

# Chapter 4

## Needs Analysis

As a prelude to developing service strategies in the TDP, the needs for improved public transportation were identified. As mentioned in the previous chapter, CCTA serves two large markets of riders, and these markets have somewhat different needs; these are discussed below. These needs were illuminated through input from CCTA riders and the general public, which was solicited through a series of surveys about the most important improvements CCTA could make to its service. In addition, an analysis was conducted based on the information presented in prior chapters on the existing service and market analysis.

### Needs of CCTA's Primary Markets

For much of CCTA's history, the great majority of its riders belonged to the market segment made up of people who depend on public transit for most or all of their mobility needs. These "transit-dependent" riders either do not have a car available or cannot drive for any number of reasons, but must make trips that are too long for walking. More recently, as its service level has improved and new routes have been introduced, CCTA has been tapping into the commuter market, attracting riders who are able to drive. These riders choose to take transit, and are thus known as "choice" riders. Serving the needs of transit-dependent riders fulfills part of CCTA's mission: to be a public utility and meet the mobility needs of people in Chittenden County. Attracting choice riders fulfills the other part of the mission, to help reduce congestion and air pollution, and to support a more sustainable economy and development pattern.

The main needs of the transit-dependent market segment are longer service hours and wider service coverage. Longer hours means both extended hours on weekdays (early in the morning and late in the evening) and full service on weekend days. Many people work on Saturday and Sunday and need transportation to and from their jobs. They also work shifts on weekdays that do not necessarily coincide with the traditional 9-5 job; their jobs may start very early in the morning, or let out late in the evening. Wider service coverage means bus routes going to more places. As was seen in chapter 3, the current system serves most places with high residential density, concentrations of people with transit-dependent characteristics, social service agencies, and clusters of employment, but by no means all of them. In some cases, transit-dependent riders are faced with long walks to get from the bus to their final destinations.

The single most important service characteristic to choice riders is frequency of service. Underlying this claim is the assumption that the span and coverage of service already is largely sufficient for the majority of regular commuters, who mostly do work in traditional 9-5 jobs.

Frequency, on the other hand, is a key determinant of how long someone is likely to be waiting for a bus and how flexible someone can be about their departure times. For someone who has a car available, and therefore has an option with no waiting time and complete flexibility of departure time, a bus route will only be attractive if waiting time is minimized and flexibility is maximized.

This is not to say that frequency is unimportant to transit-dependent riders, and that nothing else matters to choice riders. Indeed, improved frequency is a large benefit to all riders, and many other factors are very important to choice riders, including travel time and directness of the route, comfort and cleanliness of the buses, and passenger amenities at bus stops (shelters, benches, lighting, etc.). However, since transit-dependent riders do not have a choice (by definition), the important thing is being able to get to their destination at all, even if it involves some waiting and inconvenience.

CCTA's services are designed to appeal to and meet the needs of both markets, though some routes are more oriented toward one or the other. The "commuter" routes are obviously aimed at commuters, as are the two primary trunk routes on US 2 and VT 15. The commuter expresses, while operating with limited frequency, offer fast and inexpensive service from outlying areas to downtown Burlington and the Hill institutions. These routes offer choice riders a way to save money and use their commuting time more productively while avoiding the stress of driving. The US 2 and VT 15 services offer trips every 15 minutes during peak periods and direct routings<sup>1</sup> from Williston and South Burlington (for US 2) and Essex, Colchester, and Winooski (for VT 15) into downtown Burlington. National research shows that service every 15 minutes is the minimum acceptable to most choice riders.

Most of CCTA's local routes are more oriented to transit-dependent riders mostly within the cities of Burlington and Winooski. These routes are slower and more indirect, but offer wide coverage to densely developed neighborhoods. For the most part, these routes operate every 30 minutes. The North Avenue, Pine Street and Shelburne Road routes, considered to be trunk routes by CCTA, straddle the difference between commuter and local services. They are direct corridor services, but do not yet have the high frequency to make them attractive to choice riders.

## **Needs Identified in Recent Data Collection and Outreach**

In May of 2008, CCTA conducted an on-board passenger survey. Among other things, this survey asked riders about potential service improvements. In July of 2008, public meetings were held as part of the State's Short Range Public Transportation Plan process to solicit opinions about transit service. Finally, in the Spring of 2009, CCTA conducted a telephone survey of

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<sup>1</sup> Both of these routes leave the main corridor to serve a large trip generator: Fort Ethan Allen for VT 15 and University Mall for US 2. In spite of the time penalty for through travelers, these generators are too important to bypass.

Chittenden County residents and a web survey open to all interested parties but targeted to Chittenden County residents. Needs identified by survey respondents and attendees at the public meetings are summarized below.

In the 2008 on-board survey, riders were asked to mark up to three choices (from a list of 11) for ways to improve service. The top eight choices are shown below in rank order, along with the percentage of riders who chose that option. The prominence of span issues (Sunday service and evening service) reflects the fact that many of the on-board survey respondents are transit-dependent riders.

- |                             |     |
|-----------------------------|-----|
| 1. More service on Sunday   | 55% |
| 2. Later hours in PM        | 44% |
| 3. More frequency           | 35% |
| 4. More service on Saturday | 31% |
| 5. Faster, more direct      | 19% |
| 6. More shelters            | 19% |
| 7. Routes to more locations | 15% |
| 8. Earlier hours in AM      | 15% |

Among the requests for routes to more locations, the following communities were cited:

<b>Town</b>	<b>Number of Requests</b>
1. Milton	16
2. Colchester	12
3. Hinesburg	4
4. Jericho	3

The telephone and web surveys also asked about desired locations for new routes. The following were the most commonly mentioned:

<b>2009 Telephone</b>			<b>2009 Web</b>		
<i>Town</i>	<i>No.</i>	<i>Pct.</i>	<i>Town</i>	<i>No.</i>	<i>Pct.</i>
Colchester	103	10.4%	Colchester	52	13.0%
Williston	85	8.6%	Burlington	50	12.5%
Essex	81	8.1%	Williston	42	10.5%
Milton	65	6.5%	So. Burlington	38	9.5%
So. Burlington	61	6.1%	Essex	34	8.5%
Jericho	56	5.6%	Winooski	28	7.0%
Burlington	54	5.4%	Hinesburg	22	5.5%
Charlotte	51	5.1%	Richmond	21	5.3%
Richmond	51	5.1%	Shelburne	21	5.3%
Underhill	51	5.1%	Bolton	17	4.3%
Shelburne	50	5.0%	Charlotte	16	4.0%
Hinesburg	47	4.7%	Jericho	15	3.8%
Winooski	39	3.9%	Milton	14	3.5%
Westford	21	2.1%	Underhill	13	3.3%

By public consensus, it seems that Colchester is the community in the greatest need of more service. Several communities that already have service (such as Burlington, Williston, Essex, and South Burlington and Winooski) are mentioned frequently as needing new routes. As coverage is reasonably thorough in at least some of those communities, these mentions should be interpreted as requests for a higher level of service on existing routes, and/or connections to areas other than downtown Burlington. After Colchester, the community with little present service mentioned most often is Milton. (Note that a commuter route to Milton was implemented on February 15, 2010.) Telephone and web survey respondents agreed that “regional commuter” routes, such as those that would connect Milton, Colchester, or Hinesburg to Burlington are the highest priority, over interregional commuters (like the existing LINK Express routes) or all-day local services.

Extending the reach of CCTA services to more communities was the primary interest of telephone survey respondents, likely because a higher percentage of them (compared to the web and on-board surveys) were non-riders and lived outside of the urban core. The following figures show how telephone and web survey respondents ranked five categories of possible improvements to CCTA service:

**2009 Telephone**

*Average ratings shown – higher score is better (range 1 to 5)*

- Hours – 3.27
- Frequency – 3.25
- Amenities – 1.95
- Coverage – 4.17
- Speed – 2.45

**2009 Web**

*Number of top rankings*

- Hours – 30
- Frequency – 34
- Amenities – 2
- Coverage – 24
- Speed – 23

While span of service seemed to be the most important item for current riders (as shown above), frequency of service seems to rank just as high or higher among telephone and web survey respondents. All three surveys agree that speed of service and amenities (such as better shelters) are relatively less important.

Another interesting contrast between the views of current riders and the mix of riders and non-riders in the telephone and web surveys is that when it comes to hours of service, current riders feel strongly about having more weekend service, especially Sunday service, while telephone and web respondents ranked expansion of weekday service most highly, and Sunday service last. These findings reflect the differing mix of transit-dependent people and people who have the option to drive in the various surveys. Transit-dependent riders are best represented in the on-board survey, while choice riders appear to be best represented in the web survey. Non-riders are best represented in the telephone survey.

Comments received from the general public and from invited stakeholders in July 2008 largely echo the findings from the data collection efforts. Routes, especially commuter routes, were requested from the following communities:

- Colchester
- Hinesburg (and Bristol via Hinesburg)
- Milton
- Jericho
- Westford
- Essex
- Underhill
- Williston
- New North End of Burlington
- Richmond-Williston via US 2
- Cambridge
- Grand Isle (ferry connection)

In addition, improved weekend and weekday night service was requested to assist people who work at those times.

## **Unmet Needs**

The answer to the question “what are the greatest unmet needs for public transportation in Chittenden County” depends on whom you ask. For residents outside of the urban core, the answer is clearly new commuter routes to outlying communities such as Colchester, Milton, Hinesburg, Jericho and Richmond. For residents of communities that already have some service, and especially among current riders, the answer is longer hours (including weekend service) and higher frequency on the existing routes. Additional connections, such as cross-town links between the two parts of South Burlington, would also expand the travel options of current riders.

## ***Service Frequency***

In the transit industry, 30-minute service is considered to be unattractive to choice riders, while 15-minute service in the peak periods is considered a significant threshold to making transit competitive with driving. This threshold mainly relates to the amount of time people are willing to wait if they just miss a bus. With a 30-minute wait until the next bus, most people with a car available will not risk having to wait for that long, and thus will not attempt to take the bus at all.

For years, CCTA has been slowly building ridership by offering 30-minute service on almost all of its routes. It is clearly recognized, though, that 15-minute peak service is desirable on all of the main corridors leading into Burlington; a goal that was endorsed in the recent Burlington Transportation Plan. In 2008, after successfully obtaining a grant of federal Congestion

Mitigation/Air Quality money from the State, CCTA established 15-minute peak service on the Essex Junction route, and promptly saw ridership jump by some 30% on that route.

Given the experience on the Essex Junction route, establishing 15-minute peak service on the four major corridors into Burlington—North Ave, Colchester Ave/Pearl Street (VT 15), Williston Road/Main Street (US 2), and Shelburne Road (US 7)—is likely to be the most cost-effective investment in new service that CCTA can make. US 2 received 15-minute peak service with the major restructuring that took effect in June 2010.

### ***Service Hours***

Expanding the hours of service on CCTA routes is likely to be the next most cost-effective investment. Service offered 14-16 hours per day (such as 6:00 a.m. to 10:00 p.m.) is considered to be the minimum needed to attract choice riders. In addition to more evening service, Sunday service on the four major corridors, with the Essex Junction route leading the way, would generate additional ridership.

### ***Service Coverage***

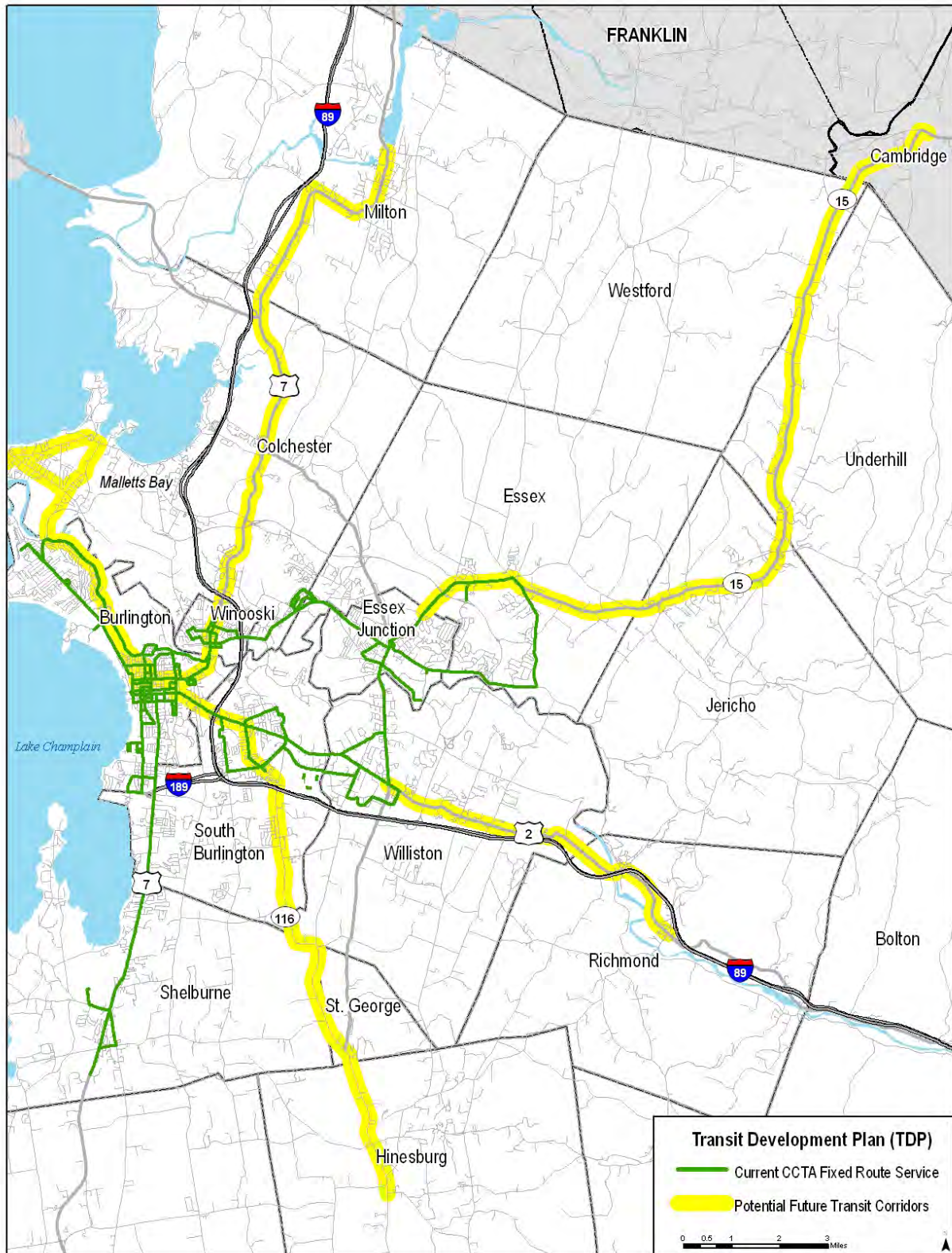
Extending service to new places is critical to CCTA's mission as a regional public transportation service provider, but is somewhat less likely to be as cost-effective (in terms of cost per new rider) than boosting service on existing routes. Peak-period commuter services linking outlying areas with the regional core have been proven successful with the interregional LINK Express routes (which also serve Chittenden County communities through park-and-ride lots). Commuter service to surrounding communities such as Colchester, Milton, etc. (see map on next page) would likely be successful, but would take more time to mature and reach their full potential. It should be noted that a higher level of service on the core system will make the future commuter routes more attractive when they are implemented, by allowing for better access throughout the regional core through transfers in the downtown.

### ***Amenities and Facilities***

Beyond service expansion, respondents to surveys and participants in public outreach requested further investment in shelters, benches, bike racks and other passenger facilities, as well as new technology such as real-time passenger information, wi-fi on buses, and trip planning software. Such investments in physical infrastructure and technology make the system more appealing to existing riders and future choice riders.

The facility that will have the greatest impact on passengers is the new Downtown Transit Center. More than 2,000 passengers board at the current transit center every weekday, 900 of whom are transferring between buses. A new transit center will offer more comfortable waiting areas, weather protection, and better customer information and signage, including real-time information on bus arrivals and departures. It will also provide significant benefits on the operational side, with more efficient access and egress and layover possibilities.

## Future Regional Commuter Corridors



It is also critical to note that the pedestrian environment in bus service corridors is an essential element of the overall system. All passengers are pedestrians (either on foot or in a wheelchair) before they board the bus and after they exit. If the pedestrian environment is not safe, comfortable, and attractive, then neither is the bus system, no matter how good the service is. CCTA member communities must continue to work with CCTA to improve pedestrian facilities along and extending from bus routes to provide better access to transit service from neighborhoods.

### ***Human Service Transportation Needs***

In addition to the above, the 2007 Human Service Transportation Coordination Plan identified transportation service gaps and unmet needs in Chittenden County. Types of needs were divided into three categories: general, employment-related, and human service-related. They included the following:

- Service outside current CCTA member towns, especially to new developments in Williston
- Institution of flexible routing
- Additional bus stops within Burlington
- Commuter service between Burlington and Bennington
- Increased E&D funding to meet the demand for service, especially ongoing medical trips
- Transportation to senior meal sites

### **Conclusion**

This chapter identified the broad markets that CCTA serves and the most important features of the system to those markets. Several types of improvements are needed to help CCTA fulfill its mission. These are addressed in chapter 6.