

Burlington Essex Rail EA Executive Summary

This Draft Environmental Assessment (EA) provides an evaluation of the potential environmental impacts associated with the Burlington-Essex Rail Project. This document is prepared in conformance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations, as required when federal funding is utilized. Government agencies and individuals with background information and knowledge of potential impacts of the proposed project were consulted in the preparation of this EA. The documentation contained within this Draft EA has been prepared to enable the lead federal agency, in this case the Federal Transit Administration (FTA), the ability to make a finding of impact and to identify any measures that would be necessary to mitigate potential negative impacts of the project. The FTA will review public comments received during the 30-day public comment period in its consideration of impact. If no significant impacts are anticipated, the FTA can issue a Finding of No Significant Impact (FONSI), thus clearing the project under NEPA to move forward. If any mitigation is required to alleviate impacts associated with the proposed project, these measures will be included as part of the FONSI.

ES.1 Background

The concept of the Burlington to Essex Rail project began in the mid-nineteen-nineties when the communities along the corridor requested that the Vermont Agency of Transportation (VTrans) consider the expansion of the then-proposed Charlotte to Burlington rail service to Essex Junction. The Chittenden County Metropolitan Planning Organization (CCMPO) entered into an agreement with VTrans to facilitate the process and initially performed the *Burlington/Essex Passenger Rail Feasibility Study* in 1999, which determined that it was feasible to upgrade the eight-mile New England Central Railroad "Winooski" Branch freight line for passenger service. In accordance with federal transportation guidelines, the CCMPO subsequently conducted a comprehensive alternatives analysis of the Route 15 corridor, which parallels the rail line.

The *Burlington-Essex Corridor Alternative Analysis Phase 1A Report* recommended a multi-modal solution that included commuter rail, feeder bus service, and intersection improvements on Route 15 that was accepted by the CCMPO Board on September 26, 2001. The CCMPO Board formally approved the addition of the Route 15 Corridor Improvement Plan to the Chittenden County Long-Range Transportation Plan on March 20, 2002. The corridor plan serves as an "umbrella" for a number of proposed improvements within the Route 15 corridor and includes the Burlington-Essex Rail Project, along with highway and bike path improvements among others. The region is in the process of scoping "complimentary improvements" as part of the multi-modal recommendation for the Route 15 Corridor. These scoping projects: signal optimization, intersection improvements bike/pedestrian paths to the to the stations, and transit-oriented development planning are not subject to this Environmental Assessment. However, it is anticipated that these projects will proceed on parallel tracks to be constructed within a similar time frame. Separate planning and environmental efforts will be undertaken shortly for these other projects.

ES.2 Project Purpose And Need

The Burlington-Essex Corridor serves as a critical east-west transportation connector, linking some of Vermont's most-populated areas with its largest employers and institutions. Centered on Vermont Route 15, the corridor is critical to the county's social and economic health. The corridor communities (Burlington, Winooski, Colchester, Essex and Essex Junction) currently include 55

percent of the population of Chittenden County and 57 percent of the county's employment. While the population of Chittenden County is projected to increase by 44 percent by 2025, jobs are projected to increase by 53 percent, and daily trips are projected to increase by 60 percent during the same time period. Without action to accommodate the additional trips, this growth will result in slower travel, more hours of congestion, and a lessened quality of life. Route 15 has a limited ability to address the future transportation needs of the corridor. It would be extremely difficult to widen Route 15 to add additional travel lanes throughout the corridor without severely impacting adjacent residential, commercial and institutional properties.

The Burlington-Essex Rail Project utilizes existing transportation infrastructure (the Winooski Branch rail line) and provides an alternative transportation mode that reduces the dependence on the automobile in this critical transportation corridor. By adding commuter rail, along with an integrated feeder bus service, the Burlington Essex Rail Project compliments the existing bus and roadway network. It also increases transit usage in the corridor by shifting some automobile trips to rail and bus.

The project also adds value to the existing transportation infrastructure. It will upgrade the existing Winooski Branch rail line to allow for commuter rail service, in addition to the existing freight service. Without this project, the Winooski Branch would continue to be an underutilized rail resource. The Burlington–Essex Rail Project also adds significant value to the existing Champlain Flyer passenger service. By providing greater access to residential areas and employment centers, the Burlington Essex Rail project adds significant ridership to the overall commuter rail system, contributing more the 60% of the total ridership on the system. The Burlington – Essex project also increases interstate regional connectivity by rail, by connecting the primary rail corridors on the east and west sides of the state.

In addition to its transportation benefits, the Burlington-Essex Rail Project supports state and local land use policies that seek to limit sprawl by locating new development in areas already served by utility and transportation infrastructure. Passenger rail stations for the Burlington-Essex project will be located in designated development areas. They offer the potential for attracting additional pedestrian-friendly, transit-oriented development with rail and bus access to major employers and population centers in the county. The Burlington-Essex Rail Project provides a meaningful opportunity for corridor communities to integrate transportation infrastructure and land use planning in a manner that can reduce dependence on the automobile and encourage “smart growth”.

ES.3 Alternatives Considered

The development of the Preferred Alternative documented in this Draft EA was based on the recommendations of the *Burlington-Essex Corridor Alternatives Analysis Phase 1A Report*, which is incorporated within this Draft EA by reference¹. The CCMPO initiated the Burlington-Essex Alternatives Analysis to explore alternatives for addressing transportation problems in the Route 15 corridor using a variety of transportation modes. Each alternative focused on a particular mode, but all were multimodal to some degree. The Burlington-Essex Corridor Alternatives Analysis considered the following alternatives:

- No-Build Alternative
- Transportation System Management (TSM) Alternative

¹ *Burlington-Essex Corridor Alternatives Analysis Phase 1A Report*, DMJM+HARRIS, August 2001.

- Highway Alternative
- Express Bus Alternative
- Commuter Rail Alternative (hourly and half-hourly service scenarios)

Alternatives were evaluated with respect to transportation performance, cost, environmental impacts and land use impacts.

The Alternative Analysis recommended a multi-modal solution that included commuter rail, feeder bus service, and intersection improvements on Route 15, which has been collectively defined as the Route 15 Corridor Improvement Plan. The Burlington-Essex Commuter Rail project reflects the refinement of the commuter rail alternative developed through the Phase 1A Alternatives Analysis, and includes feeder bus service. The project will not preclude other transportation improvements along the rail corridor, specifically the proposed bike path between Essex Junction and Winooski.

ES.4 Preferred Alternative/Project Description

The Burlington-Essex Rail Project would extend the existing Charlotte to Burlington (Champlain Flyer) commuter rail service from Union Station in Burlington to the IBM facility in Essex Junction. The service will be implemented as a continuation of the Champlain Flyer commuter rail service using existing equipment and maintenance facilities.

The Project consists of improvements to the existing freight rail infrastructure to allow for commuter rail service between Burlington and Essex Junction. This will involve construction of track, grade crossing and structure improvements along the approximately 8 miles of the New England Central Railroad (NECR) Winooski Branch, on the existing alignment and within the right of way (ROW). The Winooski Branch ROW is approximately 100 feet wide, except in the segment along the waterfront between Burlington Union Station and the west end of the Burlington Rail Tunnel under North Avenue. The City of Burlington owns that segment and the NECR operates within a 30-foot wide easement in this area. The State of Vermont will acquire operating rights to the NECR Winooski Branch ROW.

Five new stations are proposed. These stations will be located at Barlow Street, Winooski; in the vicinity of Fort Ethan Allen/Woodside Drive on the Colchester/Essex line; behind the "A&P" on Pearl Street, Essex Junction near the Champlain Valley Exposition (Fairgrounds); at the Essex Junction "Wye," and at the IBM facility. In addition to rail service, feeder bus service operated by the Chittenden County Transportation Authority (CCTA) will be providing bus service to each station.

The project will upgrade the existing single-track Winooski Branch to Class III standards. Grade crossings on the alignment will be improved. The Winooski Branch will also be extended to the east of the "Wye" in Essex Junction, thus avoiding operational conflicts with the NECR mainline. A passing siding will be created south of the Burlington Yard, using the existing track configuration by the drawbridge between Lakeside Avenue and the Canal. A section of new mainline track will be constructed east of the Burlington Municipal Electric Plant to allow the commuter rail to operate without interfering with the existing freight trains that service the facility. Structural improvements include rehabilitation of the Burlington Rail tunnel and improvements to bridges along the ROW.

The total capital cost for the Burlington-Essex Rail Project is estimated to be \$21,244,000. Total annual operating costs are estimated at \$1,920,000.

The Preferred Alternative is illustrated in Figure ES-1.

ES.5 Ridership

The ridership forecast was prepared using the Chittenden County Transportation Model and reflects the Preferred Alternative. The model was adjusted to account for the ridership characteristics of the existing Chaplain Flyer service based on a review of passenger counts provided by VTA. The model does not take into account ridership related to tourism. The results of the ridership forecast, presented in Table ES-1 indicate that the Burlington-Essex service adds substantially to the overall commuter system, increasing ridership by 300 percent in 2005. Ridership by station is presented in Table ES-2.

Table ES-1 Daily Commuter Rail Ridership

	2005	2025
No-Build Alternative (Charlotte-Burlington only)	650	1,305
Build Alternative (Addition of Burlington-Essex)	1,310	1,990
Total	1,960	3,295

Source: Smart Mobility, Inc. and Resource Systems Group, Inc., 2002.

Table ES-2 Daily Ridership by Station

Station	2005	2025
Charlotte	73	205
Shelburne	156	402
South Burlington	206	317
Burlington	499	921
Winooski	336	307
Fort Ethan Allen/Woodside	225	411
Fairgrounds/A&P	85	110
Essex Junction "WYE"	300	440
IBM	80	183
Total	1,960	3,295

Source: Smart Mobility, Inc. and Resource Systems Group, Inc., 2002.

Figure ES-1 – Preferred Alternative

ES.6 Environmental Impacts

This Draft EA identifies the potential impacts of the Burlington-Essex Rail Project for each of the categories required by the Federal Transit Administration (FTA) directive which implements the National Environmental Policy Act (NEPA). In each category, the Preferred Alternative is compared to existing conditions to identify potential for impact. For those categories that evaluate operational impacts such as traffic, the No-Build Alternative is compared to the Preferred Alternative for 2005, the year that the Burlington-Essex rail service is assumed to be operational. The No-Build Alternative includes the existing highway and bus transit system, as well as the Charlotte to Burlington commuter rail service.

The Burlington-Essex Rail Project is being constructed on the existing track alignment, within the existing right of way. Additionally, the stations and associated parking will be located within existing commercial and village centers. As a result, the environmental impacts are minimal for the most part. Noise and vibration have been identified as impacts. Mitigation measures will be implemented to minimize these impacts. Table ES-3 summarizes the environmental analyses presented in this Draft EA. Following the table is a more in-depth discussion of noise and vibration impacts and mitigation.

Table ES-3 Summary of Environmental Impact

IMPACT CATEGORY	SUMMARY	IMPACT FINDINGS
Land Use	<ul style="list-style-type: none"> • The study corridor is more densely developed with commercial and residential uses than either Vermont or Chittenden County and is, therefore, a logical place for commuter rail service. • Implementing commuter rail service along the existing freight rail line and locating stations with access to residences and employment centers addresses the goals of regional and local land use plans. • The total amount of land acquisition necessary is 1.43 acres, and no residences or businesses will be displaced as a result of these acquisitions. • The addition of passenger rail will not divide any existing communities or neighborhoods. • Secondary development that may occur as a result of the commuter rail and its stations is desirable and appropriate in terms of use and location for Chittenden County, Burlington, Winooski, Colchester and Essex Junction. 	Generally not significant
Environmental Justice	<ul style="list-style-type: none"> • The minority and low income population falls significantly below the federal definition of a minority or low income community, where 50% or more of the population would be defined as minority or low income. • Proximity to transit alternatives can improve access for low-income and minority populations to employment and other services, which are also concentrated along the rail corridor. • The corridor does not disrupt any existing communities, land uses or neighborhoods. • The only potential impact is noise/vibration, which will be mitigated. • The majority of these impacted residences, 45 of the 72, are within Essex Junction where the minority population is lower than that of Chittenden County and the low-income population similar to the county. 	Generally not significant
Parklands	The proposed commuter rail corridor is within the existing freight rail ROW and no parkland will be used as a result of this project.	Generally not significant

IMPACT CATEGORY	SUMMARY	IMPACT FINDINGS
Aesthetics	The goal of station area landscaping is to enhance the visual environment and to soften the industrial or commercial character of the surroundings. Landscaping will provide a potential visual benefit.	Generally not significant
Water Resources	The proposed track improvements and stations should not affect flood storage capacity, the natural and beneficial floodplain values or water quality.	Generally not significant
Wetlands	Although wetland systems were identified adjacent to the existing rail corridor, the majority of work is proposed within the existing alignment. The Burlington Power Plant siding and mainline track shift does not impact Intervale wetlands. Essex Junction "Wye" track improvements do not impact the small stream crossing under the railroad embankment.	Generally not significant
Endangered Species	Because the freight railroad ROW has already been disturbed, improvements to the tracks will not present an additional impact to any of the abutting rare or endangered species habitats.	Generally not significant
Farmland Soils	Because of the existing freight rail, soils within the ROW have been disturbed and the proposed project will not impact any active agricultural uses.	Generally not significant
Cultural Resources	<ul style="list-style-type: none"> • An Archeological Phase 1A identification survey and a reconnaissance survey of aboveground historic resources conducted. 9 of 18 project improvement areas identified as sensitive to contain archeological resources. • Two options for stabilizing the Burlington Rail Tunnel have been developed that will not impact the tunnel's visual or structurally significant historic character. 	The State Historic Preservation Officer (SHPO) concurs with Determination of No Adverse Effect finding for tunnel stabilization options. SHPO will review/approve final stabilization proposal, and archeological/historic survey report.
Traffic	The analysis of traffic impacts included intersections near stations for the No-Build and Preferred Alternatives. All study area intersections operate at the same LOS with station-related traffic as they do under the No-Build Alternative. A signal activated during peak PM hours is recommended for the Park Street School driveway (Essex Junction "Wye" Station parking) allow exiting vehicles easier access to Park Street.	Generally not significant
Air Quality	Compared to other sources of air pollution in Chittenden County such as motor vehicles, utilities, and industrial facilities, the increase in emissions due to the proposed project (0.7 tpy of VOC, 23.9 tpy of NOx, and 2.4 tpy of CO) are not significant and will not adversely affect the health or welfare of the general public.	Generally not significant
Noise and Vibration	<ul style="list-style-type: none"> • Quiet Zone grade crossing option has <u>no severe</u> impacts. Corridor-wide, noise predicted to exceed FTA <i>impact</i> criteria at 72 residential locations. • Wayside Horn grade crossing option exceeds FTA <i>severe impact</i> criteria at 20 residential locations. Corridor-wide, noise predicted to exceed FTA <i>impact</i> criteria at 141 residential locations. • Use of continuously welded rail minimizes vibration levels. • Vibration impacts are related to annoyance effects – no-building damage. Corridor-wide, vibration predicted to exceed FTA criteria at 11 residences/2 commercial buildings. 	<u>Mitigation</u> <ul style="list-style-type: none"> • Primary noise mitigation measure is "quiet zones to eliminate horn noise at grade crossings. All <i>severe</i> impacts eliminated. • Other recommended mitigation measures include noise barriers, sound insulation, and ballast mats. Mitigation measures to be more fully defined during project design.
Safety and Security	Project will be designed for safety at stations and grade crossings	Generally not significant
Hazardous Materials	Based on a record review, no potential contamination due to oil and hazardous materials has been found within the ROW or station sites to be improved or acquired.	Generally not significant

IMPACT CATEGORY	SUMMARY	IMPACT FINDINGS
Construction Impacts	Construction will be managed to minimize air, noise and other impacts to the adjacent community.	Generally not significant
Energy Requirements/ Conservation	The commuter rail service provides more transportation alternatives to the residents of Chittenden County and the increase in fuel usage from the Burlington to Essex commuter rail service is proportionally small when compared to the overall fuel usage from automobile trips within the rail corridor.	Generally not significant

ES.7 Nose and Vibration Impacts and Mitigation

Noise and vibration impacts were assessed according to FTA guidelines. The FTA noise criteria are delineated into two categories: **impact** and **severe impact**. The **impact** threshold defines areas where the change in noise is noticeable but may not be sufficient to cause a strong, adverse community reaction. The **severe impact** threshold defines the noise limits above which a significant percentage of the population would be highly annoyed by new noise. The level of impact at any specific site can be established by comparing the predicted project noise level at the site to the existing noise level at the site.

ES.7.1 Analysis of Noise Impacts

Noise impacts associated with train operations were evaluated under two different options for grade crossings as described below:

Quiet Zone Option - Under the Quiet Zone Option, commuter rail operations along the Burlington-Essex Corridor would include wayside warning horns at only one grade crossing along the project corridor, College Street in downtown Burlington. Quiet zones, which include residential areas without any warning horn usage, would be in effect at all other grade crossing along the project corridor.

Wayside Horn Option - Under the Wayside Horn Option, commuter rail operations would include stationary wayside warning horn usage at all grade crossings along the Burlington-Essex Junction Corridor.

Corridor-wide impacts from train operations were evaluated at all noise-sensitive receptors. The screening procedure considered a screening distance of 1,000 feet to determine the number, location, and land-use types of noise-sensitive receptors along the project corridor, which starts at Burlington Union Station and extends to Essex Junction. Based on the screening distances, over 1,800 receptor locations were identified along the project corridor and included in the modeling analysis. These receptor locations include single- and multi-family residences, hotels, schools, churches, parks, and historic resources.

Noise impacts for the project under the two grade crossing options are predicted to be as follows:

Quiet Zone Option – There are no **severe impacts** associated with train operations under the Quiet Zone Option. Overall, corridor-wide project noise levels are predicted to exceed the FTA Category 2 Land-Use **impact** criteria at 72 locations. No exceedances of the FTA Category 1 or 3 Land-Use criteria are predicted under the Quiet Zone Alternative. Noise impacts are dominated by diesel locomotive passbys particularly at those receptor locations closest to the proposed commuter rail alignment.

Wayside Horn Option - Overall, corridor-wide project noise levels are predicted to exceed the FTA Category 2 Land-Use *impact* criteria at 141 locations and the *severe impact* criteria at 20 locations. No exceedances of the FTA Category 1 or 3 Land-Use criteria are predicted under the Wayside Horn Alternative. Noise impacts under the Wayside Horn Alternative are dominated by the wayside warning horns and diesel locomotive passbys.

Table ES-4 contains a summary of the noise impacts by community for both options.

Table ES-4 Summary of Predicted FTA Noise Impact Counts

Corridor Section	Impact Criteria Category	Grade Crossing Option			
		Quiet Zone		Wayside Horn	
		Cat. 2	Cat. 3	Cat. 2	Cat. 3
Burlington	<i>Impact</i>	2	0	1	0
	<i>Severe Impact</i>	0	0	1	0
	Sum	2	0	2	0
Winooski	<i>Impact</i>	25	0	65	0
	<i>Severe Impact</i>	0	0	7	0
	Sum	25	0	72	0
Colchester	<i>Impact</i>	0	0	0	0
	<i>Severe Impact</i>	0	0	0	0
	Sum	0	0	0	0
Essex Junction	<i>Impact</i>	45	0	76	0
	<i>Severe Impact</i>	0	0	13	0
	Sum	45	0	89	0
Totals	<i>Impact</i>	72	0	142	0
	<i>Severe Impact</i>	0	0	21	0
	Sum	72	0	163	0

Source: KM Chng Environmental, 2002.

Note:

1. FTA land-use categories include residential (Cat. 2) and institutional (Cat. 3) receptors. There were no FTA Category 1 receptors (serene parks) identified along the project corridor.

ES.7.2 Analysis Of Vibration Impacts

Vibration impacts were determined for the train operations. (The grade crossing options do not affect vibration impacts.) As part of the project alternative, continuously welded rail is proposed along all sections of the commuter rail alignment. As a result, predicted vibration levels are expected to be minimized and below the FTA impact criteria for 'infrequent' events at most of the FTA Land-Use Category 1, 2, or 3 receptors identified along the project corridor. However, overall corridor-wide exceedances of the FTA vibration impact criteria are predicted to occur at 11 FTA Category 2 Land-Use receptors and 2 Category 3 Land-Use receptors as a result of commuter rail train passbys. Similarly, exceedances of the FTA ground-borne noise impact criteria are predicted to occur at 25 FTA Category 2 Land-Use receptors and 2 Category 3 Land-Use receptors (See Table ES-5). All of these impacts are related to annoyance effects and not to building damage effects.

Table ES-5 Summary of Predicted Vibration Impact Counts

Corridor Section	Commuter Rail Alternative			
	RMS Vibration		Ground-Borne Noise	
	Cat. 2	Cat. 3	Cat. 2	Cat. 3
Burlington	0	0	0	0
Winooski	6	2	15	2
Colchester	0	0	0	0
Essex Junction	5	0	10	0
Totals	11	2	25	2

Source: KM Chng Environmental, 2002.

Note:

1. FTA land-use categories include residential (Cat. 2) and institutional (Cat. 3) receptors. There were no FTA Category 1 receptors (serene parks) identified along the project corridor.

ES.8 Mitigation

ES.8.1 Noise Mitigation

The primary noise mitigation measure will be the adoption of “quiet zones” as defined in Section 3.12.3 to eliminate horn noise at grade crossings. This will eliminate the most significant noise source and all *severe impacts* associated with train operations on the Burlington–Essex corridor.

At those locations where exceedences of the FTA criteria for *impact* are predicted, other mitigation measures will be considered. These include wayside noise barriers, which may include earthen berms, walls, vegetated buffers, or a combination thereof. The use of noise barriers is recommended at the following approximate locations as shown in Table ES-6. The location and design of noise barriers will be further investigated during design.

At locations where barriers would not be feasible due to aesthetic or cost-effectiveness considerations, or property-owner objections, sound insulation of the affected noise sensitive buildings will be considered as an alternative mitigation measure. If warranted, such treatments will be investigated during the design phase of the project.

ES.8.2 Vibration Mitigation

To eliminate or minimize the vibration impacts predicted along the project corridor, the following mitigation measures are recommended including:

- Operating limitations such as speed reductions over the switches;
- Strategic placement of switches and crossovers away from vibration-sensitive receptors; and
- The use of vibration dampening materials, such as ballast mats, under switches in vibration-sensitive locations.

Table ES-6 Recommended Noise Mitigation Along The Commuter Rail Alignment

NECR Mile Posts		Corridor Location	Barrier Description	
From	To		Dimensions	Location
North of Commuter Rail Corridor				
2.72	2.99	Winooski	10 ft x 1,400 ft	Bet/Clifford & Hemlock Streets
7.38	7.46	Winooski	10 ft x 400 ft	Parallel to Cherry Street
7.47	7.68	Essex Junction	10 ft x 1,100 ft	Bet/Summit and School Streets
South of Commuter Rail Corridor				
2.72	2.99	Winooski	10 ft x 1,400 ft	Parallel to West Allen Street
3.25	3.35	Winooski	10 ft x 500 ft	Bet/Main & Barlow Streets
6.93	7.17	Essex Junction	10 ft x 1,300 ft	Near Killoran & Loubier Drives
7.25	7.46	Essex Junction	10 ft x 1,100 ft	Parallel to Cherokee Avenue
7.47	7.64	Essex Junction	10 ft x 900 ft	Parallel to Cherokee Avenue near Orchard Terrace
7.85	8.08	Essex Junction	10 ft x 1,200 ft	North of proposed "Riverside in the Village" development.