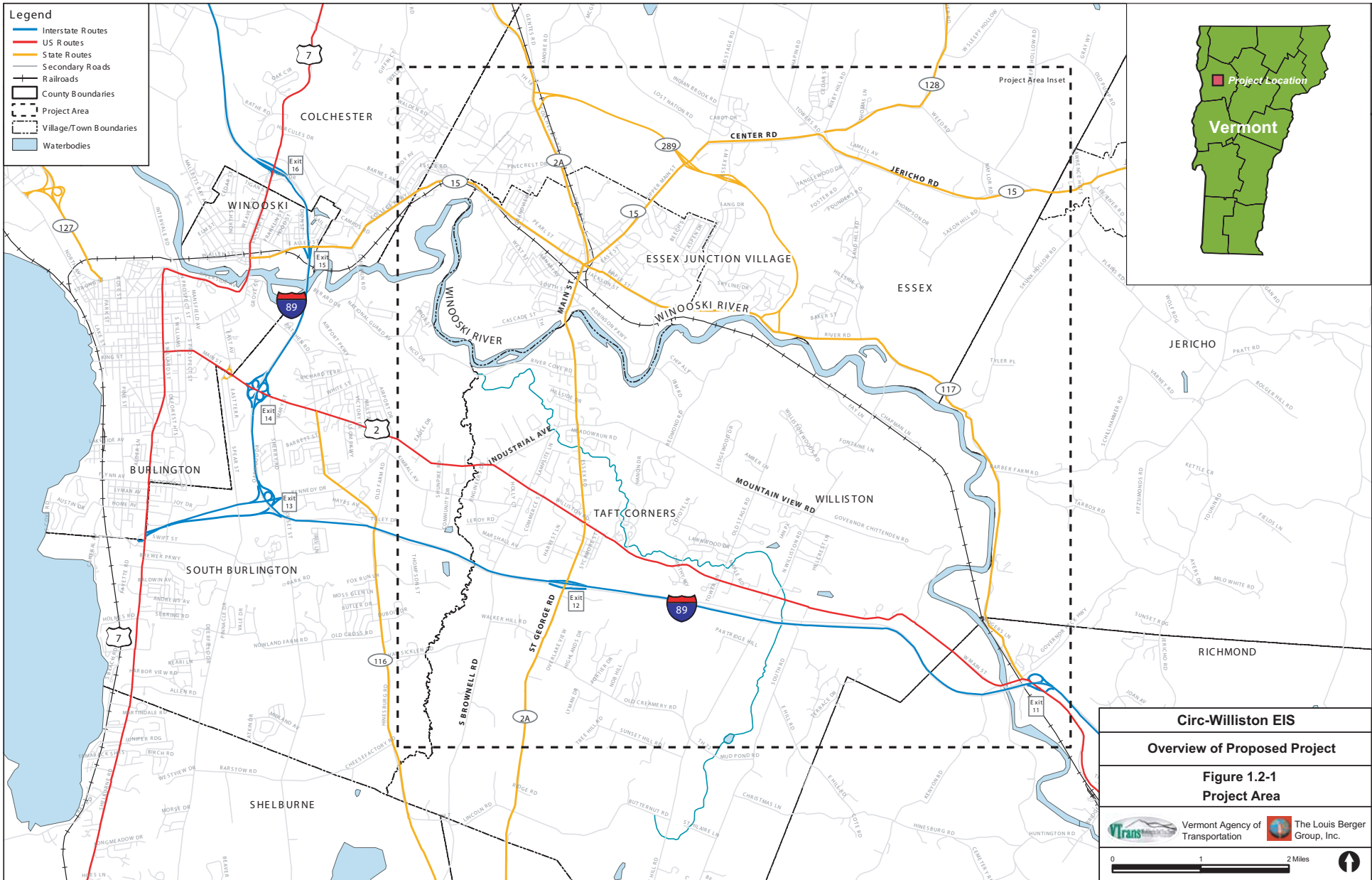
In addition, the following state laws and regulations were considered during the preparation of the FEIS:

- Vermont Air Pollution Control Regulations
- Vermont Wetland Rules
- VTrans Noise Policy
- VTrans, FHWA, Advisory Council on Historic Preservation and Vermont State Historic Preservation Officer Section 106 Programmatic Agreement
- Vermont Hazardous Waste Management Regulations
- Vermont Underground Storage Tank Regulations
- Vermont Threatened and Endangered Species
- Vermont State Critical Habitat (deer wintering habitat)
- Vermont Water Quality Standards and Vermont DEC rules for stormwater permitting
- Vermont Act 250

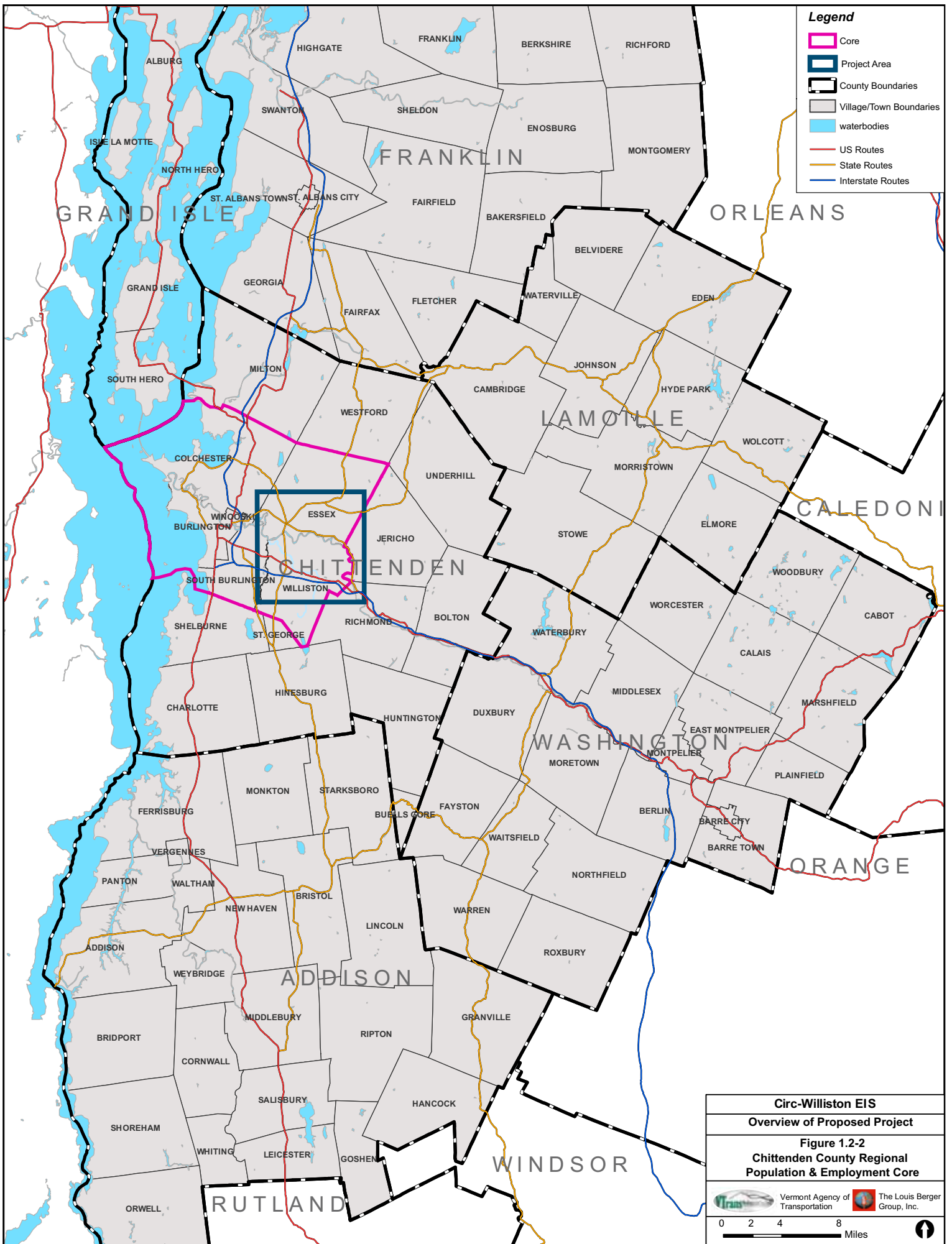
1.2 Project Setting

The proposed project is located in Chittenden County, Vermont and involves transportation improvements in the area between I-89 and the Towns of Williston and Essex and the Village of Essex Junction, municipalities located to the east of the City of Burlington. The project area is shown in Figure 1.2-1. VT 2A is the major north-south roadway for travel between I-89 and Essex Junction. The major east-west roadways through the project area are I-89, US 2, VT 15 and VT 117.

Chittenden County has the highest population and employment in Vermont and serves as the center of a regional economy comprised of the six counties of Northwest Vermont. The other five counties of Northwest Vermont are Addison, Washington, Lamoille, Franklin and Grand Isle (see Figure 1.2-2). Over two-thirds of employment and population within Chittenden County is concentrated in six municipalities: Burlington, Colchester, Essex (Essex Town and Essex Junction Village), South Burlington, Williston and Winooski. In 2000, the Chittenden County employment and population core constituted just four percent of the land area of Northwest Vermont, but contained over forty-eight percent of the region's employment and thirty-three percent of its population. Chittenden County contains Burlington, the county's largest city, university and airport.



Source: Draft 2025 Chittenden County Metropolitan Transportation Plan, CCMP.



Source: Census Transportation Planning Package 2000, Part 3. Bureau of Transportation Statistics, 2004.

The project area is located within the Champlain Valley, with topography characterized by gently rolling hills. The proposed project area includes the Winooski River, a major river in the area, and numerous smaller tributaries of the Winooski River. The project area includes growing areas of suburban, residential, and retail development. The project area also contains a village center, agricultural and forest lands. Recent land use change in the Champlain Valley has been influenced by employment and population growth, which have been concentrated in Chittenden County. Lake Champlain is a major recreation and tourist attraction in northwestern Vermont.

Figure 1.2-3 through Figure 1.2-5 provide an overview of the varied landscapes in the project area.

- Figure 1.2-3 shows an aerial view of the commercial development surrounding the intersection of VT 2A and US 2 (Taft Corners). I-89 and the Circ A/B corridor are visible in the background.
- Figure 1.2-4 shows Village of Essex Junction and the Five Corners intersection (VT 2A- VT 15- VT 117).
- Figure 1.2-5 shows the Circ A/B corridor at the Winooski River, including forested land, the retired Williston landfill and Chittenden Solid Waste District transfer station. The VT 117/VT 289 interchange is partially visible on the north side of the Winooski River.

1.3 Project Description

The Circ-Williston Transportation Project has been proposed by VTrans, in cooperation with FHWA, to make improvements to the transportation system between I-89 and Williston, Essex and Essex Junction. The purpose of the Circ-Williston Transportation Project is to improve access to, from, and within the project area and remedy existing and projected deficiencies including congestion, safety, and mobility issues (including movement of both people and goods). Chapter 2.0: Purpose and Need for the Proposed Project describes in detail the existing and projected traffic conditions that justify the need for the Circ-Williston Transportation Project.

1.3.1 Preferred Alternative

Based on extensive consideration of the ability of various alternatives to meet the transportation needs of the project, environmental and community impacts, the comments received on the DEIS, and the results of additional analyses, VTrans and FHWA have identified a Preferred Alternative. The Preferred Alternative involves the construction of a new four-lane boulevard in the Circ A/B corridor connecting I-89 in Williston to VT 117 and VT 289 in Essex. The Preferred Alternative has a trumpet interchange connection at I-89, and signalized intersections at US 2 and Mountain View Road. The Preferred Alternative incorporates numerous design modifications to avoid and minimize environmental impacts, as well as a comprehensive series of stormwater treatment practices. Chapter 4 provides more information on the design of the Preferred Alternative and explains VTrans and FHWA's rationale in recommending the Preferred Alternative.



Circ - Williston EIS

Figure 1.2-3

View Looking East at Taft Corners Intersection



Vermont Agency of
Transportation



Circ - Williston EIS

Figure 1.2-4

View Looking West at Five Corners Intersection



Vermont Agency of
Transportation



Circ - Williston EIS

Figure 1.2-5

**View Looking Northeast at Retired Williston
Landfill + CSWD Transfer Station**



Vermont Agency of
Transportation

1.4 Project History

1.4.1 Project Development Overview and Previous Studies

Numerous studies and plans for improving transportation in the project area have been undertaken at various levels of government since the late 1950s. Traffic studies conducted in 1957, 1962 and 1964 formed the basis for the first comprehensive study undertaken by the Vermont Agency of Transportation. This report was entitled “Greater Burlington Area Highway Plan” (1966) and one of its recommendations was for a limited access Essex Junction Beltline from Route 15 at Susie Wilson Road around the Village of Essex Junction to VT 2A at the Powerhouse Bridge. Relocation of VT 2A in Williston from the Powerhouse Bridge to a point north of Taft Corners was also recommended. The transportation studies performed over the years evolved into plans for a limited access circumferential highway from VT 127 in Colchester through Essex, and around Essex Junction to I-89 in Williston. Local municipalities began making provisions for a circumferential highway in their comprehensive plans beginning in 1967.

In 1967, the State Highway Board and the Governor approved a proposed twenty-one-mile limited access highway which included the Burlington Beltline as well as a section from Route 127 in Colchester to Williston. The project was placed on the ten-year highway construction plan adopted by the Legislature in 1968. In 1975, the Chittenden County Regional Planning Commission (CCRPC) adopted a regional plan with completion of the circumferential highway as a major objective in the plan’s transportation element. The project was called the Chittenden County Circumferential Highway project (CCCH), and consisted of a sixteen-mile limited access facility located in the Chittenden County towns of Williston, Essex, and Colchester.

In 1978, the Vermont Agency of Transportation commissioned a study entitled *Needs of the Highway System for the Essex-Williston Study Area for the Next 20 Years*. This study identified seven intersections where inadequate levels of traffic service would develop by 1983. It recommended a circumferential highway designed to sixty mph standards with full access control.

In 1980, State funding was not available to advance the CCCH. As a result, funding for the project was sought by local and state officials through a Demonstration Grant from FHWA. This grant was secured through the 1982 Surface Transportation Act. This Demonstration Grant project was to determine the potential of saving time and costs by extending State certification coverage to a project of this size and diversity in areas that require improved access between rapidly growing suburban areas and established urban core areas.

In 1982, the municipalities of Colchester, Essex, Essex Junction and Williston formed a Union Municipal District called the Chittenden County Circumferential Highway District (CCCHD) and, in conjunction with the Vermont Agency of Transportation, undertook the task of planning, designing and constructing the project. Engineering and planning studies were conducted by the Vermont Agency of Transportation to analyze twenty-year travel demands as a function of projected socioeconomic factors. The studies established that projected travel demands required a four-lane facility. Additionally, they established that transportation system management techniques (i.e., expanded bus service, park-and-ride lots, van pooling, etc.) were not practicable. The estimated construction cost for the recommended four-lane facility was in excess of \$71 million in

1983 dollars, which exceeded the available funds allocated by Congress. Therefore, in November 1983, it was determined that a two-lane facility, with climbing lanes as necessary, on a four-lane right-of-way would be the design concept to be advanced.

1983-1986 EIS Process

In the fall of 1983, VTrans initiated the process for advancing the Environmental Impact Statement (EIS) for the proposed CCCH and to design the portion of it from Route 15 in Essex to I-89 in Williston. In late June of 1984, a report entitled *Evaluation and Recommendation of Alignments to be Carried into the Draft Environmental Impact Statement* was published and distributed to all interested parties, including state and federal agencies. This report was reviewed by the Trustees of the CCCHD, the Selectmen and Trustees of the four municipalities and local citizens. The outcome of the review was the selection of three Build Alternatives to be considered in the Draft Environmental Impact Statement (DEIS), along with the No Action and the Rebuild Existing Alternatives. The DEIS was released in August 1985.

The preferred alternative for the FEIS was developed by a decision process that started with the legislative bodies of each community. After the public meetings on the DEIS, these bodies made recommendations to the CCCHD Board of Trustees. From this information, a position was carried by the Trustees to the CCCH Steering Committee for final policy votes. As a result of this process, several small alignment location adjustments were made prior to the FEIS. Additionally, two intersections with the Circumferential Highway were added, and one intersection was upgraded from an at-grade to grade-separated intersection.

In 1986, a bill was passed by the Vermont State Legislature, entitled "An Act for the Construction of the Chittenden County Circumferential Highway as Part of the State Highway System". Included in this legislation were changes that designated the CCCH as a state highway, the formalization of the CCCHD Steering Committee process and the recognition of the opportunity for the CCCH to be included by a later session of the legislature for funding under the Five-Year Highway Transportation Program. Another piece of legislation added the two interchanges of the CCCH with I-89 into the interstate system, and provided for the funding of these interchanges from interstate construction monies.

In August 1986, VTrans completed the FEIS, and a Record of Decision (ROD) was later approved for the project. The FEIS was prepared by VTrans, with assistance from FHWA. The 1986 FEIS divided the CCCH into segments A-F for planning purposes, with segment A beginning at VT 127 in Colchester and segment F ending at I-89 in Williston. Subsequent design plans, however, changed the segment designations used in the 1986 FEIS to an A-J lettering scheme, with segment A beginning at I-89 in Williston and segment J ending at VT 127 in Colchester. As a result of the ROD, the available Demonstration Grant funding was used to construct four of the sixteen miles in Essex, between VT 117 east of Essex Junction and VT 2A and Susie Wilson Road north of Essex Junction. This roadway (VT 289 Segments C-F) opened to traffic in 1993 as a two-lane roadway, with the intention of expanding to four lanes in the future.

Reevaluation of CCCH Segments A-B

In 1999, VTTrans completed a reevaluation of CCCH Segments A-B (I-89 in Williston to VT 117 in Essex) and determined that a supplemental environmental impact statement was not needed. In 2002, Executive Order 13274: Environmental Stewardship and Transportation Infrastructure Project Reviews named the Chittenden County Circumferential Highway as a high-priority project, requiring federal agencies to “expedite their reviews for relevant permits or other approvals” for the project to the maximum extent practicable and allowed by law. Since the Demonstration Grant project funds were insufficient to complete the CCCH, FHWA proposed using additional federal-aid highway funds to complete the project. FHWA adopted the 1986 FEIS in 2002 and decided to undertake a more comprehensive reevaluation of Segments A-F that incorporated a public involvement component. After extensive additional study, VTTrans and FHWA issued an Environmental Assessment (EA)/Reevaluation on August 9, 2002. Working closely with the EPA, VTTrans and FHWA undertook additional environmental studies, resulting in a second EA/Reevaluation in 2003. The 2003 Final Revised EA/Reevaluation used the A-J segment designations, as does this FEIS. The final revised reevaluation (FREA) and Record of Decision were issued in 2003 indicating that the construction of Segments A-F would not result in any significant impacts not previously evaluated in the 1986 FEIS.

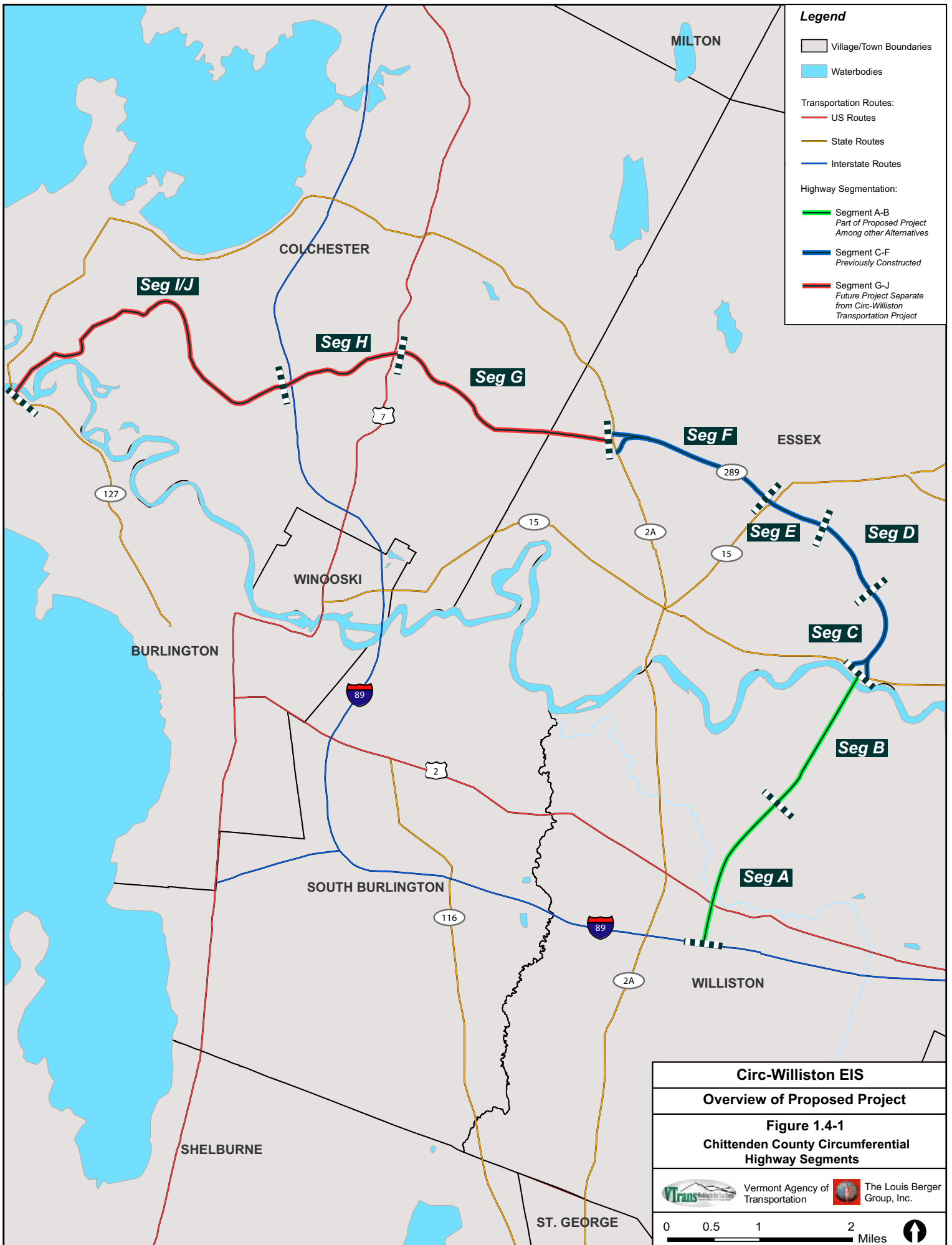
The existing built portion of the Chittenden County Circumferential Highway (VT 289) in Essex consists of segments C-F. Among other alternatives, this FEIS evaluates roadway construction in the right-of-way purchased for segments A-B. This area, from I-89 in Williston to the terminus of VT 289 at VT 117 in Essex is referred to in this document as the “Circ A/B corridor.” The A-J segment designations are shown in Figure 1.4-1.

Previous Mitigation and Permits

As part of the environmental permitting for the CCCH, mitigation relevant to the proposed project was conducted. This section summarizes mitigation and permits related for wetlands, agricultural and scenic resources, archeology and hazardous materials.

Wetlands

The 1986 CCCH FEIS identified, for Segments A-F, approximately twenty-eight acres of wetlands that could be impacted by construction of the CCCH. As part of the the U.S. Army Corps of Engineers (ACOE) and Vermont Agency of Natural Resources project permitting requirements, two wetland mitigation areas were constructed to compensate for CCCH-related wetland impacts. The Central Vermont Railroad (CVRR) wetland mitigation site was constructed south of the CCCH. The site provides for seven acres of wetlands and approximately 30 acres of wetlands buffer. This wetland area was created to mitigate for the loss of wetlands associated with the construction of Segments C-F.



The Lemire wetland mitigation site was constructed and is located adjacent to VT 128, northwest of Essex Center. This site provides for 54.6 acres of wetlands. This wetland area was created to mitigate for wetland impacts associated with the construction of Segments A-B and G-J. Both the CVRR and Lemire sites have been permitted and constructed and have completed their required five-year establishment periods.

Agricultural and Scenic Resources

In 1987, VTrans and the Chittenden County Circumferential Highway District filed an application for Act 250 approval of construction of the Circumferential Highway with the Vermont Environmental Board. The Act 250 permit was granted with the requirement that a plan for the protection of agricultural and scenic resources be prepared by each Town that would be affected by the Circumferential Highway.¹ The permit indicated that these plans be consistent with the recommendations of the Ottauquechee Land Trust Report to provide mitigation for direct and secondary impacts to agricultural soils created by construction of the highway.

In compliance with the Act 250 permit, the Towns of Williston, Essex and Colchester prepared mitigation plans for agricultural and scenic resources. Williston's plan was implemented through the revision of its *Open Space Master Plan* element of its Comprehensive Plan; the Conservation Commission, which provides guidance on land acquisitions for conservation, development policy and site plan reviews for developments affecting the *Open Space Master Plan*; the Zoning Ordinance Revision, which includes a Special Features Overlay District to avoid clustering of development, and Transfer of Development Rights (TDR) to provide compensation for protected lands and to encourage development in areas designated for growth; a Sewer Allocation Ordinance that controls the location and capacity of future sewer service; and an Open Space fund to acquire land or development rights for key parcels so that they could be conserved.

The Town of Essex has also implemented open space planning, beginning with the 1989 Open Lands Study, and continued through Comprehensive Plan updates, and zoning changes to direct growth to areas served by municipal infrastructure. In 2008, Essex issued an Open Space Plan that includes priorities and strategies for resource conservation and open space protection.

Archaeology

The Circ A/B corridor was studied through the Phase III archaeology data recovery stage as part of the Section 106 process. As a result, all identified archaeological sites within and surrounding the corridor were excavated to allow for the construction of the CCCH.

Hazardous Materials

As a result of potential subsurface contamination at the commercial property located on US 2 and known as Dave's Auto (former), VTrans conducted an assessment of the subsurface conditions at this site and submitted the findings in a report dated July 7, 1993 in accordance with Vermont Agency of Natural Resources requirements. Two

¹ Vermont Environmental Board, Land Use Permit 4C0718-1-EB as amended, November 29, 1989.

USTs were removed from the site, one of which was reportedly a leaking underground #2 fuel oil storage tank. During the tank pull, contamination was encountered in screened soils and the excavated soil was backfilled.

1.4.2 Court Decision and Current EIS Process

In 2004, the Vermont Public Interest Research Group, Friends of the Earth, Sierra Club and the Conservation Law Foundation and two individuals sued FHWA and VTrans for not fully complying with NEPA. On May 10, 2004, the U.S. District Court of Vermont granted an injunction barring the construction of Segments A-B.

On October 8, 2004 the Vermont Secretary of Transportation announced that VTrans was beginning a new environmental study and Environmental Impact Statement that would consider circumferential highway segments A-B as well as other transportation alternatives in the Williston, Essex and Essex Junction area. The Notice of Intent for this EIS was published in the Federal Register by FHWA on November 26, 2004. During the development of the DEIS, six public meetings/workshops were held as part of scoping, alternatives screening, and to present preliminary results from the DEIS studies. Each of the public meetings was held in two to three separate locations to facilitate public participation throughout Chittenden County. In addition, four public technical workshops were held as part of the development of the methodology for assessing indirect effects and cumulative impacts. Approximately 20 interagency meetings were held to allow representatives of state and federal resource agencies to provide feedback on the scope of work and results of the environmental technical studies conducted for the project.

The Notice of Availability for the Circ-Williston Transportation Project DEIS was published in the Federal Register on August 10, 2007. The DEIS was distributed to the project mailing list by CD-ROM, posted on the project website and made available at local libraries. CD-ROMs containing the DEIS were mailed on request at no charge. Public hearings on the DEIS/Section 404 Permit Application were held on October 4, 2007 in Essex Junction and Williston. In total, at least 110 individuals attended the public hearings. Over 40 individuals commented for the record during public hearings and some individuals commented multiple times. The public comment period was extended to November 21, 2007, bringing the total duration of the comment period to 110 days. Over 300 comments on the DEIS were received through postal mail, faxes, email and through the project website. The public and agency comments and corresponding responses from VTrans and FHWA are provided in FEIS Appendix Q: *Comment Response Document*.

Overview of Studies Conducted Since the DEIS

Several additional studies have been undertaken since the publication of the DEIS. Some of these studies were conducted in response to specific comments on the DEIS (e.g. suggestions of additional alternatives), while others were conducted for permitting purposes (e.g. wetland mitigation site search). Throughout the development of these additional studies, VTrans and FHWA have continued a robust program of outreach and consultation with resource agencies. Between the publication of the DEIS and this FEIS, 18 interagency meetings have been held (including field visits to the Circ A/B corridor and reviews of potential wetland mitigation sites). The additional studies are described briefly below, along with reference to the chapter of the FEIS where detailed information is provided.

Preferred Alternative and Design Refinements

A Preferred Alternative was not identified in the DEIS to allow for public feedback on the DEIS to be considered in the decision. Based on extensive consideration of the ability of various alternatives to meet the transportation needs of the project, environmental and community impacts, the comments received on the DEIS, and the results of additional analyses, VTrans and FHWA are recommending the Circ A/B Boulevard (Alternative 17) as the Preferred Alternative in the FEIS. The Preferred Alternative includes numerous design refinements to avoid and minimize natural resource impacts, including an alignment shift to reduce impacts to forested wetlands and avoid direct impacts to a vernal pool. On July 6, 2010, ACOE identified the Preferred Alternative as the Least Environmentally Damaging Practicable Alternative (LEDPA) under the Clean Water Act Section 404 (b)(1) Guidelines (40 CFR 230). For more information on the Preferred Alternative decision and design refinements, refer to Chapter 4 and FEIS Appendix X: *Preliminary Engineering Technical Report Addendum*.

Screening Evaluation of Additional Alternatives

In comments on the DEIS, ACOE requested an evaluation of the practicability of using the existing Redmond Road alignment to minimize wildlife habitat fragmentation and wetland impacts from the Circ A/B Alternatives. To respond to the ACOE comment, a screening-level analysis was performed for two new alternatives (labeled Alternatives 24 and 25) that would utilize portions of Redmond Road for the Circ B alignment. The analysis results showed that these alternatives would have few advantages over other Circ A/B Alternatives in terms of minimizing natural resource impacts. In addition, Alternatives 24 and 25 would bisect the location of the future Chittenden Solid Waste District (CSWD) regional landfill. CSWD has indicated that they would not be willing to sell their property to VTrans for the purposes of constructing Alternatives 24 or 25. Based on the results of the screening analysis, ACOE and other cooperating agencies agreed at the March 12, 2008 interagency meeting that using portions of the Redmond Road alignment for Circ B would not be a reasonable or practicable alternative. For detailed information, refer to Section 3.4.1 and FEIS Appendix R: *Redmond Road Alignment Alternatives Screening Memorandum*.

Additional Secondary Impact Analysis for Wetlands and Wildlife Habitat

In the context of the regulations implementing permitting procedures under the Clean Water Act, secondary impacts are defined as “effects on an aquatic ecosystem that are

associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material” (40 CFR 230.11(h)). For example, the placement of fill in one portion of a wetland may have hydrologic effects on the function of the remaining wetland area outside of the project footprint. Secondary impacts also encompass issues such as wildlife habitat fragmentation and related effects on species. Consistent with many other projects, the DEIS contained a qualitative assessment of potential secondary wetland and wildlife habitat impacts associated with the alternatives. However, the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers and the U.S. Fish & Wildlife Service requested additional analyses subsequent to the DEIS for the purposes of assessing the compliance of the project with the requirements of the Clean Water Act. Through extensive coordination with these agencies, VTrans and FHWA conducted a detailed quantitative secondary impact analysis for wetlands and wildlife habitat, focused on the Preferred Alternative. For detailed information, refer to Section 11.5, Section 11.8 and FEIS Appendix T: *Biological Resources Technical Report Addendum*.

Chloride Sampling and Specific Conductance Monitoring

In comments on the DEIS, EPA requested additional baseline characterization of chloride concentrations in three streams: Unnamed Tributary to Muddy Brook, Unnamed Tributary to the Winooski (1), and Redmond Creek. Continuous specific conductance monitoring of these streams was conducted between March 4, 2008 and April 17, 2008. Discrete chloride grab samples were also taken for laboratory analysis. Based on the relationship between chloride concentrations and specific conductance in the samples, average daily chloride concentrations were estimated from the continuous monitoring specific conductance data. More information on the methodology and results of the chloride monitoring study, refer to Section 11.3 and FEIS Appendix U: *Geology, Soils and Water Resources Technical Report Addendum*.

Updates to Water Quality Impact Analyses

Several updates were made to the analyses of potential water quality impacts from stormwater runoff based on new information and/or comments on the DEIS. The Simple Method analysis for sediment, nutrient and metal loadings was revised to incorporate the stricter new development stormwater treatment standards for the VT 2A Alternatives, as opposed to the standards for the redevelopment of existing impervious surfaces. In addition, calculations using the outputs of the Simple Method loading analysis and average stream flow statistics were used to provide estimated in-stream pollutant concentrations. The deicing salt loading and in-stream concentration analysis has been revised to incorporate additional data on background chloride concentrations and to use a higher deicing salt application rate recommended by EPA. For more information on these changes, refer to Section 11.3 and FEIS Appendix U: *Geology, Soils and Water Resources Technical Report Addendum*.

Wetland Mitigation Site Search

Section 404 of the Clean Water Act requires compensatory mitigation for unavoidable impacts to waters of the United States, including wetlands. Compensatory mitigation can also be required for impacts regulated under the Vermont Wetland Rules (See Section 8.5 of the wetland rules). In order to develop a compensatory mitigation package for the Preferred Alternative, VTrans has conducted an extensive mitigation site

search focused on a portion of the Champlain Valley biophysical region, from the Crown Point Bridge in the Town of Addison to the Canadian border, with emphasis placed on those sites also within the Winooski River watershed. VTrans involved the state and federal regulatory and resource agencies in the development of the wetland mitigation goals, methodology, and field visits. The objective of the mitigation site search was to identify potential sites suitable for wetland restoration. A GIS-based analysis was conducted to identify potentially suitable sites for wetland restoration based on broad scale screening measures such as aerial photography, topography, land cover, and soils. The next step in the site search process involved field reviews of the potential sites to determine on-the-ground whether restoration is feasible. Landowners of the potential sites have been contacted to determine if they would be willing to sell their property or would be interested in taking part in a conservation easement. Additional information on the site search process and the three most-promising sites identified are provided in Section 11.5.4.

Additional Traffic Studies

New or revised traffic analyses conducted as a result of the availability of new information or in response to comments on the DEIS include an analysis of year 2015 traffic conditions, updates to the safety analysis using the latest crash data, and additional assessments of the effects of the alternatives on side-street delays on VT 2A and roundabout capacity. For detailed information, refer to Chapter 5 and Appendix V: *Transportation Technical Report Addendum*.

Greenhouse Gas Emissions Analysis

The DEIS presented an analysis of fuel consumption in Chittenden County based on traffic volumes and speeds. This analysis has been updated for the FEIS to incorporate both fuel consumption and greenhouse gas emissions. While the national emissions factors used in the analysis and other technical limitations do not provide a detailed greenhouse gas inventory, the analysis serves as a basis for comparing the relative effect of the various Build Alternatives with the No Build Alternative. For detailed information, refer to Chapter 15.

Emergency Response Survey

Comments on the DEIS raised emergency response times and routing options as a consideration in evaluating the effects of the alternatives. To address these and other comments, VTrans and FHWA decided to conduct an emergency response services provider survey to gather more information on the issue. The telephone survey consisted of two parts. In the first part of the survey, emergency response providers were asked about emergency response times, key routes, mutual aid events, and transportation issues affecting their emergency response times. In the second part of the survey, emergency response providers were asked specifically about the anticipated effects of the EIS alternatives on emergency response times and routing options. For more information, refer to Section 7.5 and FEIS Appendix W: *Socioeconomics Technical Report Addendum*.

Indirect Effects without Segments G-J

CCCH segments G-J were included in the No Build condition evaluated in the DEIS as a reasonably foreseeable future transportation project. Comments on the DEIS raised questions related to how the modeled indirect land use effects of segments A/B were influenced by the inclusion of Segments G-J in the future transportation network. To respond to these comments, a sensitivity analysis was performed comparing the distribution of population and employment in Chittenden County without Segments G-J in the model as compared to the with G-J base condition presented in the DEIS. The results show that Segments G-J have a negligible effect on the indirect land use effects of segments A/B, refer to Chapter 17 for detailed information.

Note that this FEIS does not evaluate as an alternative any other project in the metropolitan transportation plan, including the G-J Segments of the previously planned Circumferential Highway. If, in the future, Segments G-J are proposed for another transportation project, a separate EIS or other NEPA-related document will be prepared.

VT 2A Corridor Historic Resources Effects Update

The historic architectural resource impact analysis summarized in the DEIS primarily focused on the size of the proposed property acquisitions and the distance between the structure and roadway under the various alternatives to make preliminary effects findings under Section 106 of the National Historic Preservation Act. The level of analysis was commensurate with the information needed to compare the ten Build Alternatives under consideration in the DEIS. For the FEIS, a reassessment of the VT 2A corridor historic resource impacts was conducted by the VTrans and FHWA. The reassessment consisted of plan review and field review. The reassessment identified several locations where the VT 2A Alternatives would result in a loss of mature street trees contributing to the historic setting of the affected properties, primarily along the Park Street corridor in Essex Junction. In addition, the reassessment also explicitly considered the potential impacts of utility relocations on the historic resources, as the VT 2A Alternatives would require existing overhead utilities to be relocated closer to the houses along VT 2A to accommodate roadway widening in many areas. These issues were not evaluated in detail in the 2006 Cultural Resources Technical Report impact assessment. Based on the reassessment, VTrans and FHWA agreed that the preliminary effect determinations presented in the DEIS should be modified from “No Adverse Effect” to “Adverse Effect” for ten historic resources for Alternative 2 and for eight historic resources for Alternative 3. For Alternative 22, one preliminary finding of “No Adverse Effect” was changed to “Adverse Effect”. For the remaining historic resources, the 2006 Cultural Resources Technical Report effects findings were reaffirmed. For detailed information, refer to FEIS Appendix Y: *VT 2A Corridor Historic Architectural Resources Effects Update Memo*.

Consideration of Changes since the DEIS

During the preparation of this FEIS, VTrans and FHWA considered: 1) the design modifications developed for the Preferred Alternative for the FEIS; and 2) new information or circumstances relevant to environmental concerns to determine whether a Supplemental DEIS was warranted. FHWA's NEPA regulations require an EIS to be supplemented whenever:

- Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or
- New information or circumstances relevant to environmental concerns and bearing on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS (23 CFR 771.130 (a)).

FHWA's regulations also identify exceptions to the requirement to prepare a Supplemental EIS. The exception relevant to the FEIS stage of the NEPA process states that a Supplemental EIS is not required when "the changes to the proposed action, new information, or new circumstances result in a lessening of adverse environmental impacts evaluated in the EIS without causing other environmental impacts that are significant and were not evaluated in the EIS" (23 CFR 771.130 (b)).

Table 1-1 provides a summary of the changes in the design and environmental impacts of the Preferred Alternative between the DEIS and the FEIS. The summary shows that although additional studies have been conducted for topics such as wetlands and wildlife habitat, these studies involved the quantification and elaboration on secondary impacts that were discussed qualitatively in the DEIS. In addition, the design modifications in the development of the Preferred Alternative have served to lessen the adverse natural resource environmental impacts identified in the DEIS (e.g. reduced median width, alignment shift, etc.). Although not shown in Table 1-1, VTrans and FHWA have also substantially increased the proposed mitigation commitments since the DEIS to address wetland and wildlife habitat impacts (see Chapter 18 for a summary).

In conclusion, VTrans and FHWA have not identified any changes in the Preferred Alternative, new circumstances or new information that would result in significant environmental impacts not evaluated in the DEIS. Therefore, preparation of a Supplemental DEIS is not warranted.

**Table 1-1
Changes in the Design and Environmental Impacts of the Preferred Alternative
(Alternative 17) between the DEIS and the FEIS**

| Topic | Changes in Impacts Since the DEIS |
|---------------------------------------|---|
| Design | <ul style="list-style-type: none"> • Easterly alignment shift at Mountain View Road (200 to 300 feet) to avoid a vernal pool and minimize wetland impacts. • Bridge spans at Allen Brook and Redmond Creek to avoid impacts. • Reduced median width to minimize wetland impacts. • Stormwater basins relocated to avoid wetlands. |
| Traffic and Transportation | <ul style="list-style-type: none"> • Analyses of congestion and mobility have not changed. • Safety analysis updated with new data, but the analysis conclusion does not change (e.g. crashes reduced relative to the No Build). |
| Consistency with Local Plans | <ul style="list-style-type: none"> • Comments on the DEIS from Williston favor Circ A/B boulevard concept (Alternative 17) over other alternatives. |
| Parks and Recreational Facilities | <ul style="list-style-type: none"> • No Change |
| Farmland | <ul style="list-style-type: none"> • Negligible increase in acquisitions from a parcel intermittently farmed by lease (owned by the Town of Williston) for stormwater treatment. |
| Property Acquisitions | <ul style="list-style-type: none"> • Increase in property acquisitions to accommodate alignment shift and relocated stormwater basins. However, no residential or business displacements would occur and the total acreage required is minor (7.7 acres). |
| Community Character | <ul style="list-style-type: none"> • No Change. |
| Environmental Justice | <ul style="list-style-type: none"> • No Change |
| Air Quality | <ul style="list-style-type: none"> • No Change |
| Noise | <ul style="list-style-type: none"> • No Change |
| Archaeology and Historic Architecture | <ul style="list-style-type: none"> • No Change |
| Water Resources | <ul style="list-style-type: none"> • Simple method analysis of sediment, nutrient and metal loadings has not changed. Additional analysis of in-stream pollutant concentrations conducted, but does not change the analysis conclusions from the DEIS (no violations of water quality standards expected). Stream mitigation commitments would result in a net beneficial effect on water quality for Allen Brook. • Changes in the Toler analysis deicing salt application rate (EPA recommended the use of the highest rate recorded, instead of the average rate) increases the predicted impacts, but does not change the analysis conclusions from the DEIS (no exceedances of chloride aquatic life toxicity (230 mg/l)). |
| Floodplains | <ul style="list-style-type: none"> • Impacts reduced based on the introduction of a bridge span at Allen Brook and additional detailed analysis using updated floodplain data. |
| Wetlands | <ul style="list-style-type: none"> • Additional analysis conducted to quantify the secondary impacts that were discussed qualitatively in the DEIS. Wetland impacts are reduced compared to the Alternative 17 base design analyzed in the DEIS. |
| Threatened and Endangered Species | <ul style="list-style-type: none"> • No Change |
| Vegetation and Rare Plants | <ul style="list-style-type: none"> • Negligible changes from design refinements. Forest cover impacts reduced. |

| Topic | Changes in Impacts Since the DEIS |
|---|---|
| Wildlife Habitat | <ul style="list-style-type: none"> • Edge effects and fragmentation impacts have been quantified instead of discussed qualitatively. Wildlife habitat impacts are reduced compared to the Alternative 17 base design analyzed in the DEIS. • Intermittent streams delineated as part of a groundwater seep system on the hillside south of I-89 increase the total stream impacts. Impacts to the streams with the most value in terms of supporting aquatic life have been substantially reduced through the use of bridges at Allen Brook and Redmond Creek. • Potential amphibian pools identified through new field work. One potential pool would be directly impacted. Impacts to the highest quality confirmed amphibian pool (Amphibian Pool 1) have been substantially reduced as a result of the easterly alignment shift at Mountain View Road. |
| Hazardous Materials | <ul style="list-style-type: none"> • No Change |
| Visual Resources | <ul style="list-style-type: none"> • Visual prominence lessened through reduction in median width. |
| Infrastructure and Utilities | <ul style="list-style-type: none"> • No Change |
| Energy Consumption and Greenhouse Gas Emissions | <ul style="list-style-type: none"> • Additional analysis conducted, but the overall conclusion has not changed. |
| Construction Impacts | <ul style="list-style-type: none"> • Natural resource construction impacts reduced through design modifications and changes in construction impact estimation assumptions. Other types of construction impacts have not changed since the DEIS. |
| Indirect Effects and Cumulative Impacts | <ul style="list-style-type: none"> • No Change. An additional sensitivity analysis of the Without Segments G-J Scenario was conducted, but it does not change the conclusions regarding the indirect effects and cumulative impacts of the Preferred Alternative on land use patterns and environmental resources. |