



RURAL
COMMUNITY
TRANSPORTATION

Transit
Development
Plan

May 2024



Coventry, VT

Table of Contents

Chapter 1: Introduction	1
Chapter 2: Existing Transit Services	5
Service Summary	5
Profile of Riders	9
Fares	11
Fleet and Facility	11
RCT Service Statistics and Performance	12
Chapter 3: Market Analysis.....	16
Demographic Profile.....	16
Trip Generators	28
Employers	30
Commuting Patterns.....	33
Conclusions.....	37
Chapter 4: Service Strategies.....	38
Market Conditions and Opportunities.....	38
RCT’s Future Service Structure	40
Service Investments and Phasing.....	41
Capital.....	56
Chapter 5: Costs and Funding.....	57
Operating Costs and Ridership	57
Capital Costs	59
Funding	59
Conclusion	60

List of Tables

Table 1: Summary of Current RCT Services	9
Table 2: FY24-to-date (February 29) Performance of RCT Services.....	12
Table 3: FY24-to-date (February 29) Average Daily Boardings by Stop	13
Table 4: RCT Service Area Demographics	17
Table 5: Vehicle Needs by Mobility Plus Zone.....	54
Table 6: Summary of Costs and Ridership for TDP Projects	58

List of Figures

Figure 1 RCT Routes in Caledonia County	6
Figure 2 RCT Routes in Orleans County	7
Figure 3 RCT Routes in Lamoille County	7
Figure 4 Reasons for Using RCT Services	10
Figure 5 Employment Status.....	11
Figure 6 RCT Sources of Funding	14
Figure 7 RCT Services Provided by Type by Budget Share	15
Figure 8 Study Area Household Density	21
Figure 9 St. Johnsbury Area Household Density	22
Figure 10 Newport Area Household Density.....	23
Figure 11 Morristown Area Household Density.....	23
Figure 12 Percentage of Population Ages 65 and Older.....	25
Figure 13 Percentage of Low Income Households	26
Figure 14 Percentage of Low-Vehicle-Availability Housing Units	27
Figure 15 Trip Generators.....	29
Figure 16 Study Area Employment	32
Figure 17 Commuters to St. Johnsbury.....	34
Figure 18 Commuters to Newport City	35
Figure 19 Commuters to Morrisville	36
Figure 20 RCT Rides-Lamoille Service Zone	42
Figure 21 RCT Rides-Lamoille Expansion to Johnson	43
Figure 22 Cambridge, Johnson, Morristown Zone	44
Figure 23 Elmore, Wolcott, Hardwick, Greensboro, Craftsbury Zone.....	45
Figure 24 Northern Hyde Park, Eden, Belvidere, Waterville Zone.....	46
Figure 25 Newport-Derby Intermediate Zone	47
Figure 26 Southeastern Orleans County Zone	48
Figure 27 Southern Orleans Zone	49
Figure 28 Western Orleans Zone	49
Figure 29 Northern Caledonia Zone	50
Figure 30 Southern Caledonia Zone	51
Figure 31 Northern Essex Zone	52
Figure 32 Southern Essex Zone	53

Chapter 1

Introduction

Purpose of this Plan

The Transit Development Plan (TDP) for Rural Community Transportation (RCT) provides a program for the optimization 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 optimization and increased access. 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

RCT recently adopted a new mission statement and added a vision statement and a listing of three key values:

Mission Improving the lives and communities we serve, one ride at a time

Vision Connecting and enhancing rural Vermont through innovative transportation solutions

Values At RCT, we are...

COMPASSIONATE: We deliver our services with empathy, non-judgment, kindness, and a genuine concern for other's well-being.

SUPPORTIVE: We assist and encourage each other, fostering a positive and respectful work environment as we strive to achieve our shared goals.

RESOURCEFUL: We seek practical solutions with an open mind and a positive approach to overcome challenges and navigate change.

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

Review of Accomplishments since last TDP

Since 2017, RCT has been working to implement new routes and service expansions recommended in the last TDP. The following lists the service changes made since 2017:

- Created new 15/14 Commuter route between Morrisville and Barre via Hardwick and East Montpelier
- Adjusted US 2 Commuter to serve State Building in St. Johnsbury
- Took over operation of Morrisville Loop, Morrisville-Stowe Shuttle and Route 100 Commuter from GMT
- Discontinued Twin City Commuter and 15/14 Commuter due to poor ridership
- Replaced Morrisville Loop with HYMOR microtransit service
- 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 33 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 Older Adults and Persons with Disabilities program (O&D).

The mix of funding sources over the past four years has been different from historical norms because of the COVID-19 pandemic. The availability of one-time federal relief funds with no matching requirement changed the way that VTrans allocated funds across the various transit providers. In State Fiscal Year 2023, pandemic funds were still being used, but to a lesser extent than in previous years. In this most recent completed fiscal year, the primary sources of operating funding for RCT were:

- Federal transit funds (about 42% of total operating funds)
- State operating assistance (about 3% of total operating funds)
- Medicaid funds (about 47% 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 and individuals (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. 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.

The service area for RCT is all of the cities and towns in the three counties of the Northeast Kingdom and Lamoille County. 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 Washington County and Tri-Valley Transit in Orange County. 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 demand-response services, including microtransit, oriented toward the general public, seniors, people with disabilities, and others who have limited transportation alternatives.

Service Summary

Shuttles and Commuter Routes

RCT operates two year-round shuttle routes, two commuter routes, three shopping shuttles and a summer seasonal shuttle. RCT's primary bus route is the **Jay-Lyn** shuttle, running on the US 5 corridor between Lyndon/Lyndonville and St. Johnsbury Monday through Friday. The route includes seven round-trips serving most or all local stops and two express trips that serve fewer stops and cut about 20 minutes from the running time. The other main shuttle is the **Highlander**, serving Newport and Derby/Derby Line. This route has a more limited schedule, with four daily round-trips, but it runs Monday through Saturday. The four municipalities served by these two shuttles had a total population of 21,939 in 2022, accounting for 34% of the population of the Northeast Kingdom (Caledonia, Essex and Orleans counties combined).

The two commuter routes serve the US 2 corridor between St. Johnsbury and Montpelier and the Route 100 corridor between Morrisville and Waterbury. The **US 2 Commuter** route operates two round-trips in each peak period plus one more westbound trip in the morning. The **Route 100 Commuter** operates two southbound and one northbound trip in the morning and two southbound and three northbound trips in the afternoon.

RCT has run numerous shopping shuttles over the years, but currently operates three. The **Morrisville Shopper** runs every weekday between Morrisville and Stowe with three southbound trips and two northbound trips. All of these run during the midday period between 10:20 a.m. and 3:45 p.m. The **Greenleaf Shopper** 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. 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 first and third Thursdays of each

month and runs two round-trips, one leaving from Morrisville at 9:20 a.m. and the other leaving at noon. It also the Sterling Market in Johnson.

The seasonal shuttle is the **Crown Connection**, designed to serve cyclists at Kingdom Trails in the Burke area. It has operated for two summer seasons (2022 and 2023). It runs Friday through Monday in a continuous loop with about seven loops per day.

All of these routes, other than the Crown Connection which runs only in the summer, are shown on figures 1 to 3 below.

Figure 1 RCT Routes in Caledonia County

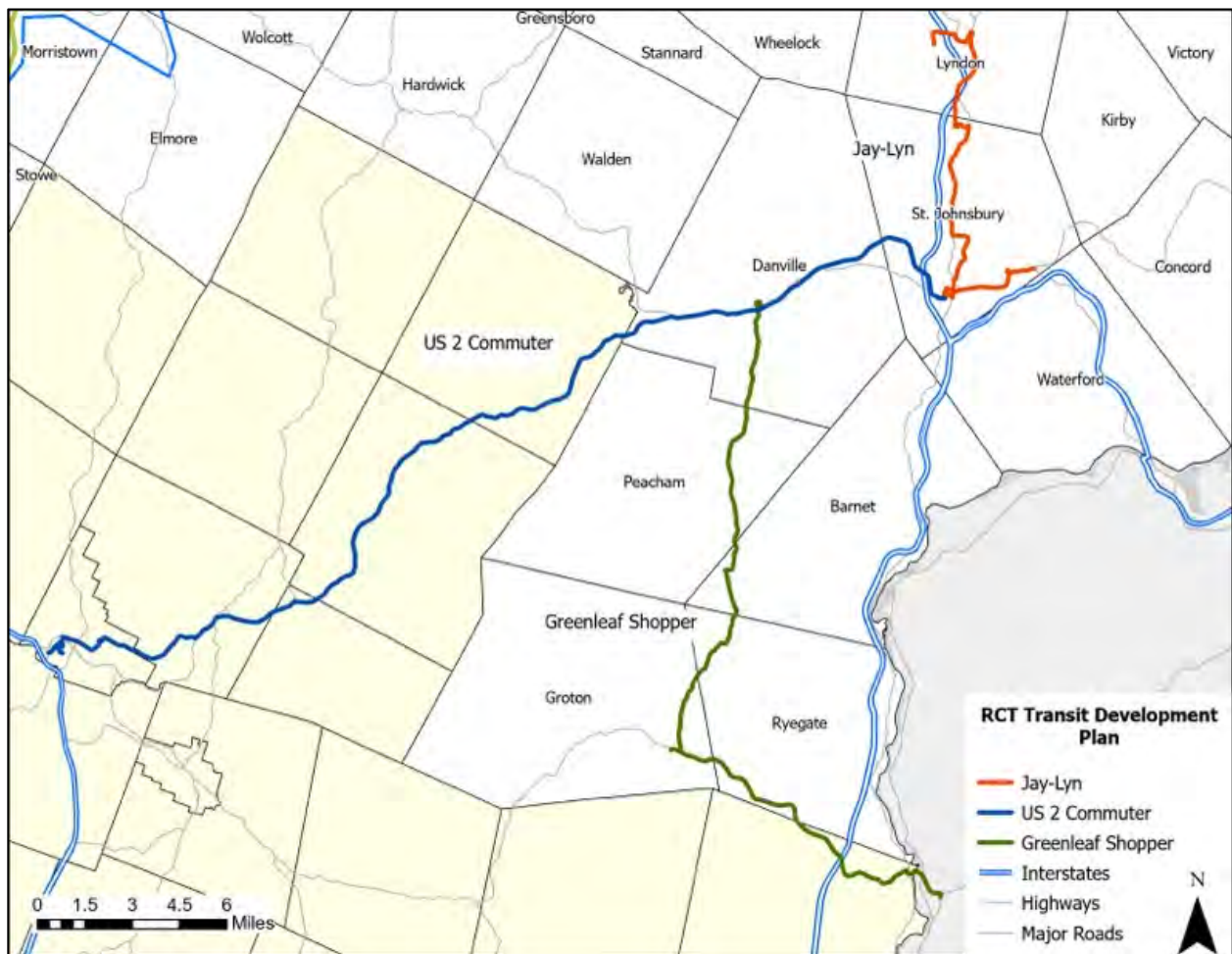


Figure 2 RCT Routes in Orleans County

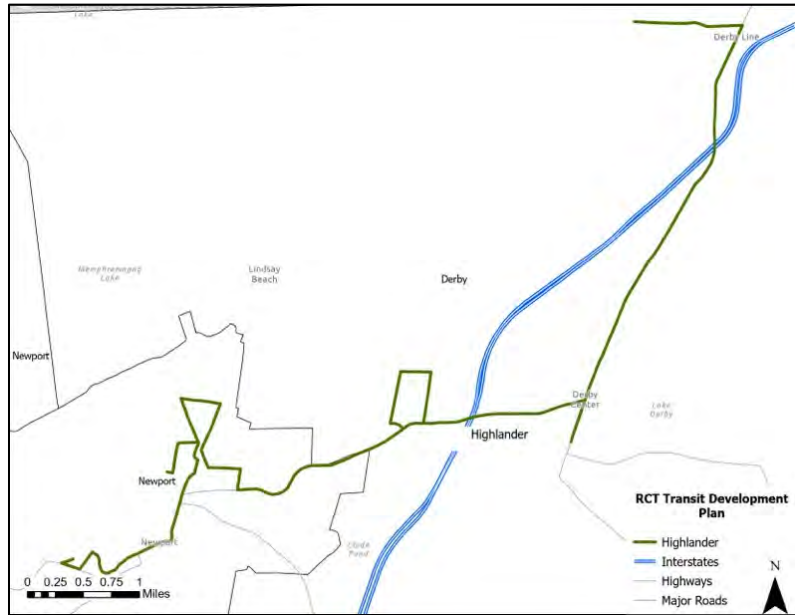


Figure 3 RCT Routes in Lamoille County



Demand Response Service

The majority of RCT's service is demand response; that is, not operating according to a set alignment or schedule. About 61% of RCT's ridership is on demand response service, about 66% of the operating budget pays for demand response service, and more than 80% of the vehicle miles and vehicle hours of service are accrued by demand response vehicles (including volunteer drivers).

Most of RCT's demand response service is provided through several programs:

- **Medicaid** – This state and federally funded program provides transportation to medical appointments and prescription pick-up services for eligible individuals. It accounts for about 43% of the total funding for RCT.
- **Older Adults and Persons with Disabilities (O&D)** – 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 22% 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.
- **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. It represents about 7% of RCT's budget.

The majority of RCT's demand response trips are provided by volunteer drivers in their personal vehicles. In FY 2023, volunteers provided 73% of the total O&D, medical, and CODS trips taken by RCT customers. Overall, volunteers provide 44% of the total number of rides taken on all RCT services.

RCT currently has a pool of over 40 volunteer drivers. This number is much smaller than the pool prior to the pandemic, when it could number over 200. The number continues to fluctuate in response to gasoline prices and the mileage reimbursement rate. 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.

In July 2023, RCT introduced a new form of demand response service: microtransit. This technology-enabled, on-demand service, called RCT Rides-Lamoille, was initiated in Morrisville and Hyde Park as a replacement for the Morrisville Loop bus route. Instead of operating on a set alignment on a fixed schedule, the microtransit vehicle responded to requests for trips in real time and carried passengers anywhere in the defined service zone. Passengers can request trips

via a smartphone app, via the web on a computer, or by calling RCT. Trips can be scheduled days in advance or on a subscription basis, or they can be requested at any time (within the defined span of service) for pick up as soon as possible (sometimes within minutes). The RCT Rides-Lamoille currently operates Monday through Friday from 8:00 a.m. to 5:00 p.m. and includes all of Morrisville, most of the densely developed area of Hyde Park, and a portion of Elmore. The service zone is shown above in Figure 3.

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 1 lists all of RCT’s offerings by service category:

Table 1: Summary of Current RCT Services

Type	Span	Frequency	Routes/Services
Volunteer Driver	N/A	N/A	Medicaid, O&D, CODS
Demand Response Van	N/A	N/A	Medicaid, O&D, CODS
Microtransit	8:00 to 5:00 Mon-Fri	N/A	RCT Rides-Lamoille
Local Bus Shuttles	St. Johnsbury to Lyndonville – Mon-Fri Derby to Newport City – Mon-Sat	1-2 hour headways	Jay-Lyn Shuttle/Express Highlander
Shopping Shuttles	Daily (Morrisville) or Twice per month (Johnson and Greenleaf)	N/A	Johnson Shopper Morrisville Shopper The Greenleaf
Commuter Shuttles	Monday - Friday	AM and PM peak trips	US 2 Commuter Route 100 Commuter

Profile of Riders

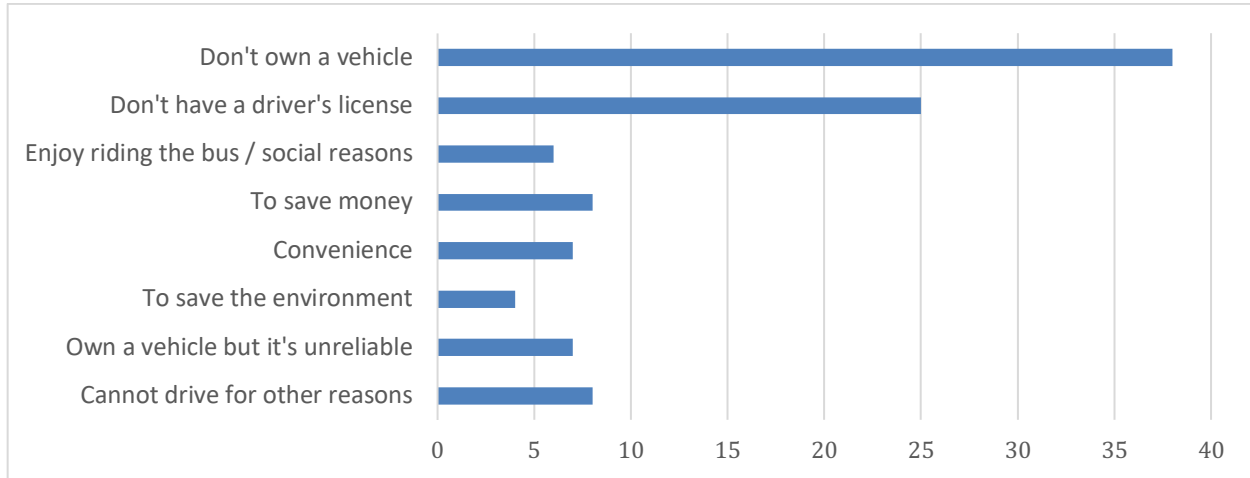
As part of a concurrent strategic planning effort, RCT, assisted by a consultant, conducted a survey of its riders in Fall 2023, as well as a separate survey of its community partners. A total of 53 responses were obtained from current riders and 29 responses were obtained from community partners. This section focuses on the rider survey. The rider survey included both bus routes and demand response service.

About half of respondents 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. A third of riders had used RCT services for more than five years, and another 41% had used RCT between three and five years. Only 6% of riders had started using RCT within the last year.

Riders were asked about the purposes of trips they take on RCT vehicles. Over 80% said they use RCT for medical trips and 40% said they use it for shopping trips. Other purposes cited include errands (15%), trips to work (9%) and social or recreational trips (8%). Another 26% cited “other” trip purposes, most of which were trips to adult day programs or trips to BAART for drug recovery treatments or counseling.

Asked why they use RCT services, riders cited many reasons as shown below in Figure 4.

Figure 4 Reasons for Using RCT Services



The inability to drive, whether for lack of a vehicle or a driver’s license or for other reasons, is by far the primary reason people use RCT. Smaller numbers cite other reasons such as saving money, convenience, saving the environment or social reasons.

RCT’s riders are very satisfied with the service. Nearly 60% of respondents gave the agency a rating of 10 out of 10, with another 40% giving a rating of 7, 8, or 9. Only one respondent gave the agency a rating lower than 7 (they gave a 5). Nearly 90% of respondents said that they have never encountered any safety concerns while using RCT services.

The survey asked about the types of improvements in service that riders would like to see. Over 55% said that they would like the service to go to more places. Among the most common destinations cited included the following:

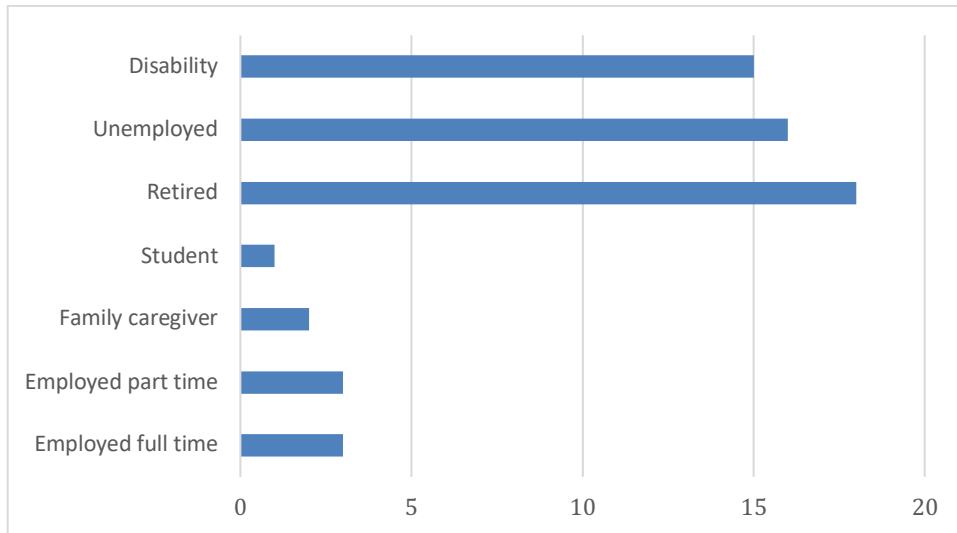
- Walmart in Woodsville
- Littleton
- Johnson
- Burlington
- West Lebanon

Riders also mentioned wanting to go to a casino, hair dresser, dog parks, and additional shopping locations.

The next most common service improvement requests included more service on weekends (30%), longer hours of service on weekdays (20%), more frequent service (13%), better buses (9%) and expanded microtransit service (5%).

About 55% of RCT’s riders are between the ages of 41 and 65 and about 30% are over 65. Almost all the rest of the respondents are between 26 and 40. Respondents’ current employment status is shown below in Figure 5. Very few of the respondents are currently employed.

Figure 5 Employment Status



Finally, the survey asked about technology that riders use to get information. Android phones were the most common (51%) followed by iPhones (25%), computers at home (17%) and tablets, such as iPads (8%). Over 30% of respondents said they had none of the technology options listed.

Fares

All of RCT’s bus services are fare free.

Fleet and Facility

As of June 2023, RCT’s bus fleet consisted of 31 active vehicles: 18 cutaway vans, 9 minivans, 2 automobiles, 1 heavy-duty bus and 1 Transit van. All vehicles are gasoline powered, except for the one diesel bus garaged in Lyndonville. Many of RCT’s vehicles are at the end of their useful life and are due to be replaced over the coming year.

RCT’s main headquarters are in a building the agency purchased in 2015 on Industrial Parkway in Lyndonville. 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 bike racks, wheelchair lifts, mobile phones and video cameras that include GPS tracking and real-time communication with the operations center. RCT provides real-time vehicle location and arrival times to customers via the Transit smartphone app.

RCT Service Statistics and Performance

Ridership and Productivity

During fiscal year 2023, RCT provided just over 165,500 trips via volunteer, demand response van, and fixed route service. Nearly half of those trips, 44%, were provided by volunteer drivers; 39% were taken on shuttle services; 14% on the demand response vans; and the remainder on taxis or hardship trips driven by Medicaid recipients.

On its shuttle service, RCT provided 65,124 trips and 350,242 miles of service during 18,699 revenue hours; an average of 3.5 boardings per revenue hour. The Jay-Lyn Shuttle/Express carried nearly 27,000 trips (41% the total), while the Highlander was just under 12,200 and all of the commuter routes together just over 18,100.

RCT made substantial service changes at the beginning of fiscal year 2024 in response to longstanding performance issues on several of the routes. The Twin City (Littleton) Commuter, which had operated since September, 2016, was discontinued due to low ridership. The 15/14 Commuter, which began service in November, 2019, was also discontinued, as it had never developed a ridership market. Finally, the Morrisville Loop, which had been inherited from GMT in July, 2020, was replaced by the RCT Rides-Lamoille microtransit service.

Through the first 8 months of FY24, the performance of RCT shuttles is summarized in Table 2.

Table 2: FY24-to-date (February 29) Performance of RCT Services

Route/Service	Total Riders	Riders per Day	Riders per Revenue Hour
Jay-Lyn	20,552	122	5.3
Highlander	9,727	48	4.9
US 2	5,776	34	2.7
Route 100	4,306	26	3.5
Morrisville Shopper	3,100	18	4.7
Crown Connection	1,399	21	2.0
RCT Rides-Lamoille	5,062	30	3.3

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. It should be noted that these ridership levels and productivities are still roughly 20-30% below the figures from before the pandemic.

RCT also tracks ridership by individual bus stop. The top 25 stops in the system have at least 3 passenger boardings per day. They are shown below in Table 3. In some cases, two stops across the street from each other have been combined to show the boardings at a general location (such as Stowe Town Hall). The figures represent the average number of boardings for the days served. For most routes, this means weekdays, but for the Highlander it represents Monday through Saturday, and for the Crown Connection, Fridays through Mondays from July through October.

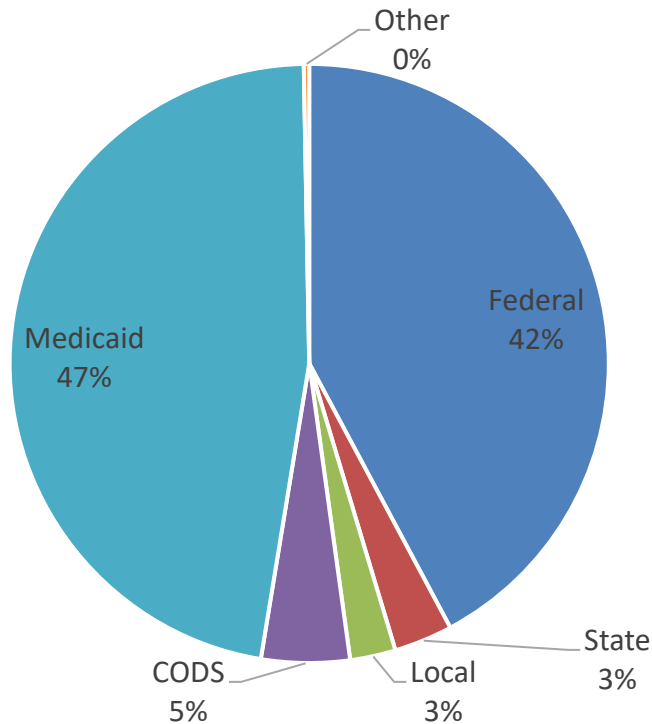
Table 3: FY24-to-date (February 29) Average Daily Boardings by Stop

Stop Name	Route Serving Stop	Average Daily Boardings
St. Johnsbury Welcome Center	Jay-Lyn, US 2	24.8
Stowe Town Hall	Route 100, Morrisville Shopper	13.0
Price Chopper–St. Johnsbury	Jay-Lyn	10.2
Darling Inn	Jay-Lyn	9.2
Montpelier Transit Center	US 2	8.8
Walmart Derby	Highlander	8.7
Mike's Tiki Bar Parking Lot	Crown Connection	7.8
Carmen's	Jay-Lyn	7.4
East Haven Lot	Crown Connection	6.6
St. Johnsbury House	Jay-Lyn	6.5
Gazebo at Union Bank	Route 100, Morrisville Shopper	5.7
Whites Portland St.	Jay-Lyn	5.7
Whites Market Plaza	Jay-Lyn	5.2
RCT Office	Jay-Lyn	5.2
Mountain View Drive	Jay-Lyn	5.1
Price Chopper–Morrisville	Route 100, Morr. Shop.	5.0
BAART St. J	Jay-Lyn	4.0
Morrisville Plaza (Big Lots)	Route 100, Morrisville Shopper	3.9
NVRH	Jay-Lyn	3.8
Green Mountain Mall	Jay-Lyn	3.4
Waterfront Plaza	Highlander	3.2
West Branch Apt/uphill	Morrisville Shopper	3.3
Waterbury State Office	Route 100	3.3
338 Highland Ave	Highlander	3.0
Plainfield Park & Ride	US 2	3.0

Revenues and Costs

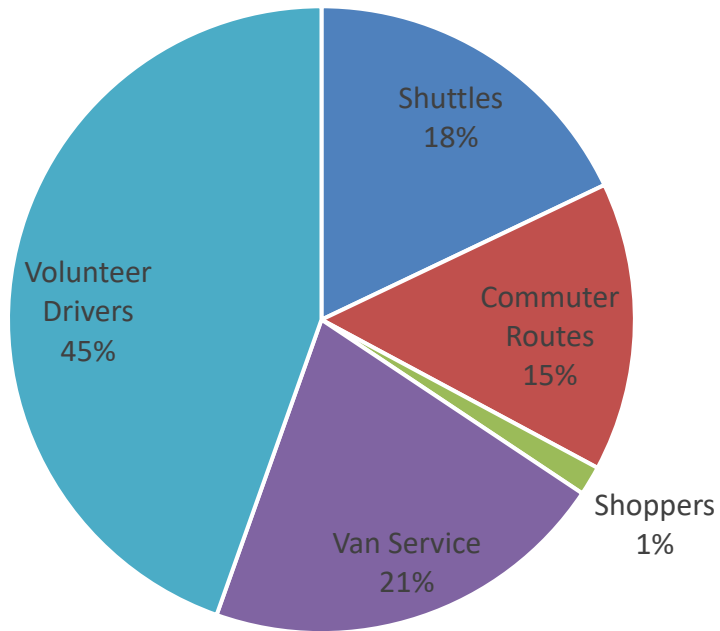
In fiscal year 2023, the total operating budget for RCT was approximately \$6 million. As shown in Figure 6, just under half of the budget comes from the Medicaid program, while the combination of Federal Transit Administration and Vermont operating funds make up about 45% of the budget. The rest of the budget is funded by Community Organizations and Department Services, local towns, and other human service agency partners.

Figure 6 RCT Sources of Funding



In terms of expenditures, as shown in Figure 7, just under half of the operating budget funds the volunteer driver program, with van service accounting for a fifth of the budget and shuttle and commuter routes accounting for the remaining third. It must be noted that the pie chart will look quite different for FY24 since two commuter routes and a shuttle route were discontinued and microtransit service was initiated.

Figure 7 RCT Services Provided by Type by Budget Share



Chapter 3

Market Analysis

Encompassing just over 2,500 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. The study area includes one incorporated city, Newport, and 65 towns and gores (see Table 4 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 people who need transit service and people who are open to using transit service; 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 89,830 residents as of the 2022 Census, has a population density of 36 persons per square mile, significantly lower than the statewide average of 70 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 53% of the population of Chittenden County or 14% of statewide population.

Table 4 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 2018-2022 American Community Survey and the 2020 Census.

RCT’s bus routes serve a limited portion of the project area: St. Johnsbury, Lyndonville, Newport, and Derby have “full day” service while Morrisville, Stowe, Lyndonville, St. Johnsbury and Danville have commuter service. Morrisville and Hyde Park have full day microtransit service. The six municipalities with full-day bus or microtransit service have 30,468 residents, making up 34% of the area’s total population but only about 10% of the area’s land mass. The population density of these three towns and one city is 116 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 26 persons per square mile.

Table 4 shows some significant percent changes in population since 2015. These large swings are primarily a result of the low population bases many of these towns started from. In addition,

population estimates from the American Community Survey always involve a degree of statistical error since they are based on a sample rather than a complete count. The overall population of the RCT service area was remarkably stable, with small shifts occurring within each county.

Most towns have a significant portion of their population over the age of 65. The three counties of the Northeast Kingdom have a higher percentage of older adults than the state as a whole (23% vs. 21.5%) but Lamoille County has a much lower percentage at 17.7%, bringing the service area as a whole in line with the statewide average. In every town, there are fewer people in households with incomes below the federal poverty line than there are older adults. However, Caledonia County has relatively higher numbers of people in poverty, with St. Johnsbury having both the highest absolute number and highest percentage of such individuals.

The rightmost column shows the number of housing units (essentially equivalent to households) with “low vehicle availability.” This is defined in this context as any household having zero vehicles available plus households with two or more members that have only one vehicle available. Past analyses have looked at only zero-vehicle households, but this excludes the many families who can afford only one car but may have additional needs for mobility for the other members of the household.

Table 4 RCT Service Area Demographics

Town	2022 Pop.	2015 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. 65+	Pop. w/Income below Poverty	Total Housing Units	Low Vehicle Availability
Barnet	1,534	1,632	-6%	35	376	217	612	111
Burke	1,276	1,570	-19%	37	246	142	550	122
Danville	2,334	2,203	6%	38	536	170	1,004	176
Groton	1,093	1,026	7%	20	247	92	447	76
Hardwick	2,950	2,949	0%	76	780	243	1,312	358
Kirby	774	442	75%	32	135	116	280	51
Lyndon	5,564	5,948	-6%	140	1,057	620	2,282	590
Newark	608	505	20%	16	162	67	241	54
Peacham	803	751	7%	17	210	97	361	47
Ryegate	1,103	1,107	0%	30	327	151	476	67
St. Johnsbury	7,378	7,535	-2%	225	1,713	1,199	3,285	1,008
Sheffield	706	641	10%	19	108	54	277	59
Stannard	189	276	-32%	15	38	7	82	5
Sutton	867	1,004	-14%	23	193	73	334	30
Walden	1,049	999	5%	27	160	100	439	18
Waterford	1,482	1,533	-3%	37	257	96	525	66
Wheelock	708	891	-21%	18	203	56	312	58
Caledonia County	30,418	31,012	-2%	46	6,748	3,500	12,819	2,896

Table 4 RCT Service Area Demographics (Continued)

Town	2022 Pop.	2015 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. 65+	Pop. w/Income below Poverty	Total Housing Units	Low Vehicle Availability
Averill	0	18	-100%	0	0	0	0	0
Avery's gore	0	0		0	0	0	0	0
Bloomfield	255	222	15%	6	52	13	124	28
Brighton	1089	973	12%	20	351	124	519	141
Brunswick	97	89	9%	4	33	11	43	7
Canaan	666	1,085	-39%	20	212	59	331	48
Concord	1189	1,223	-3%	22	228	92	467	89
East Haven	271	282	-4%	7	70	47	127	52
Ferdinand	97	30	223%	2	16	60	46	0
Granby	64	95	-33%	2	34	14	30	9
Guildhall	349	216	62%	11	91	37	160	17
Lemington	65	149	-56%	2	25	0	46	1
Lewis	0	0		0	0	0	0	0
Lunenburg	1426	1,377	4%	31	310	276	557	111
Maidstone	238	213	12%	7	119	38	119	11
Norton	122	147	-17%	3	28	9	68	8
Victory	48	88	-45%	1	19	9	30	0
Warner's grant	0	0		0	0	0	0	0
Warren's gore	0	0		0	0	0	0	0
Essex County	5,976	6,207	-4%	9	1,588	789	2,667	522
Belvidere	402	342	18%	13	41	26	179	21
Cambridge	3,809	3,737	2%	60	474	286	1,386	172
Eden	1,335	1,392	-4%	21	195	105	572	95
Elmore	1,075	956	12%	27	162	38	436	51
Hyde Park	3,022	3,043	-1%	78	518	342	1,224	181
Johnson	3,484	3,512	-1%	77	336	378	1,255	289
Morristown	5,507	5,360	3%	107	1,151	502	2,746	419
Stowe	5,214	4,407	18%	72	1,469	281	2,468	353
Waterville	659	681	-3%	40	108	16	306	19
Wolcott	1,470	1,597	-8%	38	158	203	604	157
Lamoille County	25,977	25,027	4%	56	4,612	2,177	11,176	1,757

Table 4 RCT Service Area Demographics (Continued)

Town	2022 Pop.	2015 Pop.	Pct. Chg.	Persons per Sq. Mi.	Pop. 65+	Pop. w/Income below Poverty	Total Housing Units	Low Vehicle Availability
Albany	1,035	882	17%	27	176	48	401	51
Barton	2,849	2,726	5%	63	710	324	1234	336
Brownington	1,036	1,000	4%	36	106	165	398	69
Charleston	943	1,045	-10%	24	255	117	436	73
Coventry	951	1,079	-12%	34	262	100	383	77
Craftsbury	1,203	1,208	0%	30	376	54	462	89
Derby	4,566	4,529	1%	79	1070	348	1,959	405
Glover	999	1,040	-4%	26	240	85	415	89
Greensboro	680	769	-12%	17	218	32	298	52
Holland	685	668	3%	18	148	88	328	38
Irasburg	1,231	1,248	-1%	30	284	86	479	68
Jay	518	806	-36%	15	79	31	260	37
Lowell	1,003	801	25%	18	112	94	363	49
Morgan	872	620	41%	26	245	72	374	36
Newport city	4,431	4,493	-1%	581	1111	600	1,988	726
Newport	1,637	1,773	-8%	38	415	118	721	146
Troy	1,756	1,544	14%	49	277	108	644	62
Westfield	627	554	13%	16	156	63	199	32
Westmore	437	361	21%	12	130	77	186	27
Orleans County	27,459	27,146	1%	75	6,370	2,610	11,528	2,462
RCT Service Area	89,830	89,392	0%	42	19,318	9,076	38,190	7,637
Vermont	647,064	626,604	3%	70	139,827	65,162	277,090	53,825

The towns with full day shuttle service have notably higher population densities than other towns, though the densities of Derby and Stowe are “diluted” by significant areas of those towns being undeveloped. The density in the parts of these towns where the bus service is operated would be equivalent or higher than the average density in the other towns served by shuttles. Other towns in the same range as Stowe and Derby (60-75 persons per square mile) would be candidates for enhanced transit access, if not an actual shuttle route. These towns include Hardwick, Johnson, Barton, and Cambridge.

Residential Density

Unlike the prior section which listed density in terms of people per square mile, this section considers household density 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

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 Figure 8, outside of Morrisville, Newport and St. Johnsbury, there are only a few isolated census blocks (the smallest unit of census geography) in Brighton, Barton, Johnson, and Lyndon where density rises above one household per acre. 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. Figures 9, 10 and 11 zoom in on the "urbanized" areas of the Northeast Kingdom—St. Johnsbury and Newport and surrounding towns— and the Morristown area in Lamoille County, with an overlay of RCT's current local routes. The maps show 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. In the case of Morristown, the RCT Rides-Lamoille microtransit zone encompasses all of the areas of dense residential development.

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 target populations more likely to utilize public transit: older adults (persons 65 and older), low-income households (those below the federal poverty line), and low-vehicle-availability households. All data included in this analysis was obtained from the U.S. Census Bureau's American Community Survey for the period 2018-2022. 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 per acre is also considered supportive of transit service. Transit corridors that have both sufficient residential and employment density can support higher frequency service than would be suggested by each of the measures separately.

Figure 8 Study Area Household Density

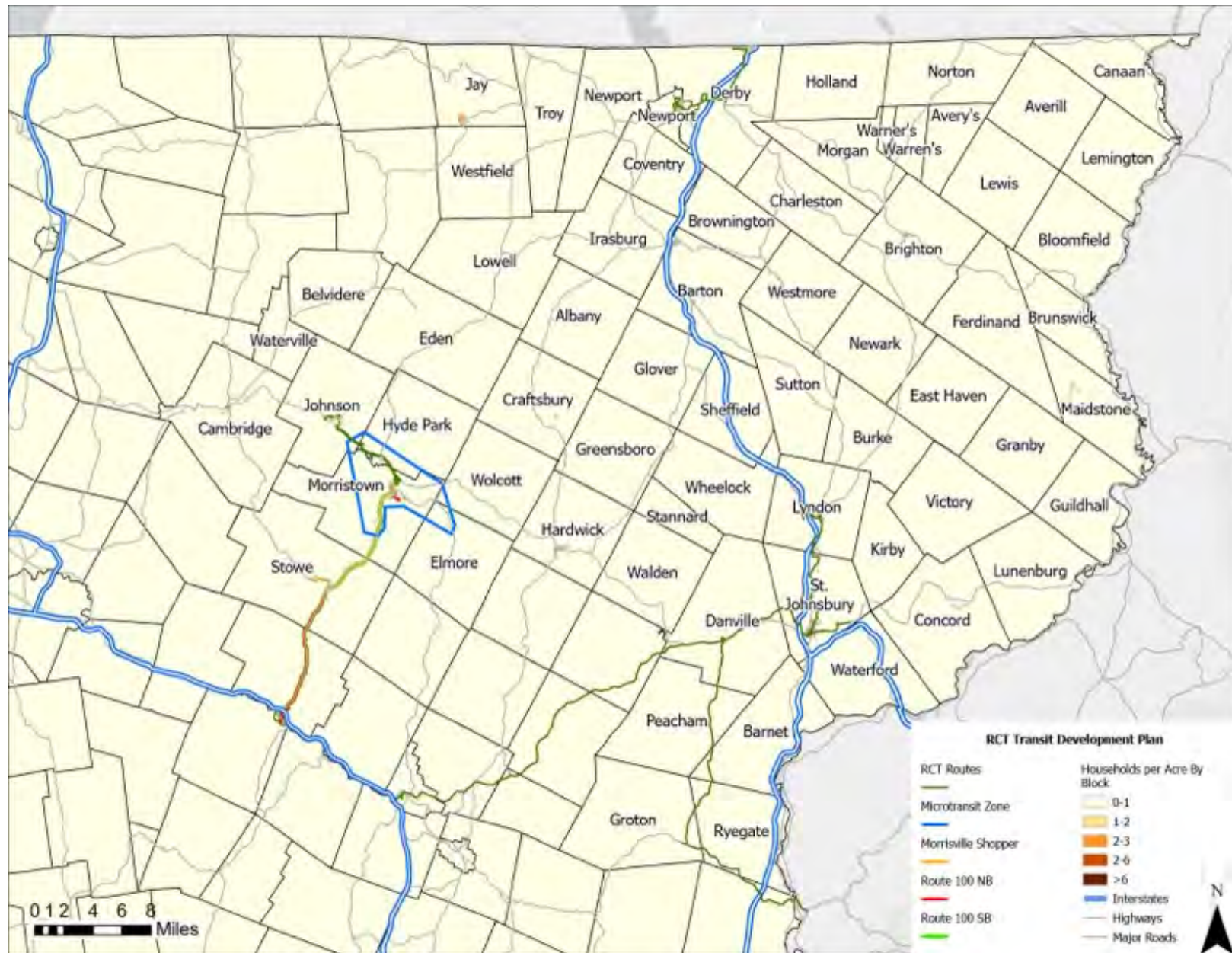


Figure 9 St. Johnsbury Area Household Density

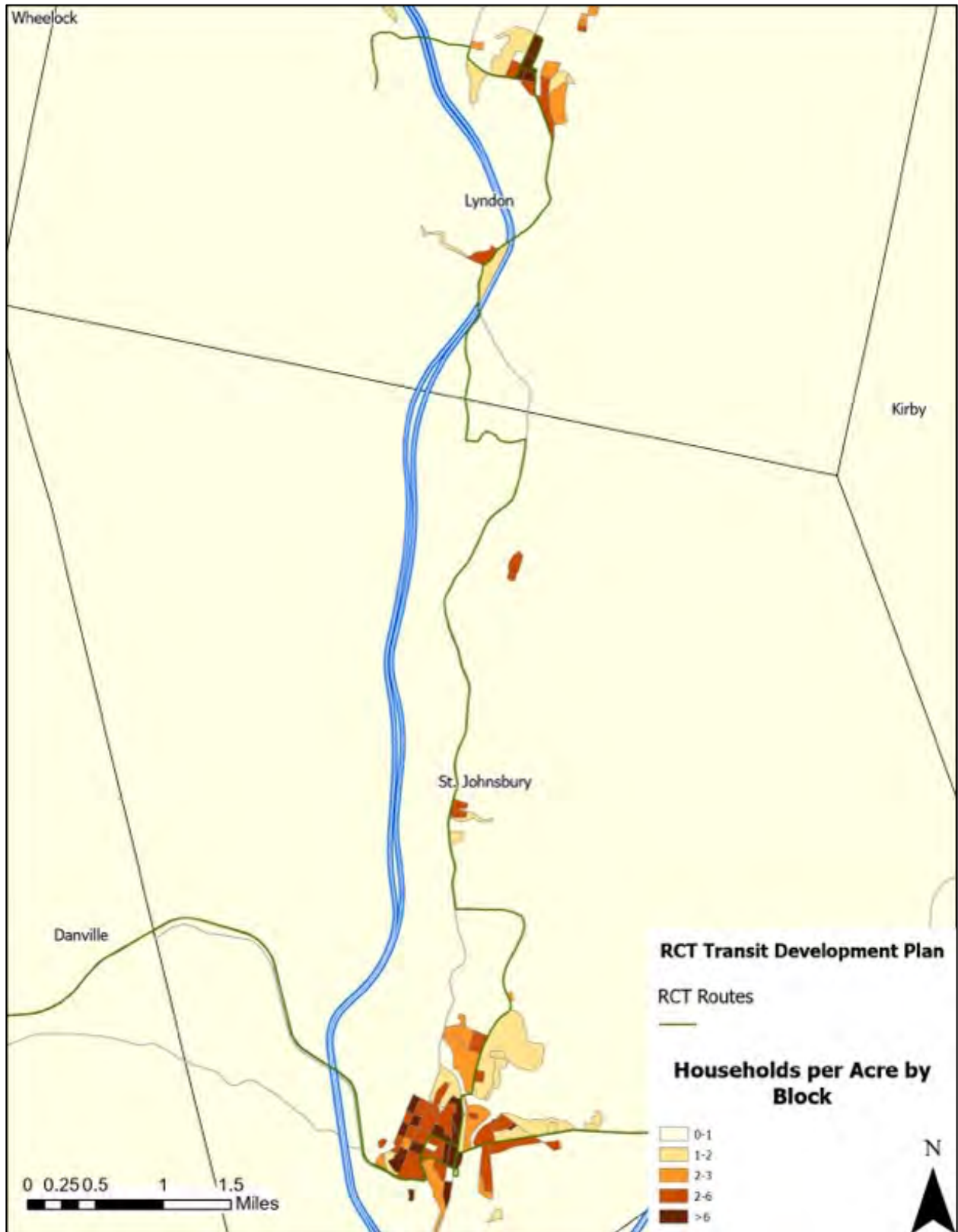


Figure 10 Newport Area Household Density

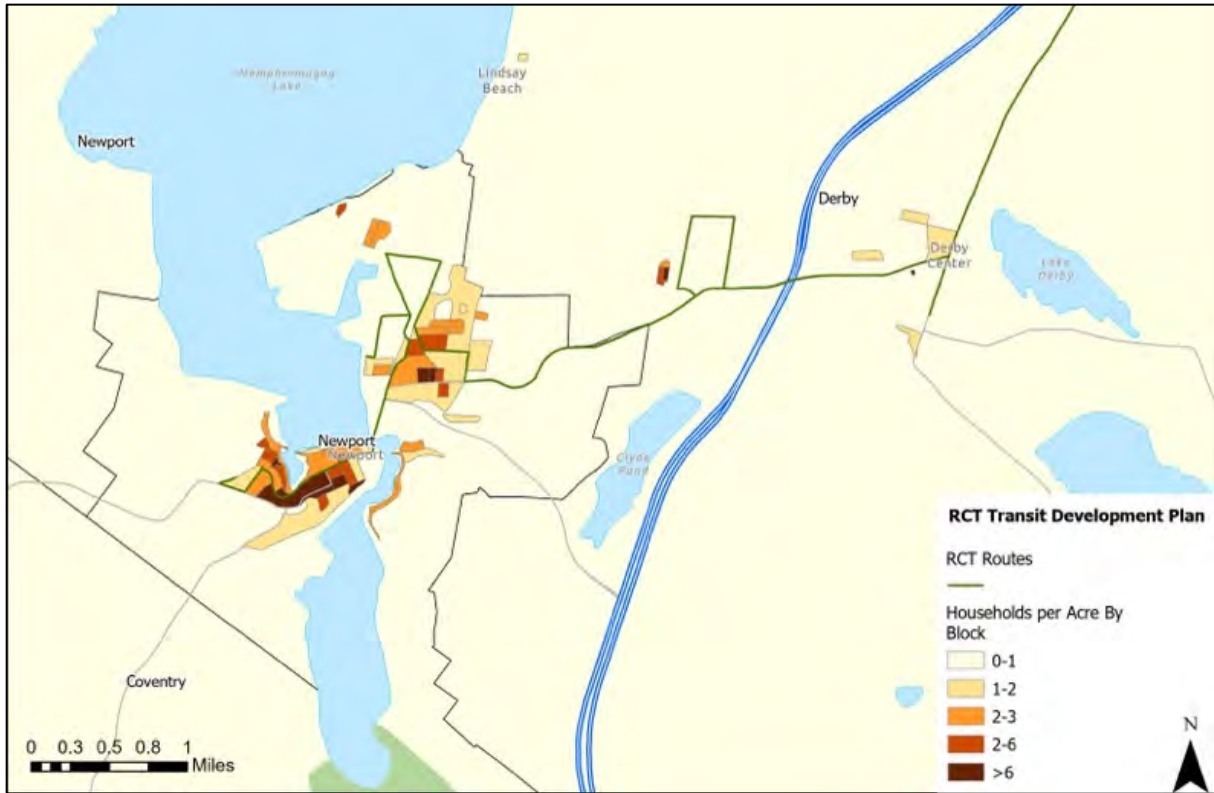
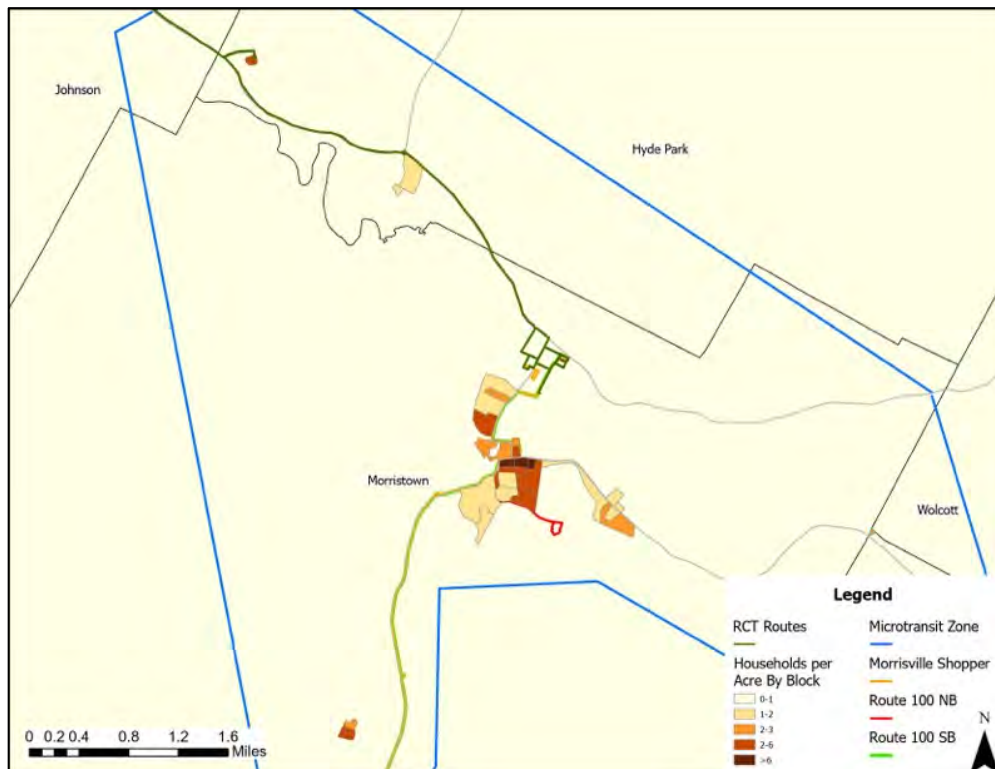


Figure 11 Morristown Area Household Density



Older Adults

Figure 12 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 Stowe, Ryegate, Craftsbury and Brighton have more than 1,000 residents. Moderate percentages of seniors (15-25%) are spread through many towns in the project area, including most of Caledonia County. Only in Johnson do seniors make up less than 10% of total population, though much of Lamoille County is in the second lowest category. Towns and gores in northern Essex County showing as low percentages have zero residents. The towns with the greatest absolute numbers of older adults are the towns with the highest populations: St. Johnsbury, Stowe, Newport City, Morristown and Derby.

Low Income Households

A sizable portion of the project area exhibits a moderate percentage of low-income households, or those earning less than federal poverty line, as demonstrated in Figure 13. It must be noted that the poverty threshold varies with household size, so the amount for a single-person household (\$13,590 in 2022) is significantly lower than that for a four-person household (\$27,750). Most of the towns with the highest percentages are in Essex County and southeastern Orleans County, but, again, most of these have very low populations. Lunenburg has the highest percentage among towns with at least 1,000 people, though St. Johnsbury has by far the greatest number of people in poverty, at 1,199. The western portion of the RCT service area has smaller percentages of low-income households, other than Johnson, which likely shows up so prominently because of the presence of students at Northern Vermont University, as well as neighboring Hyde Park and Wolcott. Stowe, Elmore, Albany and Craftsbury have the lowest incidence of poverty among towns with at least 1,000 people.

Low-Vehicle-Availability Households

Figure 14 shows the percentage of households that either have zero vehicles or have one vehicle for a household with two or more people. The highest percentages are seen in Newport City (37%), St. Johnsbury (31%), plus small towns in Essex County. Other towns with significant numbers of such households include Hardwick, Barton, Lyndon, Johnson, Derby and Morristown. Fortunately for these households, Newport and St. Johnsbury are the two places with the highest level of RCT service available in the region.

Most of the region shows less than 20% of households with low vehicle availability, though three towns in Lamoille County and towns north of St. Johnsbury have moderate percentages of low-vehicle households (over 20%).

Figure 12 Percentage of Population Ages 65 and Older

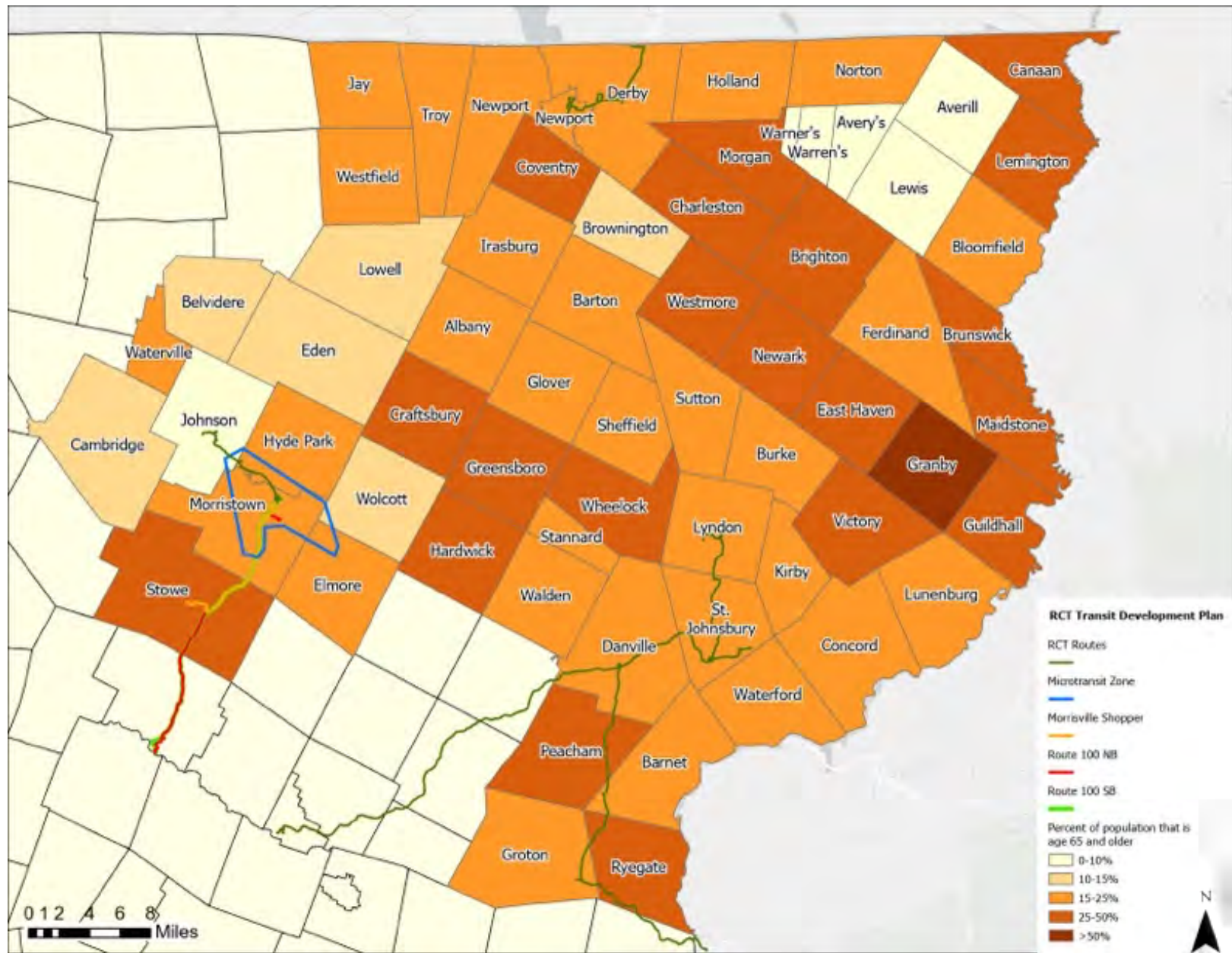


Figure 13 Percentage of Low Income Households

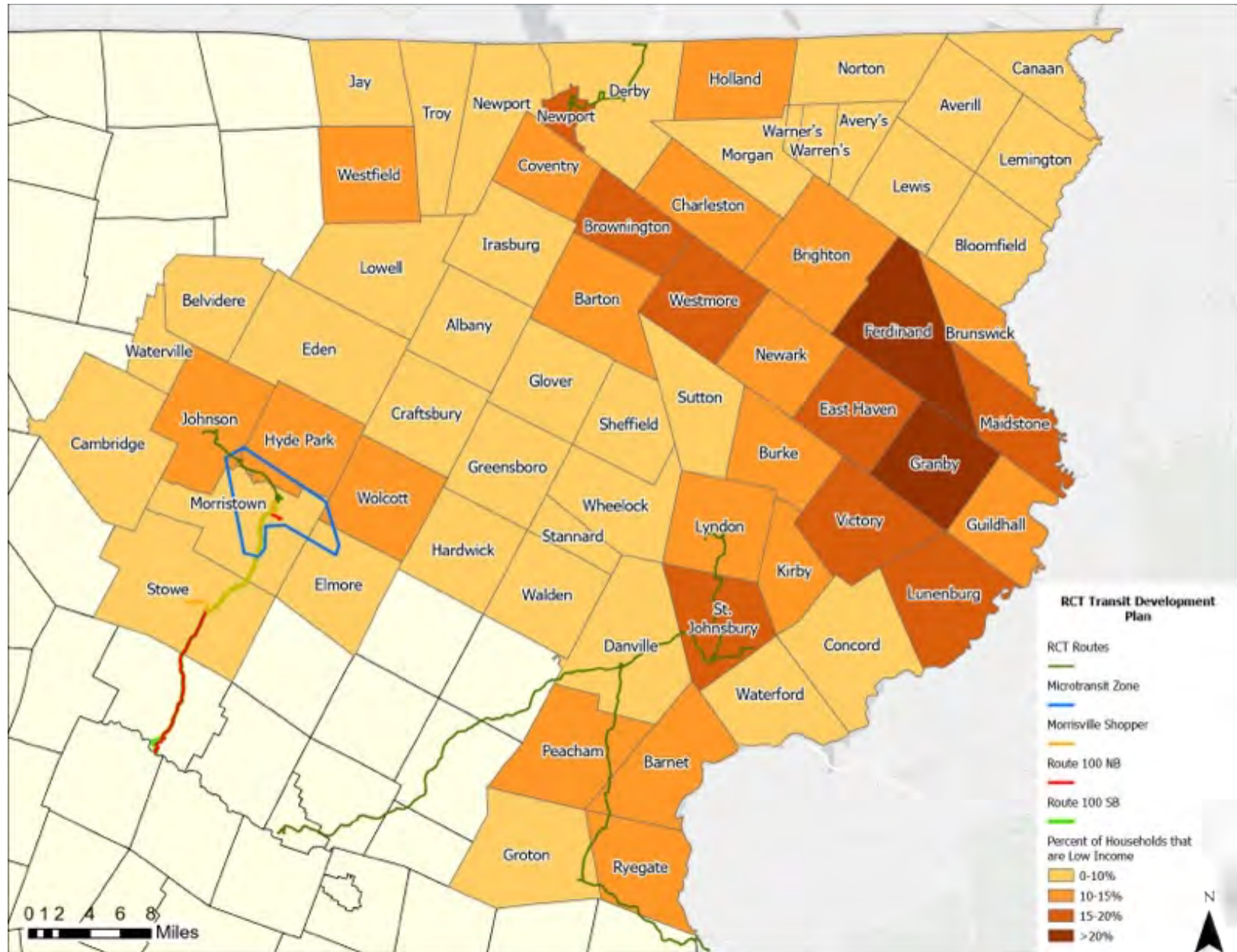
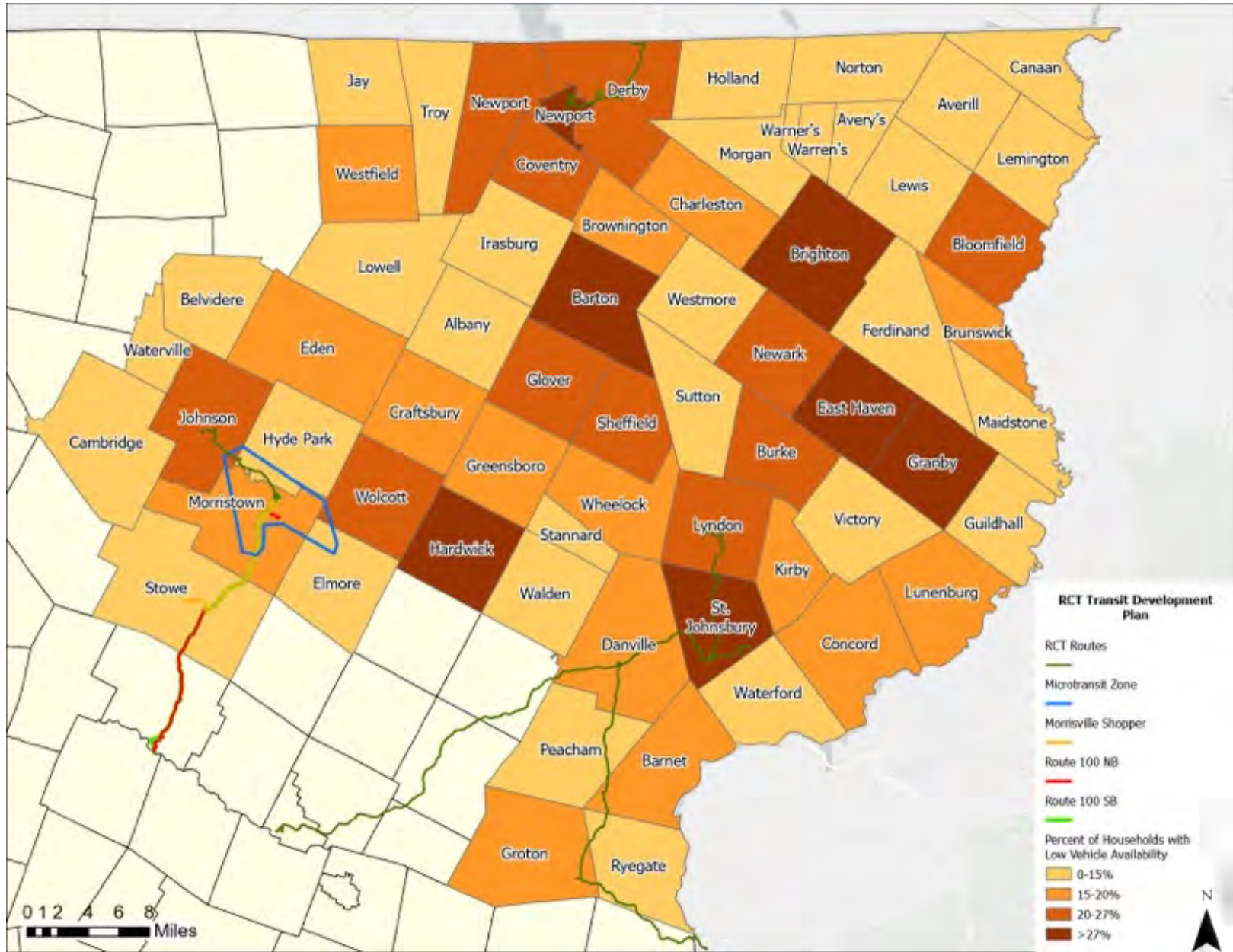


Figure 14 Percentage of Low-Vehicle-Availability Housing Units



Trip Generators for Transit-Dependent Populations

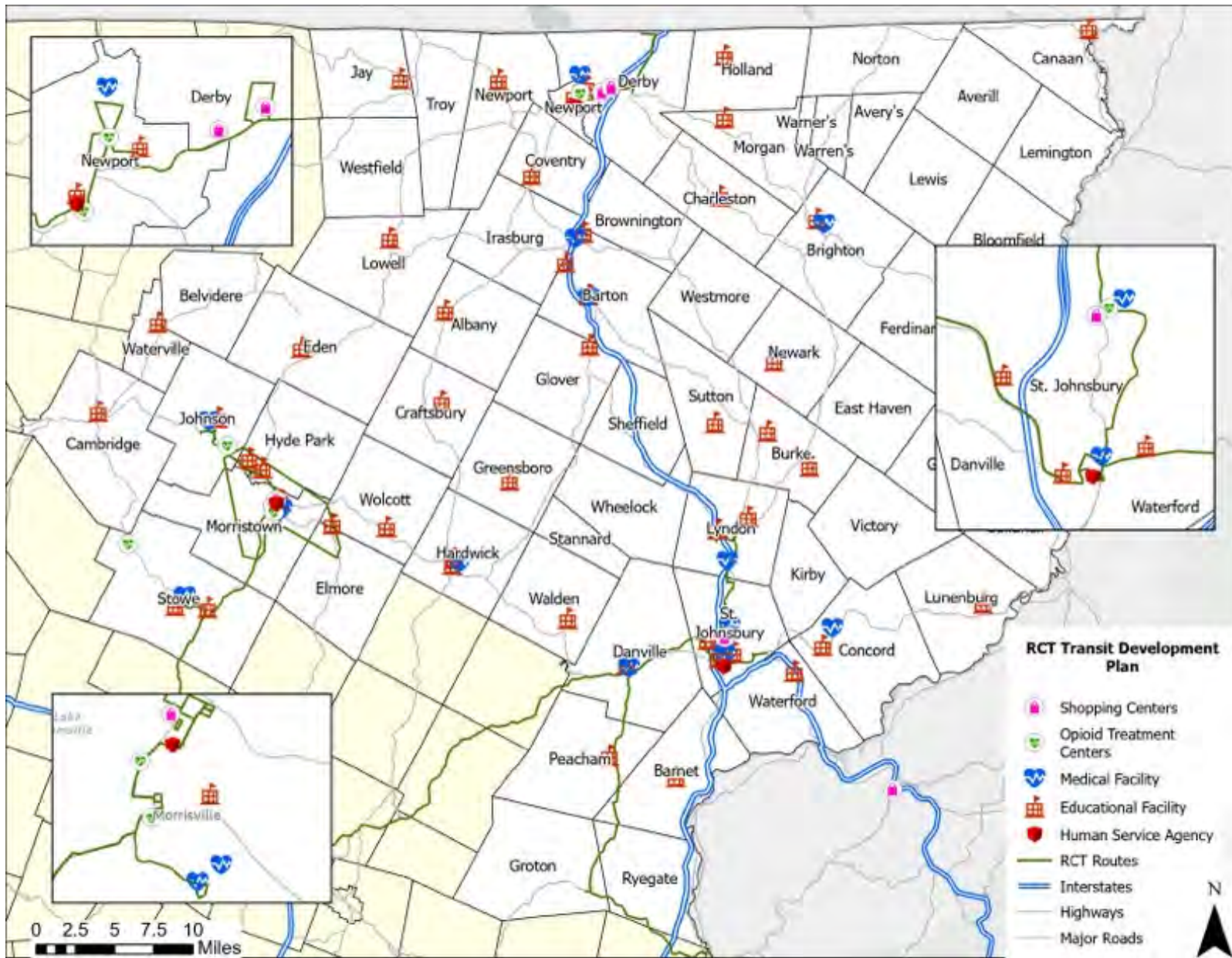
The previous section used data from the U.S. Census to identify areas within the RCT service area that have concentrations of people who are more likely to need access to public transportation services. This section considers data from local sources which provide more detailed information on the location of specific trip generators.

Figure 15 shows some of the trip generators within the project area, including:

- Shopping centers
- Opioid treatment centers
- Human service agencies
- Medical facilities
- Schools and other educational facilities

Not surprisingly, many generators are concentrated in more densely-populated areas: Newport city, Morrisville, and St. Johnsbury. RCT's current routes provide connections to some of these generators, though not necessarily at a high level of service. The RCT Rides-Lamoille microtransit service provides full day access to all trip generators in Morrisville and Hyde Park on demand. Schools are present in many of RCT's communities (though less so in Essex County). Medical facilities, including doctors' offices, can be found outside of the three main population centers in towns such as Concord, Barton, Brighton, Hardwick and Stowe. Littleton, NH is also an important shopping destination for residents of Essex and Caledonia counties.

Figure 15 Trip Generators



Employers

Unlike previous iterations of the TDP, data on individual employers are no longer available at a reasonable cost. Figure 16 shows concentrations of employment based on data from the US Census Longitudinal Employment-Household Dynamics database. Each dot represents employment within a census block, with larger dots showing higher numbers of employees in that block. Thus, at a macro level, the map still represents well where clusters of employers are located, even if it does not provide detail on the numbers of employees at specific locations.

The map shows that employers are clustered in Lyndonville, Stowe, Morrisville (part of Morristown), Newport city, and St. Johnsbury. More isolated large purple dots can be associated with specific employers, such as Ethan Allen Furniture in the northern part of Barton (village of Orleans), Smugglers Notch resort in the southern part of Cambridge, and Jay Peak resort in Jay.

The list below shows estimates of the numbers of employees at most of the largest employers in the region, based on 2017 data from Dun & Bradstreet (updated where possible using web searches):

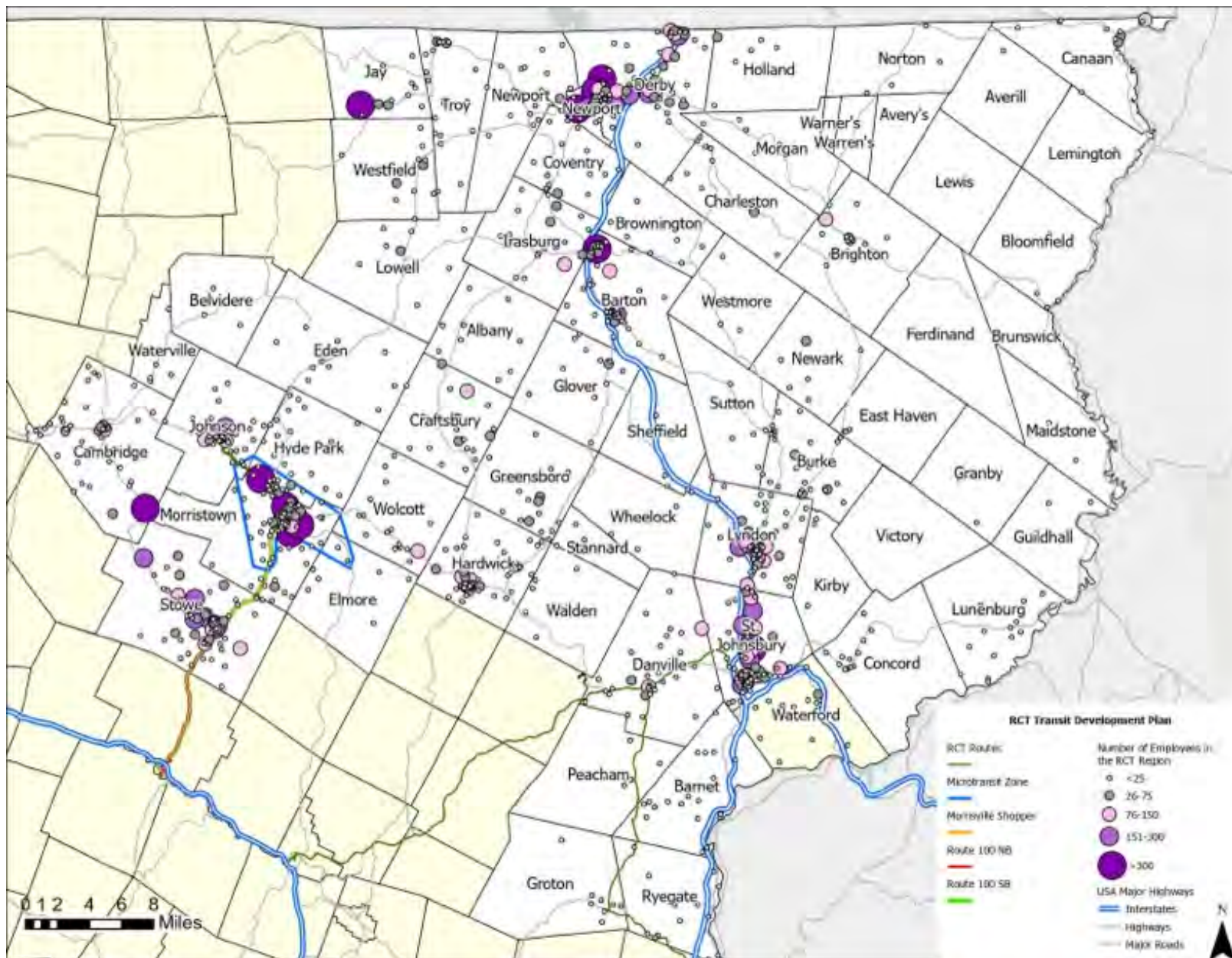
- Columbia Forest Products (Newport) – 400 employees
- North Country Health Systems (Newport) – 400 employees
- Stowe Mountain Resort and Spruce Peak (Stowe) – 400 employees
- Jay Peak Resort (Jay) – 330 employees
- North Country Union High School (Newport) – 290 employees
- Fairbanks Scales, Inc. (St. Johnsbury) – 275 employees
- Momentum Manufacturing Group [formerly NSA] (Lyndonville) – 250 employees
- Northern VT University [formerly Johnson State College] (Johnson) – 250 employees
- Ethan Allen Furniture (Orleans – part of the Town of Barton) – 250 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
- Burke Mountain Resort (East Burke) – 200 employees
- Smugglers Notch Resort (Jeffersonville – part of Cambridge) – 200 employees
- Trapp Family Lodge (Stowe) – 200 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.

Other than Jay Peak, Smugglers Notch and the Town of Barton, RCT operates bus services where most of the large employers are located. Given that the rider survey showed few people using RCT buses to get to work, not many of these employees are currently riding. Indeed, all of these large employers likely have abundant free parking available for employees, since none of them are located in urban areas with parking constraints. The Lamoille County Needs and Gaps study found that many employers are having difficulty filling jobs, and there are many residents

of Lamoille County and the NEK who would benefit from a new job or a better paying job. Bus routes, even if they travel near an employment site, only help people who also happen to live along the bus route. Microtransit service zones, such as the RCT Rides-Lamoille, could make workplaces more accessible for more people by expanding the coverage area. Use of a microtransit service for worktrips would then depend on timing (does it start early enough and end late enough to cover work shifts) and reliability. Microtransit, due to the flexible nature of the service, can be less reliable than a fixed route bus, and thus pose a problem for an employee who needs to arrive at work at a specific time. Nonetheless, it is likely that expanded microtransit zones will increase access to employment and be part of the solution of matching people looking for work to unfilled jobs in the RCT service area.

Figure 16 Study Area Employment



Commuting Patterns

The Longitudinal Employer-Household Dynamics (LEHD) database from the Census Bureau provides direct information connecting residences to workplaces. Figures 17, 18, and 19 provide a detailed look at the origin locations of people who work in St. Johnsbury, Newport and Morrisville. The total employment in these towns in the 2021 (most recent) LEHD dataset was 4,750 and 3,311, and 2,287, respectively. About 27% of St. Johnsbury’s jobs are filled by St. Johnsbury residents, while Newport city residents fill only about 22% of Newport’s jobs. Morristown fills just under 20% of the jobs in Morrisville.

The primary towns sending commuters into St. Johnsbury are Lyndon (588) and Danville (250). In the next tier, Barnet, Waterford and Burke send between 100 and 250 commuters into town. Ten towns send between 50 and 100 commuters to St. Johnsbury, including Newport City and Derby, the ring of towns to the north, and New Hampshire border towns as well as Littleton, NH. 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 (624) is the only town outside of Newport City that sends more than 200 commuters into the city. A group of four towns to the south and west send between 100 and 250 commuters and six towns to the south and 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 Craftsbury. 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 pattern for Morrisville is yet more compact, due to the smaller job total. Outside of the 446 commuters from Morristown, only Hyde Park (193) and Johnson (170) send more than 150 commuters to Morrisville. Other important sources include Wolcott (198), Stowe (106) and Waterbury (80). Smaller numbers come from as far away at Derby and St. Johnsbury.

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) are well established, commuting trips to job centers in New Hampshire are also common, including Littleton, Berlin, Woodsville, Colebrook, and Lancaster. Of course, many people, especially from Caledonia County commute to the major job center in the Hanover/Lebanon area.

Figure 17 Commuters to St. Johnsbury

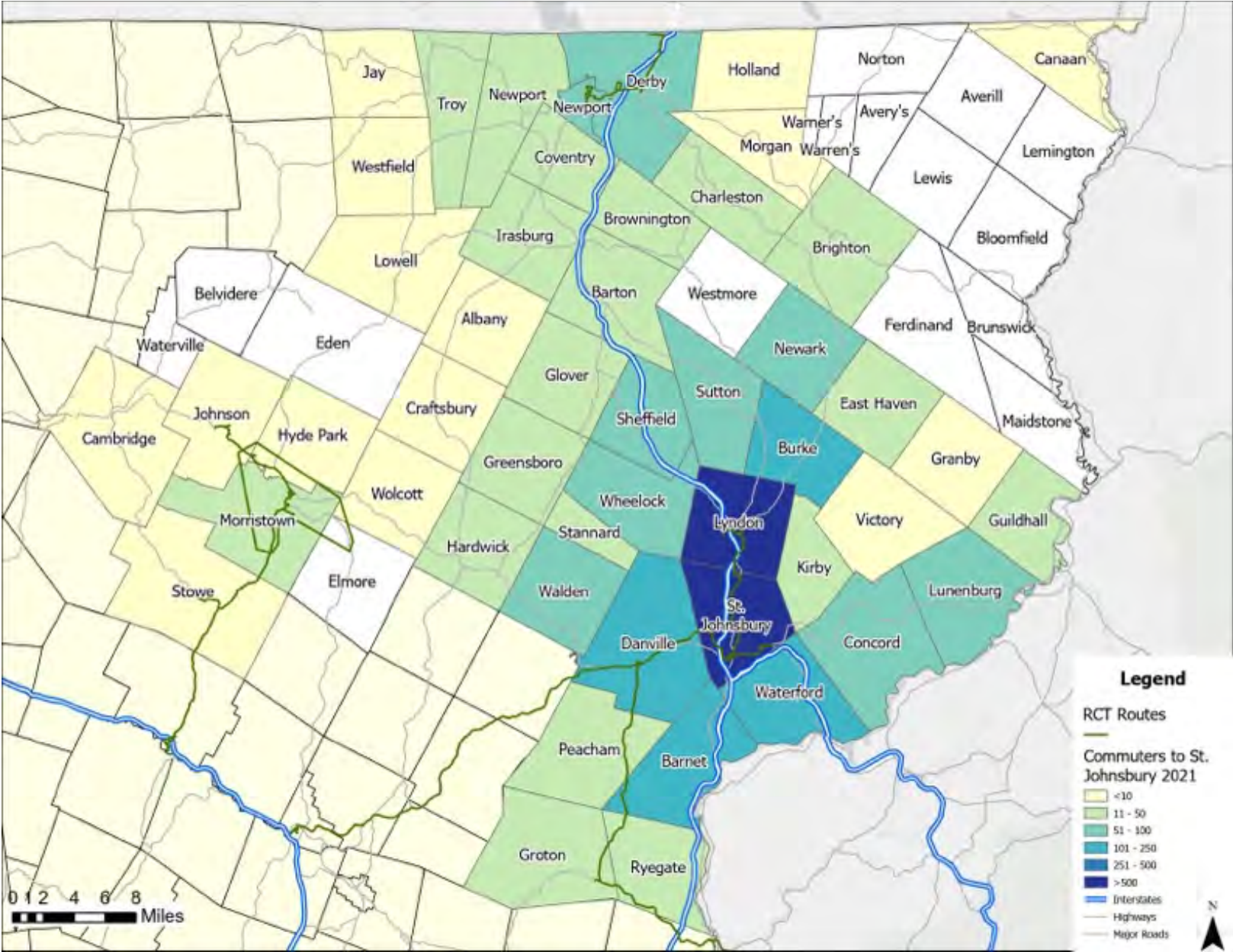


Figure 18 Commuters to Newport City

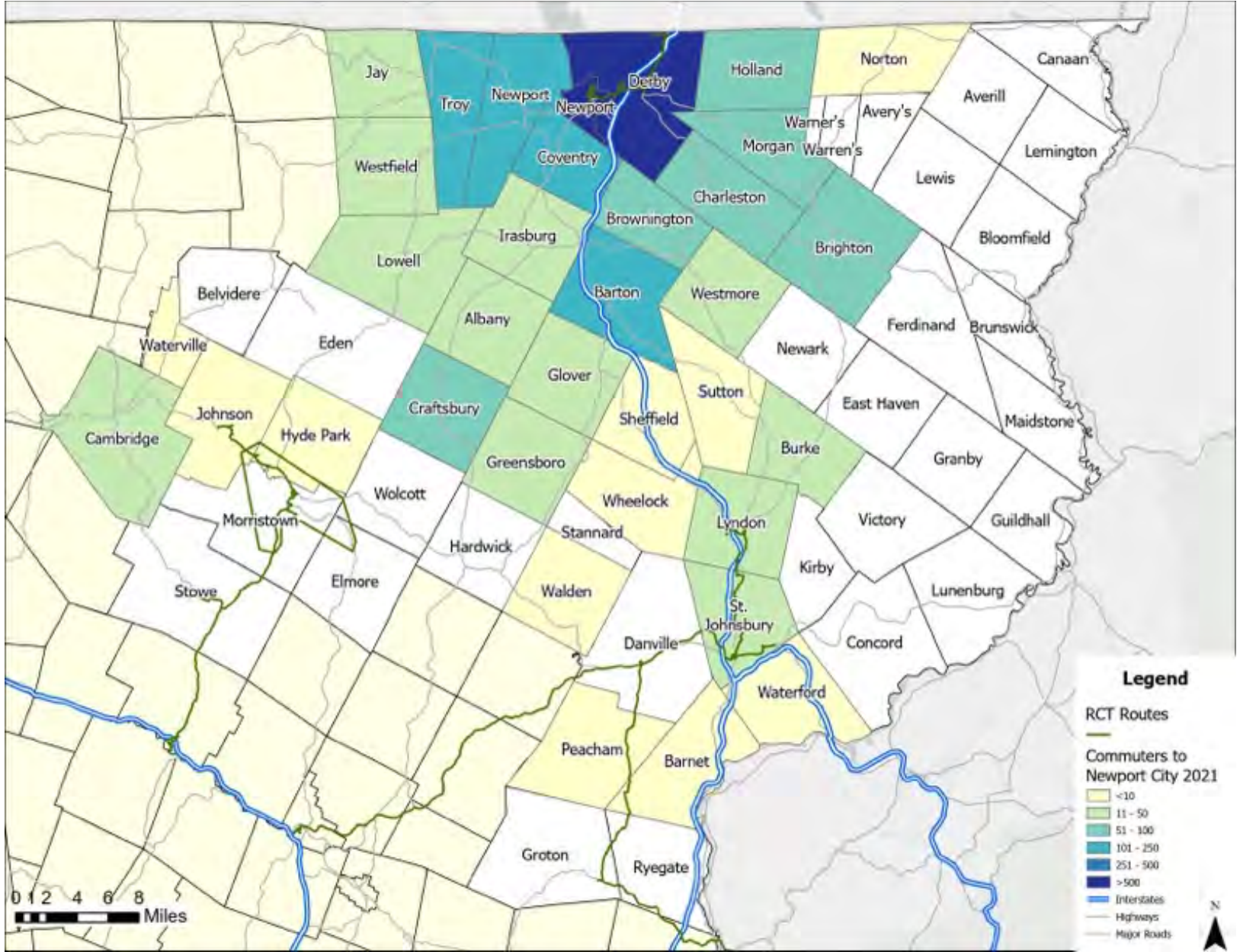
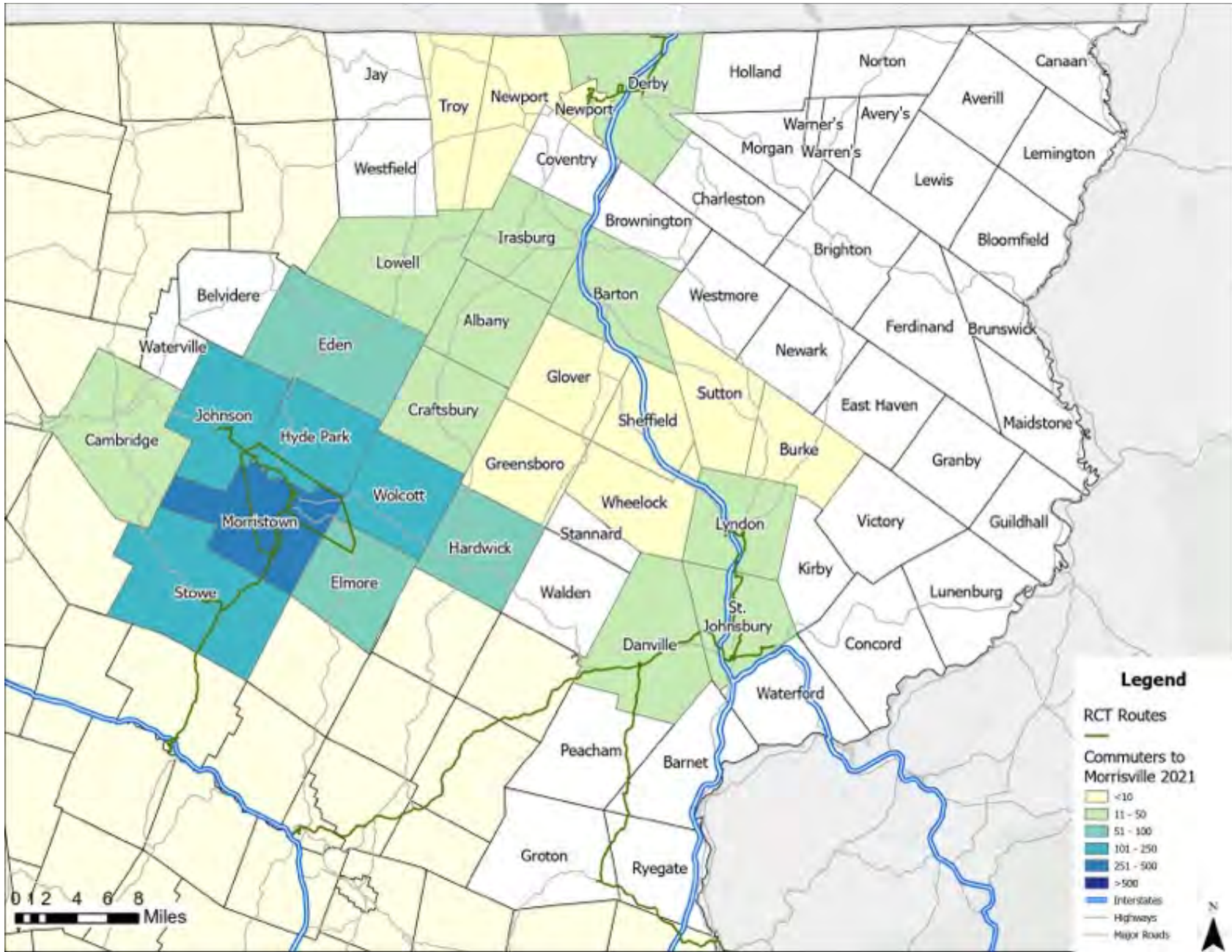


Figure 19 Commuters to Morrisville



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 and capital investments to guide RCT's growth over the coming years. The following pages present a vision for the future of 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.

Market Condition and Opportunities

RCT already plays a vital role in the Northeast Kingdom community, providing tens of thousands of trips on its shuttle services and over 75,000 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.

The period from 2010 to 2020 saw an expansion in RCT's bus services, including more trips on its core bus route, the Jay-Lyn Shuttle, and new commuter bus services such as the US 2 from St. Johnsbury to Montpelier, the Twin City Commuter from St. Johnsbury to Littleton, NH, and the 15/14 Commuter from Morrisville to Barre via Hardwick. In July, 2020, RCT took over operation of three bus routes in Lamoille County from Green Mountain Transit: the Route 100 Commuter, the Morrisville Loop, and the Morrisville Shopping Shuttle. That level of bus service, the highest RCT had ever operated, lasted until July 2023 when the Twin City and 15/14 Commuter routes were discontinued, and the Morrisville Loop was converted into the RCT Rides-Lamoille microtransit service.

The COVID-19 pandemic had a huge impact on commuter bus routes, with ridership losses of about 80% within the first few months. Since that time, ridership has recovered to some extent, but numbers are still down 30% on average compared to the period prior to the pandemic. Some people who formerly rode commuter routes daily now work at home either full time or two or three days per week. Other passengers may have decided that riding buses still carries too much of a risk of catching diseases. Yet others may have purchased electric vehicles and figure that they have done their part for the environment.

At the same time that the commuter market for transit has been perhaps irreparably damaged by the pandemic, microtransit has emerged as a new way to provide convenient mobility to a broader geographic area at a reasonable cost. As was described in Chapter 2, microtransit is a technology-enabled, on-demand service that responds to trip requests in real time. While traditional dial-a-ride services require people to schedule trips at least a day in advance and entail

a significant amount of work for office staff to schedule trips and dispatch them to drivers, microtransit automates this process and communicates pick up and drop off instructions to drivers on the road via tablet computers. Riders who have smartphones and are comfortable using apps do not have to make a phone call to request service; the trip origin and destination points and the desired time can be entered directly into an app and then the system will respond with the scheduled pick up time and location.

Until now, demand response service in rural areas has been mainly restricted to people eligible for specific programs, such as Medicaid transportation or the Older Adults and People with Disabilities (O&D) program. The Vermont Agency of Transportation, over the past seven years, has been introducing pilot programs to expand mobility to other segments of society. The Rides to Wellness program offered trips to participating medical facilities for people who were not eligible for Medicaid or O&D. The Recovery and Job Access program, jointly sponsored by the Agency of Human Services, offers trips to people in recovery to get to treatment appointments, and it offers trips to anyone seeking access to job training, interviews and regular commuting (for a limited time). These programs are incremental steps toward a concept called Mobility Plus (sometimes referred to as Mobility for All).

The ultimate goal of Mobility Plus is to offer transit access to all Vermonters, regardless of where they live, their age, disability status, or income. There is a great deal of anecdotal evidence that many Vermonters “fall through the cracks” of existing programs and have unmet mobility needs. The analysis in Chapter 3 showed that 20% of the households in the RCT service area (7,637 out of 38,190) had low vehicle availability. Furthermore, combining a Mobility Plus program with an electric vehicle fleet can result in significant environmental benefits, especially considering that many low-income Vermonters that do have cars likely have older, less-efficient, and more-polluting vehicles.

RCT has been able to offer as much service as it does because of the availability of a pool of volunteer drivers. These drivers do not receive an hourly wage but just a reimbursement for the miles they accrue on their personal vehicles, using the official IRS rate (currently 67 cents per mile). A significant expansion of the amount of service operated in rural areas would require additional drivers. RCT is already going to great lengths to recruit volunteer drivers, and so to expand the pool, it will almost certainly be necessary to hire additional drivers as contractors, similar to how transportation network companies such as Uber and Lyft operate. These “community drivers” would get paid by the hour, but they would not be employees with benefits, as RCT’s regular roster of professional drivers are.

Microtransit technology, combined with electric vehicles and community drivers, offers the potential to expand mobility to everyone in the RCT region at a reasonable cost while also reducing pollution and greenhouse gas emissions. Much of the rest of this chapter describes how this Mobility Plus concept will be rolled out in the coming years.

RCT's Future Service Structure

As described in Chapter 2, RCT's service consist of local shuttle routes, commuter routes, shopping routes, one seasonal route, and demand response service (traditional and microtransit). A region-wide rollout of Mobility Plus service would reduce the number of bus services and fold most traditional demand response service into a microtransit-style operation. Scheduled bus services would be retained for linear corridors and shopping routes where the destination retail center is a significant distance from the residential source of riders.

RCT's primary linear corridor is the Jay-Lyn route between St. Johnsbury and Lyndonville. This route has developed town centers at both ends of the route and large generators along the US 5 corridor in between, including Northeast Vermont Regional Hospital, the BAART clinic, Price Chopper, and Green Mountain Mall. The route serves more than 120 riders per day.

The US 2 Commuter is RCT's highest ridership commuter route, though it serves only about 35 riders per day. At its inception in 2010, it was jointly operated between GMTA and RCT, with buses garaged at either end of the route, thereby minimizing deadhead (non-revenue) travel. RCT now operates all of the service on the route (though a midday trip between Montpelier and Marshfield, to be operated by GMT, has only been "temporarily suspended"). It is possible that some or all of this route could revert to GMT, depending on the outcome of the GMT's study.

The Route 100 Commuter and the and Morrisville Shopping Shuttle can be thought of as two parts of the same route, since they overlap between Morrisville and Stowe. The commuter portion runs only during peak periods, while the shopping portion runs only in the midday. This corridor has several possible futures including the status quo, upgrade into a full-day route, reversion to GMT, or a service reduction.

RCT has operated many shopping shuttle routes over the years. An expansion of the RCT Rides-Lamoille to include Johnson will render the Johnson Shopper obsolete. The only other shopping shuttle currently operated is the Greenleaf, from Lyndonville to Woodsville, NH via St. Johnsbury, Danville, Peacham, Groton and Ryegate. This trip is over 35 miles in length and could not be accomplished efficiently by a microtransit-style service.

In a future when Mobility Plus service is available for the full four-county region, it is likely that the only bus routes that will continue operating will be the Jay-Lyn shuttle, service on Route 100 between Morrisville and Waterbury, service on US 2 between Montpelier and St. Johnsbury, and one or more shopping shuttles such as the Greenleaf. Whether RCT operates the Route 100 and US 2 service remains to be determined. The Crown Connection is a special seasonal service, and its status depends on ridership performance and financial support from Kingdom Trails.

Potential intercity service is discussed after the section on Mobility Plus. The recent update to the Statewide Intercity Bus Study noted that the Northeast Kingdom had the worst intercity access in Vermont.

Service Investments and Phasing

Jay-Lyn Shuttle

The Jay-Lyn shuttle currently operates nine round-trips over a weekday span of service of roughly 13 hours. This averages out to about 90 minutes between trips, though the route does not have a regular headway. The earliest trip and the last trip are “express” runs with fewer intermediate stops. In the current timetable, a round-trip takes about three hours. In order to upgrade this service to run hourly, a third bus would need to be in service, increasing the operating cost by about 50%.

Other improvements to be considered would be to extend service later in the evening on weekdays and to operate service on weekends. The ridership on the last two trips is in the low-to-mid-single digits, notably lower than midday ridership. It seems unlikely that evening service (say, between 6:00 p.m. and 8:00 p.m.) would be productive enough to justify the cost. Saturday service would probably be a better investment, at least between 9:00 a.m. and 5:00 p.m., when demand for shopping trips would be greatest. One bus in service, using a streamlined alignment excluding VSU, the State Building and NKHS could run on a 2.25-hour cycle, offering four round-trips in that span of time.

Of the two recommended options—improving weekday frequency and adding Saturday service—the Saturday option is less expensive and has a greater impact on mobility and so has a higher priority. Hourly service on weekdays should remain a longer term goal.

Commuter Routes

Given the above discussion about the commuter market since the pandemic struck, this TDP contains no recommendations to increase service on commuter routes. Depending on the outcome of the planned GMT study (due in November, 2024), it may be possible for RCT to transfer the US 2 and Route 100 commuter routes back to GMT. Otherwise, they can continue to be operated as they are, provided that they meet performance standards set by VTrans.

Shopping Routes

The daily Morrisville Shopper and the semi-monthly Greenleaf Shopper are both successful routes. It is assumed that the Johnson Shopper will be subsumed into an expanded RCT Rides zone during Summer 2024. If the Johnson Shopper is eliminated as a separate route, the level of service on the Greenleaf Shopper could be increased to a weekly trip, rather than just trips on the 2nd and 4th Thursdays of each month. 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.

As the ridership on RCT Rides service in Morrisville grows, and if a separate RCT Rides service is operated in Stowe (see below), it may be feasible (in terms of ridership and productivity) to increase the number of trips on the Morrisville Shopper to four or five full round-trips per day from the current two-and-a-half round-trips. The expanded RCT Rides service at either end would grow the market for the linear service connecting the two towns.

Mobility Plus

The concept of Mobility Plus is simple enough: a demand response service available to all residents of RCT’s service area. The complications involve the details of how the service zones are defined, how it is rolled out across the four-county region, and how it is operated. The following lays out a plan for extending Mobility Plus to the whole region; the feasibility of doing so and the pace at which it can be accomplished depends mainly on the availability of funding from federal, state, and local sources, as well as vehicles and drivers to get the service on the street. The service zones described below are presented geographically rather than in the recommended order of implementation (which will be discussed in the following section on phasing). Lamoille services are discussed first, followed by Orleans, Caledonia and Essex.

Lamoille County

As of Spring 2024, RCT has one microtransit zone, in Morrisville and Hyde Park, that would qualify as a Mobility Plus service. The service shown, shown in Figure 20, includes all of Morrisville, the most developed part of Hyde Park, and portions of Morrystown and Elmore. The zone is not narrowly defined by developed areas, but rather includes some sparsely populated areas of Elmore and Morrystown. Having little to no population, these areas generate very few, if any, trip requests for the RCT Rides service.

Figure 20 – RCT Rides-Lamoille Service Zone

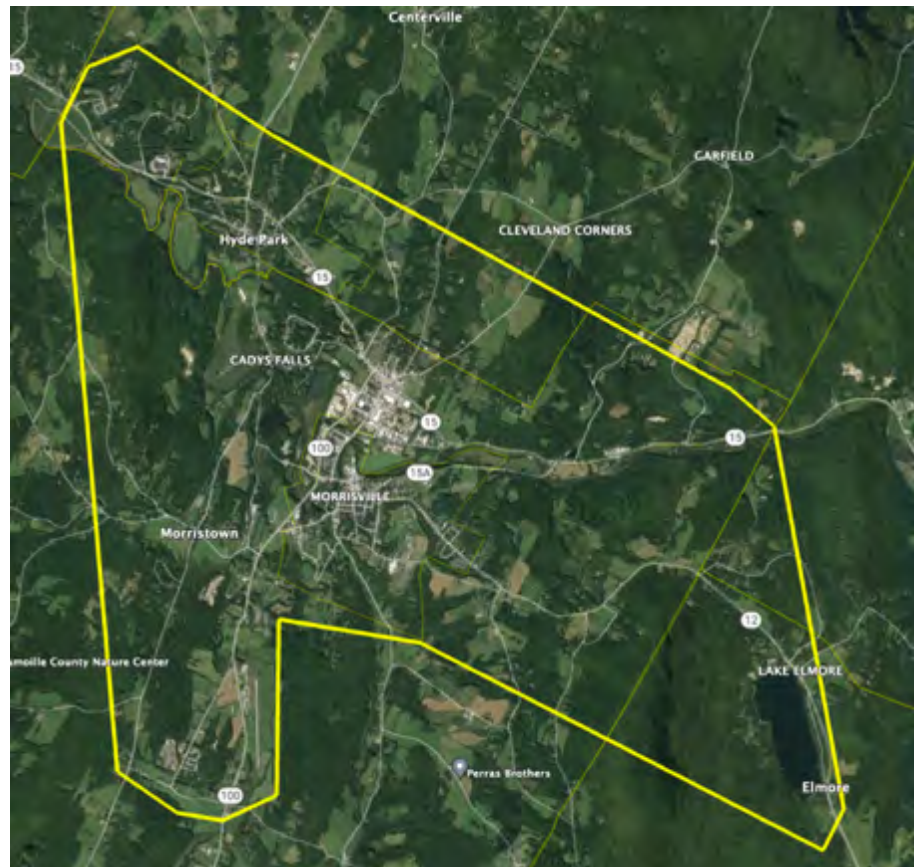
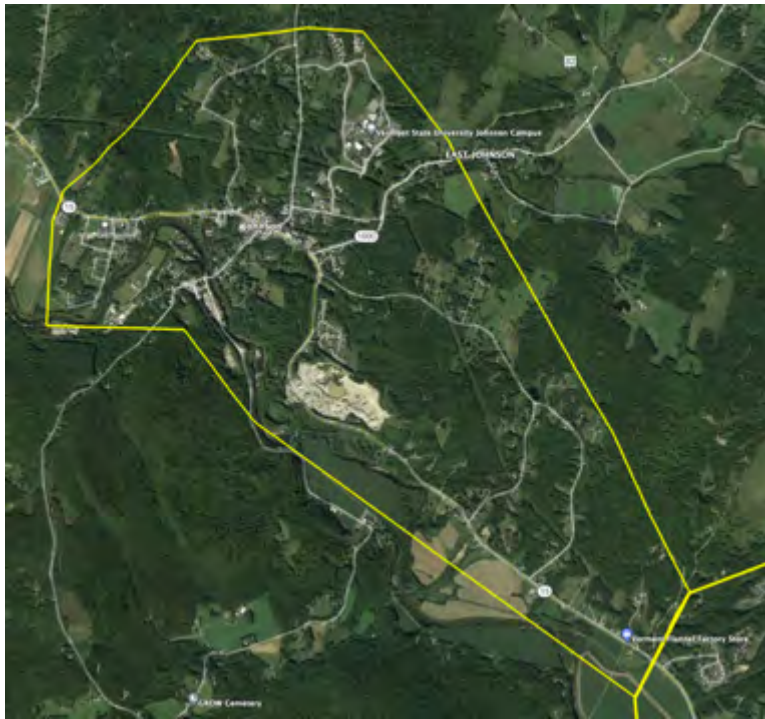


Figure 21 – RCT Rides-Lamoille Expansion to Johnson



Expansion 1 – Johnson Village

RCT is currently planning to expand this zone along VT 15 to the northwest to include a portion of the Town of Johnson. This expansion, including all of the Village of Johnson and the Vermont Electric Coop, is shown to the left in Figure 21. Collins Hill Road and Maple Hill Road, which run north and east of VT 15 and are not officially part of the Village, would also be included in the zone. The expanded RCT Rides-Lamoille service would be operated with two vehicles at all times, instead of the one vehicle that was used in the initial phase

of operations. If insufficient funding is available, the second vehicle may be used only during certain times of day. A secondary expansion in this area is to add Saturday service to both the original Morrisville/Hyde Park zone and the Johnson Village expansion zone.

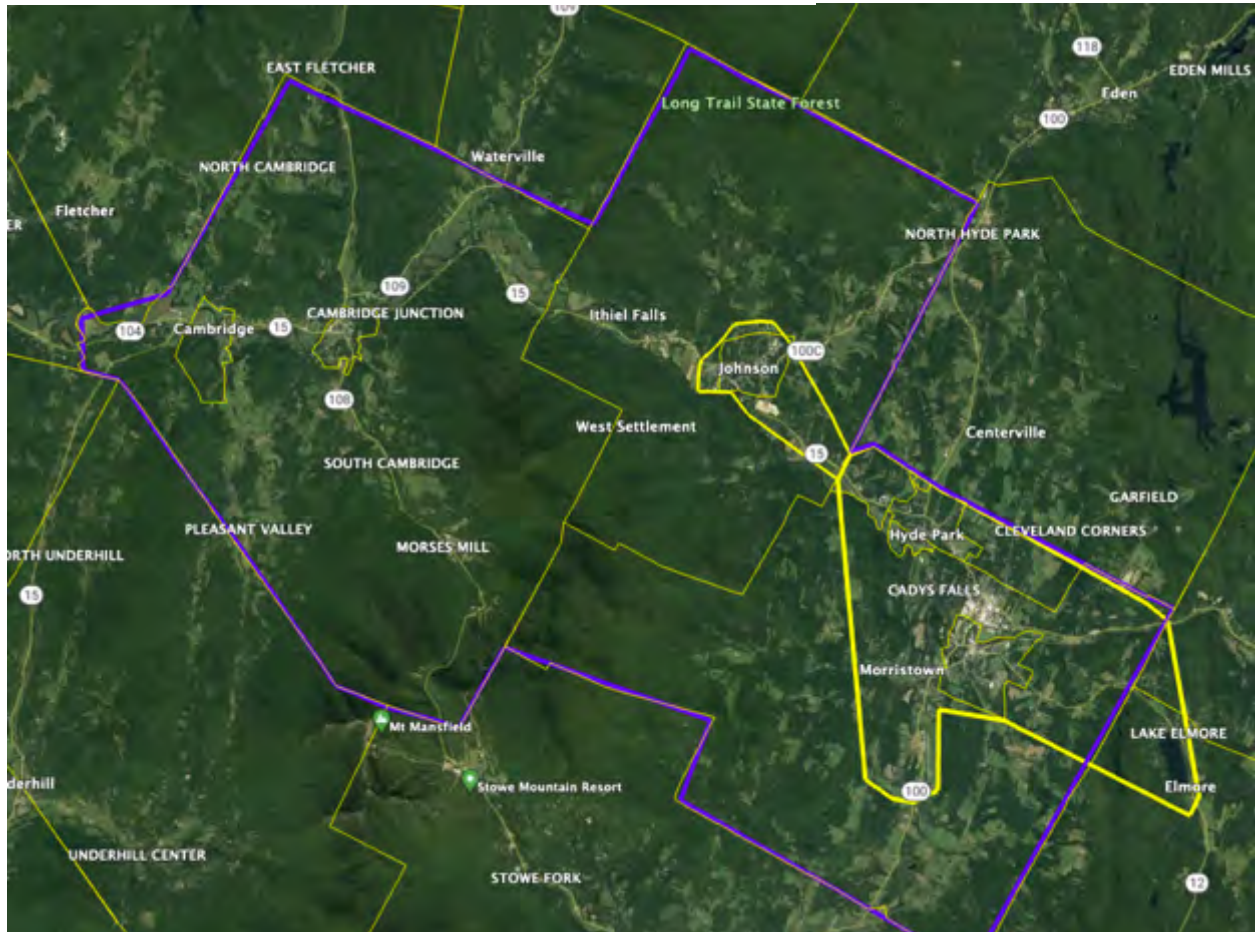
Expansion 2 – Cambridge, Johnson and Morristown

The next logical step is to expand the zone to include the rest of Morristown and all of Cambridge (which includes Jeffersonville). This would be the first expansion into large swathes of fully rural areas. While this zone can be thought of as an expansion of the RCT Rides-Lamoille+Johnson zone, it is more like an overlay. Given how rural this area is, shown in Figure 22 with an indigo outline, it would be more appropriate to operate this area with SUVs driven by community drivers rather than vans operated by RCT personnel. These SUVs would serve all potential destinations in Morrisville, but they would be intended to have origin locations outside of the expanded RCT Rides-Lamoille zone. It should also be noted that Cambridge Village and Jeffersonville have a stronger orientation toward Essex Junction and Chittenden County than to Morrisville and Lamoille County. Thus, the level of demand from Cambridge would not be expected to be great. Given the large area covered by this zone, it is possible that two SUVs would be needed to provide an adequate level of service, though in the initial implementation, RCT could start with one SUV.

The presence of Smuggler’s Notch resort in this zone suggests that the level of service from December through March may need to be higher. In prior studies, such as the Lamoille Needs and Gaps Analysis, staff at Smuggler’s Notch have indicated that it is a challenge to get enough

employees to the resort in the winter. Skiers may also desire to have a way to get there without the hassle of driving and finding a parking spot. Thus, SUV service on weekdays and van service on weekends and holiday weeks connecting Morrisville and Johnson to the resort would likely be well used.

Figure 22 – Cambridge, Johnson, Morristown Zone



Expansion 3 – Stowe

The Town of Stowe already has a significant amount of transit service, with RCT’s two routes on VT 100 and GMT’s Mountain Road Shuttle on VT 108 during the ski season. Nevertheless, a microtransit service in Stowe would benefit residents who have mobility limitations and could encourage tourists to use transit instead of driving between destinations in the town. When the Mountain Road Shuttle is operating, the RCT Rides zone would not include the Mountain Road beyond the West Branch Apartments. During the rest of the year, RCT Rides would cover the entire town, bringing transit service to the Mountain Road in the summer and fall, a long desired objective in the town. One van with a professional driver will be sufficient for most of the year, but during foliage season, it may be necessary to bring a second van into service, depending on demand from the tourist market.

Expansion 4 – Elmore, Wolcott, Hardwick, Greensboro, Craftsbury

The next phase covers the eastern part of Lamoille County and bordering towns in Caledonia and Orleans counties that are more oriented toward Morrisville than St. Johnsbury or Newport. The overall zone is shown with a light green border in Figure 23 below. The VT 15 corridor and the center of Hardwick are outlined with a red border. Hardwick Village and the corridor through Wolcott are likely to generate much more demand than the rest of this zone, which is very rural. This red-outlined area would thus be served by a van with and RCT driver, while the rest of the area would be served with an SUV operated by a community driver. There may be some demand from Sterling College in Craftsbury Common to get to either Hardwick or Morrisville.

Given that the Hardwick-to-Morrisville corridor is very linear, it is possible that this portion of the zone would be better served by a shuttle route, similar to the Morrisville Shopper to Stowe. After implementation, usage patterns can be analyzed and it can be determined whether service would be more convenient to passengers as a scheduled shuttle rather than microtransit.

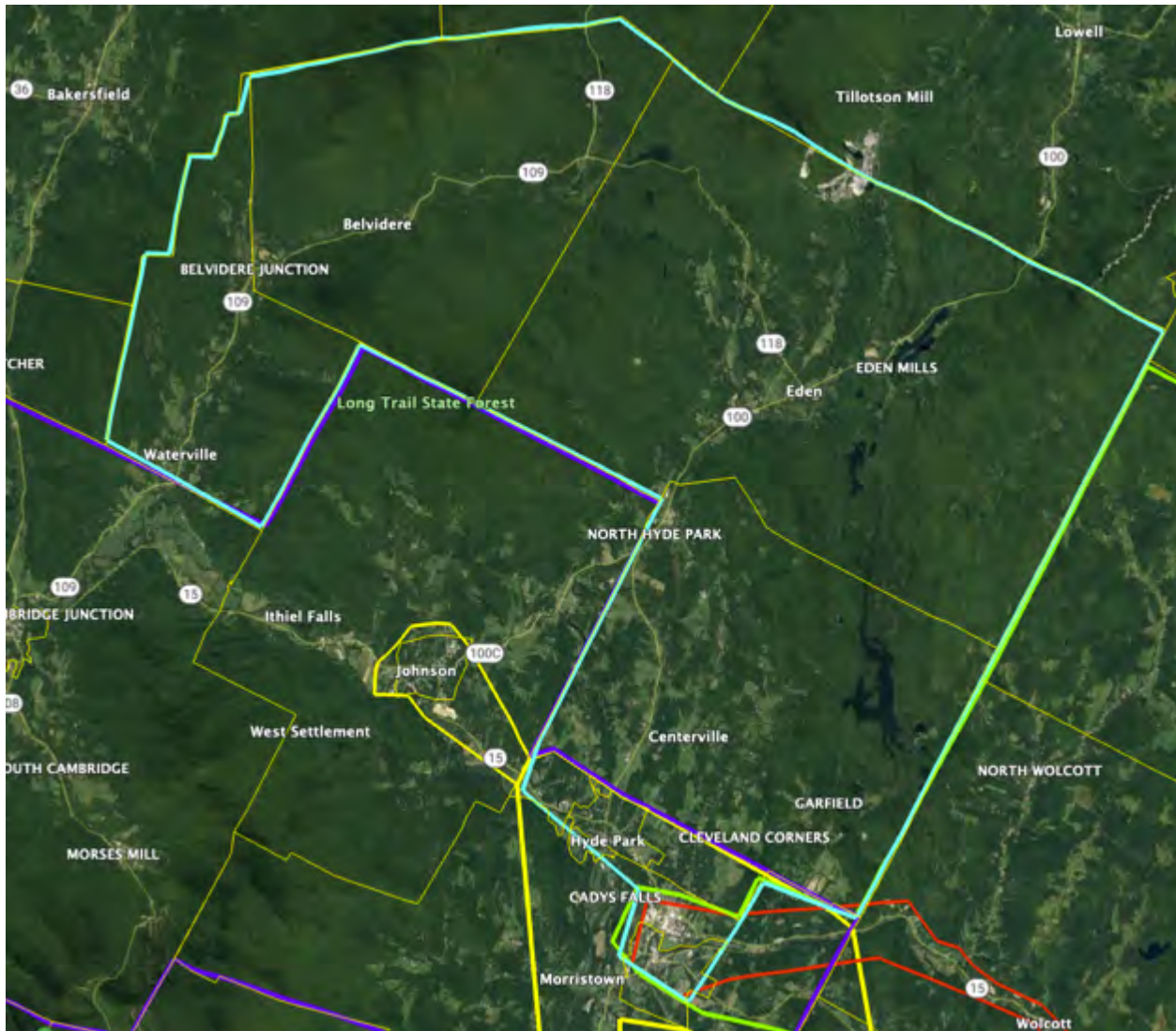
Figure 23 – Elmore, Wolcott, Hardwick, Greensboro, Craftsbury Zone



Expansion 5 – Northern Hyde Park, Eden, Belvidere, Waterville

To complete the coverage of Lamoille County, the ring of towns on the northern edge of the county would be connected to Morrisville via VT 100 as shown in Figure 24. Waterville and Belvidere have barely 1,000 residents between them, and Eden has only 1,335, and so few trip requests would be expected from these towns. The northern section of Hyde Park, including Centerville, would be expected to generate more trip requests. It is forecast that this four-town area would be adequately covered by a single SUV operated by a community driver. As with the other zones, the vehicle would connect these rural town directly to destinations in Morrisville, but it is assumed that it would not carry trips locally in Morrisville unless there was high demand in Morrisville and no demand to or from the rural towns.

Figure 24 – Northern Hyde Park, Eden, Belvidere, Waterville Zone



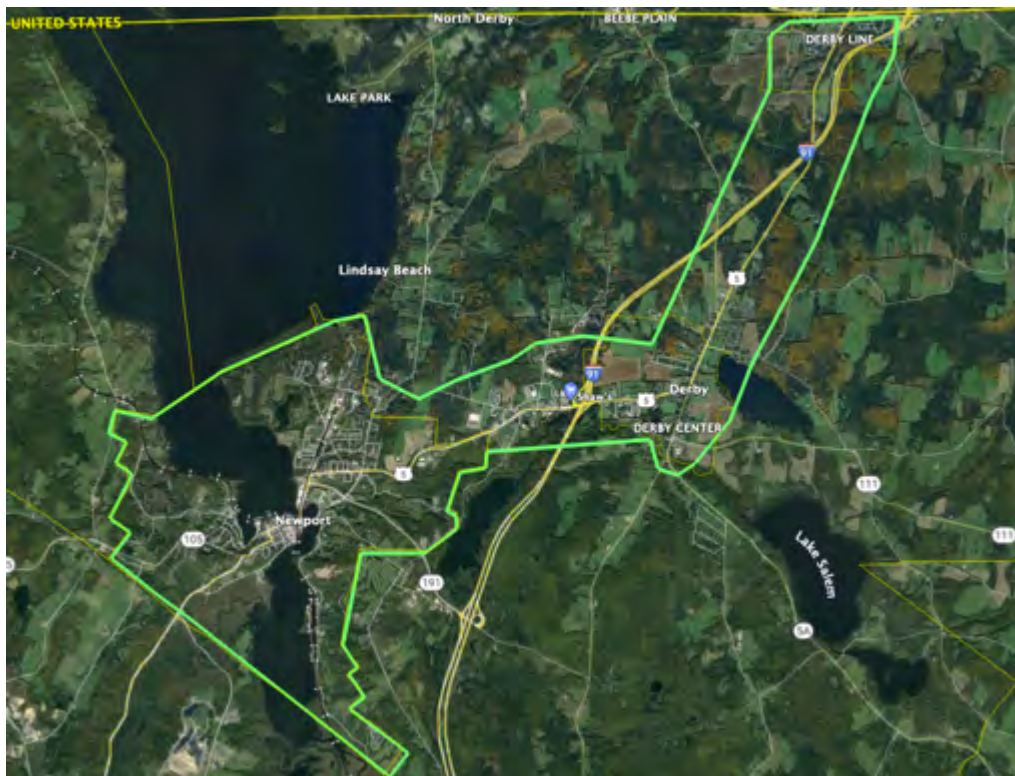
Orleans County

The initiation of Mobility Plus service in Lamoille County was the replacement of the local shuttle in Morrisville with the RCT Rides-Lamoille zone. A similar beginning is suggested for Orleans county. The series of microtransit feasibility studies sponsored by VTrans included an examination of microtransit in Newport and Derby as a replacement for the Highlander Shuttle. The Highlander carries about 50 riders per day, but it is relatively circuitous (especially in Newport) and has a low level of service, with only four round-trips per day.

The study considered three alternatives for microtransit: a constrained zone that covered only the southern portion of the Highlander route, an expanded zone that covered all of Newport City and most of Derby, and an intermediate zone that approximated the current service area of the Highlander from Newport to Derby Line. Because of short-term funding constraints, the intermediate zone is the most feasible option for implementation. This zone is shown below in Figure 25. It would be operated by two RCT vans, an increase in service over the single van that operates the Highlander.

The vans that will operate the RCT Rides service can help reduce the stress on RCT demand response services by operating Medicaid-funded early morning trips from Barton/Orleans to the BAART facility on Union Street in Newport. Many of these passengers are already grouped into van trips carrying four or more passengers, but it may be possible to serve this demand more efficiently with scheduled trips.

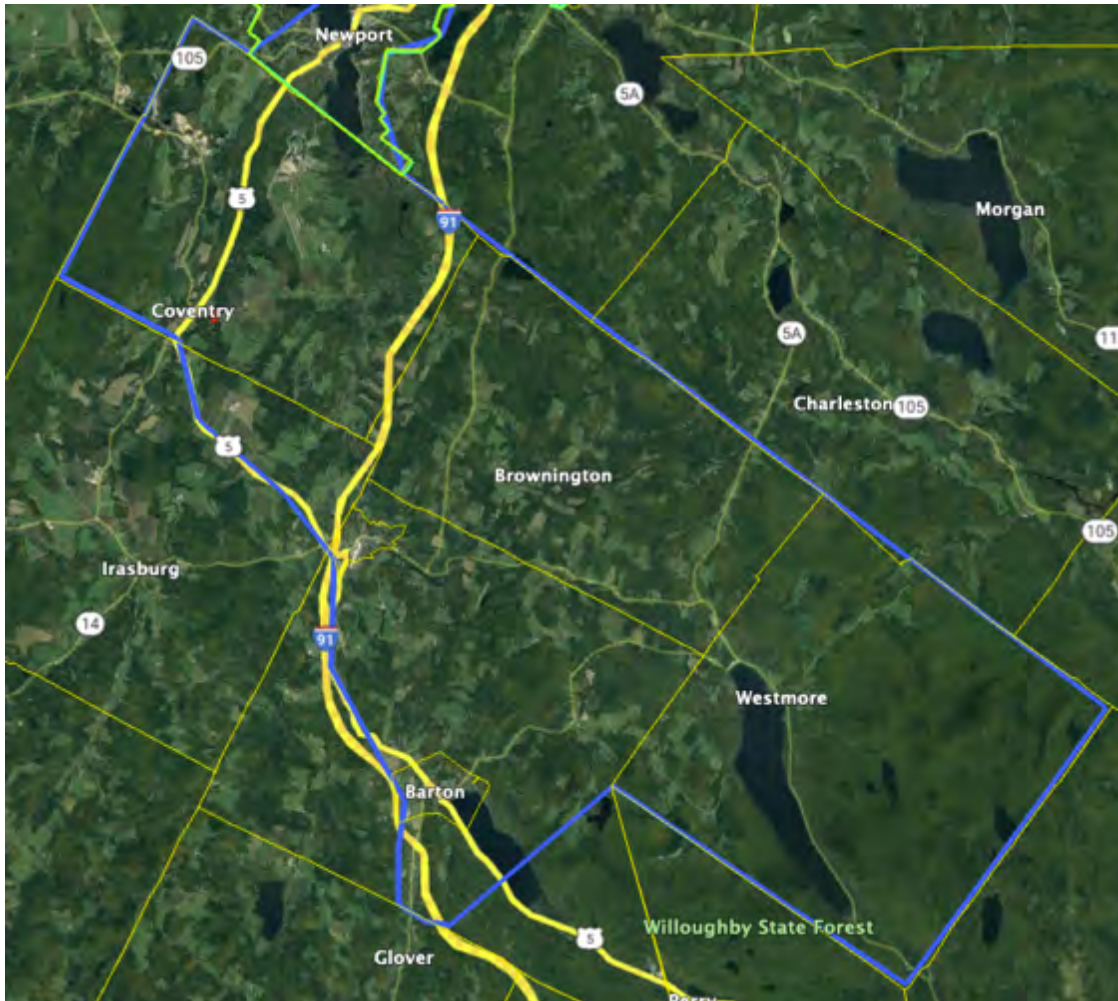
Figure 25 – Newport-Derby Intermediate Zone



Expansion 1 – Coventry, Brownington, Westmore, Barton

The Town of Barton, including Barton Village and Orleans, generates thousands of demand response trips every year, most of them destined for Newport. An RCT Rides zone extending south from Newport would be able to handle a majority of these trips and improve mobility generally for Barton and neighboring towns. This zone would include all of Barton east of I-91 (covering all of Orleans and Barton Village), plus the towns of Coventry and Westmore, which have high percentages of older adults, and Brownington, which has a high percentage of low-income households. This southeastern Orleans County zone, shown in Figure 26, would be served by one van operated by an RCT driver. Even though large sections of the zone are very rural, there would likely be enough demand from Orleans and Barton Village to require a van.

Figure 26 – Southeastern Orleans County Zone



As shown above, the zone includes most of Newport City and the portion of Derby with the most commercial activity. If there is limited demand from the southeastern zone for part of the day, this van could supplement the capacity in the core Newport-Derby zone.

Caledonia County

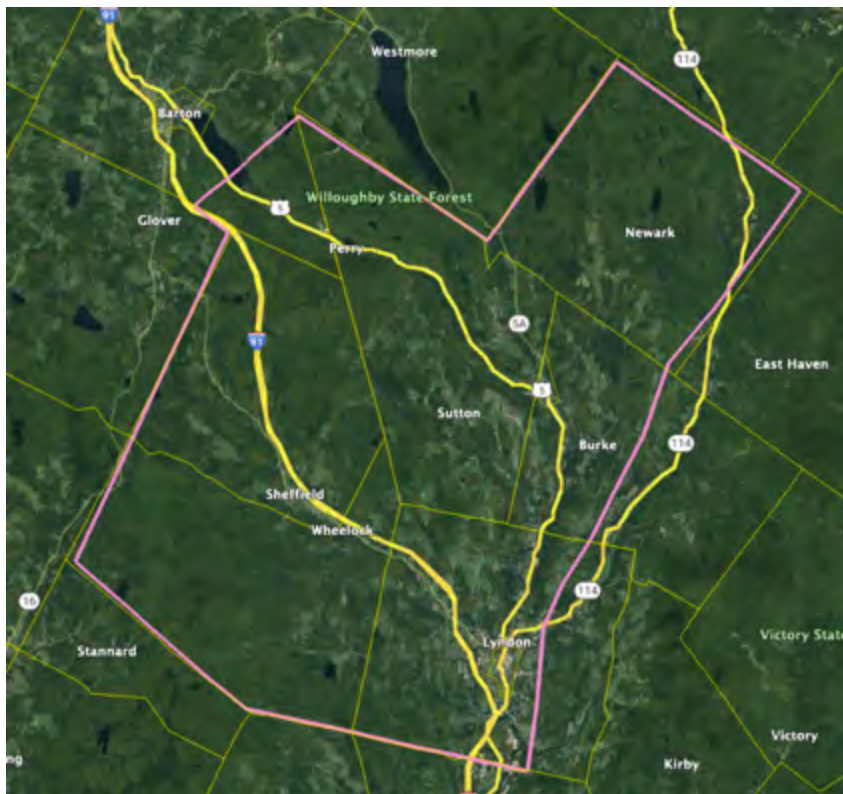
Unlike Lamoille and Orleans counties, there are no shuttle routes in Caledonia County that are recommended to be converted to microtransit. Indeed, the Jay-Lyn should be improved as described earlier in this chapter.

Given the continued operation of the Jay-Lyn route, Mobility Plus service in Caledonia County is divided into two zones: a northern zone focused on Lyndonville, and a southern zone focused on St. Johnsbury. It is assumed that people from southern towns who have a desired destination in Lyndonville, or people from northern towns with desired destinations in St. Johnsbury would take the Jay-Lyn shuttle to travel between the two towns. It should be noted that some eastern towns in Caledonia County are included in the Essex County South zone, discussed in the next section.

Zone 1 – Lyndon, Wheelock, Sheffield, Sutton, Newark, West Burke

Most of the towns in this zone (see Figure 29) are very rural and sparsely populated, with only about 600–700 residents each. The Town of Burke has nearly 1,300 residents, but this zone only contains the western part of the town, which includes the town center, but not the ski resort or other development along VT 114. Given the very low population totals, this zone could likely be covered by a single SUV with a community driver. Although the zone does not contain any territory in St. Johnsbury, it would be possible to make exceptions for people who live outside of the Jay-Lyn Shuttle service area and who want to travel to the Hospital Drive area for medical appointments so that they would not have to transfer to the Jay-Lyn route. The microtransit vehicle would likely spend most of its time within the Town of Lyndon. With this service in place, it would be possible to streamline the Jay-Lyn Shuttle so that it did not have to travel to the Vermont State University at Lyndon Campus. That bus stop averages only one boarding and one alighting per day, although the bus goes there eight times per day, adding a significant amount of travel time to the run.

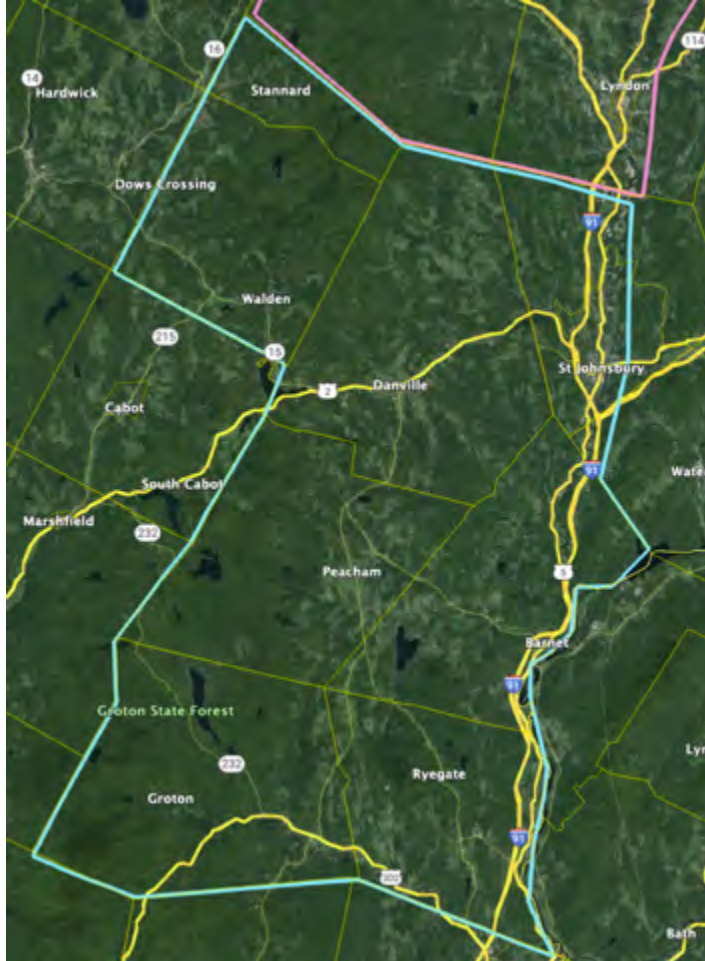
Figure 29 – Northern Caledonia Zone



Zone 2 – Stannard, Walden, Danville, St. Johnsbury, Barnet, Peacham, Groton, Ryegate

The southern zone in Caledonia County, as shown in Figure 30, includes several very rural towns

Figure 30 – Southern Caledonia Zone



(Stannard, Peacham, Groton, Ryegate and Barnet) and three towns with more population (Barnet, Danville and part of St. Johnsbury). The Jay-Lyn Shuttle covers the populated portions of St. Johnsbury quite thoroughly; the microtransit service here would need to be designed in such a way as not to cannibalize bus ridership. This may be possible using fare policy or other means in narrowly defining the zone for pick ups.

With the Jay-Lyn Shuttle continuing to satisfy the great majority of transit demand within St. Johnsbury, it is likely that two SUVs with community drivers could effectively cover the southern zone, even though it is extensive geographically. It is assumed that the vast majority of the desired destinations for these riders will be within St. Johnsbury.

Essex County

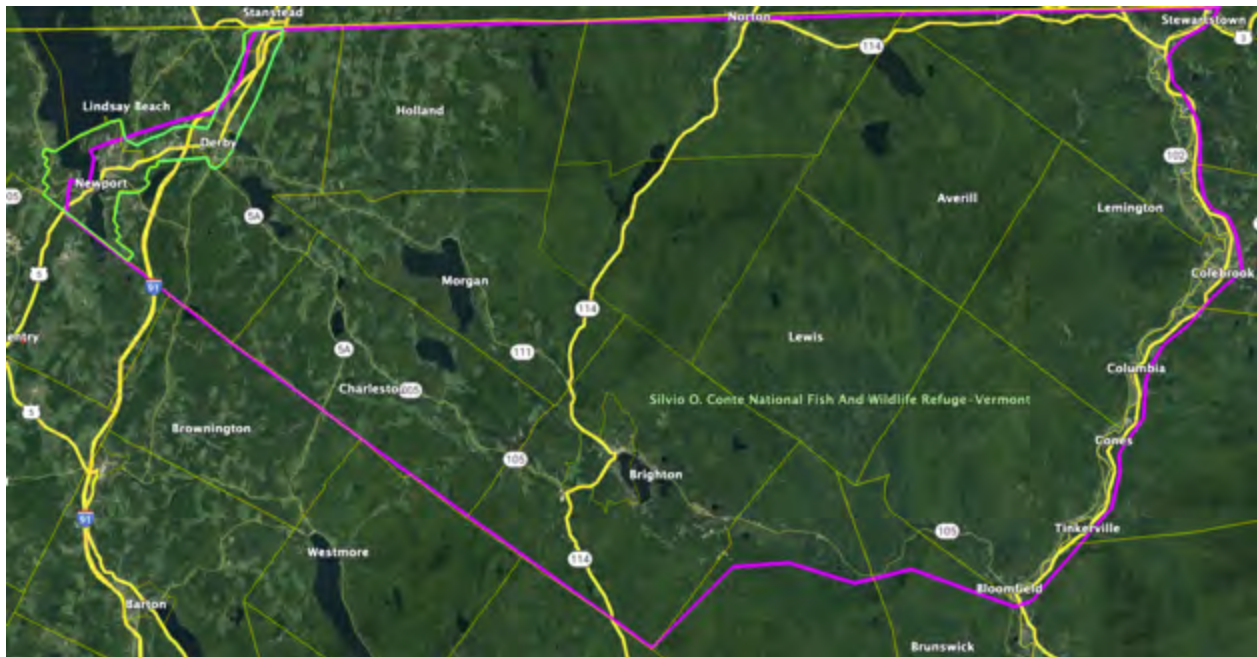
It is well known that Essex County is sparsely populated. The entire county has fewer people (5,976) than St. Johnsbury alone (7,378). The only towns with more than one thousand residents are Concord and Lunenburg, which are just east of St. Johnsbury, and Brighton (Island Pond), which is near Newport. With so few residents, much of Essex County will generate few transit trips, even though the demographic analysis shows relatively high percentages of older adults, low-income households and households with low vehicle availability.

Similar to Caledonia County, Essex County has been divided into two zones with the northern zone oriented toward Newport and the southern zone oriented toward St. Johnsbury. In each case, the Essex County zone includes a few towns on the edge of the neighboring counties that are “on the way” to the activity center (Newport or St. Johnsbury).

Zone 1 – Northern Essex County plus Holland, Morgan and Charlestown

This zone has some sparsely populated towns (680–1,100 residents) on the west side, unpopulated areas in the center, and very sparsely populated areas on the east side. The most populous town in this zone is Brighton. The village of Island Pond currently generates a significant number of demand response trips into Newport, and these would constitute many of the trips on a future Mobility Plus service. Although difficult to see in Figure 31, the zone extends into New Hampshire to cover the small towns of Stewartstown, Colebrook, and Tinkerville. Vermonters who live in Beechers Falls or Canaan are more likely to go to Colebrook for shopping or dining than travel all the way to Newport. Extending service a short distance into New Hampshire creates the opportunity for collaboration with Tri-County Transit and possible funding assistance from New Hampshire DOT.

Figure 31 – Northern Essex Zone

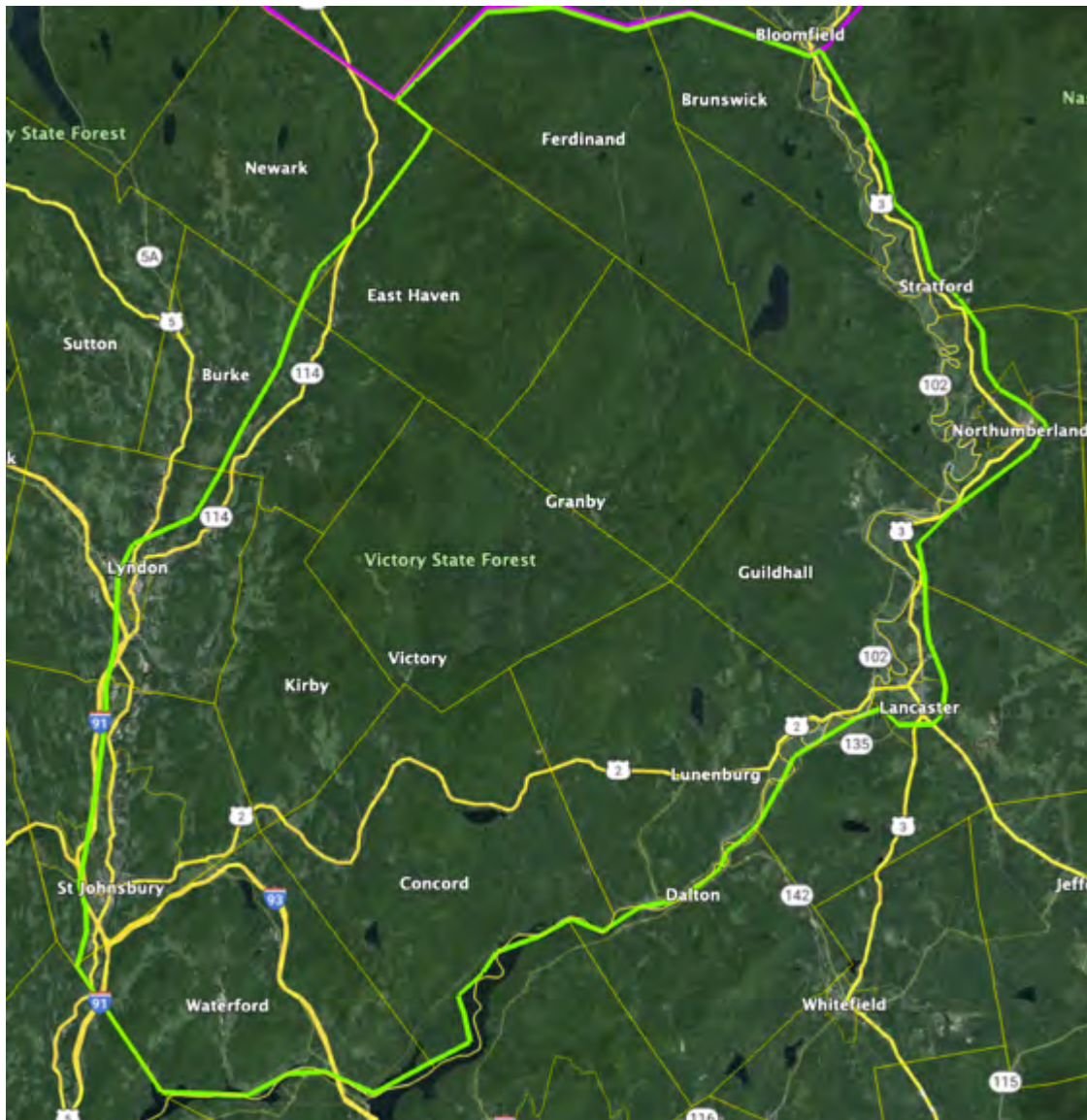


At certain times of day, a van may be needed to handle the demand generated in Island Pond, but otherwise an SUV should be able to cover the whole western portion of the zone from Brighton through Morgan and Holland. A separate SUV with a volunteer or community driver should be based in Canaan or Lemington to handle any demand from the eastern portion of the zone. It would not make sense to have a driver based near Newport to handle a trip from Canaan to Colebrook. For trips from Canaan to Newport, it would also be much more efficient to operate if the driver were based close to Canaan. Thus, two vehicles would be needed to serve this zone, because of the large geographic area, but in spite of the small population.

Zone 2 – Southern Essex County plus Waterford, East Burke, and Kirby

Most of the population in the southern zone is located at the southern edge, in the towns of Lunenburg and Concord. As with the northern zone, bordering villages in New Hampshire have been added to the zone, including Northumberland and Lancaster. Littleton is not included in the zone because the developed part of Littleton is more than seven miles from the border (unlike the other villages which are right on the border), and because service on the Twin City Commuter proved to be unproductive over many years of operation. Figure 32 shows the outline of the zone in light green. The zone is defined as including the developed parts of St. Johnsbury and Lyndonville, but the service would not carry riders locally in that area because it would then compete with the Jay-Lyn Shuttle. Rather, the service is intended to carry riders from the rural towns into the developed area and then back home again.

Figure 32 – Southern Essex Zone



Because of the geographical extent of this zone, it may be necessary to have two SUVs available to provide adequate service. Most of the demand will come from the southern towns, and so the community driver would ideally be based there. If there is enough demand from the areas between Guildhall and Brunswick, a second vehicle could be based there, with the most likely destination point being Lancaster, NH. Indeed, there may be sufficient demand within Lancaster to justify a second vehicle, provided that there is a funding mechanism to support that service from Tri-County Transit and/or NH DOT.

Summary of Mobility Plus Zones and Vehicle Needs

Table 5 below summarizes the zones described above—including the existing RCT Rides-Lamoille zone—and shows the number of vehicles needed by type to operate the service. The 9 total RCT vans shown is really an increment of 7 vans over current service, since the RCT Rides-Lamoille is in operation, and the Newport-Derby zone would use the van currently operated on the Highlander. The van operating in the winter for the Cambridge zone can be the same van that is operated during foliage season in Stowe. Note that the zones are not listing in priority order or chronologically by recommended implementation. Phasing is discussed in the next section.

Table 5 Vehicle Needs by Mobility Plus Zone

Zone	RCT Vans	SUVs
RCT Rides-Lamoille	1	0
Johnson Village Expansion of RCT Rides-Lamoille	1	0
Cambridge, Johnson, Morristown	1 (winter only)	2 (1 initially)
Stowe	1 (+1 foliage)	0
Eastern Lamoille/Southern Orleans	1	1
Northern Lamoille	0	1
Newport-Derby Intermediate	2	0
Southeastern Orleans	1	0
Southern Orleans	0	1
Western Orleans	1	1
Northern Caledonia	0	1
Southern Caledonia	0	2
Northern Essex	0	2
Southern Essex	0	2
TOTAL (Full Implementation)	9	12/13

Although projected operating costs will be discussed in more detail in the next chapter, the estimated annual cost of an RCT van in service for 9 hours per day, five days per week is \$220,000, and the estimated annual cost of a community driver in service for the same number of hours is \$115,000. To the extent volunteer drivers can be used as community drivers instead of contractors, the cost would be less.

Intercity Service

The 2022 Intercity Study and Needs Assessment, conducted by VTrans, identified the Northeast Kingdom as the part of Vermont with the poorest access to the intercity transportation network. The report identified several options for improving intercity access, include intercity bus routes from Newport to Burlington and Newport to White River Junction, and an extension of the existing intercity bus route from Boston to Littleton, NH into Vermont through St. Johnsbury to Newport. While any of those routes would greatly enhance intercity access for NEK residents, there were all found to be too expensive relative to the potential ridership. It is also the case that VTrans is already spending more than the required 15% of the federal Section 5311 formula funding on intercity service through its subsidies of the Vermont Translines route from Colchester to Albany and the Greyhound route from White River Junction to Springfield, MA.

The report recommended further consideration of the establishment of a fund to pay for demand response trips that would connect to intercity transportation hubs. The federal rules regarding rural intercity transportation explicitly allow for intercity funds to be used for demand response service. This fund would benefit the Northeast Kingdom, but also other parts of Vermont that may be in some proximity to an intercity route, but not close enough for people without access to automobiles to be able to reach an intercity bus stop. VTrans has not yet had sufficient funds available to create this demand response intercity access program, but in the near term, this is the most likely option to be available for NEK residents to reach intercity routes. Ridership carried by a future demand response intercity service (to White River Junction, Montpelier, Littleton, or Burlington) would help to establish a rationale for a more robust intercity bus route in the longer term.

Phasing

The phasing of improvements primarily concerns how Mobility Plus service will be rolled out across the region. Improvements to the Jay-Lyn Shuttle should be pursued as soon as funds become available, but ideally no later than July 2028. Saturday service should be implemented sooner than hourly weekday service, as it will be less expensive and a more significant improvement in mobility. Changes to commuter service will be partly determined by the timing of the potential restructuring of GMT rural service. Regionwide Mobility Plus service is a medium-to-long-term goal that will depend on support from VTrans, local partners, and the success of early stages of the service.

As stated earlier, RCT plans to expand the existing RCT Rides-Lamoille service area to Johnson during FY 2025. It has also applied for CMAQ grant funding for the Newport-Derby RCT Rides zone as a replacement for the Highlander service. These two projects thus become the first two phases of the Mobility Plus roll out. The list below shows the proposed order of the remaining phases of the roll out and estimates of the timing of the implementation of each phase. The timing is, of course, dependent on available funding.

1. Johnson Village expansion – July 2024
2. Newport-Derby Intermediate zone – January 2025
3. Saturday service in expanded RCT Rides-Lamoille zone – July 2025
4. Southeastern Orleans – July 2026
5. Cambridge, Johnson, Morristown – October 2026
6. Southern Orleans and Western Orleans – July 2027
7. Eastern Lamoille/Southern Orleans – January 2028
8. Northern Lamoille – July 2028
9. Northern Caledonia and Northern Essex – January 2029
10. Southern Caledonia and Southern Essex – July 2029
11. Stowe – September 2029

Capital

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

Vehicle Fleet

RCT's fleet consists mainly of cutaway vans, though recent investments have focused on electric Transit vans and hybrid-electric SUVs. RCT plans to discontinue use of large heavy-duty buses for any of its routes as their capacity is too large for the ridership demand, and operating costs are too high to be justified.

As shown in Table 5, RCT will need at least 9 more vans over the next five years to be able to operate the recommended Mobility Plus service (net of 7 more vehicles in service plus 2 spares). The agency will also need to build up its fleet of SUVs from the current four to approximately 20 (including spares). These may be a combination of all-electric SUVs and plug-in hybrid SUVs, depending on the range needed and the availability of fast charging facilities. Of course, RCT will need to replace vehicles in its cutaway fleet as they reach the end of their useful life.

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/charging, 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. Indeed, with a full roll out of Mobility Plus service and with broader use of electric vehicles, RCT may need to construct or develop partnerships to establish small satellite garages and charging facilities in Morrisville, Newport and Barton.

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.

Operating Costs and Ridership

Table 6 below presents the estimated costs and ridership for each of the new and upgraded services included in Chapter 4. The costs are presented in 2024 dollars. No explicit assumptions are made about future costs, but it would be reasonable to assume that they will increase by 3-5% annually on average. Ridership estimates are based on the experience of currently operated services. The estimates are for a mature service—what would be expected in the third year of operation.

The overall program shown in the table is very ambitious: nearly \$3.8 million in new service (in 2024 dollars) if everything were implemented. That would represent more than a 60% increase in RCT's overall budget. However, this budget expansion would pay for a major increase in transit access for the entire region. For the first time, all NEK and Lamoille residents would have access to public transit service.

It is important to note that the figures shown in Table 6 represent the upper bound of cost, in that they do not include any potential fare revenue (which may be advisable for Mobility Plus services that cross town lines), and they do not account for savings on the demand response side when people use the Mobility Plus service rather than calling for a ride through a specific program, such as Medicaid and O&D. The operating cost figures also assume that all SUV operations would use a paid community driver rather than a volunteer driver. Any use of volunteer drivers would significantly reduce the cost.

Based on the estimated costs and ridership shown in Table 6, some routes are 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 services 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 6 Summary of Costs and Ridership for TDP Projects

Route/Zone	Description	Type of Improvement	Estimated Annual Cost	Estimated Annual Ridership Increase	Cost per New Rider
Jay-Lyn Shuttle	Regular local service	Upgrade to hourly service	\$265,000	8,000	\$33.13
Jay-Lyn Shuttle	Regular local service	New Saturday service	\$48,000	4,500	\$10.67
Morrisville Shopper	Shopping shuttle	Additional trips	\$75,500	3,000	\$25.17
Greenleaf	Shopping shuttle	Upgrade to once/week	\$10,000	260	\$38.46
Johnson Village	Mon-Fri microtransit	New Mobility Plus Zone	\$219,500	4,100	\$53.54
Morrisville/Hyde Park/Johnson	Saturday microtransit	New Saturday service	\$70,000	2,100	\$33.33
Cambridge, Johnson, Morristown	Mon-Fri microtransit	New Mobility Plus Zone	\$228,600	3,000	\$76.20
Cambridge/Smuggs	Weekend/holiday ski season	New Mobility Plus Zone	\$43,200	1,400	\$30.86
Stowe	Mon-Sat microtransit	New Mobility Plus Zone	\$254,400	8,900	\$28.58
Stowe	Daily foliage season microtransit	New Mobility Plus Zone	\$75,300	1,900	\$39.61
Eastern Lamoille/Southern Orleans	Mon-Sat microtransit	New Mobility Plus Zone	\$368,700	6,600	\$55.86
Northern Lamoille	Mon-Fri microtransit	New Mobility Plus Zone	\$114,300	2,000	\$57.15
Newport-Derby Intermediate	Mon-Sat microtransit	New Mobility Plus Zone	\$508,800	22,200	\$22.92
Southeastern Orleans	Mon-Sat microtransit	New Mobility Plus Zone	\$254,400	4,100	\$62.05
Southern Orleans	Mon-Fri microtransit	New Mobility Plus Zone	\$114,300	2,000	\$57.15
Western Orleans	Mon-Sat microtransit	New Mobility Plus Zone	\$368,700	5,200	\$70.90
Northern Caledonia	Mon-Fri microtransit	New Mobility Plus Zone	\$114,300	2,500	\$45.72
Southern Caledonia	Mon-Fri microtransit	New Mobility Plus Zone	\$228,600	3,000	\$76.20
Northern Essex	Mon-Fri microtransit	New Mobility Plus Zone	\$228,600	3,600	\$63.50
Southern Essex	Mon-Fri microtransit	New Mobility Plus Zone	\$228,600	3,000	\$76.20
			\$3,818,800	91,360	

**The figures for this service do not account for termination of the Highlander route. In FY23, the cost per passenger on the Highlander was \$25.45*

Capital Costs

As discussed in Chapter 4, RCT would need to purchase new vehicles in order to operate the services shown in Table 6. The estimated cost of each vehicle, in 2024 dollars, is \$170,000 for a van and \$45,000 for an SUV. Including spare vehicles (one van and two SUVs), the total cost of the fleet expansion needed for all proposed services is \$2.2 million. Please refer to Table 5 for the number of vehicles needed for each service.

The other capital cost associated with Mobility Plus zones is an add-on fee for the microtransit software. Each additional vehicle included in the microtransit system costs an additional \$4,000 annually. Full implementation would add 21 vehicles, for a total additional annual cost of \$84,000. In the short term, this cost will be substantially less.

The additional fleet, especially if some or all of it turns out to be all-electric vehicles, could require RCT to obtain or construct garage facilities in Newport and Morrisville, and proceed with the planned bus barn addition to its administrative facility in Lyndonville. Cost estimates for these facilities are not included here, as a substantial amount of planning work is needed to determine location, capacity and potential partners.

Funding

New services are typically funded through a Congestion Mitigation/Air Quality (CMAQ) grant. These grants provide 80% federal funding and require a 20% local match. RCT is responsible for the 20% local match, although VTrans has provided some or all of the local match for microtransit pilot projects. RCT competes with other Vermont transit providers for these CMAQ funds.

An 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

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

transportation system in Vermont and preserve the freedom to use CMAQ funds statewide for the best available and most needed projects.

The other major source of rural transit funding is federal Section 5311 funds. These require a 50% match for operations expenses, though only a 20% match for administrative expenses and preventive maintenance. Intercity funding comes from the 5311 program. RCT has been working toward substituting CMAQ funding for 5311 funding whenever possible, due to the challenge of raising local match. Few towns in the Northeast Kingdom or Lamoille County can afford significant contributions out of their municipal budgets, and there are no large universities in the area that can offer financial support.

Conclusion

For over 30 years, RCT has been an essential part of the community in the Northeast Kingdom and Lamoille County. 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, including the Mobility Plus program to offer transit access to all residents. 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 and Lamoille County, for local trips, trips within the region, and access to the broader transportation network.