



Rural Community Transportation

Transit Development Plan

April 2018



Montpelier, VT

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Chapter 1

Introduction

Purpose of this Plan

The Transit Development Plan (TDP) for Rural Community Transportation (RCT) provides a program for the expansion and enhancement of public transportation service in RCT's service area of Caledonia, Essex, Orleans, and Lamoille Counties. It is the foundational planning document for the agency and establishes the framework for all other short term planning.

This TDP covers at least a 10-year time frame with an ambitious program of service expansion. While it may not be possible—because of limited funding—to implement the full program, the goal of this document is to have a coherent plan with short-term actions that make sense on their own merits, as well as building toward a future enhanced system.

This chapter serves as the introduction to the TDP, including various background materials that offer a context for the chapters that follow. It begins with an overview of the TDP document, followed by a statement of RCT's mission. After a listing of the accomplishments since the time of the last comprehensive plan and a brief overview of the history and structure of RCT, the key partners in the process of creating and implementing the TDP are identified and discussed.

Overview of TDP

Following this introductory chapter, Chapter 2 is a review of existing transit services in the four-county area served by RCT. Chapter 3 provides a demographic and economic profile of the service area, with special emphasis on populations with greater mobility needs: older adults, low income households, and autoless households. Important destinations, such as senior housing, accessible housing, social service agencies, and major employers are also discussed. Chapter 4 describes the service and facility recommendations of the TDP, while Chapter 5 discusses costs, ridership impacts, funding, and public support.

RCT Mission

The mission statement of RCT is focused on the immediate purpose and benefits of public transportation service in its service area:

It is the mission of Rural Community Transportation, Inc. to encourage the use, development and support of safe public transportation through the provision of coordinated, consolidated, non-duplicative transportation services; and to promote the planning and development of public transportation for the Northeast Kingdom including the counties of Caledonia, Essex, Lamoille and Orleans.

Part of the purpose of the TDP is to outline a future system that will allow RCT to achieve its mission to a greater extent than is possible today.

Review of Accomplishments since last TDP

Since 2012, RCT has been working to implement new routes and service expansions recommended in the last TDP. The following lists the service changes made since 2012:

- Service level enhanced on Jay-Lyn Shuttle
 - Two express trips added in 2012
 - Three local trips added in 2016
- Re-established route to Littleton, NH
- Created new Williston shopping shuttle connecting Newport to Williston via Morrisville funded by the Elders & Persons with Disabilities program.
- Adjusted other shopping shuttles in response to demand.

Historical Background and Funding

RCT, formerly known as Northeast Kingdom Community Action Transportation, was established as a non-profit organization in 1991 by Ann Dennison. Over the past twenty-seven years it has grown into a full-service transit provider. RCT acts as a broker of trips in its service area to find the most cost-effective means of transporting clients under various funding programs such as Medicaid and the federal Elders and Persons with Disabilities program (E&D).

The primary sources of capital and operating funding for RCT are:

- Federal transit funds (about 23% of total operating funds)
- State operating assistance (about 2% of total operating funds)
- Medicaid funds (about 66% of total operating funds)
- Community Organizations and Department Services (various contracts with state and human service agencies – about 7% of total operating funds)
- Contributions from towns (about 1% of total operating funds)
- Other (about 1% of total operating funds)

Key Partners: Public, Private, Non-profit

In the process of planning, implementing, and operating public transportation service in the Northeast Kingdom and Lamoille County, RCT has many partners. RCT interacts with governmental bodies on four levels: federal, state, regional, and local. At the federal level, RCT receives funding from the Federal Transit Administration (FTA), part of the US Department of Transportation. As a transit operator in a non-urban area, these funds are passed through the Vermont Agency of Transportation. As of this writing, the future of federal funding for public transportation is uncertain. The amount of federal funding available will be a factor in how quickly the TDP can be implemented in the coming years.

The Vermont Agency of Transportation (VTrans) is the designated recipient of FTA funds for the State of Vermont and has responsibility for overseeing the non-urban public transportation program in the state. VTrans also provides state funding to RCT for capital and operating expenses. These funds also serve as “local match” for the federal funds.

At the regional level, RCT’s main partner is the Northeastern Vermont Development Association, the regional planning commission for the Northeast Kingdom. NVDA has planning responsibilities beyond transportation, including housing, water, sewer, land use, etc. RCT also has a regional partner in the Lamoille County Planning Commission, which has a similar portfolio of responsibilities for Lamoille County.

The service area for RCT is all of the cities and towns in the three counties of the Northeast Kingdom, plus Lamoille County for demand response service. RCT works with town governments to generate local support and contributions toward transit service.

RCT has many ties to community organizations and institutions, both nonprofit and for profit. Notable among these are Northern Counties Health Care and Northeastern Vermont Regional Hospital, in Caledonia County; North Country Hospital and North Country Primary Care facilities in Orleans and northern Essex counties, Copley Hospital in Lamoille County; and local federally qualified health care centers, such as Island Pond Health Center and Dental, Danville Health Center, and Concord Health Center, with whom RCT works to increase health care. Other organizations include the Northeast Kingdom Chamber of Commerce, Vermont’s North Country Chamber of Commerce and the Lamoille Region Chamber of Commerce, as well as several town chambers, local school districts, insurance companies and local businesses, to provide transportation services both local and for long distances. .

RCT has coordinated its efforts with surrounding transit providers such as Green Mountain Transit in Central Vermont and Stagecoach Transportation Services, Inc. in Orange County (now part of Tri-Valley Transit). RCT also works very closely with human service agency partners, providing transportation service on a contract basis with many of them. These agencies include the following:

- Northeast Vermont Area Agency on Aging
- Northeast Kingdom Human Services
- Northeast Kingdom Community Action
- Central Vermont Council on Aging
- Riverside Life Adult Day Health Center
- Lamoille Area Adult Day Services
- Newport Adult Day Services
- The Meeting Place

The final partner is the population of RCT riders, including daily users and infrequent users. For some, RCT is an absolute necessity and for others it is a convenient choice. Service changes and expansions in the TDP are generally geared toward serving as many riders as possible, in as convenient a way as possible, given scarce resources. There are also service improvements proposed for specific populations to meet essential mobility needs.

Chapter 2

Existing Transit Services

RCT operates a range of services to meet the diverse needs of the traveling public. These include year-round shuttles that serve trips for all purposes, commuter services that operate during peak periods, shopping shuttles and other demand-response services oriented toward the general public, seniors, people with disabilities, and others who have limited transportation alternatives.

Service Summary

Shuttles and Commuter Routes

Coverage

RCT shuttle routes serve the US 5 corridor between Lyndon/Lyndonville, and St. Johnsbury, as well as Newport and Derby/Derby Line. Taken together, these cities/towns had a total population of 22,505 in 2015, making up 35% of the population of the Northeast Kingdom (Caledonia, Essex and Orleans counties combined). The US 2 Commuter route connects St. Johnsbury to Danville, Marshfield, Plainfield, East Montpelier and Montpelier. RCT's other commuter service is a new route connecting St. Johnsbury to Littleton, NH. (See Figure 1.) All of the St. Johnsbury routes serve the passenger hub at the Welcome Center at the Pomerleau building on Railroad Street in St. Johnsbury.

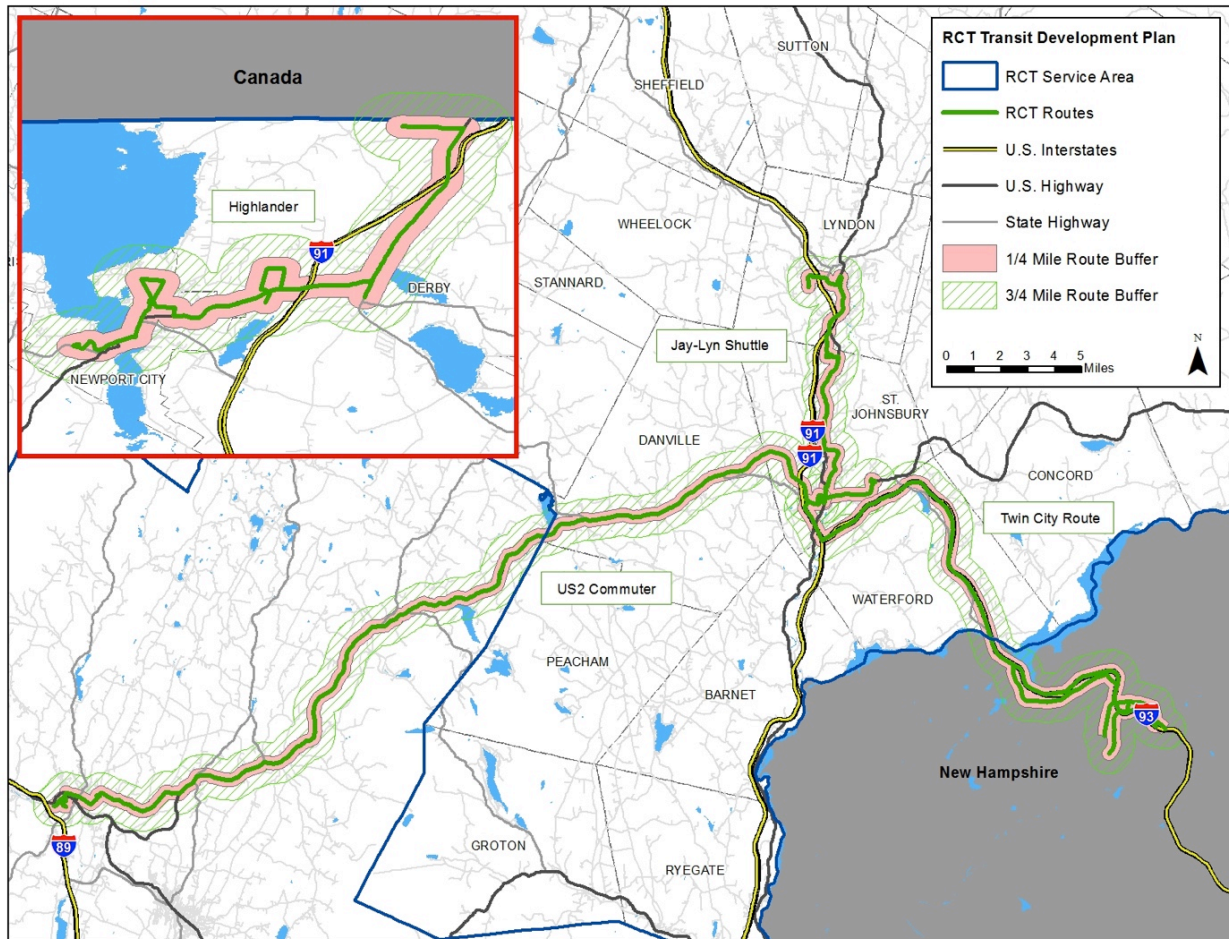
U.S. Census population results for the year 2015 were used to determine the approximate number of persons within easy walking distance of RCT shuttle and commuter route service. Assuming an even population distribution within individual Census blocks, about 18,150 persons live within a 1/4-mile radius of RCT shuttle and commuter route services (equivalent to a 5-minute walk). Another 11,400 people live within 3/4 of a mile from an RCT route (equivalent to a 15-minute walk).

Level of Service

RCT operates two local in-town shuttle routes with full-day service. The Jay-Lyn Shuttle, operating mostly on US 5 between Lyndonville and St. Johnsbury, runs Monday through Friday with nine round trips from the early morning through the afternoon. Since 2012, this route has been upgraded twice. In January 2012, RCT began operating two additional trips along this alignment oriented toward commuters. These trips make fewer stops and offer faster service with arrival and departure times in St. Johnsbury better coordinated with work start and end times as well as connecting with the US 2 Commuter for connections to and from Montpelier. This

commuter service is referred to as the Jay-Lyn Express and constitutes the first and last round trips of the service day. In September 2016, RCT added three new local trips to better meet the transportation needs of the public. With these upgrades, the Jay-Lyn Shuttle/Express is close to offering hourly service between the two most populous communities in the Northeast Kingdom.¹

Figure 1 RCT Shuttle and Commuter Routes



The Highlander, operating in Derby and Newport City, runs Monday through Saturday with four round-trips operated each day. The hours of operation on the Highlander are designed for commuting into downtown Newport for school, work, or appointments, as the span of service from the earliest trip in the morning to the latest trip in the afternoon is nine hours. The trips on the Highlander are two hours apart, with an additional one hour break in service between the second and third trips. Both the Highlander and the Jay-Lyn will deviate up to 1/4 mile from the route to pick up and drop off passengers; a reservation made one day in advance is requested.

¹ Southbound departures are close to hourly from 8:00 a.m. to 12:40 p.m. and then every two hours after that. Northbound departures are close to hourly from 8:50 a.m. to 2:25 p.m. (with a gap between 11:50 a.m. and 1:35 p.m.) with one local trip at

RCT operates a commuter route jointly with Green Mountain Transit, offering four round trips weekdays (split between the two agencies). The US 2 Commuter connects St. Johnsbury to Montpelier with connections to Waterbury and Burlington. RCT works closely with GMT to create an integrated service; during storms or extreme events, the two agencies will alter their service as needed to ensure that all riders can get to where they need to go.

The newest route is the Twin City Route between St. Johnsbury and Littleton, NH. This route has just one round-trip in the morning departing at 5:35 a.m and one round-trip in the afternoon, departing at 2:45 p.m. It is designed to allow St. Johnsbury residents to get to jobs in Littleton, serving such employment destinations as Littleton Regional Hospital, the Social Security Office, the Summit Medical Building, the VA Clinic and Walmart. The route also offers a connection to Concord Coach, with a timed transfer at 6:50 a.m. The Coach route travels to Concord and further to Boston, offering full access to the intercity bus network. Return trips from the south on Concord Coach do not meet the afternoon trip on the Twin City, however, so anyone wanting to get home to St. Johnsbury from the south would contact RCT to arrange a ride with a volunteer driver. Once RCT completes a maintenance facility in Lyndonville, this route will be extended to originate there, with a pickup in the village of Lyndonville.

Shopping Shuttles

Using funding from the federal Elders and Persons with Disabilities program, RCT operates five shopping shuttles in the Northeast Kingdom and Lamoille County. In general, these routes depart from the residential end of the route in the mid morning, allow for two to four hours of shopping, and then return to the residential area by the early afternoon. Some routes operate weekly, while others operate every other week or monthly. The towns served and the level of service of each of the shuttles are described below:

- **Island Pond** – This route originates in Island Pond and connects to shopping locations at Waterfront Plaza in Newport on a weekly basis. On the second and fourth Thursdays of each month, it is routed through Morgan Center, while on the first, third and fifth Thursdays, it is routed through East Charleston.
- **Kingdom Shopper** – This route originates at Sunrise Manor in Island Pond and picks up additional passengers in Orleans, Barton and Glover before heading to Walmart in Derby as well as any requested stops in Derby/ Newport area. It operates the fourth Wednesday of each month.
- **The Greenleaf** – This route originates in Lyndonville and serves residential areas in St, Johnsbury, Danville, Peacham, Groton and Ryegate on the way to the Walmart in Woodsville, NH. It operates on the second and fourth Tuesday of each month.
- **Johnson Shopper** – The Johnson Shopper originates in Morrisville and makes a loop that serves Hyde Park and Johnson, returning to Morrisville, serving both the

Hannaford/Northgate Plaza area and the Price Chopper in the morning and in the afternoon. This route operates on the 1st and 3rd Thursdays of each month and runs two round-trips, one leaving from Morrisville at 9:20 a.m. and the other leaving at noon.

- **Williston Shopper**– This route originates in Newport and serves Troy, Lowell, and Eden on its way to Morrisville. After stopping at the Price Chopper, it then continues into Chittenden County via VT 15 through Hyde Park, Johnson, Jeffersonville, and Cambridge ending in Williston. The bus circulates three times through Williston, serving seven different shopping locations, before returning to the Northeast Kingdom. This route operates on the 2nd and 4th Tuesdays of each month.

Other Demand Response Service

The rest of RCT’s service is provided through several programs:

- **Community Organizations and Department Services (CODS)** – This group of programs includes general public client-pays, Vocational Rehabilitation, Division for the Blind and Visually Impaired, and various state departments under the Agency of Human Services, insurance companies, schools and educational facilities.
- **Elders and Persons with Disabilities** – The money in this federally-funded program pays for critical care transportation (to obtain dialysis, chemotherapy and radiation treatment), meal site, shopping, non-Medicaid medical, adult day, and basic transportation needs for seniors and people with disabilities. Overall, it represents about 11% of RCT’s service. Partner agencies include the Central Vermont Council on Aging (CVCOA), the Northeast Vermont Area Agency on Aging, Adult Day Health Services, Northeast Kingdom Human Services, and Northeast Kingdom Community Action.
- **Medicaid** – This state and federally funded program provides transportation to medical appointments and prescription pick-up services for eligible individuals. It accounts for about 58% of the total funding for RCT.
- **Reach Up** – Reach Up is Vermont’s Transitional Assistance to Needy Families (TANF) program. RCT brokers rides for eligible activities to Reach Up clients in the Northeast Kingdom.
- **Volunteer Brokerage** – The majority of RCT’s demand response trips are provided by volunteer drivers in their personal vehicles. In FY 2016, volunteers provided 76% of the total E&D, medical, and CODS trips taken by RCT customers. Overall, volunteers provide 58% of the total number of rides taken on all RCT services.

RCT currently has a pool of over 200 volunteer drivers, though only 75 of them consider themselves “full time” volunteers. The number fluctuates in response to gasoline prices and the mileage reimbursement rate. Among the “full time” volunteers, the average number of trips provided per volunteer in FY2016 was about 1,700 or 140 per month. Some volunteers provide more than 10 trips per day, while others drive less frequently.

The pool of volunteers is an absolutely essential part of RCT’s service, and without them, rides would be unavailable to many of RCT’s customers.

Summary of RCT Service

RCT’s services as described above range from volunteer driver trips that carry up to 3 passengers at a time to large bus commuter routes that can carry more than 30 passengers per trip. Table 2.1 lists all of RCT’s offerings by service category (only categories that have currently-operated services are shown):

Table 2.1: Summary of Current RCT Services

Type	Span	Frequency	Routes/Services
Volunteer Driver	N/A	N/A	Medicaid, E&D, CODS
Demand Response	N/A	N/A	Medicaid, E&D, CODS
DR/Shopping shuttles	Each route runs weekly or biweekly	N/A	Island Pond Kingdom Shopper Johnson Shopper Williston Shopper The Greenleaf
Full day service	St. Johnsbury to Lyndonville – Mon-Fri Derby to Newport City – Mon-Sat	1-2 hour headways	Jay-Lyn Shuttle/Express Highlander
Commuter bus	Monday - Friday	AM and PM peak trips	US 2 Commuter Twin City Route

Profile of Riders

RCT conducts an annual survey of its riders. The most recent available data are from the 2015 survey. The sample size of this survey among shuttle riders was small—only 22 responses were obtained from the three shuttle routes in operation at that time.

About 80% of respondents on shuttle routes were frequent riders, using RCT services at least three times per week. This is not surprising as many people depend on RCT for all of their mobility, and furthermore surveys of this type are more likely to catch frequent riders, since they are on the bus nearly every day, while occasional riders may not have been on the bus the day the survey was conducted.

About 40% of RCT’s shuttle riders are between the ages of 51 and 65 and about 30% are between the ages of 30 and 50. The rest of the ridership is distributed relatively evenly among the following age groups: under 18, 19-30 and over 65.

The majority of RCT’s riders—about 60%—have household incomes of under \$20,000 annually. On the shuttle routes, these low income riders make up 90% of the respondents, but riders on the US 2 commuter represent a broader range of the income spectrum, with half of riders making over \$50,000 annually.

This divergence between the shuttles and commuters is also clear with respect to whether the rider had a car available for the trip. Over 90% of shuttle riders said they had no car available, while 60% of commuter riders did have a car available. The shuttle routes serve transit-dependent riders almost exclusively, while the US 2 commuter serves choice riders—those who choose to ride the bus rather than having no other option.

Riders were asked about the purpose of their trip on the bus. Overall, 48% of riders were making trips to or from work or school, though this was true of just 30% of shuttle riders (all of the US 2 commuter respondents were making work trips). The next most common trip purpose was shopping, representing 22% overall and 30% of shuttle riders. Medical appointments were an important purpose for shuttle riders (20%). Meal sites and social/recreational trips represented 7% of trips each (10% of shuttle trips for each purpose).

Riders were also asked about the reasons they use RCT. The most important reasons cited were that RCT is the only form of transportation available, and that it was convenient. They used it for social and environmental reasons and found the service to be economical. Another reason cited less frequently was that the service was a back up for them when they could not drive.

On various customer service questions, RCT scored very high. Riders were nearly unanimous in rating drivers courteous and professional, offering service when needed, and in rating the vehicles safe and clean. They said they were treated with respect and the bus ran on time. The only measure where opinion was divided was the question of drivers announcing stops: only slightly over half of riders reported that drivers did so.

With respect to ride scheduling and office staff, the reviews were likewise overwhelmingly favorable. Nearly everyone stated that their calls were taken promptly, that the staff was courteous and pleasant, and that their trips were scheduled in a timely manner.

Fares

All of RCT’s bus services are fare free. The portion of the US 2 Commuter that is operated by GMT charges a fare of \$2.

Fleet and Facility

As of April 2018, RCT’s bus fleet consisted of 23 active vehicles: 16 vans and 7 buses. Fourteen vehicles (5 buses, 9 vans) are operated out of Lyndonville while five vehicles (2 buses, 3 vans) are operated out of Newport, and three vans are operated out of Morrisville. One van is leased to Island Pond. All vehicles are gasoline powered, except for two diesel buses garaged in

Lyndonville. The Newport buses are parked at the State Highway District Garage, located next door to the State Police Barracks, while the vans are parked at the RCT office. The Morrisville vehicles are parked in a lighted area next to the office, patrolled by the local police.

In 2015, RCT purchased a building on Industrial Parkway in Lyndonville to house its main administrative office and serve as its operations hub. After significant upgrades, RCT moved into the space in early 2016. In addition, two satellite offices each house additional staff member: a transit coordinator in Newport and a dispatch department consisting of a dispatch program manager and four dispatchers in Morrisville.

Vehicle maintenance is outsourced to local garages through an annual bidding process. Vehicle work done under warranty is performed by local dealerships.

RCT vans and buses are equipped with wheelchair lifts, mobile phones and video cameras that include GPS tracking and real-time communication with the operations center. Beginning in 2017, RCT began providing real-time vehicle location and arrival times to customers via smartphone apps developed by Swiftly and Transit.

RCT Service Statistics and Performance

Ridership and Productivity

During fiscal year 2016, RCT provided just over 229,000 trips via volunteer, demand response van, and fixed route service. The majority of those trips, 58%, were provided by volunteer drivers; 23% were taken on the fixed route shuttle service; 5% were taken on taxis; and 14% on the demand response vans.

On the fixed route service—the Jay-Lyn and Highlander shuttles and the US 2 Commuter²—RCT provided 53,690 trips and 132,597 miles of service during 7,808 revenue hours; an average of 6.9 boardings per revenue hour. The Jay-Lyn Shuttle/Express carried nearly 28,000 trips (more than half the total), while the Highlander was just under 15,000 and the US 2 Commuter (RCT portion only) just over 11,000.

Through the first 8 months of FY17, RCT shuttles, including the expanded service on the Jay-Lyn and the new Twin City route performed as shown below:

- Jay-Lyn Shuttle/Express 7.1 boardings per revenue hour
- Highlander Shuttle 6.4 boardings per revenue hour
- US 2 Commuter (RCT portion) 5.1 boardings per revenue hour
- Twin City 0.3 boardings per revenue hour

² The Twin City route did not begin service until September 2016, after the end of FY2016. Likewise, increased service on the Jay-Lyn route also began in September 2016.

The Jay-Lyn shuttle is the most productive of RCT's fixed route services. Destinations along this route include the St. Johnsbury Welcome Center, Northeastern Vermont Regional Hospital, Price Chopper, the Green Mountain Mall, and the White Market Plaza, among others. The Twin City route had a slow start in the fall and only starting picking up more riders in December. Productivity in February (latest available) was the best yet.

Revenues and Costs

In fiscal year 2016, the total operating budget for RCT was approximately \$4.7 million. As shown in Figure 2, about two thirds of the budget comes from the Medicaid program, while the combination of Federal Transit Administration and Vermont operating funds make up about 25% of the budget. The rest of the budget is funded by Community Organizations and Department Services, local towns, and other human service agency partners.

In terms of expenditures, about two thirds of the operating budget funds the volunteer driver program, with van service accounting for a quarter of the budget and shuttle and commuter routes accounting for the remaining 10%. Comparing the ridership by service type to the expenditure by service type, it can be seen that the shuttles have the lowest cost per passenger overall, but that volunteer trips are much more cost effective than van trips.

Figure 2 RCT Sources of Funding

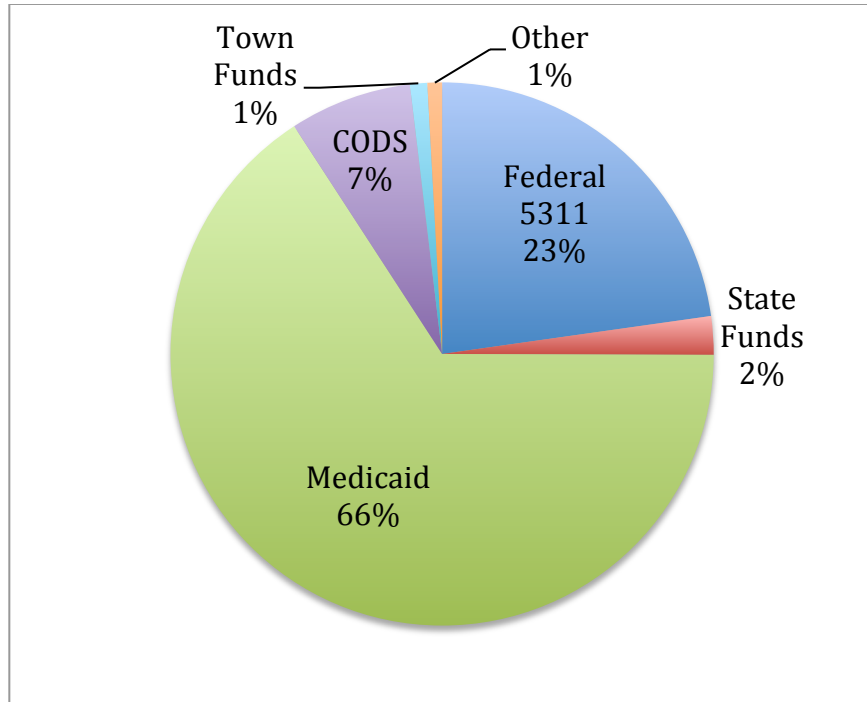
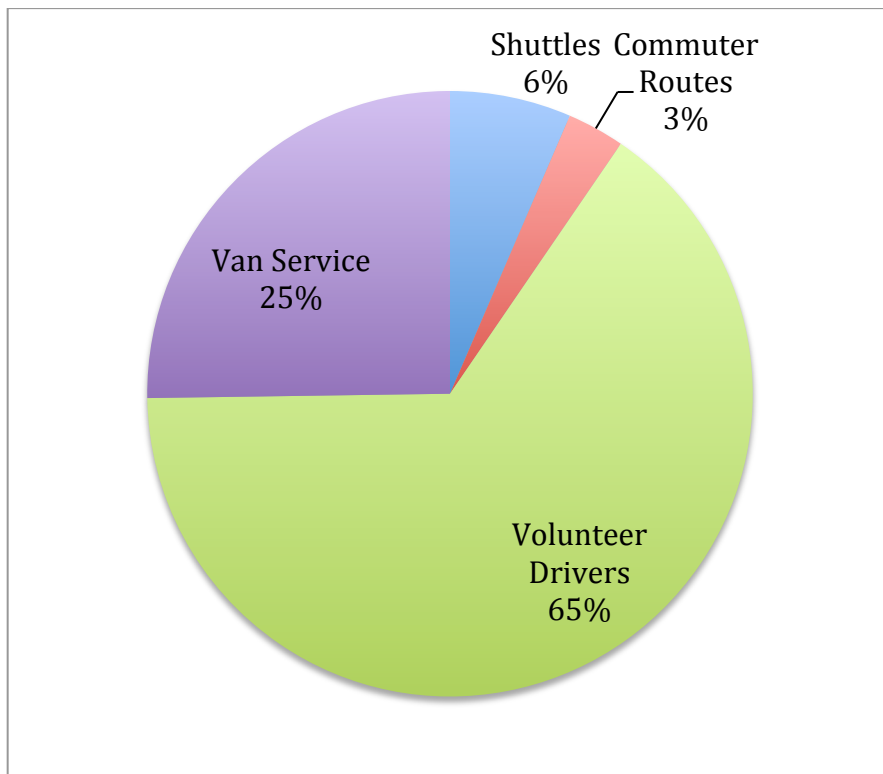


Figure 3 RCT Services Provided by Type by Budget Share



Chapter 3

Market Analysis

Encompassing just over 2,400 square miles of land and water or 27% of the state’s land mass, the study area includes the three counties that make up the Northeast Kingdom—Caledonia, Essex, and Orleans—plus Lamoille County, where RCT provides demand response service. The study area includes one incorporated city, Newport, and 65 towns and gores (see Table 3.1 for full list). The area is a year-round recreation destination, with skiing, mountain biking, hiking, fall foliage, and maple tapping.

This chapter of the TDP takes a closer look at the development patterns and the characteristics of the population in RCT’s service area. Special focus is put on traditional indicators of a need for transit service—age, income, auto ownership—but the locations of employers and commuting patterns are also considered. RCT serves both “transit-dependent” and “choice” riders; this chapter analyzes these two markets, while following chapters consider how services can be enhanced to meet their needs.

Demographic Profile

The study area, with 89,392 residents as of the 2015 Census, has a population density of 36 persons per square mile, significantly lower than the statewide average of 65 persons per square mile. The counties that make up the study area are among the least populated in the state, and taken together have only about 56% of the population of Chittenden County or 14% of statewide population.

Table 3.1 provides an overview of demographic characteristics of the study area by city/town. The data reported was compiled from various Census Bureau sources, including the 2011-2015 American Community Survey and the 2010 Census.

RCT’s local routes serve a limited portion of the project area: St. Johnsbury, Lyndonville, Newport, and Derby have “full day” service while Lyndonville, St. Johnsbury and Danville have commuter service. The four municipalities with full-day service have 22,505 residents, making up 25% of the area’s total population but only about 5% of the area’s land mass. The population density of these three towns and one city is 159 persons per square mile, significantly higher than the regional population density. Population density outside of RCT’s local shuttle service area is much lower, about 29 persons per square mile.

Table 3.1 RCT Service Area Demographics

Town	2015 Pop.	2010 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. < 18	Pop. 65+	Pop w/ Disability	Median HH Income	Total Housing Units	0-Veh. HU
Barnet	1,632	1,708	-4%	37	309	340	389	\$63,241	618	8
Burke	1,570	1,753	-10%	46	384	280	215	\$47,056	631	23
Danville	2,203	2,196	0%	36	396	510	399	\$62,019	891	37
Groton	1,026	1,022	0%	19	204	178	246	\$53,500	380	4
Hardwick	2,949	3,010	-2%	76	724	440	606	\$40,900	1,180	81
Kirby	442	493	-10%	18	105	57	71	\$63,750	164	8
Lyndon	5,948	5,981	-1%	149	1,173	860	1,121	\$38,272	2,288	165
Newark	505	581	-13%	14	84	119	112	\$44,500	226	10
Peacham	751	732	3%	16	143	149	93	\$57,708	299	12
Ryegate	1,107	1,174	-6%	30	213	225	239	\$49,844	447	9
St. Johnsbury	7,535	7,603	-1%	205	1,410	1,430	1,522	\$40,037	3,174	369
Sheffield	641	703	-9%	20	124	116	125	\$44,773	260	10
Stannard	276	216	28%	22	90	31	30	\$43,750	94	1
Sutton	1,004	1,029	-2%	26	238	146	157	\$42,868	395	13
Walden	999	935	7%	26	252	119	125	\$47,500	384	10
Waterford	1,533	1,280	20%	39	375	204	143	\$66,750	532	9
Wheelock	891	811	10%	22	177	153	179	\$53,077	324	24
Caledonia County	31,012	31,227	-1%	47	6,401	5,357	5,772	\$45,323	12,287	793

Table 3.1 RCT Service Area Demographics (Continued)

Town	2015 Pop.	2010 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. < 18	Pop. 65+	Pop w/ Disability	Median HH Income	Total Housing Units	0-Veh. HU
Averill	18	24	-25%	0	0	14	3	\$45,625	9	0
Avery's gore	0	0		0	0	0	0		0	0
Bloomfield	222	221	0%	5	33	51	55	\$29,063	105	3
Brighton	973	1,222	-20%	18	202	202	211	\$29,868	414	56
Brunswick	89	112	-21%	3	17	19	23	\$37,500	36	0
Canaan	1,085	972	12%	32	221	205	213	\$40,441	450	19
Concord	1,223	1,235	-1%	23	265	209	199	\$40,875	537	23
East Haven	282	290	-3%	8	40	58	69	\$39,643	122	1
Ferdinand	30	32	-6%	1	8	5	9		12	0
Granby	95	88	8%	2	13	30	15	\$53,750	40	0
Guildhall	216	261	-17%	7	21	65	40	\$43,750	109	8
Lemington	149	104	43%	4	29	46	49	\$29,063	65	7
Lewis	0	0		0	0	0	0		0	0
Lunenburg	1,377	1,302	6%	30	223	342	300	\$33,750	576	39
Maidstone	213	208	2%	7	24	69	24	\$35,446	109	2
Norton	147	169	-13%	4	22	31	45	\$32,500	76	5
Victory	88	62	42%	2	18	20	6	\$51,250	41	0
Warner's grant	0	0		0	0	0	0		0	0
Warren's gore	0	4	-100%	0	0	0	0		0	0
Essex County	6,207	6,306	-2%	9	1,136	1,366	1,261	\$36,599	2,701	163
Belvidere	342	348	-2%	11	66	41	51	\$47,500	142	8
Cambridge	3,737	3,659	2%	59	862	365	258	\$59,549	1,541	37
Eden	1,392	1,323	5%	22	372	203	163	\$52,083	509	3
Elmore	956	855	12%	24	188	139	60	\$79,375	381	7
Hyde Park	3,043	2,954	3%	78	635	544	452	\$47,065	1,292	47
Johnson	3,512	3,446	2%	78	804	320	441	\$34,875	1,133	67
Morristown	5,360	5,227	3%	104	1,074	943	689	\$45,389	2,305	144
Stowe	4,407	4,314	2%	61	880	823	444	\$62,004	1,989	127
Waterville	681	673	1%	42	147	77	83	\$61,875	271	7
Wolcott	1,597	1,676	-5%	41	393	217	233	\$50,036	613	22
Lamoille County	25,027	24,475	2%	54	5,421	3,672	2,874	\$50,939	10,176	469

Table 3.1 RCT Service Area Demographics (Continued)

Town	2015 Pop.	2010 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. < 18	Pop. 65+	Pop w/ Disability	Median HH Income	Total Housing Units	0-Veh. HU
Albany	882	941	-6%	23	168	152	120	\$36,131	391	12
Barton	2,726	2,810	-3%	61	577	573	516	\$43,698	1,075	72
Brownington	1,000	988	1%	35	230	148	157	\$45,227	406	11
Charleston	1,045	1,023	2%	27	151	189	159	\$47,800	460	18
Coventry	1,079	1,086	-1%	39	270	158	151	\$45,417	413	18
Craftsbury	1,208	1,206	0%	30	253	277	169	\$52,500	456	13
Derby	4,529	4,621	-2%	79	829	979	637	\$49,034	1,997	137
Glover	1,040	1,122	-7%	27	184	296	149	\$46,484	473	25
Greensboro	769	762	1%	20	137	196	151	\$52,500	322	15
Holland	668	629	6%	18	183	92	77	\$37,500	282	0
Irasburg	1,248	1,163	7%	31	280	207	155	\$36,250	521	20
Jay	806	521	55%	24	257	48	47	\$43,958	276	2
Lowell	801	879	-9%	14	196	93	145	\$51,000	306	15
Morgan	620	749	-17%	18	68	199	109	\$33,828	285	22
Newport city	4,493	4,589	-2%	589	965	707	761	\$30,101	1,786	312
Newport	1,773	1,594	11%	41	354	476	298	\$54,167	708	10
Troy	1,544	1,662	-7%	43	318	311	283	\$39,676	653	23
Westfield	554	536	3%	14	85	123	58	\$61,875	217	6
Westmore	361	350	3%	10	45	137	69	\$50,750	173	10
Orleans County	27,146	27,231	0%	38	5,550	5,361	4,211	\$42,831	11,200	741
RCT Service Area	89,392	89,239	0%	36	18,508	15,756	14,118	\$46,441	36,364	2,166
Vermont	626,604	625,741	0%	65	123,271	102,273	85,307	\$55,176	257,167	17,155

Residential Density

As previously mentioned, the project area is significantly less densely populated than the state of Vermont as a whole. Area wide, there is a rural density of less than one household per acre. As shown in Map 3.1, outside of Newport and St. Johnsbury, there are only a few isolated census blocks (the smallest unit of census geography) in Brighton, Barton, Johnson, Morristown, and Lyndon where density rises above one household per acre.

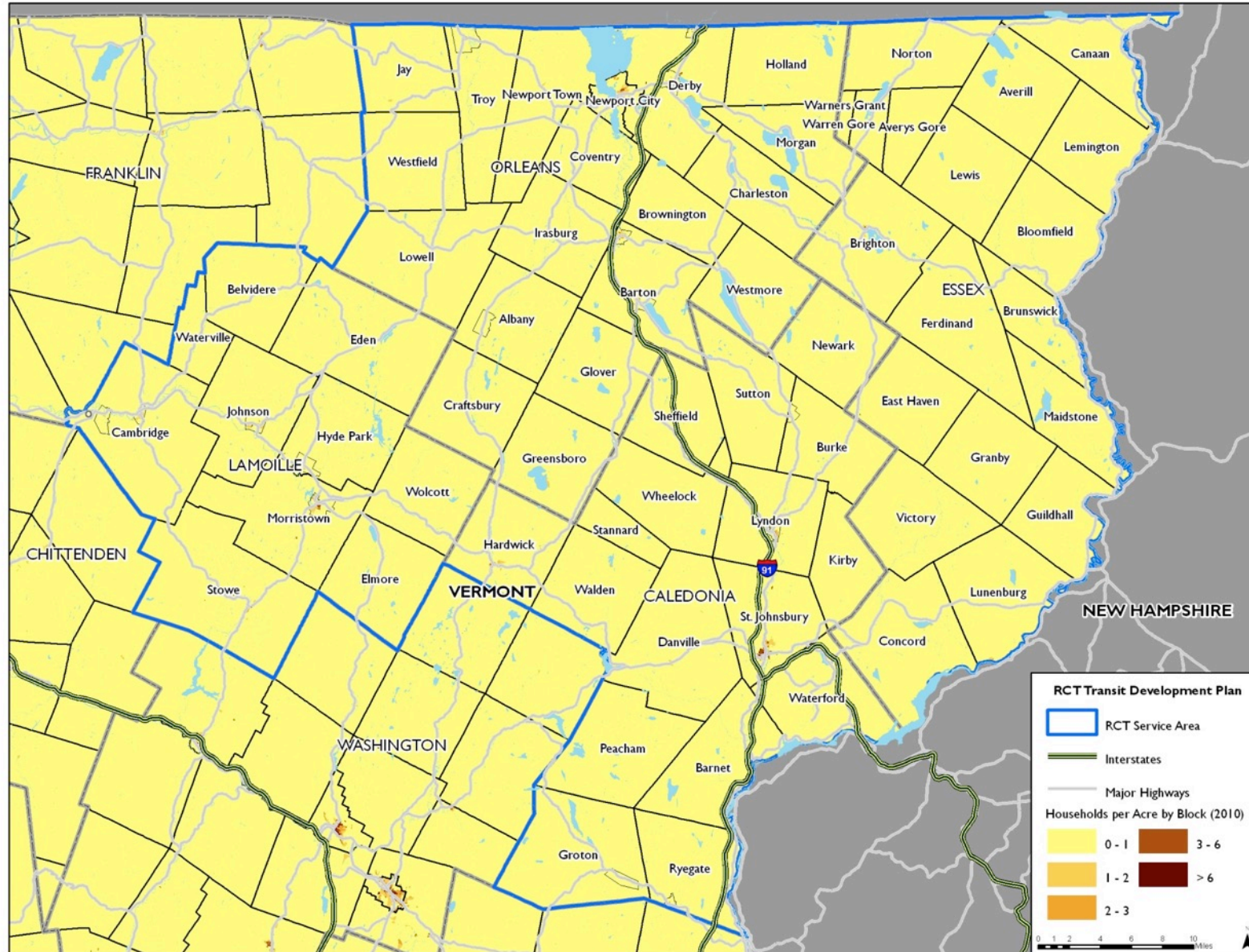
The *Transit Capacity and Quality of Service Manual* identifies a threshold density of 3 households per acre as necessary to support fixed route transit service that operates hourly for up to 12 hours per day (such as 6:00 a.m. to 6:00 p.m.). Densities of 6 households per acre or more can support bus routes with higher frequencies, such as buses running every 20 minutes or better. Of course, residential density is just one of many factors that affect demand for transit service.¹

Very few areas in RCT's service area have population densities as high as 3 households per acre, thus explaining the limited reach of full-day local bus service in the region. Maps 3.2 and 3.3 zoom in on the "urbanized" areas of the Northeast Kingdom—Newport and St. Johnsbury and surrounding towns—with an overlay of RCT's current local routes. The map shows that virtually all of the census blocks with more than 6 households per acre are within close proximity to a bus route, and that the great majority of blocks with more than 3 households per acre are also close to current routes.

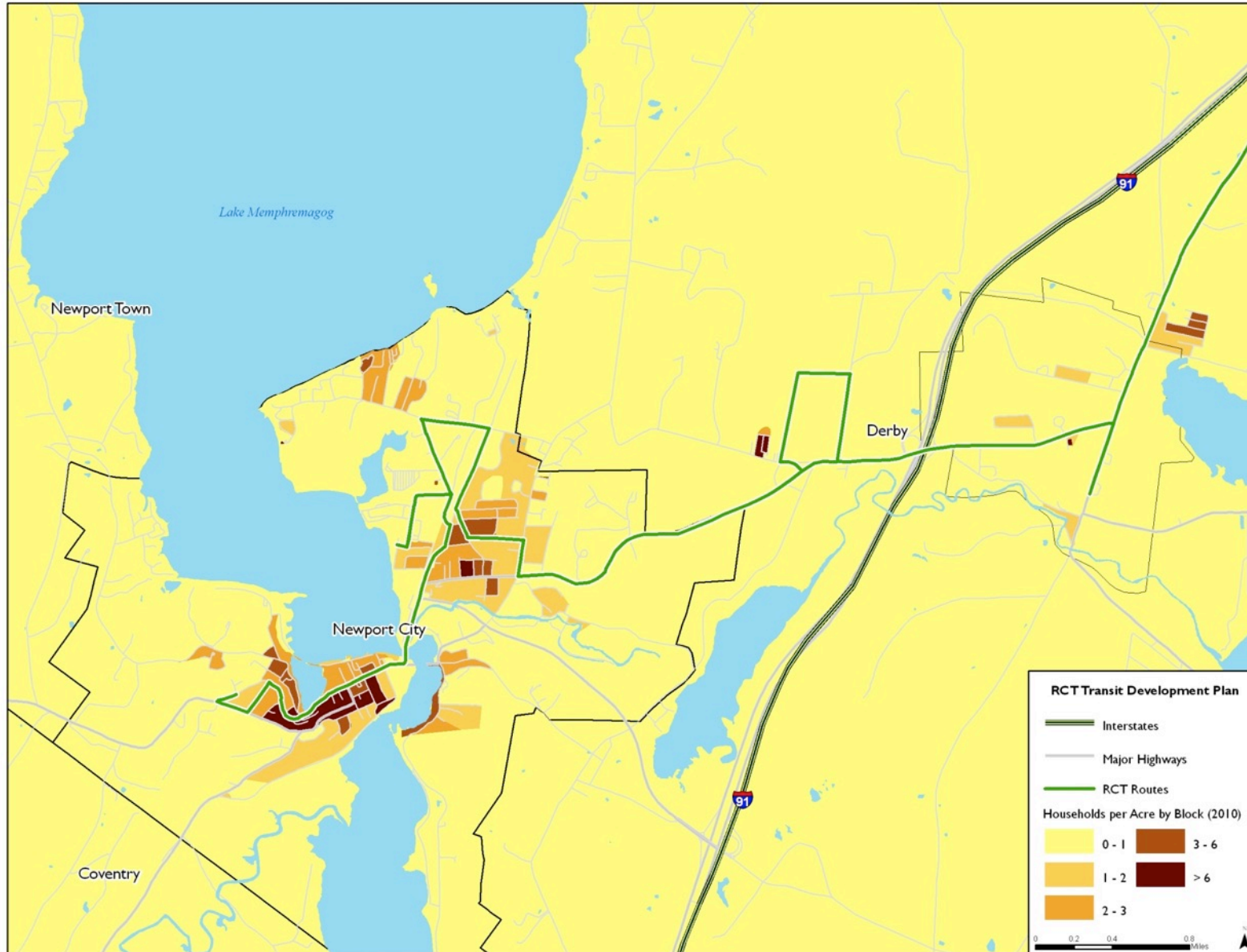
Certain characteristics of the population can make people more or less likely to use transit service. The following section provides maps and a brief analysis of certain target populations more likely to utilize public transit: older adults (persons 65 and older), low income households (household earning less than \$30,000 per year), and zero-vehicle households. All data included in this analysis was obtained from the U.S. Census Bureau's American Community Survey for the period 2011-2015. These data represent an average over that five-year span of time.

¹ See TCRP Report 100, *Transit Capacity and Quality of Service Manual*, page 3-33. Employment density of 4 jobs

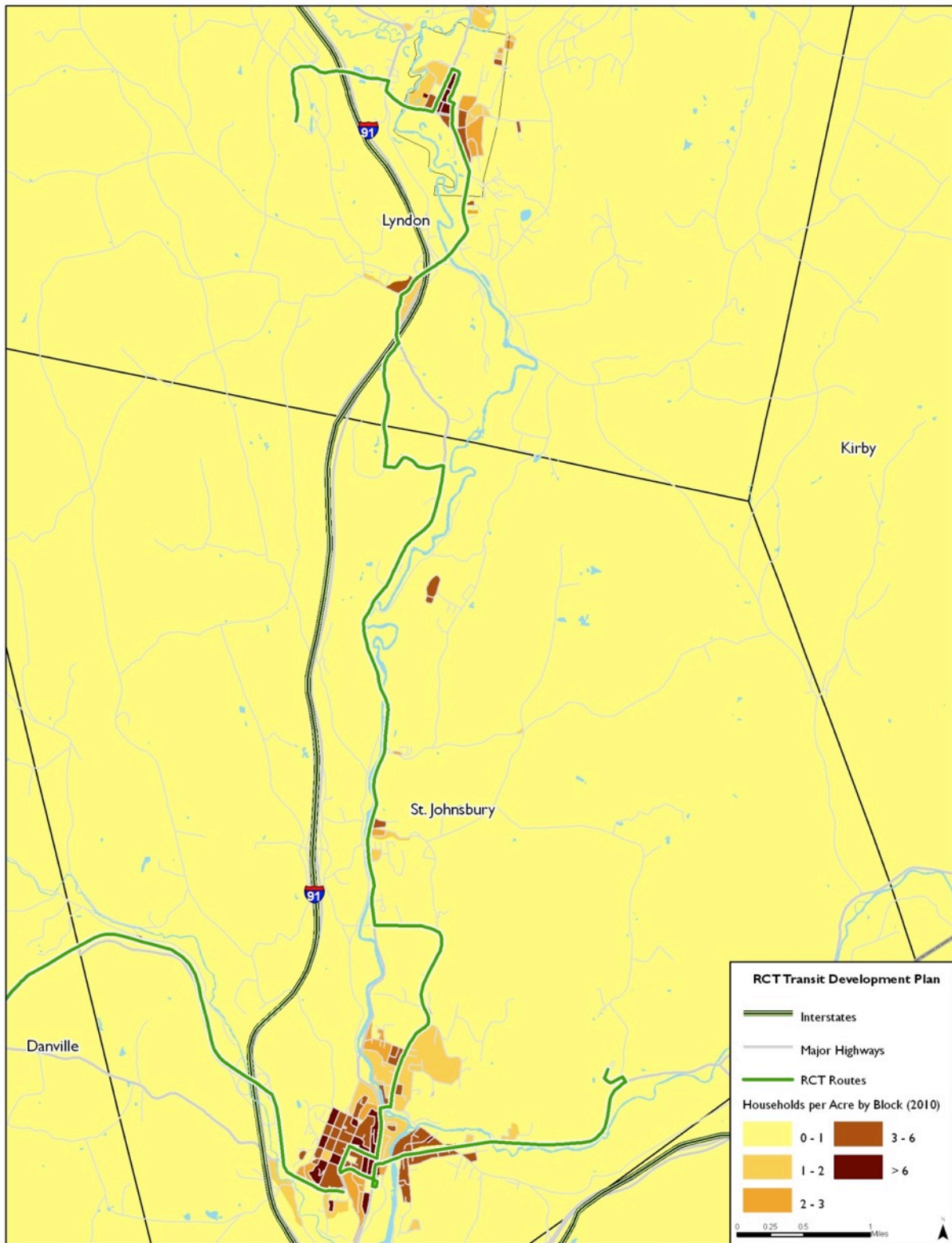
Map 3.1 Study Area Household Density



Map 3.2 Newport Area Household Density



Map 3.3 St. Johnsbury Area Household Density



Older Adults

Map 3.4 shows the percentage of persons age 65 and older. It shows high percentages of older adults in several towns, though most of these have very low populations. Of those towns with high percentages (over 25%), only Newport Town, Glover, Morgan, and Greensboro have more than 500 residents. Moderate percentages of seniors (15-25%) are spread through many towns in the project area, including most of Caledonia County. Only in Cambridge, Johnson and sparsely populated section of northern Essex County do seniors make up less than 10% of total population.

Low Income Households

A sizable portion of the project area exhibits a moderate percentage of low-income households, or those earning less than \$25,000 annually, as demonstrated in Map 3.5. In Essex County, 15% or more of all households are low income. Moderate to high percentages (35 – 50%) of low-income households can be found in Johnson, Newport city, Brighton, Irasburg, Lunenburg, Ferdinand, Charles, Bloomfield, Lemington, and Norton. The southern and western portions of the RCT service area have smaller percentages of low-income households, other than Johnson, which likely shows up so prominently because of the presence of students at Johnson State College. Elmore and Waterford are the two wealthiest towns in the service area.

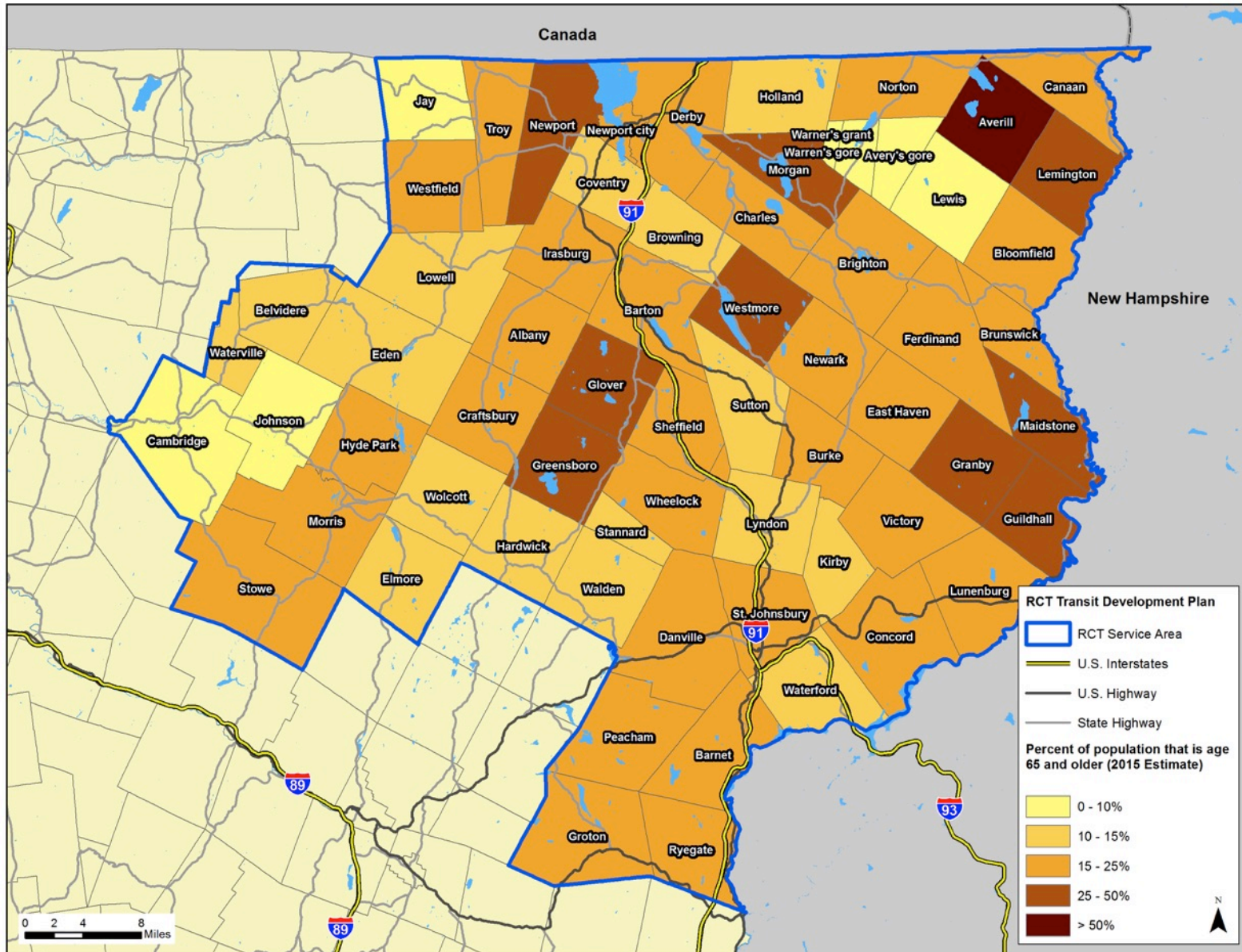
Zero Vehicle Households

Map 3.6 shows the percentage of households that do not own any vehicles by Census block group. Note that Census data regarding automobile ownership is provided in terms of housing units and not households. Because the difference between the two is generally insignificant, the terms are used interchangeably here to symbolize a “household” with no access to an automobile.

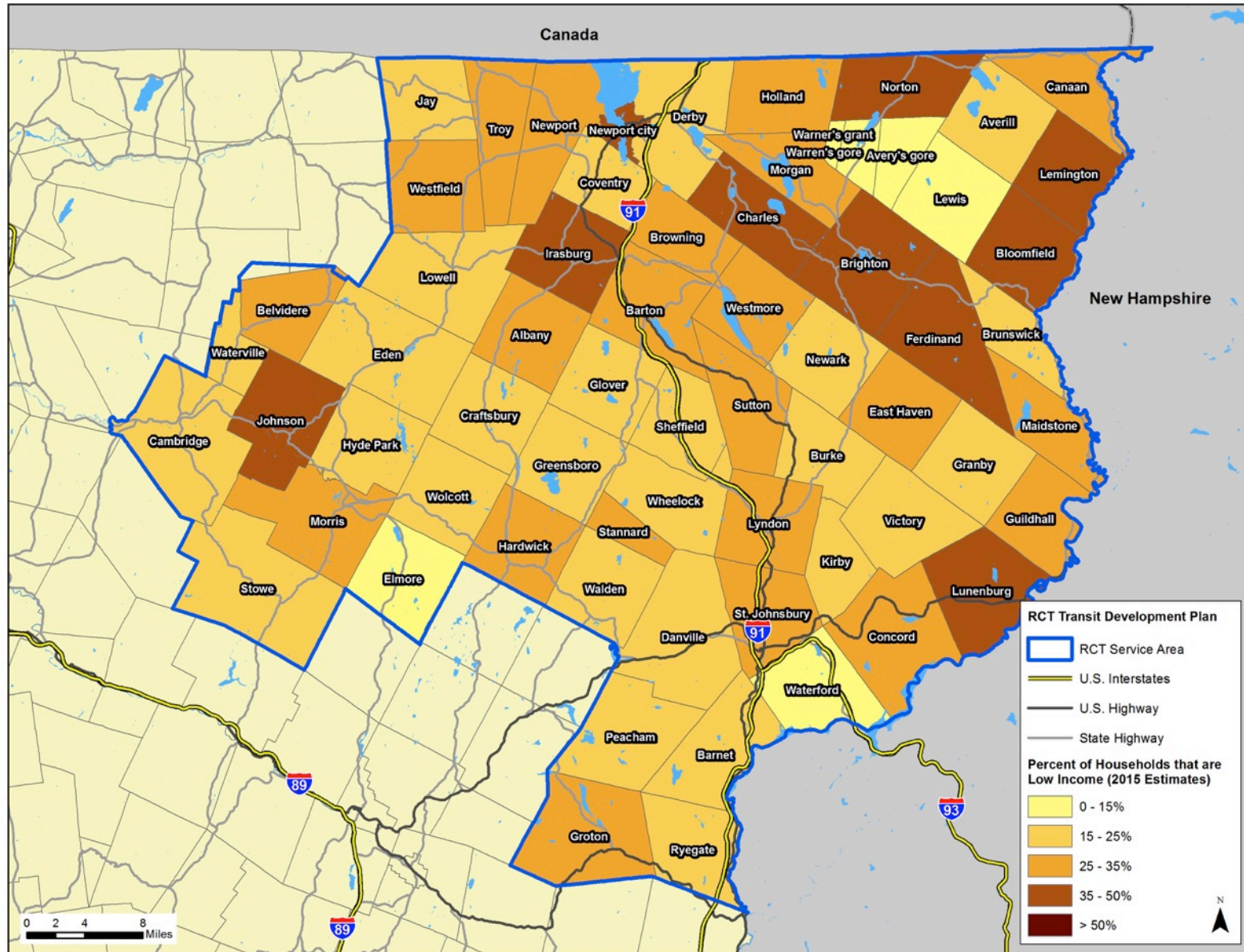
The highest percentages are seen in Newport City (17.5%), Brighton (13.5%) and St. Johnsbury (11.6%), plus Lemington (which has only 65 households). Of course, Newport and St. Johnsbury are the two places with the highest level of RCT service available in the region. Brighton, the town where the village of Island Pond is located, is home to many retirees and RCT operates shopper service there to assist people without cars to get to grocery stores.

Most of the rest of the region shows less than 5% of households without a vehicle, though a significant portion of Lamoille County and much of the I-91 corridor has moderate percentages of zero-vehicle households (5-10%).

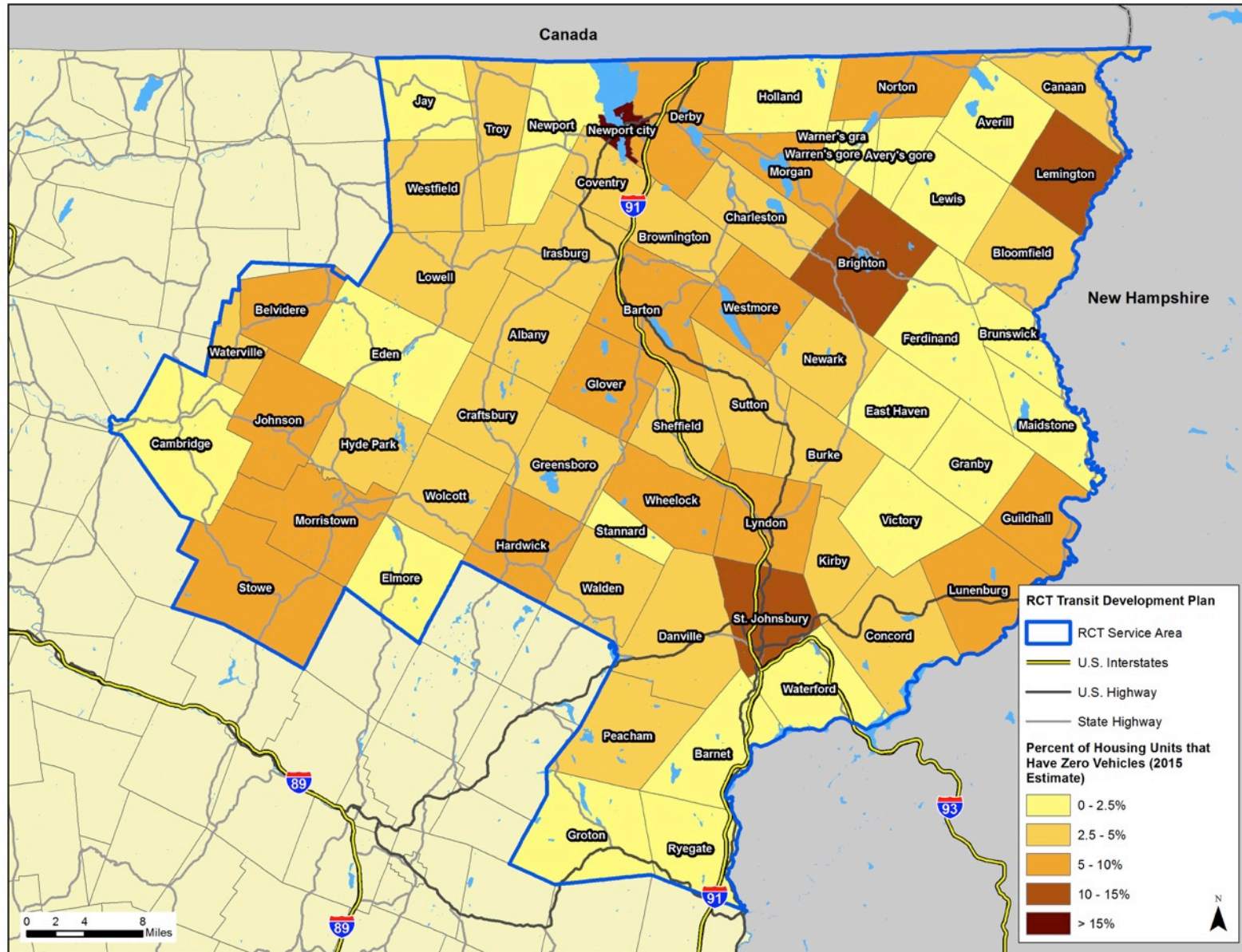
Map 3.4 Percentage of Population Ages 65 and Older



Map 3.5 Percentage of Low Income Households



Map 3.6 Percentage of Zero Vehicle Housing Units



Trip Generators for Transit-Dependent Populations

The previous section used data from the U.S. Census to identify areas within the RCT service area that have concentrations of people who are more likely to need access to public transportation services. This section considers data from local sources which provide more detailed information on the location of specific trip generators. Data on these trip generators was obtained from a variety of sources, including the Vermont Human Service Transportation Coordination Plan.

Map 3.7 shows some of the trip generators within the project area, including:

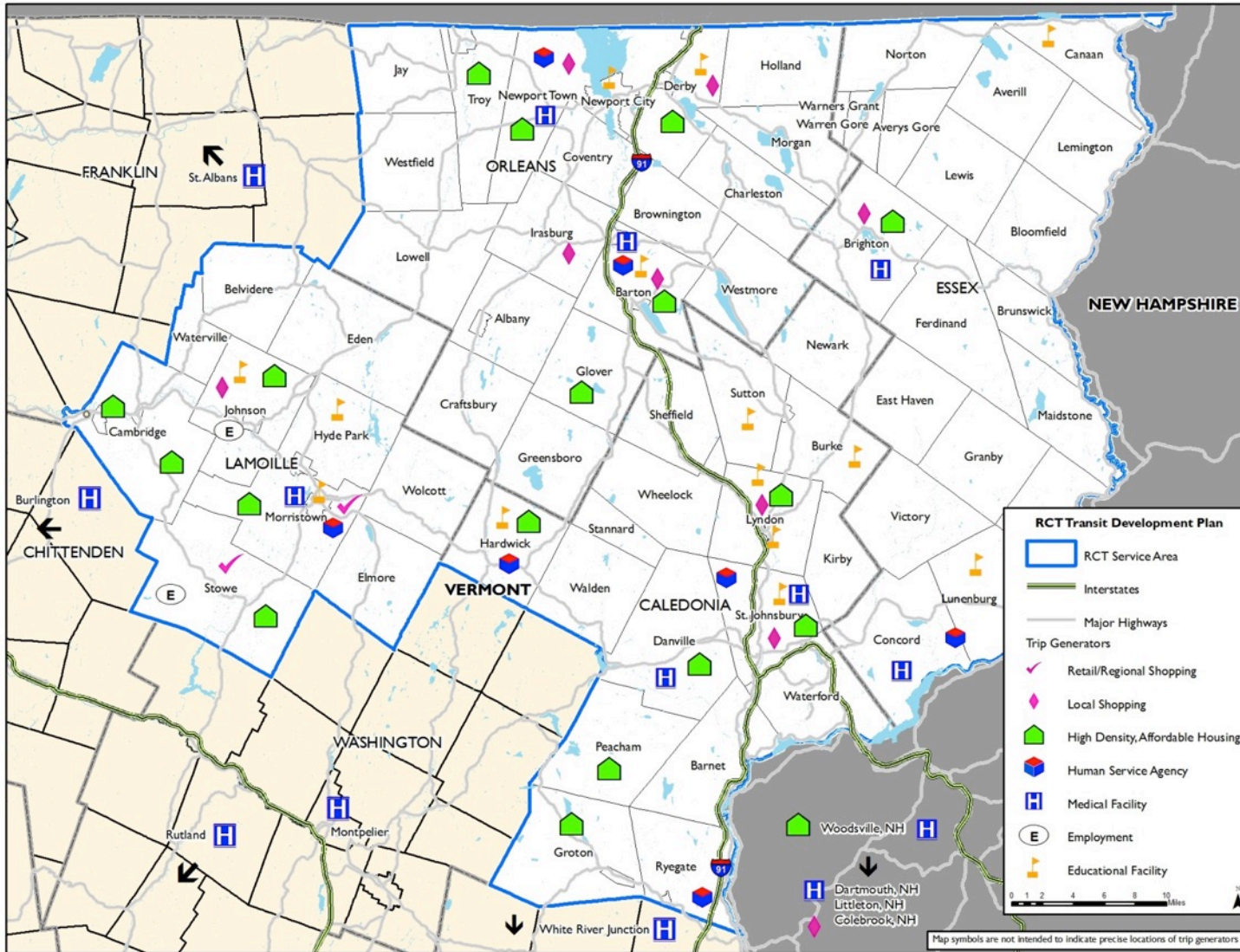
- Accessible housing
- Affordable/income-restricted housing
- Apartment complexes
- Human service agencies
- Medical facilities
- Senior centers and housing
- Local shopping (grocery stores)

It is important to note that the icons on the map are not intended to denote precise locations within a town, but rather the presence of the facility somewhere within the town boundaries.

Many trip generators serve multiple purposes. For example, many senior housing complexes could also be categorized as accessible housing and a few senior centers also serve as senior nutrition sites, which would generally be categorized as human service agencies.

Not surprisingly, many generators are concentrated in more densely-populated areas: Newport city and town, Derby/Derby Line, Morrisville, and St. Johnsbury. RCT's current routes provide connections to some of these generators, though not necessarily at a high level of service.

Map 3.7 Trip Generators



Employers

Data on employers in Lamoille, Caledonia, Essex, and Orleans counties was purchased from Dun & Bradstreet and are shown on Maps 3.8, 3.9, and 3.10.² The employers shown are worksites with 10 or more employees. As expected, these employers are clustered in Lyndonville, Stowe, Morrisville (part of Morristown), Newport city, and St. Johnsbury. The largest employers in the region are shown in the listing below:

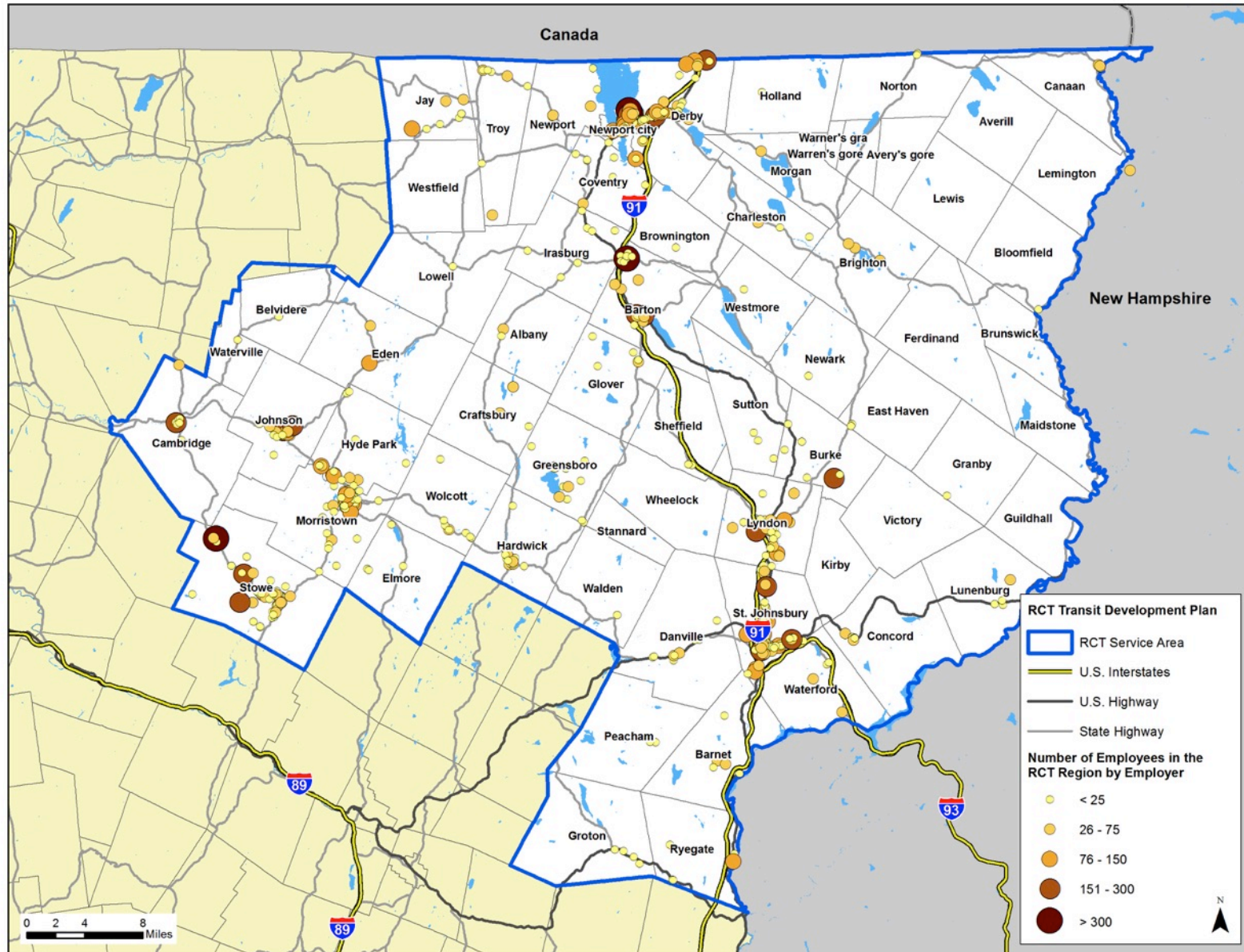
- Columbia Forest Products (Newport) – 400 employees
- North Country Health Systems (Newport) – 400 employees
- Stowe Mountain Resort and Spruce Peak (Stowe) – 400 employees
- Ethan Allen Furniture (Orleans – part of the Town of Barton) – 380 employees
- North Country Union High School (Newport) – 290 employees
- Fairbanks Scales, Inc. (St. Johnsbury) – 275 employees
- Nsa Industries (Lyndonville) – 250 employees
- Northern VT University [formerly Johnson State College] (Johnson) – 250 employees
- Norman Jensen, Inc. (Derby Line) – 235 employees
- St. Johnsbury Academy (St. Johnsbury) – 235 employees
- Northeast Kingdom Human Services (Newport) – 225 employees
- Northern VT University [formerly Lyndon State College] (Lyndonville) – 220 employees
- KPH Healthcare Services (Barton) – 219 employees
- Burke Mountain Resort (East Burke) – 200 employees
- Smugglers Notch Resort (Jeffersonville – part of Cambridge) – 200 employees
- Trapp Family Lodge (Stowe) – 200 employees
- Topnotch Resort (Stowe) – 190 employees
- North Country Supervisory Union (Newport) – 180 employees
- Laraway Youth and Family Services (Johnson) – 180 employees
- Orleans Central Supervisory Union (Barton) – 175 employees
- Copley Hospital (Morrisville) – 165 employees
- Tivoly, Inc. (Derby Line) – 150 employees

Manufacturing Solutions, Inc. in Morrisville, employs only about 50 people according to the Dun & Bradstreet data, but their business includes many temporary workers, likely more than 100, including many who don't have cars and are picked up in private vans from Chittenden County.

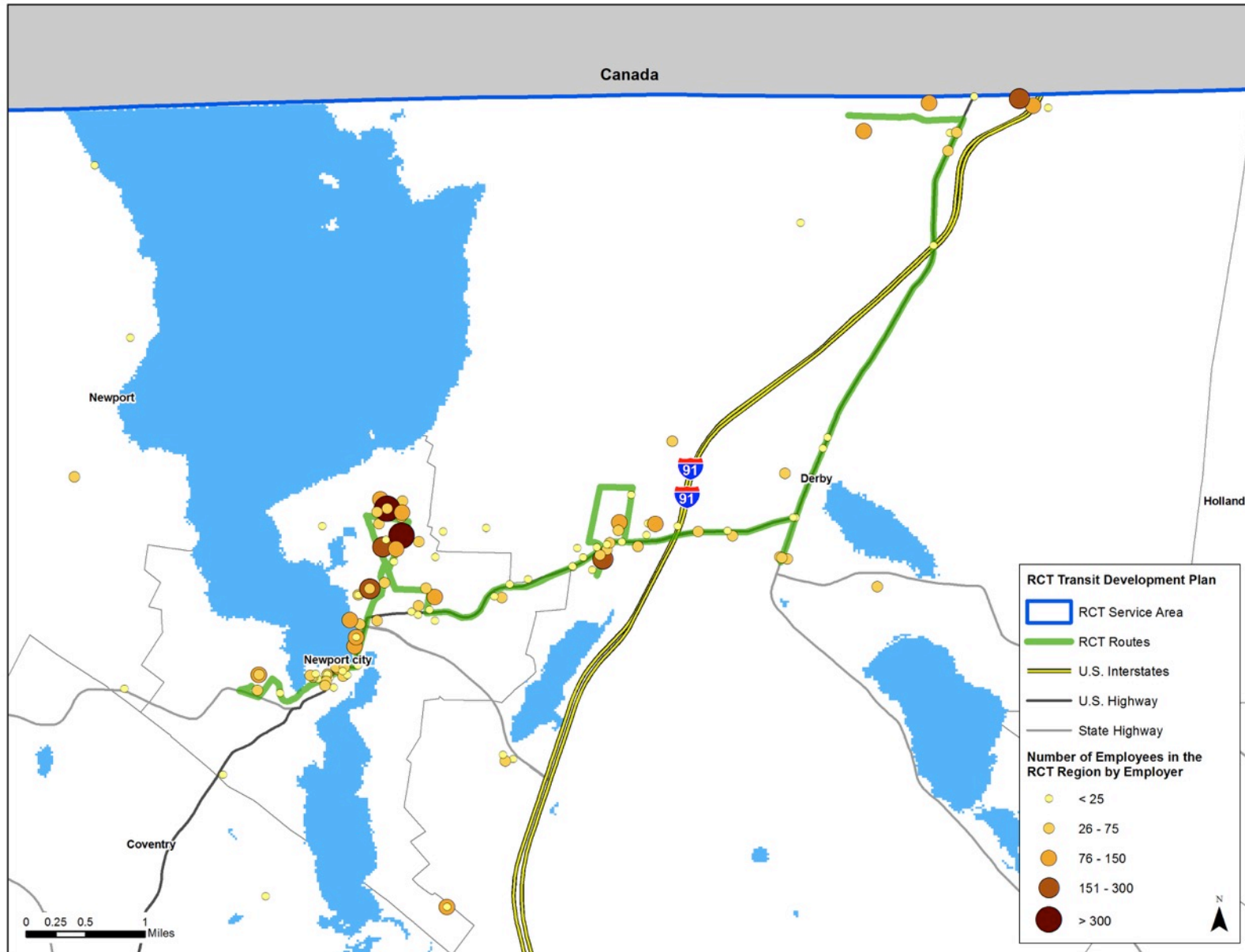
Maps 3.9 and 3.10 provide a detailed view of employers in Newport city and St. Johnsbury, respectively. RCT routes do a good job of serving the region's employers, though a limited span of service makes these routes less than ideal for commuting purposes.

² Data were purchased in 2017 for the RCT service area. Employers in surrounding counties not shown.

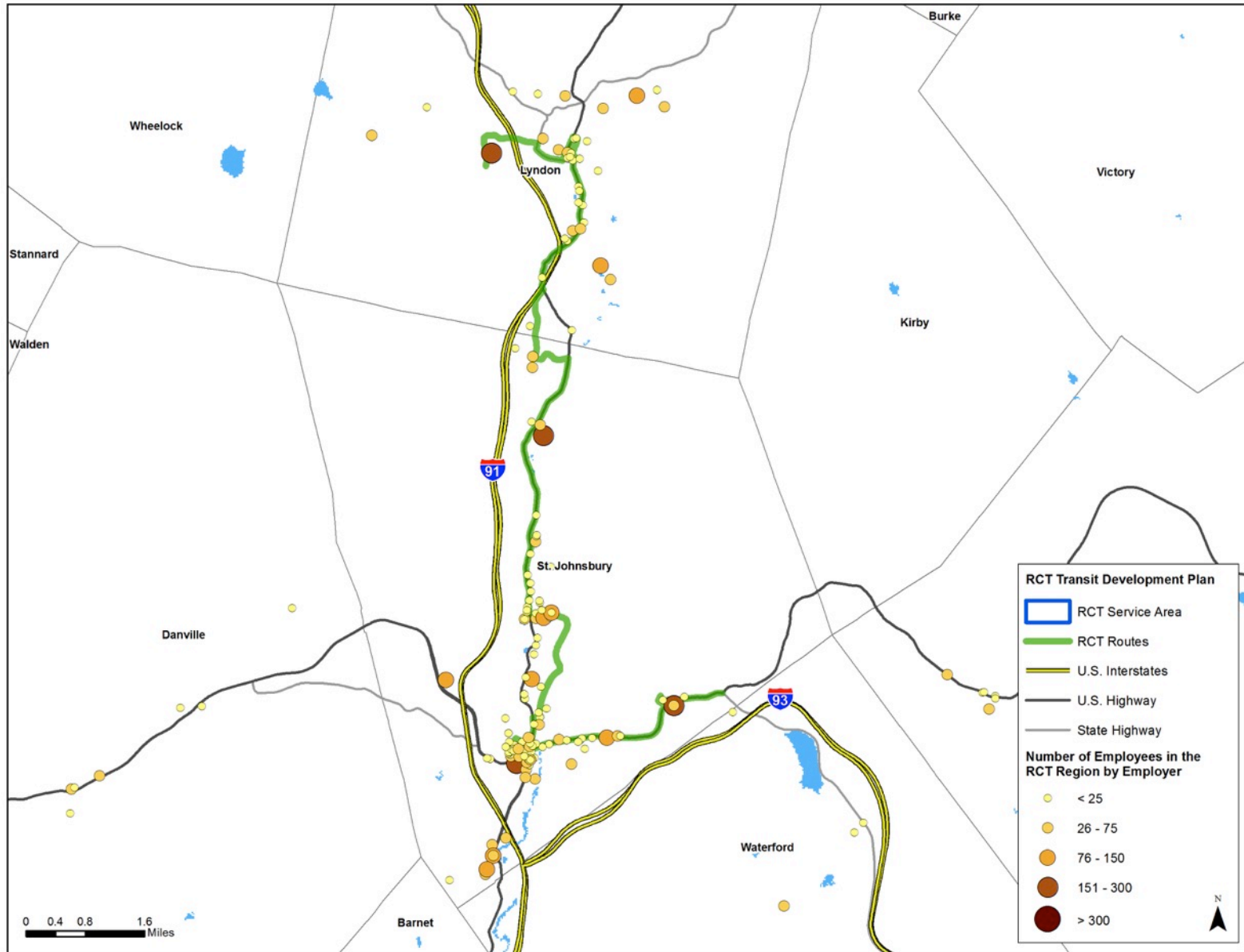
Map 3.8 Study Area Employers



Map 3.9 Newport Area Employers



Map 3.10 St. Johnsbury Area Employers



Commuting Patterns

The Longitudinal Employer-Household Dynamics (LEHD) database from the Census Bureau provides direct information connecting residences to workplaces. Maps 3.11 and 3.12 provide a detailed look at the origin locations of people who work in St. Johnsbury and Newport. The total employment in these towns in the 2014 (most recent) LEHD dataset was 5,162 and 3,506, respectively. About a quarter of St. Johnsbury's jobs are filled by St. Johnsbury residents, while Newport city residents fill only about 21% of Newport's jobs.

The primary towns sending commuters into St. Johnsbury are Lyndon (517) and Danville (280). In the next tier, Barnet, Waterford and Burke send between 100 and 250 commuters into town. Nine towns send between 50 and 100 commuters to St. Johnsbury, including Newport City and Derby, as well as nearer towns such as Hardwick, Walden, Concord, Lunenburg and Littleton, NH. Sheffield, Wheelock, Kirby and Peacham in spite of their small populations (under 1,000) send between 30 and 50 commuters. Some evidence can be seen that the access provided by I-91 extends the distance people are willing to commute—so that more distant towns send numbers of commuters similar to closer-in towns because the highway trip is faster—but the pattern of commuting also reflects the populations of these towns, many of which have few residents.

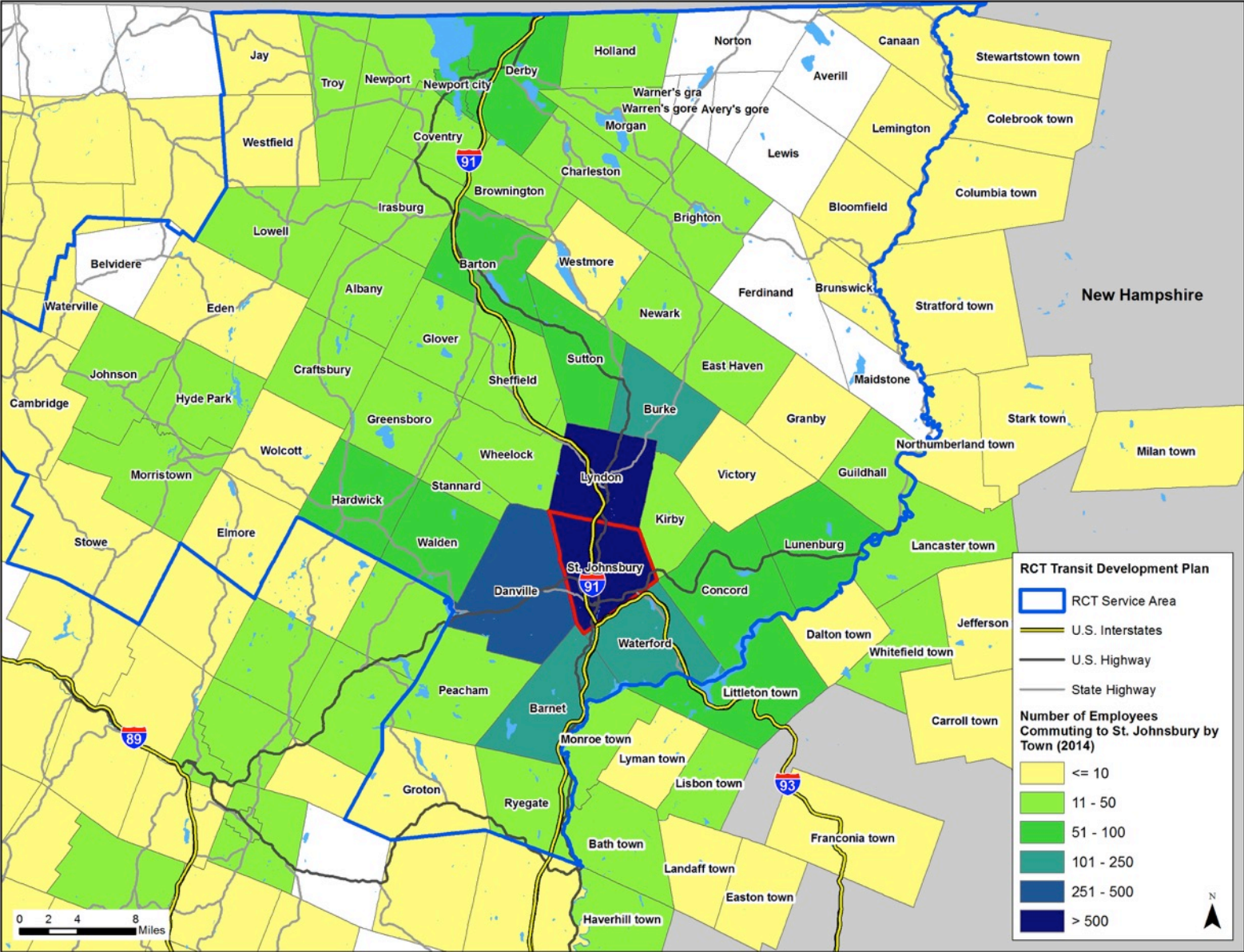
The pattern for Newport City is somewhat more compact, partly due to the smaller job total. Derby (611) is the only town outside of Newport City that sends more than 200 commuters into the city. A group of six towns to the south and west send between 100 and 250 commuters and a group of towns to the east send between 50 and 100. But beyond that ring of towns, the numbers drop off relatively quickly. The only town more than 20 miles distant from Newport that sends over 50 commuters is Lyndon. Very few people commuted to Newport from Franklin or Lamoille counties, and there were few commuters from the east beyond Morgan and Brighton/Island Pond.

The LEHD also provides information on the work trip destinations for residents of RCT's service area. While the commuting patterns to Washington County (primarily Montpelier) and Lamoille County (primarily Morrisville) are well established, data were extracted for commuting trips headed the other direction, into New Hampshire. The top five job centers in northern New Hampshire that are a reasonable distance from the Northeast Kingdom include the following:

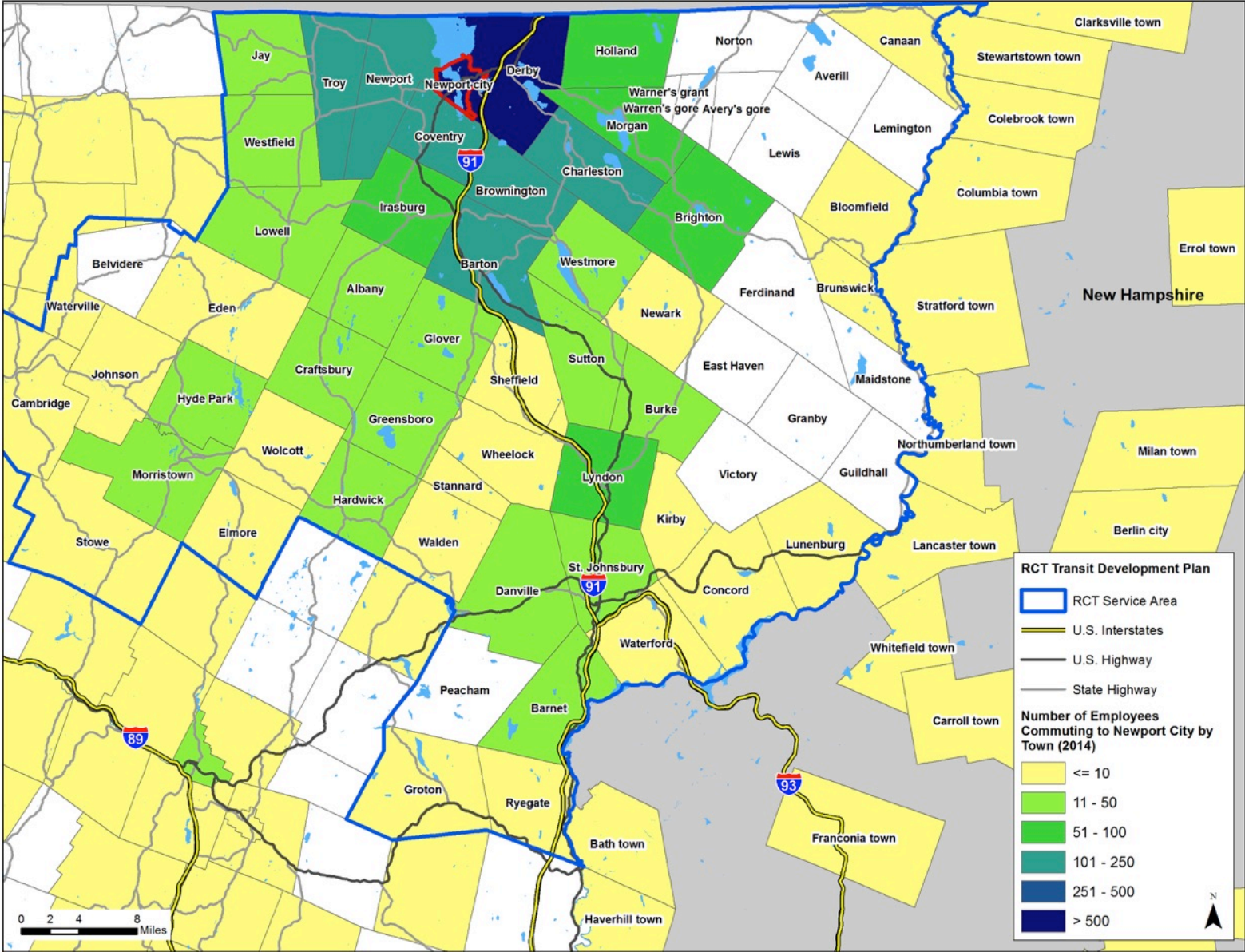
- Littleton (approximately 3,350 jobs)
- Berlin (3,130 jobs)
- Woodsville (including Wells River: 1,450 jobs)
- Colebrook (1,000 jobs)
- Lancaster (650 jobs)

These are all dwarfed by the major employment center in the Hanover/Lebanon area with nearly 50,000 jobs.

Map 3.11 Commuters to St. Johnsbury



Map 3.12 Commuters to Newport City



Of the five smaller job centers, only Littleton currently has a significant number of commuters coming from the RCT service area: about 95 people commute from St. Johnsbury, about 40 each from Lunenburg and Lyndon and about 30 each from Concord and Barnet. The total from the Northeast Kingdom is around 300. The Twin City Commuter is designed to serve this market. None of the other four job centers has even 100 commuters in total, and the highest single total from a town is 42 people commuting from Canaan to Colebrook.

In contrast to these smaller job centers, the Hanover/Lebanon area has at least 800 people commuting from towns in the Northeast Kingdom, including 170 from St. Johnsbury, 78 from Lyndon, 75 from Newport and between 40 and 60 from each of Barton, Ryegate, Johnson, Barnet, Burke and Danville. In FY2009, RCT operated a commuter route from St. Johnsbury to Hanover, but it was discontinued after five months due to very poor ridership.

Given past history and the current low level of gasoline prices, it is very unlikely that commuter routes to any of the smaller NH job centers would be viable. It is possible that there are small numbers of people in the Northeast Kingdom who would like to work in one of the NH job centers but currently have no transportation there. The best option available to them would be some form of ridesharing. Should gas prices rise significantly, service to Hanover/Lebanon would be the highest priority for further study.

Conclusions

This analysis has confirmed the overwhelmingly rural nature of the RCT service area. Areas of moderate to high residential density are limited to a few places such as St. Johnsbury, Lyndonville, Newport City, Morrisville and Derby. RCT's current bus routes serve these areas and the roadway corridors connecting them that are host to most of the significant employers in the region.

Indicators of transit need demonstrate that in spite of the low residential density, public transportation service is needed throughout the RCT service area to serve low income families, older adults, and households that have no automobiles. As discussed in Chapter 2, RCT addresses this need mainly with volunteer drivers, as it would be prohibitively expensive to run regular bus service to large portions of the service area.

It is clear that many residents of the RCT service area travel long distances to get to work. While gasoline prices are currently low, any significant increase in prices would make these commuting distances a hardship for these workers, and having an alternative means of transportation available would become more important.

In addition to needs for basic mobility and access to employment, many people in the RCT service area lack a convenient connection to intercity transportation, whether it is rail, bus or air. As of now, these connections are provided by volunteer drivers or by shopping or commuter routes that connect to Montpelier, Burlington or Littleton. A daily connection to the intercity network not requiring advance reservations would be a major enhancement.

Chapter 4

Service Strategies

The purpose of the Transit Development Plan is to identify a series of service, facility, and technology investments to guide RCT's growth over the coming years. The following pages present a vision for the future RCT and the types of services that could potentially be implemented to address the unmet transit needs identified in the market analysis. It is recognized that this document proposes an ambitious vision for transit in the region, and that implementation is dependent on the availability of federal, state, and local funding. Nonetheless, it is important to set forth an outline of the steps needed to achieve it. This section does not include detailed service plans for improved services; these will be developed by RCT as funds/resources become available for implementation.

Vision

RCT already plays a vital role in the Northeast Kingdom community, providing tens of thousands of trips on its shuttle services and over 130,000 trips with volunteer drivers to get people where they need to go for work, medical appointments, shopping, school, and other purposes. For many of these passengers, RCT is the only way for them to accomplish their trips.

Increased Mobility

In the future, RCT will have an even greater role in providing mobility. There are three components to this improved level of mobility:

- Enhanced access to jobs – RCT will act as a primary means of commuting to work, allowing people with no other transportation choices to be able to reach their jobs, and also offering an environmentally-friendly and more affordable alternative to those who are able to drive.
- Independence and flexibility for seniors and low-income individuals – With limited resources, RCT provides as much service as possible to people with no other travel options. In the future, an improved level of service will allow these riders to have more independence and flexibility in their schedules for greater overall convenience.
- Affordable transportation – As the costs of vehicle ownership rise, RCT will become a more attractive option for all residents and workers in the Northeast Kingdom. Instead of spending ever larger shares of their income on operating an automobile, people can ride on RCT services and make better use of their money.

Improved Efficiency

RCT works hard to stretch every dollar as far as it can to provide service. In the future, RCT will continue to pursue new ways to increase efficiency.

- Coordination with other providers – RCT’s trips are internally coordinated so that riders funded by different programs (such as Medicaid, E&D, and general public) share a vehicle trip, and thus make the trip cheaper for everyone. With enhancements to paratransit scheduling on a statewide basis, RCT will be better able to coordinate trips so that when vehicles cross jurisdictional boundaries, they can share service with neighboring agencies.
- Effective use of available resources – RCT works closely with human service agencies to pool transportation resources. Increased coordination with other partners can lower the cost of transportation for everyone.

Enhanced Role in the Community

In the tight-knit community of the Northeast Kingdom, RCT is an essential resource. In the future, RCT will expand its mission to an even greater role.

- Support economic development – By helping people get to work and offering affordable transportation, RCT will help the economy of the Kingdom grow. Working with the local communities and NVDA, RCT can encourage economic growth in the downtown areas of St. Johnsbury, Lyndonville, Newport, and Derby, with focused, high-quality transit service.
- Serve both choice and dependent riders – People with limited mobility form the great majority of RCT’s current clientele. As its service expands and driving becomes more expensive, RCT will become a service used by all, for work trips, shopping, school, and other purposes.

Future Level of Service

The strategies described below include enhancements in the span and frequency of service on existing routes. Part of the vision of the future RCT encompasses a basic, minimum level of service on all routes that will be attractive and convenient for riders. Given the rural nature of RCT’s service area, this level of service will never reach that of an urban system, with buses every 10 or 15 minutes on a route, as there are just not enough people to fill so many buses.

The level of service is defined for each of the three main types of bus service operated by RCT:

- Shuttles
 - Monday through Saturday – 6:00 a.m. through 7:00 p.m.
 - Sunday – 8:00 a.m. through 6:00 p.m.
 - Hourly service at all times, with 30-minute service during commuter hours
- Commuter routes
 - Monday through Friday
 - At least three trips in each peak period, with some midday service
- Shopping routes
 - At least once per week for all routes

For shuttle routes, the span of service is intended to cover regular working hours plus the beginning of the evening period, and allow people who work on the weekends to reach their jobs then, as well. The goal of 30-minute service during commuting times is intended to make these routes more of a viable option for choice riders, allowing them more flexibility and less waiting time.

Commuter routes can be successful with only a few trips if they are timed to coincide with work start and end times for specific, large employers. With three or more trips in each peak period, the routes can serve a wider range of employers and help establish a broader ridership base. In some cases the commuter routes would run in revenue service in both directions (as the US 2 Commuter does), but in other cases (where one end of the route is in a purely residential area), trips could run in revenue service only in the peak direction (toward the employment center in the morning, away from the employment center in the afternoon).

Many seniors and low-income individuals who do not have cars available depend on RCT’s shopping routes for most or all of their grocery needs, as well as other personal business. Having the shopping service available every week allows for more flexibility for these riders, as well as the ability to purchase smaller amounts of food with each trip, making it easier to transport the groceries and reducing the amount of planning needed.

Service Strategies

Commuter Routes

As indicated in the conclusion to the market analysis, most of the new route coverage recommended in this TDP is oriented to the commuter market because there are few areas in the Northeast Kingdom that can support local bus service that are not already served. (Commuters in Lamoille County are served by Green Mountain Transit’s Route 100 service.) The commuter services described below form a network within the RCT service area and also connect to important job centers in surrounding areas. The job centers that are the destination points of the commuter routes are as follows:

- St. Johnsbury
- Lyndonville
- Littleton
- Newport
- Morrisville
- Barre-Montpelier

There is no direct service to Chittenden County recommended in this plan, due mainly to the long distance involved, but the Burlington area is already accessible via a single transfer in Montpelier, and would be further accessible via a transfer in Jeffersonville if RCT service to Jeffersonville is also implemented. Connections to Waterbury and Hanover-Lebanon, NH would also be possible with a single transfer in Montpelier and Wells River, respectively. Two of the routes listed below offer specific opportunities for partnership with Green Mountain Transit: Route 15 service to Hardwick and Route 302 service to Barre-Montpelier. GMT is considering service from Hardwick to Montpelier and already operates service from Morrisville to Waterbury, and service on Route 302 could be operated jointly in the same way as is currently done on US 2 between Montpelier and St. Johnsbury,

The plan outlined below, and displayed in Figure 4-1, is actually less ambitious than the one set out in RCT's 2012 TDP. At that time, gasoline prices were near historic highs and ridership on commuter routes statewide was surging. As of this writing, gasoline prices are low and many commuter routes in Vermont have lost riders. It is also the case that the St. Johnsbury-Littleton route appeared to be one of the better prospects in the last TDP, and significant ridership has yet to materialize within the first 9 months of operation. Thus, the routes with the lowest ridership projections in the last TDP (Newport to Colebrook, St. Johnsbury to Lancaster, and Island Pond to Lyndonville) have been removed from consideration for the time period covered by this plan.

- **I-91 Corridor Service – Wells River to Newport via St. Johnsbury**

This route connects the two most important employment centers in the Northeast Kingdom, and provides access to each of them from residential areas along the I-91 corridor including Wells River, Barnet, Barton, Orleans, and Coventry. The route would serve park-and-ride lots and some town centers that are located near the highway. At Wells River, riders can transfer to Stagecoach service to reach the Hanover-Lebanon area. This route would restore intercity mobility to a large portion of the Northeast Kingdom, which lost intercity bus service in 2004.

- **Route 15 Corridor Service – St. Johnsbury to Morrisville via Hardwick**

This route connects the center of Caledonia County to the center of Lamoille County. Route 15 is an important east-west highway through northern Vermont, and Hardwick is an important community at the junction of routes 14, 15, and 16

which currently has no commuter bus access. This route could be operated jointly with GMT.

- **US 5 Corridor Service – Sutton to St. Johnsbury via West Burke**

The Town of Sutton and the village of West Burke send many commuters to St. Johnsbury. This route would provide a transit option for these commuters, as well as an express trip between Lyndonville and St. Johnsbury on I-91.

- **US 302 Corridor Service – Wells River to Barre-Montpelier**

US 302 is a major commuting corridor for the job centers in Barre and Montpelier. This route would serve towns and park-and-rides along the corridor, and then provide an express connection between downtown Barre, the Central Vermont Medical Center in Berlin, and downtown Montpelier. This route could be jointly operated with GMT.

- **Newport-Jeffersonville Corridor**

This route would connect Newport City to Johnson and Jeffersonville, allowing connections into the heart of Chittenden County, as well as traditional commuting from Troy and Newport Town into Newport City. In Jeffersonville the route would meet proposed routes from Morrisville, Smugglers Notch, St. Albans, and Burlington.

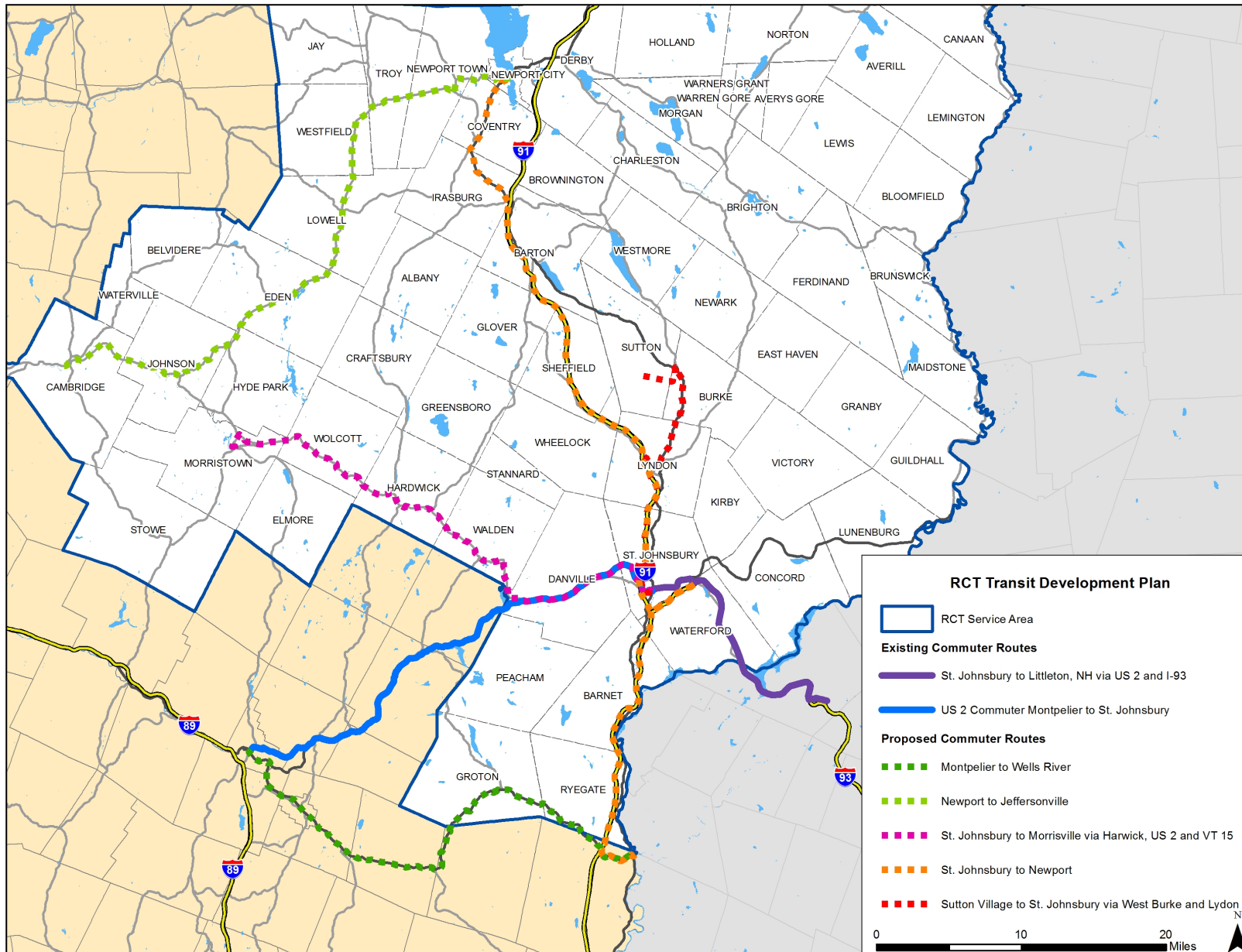
In addition to these new services, a priority improvement would be to upgrade service on the existing St. Johnsbury-Littleton route with midday service and more peak service, and on the US 2 Commuter to Montpelier, with additional peak trips, at least one midday trip, and possibly an evening trip.

Shuttles

There are no significant changes to the alignments of either of RCT's shuttle routes recommended in this TDP. Minor changes, such as streamlining to eliminate unproductive segments, are analyzed on an ongoing basis. Further, as mentioned earlier, there are no other areas within the Northeast Kingdom that have sufficient development density to support full-day local transit service. Thus the overall coverage of the local shuttle routes is not likely to change in the foreseeable future.

Rather, the most important change for RCT's shuttle routes is to upgrade the level of service to make them more convenient for current riders and more attractive to new riders. As stated in Chapter 2, Jay-Lyn route currently offers close to hourly service through much of the day, while the Highlander route in Newport and Derby runs every two hours with an extra hour gap during the midday. Almost all of the riders on these routes have no other transportation options available—indeed, over 90% of shuttle riders surveyed in 2015 indicated that they did not have a car available for their trip.

Figure 4-1 Existing and Proposed Commuter Routes



The following timeline indicates goals for upgrading the span and frequency of service on the shuttles in order to reach the prescribed service levels discussed earlier in this chapter:

- By FY2019, operate weekend service on the Jay-Lyn Shuttle, with Saturday service running from 8:00 a.m. to 5:00 p.m. and Sunday service running from 9:00 a.m. to 4:00 p.m.
- By FY2020, operate true hourly service on the Highlander and Jay-Lyn Shuttles 6:00 a.m. through 6:00 p.m. Monday through Friday.
- By FY2021, extend weekday service into the evening (until 7:00 or 8:00 p.m.) and extend weekend hours to 6:00 p.m.
- By FY2022, increase Jay-Lyn peak period service to a 30-minute headway (6:00 a.m. to 8:30 a.m. and 3:30 p.m. to 6:00 p.m.).

In addition to the service upgrades on existing shuttles, limited local transit services in some of the more densely-populated villages would increase mobility and independence of people who cannot drive and may have difficulty walking long distances. Although the market analysis found that outside of the shuttle service areas, the Northeast Kingdom is overwhelmingly rural, there are some towns with concentrations of population. These include the following places:

- Barton
- Orleans
- Hardwick
- Island Pond
- Troy

The service strategy for these places would be to offer local shuttle service one day per week on a rotating basis. The service would be operated for six hours per day (9:00 a.m. to 3:00 p.m. or 10:00 a.m. to 4:00 p.m.) and could run on a specific alignment (with deviations permitted), on a point deviation format (where the bus arrives at specific destinations at specific times but can take any route to get there), or on a fully demand-responsive basis. The function of this service would be similar to a shopping shuttle, but it would serve a variety of local transit needs, albeit on a limited basis.

Shopping Routes

RCT operates a network of shopping routes with varying levels of service. The TDP recommends that all shopping shuttles be upgraded to weekly service by FY2020.

RCT evaluates new shopping routes on an ongoing basis in response to requests from the community and social service organizations. As these are funded with Elders and Persons with Disabilities money, these routes do not entail the same planning process as a regular shuttle route

and can be tried on a more experimental basis. When routes do not generate significant patronage, RCT reallocates resources to other needs as appropriate.

Capital and Technology

Maintaining existing operations and expanding service as recommended above will require capital investments. RCT's primary capital asset is its vehicles, but a facility and technology are important parts of the agency's future.

Vehicle Fleet

RCT's fleet consists mainly of cutaway vans, with two large buses over 30 feet in length. For the foreseeable future, small vehicles of under 30 feet will continue to make the most sense for RCT's services, given the low density of its service area. The recommendations to increase service frequency on its shuttle routes will attract more ridership, but will also spread the ridership over more trips, so that crowding would not be anticipated. Smaller vehicles are more fuel efficient and better able to handle the variable terrain in the Northeast Kingdom.

Passenger Facilities

While RCT's red buses are highly visible on the streets of the Northeast Kingdom, there is a lack of visibility of the service when a bus is not present. Bus shelters and increased signage would increase the level of awareness of RCT's shuttle and commuter services. Bus stop signs should be featured at all regular stops on the two shuttle routes, and shelters should be installed at all timepoints on the routes, as well at park-and-ride lots served by commuter routes. Vandal-proof schedule boxes should be included with the sign installations to provide new riders with information on when the shuttle buses operate.

Maintenance Facility

RCT currently owns an administrative building and has plenty of land to park its buses. It currently contracts out vehicle maintenance to local garages and dealerships. As the agency grows, the expansion of its administrative building to include a bus barn and capacity to do its own maintenance is advisable. This facility would allow RCT to achieve economies in terms of maintenance and fueling, similar to those enjoyed by other transit properties in the state. Given its very large service area, RCT will need to maintain satellite vehicle parking locations and offices in Newport and Morrisville, but all maintenance could be done at the central facility in Lyndonville.

Technology

RCT's regular riders know the bus schedules and all of the drivers on a first-name basis. As the agency grows, however, it will be essential to make it easy for new riders to learn about the system. Technology can provide this information quickly and inexpensively compared to traditional means such as printed brochures.

In the Spring of 2017, RCT, in partnership with Trillium and Swiftly, has implemented real time information on the location of its shuttles and local taxi partners. In the future, RCT plans to expand this feature to all of its vans and volunteer drivers. Using a smartphone app, anyone can plan a trip and track the location of their vehicle.

Another element of technology that would attract riders is wi-fi service on commuter buses. Since commuter trips tend to be long, riders appreciate the availability of Internet service while they are riding, so that they can get work done or read and relax while commuting. The technology to offer this service is not expensive, but it is limited by the availability of high-speed cellular coverage, which can be sparse or unavailable in many parts of the Northeast Kingdom. Further research is necessary to determine the feasibility of this enhancement.

A final technology investment would be automated stop announcements on the buses that operate its shuttle and commuter routes. All timepoints and any other predetermined stops are loaded into an on-board computer and when the bus reaches those locations, tracked by GPS, an automatic announcement occurs. Such a system relieves drivers of having to make the stop announcements, which are required by the Americans with Disabilities Act.

Chapter 5

Costs and Funding

There are few, if any, recommendations in this Transit Development Plan that can move forward to implementation without additional funding. This chapter attempts to estimate the costs associated with operating the RCT system in the future. The costs for individual route recommendations should be considered estimates; they would be more precisely calculated in the process of detailed implementation planning.

Table 5.1 below presents the estimated costs and ridership for each of the new and upgraded services included in Chapter 4. The costs are presented in 2017 dollars. No explicit assumptions are made about future costs, but it would be reasonable to assume that they will increase by 3% annually on average. A spike in fuel prices would obviously increase costs above these levels.

Ridership estimates are based on the experience of currently-operated services and an evaluation of the commuting market in the various corridors. Large changes in gasoline prices would have a significant effect on these estimates. The estimates are for a mature service—what would be expected in the third year of operation.

It is assumed that RCT will not charge a fare for new services, even the longer-distance commuter routes. It is assumed that other services (local shuttles and shopping routes) will continue to operate free of fares.

The overall program shown in the table is very ambitious: over \$1.8 million in new service (in 2017 dollars) if everything were implemented. That would represent a 40% increase in RCT's overall budget and a five-fold increase in the operating budget for shuttle and commuter routes.

The TDP does not set priorities among the various service improvements (though Chapter 4 recommends a timeline for the upgrades to the two shuttle routes). Based on the estimated costs and ridership shown in Table 5.1, some routes appear to be more cost-effective than others. Cost-effectiveness is not the only criterion for choosing new service, however, as specific needs, coordination with other services, and local support can be decisive factors in moving certain routes faster through the pipeline. Of course, to the extent that the new and upgraded services are funded by competitive grants from the Vermont Agency of Transportation, the selection committee at VTrans also has a say in which routes are established in which order.

Table 5.1 Summary of Costs and Ridership for TDP Projects

Route	Description	Type of Improvement	New Weekday Round Trips	Estimated Annual Cost	Estimated Annual Ridership Increase
I-91 Corridor	Wells River to Newport via St. J	New commuter route	2	\$134,000	13,000
Rt 15 Corridor	St. J to Morrisville via Hardwick	New commuter route	4	\$137,000	10,000
I-93 Corridor	Lyndonville to Littleton	Expanded service	2	\$28,500	2,000
US 5 Corridor	Sutton to St. Johnsbury	New commuter route	4	\$77,000	5,000
US 302 Corridor	Wells River to Barre/Montpelier	New commuter route	4	\$137,000	10,000
Northern Tier West	Newport to Jeffersonville	New commuter route	2	\$92,000	8,000
US 2 Corridor	St. Johnsbury to Montpelier	Upgrade: midday + evening trips	2	\$69,000	4,000
Jay-Lyn Shuttle	Regular local service	Upgrade to hourly service	3	\$80,000	9,000
Highlander Shuttle	Regular local service	Upgrade to hourly service	8	\$196,000	10,000
Jay-Lyn Shuttle	Regular local service	New weekend service	0	\$167,000	8,000
Highlander Shuttle	Regular local service	Upgrade weekend service	0	\$134,000	6,000
Jay-Lyn Shuttle	Regular local service	Add evening service	2	\$82,000	4,000
Highlander Shuttle	Regular local service	Add evening service	2	\$82,000	3,000
Jay-Lyn Shuttle	Regular local service	30-minute peak service	4	\$175,000	16,000
Highlander Shuttle	Regular local service	30-minute peak service	6	\$180,000	14,000
Rural Local	One day/week in rural towns	New local service	n/a	\$64,000	5,100
Shopping Routes	Seven existing routes	Upgrade to once/week	n/a	\$29,000	3,000
				\$1,863,500	130,100

Funding

RCT has increased service since the 2012 TDP, but it has been limited by the available funding. There is general consensus within the community that the amount of service offered today is not meeting the transportation needs of the community.

At the time of this writing, it is impossible to know how federal funding levels will change in the future. Current indications are that funding for transit will not increase substantially, and it could potentially fall.

New services are typically funded through a Congestion Mitigation/Air Quality (CMAQ) grant. These grants are three-year demonstration grants that provide 80% federal funding and require a 20% local match. During the three-year demonstration period, RCT is responsible for the 20% local match and VTrans (using Federal Highway Administration money flexed to transit) provides the 80% federal share. At the conclusion of the three-year demonstration period, VTrans has historically picked up the 80% cost of the route if the route has proven to be successful, and RCT remains responsible for the 20% local match. This places the burden on VTrans to identify a source of the 80% funding.

Another important consideration with regard to CMAQ funding is the possibility that Vermont will fall out of attainment of air quality standards as defined in the Clean Air Act. Currently in Vermont, the transportation sector contributes 47% of all greenhouse gas emissions.¹ As long as all parts of Vermont are “in attainment,” as they currently are, the State has full discretion on how to allocate its CMAQ grant from the federal government. Thus, a portion of CMAQ is used for paving and other projects not directly related to congestion mitigation or air quality. If a portion of Vermont was no longer in attainment of standards (most likely Chittenden County where the heaviest traffic volumes are), the State would be forced to spend all of the money in the non-attainment area on projects that would help the area get back into attainment. Rather than risk falling into non-attainment, investments in public transportation now, using CMAQ and other funding, as a hedge against non-attainment, will both enhance the sustainability of the transportation system in Vermont and preserve the freedom to use CMAQ funds statewide for the best available and most needed projects.

Public Support

As part of the TDP development process, RCT sought public input on the draft plan through an on-line survey advertised on its website. Over the course of a month, eleven respondents submitted their opinions about which future investments should have priority. With so few

¹ Vermont Greenhouse Gas Emission Inventory Update 1990-2008, Vermont Agency of Natural Resources, September 2010, p. 12.

responses, strong conclusions cannot be drawn about which routes would have the most support among the public generally.

- **Are new and upgraded services worthwhile?** (see Figure 4-1): 91% said yes and all of the written comments entered were favorable. Improved connections from Newport to St. Johnsbury and the intercity network were highlighted in the comments.
- **Rankings of the proposed commuter services from most to least popular:**
 - Newport to Wells River via St. Johnsbury
 - St. Johnsbury to Morrisville via Hardwick
 - Newport to Jeffersonville
 - Upgrade St. Johnsbury to Littleton
 - Sutton to St. Johnsbury
 - Wells River to Barre/Montpelier
- **Rankings of the proposed shuttle upgrades from most to least popular:**
 - One day per week local shuttle in villages
 - Expansion of shopping shuttles to weekly
 - Hourly service on Highlander
 - Evening service on Highlander and Jay-Lyn
 - Expanded peak service on Jay-Lyn and Highlander
 - Hourly service in Jay-Lyn
 - Weekend service on Jay-Lyn
- **Other suggested services**
 - Connect Gilman/East Concord to St. Johnsbury and Littleton
 - Connect Brighton to Newport and Derby for special events
 - Include Northern Counties Dental Center, Orleans Dental Center and Island Pond Dental Center in the regular shuttle services
- **Are the proposed capital investments worthwhile?: 99% said yes**
- **Rankings of possible capital investments from most to least popular:**
 - Improved signage
 - Wifi on buses
 - Next bus/real time passenger information
 - Automated stop announcements
 - More passenger shelters

Conclusion

For over 25 years, RCT has been an essential part of the community in the Northeast Kingdom. With judicious expansion of service, making the best possible use of available funding from federal, state, local, and private sector resources, RCT has enhanced its role in the region, providing basic mobility, alternatives for commuters, access to healthcare and increased independence for those with mobility challenges.

This Transit Development Plan lays out a program for further expansion of RCT over the coming decade. With increased funding from all levels of government and its private sector partners, RCT can make significant strides in enhancing mobility in the Northeast Kingdom, for local trips, trips within the region, and access to the broader transportation network.