



# Montpelier - St. Albans

## Commuter Rail Feasibility Study



# Legislative Directive

H.488 – Sec 11.

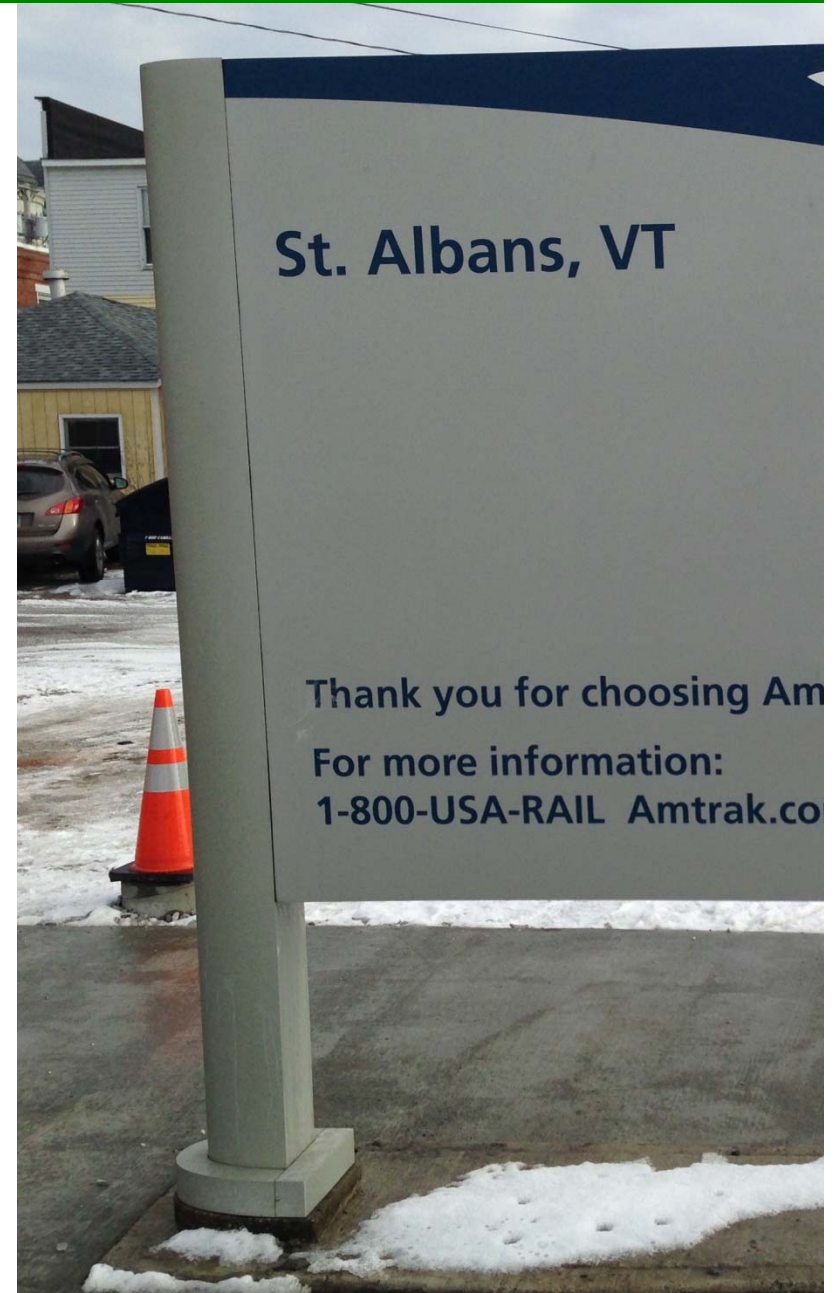
“Study the financial and operational feasibility of a commuter rail service in the corridor between St. Albans, Essex Junction, and Montpelier, with connecting service to Burlington”

## Scope of Study

- Determine the feasibility of implementing a commuter rail system within the corridor
- Estimate the time horizon to plan for and design the service
- Estimate ridership potential
- Estimate costs for operations and capital acquisition; and
- Identify any other general operational, capital, legal, and administrative requirements.

# Process

- Study start in Spring 2016
- HDR was the consultant that developed the study
- SAC Meetings in June & October
- Public Meetings in Burlington & Montpelier in April & December





# Commuter Rail Overview

# COMMUTER RAIL OVERVIEW

## Regional Mobility

- Connect Population Centers to Employment Hubs – Bring Commuters to the City, Not Act as a Distributor
- Key Transportation Mode in areas with Heavy Road Congestion and Limited Parking
- Provides Faster Travel than City Transit (Bus, Subway, Light Rail) but Slower than Intercity Service (Amtrak)
- Stations Are Spaced a Minimum of 2-Miles Apart



# COMMUTER RAIL OPERATIONS

- May Share Right-of-Way with Freight and Intercity Trains
- Systems Typically Operate at Speeds below 79 MPH
- Equipment and Infrastructure Must Meet Federal Railroad Administration and Federal Transit Administration Standards



# PASSENGER EXPERIENCE

- Services Focused on Peak Arrival and Departure Times
  - AM Peak: 6:00 -10:00
  - PM Peak: 3:30 - 7:00
- Fares Typically Depend on Distance Traveled
- Most Stations Feature Parking and Covered/Enclosed Waiting Areas
- Connecting Services to Provide Distribution in Central Area



# Existing Commuter Rail

## North American Commuter Systems





# CASE STUDY: MUSIC CITY STAR

Metro Area: Nashville, TN

- Population: 1.8 million
- Daily Ridership: 1,225
- Length: 6 Stations, 32 miles
- Service: Monday-Friday with 5 Daily Roundtrips
- Annual Financial Support: \$13 Million

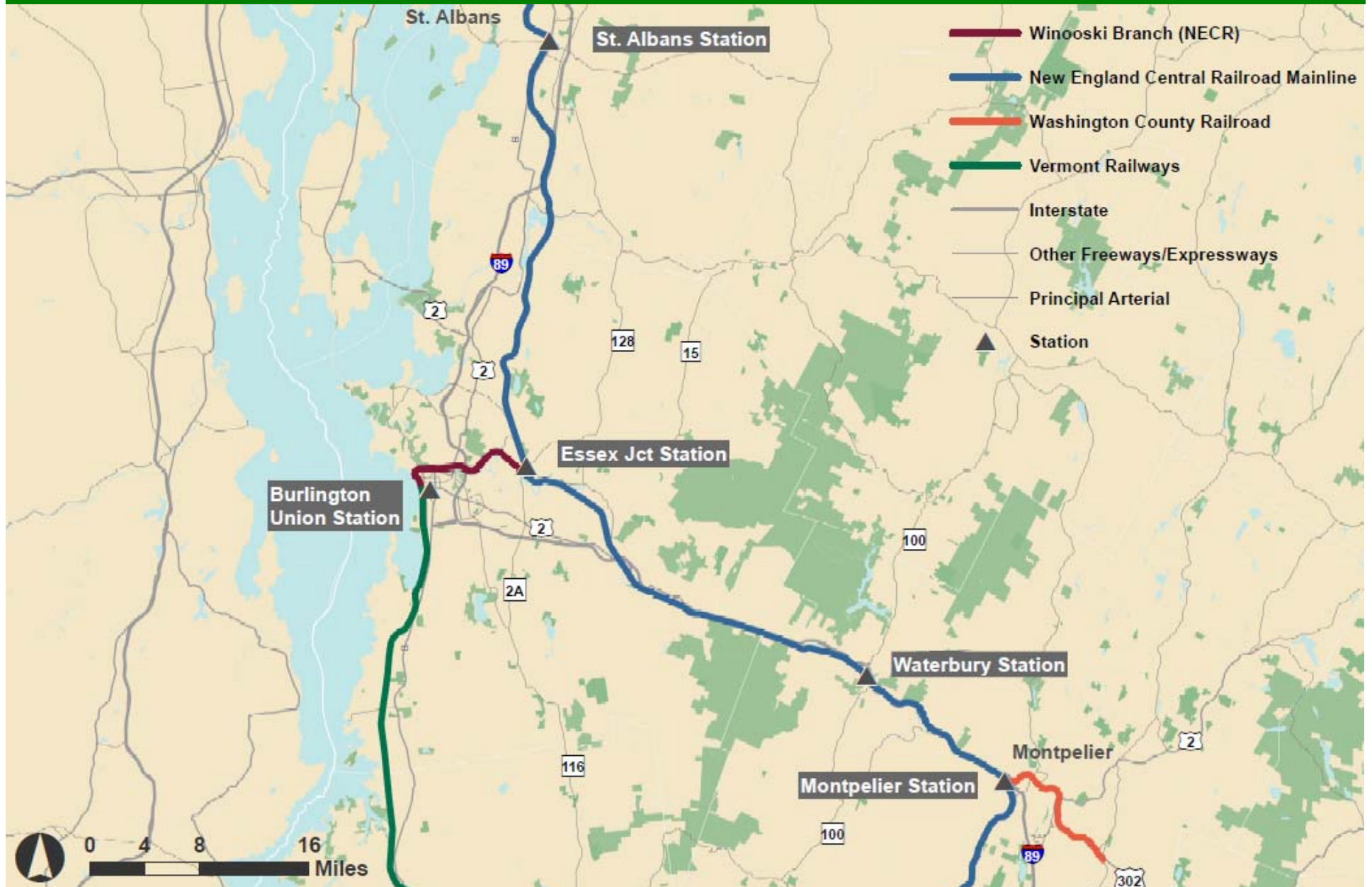


*\*Photo and Map: Music City Star Website*



# Study Area Existing Conditions

# EXISTING CONDITIONS: RAIL CORRIDORS





# Conceptual Operations Analysis

- Lines & Stations
- Two Conceptual Schedules
- Travel Demand

# CONCEPTUAL OPERATIONS: LINES



# CONCEPTUAL OPERATIONS: SCHEDULE

## Schedule 1: Limited Peak Service: 6 Roundtrips to Burlington

- 2 from St. Albans
- 4 from Montpelier
- Reverse commuting options to Montpelier
- Comparable to the Champlain Flyer

## Schedule 2: Comprehensive Peak Service: 11 Roundtrips

- 4 from St. Albans
- 7 from Montpelier
- Comparable service levels to the existing LINK Bus
- Could accommodate some off-peak service

# TRAVEL DEMAND: ANALYSIS & FINDINGS

Segment	Direction of Commute	Total Daily Commuters
Montpelier to Burlington	Northbound	1,737
Burlington to Montpelier	Southbound	1,096
	Segment Total	2,833
St. Albans to Burlington	Southbound	4,433
Burlington to St. Albans	Northbound	548
	Segment Total	4,981
	Regional Total	7,814

# TRAVEL DEMAND: ANALYSIS & FINDINGS

Segment	Total Demand	Champlain Flyer (12% Capture)	LINK Bus (25% Capture)
Existing	7,814	930	1,835
2030 Low Growth	8,664	1,040	2,090
2030 High Growth	9,175	1,100	2,210



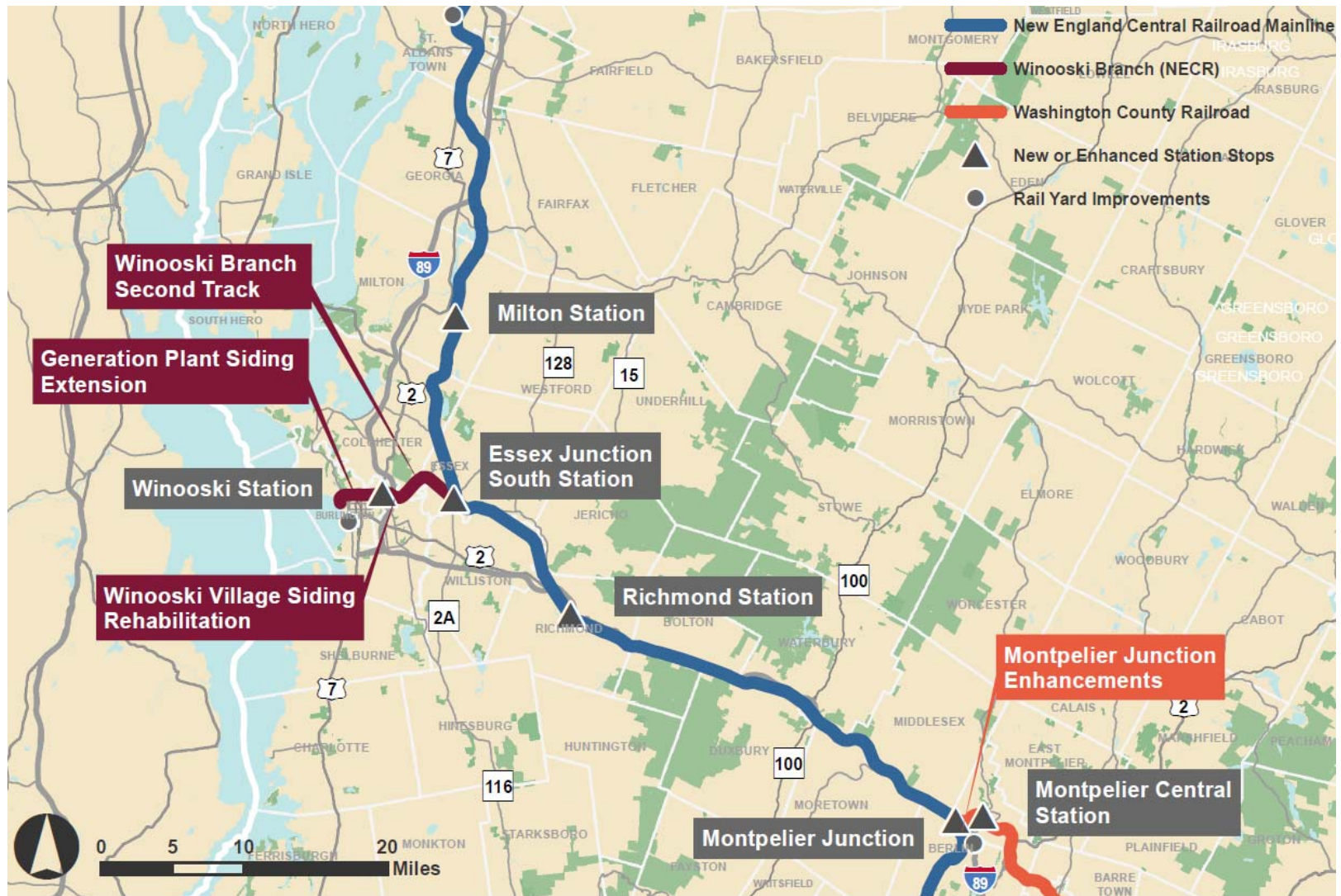


# Conceptual Costs

- Infrastructure
- Equipment
- Operations & Maintenance

# CONCEPTUAL COSTS: INFRASTRUCTURE IMPROVEMENTS

## Corridor-Wide Infrastructure Improvements



# CONCEPTUAL COSTS: EQUIPMENT

- Assume new rolling stock equipment
- Potentially second hand from another service provider if available
- New equipment must meet U.S. Department of Transportation (USDOT) Standards
- Equipment Technology Considerations



# CONCEPTUAL COSTS: CAPITAL SUMMARY

Unit	Unit Cost	Unit Quantity	Total Cost
Standard Cost Per Mile for Rehabilitation (Track, Signal, Bridge improvements)	\$2.5 Million/Mile	9.4 Miles	\$23.5 Million
Cost for New Track Infrastructure	\$2.8 Million/Mile	4.1 Miles	\$11.5 Million
Signal and Communications Equipment for NECR Mainline	\$1 Million/Mile	56 Miles	\$56 Million
New Station Development	\$8 Million/Station	6 New Stations	\$48 Million
Infrastructure Subtotal			<b>\$139 Million</b>
Trainsets	\$27 Million/Trainset	6-7 Trainsets	\$162-189 Million
PTC Implementation (Schedule 2 Only)			\$35 Million
Corridor Total			<b>\$301-363 Million</b>

# CONCEPTUAL COSTS: OPERATIONS & MAINTENANCE

Cost/Mile	Schedule 1	Schedule 2
Train & Equipment Maintenance	\$720,000	\$1,320,000
Crew/Material/Fuel	\$3,600,000	\$6,530,000
Corridor Access Rights	\$250,000	\$450,000
Service Overhead/Management Costs	\$330,000	\$600,000
Total Annual Operating Costs	\$4,900,000	\$8,900,000

# CONCEPTUAL COSTS: REVENUE

Commuter Rail-Type Distance Based Zones: \$0.114 cost per mile, similar to Montpelier LINK bus service cost per mile.

## Example Fares

Origin	Destination	One-Way Fare	Monthly Fare
Montpelier Junction	Burlington Union Station	\$4.62	\$186.73
Richmond	Essex Junction	\$1.03	\$155.21
St. Albans	Burlington Union Station	\$3.65	\$43.26
Milton	Winooski	\$1.82	\$76.61

# IMPLEMENTATION OPTIONS: PHASING

Option	Capital Cost	Operating Cost	Annual Operating Support	Daily Transit Demand
Option 1 – Corridor-wide Service with Schedule 1	\$301 Million	\$4.9 Million	\$3.7 Million	930
Option 2 – Corridor-wide Service with Schedule 2	\$363 Million	\$8.9 Million	\$6.5 Million	1,835
Option 3 – St. Albans Line - only Service with Schedule 2	\$164 Million	\$2.8 Million	\$1.4 Million	1,140
Option 4 – Montpelier Line Service-only with Schedule 2	\$249 Million	\$6.1 Million	\$5.1 Million	695



# Implementation Considerations & Framework



# IMPLEMENTATION CONSIDERATIONS

## Governance

- **State Chartered Rail Authority** to oversee governance and management of the system.
- Selection of a **Commuter Rail operator** to run daily services.
- Identification of **Funding Source** for Capital and Operations
- **Federal labor requirements** could increase the cost for the first three years of operations.

## Funding

- Sources for local funding could include **municipal, state, and private sources**.
- The Federal Government provides some formula and discretionary funding for capital and operating, including **Federal Transit Administration** and **Federal Railway Administration**.

# IMPLEMENTATION FRAMEWORK: COMPARISON

## Existing Operations

- Annual operating costs are less than \$1 Million
  - Montpelier LINK: \$615,000
  - St. Albans LINK: \$190,000
- Annual Transit Operations Cost in Vermont approximately \$40m
- Capital Cost: **Unclear**, but will include bus replacement and potential maintenance facility rehabilitations.

## Conceptual Commuter Rail Operations

- Annual operating costs are \$5-9 Million
  - Montpelier Line: \$6.1 Million
  - St. Albans Line: \$2.8 Million
- Capital Cost: **\$301-363 Million**
  - Montpelier Line: \$249 Million
  - St. Albans Line: \$164 Million

# IMPLEMENTATION FRAMEWORK: NEXT STEPS

- Service Option Choice
- Legislative approval
- Governance and Funding Determination
- Host Railroad and Service Operator Agreements
- Final Schedules
- Engineering and Rolling Stock Procurement

# CONTACT

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<http://vtrans.vermont.gov/docs>

