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Chapter 1: Introduction

The towns of Hinsdale and Winchester in New Hampshire and Brattleboro, Vermont, while located in different states and separated by the Connecticut River, are part of the same regional economy. Residents on both sides of the river work for the same employers, visit similar doctors and medical facilities, shop at the same places and share recreational opportunities. While NH Route 119 (“NH 119”) links Hinsdale, Winchester, and Brattleboro, public transportation service between the communities is limited. Local transit services in Cheshire County, NH are focused in the City of Keene and do not offer regional connections. The Brattleboro area does have some transit services, primarily within Vermont as well as a short cross-border service to the Walmart store in Hinsdale. The objective of the study is to assess the need for and feasibility of public transportation services in the NH 119 corridor between Brattleboro, Hinsdale, and Winchester.

Another important motivator for the study is the planned relocation and expansion of the Hinsdale Walmart store. The store is currently located about one quarter-mile from downtown Brattleboro, on the east side of the Connecticut River where it is served six times per day by the Brattleboro Beeline. Walmart has plans to move the store several miles east, closer to the center of Hinsdale and expand its facilities into a “superstore”. Once the store is relocated, existing bus service will not be able to serve the new location within its allotted schedule. Furthermore, many of the Brattleboro residents who currently walk to the store will need to find new ways to travel. Additionally, the expanded store will increase corridor employment and demand for travel to the site. The impact of the expanded and relocated Walmart store on local travel options and bus services is central to this analysis.

The New Hampshire Southwest Regional Planning Commission (SWRPC) retained Nelson\Nygaard Consulting Associates to study the corridor, examine the market for and feasibility of public transportation services along NH 119, and recommend reasonable and appropriate service options. Nelson\Nygaard worked under the guidance and direction of a Stakeholder Committee comprised of representatives from the SWRPC; the towns of Brattleboro, Hinsdale, and Winchester, Windham Planning Commission, Hinsdale Economic Development and Industrial Corporation, Southwestern Community Services, Walmart stores, the Brattleboro Memorial Hospital, and the NH State Legislature. This report documents the study process, findings and recommendations.

Working together, the Stakeholder Committee and Nelson\Nygaard (“the study team”) conducted this study by examining available information pertinent to the corridor, including existing plans, documents and studies, ridership data from the Brattleboro Beeline and demographic data available through the US Census. The study team also conducted surveys among residents and employers using a combination of methods; paper surveys were completed by residents of Hinsdale and Winchester when entering Town Meeting day activities in early March 2009. Corridor employers were surveyed by telephone; employers were also urged to distribute surveys to employees, most of these surveys were completed electronically. A final data collection effort included a survey among Brattleboro Beeline passengers using the existing service to Walmart. Building on the data analysis, the study team discussed potential service alternatives. These options were subsequently evaluated in terms of their ability to meet needs of survey respondents, attract ridership, and indicative operation costs. Through this process, a final recommendation was identified and is documented in this report.
This technical memo is organized into eight chapters immediately following this introductory chapter, including:

Chapter 2: Overview of Study Corridor – describes the study corridor and demographic characteristics. Also includes overview of previous plans and studies.

Chapter 3: Assessment of Travel Patterns and Service Needs – presents an analysis of the existing travel patterns in the corridor and types of services needed.

Chapter 4: Markets for Public Transportation – describes the potential markets for public transportation services in the corridor and their service requirements.

Chapter 5: Service Design Options – discusses the different types of public transportation services that have application in the corridor, given the corridor characteristics.

Chapter 6: Evaluation of Service Alternatives – evaluates the cost and benefits associated with recommended range of alternatives.

Chapter 7: Plan for Priority Alternative – lays out the plans for the recommended alternative.

Chapter 8: Overview of Funding Opportunities – provides an overview of the different types of funding sources that may be available for the recommended alternative.
Chapter 2: Overview of the Study Corridor

NH 119 connects Vermont and Massachusetts through southern New Hampshire. It extends less than one mile into Vermont, but provides nearly 40 miles of roadway in New Hampshire where it continues southeast to the Town of Ashburnham in Massachusetts. The portion of the corridor that is of interest for this project is the roughly 15 miles stretch that connects the three towns of Brattleboro, Vermont, Hinsdale, New Hampshire (NH), and Winchester, NH (see Figure 1).

Figure 1: Study Corridor

Corridor Demographics
Demographic characteristics are important to understanding the feasibility of transit services. Total population indicates the overall size of the potential market for service, and the location of residents along the corridor indicates likely travel patterns. The demographics of the population are also important because some demographic characteristics can be associated with an increased likelihood of using transit. In general, the most common demographic characteristics suggesting a propensity to use public transit include age (i.e. youths aged 5 to 19, older adults aged 65 and over), persons with a disability, and persons with low income1.

1 Definitions for persons with a disability and persons with low income are consistent with those adopted by the US Census.
The study corridor, inclusive of Brattleboro, Hinsdale, and Winchester has a population of about 20,000 residents. Brattleboro is the largest community with approximately 12,005 residents, more than twice the population for Hinsdale and Winchester, which have 4,082 and 4,144 residents respectively (2000 US Census). While Hinsdale and Winchester have smaller populations, local data suggest that these communities grew slightly between 2000 and 2007 (Over the seven year period, Hinsdale grew by 2.2% and Winchester grew by 3.3%). Brattleboro, on the other hand, lost 3.6% of its population during the same period.

In terms of corridor demographics, all three communities have representation from each of the three populations typically associated with a propensity to use transit (age, disability, and low income) (see Figures 2 and 3). This data shows there are a relatively high number of older adults, persons with disabilities, and persons with low income living along the corridor overall. Brattleboro has the highest absolute number of older adults, but all three towns have a similar proportion of older adults in their community. Census data shows a relatively high proportion of the population includes persons with disabilities, with between 21% (Hinsdale) and 27% (Winchester) of all residents. Brattleboro has the highest proportion of individuals with low income with slightly less than 26% of its population; while in Hinsdale 13% of the residents meet this criterion.

Figure 2: Demographic Characteristics Associated with High Transit Propensity by Town (Absolute Numbers)

<table>
<thead>
<tr>
<th></th>
<th>Total Population</th>
<th>Youths Aged 5-19</th>
<th>Adults Aged 65+</th>
<th>Persons with Disabilities</th>
<th>Low Income*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brattleboro</td>
<td>12,005</td>
<td>2,314</td>
<td>1,997</td>
<td>2,563</td>
<td>3,021</td>
</tr>
<tr>
<td>Hinsdale</td>
<td>4,082</td>
<td>938</td>
<td>498</td>
<td>803</td>
<td>528</td>
</tr>
<tr>
<td>Winchester</td>
<td>4,144</td>
<td>900</td>
<td>588</td>
<td>1,035</td>
<td>848</td>
</tr>
<tr>
<td>Total</td>
<td>20,231</td>
<td>4,152</td>
<td>3,083</td>
<td>4,401</td>
<td>4,397</td>
</tr>
</tbody>
</table>

Source: 2000 US Census
Note: * Defined as 150% of federal poverty.

Figure 3: Demographic Characteristics Associated with High Transit Propensity by Town (Proportion within each Town and statewide for NH and VT)

<table>
<thead>
<tr>
<th></th>
<th>Youths Aged 5-19</th>
<th>Adults Aged 65+</th>
<th>Persons with Disabilities</th>
<th>Low Income*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brattleboro</td>
<td>19.3%</td>
<td>12.5%</td>
<td>22.9%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Vermont</td>
<td>21.7%</td>
<td>12.7%</td>
<td>17.1%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Hinsdale</td>
<td>23.0%</td>
<td>12.2%</td>
<td>20.8%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Winchester</td>
<td>21.7%</td>
<td>14.2%</td>
<td>27.1%</td>
<td>20.9%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>21.7%</td>
<td>12.0%</td>
<td>16.9%</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

Source: 2000 US Census
Note: * Defined as 150% of federal poverty.

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3 Ibid.
4 New Hampshire Employment Security Data (for NH growth rates) and Vermont Center for Rural Studies, population updates to 2000 Census (for VT growth rates).
Employment
Understanding employment is also essential to assessing transit potential because commuters tend to have regular, predictable travel patterns that can be conducive to transit use. Consequently, we looked at the amount and type of employment in the corridor.

Despite its rural nature, NH 119 between Brattleboro and Winchester has a healthy employment base that includes several medium-sized employers: Walmart, Plumb Pak, Continental Cable Company\(^5\), Clear Solutions\(^6\), HCP Packing\(^7\), Harborside Applewood, Kulick’s Market and Shopping Plaza, and Winchester Roll Products. These employers are mapped in Figure 4, together with employers located along another regional employment corridor, north of downtown Brattleboro along Putney Road. Transit service along NH 119 would connect to service operating along Putney Road in downtown Brattleboro, increasing the amount of employment accessible via public transit.

Figure 4: NH 119 Corridor Employers and Major Trip Generators

\(^5\) Located in Hinsdale Tax Increment Financing District.
\(^6\) Ibid.
\(^7\) Ibid.
Existing Public Transportation Services
As discussed, there are no public transportation services that span NH 119. There are, however, local and regional transit services in Vermont and ridesharing services under development in New Hampshire. An overview of these services is provided in the following text.

Brattleboro Beeline
Limited public transportation service in the NH 119 corridor is provided by the Brattleboro Beeline. This service includes six trips a day between the Brattleboro Transportation Center and the existing Walmart, with six trips per day from the Brattleboro Transportation Center en route to Walmart scheduled at 8:50, 9:50, and 10:50 in the morning and 3:50, 4:50, and 5:50 in the afternoon. The distance is approximately three-quarters of a mile and the trip takes about 5 minutes on the bus. The fare is $1.00 for a one-way trip, with discounts available for bulk purchases. Reduced fares are also available to students and children. In fiscal year 2008, an estimated 2,975 passengers used transit to travel to Walmart, or an average of two riders per trip.

Beeline service to Walmart is part of extended local transit services available in Brattleboro. All Beeline service connects at the Brattleboro Transportation Center; this connection facilitates transfer opportunities to other destinations, including the cluster of employment north of Brattleboro along Putney Road near Exit 3. Transfers also provide connections west of downtown Brattleboro to Westgate Village and into the Brattleboro neighborhoods south of Main Street, including the Brattleboro Memorial Hospital.

American Red Cross NH West Chapter
The American Red Cross NH West Chapter manages a volunteer driver fleet that provides medical appointment and shopping trips across southwestern New Hampshire, including Hinsdale and Winchester. Anecdotal reports indicated that this service is overbooked in the Hinsdale and Winchester area, and the Red Cross finds it challenging to recruit drivers and keep up with demand.

Home Healthcare Hospice and Community Services
The Home Healthcare Hospice and Community Services located in Keene, New Hampshire, uses its “Friendly Bus” to take residents of the Winchester senior housing to and from a congregate meal site at the Hinsdale Community Center. This service is available to residents once a month.

Regional Transportation Services
Additional public transportation services available in Brattleboro are provided by Connecticut River Transit (CRT), including commuter, dial-a-ride, and medical transportation. CRT’s commuter service operates between Brattleboro and Bellows Falls via Putney and Westminster with four round trips per day (two morning and two afternoon departures per direction). CRT also operates demand response dial-a-ride (DAR) service for older adults and persons with disabilities; these individuals may travel between Brattleboro and neighboring communities in Wyndham County. Medical transportation (Medicaid) is available for qualifying individuals traveling to/from medical appointments. DAR and medical transportation services must be scheduled 24 hours in advance.

The Deerfield Valley Transit Association, “The MOOver” provides connecting bus service from Brattleboro to Wilmington, Vermont. This route stops at the Brattleboro Transportation Center and the Amtrak Station and Marlboro College in Brattleboro. The route operates year-round on weekdays with four trips per day. During the winter ski season, there are also two trips per day on Saturdays and Sundays.
Amtrak also provides daily rail connections via the Vermonter service. The Vermonter travels between St. Albans, Vermont and Washington, DC, serving several locations including Burlington Vermont, New York City, and Philadelphia. The Vermonter service stops in Brattleboro twice a day; once heading northbound and once heading southbound.

Several regional inter-city bus carriers, including Vermont Transit, stop in Brattleboro as part of their regional service networks. Bus service primarily offers connections to/from large airports, including Boston's Logan Airport, Hartford's Bradley Airport, and John F. Kennedy Airport in New York City.

New Public Transportation Services
Stemming from recommendations included in the SWRPC Route 10 Job Access Study, the Contoocook Valley Transportation Cooperative (CVTC) in Peterborough, NH received grant funding for a mobility manager position. This individual will promote ridesharing opportunities in the Monadnock Region; an area that covers Cheshire County and western Hillsboro County, including Hinsdale and Winchester. The grant also included funding for a Guaranteed Ride Home program to assure individuals traveling by carpool or vanpool that they can get an immediate ride home in case of emergency or special situation. Although the mobility manager position and Guaranteed Ride Home programs are new programs, they offer potential to support public transportation service in the corridor.

Review of Existing Plans and Studies
As part of the feasibility analysis, the study team reviewed previous plans, reports and documents relevant to the study corridor to learn from previous work conducted in the corridor and understand previously documented needs for public transportation. Reports reviewed to date include the Southwest Regional Transportation Plan (2007); the Coordinated Community Transportation Plan for Southwest New Hampshire (December 2006); the Traffic Impact and Access Study for Proposed Retail Development in Hinsdale NH (June 2007); and the Route 10 Job Access Study (December 2008). In addition, a limited number of interviews were conducted with members of relevant organizations. Key findings from these documents are presented below, organized by key topic:

Corridor Demographics
- The Southwest Regional Transportation Plan included an analysis of population, housing and transit needs in the corridor. This study documented that population in the corridor has grown: between 1980 and 2005, population increased by 17.5% in Hinsdale and 24.5% in Winchester. The number of housing units increased by 35.8% and 39.6% in Hinsdale and Winchester respectively.
- This same study also shows that the Town of Winchester has the second highest concentration of low income and assisted housing units in Cheshire County.
- The RTP also mapped transit needs (see Figure 5). While not the highest need in the region, NH 119, needs are shown in both Winchester and Hinsdale.
- The Route 10 Job Access Study identified a number of cluster residential areas made up of low income groups including apartment complexes, affordable housing developments, senior housing, mobile home parks, and village neighborhoods. These clusters are in addition to the housing identified in Figure 5.
Transit Needs and Service Gaps

- Fixed-route transit in southwestern NH is only available in the City of Keene. A limited number of inter-city bus services are also available from the Keene Transportation Center.

- There are two findings and recommendations in the Southwest Regional Transportation Plan that encourage public transportation services:
  - Strengthen multi-modal links and maintain regional connectivity, and
  - Set the framework for expansion of services and infrastructure to serve the mobility and accessibility needs of those without personal transportation.

- The Coordinated Community Transportation Plan identifies a strong need for community transportation in Hinsdale.

- The Route 10 Job Access Study also identified a clear need of transportation options for people living in Winchester.

Evaluation of Proposed Development in Corridor (Walmart)

- A traffic analysis was examined on proposed retail development along NH 119 north of the Hinsdale Greyhound Park. The project includes a Walmart Supercenter and two outparcels.
The new Walmart will include a 162,000 square foot Supercenter with a supermarket and garden center, and two outparcels which may be developed a future date. Potential uses include a bank, restaurant, or other retail use.

- License plate surveys at the existing Walmart parking lot show that on weekdays, travelers come from Massachusetts (13%), New Hampshire (41%), and Vermont (46%). On weekend days, the distribution was Massachusetts (22%), New Hampshire (33%), and Vermont (45%).

- Capacity and queue analysis associated with the proposed development suggest that study area intersections are anticipated to operate acceptably, with all movements at LOS D or better. The study suggests a series of mitigation measures for the corridor including: signal optimization at the existing Walmart driveway; and adding a signal and left- and right-hand turning lanes on NH 119 in front of the new Walmart driveway. As part of a recent regional impact review of the development, SWRPC has recommended considering future transit service as a traffic mitigation measure for the new store. SWRPC argues that transit as a traffic mitigation technique would help address congestion issues relating to the store all the way back to the intersection known as “dysfunction junction”, where Main Street converges with Route 119 and other local roads in Brattleboro’s downtown.
Chapter 3: Assessment of Travel Patterns and Service Needs

An essential aspect of this feasibility study was to assess the current demand for travel between communities. The study team relied on a combination of US Census data and survey information to understand the size and shape of the demand for travel. The following section outlines the study team's assessment of corridor travel patterns.

Travel by Residents
Surveys conducted as part of this study asked residents if and how often they travel between towns and their primary reasons for travel. Data shows that among the individuals who filled out the travel survey:

- Nearly two-thirds of the employed Hinsdale residents work in Brattleboro, and, about 20% of the employed Winchester residents work in Brattleboro.
- The most common reason for travel between communities is shopping. However, the survey included a large number of older adults who reported being retired from the workforce.
- Brattleboro residents who reported traveling to Hinsdale regularly mostly did so to shop. Among the residents who travel to Hinsdale, 74% said shopping was their primary reason.
- Most people said they shop at Walmart regularly. 52% reported traveling to Walmart at least once a week.

These results are similar with survey outcomes collected from a 2006 study\(^8\) that indicates that among nearly 1,000 workers living in Hinsdale travel to Brattleboro for work, representing nearly 43% of the Hinsdale workforce.

The Brattleboro Beeline also recently conducted an on-board rider survey, gathering information on how riders use the system, with a total response of 170 surveys. This data suggests strong support for more service to Walmart, including evenings and weekend days, with more than 70% of respondents indicating that they use the Beeline to shop at Walmart. Among this group, 35% reported shopping at Walmart two days per week or more. Other popular destinations for current service users included the downtown Brattleboro, Price Chopper, and the shops around Exit 3 (I-91).

Commuter Travel Patterns
Surveys among employers located along and near to the NH 119 corridor suggest that several employers have shift-based work assignments with regular start and finish times. Moderate pay scales suggest there are opportunities to attract commuters to transit or alternative modes because commuters may be interested in lowering their commute costs. The data suggests there are approximately 500 employees working at jobs on weekdays that begin around 7:00 am and end between 3:00 pm and 4:00 pm (see Figure 6). This number is expected to increase when the Walmart Supercenter opens in 2010, although exact employment levels or shift times are not known at this time.

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\(^8\) Survey conducted as part of the Hinsdale Master Plan, 2006.
Census data also provides some insight into travel patterns and mode choice. Like most cities and towns in the US, most residents of the three towns drive to work. In Brattleboro and Hinsdale, however, the Census shows that the proportion of drive-alone workers is lower than state averages, and on a regional basis there is a fairly high proportion of carpooling. Moreover, in Brattleboro, there are an especially high proportion of workers who walk to work (see Figure 7). This data indicates a willingness to try alternative modes of transportation.

**Figure 7: Commute Travel Modes by Community (Percentage)**

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Drive Alone</th>
<th>Carpoled</th>
<th>Transit</th>
<th>Walk</th>
<th>Other</th>
<th>Work at home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town of Hinsdale</td>
<td>79%</td>
<td>18%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Town of Winchester</td>
<td>83%</td>
<td>12%</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>82%</td>
<td>10%</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Town of Brattleboro</td>
<td>70%</td>
<td>12%</td>
<td>1%</td>
<td>9%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Vermont</td>
<td>75%</td>
<td>12%</td>
<td>1%</td>
<td>6%</td>
<td>1%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: 2000 US Census

**Key Findings Influencing Service Needs**

Our preliminary assessment of demand for public transportation services along the NH 119 corridor includes the following observations:

- Previous studies have documented a need for community transportation services in Hinsdale and Winchester, NH.

- Corridor demographics demonstrate population characteristics that reflect a high propensity to use transit, including relatively high proportions of older adults, individuals with disabilities and individuals with lower income. There are also a relatively large number of assisted housing units along the corridor.

- There is a high level of travel between communities; this includes travel for shopping, medical visits, employment, and social/recreation purposes. Hinsdale and Brattleboro, especially, are closely linked.
• The new Walmart is expected to become one of the largest employers in the region and will likely become a major trip generator.

• Driving costs are high, especially for employment with average hourly wages in the range of $8 - $15. Assuming an average commute time of around 15 miles (one-way), an average commuter driving alone may spend between $15 and $20 per week on out-of-pocket travel expenses. In their 2008 edition of “Your Driving Costs”, AAA estimates the cost of owning a mid-sized sedan at $5,594 annually, or about $108 per week, not including driving costs. In total, therefore, commuters spend approximately $125 per week owning and driving a vehicle.

• Employee sensitivity to costs is already reflected in a higher than average proportion of commuters ridesharing. The propensity to carpool is reflected not only in the Census data but also anecdotal findings from the employer survey.

• A large number (70%) of existing Brattleboro Beeline riders expressed a strong interest in continuing bus service to the Walmart location.

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9 2008 “Your Driving Costs” American Automobile Association; annual cost of owning a mid-sized sedan is $5,594.
Chapter 4: Markets for Public Transportation

Transit services typically succeed by identifying markets where public transportation offers one or more of the following advantages: 1) comparable convenience or cost savings for existing travelers; 2) connections between concentrations of jobs and housing; and/or 3) service to communities with high concentrations of individuals dependent on transit. Once clear markets are identified, services can be designed with the needs and expectations of the target groups in mind and ensure that the service is easily understood and clearly communicated.

Accordingly, our research suggests there are three main groups of travelers that would benefit most from and be more likely to use public transportation services along NH 119:

- Commuters traveling to/from work;
- Older adults and persons with disabilities; and,
- Individuals with low income.

Each of these markets has slightly different service requirements, not only in terms of when and where they need to travel, but also in terms of convenience, cost, and service characteristics. An overview of the demand characteristics by market is shown in Figure 8 and described in the following text.

Figure 8: Overview of Demand Characteristics by Market Segment

<table>
<thead>
<tr>
<th>Demand Characteristics</th>
<th>Commuters</th>
<th>Older Adults/Persons with Disabilities</th>
<th>Persons with Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days of Week</td>
<td>Weekdays</td>
<td>Weekdays; Saturday</td>
<td>Weekdays; Saturday</td>
</tr>
<tr>
<td>Times of Day</td>
<td>6:30 am – 8:30 am 3:30 pm – 5:30 pm</td>
<td>Travel during mid-day More flexibility</td>
<td>Combination of peak period and mid-day travel; More flexibility</td>
</tr>
<tr>
<td>Key Service Characteristics</td>
<td>Reliability Travel time Easy to understand Flexibility Short walk at destination end</td>
<td>Easy to understand Accessible vehicles Comfortable wait areas Short walk on trip ends Affordable fare</td>
<td>Easy to understand Affordable fare Travel time Reliability Flexibility</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates

Commuters

Among the nearly 20,000 people living along the corridor, 2000 US Census data reports approximately 11,000 employed residents. A large portion of this population, especially workers living in Winchester and Hinsdale, live near NH 119. As discussed, there is also a substantial employment base along the corridor, and with the opening of the Walmart Superstore, employment opportunities in the corridor is expected to increase. Our knowledge and understanding of commuter travel behavior suggest that the demand have the following characteristics:
Travel will largely be oriented towards weekday (Monday to Friday) trips that typically follow a set schedule with regular departure and arrival times. However, retail employment means demand on weekend days and evenings.

Service needs to be reliable and convenient. To be a realistic option for commuters, therefore, service needs to leave at the right time, get people to work on time and drop them off within a reasonable walking distance of their destination.

Offer tangible cost savings to offset increased travel times. Given that nearly all public transportation trips take longer to complete, one important way to attract riders is to offer a comparable service for lower costs.

Older Adults and Persons with Disabilities
Older adults and persons with disabilities, not in the work force, travel for a variety of purposes, including running errands, going shopping, attending community/social events, and getting to medical appointments. Survey data suggests that demand along the NH 119 generated from this market will primarily be focused around trips between:

- Winchester to/from senior services in Hinsdale;
- Hinsdale and Winchester to/from the Brattleboro Memorial Hospital;
- Hinsdale and Winchester to/from Brattleboro Main Street and Price Chopper;
- Winchester and Hinsdale to/from Walmart; and
- Brattleboro to/from Walmart.

The demand for travel will typically be during the middle of the day and may occur on any day of the week, but is usually greatest on weekdays. Many older adults and persons with disabilities benefit from a higher quality of service, they are often unable to walk long distances to/from a bus stop and some individuals may require accessible vehicles. On the other hand, this market typically is less sensitive to travel time, as long as service is reliable and meets their basic needs.

Individuals with Low Income
Individuals with low income are typically defined as individuals living at or below 150% of the federal poverty level and/or households with no vehicle. Because there are no existing transit services in Hinsdale or Winchester, individuals who don’t drive have few options to travel; it is unlikely they are currently engaged in regularly scheduled, on-going activities, such as employment. However, with transportation a portion of this market may choose to look for work or participate in job training activities, while others will look to travel for services, go shopping and/or visit friends/families. Another portion of this market will be individuals living in Brattleboro currently walking to Walmart who will be unable to continue to do so, when the store moves to a new location.

In general, the travel demand for this market tends to overlap with either commuters or older adults/persons with disabilities, but this market can have slightly different travel requirements. For example, individuals participating in regularly scheduled services, such as job training, will travel at the same time as commuters and will likewise benefit from regularly scheduled, reliable service. People going to appointments and running errands, like older adults and persons with disabilities,
are more likely to travel in the middle of the day and have more flexibility in their schedule. Unlike older adults and persons with disabilities, however, this market segment has fewer special needs and is likely to be more sensitive to travel time.
Chapter 5: Service Design Options

This section describes how transit services would be applicable to the NH 119 corridor given existing transportation resources and travel needs of the markets described in the previous section. A summary of the relative advantages and disadvantages of each alternative by market segment is provided in Figure 9: Transit Service Options by Key Market.

Figure 9: Transit Service Options by Key Market

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Best Suited For</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridesharing</td>
<td>Commuters</td>
<td>Low cost, Easily implemented, High flexibility</td>
<td>Does not help transit dependent</td>
</tr>
<tr>
<td>Fixed-Route Bus</td>
<td>Commuters, Older Adults/Persons with Disabilities, Non-Drivers</td>
<td>Easy to understand/use, Builds on existing system, Low fares, Low per passenger cost</td>
<td>Set route and schedule, Limited flexibility, May not serve all markets</td>
</tr>
<tr>
<td>Dial-A-Ride (DAR)</td>
<td>Older Adults/Persons with Disabilities, Non-Drivers</td>
<td>Higher level of service</td>
<td>Less attractive to commuters, Requires advance scheduling, High per trip costs</td>
</tr>
<tr>
<td>Flex-Services</td>
<td>Older Adults/Persons with Disabilities, Non-Drivers</td>
<td>Combines key advantages of fixed-route and DAR service</td>
<td>Trip times will vary – may not be acceptable to commuters</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates

Ridesharing, Carpooling, and Vanpooling

Ridesharing refers to strategies that support and encourage carpooling and vanpooling. As demonstrated by the Journey to Work Census data, there is already a very high rate of carpooling in the three communities, especially in Hinsdale. Existing carpoolers are largely loosely organized and arranged by the individuals sharing rides.

There are currently statewide ridesharing programs in New Hampshire and Vermont. As discussed, ridesharing programs are also under development for the Monadnock Region. To date, however, only 15 individuals in Cheshire County are registered to use the NHDOT service. More may be registered as part of the CVTC service. On the other hand, the Census data shows that self-arranged carpooling works, although it does not necessarily achieve the full potential of carpooling as a potential solution. Individuals new to an organization or considering employment may not know if carpools are available and/or how to join one. Others may be willing to carpool to work but need additional encouragement to do so. In addition, there are no known vanpools operating in the corridor. Options for encouraging and supporting carpooling in the corridor may include:

- Launching a marketing campaign at existing employment sites to inform workers about carpool options. Potential carpoolers could be encouraged to use existing ride matching services offered by Vermont, New Hampshire, and the Contoocook Valley Transportation Company to assist individuals interested in ridesharing.
• Supporting existing carpools with Guaranteed Ride Home and/or incentive programs. Guaranteed Ride Home (GRH) programs allow carpoolers to take an immediate ride home in case of an emergency or special situation.

• Setting up a vanpool program at larger employment sites. Vanpools can be formed where four or five employees choose to commute together to a worksite. In many cases, a sponsoring agency purchases the van. Operating costs (insurance and fuel) are usually recovered through passenger fares. Drivers are typically recruited by offering free fares and/or use of the van during non-commute times.

Promoting carpooling and ridesharing is a flexible and relatively low cost option. The current high level of carpooling suggests a willingness and need among residents to share ride. An opportunity to promote carpooling will come with the opening of the new Walmart, especially as new employees are hired. With a few supporting educational and administrative efforts, more people may be attracted to share rides.

### Fixed-Route Bus Service
Fixed-route bus service is regularly scheduled public transportation services (i.e., bus service) that operate between two or more pre-determined points. As discussed, while fixed-route bus services are available in Vermont, only limited public transit services cross state lines into New Hampshire. Fixed-route transit is attractive because scheduled service means it is easy to understand and can carry the largest and broadest range of passengers. Fixed-route services often have high hourly operating costs, but if they successfully attract passengers, costs per trip can be much lower than other services. The challenges associated with fixed-route services are that it is difficult to schedule service so that it meets the needs of all markets and most travelers will have to adjust travel patterns slightly to work within the scheduled service.

Another challenge associated with fixed-route service is that because the route is fixed, some people will have to walk to and from the service. A potential solution to this challenge is to allow vehicles to travel off-route to access locations a pre-determined distance (typically one-tenth to three-quarters of a mile) from the main corridor, i.e. deviated fixed-route. Passengers call in advance to schedule a deviation and sometimes are charged a premium fare to travel off-route. Route deviation service offers tailored services but is somewhat more expensive to operate because service schedule times slightly longer. Marketing is typically an essential ingredient to successful deviated fixed-route service; the concept is not always familiar to passengers and many individuals need encouragement to use it.

Given the identified demand in the corridor, options for creating public transit service may include:

• Scheduling weekday commuter trips to meet the shifts of the largest employers along the corridor. Ideally, service would provide access from Brattleboro to Hinsdale and Winchester employment and from Winchester and Hinsdale to Brattleboro. Service may include two or four round trips per day.

• Providing mid-day service in the corridor with scheduled service between Brattleboro, Hinsdale, and Winchester. Mid-day trips may be deviated service and may be available on specific days of the week only, but may include Saturdays.
• Supporting transit riders with a Guaranteed Ride Home that subsidizes or provides a limited number free taxi rides home per year in the case of an emergency or special situation.

**Dial-A-Ride/Demand Response Service**

Dial-A-Ride services are demand response systems that respond to passenger needs. Most systems designate a service area and respond to traveler requests within that area. Passengers must schedule their trip in advance (typically at least 24 hours) and travel between pre-determined locations. Passengers are typically charged a premium for the service. While hourly costs for Dial-A-Ride service may be lower than fixed route transit, per passenger trip costs are typically much higher. These types of services are typically preferred over fixed-route services when demand is less than 8-10 passengers per hour, depending on the service area.

Corridor characteristics, namely a fairly long corridor with pockets of higher density development make successful Dial-A-Ride a challenge for the corridor. Without any schedule parameters (times for pick up and drop off), it might be difficult to combine trips and share rides, making the service expensive to operate. While DAR would meet the needs of some corridor residents, it may difficult for the service to combine trips, resulting in high costs.

**Flex-Services**

Flex-Route service is a hybrid of traditional fixed-route service and demand responsive service. At one or both ends, buses provide curbside pick-ups and drop-offs within designated Flex-Route service areas on a demand-responsive basis. In other locations, Flex-Route service operates on a fixed schedule in the same manner as traditional bus service. This allows scheduled connections to be made to and from other services. Traditional features of Flex-Route service include one or more designated stops with scheduled arrivals and departures. Flexible features include curb-to-curb service within the Flex-Service area. Flex-Routes can be an effective way to provide service to areas where population and employment densities make traditional fixed route service difficult. The demand-responsive feature of the service allows a larger area to be served and improves the attractiveness of public transportation.

In the NH 119 corridor, there is potential application of flex-service in Winchester. Brattleboro has public transportation; therefore, travelers in the area have options to get to/from the bus line. Hinsdale is fairly tightly clustered around the Village Center. Winchester, however, is larger and more dispersed with two clusters of development located about a half-mile from one another. Depending on the final schedule of the service, it may be more cost effective to create flex-services in Winchester in order to serve the broadest population possible.

### Service Options

New or expanded service along NH 119 between Brattleboro, Hinsdale, and Winchester offers an opportunity to meet travel needs of three potential markets. Taking into consideration the travel needs and patterns associated with these markets, we identified a series of public transportation service options. We did not include ride-sharing in our analysis because a local ride matching

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10 Curb-to-curb service assumes the bus picks up and drops off the passenger at the curb in front of their home or destination. This is different from door-to-door service which implies that the passenger will get picked up (or dropped off) at their door and not be required to wait at the curb for the bus.
program is already under development and the option has limited ability to address the travel needs of older adults and persons with disabilities.

Our assessment of the markets and relative advantages and disadvantages of different service options indicates that the following mix of service offer the most potential for success in the corridor and should be considered.

- **Commuter Routes** – Offer peak period commuter service between Brattleboro and Winchester or Brattleboro and Hinsdale. These routes may include flex-services on the Winchester end to take people into Winchester Village and/or Plumb Pak as needed. The primary deviation off of NH 119 would be for employees commuting to/from Walmart, however, adding flex-service in Winchester and allowing other deviations are recommended. Consequently, estimated travel time is 120 minutes for a round trip between Brattleboro and Winchester and 60 minutes between Brattleboro and Hinsdale. A minimal level of service would consist of one round trip per peak period for a total of two round trips per day (4 total one-way trips).

- **Mid-day Service** – Operate service during the middle of the day primarily to support members of the transit dependent community for shopping, medical appointments, and community events. This service could be structured as deviated fixed-route service to offer travelers more flexibility, accommodate individuals with limited mobility, and serve housing located near to the corridor but outside of walk-able distances to the route. Deviated fixed-route service, including flex-service in Winchester results in an estimated travel times (round trip) between Brattleboro and Winchester at 120 minutes and between Brattleboro and Hinsdale at 60 minutes.

- **Saturday Service** – Based on demand expressed through the survey and reports from the retail industry, Saturday is the busiest day for shopping. Service on Saturday would likely be scheduled during the middle of the day primarily to support members of the transit dependent community. Like the mid-day services, Saturday trips would allow service deviations with schedules based on the longer running times.

An important service consideration will also be whether to operate service to Hinsdale and Winchester or just to Hinsdale. Data suggests there are closer connections between Hinsdale and Brattleboro. Although a small number Brattleboro residents work in New Hampshire, data suggests Vermont residents primarily travel across the border for shopping. Winchester residents are also less likely to travel to Brattleboro than Hinsdale residents, and Winchester is 14 miles from Brattleboro, while Hinsdale is 7 miles. However, Winchester has a relatively higher population of transit dependent populations, and survey responses reveal strong support for public transportation. With this consideration in mind, we created a series of service alternatives that include mid-day and commuter services for additional analysis and evaluation. An overview of these alternatives, shown together with assumptions about service hours and indicative costs is shown in Figure 10.

Cost estimates are based on an operating cost of $60 per hour, which is higher than the current rate experienced by the Brattleboro Beeline. Higher operating costs were assumed to include risks associated with rising fuel costs and potential marketing and administrative costs that will be required to implement the service.
### Figure 10: Service Alternatives and Indicative Costs

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Description</th>
<th>Service Hours</th>
<th>Operating Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mid-Day Service</strong></td>
<td>Operate 3 days/week 4 mid-day round trips Allow deviations</td>
<td>Assume 60 minutes RT 4 hours/day 624 hours/year</td>
<td>$37,440</td>
</tr>
<tr>
<td>Three days/week Brattleboro-Hinsdale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three days/week Brattleboro-Hinsdale-Winchester</td>
<td>Operate 3 days/week 3 mid-day round trips Allow deviations</td>
<td>Assume 120 minutes RT 6 hours/day 936 hours/year</td>
<td>$56,160</td>
</tr>
<tr>
<td>Three days/week Two days – Brattleboro-Winchester One day Brattleboro-Hinsdale</td>
<td>Operate 3 days per week 4 round trips each day Allow deviations</td>
<td>Winchester – 6 hours/day Hinsdale – 4 hrs/day 16 hours/week 832 hours/year</td>
<td>$49,920</td>
</tr>
<tr>
<td><strong>Commuter Service</strong></td>
<td>Operate 2 round trip/day Allow deviations</td>
<td>Assumes 60 minutes RT 2 hours/day – 5 days/week 520 hours/year</td>
<td>$31,200</td>
</tr>
<tr>
<td>Daily service Brattleboro – Hinsdale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily service Brattleboro – Winchester</td>
<td>Operate 2 round trip/day Allow deviations</td>
<td>Assumes 120 minutes RT 4 hours/day – 5 days/week 1040 hours/year</td>
<td>$62,400</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates
Assumptions: Hourly operating costs $60; Based on 52 weeks per year (actual service may only operate 50 weeks per year). Round trip travel times are estimated for planning, rather than operational purposes. Drive times should be tested and time required for scheduled and anticipated deviations measured.
Chapter 6: Evaluation of Service Alternatives

An important aspect in understanding the feasibility of the individual service alternatives is gauging the potential demand for each service option. While the scope of this study does not permit a full demand assessment, we are able to broadly gauge how individual services meet the needs of individual markets and building on this, estimate potential ridership for different alternatives. It is important to note that these demand estimates are useful for evaluation of alternatives only and should not be used as forecasts for service planning purposes.

As a first step, we estimated the number of individuals in each category of potential traveler (commuter, older adults, persons with disabilities, persons with low income), i.e. the total market by segment for travel. Youth were not included in this analysis because the proposed service options do not closely match with travel needs of individuals aged between 5 and 19. Most trips are scheduled during the peak periods or during the mid-day, when most youths are in school. These estimates are based on Census data and information collected from the stakeholder interviews (see Figure 11: Estimated Total Market Size by Population).

Our estimate of commuters is based on the estimated number of first shift employment along the corridor. We did not include any of the employment along Putney Road and the I-91 Exit 3 area; although there will be opportunities to connect to the area, it is not the target market for this service. For older adults, persons with disabilities and persons with low income, our estimate of the total market is based on Census data. It includes the entire population living in Hinsdale and Winchester plus 25% of the population in Brattleboro. We used a subset of Brattleboro residents based on the assumption that many individuals living in Brattleboro could access using existing modes (bus, walk, bike, etc.).

We also estimated the number of one-way trips an average individual in each of the key markets would likely make per week, assuming there are no constraints on their ability to travel. Assumptions about trip-making are based on experience and data from other areas and is indicative only. Commuters, for example, are expected to make 10 one-way trips per week. Older adults, persons with disabilities, and persons with low income not traveling for employment are estimated to make 4-6 one-way trips per week.
Figure 11: Estimated Total Market Size by Population

<table>
<thead>
<tr>
<th>Population Type</th>
<th>Brattleboro, Hinsdale, and Winchester</th>
<th>Brattleboro and Hinsdale Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated Market Size</td>
<td>750 (1)</td>
</tr>
<tr>
<td></td>
<td>Weekly One-way Trips</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Estimated Trips per Week</td>
<td>7,500</td>
</tr>
</tbody>
</table>

Notes: (1) Estimated first shift workers employed at corridor employers only; (2) Includes 25% of Brattleboro population plus all of Hinsdale and Winchester Based on US Census populations for older adults and persons with disabilities aged between 21 and 64; (3) estimated population based on individuals living at or below 150% of the federal poverty level – 25% of Brattleboro plus all of Winchester and Hinsdale; (4) Excludes Winchester employers; (5) all individuals living at or below 150 of the federal poverty level in Hinsdale and 25% of Brattleboro population.

The last step in demand estimation is figuring out the proportion of the demand that could realistically be attracted to transit. To do this, we estimated a range of trips that could be diverted to transit, given the amount of service proposed. For example, a higher number of trips between Hinsdale and Brattleboro is expected where there are more trips between the two communities. Diversion rates are also estimated based on ridership data from the existing Beeline service, experience with other similar types of services, and comments from the stakeholder interviews. We use ranges to illustrate our estimation of a high and low scenario for the different service alternatives. Figure 12 highlights our assumptions for the portion of trips that could be captured by transit, by population, assuming a high and low case.

Figure 13 shows an indicative range of annual trips by transit service alternative. These estimates are shown as a range and roughly gauge ridership for the individual alternatives.

Figure 12: Indicative Demand for Service by Population

<table>
<thead>
<tr>
<th>Population Type</th>
<th>Brattleboro - Hinsdale</th>
<th>Brattleboro – Winchester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High End</td>
<td>Low End</td>
</tr>
<tr>
<td>Commuter</td>
<td>1.5%</td>
<td>.75%</td>
</tr>
<tr>
<td>Older Adults and Persons with Disabilities</td>
<td>3.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Individuals with Low Income</td>
<td>3.0%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates
Figure 13: Estimated Annual Demand by Service Alternatives

<table>
<thead>
<tr>
<th>Service Alternative</th>
<th>High End</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Mid-day Service to Hinsdale</td>
<td>9,293</td>
<td>4,646</td>
</tr>
<tr>
<td>B Mid-day Service to Winchester</td>
<td>16,759</td>
<td>8,380</td>
</tr>
<tr>
<td>C Mid-day Hybrid</td>
<td>11,757</td>
<td>5,878</td>
</tr>
<tr>
<td>Two days to Winchester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One day to Hinsdale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Commuter Service to Hinsdale</td>
<td>2,250</td>
<td>1,125</td>
</tr>
<tr>
<td>E Commuter Service to Winchester</td>
<td>3,750</td>
<td>1,875</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates

Benefit Cost Analysis

Using our estimated demand and service costs, we broadly estimated the benefit cost of different services using an average cost per rider. This estimated benefit cost analysis is based on a mid-point in the demand analysis and estimated annual operating costs shown in Figure 14. This analysis is intended to guide our evaluation of potential services, not for service planning purposes.

Figure 14: Estimated Indicative Cost per Rider by Service Alternative

<table>
<thead>
<tr>
<th>Service Alternative</th>
<th>Estimated Average Riders per Trip</th>
<th>Estimated Cost per Rider</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Mid-day Service to Hinsdale</td>
<td>5.58</td>
<td>$5.37</td>
</tr>
<tr>
<td>B Mid-day Service to Winchester</td>
<td>13.43</td>
<td>$4.47</td>
</tr>
<tr>
<td>C Mid-day Hybrid</td>
<td>8.48</td>
<td>$5.66</td>
</tr>
<tr>
<td>Two days to Winchester; One day to Hinsdale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Commuter Service to Hinsdale</td>
<td>1.62</td>
<td>$18.49</td>
</tr>
<tr>
<td>E Commuter Service to Winchester</td>
<td>2.70</td>
<td>$22.19</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates

Conclusions

Based on the benefit cost analysis, the most cost effective option would be to operate mid-day service to Winchester. This option produces the lowest cost per rider. Although the hybrid option is appealing from a total cost perspective, extending the service to Winchester every time will be easier for people to understand and use. Therefore, we recommend pursuing the mid-day service to Winchester. This service would provide three round trips per day, three days per week.
Chapter 7: Plan for Priority Alternative

Based on the above analysis, the study team determined the best market for transit will likely be older adults, persons with disabilities and persons with low income. Although there is a relatively high number of commuter travel in the corridor, it would be difficult to cost-effectively serve this population with one or two commute hour trips. Older adults and persons with disabilities, on the other hand, have more flexibility in their travel plans and are less time sensitive. In the longer term, service may be expanded to more specifically target commuter travel times. However, in the short-term this demand may be more easily and cost-effectively met with ridesharing programs. Demand for the service exists now and stakeholders are interested in implementing the proposed service as soon as possible. At the very latest, service should be implemented before the new Walmart store opens, which is currently scheduled for springtime next year (2010).

General Information
The study team recommends pursuing the mid-day service option with service between Brattleboro and Winchester three days per week. Although the service will only marginally serve commute trips, it will meet the needs of older adults, persons with disabilities, and persons with low income. Public support for this service, as evidenced through the survey research and input from Select Boards, is strong.

While there are few transportation congestion problems along NH 119, the bus service will reduce the demand for single occupancy vehicle travel and congestion anticipated as part of the expanded Walmart store at its new location. The new service will also significantly increase access to downtown Brattleboro by providing direct transportation to Main Street from Hinsdale and Winchester. It will also mitigate congestion issues currently experienced at “dysfunction junction” in downtown Brattleboro and reduce the parking demand at Brattleboro Memorial Hospital. Accordingly, vehicle emissions will also be reduced. Finally, the recommended hybrid option is consistent with the State of Vermont's stated goals per the Public Transportation Policy Plan by:

- Offering an alternative to the use of the private vehicle
- Serving persons who most need such service
- Ensuring equity and accessibility to persons with special needs or disabilities
- Offering intermodal linkages
- Supporting local economic development plans

Service and Operations Information
The proposed service would operate between Brattleboro and Winchester three days per week with three round trips each service day. The bus would be scheduled as fixed-route service with planned departures from Brattleboro and Winchester. In Winchester, the bus would stop at Kulick's Plaza; however, we recommend offering “flex-service” and allow people to schedule a pick-up or drop-off at their home or final destination within the Town of Winchester. The option will be useful for individuals who have limited mobility and create a flexible, cost-effective way to serve Winchester’s scattered but numerous affordable and senior housing developments. Other individuals living along NH 119 may also call and request a “deviation” and schedule a pick-up or drop-off up to ¾ mile off of the main transit route.
The service routing would be from the Brattleboro Transportation Center, across the bridge into New Hampshire, staying on NH 119 with stops in the Village of Hinsdale, Ashuelot Village and Kulicks’ Market, just outside of the village of Winchester (see Figure 15). Driving time between Brattleboro and Winchester is estimated at about 50 minutes (about 14 miles), allowing the bus to travel into some destinations to stop in front of some destination such as the Hinsdale Senior Center, Walmart, Price Chopper, and the Brattleboro Memorial Hospital. Actual vehicle times would need to be tested before a final schedule can be prepared. For planning purposes, we have created an indicative schedule demonstrating arrival times by key stops (see Figure 16).

Figure 15: Recommended NH 119 Transit Route
Figure 16: Proposed Scheduled Stops on NH 119 Recommended Transit Route

<table>
<thead>
<tr>
<th>Departure Time</th>
<th>Northbound</th>
<th>Departure Time</th>
<th>Southbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 am</td>
<td>Brattleboro Transportation Center</td>
<td>10:00 am</td>
<td>Kulick’s Market (intersection of N. Main Street and Richmond Ave)</td>
</tr>
<tr>
<td>9:15 am</td>
<td>Walmart Store</td>
<td>10:10 am</td>
<td>Ashuelot Village</td>
</tr>
<tr>
<td>9:30 am</td>
<td>Hinsdale Village</td>
<td>10:20 am</td>
<td>Hinsdale Village</td>
</tr>
<tr>
<td>9:40 am</td>
<td>Ashuelot Village</td>
<td>10:30 am</td>
<td>Walmart Store</td>
</tr>
<tr>
<td>9:50 am</td>
<td>Kulick’s Market (intersection of N. Main Street and Richmond Ave)</td>
<td>10:45 am</td>
<td>Price Chopper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:45 am</td>
<td>Brattleboro Memorial Hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:50 am</td>
<td>Brattleboro Transportation Center</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates

We propose scheduling the service on Tuesdays, Thursdays, and Saturdays with scheduled departures from the Brattleboro Transportation Center at 9:00 am, 11:00 pm, and 1:00 pm. Service from Winchester would depart at 10:00 am, 12:00 pm, and 2:00 pm. Each round trip is scheduled over a two-hour time frame to allow time for deviations and vehicle recovery time. A single vehicle is adequate to operate the service, and ridership data suggests a small transit vehicle would be sufficient. For comfort reasons, however, most passengers typically prefer mid-sized transit vehicles. The final scheduling of the service and type of vehicle deployed will need to be determined by the service operator, in accordance with existing operations procedures such as driver assignments, vehicle availability, and route scheduling.

As discussed, Nelson\Nygaard recommends scheduling the service to allow for deviations up to ¾ mile off the main route as needed as requested by passengers. Allowing deviations achieves two main goals: it allows the bus to serve some hard to reach destinations on an as-needed basis, and it satisfies the Americans with Disabilities Act (ADA) requirement for accessible transit services.

Assuming the project sponsor is the SWRPC, the service may be put out to bid. Given the Brattleboro Beeline already operates transit service in the region, they would be a logical provider. As such, the Beeline would have administrative responsibility for the service, operation, marketing, and compliance with federal regulations. Funding should be sought through federal grants with local matching resources raised through contributions from private and public sector sources. More information on project funding is provided in Chapter 8.

The success of this service is dependent on effective marketing and outreach as the service is implemented. Clear scheduling and marketing materials must be developed, and these materials will need to visibly explain how the service works, given the alternating days of service and alternating destinations. We recommend conducting an extensive outreach campaign, including visiting senior centers and low-income housing units to present service options to residents and potential users. Likewise, materials should be posted at the Brattleboro Hospital, Walmart, and other trip generators. Capital equipment such as shelters and signage will also enhance marketing efforts. As feasible, we suggest locating shelters at each of the scheduled stops that do not have waiting areas: Walmart, Hinsdale Village, Ashuelot Village, and Kulick’s Market.

The study team recommends offering the service as a “free fare” service for the first year of operations and accepting donations from passengers. The proposed service is the first time public transportation
services will be available in the corridor, therefore, offering the service as free for an introductory period of one year will help build ridership. After the first year of service, however, the fare should be set at $1.00 per a one-way adult cash fare, consistent with the current Beeline local fares. The study team also recommends charging an additional $1.00 for off-route pick-ups, including deviations and flexible service pick-up. Higher fares are encouraged to help control use of the service and off-set the additional scheduling charges.

**Financial Information**

An estimated $61,014 is requested annually to support the operating costs associated with the proposed transit route. Financial parameters for the proposed route are listed in Figure 17. For target and performance measures, we recommend adhering to the performance measures set as part of the Vermont Public Transportation Policy Plan (see Figure 18 in Chapter 8).

**Figure 17: Financial Information for Proposed Route**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimated Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Costs</td>
<td>$56,160</td>
<td>Annual cost based on operating costs of $60 per hour</td>
</tr>
<tr>
<td>Administrative and Marketing Costs</td>
<td>$5,600</td>
<td>10% of operating costs, does not include capital costs</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$61,760</td>
<td></td>
</tr>
<tr>
<td>Fare Revenue</td>
<td>$0</td>
<td>Assume no fares are levied for first year of operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After first year, fare of $1.00 per trip, plus an additional $1.00 for each flex-service pick up or deviation from main route</td>
</tr>
<tr>
<td>Farebox Recovery</td>
<td>N/A</td>
<td>First year only</td>
</tr>
<tr>
<td>Net deficit</td>
<td>$61,014</td>
<td></td>
</tr>
<tr>
<td>Subsidy per passenger trip</td>
<td>$4.85</td>
<td>Net deficit divided by estimated annual riders (12,569)</td>
</tr>
<tr>
<td>Subsidy per passenger miles</td>
<td>$2.17</td>
<td>Assumes 28,080 annual miles</td>
</tr>
</tbody>
</table>

Source: Nelson\Nygaard Consulting Associates
Chapter 8: Overview of Funding Opportunities

The cross-border nature of corridor creates both opportunities and challenges with regards to funding. Both New Hampshire and Vermont rely on similar Federal funding programs to support public transportation; most of these programs are administered by the Federal Transit Administration (FTA) and distributed according to funding formulas. Select programs relevant to rural areas are:

- **Elderly and Disabled Mobility Assistance (Section 5310)** - primarily available for capital assistance (vehicle purchase) to support community organizations in meeting the transportation needs of the elderly and persons with disabilities. Funds are apportioned based on each State’s share of population for these groups of people.

- **Rural and Small Urban Areas (Section 5311)** – provides funding to support public transportation in areas of less than 50,000 populations. Funds may be used for capital, operating, and administrative assistance to state agencies, local public bodies, and nonprofit organizations, and operators of public transportation services.

- **Job Access and Reverse Commute (JARC) (Section 5316)** – provides funding for programs that assist eligible low income individuals with transportation services they may need to access jobs and employment-related activities. JARC funds may also be used to create new reverse commute travel services.

- **New Freedom Program (Section 5317)** – funds new public transportation services and capital improvements for programs and services for persons with disabilities that go beyond those required by the Americans with Disabilities Act (ADA).

Vermont and New Hampshire are also similar in their taxing limitations. In Vermont, local resources to match federal funding programs can come from a variety of sources, but the only tax source is the local general property tax; no other local option tax is authorized by the Vermont State Legislature. Communities in New Hampshire also have limited taxing authority, but do have authority to use vehicle licensing fees to raise local funds for transportation projects. In general, local operators in both New Hampshire and Vermont tend to raise local match by operating contracted service for human service agencies and/or providing special contract services for other jurisdictions, organizations, or institutions.

**State of Vermont**

The State of Vermont provides state operating assistance funds to local transit to help local communities raise matching resources for Federal funding programs. In addition, the Vermont Agency of Transportation (VTrans) also transfers (“flexes”) funding from the Federal Highway Administration (FHWA) Surface Transportation Program (STP) to support public transit. STP funding is used to increase resources for the 5311 program as well as for ridesharing and preventative maintenance purposes. VTrans also transfers STP funds from the Congestion Mitigation Air Quality (CMAQ) program to fund new public transportation services. The State of Vermont does not distribute JARC and New Freedom funds as part of a competitive grant program.

New public transportation services in Vermont are primarily funded through CMAQ. Funding is awarded through a statewide competitive grant process and funds new services at 80% for up to three years, but the state does not providing matching resources to CMAQ grants. The remaining 20% required to
operate the service must come from local sources. At the end of the three year grant period, services are evaluated to determine if they meet standards for a successful service.

The State of Vermont has established performance standards according to different classifications of services. The “small town” category refers to routes that operate in towns of between 7,500 and 15,000 people and provide all-day, year round services. Rural services are defined as those that connect two or more rural communities that have a population of 7,500 or less. For references’ sake, these standards are listed in Figure 18.

**Figure 18: Vermont Agency of Transportation Standards by Service Type**

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Acceptable</th>
<th>Successful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Town</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers Boardings per Hour</td>
<td>5.0</td>
<td>10.1</td>
</tr>
<tr>
<td>Cost per Passenger Trip</td>
<td>$10.44</td>
<td>$5.22</td>
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<tr>
<td>Rural Service</td>
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<tr>
<td>Passengers Boardings per Hour</td>
<td>2.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Cost per Passenger Trip</td>
<td>$17.14</td>
<td>$8.57</td>
</tr>
<tr>
<td>Proposed NH 119 Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers Boardings per Hour</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>Cost per Passenger Trip</td>
<td>$4.85</td>
<td></td>
</tr>
</tbody>
</table>

Source: Vermont Public Transportation Policy Plan

Current estimates for the NH 119 corridor suggest if the proposed service is measured against criteria for either “small town” or “rural” service, both ridership and cost per passenger trip surpass the successful standard.

**State of New Hampshire**

The New Hampshire Department of Transportation does not flex its STP or CMAQ funds, but it makes JARC and New Freedom funds available for local communities. NHDOT allows these funds to be used for new programs and services, provided they meet the program criteria. Operating expenses under the JARC and New Freedom require a 50% match. In NH, these funds can be matched with any state of Federal funding program, as long the funds do not originate from the US Department of Transportation. Potential funding sources include partnerships with private sector institutions as well as other Federal programs, such as Medicaid and Temporary Assistance to Needy Families (TANF).

NHDOT awards JARC and New Freedom funds based on a statewide competitive grant program, with the most recent call-for-projects completed in March 2009. Prior to this call for projects, NHDOT had unobligated funds in both the JARC and New Freedom programs. The deadline for the next round of JARC and New Freedom projects is tentatively scheduled for late winter/early spring, 2010.

**Private Sector Contributions**

The private sector, especially institutions, organizations and business that will directly benefit from the bus service, represents a potential opportunity to raise local matching resources to support the bus service. Indeed, some members of the private sector participated in this study and contributed to the service design. Their input and involvement as services are developed should be maintained and a dialogue about potential financial contributions continued.