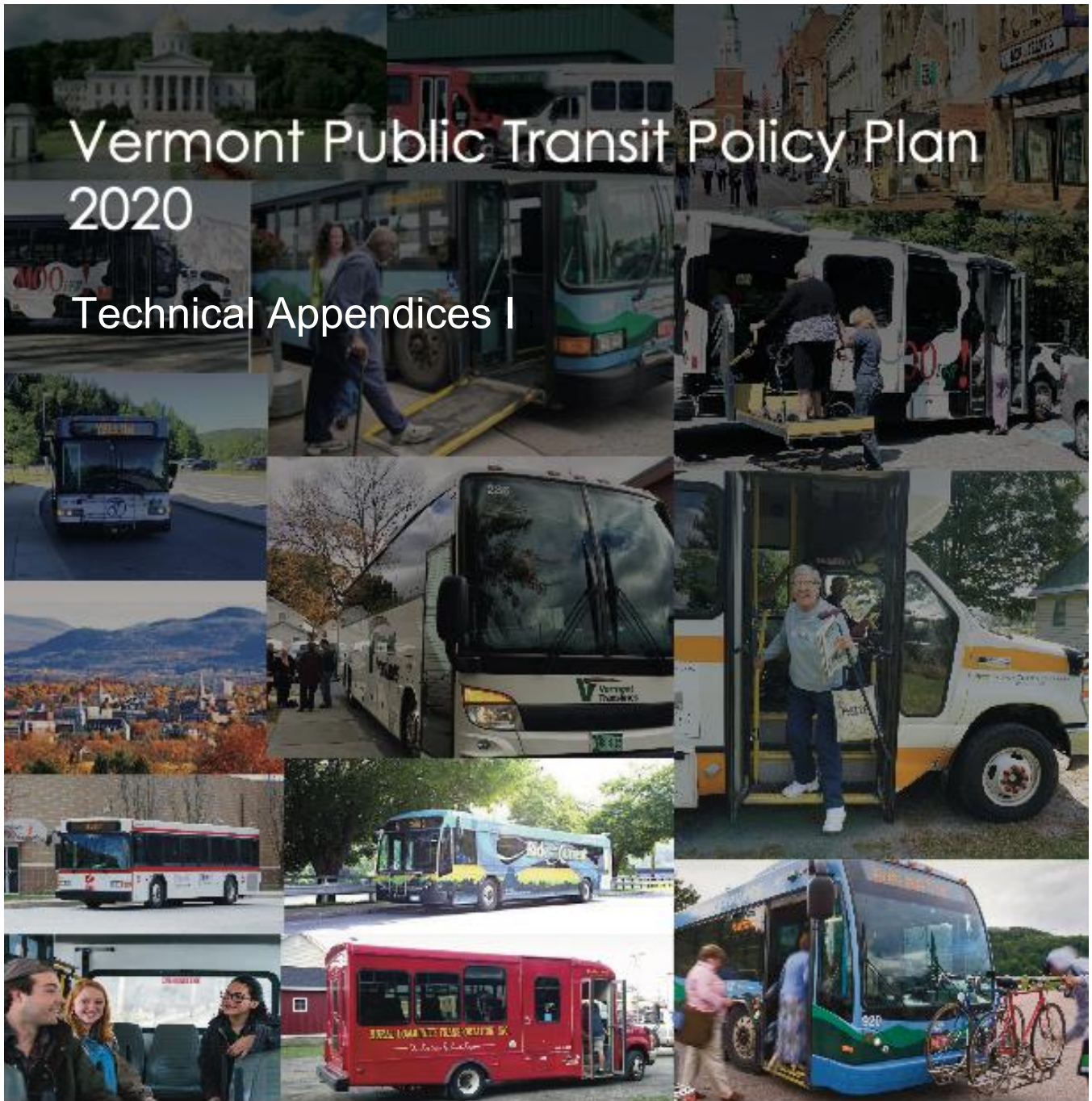# Vermont Public Transit Policy Plan 2020

Technical Appendices I

Vermont Agency of Transportation
Division of Policy, Planning, and Intermodal Development

February 28, 2020

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Appendix A – Document Review

The Vermont Agency of Transportation (VTrans) commissioned and performed many plans and studies on public transportation in the state of Vermont in recent years. These studies provide specific transit policy and service recommendations, outline strategies for public involvement, and assess the transportation needs of human services providers statewide. Overall, these documents help to direct the state's public transit policies and identify trends in the community's transportation needs to provide a better understanding of the role public transportation plays in the state of Vermont. The Steadman Hill Consulting team identified and reviewed the following studies that are directly relevant to Vermont's Public Transit Policy Plan and Human Service Transportation Coordination Plan:

Transportation & Transit Plans
- Vermont Public Transit Policy Plan (2012)
- Vermont Public Transit Policy Plan (2007)
- 2040 Vermont Long-Range Transportation Plan
- State Management Plan for Vermont Public Transit Programs
- Public Transit Route Performance Reviews Annual Report (State Fiscal Year 2017)
- Vermont Statewide Intercity Bus Study Update
- VTrans Public Involvement Guide
- Tri-Valley Transit Annual Report (2017)
- Chittenden County Transportation Authority Transit Development Plan (2010)
- Green Mountain Transportation Authority Transit Development Plan (2012)

Transportation-Related Human Service Plans
- Elders & Persons with Disabilities Program Guidance
- Human Service Transportation Coordination Plan (2012)
- Vermont State Plan on Aging Needs Assessment
- Vermont Elders & Persons with Disability Transportation Program Review
- Exploring Transportation Behaviors and Needs of Veterans and People with Physical Disabilities and Mobility Constraints
- Opioid Coordination Committee – Transportation Working Group Findings
- Rides to Wellness Implementation Plan

A summary of each study is provided below, including the purpose of the study and the implication of the project.

Vermont Public Transit Policy Plan (2012)

Date: January 2012
Author: Prepared by KFH Group for VTrans

Purpose

The 2012 Vermont Public Transit Policy Plan (PTPP) is the most recent comprehensive document guiding public transportation policy in the state of Vermont. While the PTPP is updated every five years (as required by statute), it serves as the primary guidance for continued development of public transit in the State over the next ten years. Previous versions of the PTPP were produced in 2000 and 2007.

The PTPP outlines transit policies, goals, and strategies to meet current and emerging public transportation challenges. The components of the PTPP provide policy level direction, guidance, and performance tracking to help guide transit investments. The PTPP is part of a series of modal policy plans developed by VTrans addressing transit, rail, bike and pedestrian, aviation, freight, and roadway programs and policies.

Summary

The plan describes the State's primary public transit goal as preserving and enhancing the level of public transit service in Vermont (provided that specific routes are well used by the traveling public). The state's legislatively-mandated goals include (in order of precedence): providing basic mobility for transit-dependent persons; improving access to employment; mitigating highway congestion; and advancement of economic development objectives. Vermont public transportation policy includes preserving and enhancing public transit services, monitoring the performance of transit services, and using additional public transit funds to promote legislatively-mandated goals.

The plan outlines policies needed to achieve these goals in eight major areas:

1. **Funding Levels and Sources** – Continue to seek innovative revenue streams for transit, including flexing of highway funds to be used for public transit, 20% local funding goals, and integration with Elderly and Disabled (E & D) transportation operating funds
2. **Capital Investments** – Strategies to coordinate statewide investments in vehicles, facilities, and other capital stock to reduce unit costs
3. **Coordination of Services** – Coordinate human service transportation and general public transit throughout the state
4. **Interface with Land Use Planning** – Integrate transit into state and local planning decisions by assisting local government and expanding the role of MPOs and RPCs in transit planning
5. **Regional Connectivity and Intercity Bus** – Fund and operate regional and commuter bus services to provide interconnections between local transit providers
6. **Improving the "Transit Experience"** – Work with communities and transit operators to improve the experience of transit riders by providing information and bike/ped connections to transit
7. **Public Transit Planning and Technical Assistance** – The State should assist local transit planning efforts
8. **Performance Monitoring** – Outlines measures of productivity, cost effectiveness, and funding levels to evaluate performance of transit routes in the state

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The plan provides an overview of all transit services operating in the state of Vermont. It also identifies areas of need for transit based on demographic factors, and projects need for transit based on data from the National Household Travel Survey. The plan was completed prior to the rise of transit network companies (TNCs), and thus does not address the potential of private TNCs to supplement or replace demand-responsive public transportation services.

Implications

The 2012 PTPP has guided Vermont public transit policy since 2012, and thus should be consulted heavily while creating the next PTPP. The next PTPP can sustain and build on successful policies while incorporating more recent developments in transit planning best practices. The plan recommended many specialized planning studies that have since been performed (some of which are recounted in this document), which shed light on specific areas of policy. Transit ridership trends for the state have changed significantly since this plan, peaking in 2015 and declining to pre-2013 levels since then. The next PTPP will have to address these evolving ridership trends. Many of these changes are likely driven by low gas prices, changes in work practices (e.g. teleworking or retirement) and increases in car ownership. New technologies such as ride-sharing apps may further impact transit ridership, though these services are relatively new in the state and not yet widespread. The next PTPP should explore the opportunities for using new technologies to improve operating efficiencies of transit services statewide.

Of the goals outlined in the plan, improving the transit experience and increasing transit funding are the needs most often mentioned in other documents examined for this review.

Vermont's Public Transit Policy Plan (2007)

Date: Feb 2007
Author: VTrans (Prepared by TranSystems)

Purpose

The 2007 Vermont Public Transit Policy Plan (PTPP) is the second five-year iteration of the PTPP mandated by the Vermont Legislature, and was superseded by the 2012 Vermont Public Transportation Policy Plan discussed above.

The purpose of this PTPP was to provide policy level direction, guidance and performance tracking to help guide transit investments. The plan builds on strategies from the 2000 PTPP deemed relevant, taking into account changes that occurred between production of the two plans.

Summary

The statutory goals outlined in the 2007 PTPP are the same as its 2012 successor: provision of basic mobility for transit dependent residents; improving access to employment; mitigating congestion; and economic developments. The plan identifies major stakeholders (beyond transit agencies), including human services providers and the transit-riding public. The 2007 PTPP provides an analysis of the spatial distribution of transit-riding populations identified by age, income, and population density.

The 2007 PTPP identifies policies in 6 major areas:

1. **Overall Public Transportation Policy** – Transit systems should use performance monitoring to maximize the value of available resources
2. **Funding** – Continue to seek innovative revenue streams for transit, including flexing of highway funds to be used for public transit; 20% local funding goal for transit projects

3. **Demographics and Transit Oriented Development** – Support transit oriented development policies, and support the state's "Age in Place" policy
4. **Human Service Coordination** – Coordinate human service transportation and general public transit throughout the state
5. **Energy and Environment** – Promote transit as a way of reducing auto dependency and reducing energy consumption
6. **Intercity Bus and Regional Connections** – Fund and operate regional and commuter bus services to provide interconnections between local transit providers

The 2007 PTPP also includes a brief section on implementation of these policies.

Implications

Many of the policies outlined in the 2007 PTPP carried over and guided the 2012 PTPP. The 2007 PTPP identifies the major role of VTrans in statewide public transit as facilitating cooperation between agencies across the state. The 2007 PTPP is more concise in its outline of policies than its successor 2012 PTPP but provides less insight into implementation.

2040 Vermont Long-Range Transportation Plan (Draft)

Date: June 2018
Author: VTrans

Purpose

The 2040 Vermont Long-Range Transportation Plan (LRTP) is the state's long-range transportation plan for all modes of travel (currently in draft form). Once finalized and adopted, the LRTP will serve as a framework, guiding transportation decision-making and investments looking out over the next 20 years. The LRTP is guided by three strategic cornerstones of the current administration: 1) Grow the Vermont economy; 2) Make Vermont an affordable place to live, work, and conduct business; and 3) Protect vulnerable Vermonters.

The LRTP set the broad, high-level statewide direction for transportation policy. The state's Transportation Asset Management Plan, VTrans Strategic Plan, and individual modal plans establish goals and objectives with more specificity and often identify project priorities.

Summary

The 2040 Vermont LRTP identifies 6 major goals for transportation at the statewide level:

1. Improve Safety & Security across all transportation modes.
    a. Develop and maintain safety plans for all transportation modes – including public transit
2. Preserve Vermont's multimodal transportation system and optimize its performance
    a. To comply with federal performance monitoring mandates, VTrans must sponsor a group Transit Asset Management (TAM) plan as a recipient of FTA funding on behalf of any subrecipients who are not direct recipients (Green Mountain Transit is the only direct recipient). The plan must include: an asset inventory; a condition assessment of inventoried assets; a description of the analytical tool used to prioritize investments; a prioritized list of investments.
3. Provide mobility options and accessibility for all users of the system
    a. Improve connections between modes
        i. Review the needs of all modes as part of the project development process

    ii. Use highway funding flexing authority to finance mulitimodal projects
  b. Expand public transit, intercity bus, and passenger rail services
    i. Support public transit provider route planning to identify priority routes
    ii. Implement priority routes identified in the Statewide Intercity Bus Study
    iii. Coordinate public transit services with social service program transportation needs
    iv. Extend the Ethan Allen Express Amtrak service to Burlington and the Vermonter service to Montreal
    v. Encourage coordination between public transit and school systems to meet transportation needs

4. Leverage transportation investments to increase Vermont's economic vitality
  a. Upgrade / expand public transit maintenance and operations facilities

5. Practice environmental stewardship
  a. Increase use of walking, biking, transit, rail, and Travel Demand Management options

6. Support livable, healthy communities
  a. Emphasize public transit services in and around developed centers

Implications

The LRTP identifies public transit's potential to achieve progress on multiple state goals, including providing affordable and environmentally-sound transportation options for people of all means, increasing economic opportunity by improving access to jobs and tourist activities, and linking mobility-challenged residents to basic needs such as medical appointments and shopping.

The most salient existing condition from this plan that should inform the next PTPP is that only 6% of respondents in the 2016 Statewide Transportation Public Opinion Survey indicated traffic congestion had a strong negative effect on their quality of life and very few respondents (15%) reported experiencing traffic congestion daily. This suggests priorities for public transportation in Vermont should not be focused on traffic alleviation, unlike in denser urban areas where traffic congestion is a more universal concern.

State Management Plan for Vermont Public Transit Programs

Date: February 2015
Author: VTrans - Policy, Planning and Multimodal Development – Public Transit Section

Purpose

The primary purpose of the State Management Plan (SMP) is to serve as the basis for FTA state level management reviews of the program and to provide public information on the state's administration of all the FTA Public Transit programs. The SMP is also used by VTrans as a program guide for local project applicants.

Summary

Program Goals & Objectives:

- **Policy**: The policy for the VTrans Public Transit Program in Vermont is established in Vermont Statute Title 24: Municipal and County Government, Chapter 126: Public Transportation, 24 V.S.A. §5083. Declaration of Policy (see attachments). It states that:
  - "The state shall make maximum use of federal funds to support public transportation;
  - The state operating funds shall be included in agency operating budgets as available;

- The state shall support the maintenance of existing public transit service including fixed route, demand response, or volunteer drivers.
- The state shall support creation of new public transit services;
- The Public Transit Advisory Council (PTAC) shall annually evaluate the effectiveness of services;
- The agency shall adopt performance standards with the advice of the PTAC;
- The agency shall provide written guidance on planning and funding and technical assistance to public transit systems each year."
  - **Process for establishing long term goals (3 processes)**:
    - Public Transit Policy Plan (every 5 years)
    - Internal VTrans Planning process which details the internal planning process, and the yearly program planning that goes into developing the budget
    - Human Service Transportation Coordination Plan
  - **Process for long range planning:**
    - Regional public meetings are held and at least one statewide public meeting is held on the Vermont Public Access TV station
    - The PTAC serves as the advisory committee for the Policy Plan. Consultation with the Public Transit Advisory Council (PTAC) is held at least twice during the process.
    - Human Service Coordination Plan updated every 5 years under a similar process.

Roles & Responsibilities: The SMP goes into great detail about roles and responsibilities of various government organizations in planning and delivering public transportation services, including VTrans and its subsidiary offices such as the Public Transit Section, the PTAC, and the Chittenden County Regional Planning Commission.

Coordination: The SMP lays out strategies and assigns responsibilities for coordination between agencies, particularly as it relates to coordinating human services transportation with existing public transportation systems.

FTA Funding Subrecipient Eligibility: FTA funding for the state of Vermont is administered by VTrans, therefore the SMP explains eligibility requirements for local transit agencies and outlines general requirements for funding applications. The SMP also describes local and federal funding limits and outlines the project selection process VTrans uses to disburse funds. The SMP encourages all applicants for funding from VTrans to also explore opportunities for private sector involvement in service delivery.

Miscellaneous: The SMP affirms the state's commitment to Federal Title VI, EEO, and ADA requirements and outlines procedures for meeting these mandates.

Implications

The SMP outlines VTrans' structure for administering public transit programs and funds. This document is especially useful for understanding the agency's prime organizational role within the larger constellation of Vermont public transportation agencies. According to the SMP, VTrans' main role determining the ultimate destination of federal funding for local transit agencies, most of which are too small to receive funding directly from the federal government. VTrans also provides assistance to all public and private transportation providers in the state through the Rural Transit Assistance Program (RTAP) to help them meet FTA safety and training requirements. This document should be consulted for any questions about the administrative structure of VTrans and its funding policies.

Public Transit Route Performance Reviews Annual Report (SFY 2017)

Date: Feb 2018
Author: Prepared by KFH Group for VTrans

Purpose

This Public Transit Route Performance Report for SFY 2017 presents the results of VTrans' annual performance evaluations for public transit services across Vermont. Public transit routes and services throughout the state are grouped in like categories, such as Urban, Small Town, and Demand Response.

Summary

Ridership: In SFY 2017 Vermont's public transit systems provided 4.69 million trips. Just under half of those rides were provided in the Chittenden County region, and the other half was spread throughout the rest of the state.

Statewide public transit ridership decreased by 6% from SFY 2013 through SFY 2017. Statewide ridership decreased 6% in SFY 2016 due to a poor 2015/2016 winter ski season and a modest decrease in GMT-Urban's ridership following a route redesign, but tourism routes that saw significant declines in ridership in SFY 2016 recovered in SFY 2017. Tourism services saw a 32% increase in overall ridership from the previous year. Other types of services also showed significant increases in ridership, particularly Volunteer and Demand Response services.

Transit Costs: Total transit operating costs in SFY 2017 were $31.8 million, with the Chittenden County region accounting for 29% of the total. Transit costs have increased 24% in the past 5 years, while average cost per transit trip has increased 31%. Average cost per transit trip increase 12% from SFY 2016 to SFY 2017, to $6.79.

Local Funding: While the statewide local share funding percentage remained stable at 28%, six of ten transit systems/divisions increased their local share in SFY 2017. SFY 2017 was the first-year local funding for all rural providers reached the statewide goal of 20% of the transit operating budget. GMT, AT, and MVRTD all met 20% local funding goals, while GMCN, RCT, SEVT, and TVT all fell short of 20% local funding targets.

E&D Transportation: In SFY 2017 the total amount spent on the E&D Program in Vermont was $4.15 million, 80% of which ($3.32 million) was federal money. This funding provided 178,478 rides, for an average cost per passenger trip of $23.27. In SFY 2017 16% of E&D trips were provided on regular bus routes, 38% in vans, 2% in taxicabs, and *43% in private cars operated by volunteer drivers*. Volunteer drivers are especially important to mobility in large rural areas, where the population is thinly distributed, such as the Northeast Kingdom.

Route Evaluations: The majority (80%) of the 117 transit services evaluated across the state met the Acceptable standards for both productivity and cost-effectiveness, and 35% of the state's transit routes were considered Successful in both measures compared to their peers. Four transit services reached the threshold for Acceptable service after underperforming in SFY2016, while 20 transit services did not meet the Acceptable thresholds for productivity, cost-effectiveness, or both measures, including 8 underperforming for the first time. The plan provides a full list of these routes.

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Implications

Transit ridership decreased in SFY 2017, with ridership losses concentrated in urban and commuter services. Perhaps most notably, GMT's weekend services did not meet the Acceptable thresholds for productivity and cost-effectiveness for the first time, mirroring losses in weekend transit ridership experienced throughout the country. This trend suggests an evolving role for transit in Vermont as changes in gas prices, individual car ownership, changing work patterns, and new alternatives such as ridesharing apps reduce demand in urban areas, while ridership on specialty services such as tourism and demand responsive transit in rural areas continue to grow.

The cost of transit continues to grow in Vermont while ridership declines, leading to sharp increases in average cost per passenger over the past five years. E&D service providers are increasingly relying on volunteer drivers to provide more economical door-to-door service for users.

Vermont Statewide Intercity Bus Study Update

Date: January 2013
Author: Prepared by KFH Group for VTrans

Purpose

An FTA program to fund rural intercity bus transportation requires states to allocate 15% of Section 5311 funding for unmet rural intercity bus needs. As part of the 2012 PTPP, Vermont conducted a consultation process that included an inventory of existing services; a demographic analysis of needs for intercity bus service; and an outreach effort that included a survey of providers, regional planning agencies, and a statewide meeting. The Vermont Statewide Intercity Bus Study Update is an additional analysis recommended by the 2012 PTPP in a white paper, "Intercity Bus Needs Assessment and Policy Options", that identified potential needs for replacement intercity bus service.

Summary

High priority intercity corridors identified by the study include:

- Burlington-Middlebury-Rutland-Albany
- Albany-Bennington-Brattleboro-Keene (NH)-Nashua (NH)-Manchester (NH)
- Rutland-White River Junction
- Brattleboro-Springfield (MA) or White River Junction-Springfield
- St. Albans to Burlington

Implications

This study concluded that Vermont has unmet rural intercity transportation needs, and that the state should begin implementation of these services on high-priority corridors using FTA Section 5311 funding as a grant solicitation program.

VTrans Public Involvement Guide

Date: June 2017

Purpose

The VTrans Public Involvement Guide (VPIG) is intended to provide an overview of the rationale for outreach, how to properly prepare for outreach, and tools for engaging stakeholders. Public involvement is built into the regulations and requirements that the Agency must follow on virtually every project. Beyond

legal requirements, the practices recommended are guidance rather than policy, as every project can have unique circumstances that affect the level of outreach that should be conducted to properly engage our customers.

Summary

The Public Involvement Guide outlines strategies for public outreach at each of 5 phases of the project delivery process:

1. **Planning** – Public input should be garnered for the State Transportation Improvement Plan, LRTP, modal plans, planning studies, and corridor plans. Outreach in the planning process can be difficult because of the less-tangible nature of this phase.
2. **Project Definition** – Allow local planning commissions and municipal staff to help develop stakeholder lists and ensure that appropriate government agency officials are included at the appropriate phases. Best practices for outreach at this phase is described in detail in the VTrans Project Definite Guidebook for Highway Division Projects.
3. **Preliminary and Final Design** – The goal of outreach at this phase is to build concurrence. Plans should be shared with local officials and other stakeholders should, including visualizations whenever possible.
4. **Construction** – Public outreach goals shift to informing the public in this phase. The general traveling public becomes a more important stakeholder at this phase. VTrans must hold one public pre-closure meeting for state and interstate projects. Public outreach staff should follow up projects with a customer satisfaction survey.
5. **Maintenance & Operations** – VTrans personnel should keep local officials informed of maintenance activities and consider the timing of closures where possible.
6. **Communications Tools** – The Public Involvement Guide provides a detailed list of communications strategies for outreach based on the level of public impact of a project.

The VPIG also outlines the state's legal requirements for public outreach related to transportation projects according to Federal and Vermont state law.

Finally, the VPIG goes through detailed, step-by-step processes and best practices for designing public outreach and holding public meetings.

Implications

The Public Involvement Guide is a comprehensive documentation of best practices and legal requirements for public outreach around transportation projects. The VPIG recommends integrating local involvement in state-level transportation projects to be very important throughout. This document should be consulted extensively in designing outreach strategies for the new PTPP.

Chittenden County Transportation Authority Transit Development Plan

Date: September 2010
Author: Steadman Hill Consulting

Purpose

The Transit Development Plan (TDP) for the Chittenden County Transportation Authority provides a program for the expansion and enhancement of public transportation service in Chittenden County over a 10-year period and beyond. It is the foundational planning document for the agency, as it establishes the framework within which all other short-term service planning and capital planning occurs. The TDP also

provides detailed strategies to meet the goals of numerous other regional and state entities as listed in such documents as the City of Burlington's Transportation Plan, the CCMPO's Metropolitan Transportation Plan, the VTrans Long Range Transportation Business Plan, and the Governor's Climate Change Action Plan. Chittenden county is Vermont's most populous county, and home to Burlington, the state's most populous city.

Summary

The main elements of the CCTA TDP are plans for improved service, geographic expansion, and facility / equipment improvements.

There are few areas in Chittenden County that have densities that support high levels of service that are outside of the current service area. Residents outside the urban core demand new commuter routes from outlying communities, while residents in urban areas that already have some service demand longer service hours and higher frequencies, and additional transit connections such as crosstown links. Passengers also request investments in technologies such as real-time passenger information and better payment options.

The TDP also notes that land use decisions at the local and regional level are supportive in that they can promote efficient public transportation service and result in a healthier environment, revitalized community, and improved local economy.

The plan proposes many specific service improvement recommendations, as well as a Downtown Transit Center in the core of Burlington and improvements to Park & Ride lots in peripheral areas.

Implications

This plan shows the agreed-upon direction of one of the state's largest transit providers and provides useful insight into local transit organization structures and needs. Though most of the recommendations in this plan are not implemented at the state level, VTrans should identify policies that can help providers such as GMTA provide planned services and reach funding goals.

This plan proposes and aggressive expansion plan that would result in a 400% increase in services and budget, but a predicted 500% increase in ridership. However, these recommendations are impossible without significantly increased funding.

Increased financial and political support from municipalities, the state, the business community, and other organizations will be crucial to CCTA's success in meeting multiple regional goals. To make this vision a reality, the following items must be pursued:

- Municipalities should change their local zoning to more strongly support and incentivize transit oriented development, including higher density and mixed use projects, along transit corridors in their communities.
- CCTA, the municipalities of northwest Vermont, and the State of Vermont should work together to develop a regional funding mechanism for public transportation that relieves the burden on the property tax.
- The Chittenden County Metropolitan Planning Organization (CCMPO) must have greater autonomy and control regarding programming the region's federal transportation funding.
- CCTA and the CCMPO must have greater control to develop and implement transportation infrastructure projects, such as park and ride lots, in our region.

Green Mountain Transit Agency Transportation Development Plan

Date: October 2012
*Author: Steadman Hill Consulting*

Purpose

The Transit Development Plan (TDP) for the Green Mountain Transit Agency provides a program for the expansion and enhancement of public transportation service in central and northwestern Vermont over a 10-year period and beyond. It is the foundational planning document for GMTA, as it establishes the framework within which all other short-term service planning and capital planning occurs. A primary goal of the GMTA TDP is to work towards a unified public transportation system within the rural service area along with meaningful connections to the urban system in Chittenden County.

Summary

The main elements of the TDP are calls for improved service span and frequency, greater geographic coverage and coordination, and enhanced facilities and equipment.

Ridership on GMTA nearly doubled between 2003 and 2012. More than half the population of Central Vermont is within ¾ mi of a GMTA route.

Rider Characteristics:
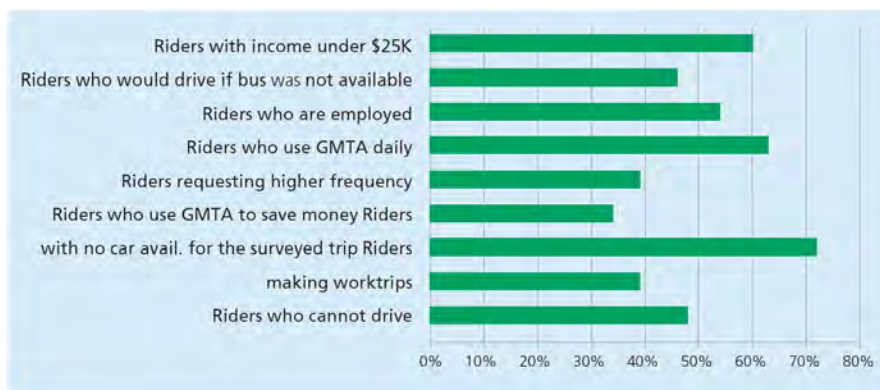
Specific areas for improved service mentioned include:

- South Barre and other parts of Barre Town
- Route 12 corridor from Montpelier south (to Northfield) and north (to Worcester)
- Route 14 corridor between Hardwick and Montpelier
- Year-round connection between Montpelier and the Mad River Valley
- Commuter service into Barre on Route 14 and US 302
- Service on Route 15 in Lamoille County linking Morrisville to Johnson and Cambridge
- Year-round service on Mountain Road Shuttle in Stowe
- Increased level of service on commuter routes in Franklin and Grand Isle counties

The plan lists recommendations for improved services along these corridors.

Respondents also requested further investment in shelters, benches, bike racks, and other passenger facilities, and new technology such as real-time passenger information, Wi-Fi enabled buses, and trip planning software, as well as improvements to the pedestrian environment around stops.

Implications

This plan shows the agreed-upon direction of one of the state's largest transit providers and provides useful insight into local transit organization structures and needs. Though most of the recommendations in this plan are not implemented at the state level, VTrans should identify policies that can help providers such as GMTA provide planned services and reach funding goals.

Green Mountain Transit is currently working on a new plan called NextGen that incorporates the agency's dual urban and rural transportation missions. Ideally, the next PTPP can garner information from this plan ahead of its release to ensure consistency between state transit policy and the state's largest transit provider.

At the state and regional level, the unsustainability of the current funding structure must be addressed with bold action, such as vehicle miles traveled fees outlined in the state's Comprehensive Energy Plan.

Elders & Persons with Disabilities Program Guidance

Date: Oct 2004
Author: VTrans

Purpose

This program guidance was produced by VTrans to lay the foundation on which current E&D transportation policy in Vermont is built.

Summary

This program guidance lays out policies that define eligibility and structures for agencies participating in the state's E&D transportation program, guidelines for service delivery, eligibility for participation in the program by the qualifying public, funding structures, and information reporting requirements.

Eligible Grant Applicants: VTrans designates one service provider per region to submit annual grant applications. All other grant applicants must work with the region's designated service provider (with some exceptions).

Regional Advisory Committees: Regional Public Transit Advisory Committees (PTACs) made up of relevant stakeholders are designated for each region to manage grant applications

Submitting Grant Applications: Grant applications must be submitted on time to VTrans and the Vermont Department of Disabilities, Aging and Independent Living (DAIL)

Review & Approval of Grant Applications: A committee with members from VTrans and the Vermont Agency of Health Services (AHS) review all applications and submit recommendations for approval to the Secretary of AHS and Secretary of Transportation, which are consolidated and submitted to the FTA as a statewide grant application upon approval.

Frequency of RPTAC Meetings: RPTACs should meet at least quarterly to review current service levels, quality concerns, budgetary and funding issues, and matters of service improvement for the public.

Authorized Modes of Transportation: E&D transportation must accommodate wheelchairs. Drivers must receive training to be able to provide door-to-door assistance to those who require such aid. Vehicles should be full when possible, but providers' primary responsibility is ensuring safe, comfortable and timely transportation. Non-accessible vehicles may be used for passengers who do not require special accommodation. 15-passenger vans are discouraged for safety reasons.

Service Quality: Drivers must be properly licensed, vetted, and trained. Dispatchers should coordinate with Human Service Agencies to understand passenger needs. Transit providers are responsible for ensuring vehicles are properly equipped to meet or exceed health & safety requirements.

Grievance Procedures: Each provider should have clearly written grievance procedures available to the public and HSAs.

Eligible Riders: Riders should use the lowest-cost mode available, which is fixed-route transit in most cases. Door-to-door demand responsive service is possible in places where funding and resources exist. Most often this service is used by residents 60 and older or those with a disability defined by the ADA.

Demand response service requires 24-hours notice, and drivers provide door-to-door service. Aides required for additional services ride free. Passengers with special needs should inform HSA when reservations are made. The appropriate mode for the trip is determined when passenger requests demand responsive service. Unused capacity may be offered to non-E&D passengers at the fully-allocated cost of the ride if it does not interfere with service quality.

Eligible Costs and Cost Matching: Both capital and non-capital costs are eligible for reimbursement, but vehicle acquisitions are eligible under a separate process. VTrans follows Federal budgetary guidelines for disbursing funding. Administrative and maintenance expenses require 20% local matching funds, operating expenses require 50% local matching funds. Some state funding is appropriated for matches annually, and HSAs will not be required to provide more than 20% match. Volunteer hours may be used as non-cash matching funds. HSAs may enter into local service agreements with public transit providers which set agreed upon terms for delivering E&D transportation.

Reports: Agencies must provide reports on passenger counts and costs to inform RPTACs.

Background Checks: Drivers must complete specified background checks.

Implications

This document is the policy foundation for E&D transportation in Vermont. Any E&D plan should conform to the guidelines laid out in this document, except when superseded by more recent policy directives.

Human Service Transportation Coordination Plan (2014)

Date: December 2014
Author: Prepared by Nelson\Nygaard for VTrans

Purpose

The 2014 update to the Vermont Human Service Transportation Coordination Plan (HSTCP) is the result of a series of planning activities undertaken by the Vermont Agency of Transportation (VTrans) to provide direction for future transportation coordination activities in the state. The updated HSTCP builds on the success of the 2008 HSTCP, which was developed in response to the planning requirements set forth by federal transportation grant programs. It serves as the framework for the prioritization and implementation of coordinated transportation projects seeking federal funds through applicable Federal Transportation Administration (FTA) programs.

Summary

The overarching goal of human service transportation coordination is to expand statewide and regional capacity to provide increased mobility for transit-dependent individuals including people with disabilities, older adults, low-income residents, and others with limited access to transportation by identifying the specific needs that are being met in an inefficient way by human service agencies or are not being met at all.

Funding: The plan outlines federal and state funding structures for human service transportation in Vermont. Federal funds from the FTA, the Vermont Agency of Human Services Department of Disabilities, Aging, and Independent Living (DAIL), and Veterans Administration are administered by VTrans. Each of the regional public transit systems provides transportation service under contract with local

human service organizations (the document provides a full list of these partnerships). Spending on human services transportation grew by 57% between 2007 and 2013 due to more available federal funding. Additional funding from federal Temporary Assistance for Needy Families funding for rural transportation is administered by the Vermont Department for Children and Families, and federal funding from the DHHS Administration on Aging is administered by (DAIL). Transportation for Veterans costs Vermont an unknown amount, predominantly for trips to Veterans Affairs Medical Centers.

Target Populations and Services: The HSTCP investigated the prevalence, location, and trend related to target populations in Vermont, including elderly, disabled, and underprivileged households. Key findings include:

- Vermont is getting older: the state had the second-oldest population in the country in 2010, and the population of individuals aged 60 and older increased by 40% from 2000.
- Poverty rose from 2000 to 2010, mostly among non-family households
- Households without a vehicle increased 3.3% from 2000 to 2010
- Persons with any type of disability were 13% of Vermont's population in 2010, while persons with a physical disability are 6% of population

Transportation Gaps: Transportation gaps and issues for the state and regions were collected through several outreach efforts to residents and local experts. The plan identifies the following statewide transportation needs as priorities:

- **Critical care medical transportation**: Transportation for people with chronic medical needs can consume large portions of a region's medical trips.
- **Inter-regional travel**: Transportation from one region to another in rural areas is often necessary to access essential services, and riders often lack knowledge of these services.
- **Resources for people who do not qualify for program funds**: Many transportation dependent residents do not qualify for human services programs and need additional resources to fill holes in their transportation needs.
- **Availability of information**: Residents are often unaware of services offered and how to use them.
- **Transportation for people who are blind and deaf**: Residents who are both blind and deaf often require specialized support services to use public transportation.
- **Substance abuse withdrawal program**: Clients of substance abuse withdrawal programs often require reliable, long-term, daily transportation to reach services. Inter-regional trips can pose difficulties, particularly for clients who need to travel with children or dependents.
- **Employment re-entry & vocational rehabilitation transportation needs**: Individuals returning from incarceration often face difficulties reaching vocational rehabilitation programs and employment opportunities.

Solutions and Recommendations: The 2014 HSTCP first inventories progress on recommendations from the 2008 HSTCP. Existing coordination strategies include:

- Volunteer driver programs: Vermont's program is one of the most successful in the country.
- Mobility management programs with the White River Junction Veterans Administration Medical Center, CCTA, RCT, and a successful program using community health workers as mobility managers at the Springfield Medical Center.

Additional recommended coordination strategies include:

- **Volunteer driver recruitment and retention**: Many practical strategies for recruiting/retaining drivers.
- **Mobility management training and network**: VTrans should invest resources in helping local mobility managers improve their services.
- **Technology investments**: Peer-to-peer shared ride technology was not widespread at the time of this plan. Technology can also facilitate interoperability of systems, allowing for consolidated dispatch responsibilities.
- **Changes to the Go**! **Vermont one-click resource**: Vermont should include additional information on the Go! Vermont website about the availability of human services transportation for the full spectrum of persons in need of transportation, not just commuters.

Implications

Federal funding and regulatory structures have changed since this plan was written and the next HSTCP should take care to examine the current federal funding landscape and the impacts of regulatory changes. In particular, the next plan should investigate the increase in demand due to Vermont's expansion of Medicaid services under the Affordable Care Act, which took full effect in 2015. The next HSTCP should also attempt a fuller accounting of expenditures for transportation for veterans.

The HSTCP's process for tracking the progress of recommendations of the last plan should be replicated, as it encourages continuity from plan to plan. Many demographic trends such as income are likely to have changed due to improved economic conditions, but other are likely to have continued.

Shared ride technologies were new to the transportation world in 2014, and no case studies existed for use of these platforms to provide human services transportation. The next HSTCP should investigate best practices for using private peer-to-peer ridesharing services to help meet human services transportation needs.

Vermont State Plan on Aging Needs Assessment

Date: December 2017
Author: Prepared by Kelly Melekis, MSW, Ph.D for the Dept. of Disabilities, Aging, & Independent Living

Purpose

This report summarizes findings from the 2017 DAIL statewide assessment of the needs of and resources for older adults in Vermont. Findings help understand the experience of aging in Vermont and contribute to the development of the next five-year state plan on aging. Data collection included 1) a survey of service providers, 2) a survey of older adults, 3) key stakeholder interviews and focus groups.

Summary

The top three concerns voiced by older adults were: financial security (57%); health care (57%); and maintaining independence and dignity (55%)

Transportation-related results: Transportation is a major challenge to meeting the needs of older adults across Vermont. The most common specific resource identified as a challenge, respondents highlighted either the lack of transportation or of adequate options. In many areas of the state, "public transportation is

limited" and the "walkability of our downtowns is often poor." Further, limited access to transportation is linked to "isolation" and "limited opportunity for engagement, socialization, and stimulation."

Mode Split: 93% of respondents drive for most local trips, 17% walk, 13% ride with someone, 8% bike, and 6% take public transportation for some of their trips. Only 2% of residents report using transportation that serve older people or persons with disabilities, and only 1% report using taxis or ride-hailing apps.

Transportation Reliability: 73% of respondents report never needing help getting transportation, 17% rarely need help, 2% need help most of the time, and 1% always need help. The most common type of trip identified as challenging were visits to family or friends (13%) or for entertainment and social events (9%). The most frequent comments and suggestions for improvements to help respondents get around were related to improved public transportation (e.g., more frequent and extended bus routes, regular and reliable service), improved access to drivers (both volunteer and paid services), and improved sidewalks and walking/bike paths.

Most respondents (65%) identified transportation a unique challenge to serving older adults in rural areas. Many respondents noted that transportation issues are exacerbated by inclement weather; winter weather, environmental conditions and temperatures can impact older adults' ability to get out as well as providers' ability to get to older adults living in more remote areas.

Often linked to transportation challenges, isolation was noted by 19% of respondents as a challenge/concern. Several providers highlighted connections between isolation, loneliness and depression.

Implications
The study identifies improving transportation as the most common suggest for major improvements to programs and services for people 60 and older. The study recommends increasing the availability, accessibility, affordability, and flexibility of transportation in the state, but does not provide specific examples of improvements to be made.

Transportation solutions can play a part in alleviating many concerns older residents expressed in this survey. A number of other challenges, including isolation, social support and health care, could be positively impacted via improvements to the transportation infrastructure.

Vermont Elders & Persons with Disability Transportation Program Review
Date: January 2016
Author: Prepared by VTrans for Vermont House & Senate Committees on Transportation

Purpose
This study was conducted at the request of the Vermont Legislature to review the Vermont Elders and Persons with Disabilities (E&D) Transportation Program, the last comprehensive review for which was conducted in 2004. This update examined the characteristics of the current E&D Transportation Program, the gap between the current resources and the projected funding needs of the program over the next 15 years, and opportunities to improve the effectiveness of the program in providing mobility options for elders and persons with disabilities.

Summary
This report examines the successes, challenges, and opportunities for E&D transportation in six areas, as requested by the Legislature:

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Unmet Needs

- Continue to support the E&D Program through consistent or increased funding
- Continue to monitor how the needs of elders and persons with disabilities are being met through various transportation resources including the E&D Program, to regularly assess the role of the program and the level of funding needed.
- Increase outreach and marketing about the program to help identify the true need for E&D transportation.
- Expand Ticket to Ride Program with private contributions and to other regions.
- Expand State support through assistance in recruiting volunteer drivers and regular involvement with Regional E&D Advisory Committees.

Service Delivery

- Continue to support the regional service delivery model, which facilitates successful coordination between public transit and human service agency transportation services.
- Better utilize available trips and capacity (e.g., encourage more clients to use fixed route bus when feasible, coordinate more riders on volunteer driver trip, schedule trips during midday when capacity is available).
- Explore innovative service models based on peer examples of E&D transportation.
- Hold regular meetings of the statewide E&D stakeholder group to facilitate an idea exchange on successes, best practices, & lessons learned between the regions.

Coordination Opportunities

- Continue to support the transportation coordination efforts between the regional brokers/transit providers and the human service agency partners.
- Increase coordination of trips across regions and brokers.
- Coordinate additional trips at times when vehicles have capacity.
- Add new partners to the E&D Program where possible and appropriate.

Local Match

- Establish a statewide pool to share in-kind match resources
- Provide more flexibility in the sources for in-kind match (e.g., value of transportation staff and transportation services that human service agency partners provide beyond E&D services)

Impacts of the Medicaid Waiver and NEMT

- Continue to coordinate at State level (VTrans and AHS) to ensure coordinated regional broker model continues.
- Monitor the use of coordinated transportation resources to ensure that the increase in NEMT services does not negatively affect regional brokers' ability to provide E&D trips, in terms of vehicle capacity and funding.

Technologies

- Continue to implement RouteMatch system statewide and pursue best use of built-in functions.
- Continue to monitor modern ridesharing platforms (Uber, Bridj, etc.) for their potential application in rural environments; pursue pilot projects to explore these potential solutions as appropriate.
- Provide real-time information to improve the customer experience.
- Develop one source for customers to schedule rides across regions and providers.
- Establish an online ride scheduling system for partner agencies to directly schedule trips with the regional brokers.

Implications

The E&D Program currently covers only the most basic needs such as access to critical care and medical services and shopping, most often for essentials such as food, household items, and clothing. This level of service is vital for existing users who are primarily low-income elders and residents in rural areas that would otherwise be isolated. The regional brokers and their human service agency partners have operated a constrained program for many years due to funding limitations at both the state and local levels. Service parameters have been established in every region to prioritize trip types (medical over shopping and social), limit the number of trips per individual, and/or limit the days and times of service.

Facing funding constraints and increasing demand, both the regional partners and the clients that use E&D transportation have become more creative in meeting transportation needs. Regional brokers have been able to meet the need for longer trips, particularly to critical care and medical services, by increasing the use of volunteer drivers. Human service agencies are working with clients to identify other transportation resources available to them, and a few are providing their own transportation to fill gaps in E&D service. Elders and persons with disabilities have seen a growth in the public transportation services available, and some have become eligible for Medicaid so that their medical trips are provided through NEMT.

New technologies and new types of services have changed the ways that mobility needs are met. The demographics of the E&D populations have also changed, translating into demand for different amounts and types of service. Today and through 2020 individuals in their 60s comprise the largest share of Vermont's elder population. These young elders are staying active and working longer, which translates into decreased needs for E&D transportation in the short-term, but high projected needs – in both volume and more specialized transportation needs – in the next 10-15 years. This combination of factors helps explain an observed leveling off in demand for E&D transportation in recent years and outlines a projected increase in future needs.

Exploring Transportation Behaviors and Needs of Veterans and People with Physical Disabilities and Mobility Constraints

Date: June 2017
Author: Prepared by UVM Transportation Research Center for VTrans

Purpose

This report summarizes the initial phase of the Personal Transportation Plan Pilot Program (PTP3). The purpose of the PTP3 initiative is to develop a personal transportation planning tool that can be used by disabled Vermonters and Vermont veterans to match existing transportation resources with their travel needs. This study discerned stakeholder needs through focus groups and electronic surveys on transportation behavior and demographics.

Summary
Results for Vermonters with Disabilities:

- **Focus Groups**: Participants expressed a preference for paratransit over fixed-route service. Many complained of unreliable pickup times and a lack of scheduling flexibility. Users find the eligibility reviews they complete every 3 years to be a bureaucratic nuisance. Bus service was lauded for low costs, consistent scheduling, and empathetic drivers. Winter conditions make accessing bus stops and waiting for the bus difficult for many users. Few public transit resources are suitable for recreational activity.
- **Surveys**: 60% of disabled Vermonters reported they could not drive a car, and 40% have no regular access to a vehicle. Only 23% of those surveyed report riding a bus either seasonally or year-round, despite 64% reporting that they can. 80% made 2-3 personal trips per month, and 49% travel for medical appointments this frequently.
- **Challenges facing Disabled Vermonters**: 51% report having walked, biked or used a wheelchair in the winter of 2014-15, but most reported obstacles associated with these modes such as snow, curbs, & stairs. 64% used on-demand transit services, with the top obstacle being return trips. Nearly half of respondents had to cancel medical appointments due to last-minute schedule changes.
- **Access to Information**: Majority of respondents had access to internet from home (67%) and mobile phones (51%).

Results for Vermont Veterans

- **Focus Groups**: Many veterans use Disabled American Veterans shuttles to reach VA Medical Center in White River Junction, but many complain that the shuttle requires a full day because the bus must wait for all passengers to complete appointments. Veterans noted that there is a shortfall in transportation services to primary care appointments. There is no veteran-specific transportation agency in rural areas. Case workers provide an important peer support system but cannot be relied on as a full-time transportation method. Most veterans were able-bodied enough to own a car but car ownership among this group is lower than the state average. Veterans living in shared housing can often rely on roommates for transportation.
- **Survey**: Most veteran respondents were over 65 years old and had an income of $30k or less. 50% reported being able to drive a vehicle, and 25% did not have regular access to a vehicle. 52% are at least able to take a bus with a wheelchair lift, but nearly half do not have access to a bus near their home. 71% take personal trips at least 2-3 times per month, and 59% travel for medical appointments.
- **Challenges facing Vermont Veterans**: The veterans who reported taking the bus found snow, boarding problems, and bus timing to be issues.
- **Access to Information**: Fewer than half have access to internet at home, and exactly 50% had access to mobile phones

Implications
The main implication of this study is that scheduling issues are viewed as the largest obstacle for E&D and veteran passengers using the bus. Four of the top five obstacles to using on-demand transit services and two of the top five obstacles to riding a public bus related to schedule limitations. Though these passengers find ways to make necessary trips, the next HSTCP should focus on finding ways to improve the convenience of transit using available resources.

Opioid Coordination Committee – Transportation Working Group Findings

Date: May 2018
Author: Governor's Opioid Coordination Council, Transportation Working Group

Purpose

This study represents the findings of the Recovery Transportation Working Group made up of members of VTrans and the Governor's Opioid Coordination Council, formed to identify critical transportation needs of patients struggling with addiction that are not accessible through the existing transportation system.

Summary

Through discussions and the data received, the identified needs (priorities) not covered by current programs are:

- Group Meetings and Therapy sessions
- Access to Recover Centers
- Access to Drug Test sites
- Medical Appointments
- Job Access (training, interviews, and initial commutes)

The Working Group estimates that transit providers could provide at least 800 – 1000 trips per month for recovery services and/or job opportunities, at an estimated cost of $20k - $25k per month

Implications

Recommendation from the Working Group:

- Regional Coordination Meetings:
    - Using the Northwestern Medical Center's successful pilot project, the working group recommends meetings between the recovery centers, the local support organizations, transit providers, and other related services to ensure eligible trips are being scheduled and all regional entities are in communication regarding demand and services.
- Seek funds for vehicles for the recovery centers and service providers:
    - These vehicles may provide the flexibility for these organizations to manage their own trips to counseling sessions, treatment, etc.
- Launch an expanded demand response program, specifically serving those in recovery and seeking job access:
    - Trips can be coordinated through recovery centers, UA sites, VR, and other pre-approved partners. This recommendation is the most comprehensive of the three recommendations, but if funding is awarded, the working group believes that it has the right program, processes, and approach to quickly institute direct and valuable service to bridge the identified gaps to a successful recovery and/or to joining the workforce.
- The working group urges all agencies and organizations directly receiving funding to help those with opioid addiction and/or job entry and access to consider applying a percentage of these funds to partially pay for additional transportation services.

Rides to Wellness (R2W) Implementation Plan

Date: April 2018
Author: Aplomb Consulting and Steadman Hill Consulting for VTrans

Purpose

The Rides to Wellness project being carried out by VTrans, funded by a grant from the Federal Transit Administration, focuses on two regions in Vermont which have already begun to address the need for transportation access to healthcare – Mt. Ascutney & St. Johnsbury. The purpose of the program is to improve health outcomes for vulnerable populations and reduce the use of emergency services by providing more reliable transportation for program participants. The program is focused on people who miss medical appointments because of transportation barriers, and those who do not seek care in the first place because they perceive barriers to be insurmountable.

Summary

Constituencies affected by this plan include customers, Rides to Wellness "Champions" such as health care providers, and Vermont 2-1-1. Vermont 2-1-1 is intended as an entry point to refer people to appropriate transportation or health resources. The plan calls for Roadmap to guide key constituencies, particularly 2-1-1 operators and health care providers in the availability of transportation resources.

Implications

The R2W may provide an interesting template for improving the flexibility of paratransit services to meet customer needs, especially last-minute changes in schedule. The results of the R2W pilot program collected by Steadman Hill will be an important resource for identifying the strengths and weaknesses of the R2W to determine if the program is successful enough to establish statewide.

Appendix B – Peer Review

Introduction

This document summarizes the key information and findings of statewide public transportation/ transit plans prepared by the following states:

- Idaho
- Iowa
- Maine
- Minnesota

Idaho Public Transportation Plan

Title	Idaho Public Transportation Plan
Year	2018
Author	Idaho Transportation Department's Public Transportation Office (ITD-PT)
Agency	Idaho Transportation Department
Content	1. Introduction 2. Benefits of Public Transportation 3. Idaho's Public Transportation Network 4. Landscape for Public Transportation in Idaho 5. Strategic Direction for Public Transportation in Idaho 6. Financial Plan 7. Implementation Plan

Purpose

The Idaho Transportation Department's Public Transportation Office (ITD-PT) undertook development of the statewide public transportation plan in 2016 in accordance with the requirements of the state's laws. The purpose of the plan is to provide a framework for creating an integrated public transportation system that meets the state residents' mobility needs. It is to be used as a foundation by ITD-PT, along with partners, transit providers, elected officials, and stakeholders to explore opportunities to implement strategies for maintaining and enhancing public transportation services in the state.

Summary

The plan analyzes Idaho's current public transportation network and the market in the future. It also defines a strategic direction for public transportation in the state and financial and implementation plans. The Plan will be supplemented by the Local Coordinated Public Transit-Human Services Transportation Plans (LCPs) from the rural jurisdictions. Projects must be included in a locally coordinated public transit-human services transportation plan to secure federal funding through FTA 5310 program.

The plan defines public transportation as traditional fixed-route bus and demand-response service, but also supportive services such as ridesharing, car and bike sharing, and bicycling and walking Human service transportation is also considered in the plan, but those services are explored in more detail in the local coordination plans.

Goals and Strategies

The plan defines the following goals and objectives for Idaho's public transportation network:

Goal 1: Ensure the safety and security of public transportation.
- Objective: Promote the safety of transit and its riders by utilizing performance measures and funding as it relates to safety and security.

Goal 2: Encourage public transportation as an important element of an effective multi-modal transportation system in Idaho.
- Objective: Promote and help educate on what public transportation is.

Goal 3: Preserve the Existing Public Transportation Network.
- Objective: Provide support and tools to enable providers to maintain existing levels of service.
- Objective: Enhance or expand services as resources become available.

Goal 4: Provide a transportation system that drives economic opportunity.
- Objective: Take advantage of public transportation's ability to provide access to jobs for current and future employees.

The plan also lists cross-cutting issues and strategies related to the goals, including:

- Coordination and Partnerships
  - Maintaining, developing, and encouraging partnerships among stakeholders for planning and implementation of transportation solutions at the state, regional, and local levels, across transportation modes, will expand the number of effective transportation options available to Idahoans and maximize use of available resources
- Customer Focus:
  - Ensure that the customer's experience with public transportation services is at the forefront of service planning and implementation through ongoing public outreach, consideration of the diverse transportation needs of Idahoans, inclusion of a wide range of services and solutions in the public transportation toolbox, and addition of safety/security and service quality measures in the performance monitoring system
- Education and Promotion
  - Creation and implementation of a campaign to inform the public and other stakeholders about the availability and benefits of public transportation services throughout the state will be key to developing support for the maintenance, use, and enhancement of the public transportation network
- Training and Technical Assistance
  - Provide support and tools for transportation providers as they plan, implement, and deliver services through training and technical assistance from ITD-PT staff and opportunities to receive training from outside sources when possible
- Invest in Public Transportation Services within the Constraints of Available Funding
  - Make maximum use of available funding—which may include additional sources in the future—by prioritizing maintenance of the existing public transportation network and

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expanding or enhancing services as resources allow, and utilizing an enhanced performance monitoring system to inform funding decisions

Implication

A major component of the planning process was a comprehensive outreach strategy to ensure that customers and stakeholders had opportunities to provide meaningful input. Service gaps were among the challenges noted by customers, including: areas or destinations without service; little or no early/late hours or weekend services; limited options for wheelchair users; intercity travel. Limited funding, funding source restrictions, difficulty obtaining local matching funds, and competition for local matching funds were the challenges noted by providers in most districts.

Throughout the outreach activities some potential solutions were mentioned repeatedly. Among these, creating better linkages between services and optimizing resources within a community to improve transportation for a variety of customer groups was mentioned in conversations in all districts. In addition, the following strategies/recommendations were mentioned:

- Branding and marketing
- Centralized transportation information
- Expanded hours and weekend service
- Increased service frequency
- Increased regional service

Based on population forecasts and current ridership, the plan estimates 31% growth in transit ridership between 2015-2028 in the state. 13 of the 17 providers assessed in the plan will likely require additional vehicle revenue hours of service and larger fleets by 2028 to serve projected ridership and remain within reasonable levels of productivity, as measured by average productivity rates among groups of national peer transit providers.

The plan defines action items for each goal objective. Among action items for the objective of providing support and tools to enable providers to maintain existing levels of service are:

- Build upon and enhance existing performance measures to identify strengths and weaknesses of the existing network, document use, and demonstrate value;
- Consider investing in technology systems that contribute to more efficient and sustainable service delivery;
- Monitor the performance of current and future public transportation services;

Among action items for the objective of enhancing or expanding services as resources become available are:

- Identify and seek out opportunities to apply for available federal, state, and local funds to address identified unmet needs; and
- Establish performance standards for new or expanded services.

Iowa

Title	Iowa Statewide Passenger Transportation Funding Study
Year	2009
Author	URS

Agency	Iowa Department of Transportation
Content	Section 1: Study Purpose
	Section 2: Study Process
	Section 3: Iowa's Current Passenger Transportation Services
	Section 4: Passenger Transportation Needs
	Section 5: Service Improvements to Address the Baseline and Choice Demand Levels
	Section 6: Funding Considerations to Address Needs Gap
	Section 7: Funding Study Findings/Conclusions

Purpose

The purpose of the study is to quantify current revenue available to support public transit; determine whether current revenues are sufficient to meet future needs; assess how well the state's public transit network supports the current and expanding mobility needs of the state's senior population; and identify the transit improvements needed to meet the state's energy independence goals. The report provides the documentation of the methods, assumptions, data collection efforts, analyses, and public outreach efforts used in addressing each of the four purposes listed.

Summary

This funding study was intended to focus on the mobility needs of Iowa's seniors and on addressing energy use in the state. A key finding of the study was that for passenger transportation services in the state to address either the mobility needs of seniors and/or play a larger role in the state's goals of energy conservation, a greater level of service was needed. Also, to expand passenger transportation service, an increase in revenue is needed to implement recommended changes.

The study conducted an inventory of the passenger transportation services and funding. An assessment of the service needs was the basis for a service and cost analysis. The plan defined two service gap analyses. The baseline gap analysis considers the needs of transit dependent population by type of service and area, which included rural, small urban, and urban areas. A second analysis, the choice demand gap, takes into consideration the mobility level observed by the typical two-car household in the state. This analysis allows quantifying the level and quality of service needed to substantially expand the role of transit in addressing energy conservation. Choice service was not evaluated as an alternative in rural areas due to the high level of service that would be required to provide any real competitiveness with the car.

Goals

The study defines the following goals:

Goal 1: Provide passenger transportation service throughout the state that is:
- Convenient
- Accessible
- Affordable
- Safe and secure

Goal 2: Provide a passenger transportation system that is focused on the future by:
- Coordinating land use and transportation
- Incorporating efficiency-building 21st century technology
- Being a part of the statewide energy independence and environmentally conscience solution

Goal 3: Address the diverse mobility needs and demand through a range of modes.

Implication

The plan highlights that the current service does not adequately address the mobility of needs of seniors and the state. Service expansion including adding trip frequency, evening service and more Sunday service is required to support service demand. Providing additional service to address the demand will require substantial increases in annual funding.

Current funding sources are not adequate to support the level of service needed to address the mobility needs of Iowa's seniors or to allow passenger transportation services to substantially support energy independence goals. Key assumptions related to revenue include:

- Federal operating and capital expansion funding will not likely increase substantially to support additional service investment in the state
- Contract revenue (from human services agencies) will not likely increase substantially from the current level. An exception to this assumption would be revenue from Medicaid if local transportation eligibility reimbursement rules were changed and public transportation's role in providing service was expanded
- Passenger revenue/farebox will increase proportionally with the increase in ridership, not the increase in service provided

The study does not recommend or endorse an increase in taxes or fees to fund service expansion. As potential sources are investigated, both public and private-sector options should be considered. By expanding from the tradition of an almost exclusively public sector funded passenger transportation program, the financial burden can be equitably distributed to a greater number of appropriate stakeholders.

The plan proposes the following public policy actions:

1. *Create local funding opportunities:* Local funding plays an important role in passenger transportation services. Two existing Iowa Code areas where modification or clarification could expand local funding opportunities are:
    - Title IX Local Government/Subtitle 4 Cities, Chapter 384 City Finance, Section 384.12 Additional Taxes – Provides for use of a transit property tax levy.

    Increasing service will require an increase in local funding. The state can play a role in assisting cities and counties providing opportunities for them to tap into funding sources. The Funding Study suggestion is to replace the word "municipal" with "public" in the Iowa Code language. Chapter 324A of the Code defines public transit, which will provide for consistent interpretation across the state.

    - Title I State Sovereignty and Management/Subtitle 10 Joint Governmental Activity/Chapter 28M Regional Transit Districts – Establishes the ability to organize a regional transit district.

    Regional Transit District Population Threshold: A second key local funding policy recommendation is to remove the county population threshold for establishing a regional transit district. Current Iowa Code stipulates that a region where a transit district is being considered must contain at least one county with a population of at least 175,000 people before the district can be established.

2. Support the Iowa Medicaid Enterprise Transportation Brokerage
    - The state should support the transportation brokerage and encourage giving existing public transit providers the right of first refusal in providing brokered service.

3. Encourage/require additional state agency transportation reporting
    - There should be added requirements for agencies funded in whole or in part by public dollars to report to the Iowa Department of Management, for purposes of enabling coordinated transportation efforts. The purpose of the reporting is to improve coordination of transportation services with existing public transit providers with the goal of identifying where costs can be consolidated.
4. Passenger Transportation Coordination – a state priority
    - The Iowa Transportation Coordination Council provides an excellent mechanism for setting the framework and overseeing interagency coordination efforts. The Iowa Transportation Coordination Council, as defined in Iowa Code Chapter 324A, is a multi-agency committee created to provide leadership and guidance in overseeing transportation coordination activities in Iowa.
5. Formalize state's passenger transportation funding participation role
    - As part of their master planning process, the Iowa Climate Change Advisory Council proposed that the state be responsible for approximately 25 percent of the costs of transit service in areas where increasing ridership is demonstrated or where there is the ability to document vehicle miles of travel-reducing strategies. Presently, state funding represents approximately 10 percent of the total cost.
6. Continue to support the transit infrastructure grant program
    - The Funding Study did not estimate the facility needs associated with of either the Baseline or Choice demand concepts.
7. Strengthen local coordination of land use decisions with transportation plans
    - Key findings that require more evaluation are:
        - Reduce potential conflicts created by approving residential developments that need passenger transportation service but are proposed for areas where passenger transportation service is not provided and is not expected to be provided in the foreseeable future. Additional coordination with transportation services should be incorporated into the long-range land use planning process.
        - Increase the level of coordination that occurs in the determining the location for a new medical facility and the need for passenger transportation services. Coordination could be a requirement in gaining approval of a healthcare facility Certificate of Need.
        - Promoting the livable communities concept in the land use decision-making process.

Maine Strategic Transit Plan 2025

Title	Maine Strategic Transit Plan 2025
Year	2015
Author	Peter Schauer Associates, Boonville, Missouri with consultants: William Millar, Rich Rothe, Tom Meyers.
Agency	Maine Department of Transportation

Content	Section One: Trends and Findings Impacting Public Transit
	       Chapter 1. Background
	       Chapter 2. Funding Support for Transit and Service Inventory
	       Chapter 3. Analyzing the Demand for Public Transportation

Purpose

From 2015, this plan is a comprehensive public transit strategic plan for the period 2015-2025 that will assist Maine DOT in prioritizing service improvements and identifying performance measures and standards for responding to the need for public bus and van type transit services. In addition, the plan makes recommendations on best practices for transit planning and funding strategies.

Summary

The plan is a comprehensive approach to evaluating public transit initiatives, programs, and funding sources, with a focus on the state's aging population. Maine is the oldest state in the nation by median age and the most rural. 72 percent of Maine's elderly live in communities without access to fixed route or flex route[1] services. More funding and increases in efficiency and effectiveness of existing transit services will be needed to support the concept of adequate public transit. The report recommends policies and areas of emphasis for the MaineDOT transit unit and concludes with first steps for acting to guarantee the total annual expenditures for bus and van type transit needed to meet 20% of the theoretical demand for transit.

Goals and Strategies

Maine's plan defines three goals and associated recommendations:

- Goal 1: Manage the Existing System. To effectively manage Maine's existing transportation system for safety and effectiveness within reliable funding levels the following is recommended:
    a. Improve and update the State Management Plan;
    b. Elevate and clarify the message that MaineDOT's focus is on general public transportation;
    c. Administer state, federal, and local funding for public transportation;
    d. Improve the grant decision making process;
    e. Use population density of a geographic area to determine types of service offered;
    f. Use a demand-based capital priority setting process;
    g. Establish and use performance measures and provide technical assistance to increase the efficiency and effectiveness of sub-grantees.
- Goal 2: Support Economic Opportunity. To wisely invest available resources to support economic opportunity for customers is recommended:
    a. Support general public transportation systems;
    b. Support a mix of transit services;
    c. Support new systems and expand existing services;
    d. Encourage volunteer networks and alternatives to traditional transit services;
    e. Provide incentives for local communities and transit providers to leverage new sources of private funding for transit services;
    f. Explore ways to increase state and all sources of potential funding for public transportation.

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[1] Transit service that operates along a fixed alignment or path at generally fixed times but may deviate from the route alignment to collect or drop off passengers who have requested the deviation.

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- Goal 3: Build Trust. To demonstrate their core values of integrity, competence, and service, both individually and organizationally is recommended:
  a. Establish a Public Transportation Advisory Group;
  b. Expand education, outreach, and marketing;
  c. Reinvigorate provisions of Maine Revised Statutes Title 30-A, Part 2, Subpart 5, Chapter 163 concerning regional transportation corporations and transition to government or quasi-governmental governing bodies.

Implication

The plan points out that, in general, there is substantial local municipal financial support for the state's fixed route transit systems. There is also local municipal financial support for flex route systems. However, there is little local funding support for rural transit systems that operate in most of Maine outside of the urban areas. Rural transportation systems have relied heavily on MaineCare (Medicaid) funds to meet federal matching fund requirements.

The cost to maintain intercity, fixed route and flex route existing services can be expected to increase 16% by 2025, assuming an annual inflation rate of 1.5%. A review of Maine's peer states did not reveal a new potential source of state funds for public transportation. On top of that the state has the following funding sources allowed by law for public transit limitations:

- The Maine State Constitution prohibits public transportation from using revenue from the registration, operation, and use of vehicles on public highways, and from fuel taxes from these vehicles;
- Legislation effectively prohibits the use by public transportation of funds generated for the General Highway Fund (Gas tax, Special Fuel and Road Use Tax, registration of motor vehicles, licensing of operators, etc.);
- The Multimodal Transportation Fund is the only source of state revenue for public transit and the funds collected in this account are distributed among transit, air, marine and rail transportation providers.

Funding sources allowed by law for public transit in Maine are problematic and no single solution was identified in the plan. Lottery revenue presented potential as a source of funds for public transportation, especially if it can be tied directly to a specific benefit such as funding transportation options for elderly and disabled persons in rural areas.

The plan identified that the productivity and performance of Maine transit systems is below peer group averages and national averages on performance measures such as number of passenger trips per mile, operating expenses per mile, number of passenger trips per hour, and number of passenger trips per mile. A performance monitoring system was identified as a strategy to improve effectiveness of a service provider in meeting a desired customer service level. Proposed performance measures are:

a. Total unlinked passenger trips / Total service area population
b. Total vehicle revenue hours / Total service area population
c. General Administration expense / unlinked passenger trip
d. Operating expense / unlinked passenger trip
e. Total General Administration and Operating expenses / unlinked passenger trip
f. Total General Administration and Operating expenses / vehicle revenue miles
g. General Administration expense / vehicle revenue hours

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h. Operating expense / vehicle revenue hours
i. Total General Administration and Operating expenses / vehicle revenue hours
j. Total all revenues / Total General Administration and Operating expenses
k. Total of farebox revenue / Total General Administration and Operating expenses
l. Unlinked passenger trips / vehicle revenue miles
m. Unlinked passenger trips/ vehicle revenue hours
n. Unlinked passenger trips / Vehicles available for annual maximum service
o. Vehicle revenue miles / Vehicles available for annual maximum service
p. Vehicle revenue hours / Vehicles available for annual maximum service
q. Unlinked passenger trips / Theoretical demand for trips (for the service area as presented in this document)
r. Fatalities per 100,000 vehicle revenue miles
s. Injuries per 100,000 vehicle revenue miles
t. Complaints per 1,000 unlinked passenger trips
u. Compliments per 1,000 unlinked passenger trips

Also, proposed customer service measures are listed below:

a. Bus Safety:
    i.   Fatalities per 100,000 vehicle revenue miles
    ii. Injuries per 100,000 vehicle revenue miles
b. Bus Condition:
    i.   Age or Mileage of Vehicle as function of FTA service life standards
    ii.   Fully Accessible Vehicles/total fleet
    iii. Number of breakdowns/towed (missed service)/100,000 service miles
    iv.   Preventative maintenance inspections within 20% of scheduled mileage
c. Facility Conditions
    i.   Age of facility.
d. System Serviceability
    i.   Ridership per capita/year
    ii.   Days of service/week
    iii. Percent of area accessible by transit system
    iv.   Connections between modes

Greater Minnesota Transit Investment Plan 2017-2037

Title	Greater Minnesota Transit Investment Plan 2017-2037
Year	2017
Author	Minnesota Department of Transportation
Agency	Minnesota Department of Transportation
Content	1. Why an Investment Plan? 2. Wider Benefits of Transit 3. Transit in Greater Minnesota 4. Markets for Transit and Trends in Greater Minnesota 5. Community Input

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Purpose

The 2017 Greater Minnesota Transit Investment Plan is an investment and strategic plan. It updates the 2009 20-year strategic plan and refines the investment priorities for expanding, maintaining or reducing transit service according to future state and federal funding levels, as well as the strategic direction of transit in Greater Minnesota.

Summary

In summary, the 2017-2037 Greater Minnesota Transit Investment Plan lays out the strategic direction and investment priorities for transit over the next 20 years. Demographic and economic trends in Greater Minnesota indicate a growing demand for public transit. During the period of 2010 to 2014, as ridership and hours of service have increased around 8%, total annual operating costs increased by more than 25%.

Transit funding in Greater Minnesota includes federal and state sources in addition to local sources and passenger fares. The plan analyzed funding forecast from 2016-2025 including the gap between forecasted amounts and needed funding for operating costs. The financial outlook considers more than just increases in operating costs. As service expands and inflation occurs, the costs of vehicles, facilities, and employee salaries and benefits must also be considered. In total, to expand services to meet legislative mandates a funding gap of $114 million in operating and capital costs will amass from 2021-2025.

The baseline span of service with urban and rural service improvements is projected to meet 90 percent of the calculated public transit demand in Greater Minnesota. The transit demand is calculated using a model that takes into account the total population, population by age, the number of vehicle available by household, population living in poverty, and population with disability. This plan also developed a performance evaluation framework using metrics at both the state and local level. State-level metrics include MnDOT's four performance measures (1) ridership, (2) fleet condition, (3) span of service and (4) on-time performance and evaluation criteria used to monitor the transit systems.

Goals and Strategies

The following goals and strategies will guide MnDOT's investment decisions:

Goal 1: Transit service is an attractive and viable transportation option for Greater Minnesota

Strategies: MnDOT supports transit networks that respond to customer needs for high quality and customer-based service using the following actions:

- Implement transit span of service standards and guidelines for all systems
- Improve reliability of rural service through schedule adherence
- Increase frequency of routes, particularly in urban areas and rural areas when warranted
- Expand coverage of transit services to under-served and unserved communities
- Invest in regional connections and cross-county service where there is a high level of travel between population and employment-rich centers

- Develop clear, comprehensive and accessible public information about transit services
- Invest in customer amenities that improve the transit experience, such as new vehicles, automatic vehicle locators, electronic fare systems, waiting shelters and benches as appropriate
- Encourage bicycle and pedestrian infrastructure to improve accessibility

Goal 2: Improve coordination of services to meet transportation needs

Strategies: Implement and use Regional Transportation Coordinating Councils to increase communication and coordination with transportation partners using the following:

- Encourage the transit systems to coordinate with social service agencies to develop transportation options for health and human service clients
- Encourage coordination with Non-Emergency Medical Transportation providers to provide access to health services
- Collaborate with and among volunteer driver programs to highlight the need and value of volunteer drivers as vital components of Greater Minnesota transportation service
- Partner with organizations to provide high-quality transportation service for consumer groups such as veterans
- Collaborate with state partners to address transit needs in Greater Minnesota through the Minnesota Council on Transportation Access

Goal 3: Increase transit usage across the transportation network

Strategies: Foster connections between transit systems and customers to increase transit ridership using the following actions:

- Conduct statewide and encourage regional marketing campaigns to promote transit services in Greater Minnesota for multiple uses such as employment, tourism, and recreation.
- Invest in supporting technology to engage transportation network companies that will play a role in how transportation services are delivered in Greater Minnesota (e.g. Transportation Network Companies, automatic vehicle location technology and Google Transit)
- Include a greater percentage of riders who have a choice between transit and autos for their trips, such as investing in transportation service that provides reliable options for commuters and rides for workers with non-traditional commute times
- Develop and enhance partnerships with private providers to better meet customer needs

Goal 4: Ensure fiscal responsibility as a transit funding agency

Strategies: Remain good stewards of public dollars through the following actions:

- Stress the importance of local revenue partnerships in supporting transit service through best practices
- Invest in high performing, efficient and effective transit service that meets performance standards
- Critically evaluate and assess transit systems in their applications for funding using metrics and consistent criteria

Goal 5: Support MnDOT's vision for an integrated multimodal transportation system

Strategies: Support Greater Minnesota transit's role in planning, managing and supporting the multimodal transportation system through the following actions:

- Work with transit systems to develop strategies for "first-mile, last-mile" rider needs
- Increase usage of the transit network instead of single-occupancy vehicles to support an environmentally sustainable future
- Promote linkages between transit systems to other transportation modes, i.e. connections through inter-state travel such as intercity bus and commuter rail
- Encourage transit systems to actively plan for, and adapt to, changes in travel options such as car-share, ride-share and autonomous vehicles

Goal 6: Elevate the role of public information and outreach in transit system operations

Strategies: Support projects that enhance the customer experience of navigating transit service using the following actions:

- Increase MnDOT's investment in transit provider marketing and public outreach
- Guide transit systems in developing appropriate, accessible and easy to understand information for their electronic and print materials
- Encourage transit systems to provide information across multiple platforms such as smart phone apps, social media, print materials, etc.
- Invest in transit systems that use innovative approaches to public outreach and marketing
- Encourage transit systems to conduct robust public outreach when undertaking fare changes, large capital projects, service planning, etc.
- Ensure transit systems are providing culturally specific material, as appropriate

Implication

Total annual transit operating costs in Greater Minnesota increased by more than 25 percent ($15 million) during the five-year period between 2010 and 2014. Urban systems experienced the most significant rise in operating costs (32 percent), with ADA services experiencing an additional increase of 18 percent. In this context, finding additional local resources to match federal and state funds is a challenge of expanding systems.

Current transportation funding in Greater Minnesota includes federal, state and local funding sources. Federal grants are: 5307; 5310; 5311; 5339. The Minnesota Legislature appropriates transit funding from the general fund on a biennial basis. The legislature also statutorily sets the percentage of Motor Vehicle Sales Tax (MVST) revenue dedicated to public transit at 40 percent:

- Greater Minnesota Transit Account receives 4 percent;
- Metropolitan Area Transit Account receives 36 percent;
- The Highway User Tax Distribution Fund requires 60 percent.

Greater Minnesota transit receives 50 percent of Motor Vehicle Lease Sales Tax (MVLST) revenue collected beyond the specified threshold of $32 million, which goes to the State's General Fund. The MVST and MVLST are deposited in the Greater Minnesota Transit Account.

MnDOT shall allocate financial assistance to recipients for purposes of the public transit participation program according to the following order of priority:

a. Operating costs for existing public transit systems;
b. Capital costs for existing public transit systems;
c. Operating and capital costs for the provision of public transit services in a community or area not currently served by public transit.

The MnDOT Office of Transit annually evaluates transit system performance to prioritize operating and capital projects. MnDOT ranks each system based on a series of specific criteria and assigns each transit system a score. Based on the evaluation criteria, the transit systems are nominally ranked and scores within the bottom 10 percent are targeted for additional technical assistance from MnDOT. Funding allocations are not made based on this information but does help inform MnDOT about system strengths and weaknesses.

Legislature directs MnDOT to calculate the hours necessary to meet 100 percent of the transit need. Strategies to meet this target involve coordinated services because public transit cannot efficiently deliver the service. There are three elements involved with reaching 100 percent of need:

a. Improving links with other transportation modes will help people complete those remaining, needed trips, for example, coordinating with Transportation Network Companies;
b. Eliminating the gaps in service by increasing frequency, coverage, and adding more evening hours in rural areas;
c. Developing transit routes for traditional time commuters and regional travelers.

The following are conditions that MnDOT is looking towards over the extended time horizon for this plan:

- Transit service factors
    a. Coordination with the TNCs operating in Greater Minnesota to meet some of the transportation need
    b. Investing in technology that streamlines and improves decision making about transportation modes such as travel apps
    c. Improved customer amenities on buses, connecting infrastructure (wifi, benches and stops) and closer links between pedestrian and bicycle environments with transit
    d. Integration of autonomous vehicle technology
    e. Coordination of rides and services to meet the needs of customers
- Funding Factors
    a. The cost of gasoline is expected to rise in the next several years and may reduce some gas usage, resulting in a drop in funding for Greater Minnesota transit
    b. The sales of new vehicles are a significant revenue source for transit, however the lifecycle of vehicles is increasing and may result in fewer vehicles purchases.

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Appendix C – Addison County Analysis

Contents

List of Figures

TRANSIT SERVICE GAPS AND NEEDS

Transit service gaps and needs in Addison County are discussed below. Planning for the Addison County region is conducted by the Addison County Regional Planning Commission (ACRPC).

Overview of Existing Services

Fixed Route Services

As shown in Figure 1, Addison County Transit Resources (ACTR), part of Tri-Valley Transit (TVT), operates local fixed route shuttles within and between Addison County communities and commuter fixed routes that provide connections to Rutland and Burlington.

The Middlebury Shuttle Bus (MSB) includes five routes that focus on key destinations and the Route 7 corridor. Service is generally available from about 7:00 a.m. to 7:00 p.m. on weekdays, and from 9:00 a.m. to 5:00 p.m. on Saturdays. Service runs every 30 minutes during peak times on weekdays and every 60 minutes during non-peak periods. Saturday service operates on an hourly basis. All MSB service is fare-free.

The Tri-Town Shuttle Bus (TTSB) connects the towns of Bristol and Vergennes with Middlebury on separate routes. Service between Bristol and Vergennes is also provided. Both routes provide 12-13 hours of service on weekdays, with a service interval of roughly 70 minutes.

Seasonal service is provided between Middlebury and the Middlebury College Snow Bowl through East Middlebury on the Snow Bowl Shuttle Bus. Service is concentrated in ski season months of December through mid-March. Limited Thursday and Friday service is provided in spring and fall months.

ACTR operates three regional routes jointly with Marble Valley Regional Transit District (MVRTD) and Green Mountain Transit (GMT):
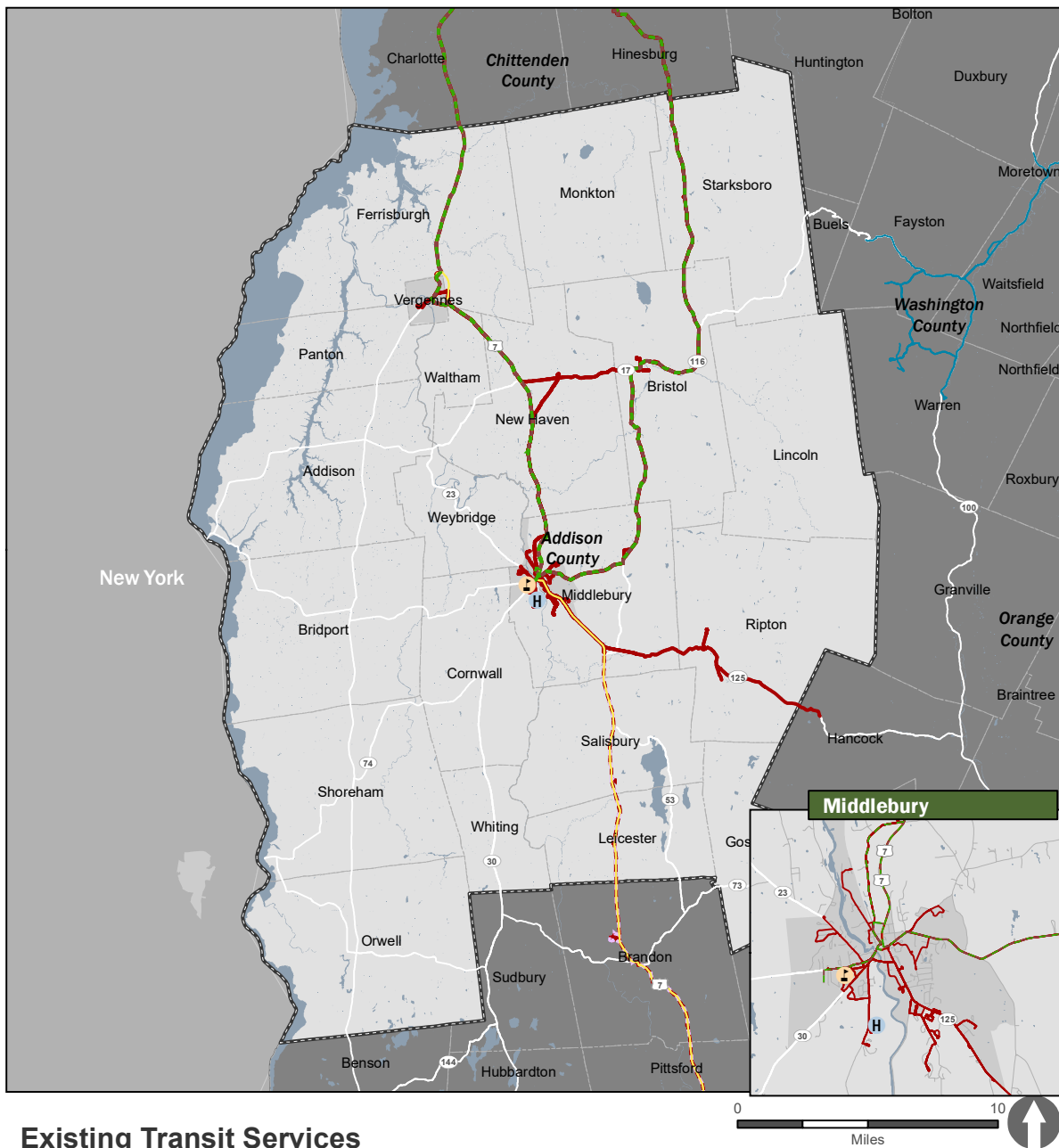
▸ The Rutland Connector operates between Middlebury and Rutland from roughly 5:30 a.m. to 6:30 p.m. on weekdays and from 9:30 a.m. to 7:00 p.m. on Saturdays. Three round trips operate on weekdays; two on Saturdays. ACTR volunteer drivers provide rides, when arranged in advance, from Bristol to Middlebury on weekday mornings to enable riders to catch the first two trips on the Rutland Connector. ACTR and MVRTD share operation of the route.

▸ The 116 Commuter operates between Middlebury and Burlington on weekdays. ACTR operates one round trip in the morning and afternoon; GMT supplements each trip with additional service at stops in the Burlington-Hinesburg corridor. Individuals arriving back in Middlebury on the last 116 Commuter trip may arrange trips (in advance) from there to Rutland, along the Rutland Connector corridor, with ACTR volunteer drivers.

▸ GMT operates two round trips in the morning and two round trips in the afternoon on weekdays between Middlebury and Burlington on the Burlington-Middlebury LINK. ACTR operates two round trips in the morning and one round trip in the afternoon on Saturdays, serving slightly fewer stops in the Burlington area. Riders arriving in Middlebury on the two evening LINK trips from Burlington may arrange trips in advance with ACTR volunteer drivers to locations along the Rutland Connector route.

Deviations up to ¼ - ½ mile, depending on the route, may be arranged in advance on ACTR's local shuttle routes, the Rutland Connector, and the Burlington LINK for individuals who cannot travel to a bus stop. No deviations are available on the 116 Commuter.

Figure 1: Transit Services in Addison County

Dial-A-Ride and Other Services

ACTR's Dial-A-Ride service offers rides to Addison County residents who are age 60 and older and/or have a disability and eligible clients of a number of human service agencies and programs, including Medicaid, the Vermont Department of Families and Children's Reach-Up program, and senior meals programs. Volunteer drives also deliver Meals on Wheels. Service for county residents who meet age and/or eligibility criteria is supported by ACTR's partners in the Vermont Elders and Persons with Disabilities (E&D) program, including Age Well, Home Health and Hospice, and the Counseling Service of Addison County.

Human service agencies in Addison County that operate vans, coordinate volunteer drivers, or assist with taxi trips for clients include:

▸ Addison County Parent Child Center (Head Start)
▸ Addison County Project Independence
▸ Vermont Association for the Blind and Visually Impaired
▸ Elderly Services Inc.

Private providers that serve Addison County include:

▸ Vermont Translines, which makes one stop per day in Middlebury on its Burlington—Albany route
▸ Middlebury Transit (taxi company)
▸ Bet-Cha Transit (school transportation)

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following communities:

▸ Middlebury
▸ Bristol
▸ Vergennes

Some of those key destinations are shown in Figure 1 (more detail can be found on the route maps posted on the ACTR website, https://actr-vt.org/). ACTR bus routes serve many local and regional destinations.

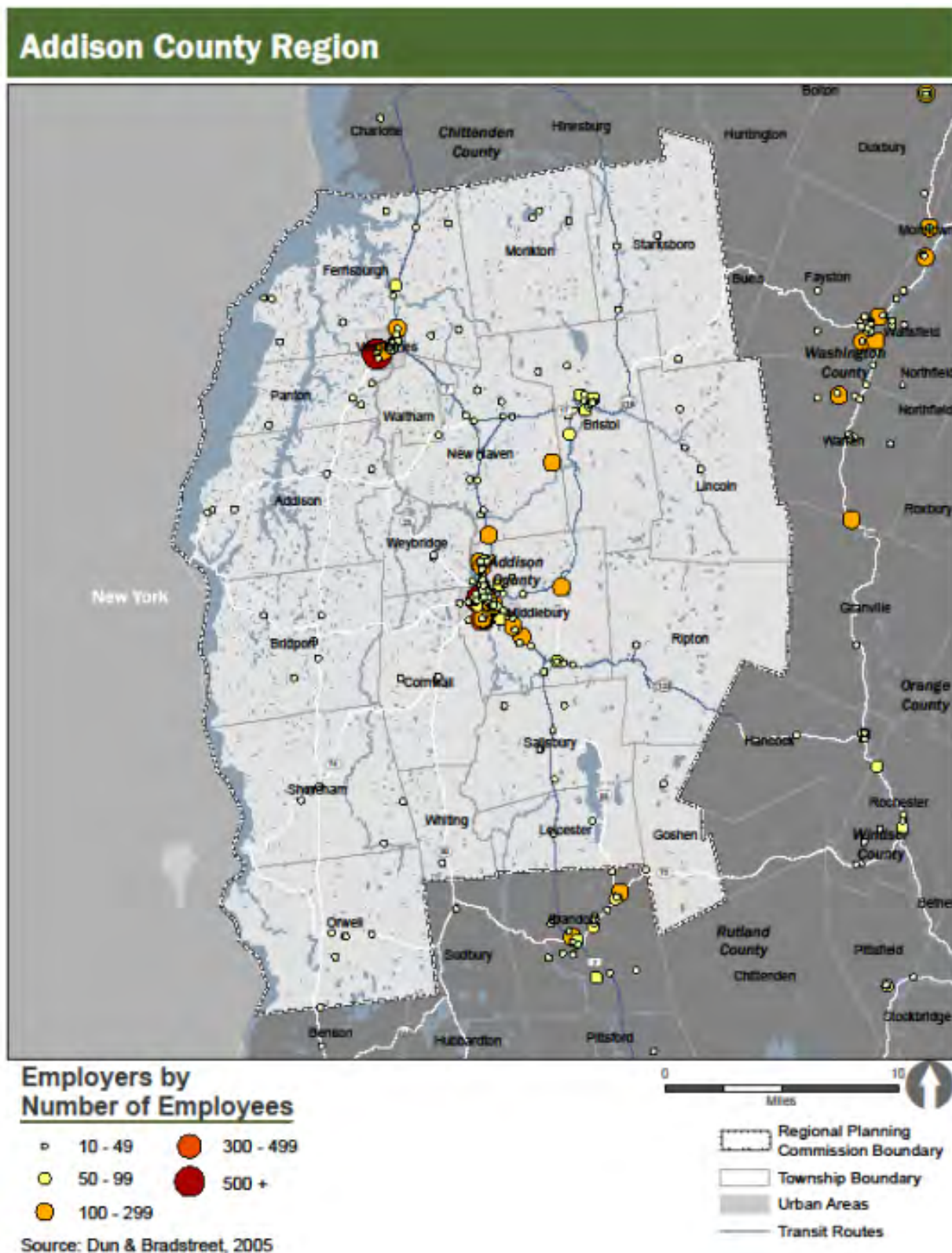## Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the county.

The highest concentration of employers is in and around Middlebury and Vergennes, where many of the largest employers, with 100 or more employees, are located. Smaller employers, with fewer than 100 employees, are scattered throughout the county.

The only large employer that may not be served by an ACTR route is located in New Haven. The 116 Commuter seems to operate close to that location but may not provide direct service.

Addison County Region

Employers by Number of Employees

⊙	10 - 49	●	300 - 499
○	50 - 99	●	500 +
●	100 - 299		

Source: Dun & Bradstreet, 2005

Regional Planning Commission Boundary
Township Boundary
Urban Areas
Transit Routes

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Commuting Patterns

Table 1 presents an overview of where Addison County residents work and where individuals who are employed in Addison County live.

Table 1: Employment in Addison County, 2015

Employment	Number	Percent of Total Addison County Employment	Percent of Total Employed Addison County Residents
Workers in Addison County			
Total Employees in Addison County	13,930	100%	
Addison County Residents Employed in Addison County	8,842	63%	
Residents of Other Areas Working in Addison County	5,088	37%	
Residents of Other Vermont Counties	4,047	29%	
Residents of Other States	1,041	7%	
Residents of Addison County			
Total Employed Addison County Residents	16,866		100%
Addison County Residents Employed in Addison County	8,842		52%
Addison County Residents Employed in Other Areas	8,024		48%
Working in Other Vermont Counties	6,952		41%
Working in Other States	1,072		6%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Over 60% of those working in Addison County also live in the county. Of the 37% of employees in the county, the majority live in other Vermont counties—mainly Chittenden and Rutland counties, but also in a number of other counties, as well as in Essex County, New York. Workers also come to Addison County from other parts of New York, New Hampshire, Massachusetts, Connecticut, and other states.

Just over half of the employed residents of Addison County work in the county. The majority of those who live in the Addison County and are employed elsewhere work in other Vermont counties, primarily Chittenden, Rutland, Washington, and Windsor counties, among others. Addison County residents also work in New York, New Hampshire, Massachusetts, and other states.

Figure 3 illustrates the daily commuting travel flows into Middlebury at the town level.

As shown in Figure 3, most commuters to Middlebury are from Addison County communities. The primary origin of these commute trips is Middlebury itself, with over 2,000 trips per day, but over 200 work trips per day to Middlebury originate in the towns of Bristol, New Haven, Salisbury, Brandon, and Addison. Significant numbers of commute trips to Middlebury also originate in the Burlington area, New York state, and Rutland County. Commuters travel from many other towns to Middlebury, but in smaller numbers.

Figure 4 shows daily commuting trips to the core of Chittenden County from Addison County towns. Most commuters who travel to the Burlington area from Addison County come from Middlebury and the northern communities of Fernsburgh, Monkton, Starksboro, and Bristol.
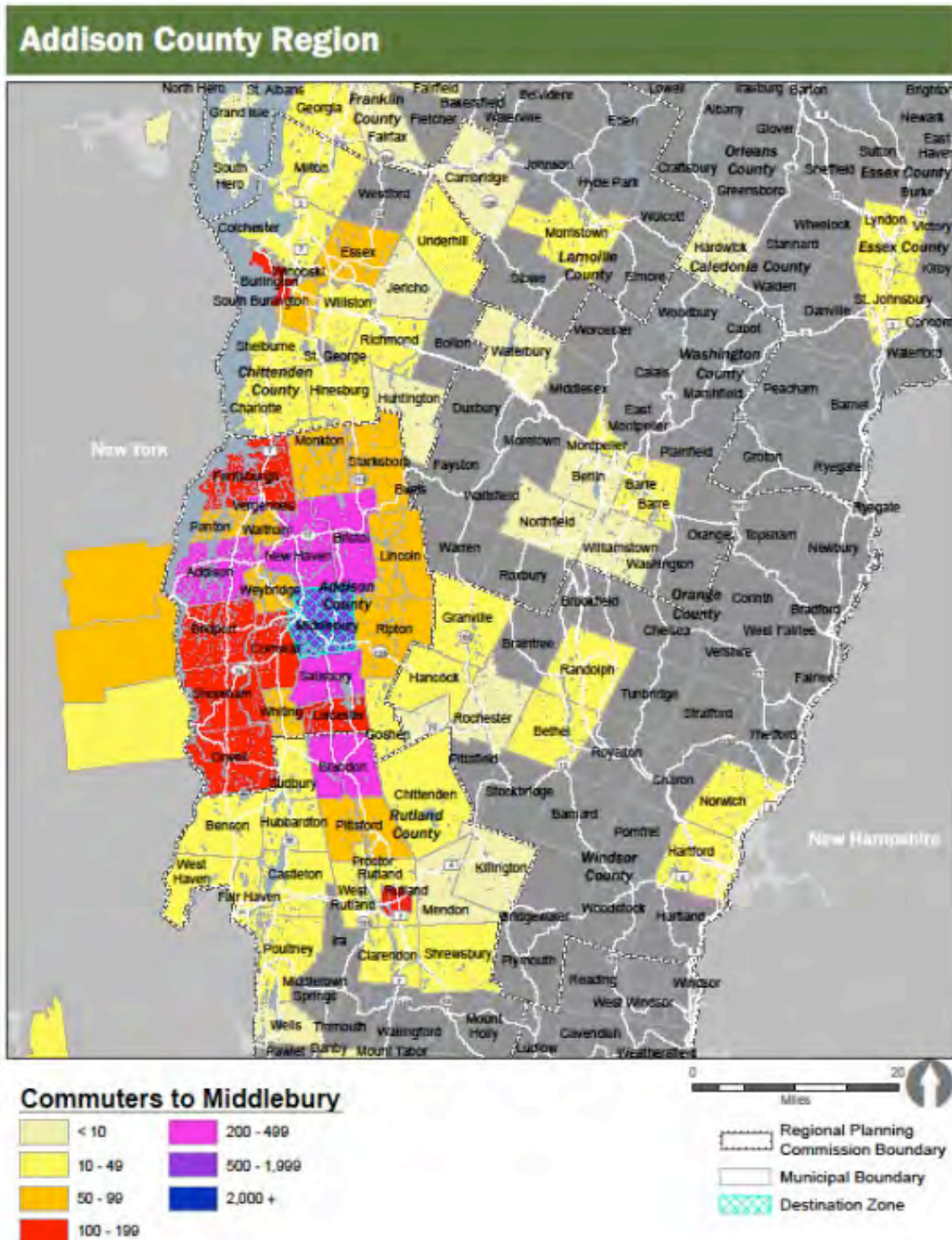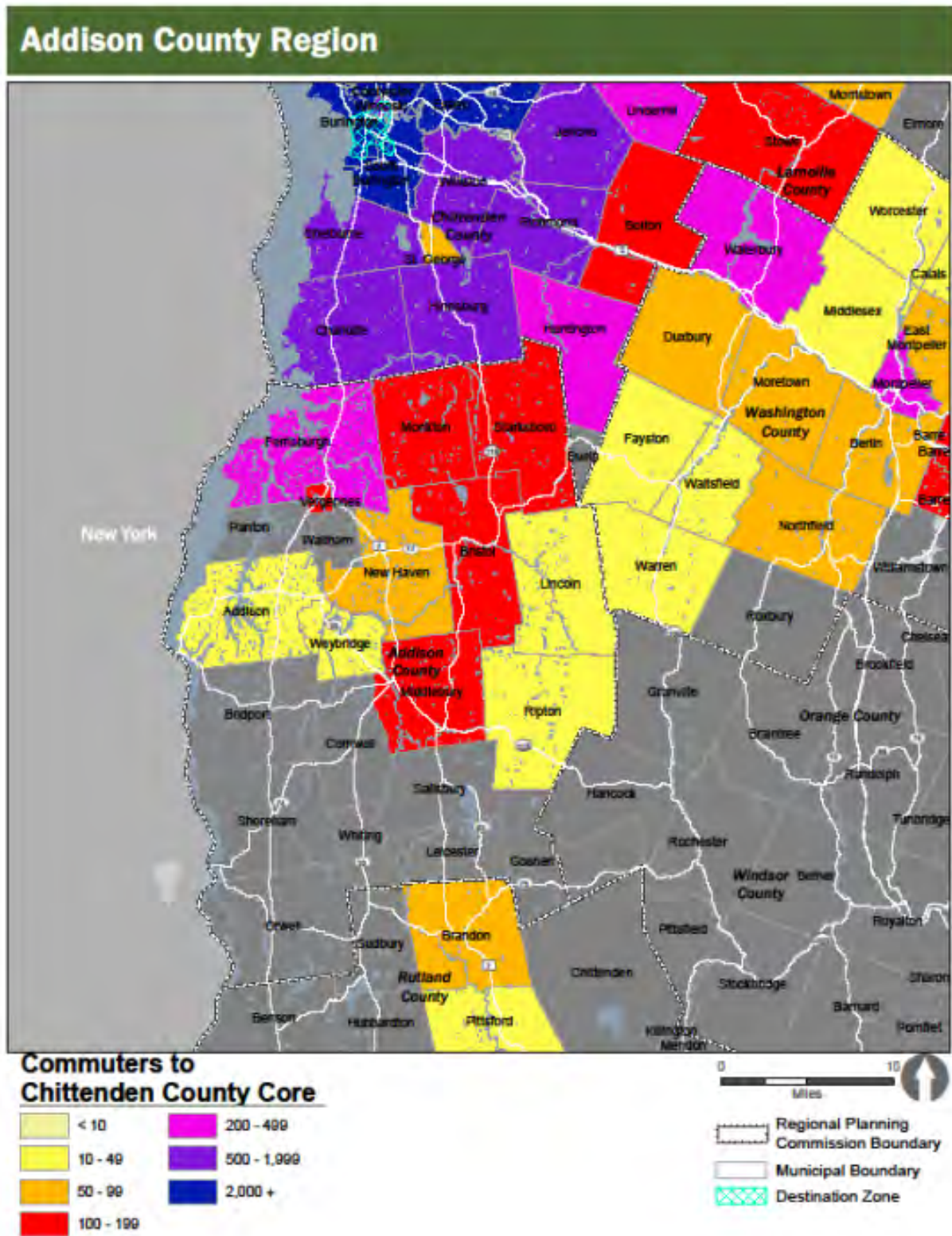
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Figure 4: Daily Commuters to Burlington Area from Addison County

Demographic Overview

This section presents an overview of the demographic characteristics of Addison County and summarizes the location and density of the general population of the county and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for Addison County as of 2016, compared to Vermont as a whole.

Table 2: Demographic Characteristics of Addison County, 2012-2016

	Addison County	Vermont
Total population	36,297	626,249
Population density	54 persons per square mile	68 persons per square mile
Population age 60 and over	25%	24%
Population age 80 and over	4%	4.3%
Residents living below poverty line	8.6%	11.6%

Source: American Community Survey 5-year Average 2012-2016

Nearly 6% of the state's population in 2016 lived in Addison County. The county is not as densely populated as Vermont overall, at 54 people per square mile. The county has roughly the same percentages of the population over age 60 and over age 80 as the state as a whole, at 25% and 4%, respectively. The percentage of the county's residents living in poverty is smaller than the state overall, at just under 9%. This is the second lowest percentage of impoverished residents among the state's eleven planning regions.
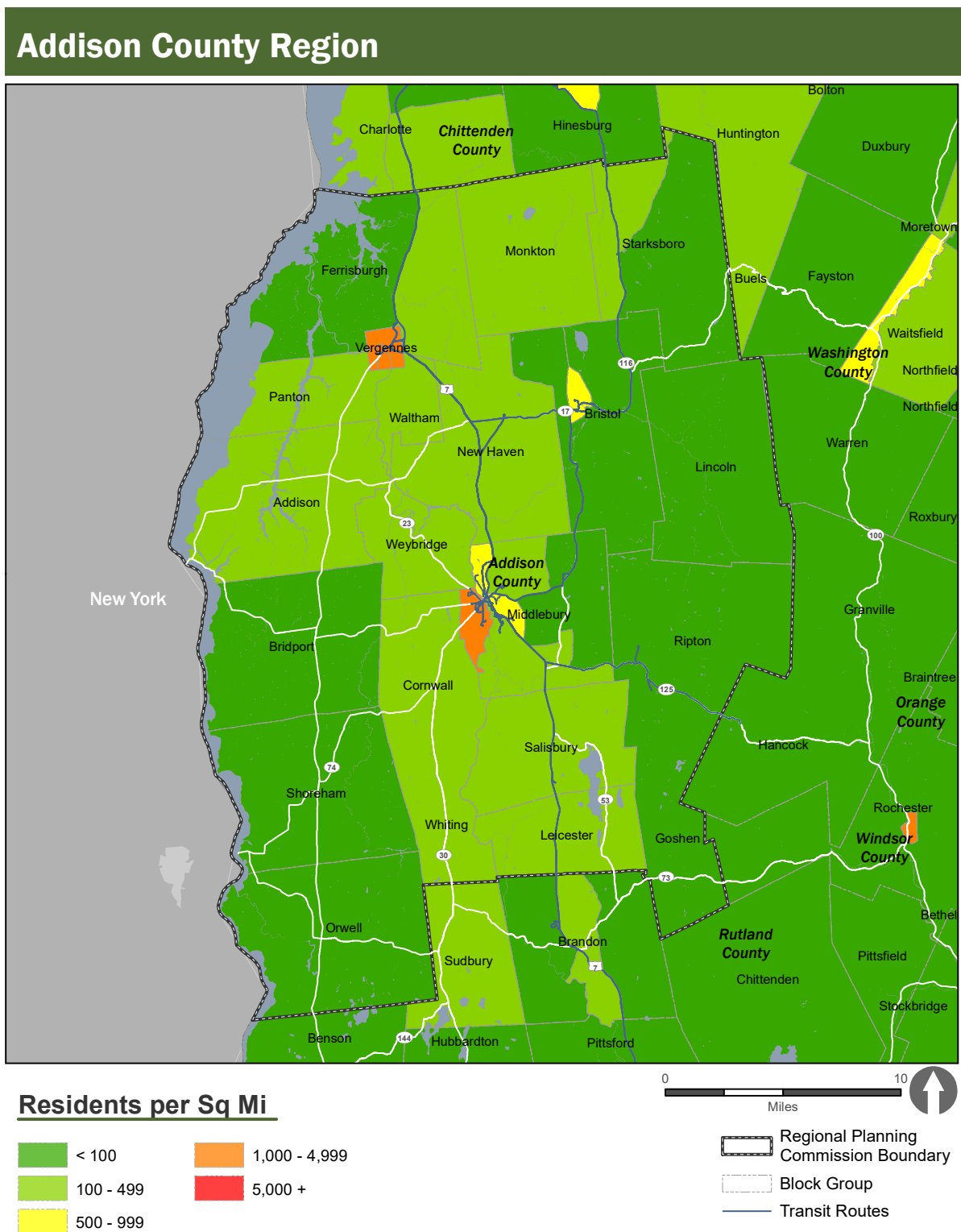
Population Density

Figure 5 shows the concentration of the population in Addison County. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The highest number of residents per square mile is found in the moderately dense communities of Middlebury and Vergennes. Low levels of density are found in Bristol and East Middlebury. The rest of the county is populated at a level of density generally considered to be rural.

Figure 5: Population Density in Addison County, 2017

Market Segments and Transit Propensity

Groups that are likely to need transit services because they do not drive, for reasons of disability, income, or choice, include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Figure 6 through Figure 8 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Rutland County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 6 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in Addison County communities. The focus in Figure 6 is on this older age group because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

The highest number of the oldest adults—between 250 and 500 people—live in Middlebury and Vergennes. Adults age 80 and over make up a percentage of the total populations of those towns that is up to twice the statewide average. Very small numbers of individuals over 80 are found in other communities.

People with Disabilities

Figure 7 shows the number and percentage of people with disabilities, as compared to the statewide average, in Addison County communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

The highest number of people with disabilities is found in Middlebury, Vergennes, and Bristol. Between 750 and 1,000 individuals with a disability live in each of those towns, at a percentage of total population that is up to twice the statewide average.

Auto Ownership

The number and percentage of households in Addison County towns with limited access to an auto in 2012-2016 are shown in Figure 8. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

The largest number of households with limited auto access are located in Middlebury, Vergennes, and Bristol, between 500 and 1,000 households in each town.

Addison County Region

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- ○ 1
- ○ 250
- ○ 500
- ○ 750
- ○ 1,000

- Regional Planning Commission Boundary
- Municipal Boundary
- Urban Areas

0 — 10 Miles

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Addison County Region

% of Population with a Disability

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 2x - 3x Average

VT Average = 14.0%

Total Population with a Disability

- ○ 1
- ○ 750
- ○ 1,500
- ○ 2,250
- ○ 3,000

0 — 10 Miles

☐ Regional Planning Commission Boundary
☐ Municipal Boundary
☐ Urban Areas

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Addison County Region

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- ∘ 1
- ○ 500
- ○ 1,000
- ○ 1,500
- ○ 2,000

Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

0   10
Miles

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Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 9 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

As shown in Figure 9, the highest propensity—in the Moderate range—is found in portions of Middlebury and Vergennes.

Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held in Middlebury on October 30, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps
- There are no transit services on the western corridor of the county. Agencies are struggling to match services to the need. Tying service to Champlain Bridge/New York commuters might make it viable.
- Resource limitations prevent ACTR and Tri-Valley Transit from expanding into additional communities or addressing other new service priorities. For example, service on Route 125 from Vergennes and Middlebury into the southern parts of the country and service to the Champlain Bridge have been considered.
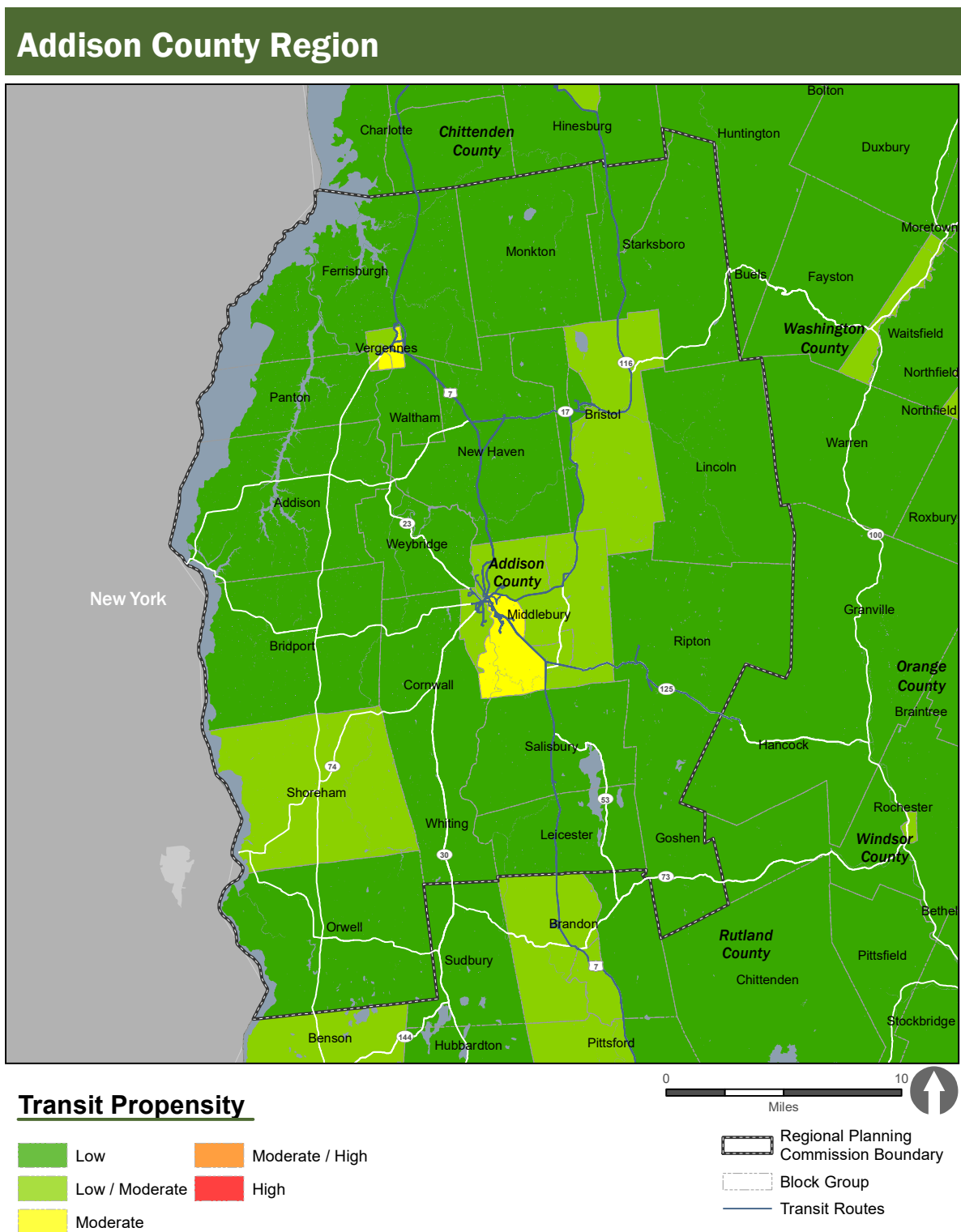
Temporal Gaps
- The Route 116 Commuter and Burlington LINK are successful, but schedule may be too infrequent, and span of service does not align with 12-hour shifts. There have been requests for more trips to accommodate hospital and college shifts.
- A top priority is midday service to Burlington. Right now volunteer dial-a-ride service is filling this gap.
- Most service comes ends at 6:30 p.m., and after 5:30 buses are fairly empty. Ridership does not reflect a gap in service for more late evening and night service. ACTR scaled back late-night trips to Burlington because the bus was completing the run empty.
- Weekend service – ACTR has received some requests for Sunday service and Tri-Town shuttle service to Bristol on Saturday.
- Third shift workers can't use transit. Even first shift workers have to leave very early to get to jobs in Burlington.
- Vermont Translines schedule does not connect well with the Burlington Airport. Last arrival is after the last planes have left and the first departure is before the first flight.

Trip Type Gaps
- People who don't qualify for ACTR demand response service have limited service to Burlington, and the timing requires the non-work users to spend all day in Burlington because of the lack of midday service.
- Clinic trips are at capacity. ACTR could add 10 more volunteer riders (40 currently) just to meet demand.

Addison County Region

Transit Propensity

- Low
- Low / Moderate
- Moderate
- Moderate / High
- High

Regional Planning Commission Boundary

Block Group

Transit Routes

0   10

Miles

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Accessibility Needs
▶ Deviated fixed-route service helps fill the gap for people with mobility issues. All services deviate up to 1/2 mile except for the 116 Commuter.

Information Gaps
▶ Available services are not visible enough to potential users.
▶ Go! Vermont: Dial-a-Ride information on the website is focused on recruiting volunteers. There is not easy-to-find information for dial-a-ride customers.

Affordability Gaps
▶ Finding matching funds for state and federal grants is a challenge for transportation providers.

Technology Challenges
▶ Most riders have smartphones. Human services agencies provide them to individuals that cannot afford them.
▶ The most in-demand technology is real-time arrival information.
▶ Cell service gaps are problems in certain areas, but not to Tri-Valley Transit operations beyond the Snowbowl route.

Other Comments
▶ Poverty is still a major issue in the region, even in Middlebury.
▶ People need a good place to live, a place to work, and a connection between those two places. As a region we want to understand if we need to develop more local employment opportunities. Workforce development is important.
▶ There are 2nd and 3rd shift job opportunities in Chittenden County that Addison County residents could take advantage of if they could get there.
▶ Service needs to be sustainable and consistent over time to be feasible.
▶ Methadone clinics are important destinations to consider. One such is the medication-assisted treatment facility in Bristol.
▶ Taxi service has not been consistent in the region.
  – Taxi providers are expensive and not well known
  – Uber and Lyft service is limited. Only one driver is known to provide these services, but does so on a part-time basis.

Potential Solutions
When asked to rank potential service improvements, forum participants most often chose the options listed below.

Information
▶ One-call/one-click option for trip planning
▶ Centralized transportation information

Service Enhancements
▶ Expand service areas
▶ Expand service hours

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- Introduce more out of region transit service (tie with #2)
- Flexible voucher program
- Rider trip banks or trip accounts.

Accessibility Improvements
- Sidewalks or curb cuts
- Bus shelters

Technology
- Mobile information, reservations, and real-time information

Other comments regarding potential solutions to transportation problems included the following:

- Make using transit service "cool" and appealing to all potential riders
- Close some of the schools and turn them into senior centers. Support development of compact village centers that are the most accessible to residents.
- Relate transit priorities to the ongoing development of village centers and downtowns. Connect transportation and land-use decisions.
- Bike-ped community would bike to transit if they had better roads and parking for bikes. Add priority to connect to a multi-modal system.
- If we limit the discussion of transit to talk only about high-needs groups, you miss that this is about improving transportation for all. Shouldn't want transit to be a charitable service, but something that everyone uses.

Comments from the Addison County E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including Addison County. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

Services in Addison County that are supported with E&D program funds are provided by ACTR and one of the four partner organizations. They include demand response services and rides provided by volunteer drivers. Age Well, Home Health and Hospice, ESI, and Counseling Service of Addison County are the four partner organizations. ESI delivers Medicaid and E&D trips using vans obtained through ACTR. ESI's van services are supplemented with ACTR volunteer driver trips.

Comments regarding transportation needs and service gaps include the following:

- Much of the E&D service in the county is provided by volunteer drivers. ACTR currently has about 30 active drivers; however, 40 volunteers would be a more comfortable number. Recruitment and retention of drivers is the biggest issue in the region at present. ACTR recently hired a volunteer coordinator to focus on management of the volunteer network.

▸ Partners are interested in ways to deliver volunteer rides more efficiently by grouping trips when possible. Other potential coordination efforts include encouraging or requiring use of fixed route services for some trips and taking advantage of other resources, such as Age Well volunteers who shop for clients and a delivery service offered by Kinney's Drugs, which will deliver prescriptions, groceries, and other items to meal sites.

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

A summary of desired trip origin/destination pairs is provided elsewhere in the PTPP. Forty-five residents of Addison County commented on their desired trips. Several identified locations out of state to which they would like to travel, including Boston and other locations in Massachusetts, New York City, and Montreal. More often, respondents from Middlebury, Vergennes, Salisbury, and Bristol identified Middlebury, Burlington, Montpelier, Cornwall, Monkton, and Bristol Village as locations to which they would like to take transit services.

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable
- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving
- Other

Of the 82 responses to this question from Addison County, 76% were in the top four categories: more service near my home (17%), more service to my destinations (16%), more frequent service (24%) and service in the evenings and/or weekends (20%).

Summary of Transit Service Gaps and Needs

The information presented above about Addison County's demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for the Addison County region.

Geographic Service Gaps

ACTR fixed route service provides extensive coverage in the towns of Middlebury, Vergennes, and Bristol. It also connects the communities of Middlebury, Vergennes, Ferrisburgh, Bristol, Starksboro, New Haven, Brandon, Salisbury, and Leicester with Rutland City and/or Burlington with limited trips during peak hours.

Seasonal service is provided between Middlebury, East Middlebury, and Ripton. Most of the county's population, including concentrations of likely transit users, and key destinations are served by ACTR's fixed routes. Deviations of up ½ mile (1/4 mile on some routes) from fixed routes provide coverage for people with disabilities and others who need or desire a door-to-door trip.

Communities within Addison County that are not covered by ACTR fixed routes include most of those on the eastern and western edges of the county:

- Much of Starksboro
- Lincoln
- Much of Ripton
- Goshen
- Granville
- Whiting
- Cornwall

- Waybridge
- Waltham
- Panton
- Addison
- Bridport
- Shoreham
- Orwell

Residents of those communities, while relatively few in number, have limited public transit service options, if any, available to them. Survey responses identified "more service near my home" and "service to my desired destinations" as transit improvements that would make the respondents more willing to use public transportation.

While many employers are located on or near fixed routes, there are a number of smaller employers, with fewer than 100 employees, scattered throughout the county.

The only large employer that may not be served by an ACTR route is located in New Haven. The 116 Commuter seems to operate close to that location but may not provide direct service.

Temporal Service Gaps

ACTR's Middlebury and Tri-Town Shuttle buses provide most of the local transit service in the county. ACTR reports that later evening service has not been well utilized in the past. Service frequencies on those routes of 30 minutes peak/60 minutes off-peak in Middlebury and 70 minutes all day on the Tri-Town Shuttle are reasonable. ACTR has received requests for Sunday service, and Saturday service on the Tri-Town Shuttle.

Commuter routes—the 116 Commuter and the Burlington LINK—offer very limited trips during peak hours only. Comments from regional forum participants and MetroQuest survey respondents note that schedules are not useful for employees with 12-hour shifts. Lack of mid-day service on the Burlington LINK makes travel to Burlington for appointments very inconvenient, as riders must spend the entire day in Burlington before the trip home.

Gaps for Specific Rider Groups/Trip Types

Access to jobs has been identified as an important issue for Addison County. Employment opportunities for those who seek them are available in Chittenden County, but include 2nd ad 3rd shift jobs. This presents both a geographic and temporal transportation challenge for job-seekers.

Other Gaps

The success of ACTR's Dial-A-Ride service is dependent on having a sufficient number of volunteer drivers to provide rides. Currently, the number of active volunteers is below comfortable levels.

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Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in Addison County in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

Table 3: Estimated Transit Market Segments, Addison County, 2017

Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	6,094
Young adult (18-24), employed/student	X (by choice)	4,735
Adult (25-64)		15,262
Adult (25-64), below poverty line	X	694
People with disabilities (under age 80)	X	4,278
Younger seniors (65-79)		3,705
Older seniors (80+)	X	1,447
Total		36,215

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In Addison County, market segments that are likely to have limited or no access to a car make up 48% of the population.

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for Addison County on the various transit sub-markets in the region.

Many gaps are broad enough to affect all market segments. These include travel challenges or needs related to:

▶ Geographic coverage
▶ Accessibility, which can include access to bus stops for all potential riders, not just those with disabilities
▶ Information about transit options
▶ Technology to make use of transit service more convenient

Other gaps are applicable to all but the youngest and oldest market segments because they deal with access to jobs or other types of trips those segments are not likely to make.

Finally, some gaps are specific to certain market segments. For example, only older adults and people with disabilities are affected by funding constraints in the E&D transportation program that can limit numbers or trip types.

Table 4: Gap Analysis by Transit Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	X	X (by choice)		X	X		X
Geographic Gaps							
Rural communities on the eastern and western sides of the county lack transit options	X	X	X	X	X	X	X
Employers in some communities are not served by transit		X	X	X	X		
Temporal Gaps							
Saturday service is available only on Middlebury Shuttle Bus routes.		X	X	X	X	X	
Regional routes operate more limited hours. Midday service to Burlington identified as a need.		X	X	X	X	X	X
No Sunday service is available.		X	X	X	X	X	
Trip Type Gaps							
Access to jobs identified as a need. Opportunities are located outside of Addison County and/or during 2nd and 3rd shifts.		X	X	X	X	X	
ACTR's Dial-A-Ride service needs more volunteer drivers for E&D and other types of trips.	X			X	X	X	X
Accessibility Needs							
Sidewalks, curb cuts, or bus shelters may be lacking.	X	X	X	X	X	X	X
Technology Challenges							
"Where's my bus" app is a high priority for riders.	X	X	X	X	X	X	
Information Gaps							
Individuals may not be aware of the service options that are available to them	X	X	X	X	X	X	X
Affordability Issues							
Not identified as an issue in this region.							

Appendix D – Southwest Region Analysis

Contents

List of Figures

Transit service gaps and needs and estimates of the resources needed to improve transit services in the Bennington County (Southwest) region are discussed below. Note that while most of the towns and villages in Bennington County are included in the Bennington County Regional Commission (BCRC) service area, several are part of the Windham Regional Commission (WRC) service area and are not discussed here.

Overview of Existing Services

Fixed Route Services

Green Mountain Community Network (GMCN) operates local and regional fixed routes in the Bennington area branded as the Green Mountain Express (GMX).

The Blue, Red, Green, and Brown routes provide local service within the town of Bennington, focusing on key destinations such as Southwestern Vermont Medical Center and other health care facilities, two colleges, shopping areas, and employers. The Blue and Red routes operate from roughly 8:00 a.m. to 6:00 p.m. on weekdays, every 30 minutes. The Brown Route serves North Bennington, Southern Vermont College, and Bennington College with 5-6 round trips, two of which are seasonal and operate from late August through mid-June, on weekdays. Saturday service between downtown, Southwestern VT Medical Center, shopping areas, and the colleges is provided on the Green and Light Green routes, which operate between 11:00 a.m. and 5:00 p.m.

Regional GMX service connects the town of Bennington with other communities. The Orange, Emerald, and Purple routes each operate 4-6 round trips on weekdays; the Orange route to Manchester also operates two round trips on Saturday. Marble Valley Regional Transit District's Manchester to Rutland route offers four round trips Monday through Saturday, connecting with the Orange Line. The Emerald route provides service to Wilmington and, through connections with Southeast Vermont Transit's MOOver Bus 10, to Brattleboro. The Purple route connects the town of Bennington and Williamstown, MA through Pownal, VT.

All fixed routes deviate up to ¼ of a mile for pickups and drop-offs; deviations are scheduled a day in advance.

Dial-A-Ride and Other Services

GMCN also provides demand response service for eligible participants in human service program such as Medicaid (GMCN also serves Windham County), Reach Up, and Fair Hearing, and for individuals who are eligible for trips under the Elders and Persons with Disabilities (E&D) transportation program. Trips are provided on GMCN vehicles and by volunteer drivers. The E&D program serves older adults and people with disabilities in Bennington County as well as clients of GMCN's E&D partners: United Counseling Services (UCS), Bennington Project Independence (BPI), Southwestern Vermont Council on Aging (SVCOA), and Vermont Association for the Blind and Visually Impaired (VABVI). All partner organizations also operate services for their clients directly, coordinating with GMCN to avoid overlap.

Bennington College operates a shuttle service during the school year for students, faculty, and staff. Service is tailored to the specific needs of the college community. It operates within an eight-mile radius of the campus and provides service to Williamstown, MA on weekends.

Private intercity bus carriers that serve Bennington County include:

- Vermont Translines service on U.S. 7 between Burlington and Albany (one daily trip)
- Shires Connector from Manchester to Albany (two daily round trips)
- Yankee Trails service from Bennington to Albany (two weekday round trips)

Four taxi companies offer service within the county.

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following communities:

- Bennington
- Manchester

Some of those key destinations are shown in Figure 1 (more detail can be found on the route maps posted on the GMCN website, http://greenmtncn.org/schedule.html). GMX bus routes serve many local and regional destinations.

Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the county.

The highest concentration of employers is in and around the town of Bennington; Manchester also has a significant cluster of employers.

Large employers, with 100 or more employees, are located in Bennington, Manchester, and Arlington. A few smaller employers, with fewer than 100 employees, are scattered throughout the more rural towns.

Large employers that do not appear to be served directly by transit routes are located in Bennington, Manchester, Shaftsbury, Dorset, and Peru.
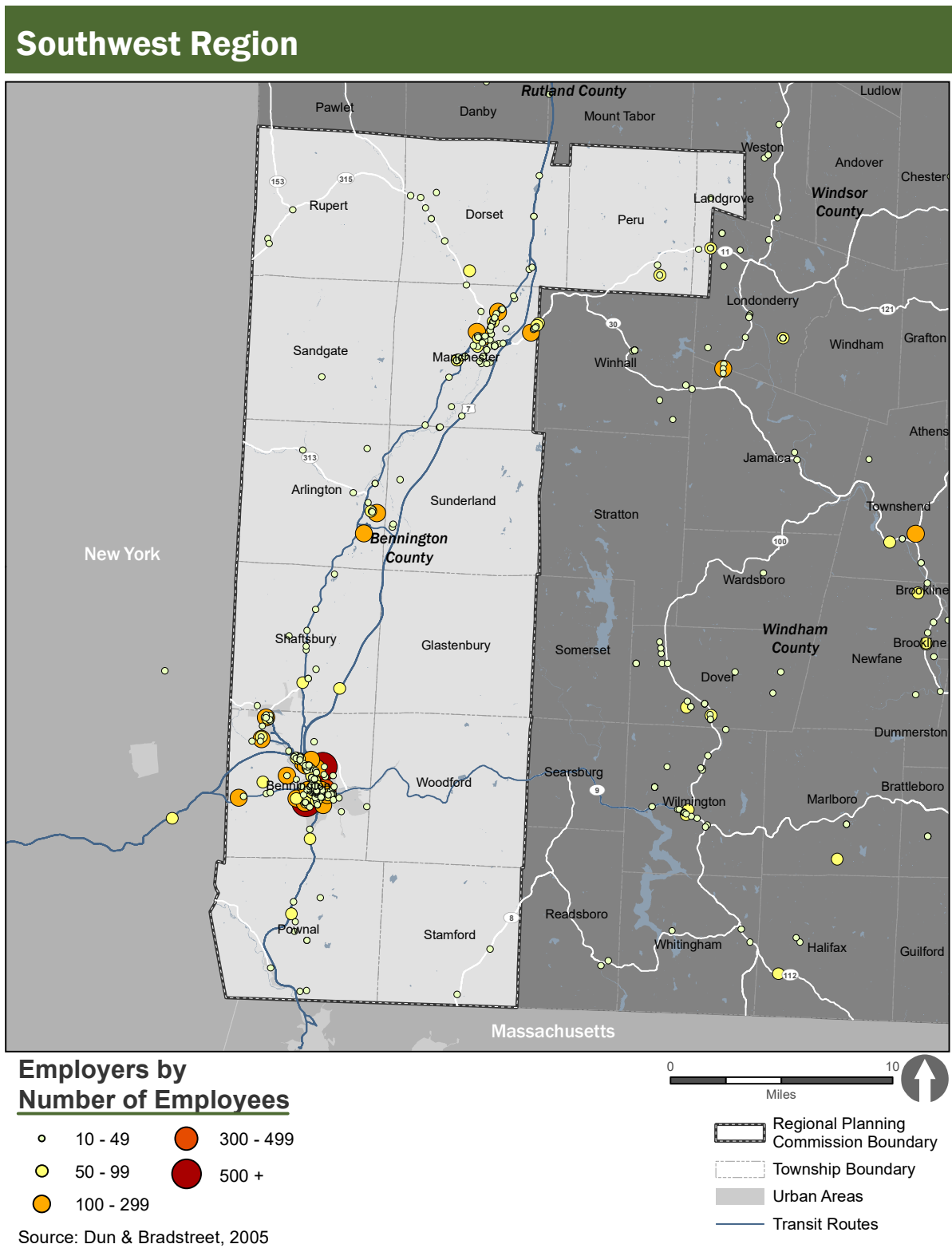
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Southwest Region
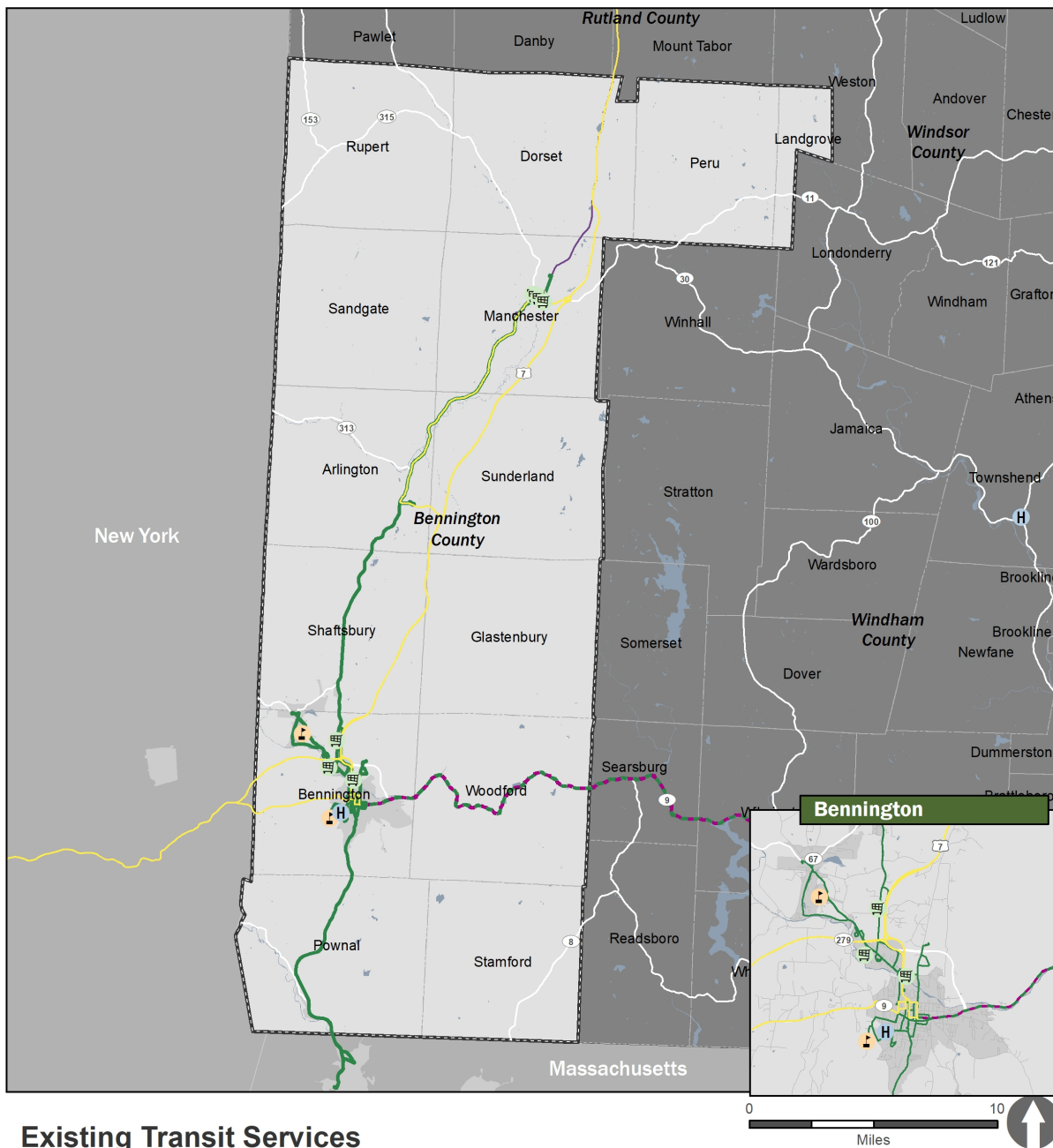
Existing Transit Services

— Green Mtn. Express
— GMX / MOOver
— Marble Valley RTD
— Vermont Translines

+ Veterans Affairs Center
🏛 Social Security Office
H Hospital
Higher Education
🛒 Retail Center

☐ Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

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Southwest Region

Employers by Number of Employees

- ○ 10 - 49
- ○ 50 - 99
- ○ 100 - 299
- ● 300 - 499
- ● 500 +

Source: Dun & Bradstreet, 2005

0 — Miles — 10

▭ Regional Planning Commission Boundary

▭ Township Boundary

▨ Urban Areas

— Transit Routes

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Commuting Patterns

Table 1 presents an overview of where Bennington County residents work and where individuals who are employed in Bennington County live.

Table 1: Employment in Bennington County, 2015

Employment	Number	Percent of Total Bennington County Employment	Percent of Total Employed Bennington County Residents
Workers in Bennington County			
Total Employees in Bennington County	16,459	100%	
Bennington County Residents Employed in Bennington County	9.512	58%	
Residents of Other Areas Working in Bennington County	6,947	42%	
Residents of Other Vermont Counties	3.134	19%	
Residents of Other States	3,813	23%	
Residents of Bennington County			
Total Employed Bennington County Residents	14,507		100%
Bennington County Residents Employed in Bennington County	9,512		66%
Bennington County Residents Employed in Other Areas	4,995		34%
Working in Other Vermont Counties	3,254		22%
Working in Other States	1,741		12%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Nearly 60% of all those employed in Bennington County live in the county. Of the 42% of employees who live outside of the county, 19% are residents of other Vermont counties, including Rutland, Windham, Windsor, Chittenden, Addison, and Washington counties. Twenty-three percent of Bennington County employees live in other states, particularly New York, Massachusetts, and New Hampshire.

Sixty-six percent of the 14, 507 Bennington County residents who are employed also work in the county. Twenty-two percent of employed county residents work in other Vermont counties, including Rutland, Windham, Chittenden, Windsor, and Washington counties. The remaining 12% of employed Bennington County residents work in New York, New Hampshire, Massachusetts, and other states.

Figure 3 illustrates the daily commuting travel flows into the town of Bennington at the town level.

Most commuters to Bennington come from within the town, Shaftsbury, Pownal, and towns in Rensselaer and Washington counties, NY. Significant numbers of daily commuters are drawn from those New York communities.

Daily commuting trips from other towns to Manchester are shown in Figure 4. While most trips originate in Manchester and adjacent towns, commuters are drawn from the town of Bennington and a number of Rutland County communities. Relatively small numbers of commuters to Manchester originate in eastern Vermont.

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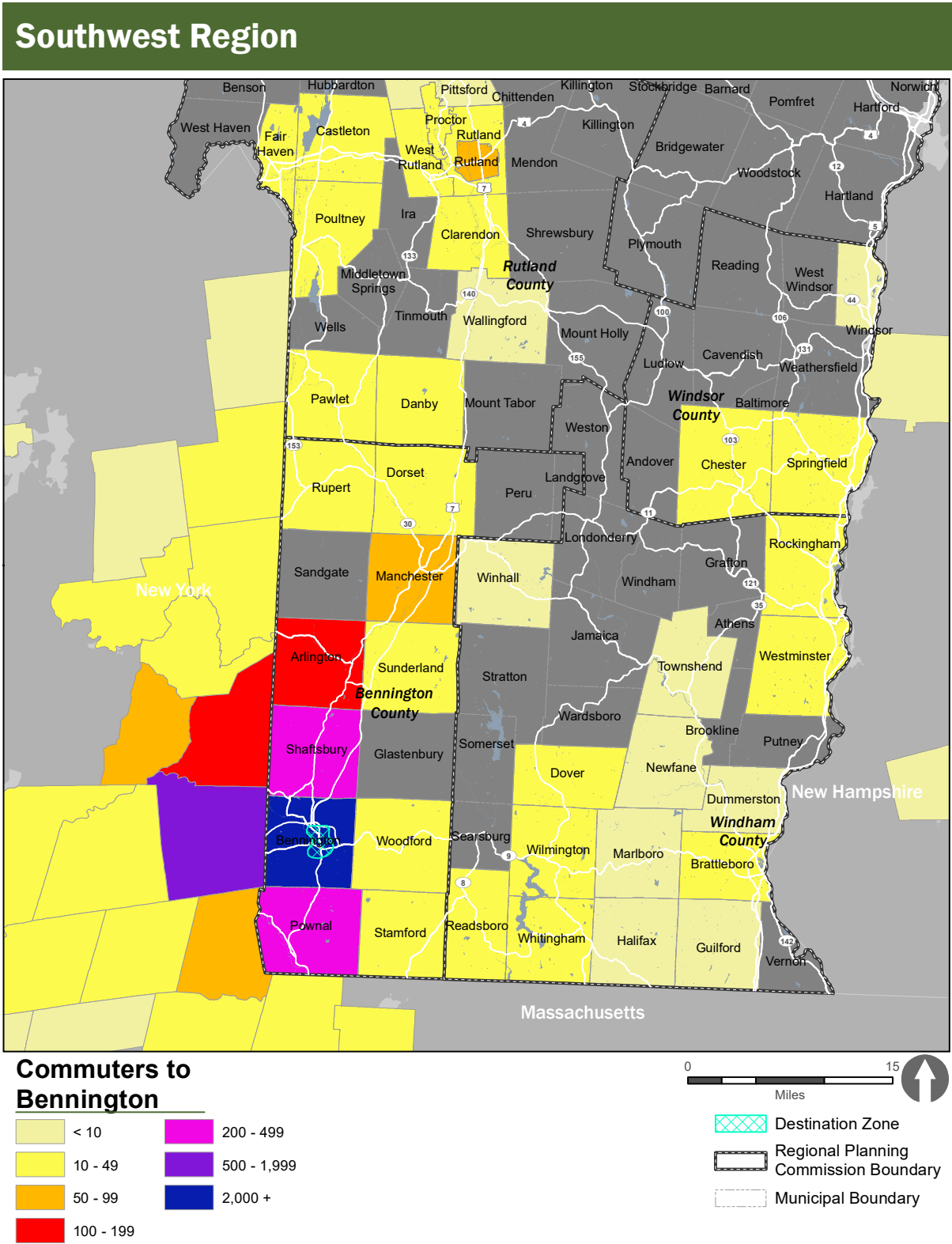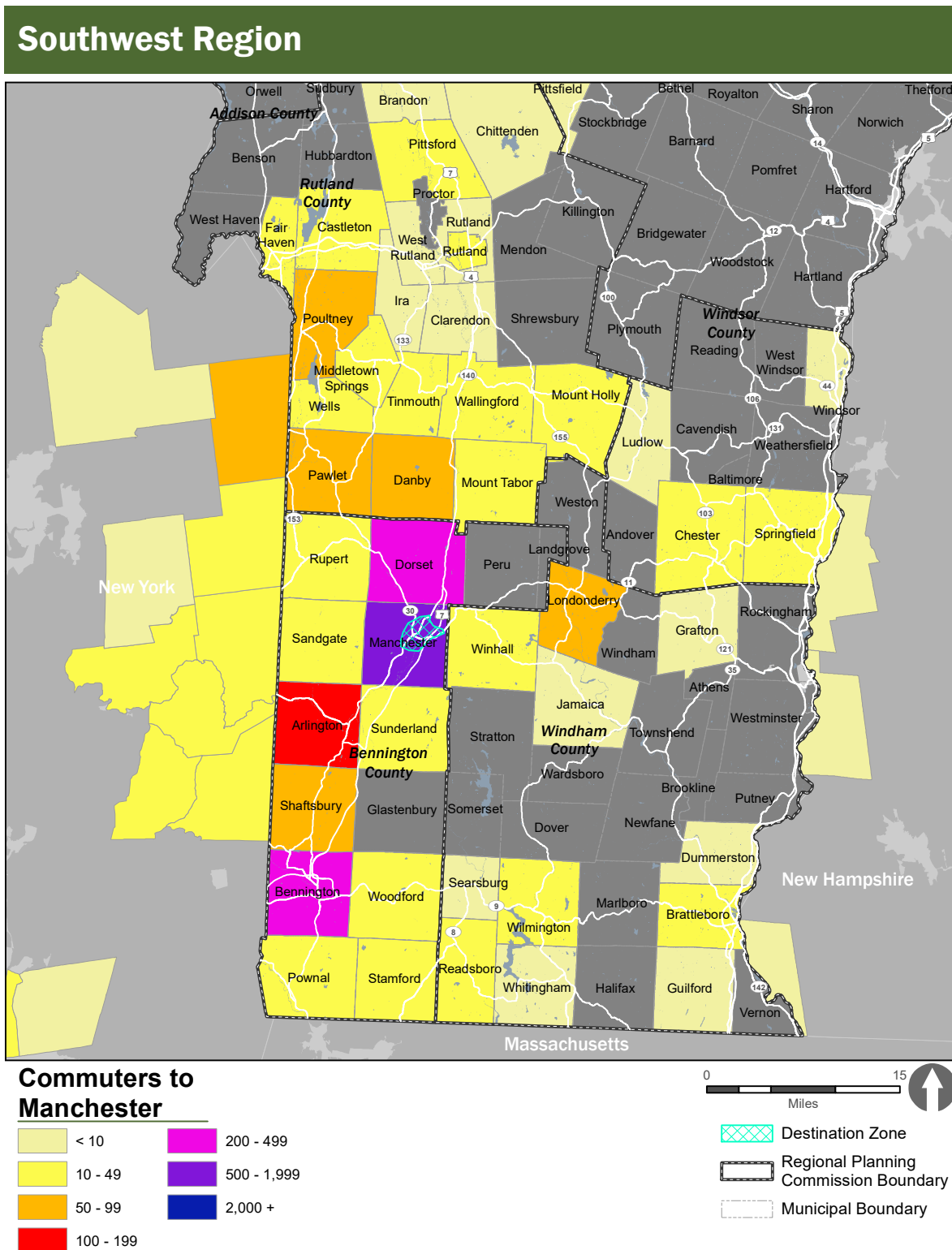Figure 3: Daily Commuters to Bennington Town

Figure 4: Daily Commuters to Manchester

Demographic Overview

This section presents an overview of the demographic characteristics of Bennington County and summarizes the location and density of the general population of the county and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for Bennington County as of 2016, as compared to Vermont as a whole.

Table 2: Demographic Characteristics of Bennington County, 2012-2016

	Bennington County	Vermont
Total population	34,999	626,249
Population density	61 persons per square mile	68 persons per square mile
Population age 60 and over	28%	24%
Population age 80 and over	5.8%	4.3%
Residents living below poverty line	13.4%	11.6%

Source: American Community Survey 5-year Average 2012-2016

With 35.000 residents, Bennington County contained 5.6% of Vermont's population in 2016. The county is slightly less densely populated than the state as a whole, at 61 people per square mile. Nearly one-third of the county's population are age 60 and over. Nearly 6% of residents are age 80 and over, the second highest percentage of older seniors in the state. Over 13% of the county's residents are living in poverty, as compared to 12% of the state's residents. This is the third highest level of poverty in the state.

Population Density

Figure 5 shows the concentration of the population in Bennington County. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The highest level of density is found in the town of Bennington, especially in the downtown area. The rest of the town and Arlington show moderate levels of density. Other communities in the county have a population density that can be considered rural.

Market Segments and Transit Propensity

Groups that are likely to need transit services because they do not drive, for reasons of disability, income, or choice, include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Figure 6 through Figure 8 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Rutland County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 6 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in Bennington County communities. The focus in Figure 6 is on this older age group

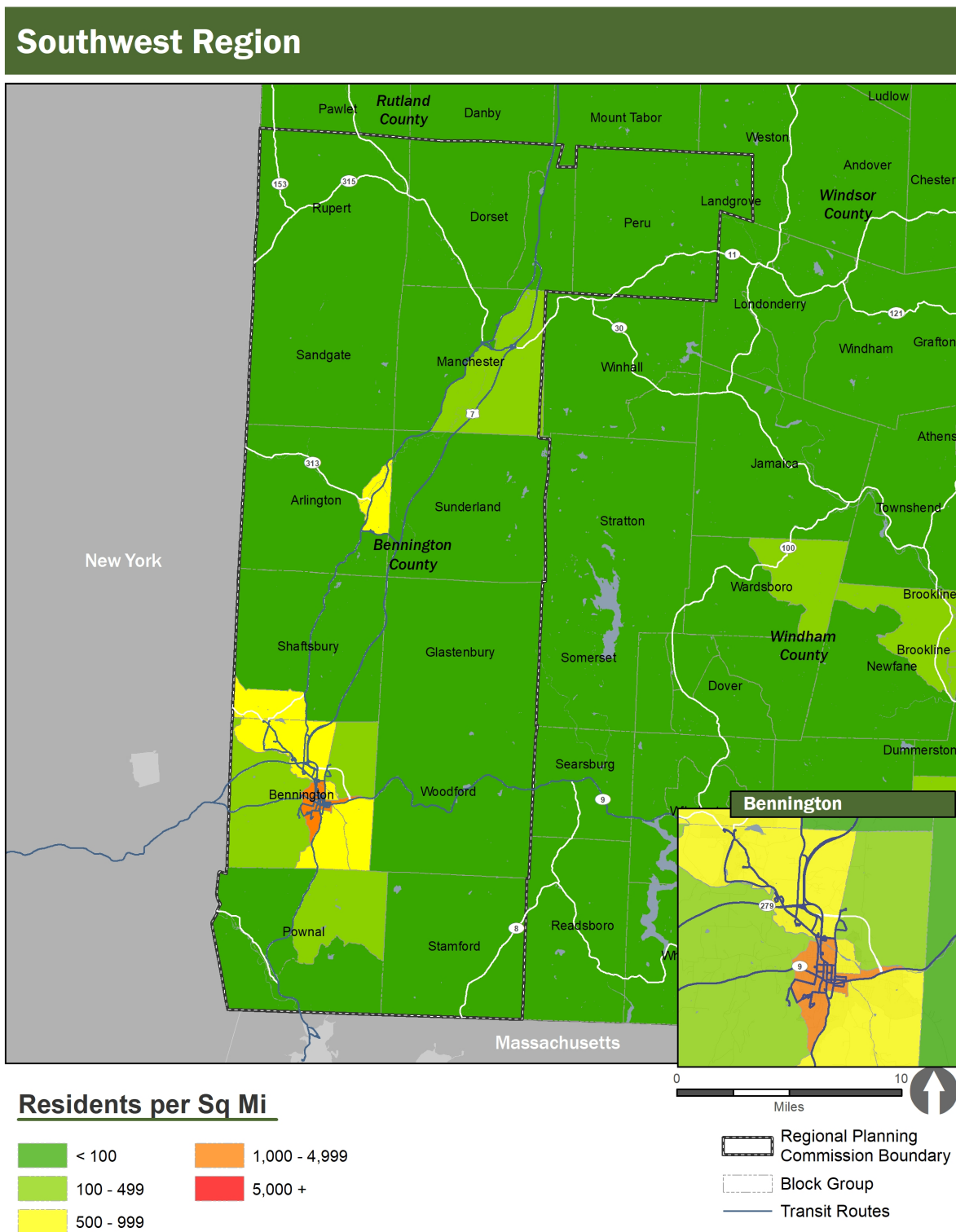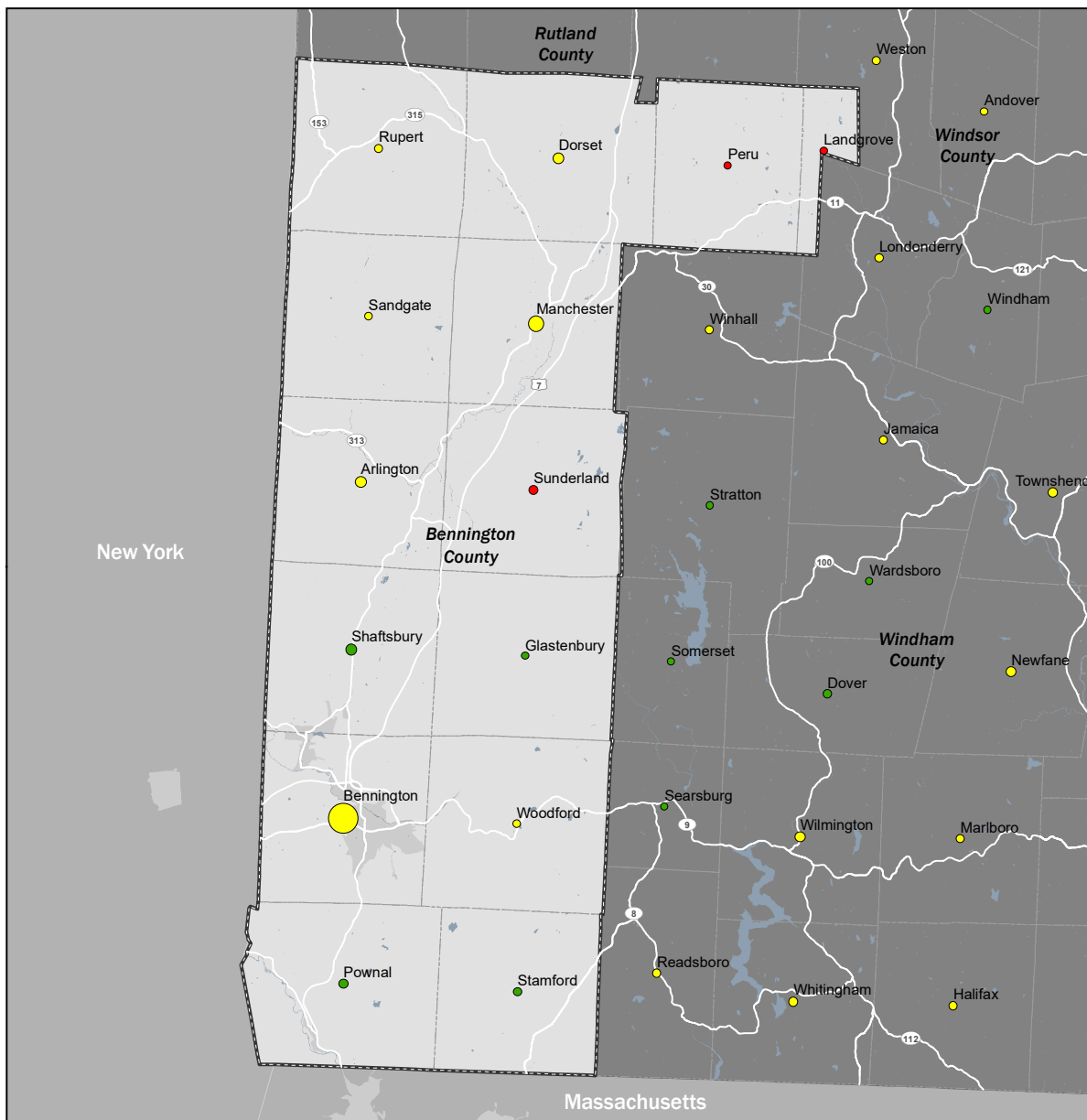Figure 5: Population Density in Bennington County, 2017

Figure 6: Number and Percentage of Adults Age 80 and Over in Bennington County Communities, 2012-2016

Southwest Region

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- ○ 1
- ○ 250
- ○ 500
- ○ 750
- ○ 1,000

0   10
Miles

▭ Regional Planning Commission Boundary

▭ Municipal Boundary

▭ Urban Areas

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because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

The town of Bennington is above the Vermont average in terms of percentage of older seniors; between 750 and 1,000 individuals over age 80 live in the town. The percentage of older seniors in Sunderland, Peru, and Landgrove is more than twice the state average, but the populations in those communities are small in number.

People with Disabilities

Figure 7 shows the number and percentage of people with disabilities, as compared to the statewide average, in Bennington County communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

People with disabilities tend to live in communities on the western side of the county. The largest number—over 2,250 individuals, live in the town of Bennington.

Auto Ownership

The number and percentage of households in Bennington County towns with limited access to an auto in 2012-2016 are shown in Figure 8. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

Bennington is the only town in the county that contains a relatively large number of households with one car or less—between 1,500 and 2,000 households. Bennington and Manchester are above the state average in terms of percentage of households with limited auto access.

Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 9 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

As shown in Figure 9, the highest propensity—in the Moderate to Moderate-High range—is found in the town of Bennington. The towns of Woodford and Glastenbury and parts of Pownal, Arlington, and Manchester show transit propensity in the Low/Moderate range.

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Southwest Region

% of Population with a Disability

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 2x - 3x Average

VT Average = 14.0%

Total Population with a Disability

- ○ 1
- ○ 750
- ○ 1,500
- ○ 2,250
- ○ 3,000

0 ————— 10
Miles
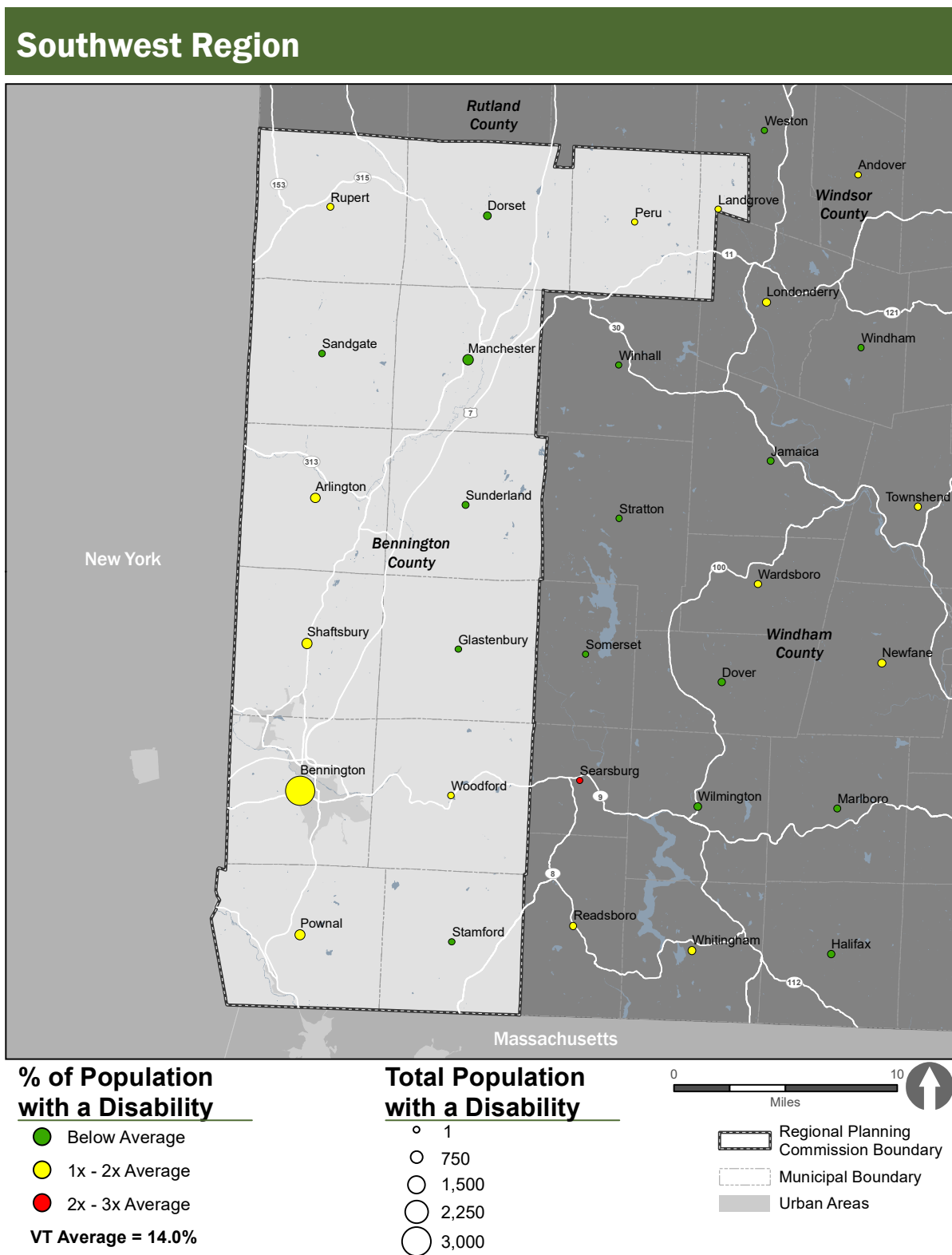
▭ Regional Planning Commission Boundary
▭ Municipal Boundary
▭ Urban Areas

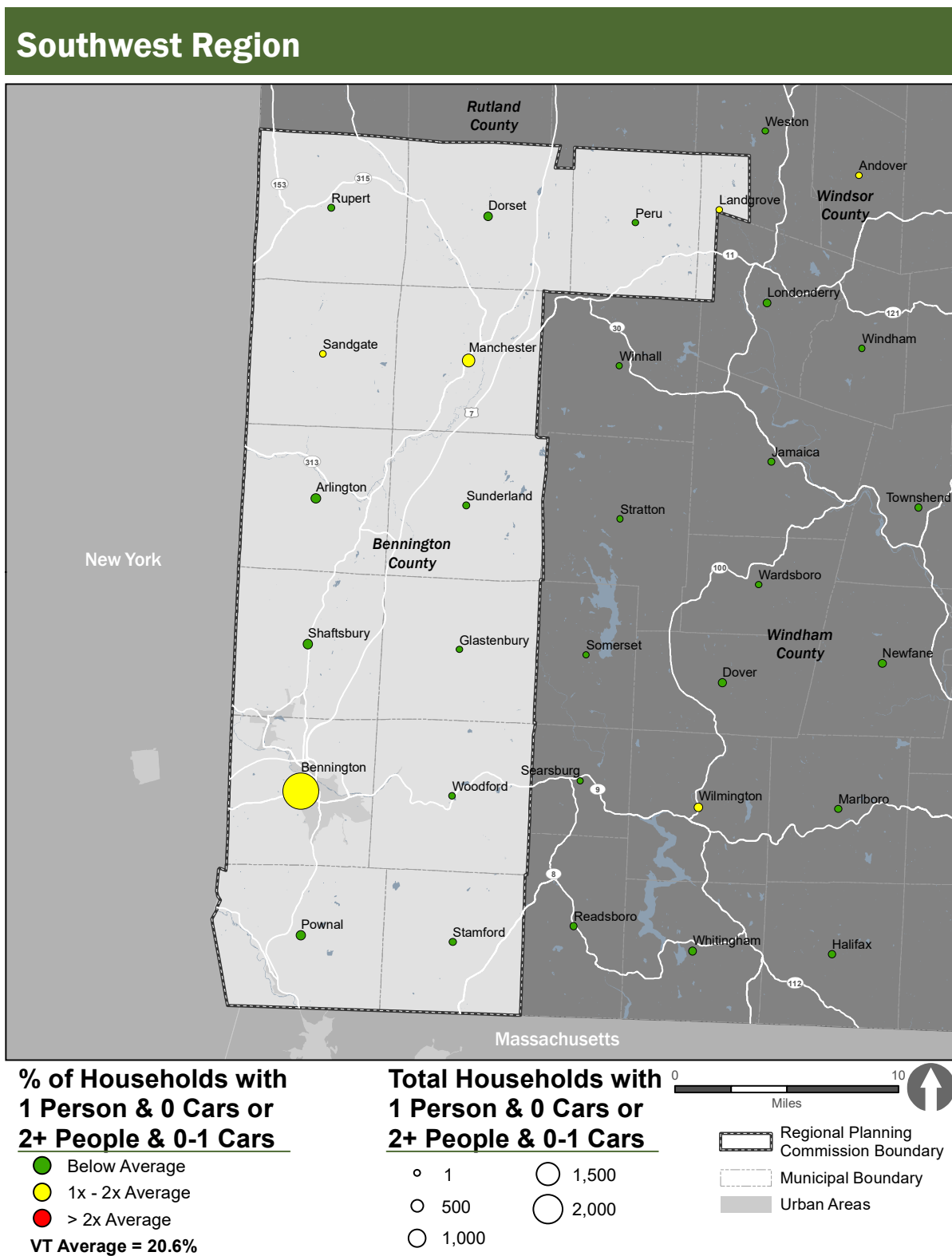*Figure 8: Number and Percentage of Households with Limited Auto Ownership in Bennington County Communities, 2012-2016*

Southwest Region

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars
- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars
- 1
- 500
- 1,000
- 1,500
- 2,000

Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

0   10
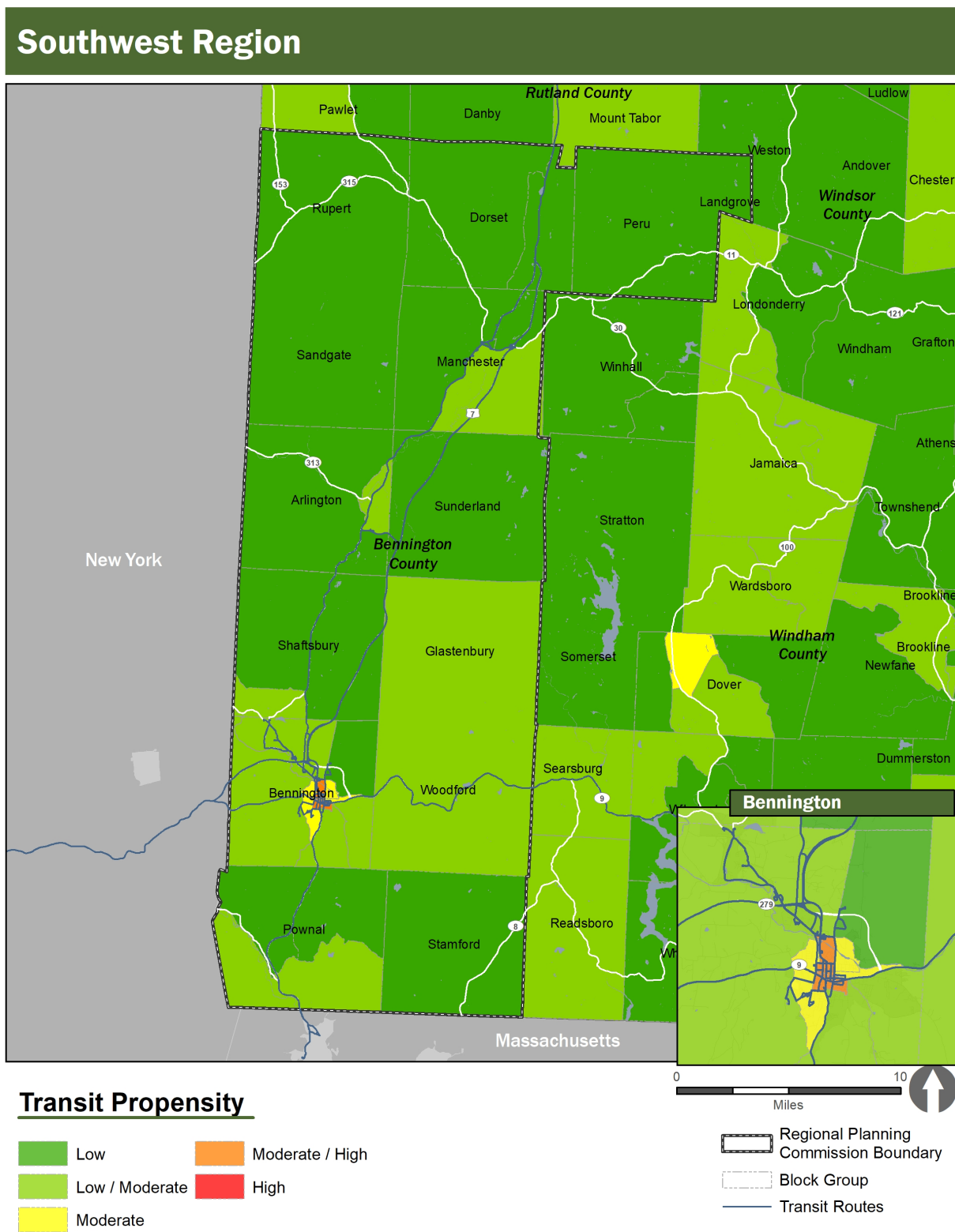Miles

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Figure 9: Transit Propensity Index, Bennington County

Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held in Bennington on December 18, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps and Challenges

▶ Rural areas are hard and expensive to serve with public transportation. Increased access in rural areas is connected to successful aging in place.

▶ First/last-mile issue still needs to be addressed.

▶ Bennington County borders two states—New York and Massachusetts. Looking at challenges and solutions should be done without regard to state lines.

▶ There are currently gaps in the bicycle infrastructure that poses a barrier to bike travel or biking to transit. Bike paths are available in some areas but not others. Interstate rail trails and bike facilities in Watertown, Burlington, and Manchester offer opportunities for expanding the infrastructure. This is also a tourist issue.

▶ A transit option to Montpelier would save many hours for all types of public employees who need to attend meetings in the capital.

▶ Route 7 and Route 9 are major travel corridors; both need a higher level of service.

Temporal Gaps

▶ Evening service until 9 p.m. in Bennington would allow students to patronize stores and restaurants, individuals to attend evening community meetings and events, and workers to use transit home from work in the evening.

▶ There are a number of 24-hour factories operating in the county, as well as the hospital. Employers need workers and employees need a way to travel to 2nd and 3rd shift jobs.

▶ More convenient connections to Montpelier and Burlington—options may be available, but too time-consuming or inconvenient (transfers) to be useful.

▶ Weekend services are needed.

  − People with disabilities would use them for shopping and recreational trips.

▶ More frequent service to Albany to make connections to train service and the airport would be useful.

Trip Type Gaps and Challenges

▶ Access to jobs, especially for people with disabilities, is an issue in this region. The more people who work, the more benefits for the local economy as well as those individuals. In addition, employment leads to economic stability, a social determinant of health.

▶ People with disabilities also need options for shopping and recreational trips.

Accessibility Needs

▶ Taxi vehicles are not wheelchair-accessible. Some large cities have helped taxi providers to acquire accessible vehicles.

▶ Bus stops need to be made more visible with signs and benches/shelters so that people are aware of available services and have convenient and safe places to wait for buses, especially in inclement weather.

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Technology Challenges

▸ Seniors are not likely to use smartphone-based apps.

▸ Something like EZPass is needed to pay for trips—easy to use, stored value, universal across providers.

Affordability Gaps

▸ People with disabilities who are under age 60 sometimes have difficulty with the 20% copay for E&D rides

Other Comments

▸ It shouldn't be necessary to choose between public transit goals; a good transit system should address all areas. Asking for priorities implies that resources are available for addressing only some areas. A different way of looking at the question is to ask, "Can we provide access to destinations and opportunities that doesn't require a car"? Focus on shared issues and barriers.

▸ Home- and community-based services are more cost-effective than institutional settings for seniors and people with disabilities.

▸ Level of service—days and hours of service, frequency, convenience of transfers—can be a barrier to use of public transit.

▸ Taxi service is not always reliable or of high quality. Providers may be concerned about liability when transporting customers with disabilities. It can be costly to use.

▸ One Uber driver, who lives in Albany, is sometimes available for trips in the county. Lyft is trying to enter the market.

Comments from the Bennington County E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including Bennington County. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

Services in Bennington County that are supported with E&D program funds are provided by GMCN and all of the four partner organizations. They include demand response services and rides provided by volunteer drivers for older adults, people with disabilities, and individuals participating in programs and services offered by the partners. United Counseling Services (UCS), Bennington Project Independence (BPI), Southwestern Vermont Council on Aging (SVCOA), and Vermont Association for the Blind and Visually Impaired (VABVI) are the four partner organizations.

Comments regarding transportation needs and service gaps include the following:

▸ Residents of Stamford, on the Massachusetts line and close to North Adams, have few transportation options. GMCN reports that a Shopper's Express route, very popular in Manchester, was not well utilized in Stamford.

▸ Fixed route services are well utilized by E&D partners' clients. Partners, especially UCS, encourage clients to try the bus system and help them learn to use it. In addition, GMCN provides travel training.

The success of the fixed route system may be part of the reason that E&D funds have so far been sufficient to meet the needs of the E&D populations.

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

Forty-one residents of Bennington County towns that are included in the BCRC region commented on their desired trips. Several identified locations out of state to which they would like to travel, including North Adams, MA; Portland, ME; New York City; Albany, and New London, CT. More often, respondents from Arlington, Bennington, Bondville, Dorset, East Dorset, Manchester, Manchester Center, and North Bennington identified destinations in those communities, plus Burlington and Montpelier, as locations to which they would like to take transit services.

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable
- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving
- Other

Of the 60 responses to this question from Bennington County communities included in the BCRC region, 68% were in the top four categories: more service near my home (17%), more service to my destinations (22%), more frequent service (17%) and service in the evenings and/or weekends (13%).

Summary of Transit Service Gaps and Needs

The information presented above about Bennington County's demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for the Bennington County region.

Geographic Service Gaps

GMCN local fixed route service provides extensive coverage of the town of Bennington and connects Bennington with Manchester and Pownal. Regional connections to Wilmington and Brattleboro (Windham County) and Williamstown, MA. Marble Valley Regional Transit District provides service that connects Manchester with Rutland (Rutland County). Except for the Emerald Route that runs from Bennington to Brattleboro (operated in cooperation with SEVT's MOOVer division), routes run in a north-south direction. Fixed route services cover areas that contain most of the county's population and many key

destinations. Deviations of up to ¼ mile from fixed routes provide coverage for people with disabilities and others who need or desire a door-to-door trip.

Communities in which fixed route service does not operate include:

- Stamford
- Glastenbury
- Sunderland
- Dorset
- Peru
- Landgrove
- Rupert

Residents of those communities, and those who live outside of the fixed route service area in other towns, have limited public transit service options, if any, available to them. Survey responses identified "more service near my home" and "service to my desired destinations" as transit improvements that would make the respondents more willing to use public transportation.

First and last mile options were noted as a need in regional forum comments.

Large employers that do not appear to be served directly by transit routes are located in Bennington, Manchester, Shaftsbury, Dorset, and Peru.

Temporal Service Gaps

Two of the GMCN fixed routes in the town of Bennington (Blue and Red routes) operate 10 hours a day on weekdays, with trips every 30 minutes, a very good level of service for a small urban or rural area. However, schedules are not likely to accommodate those who need to travel to work in the early morning or evening hours, on weekends, or for 3rd shifts.

Other routes operate more limited hours and offer fewer trips. The Brown route serving Bennington, North Bennington, and the two colleges operates 5-6 trips on weekdays in some months; two trips are in operation only during the school year. The only Saturday fixed route service available in the county, the Green and Light Green routes, operates for six hours at a frequency of approximately 45 minutes. The three regional routes connecting Bennington and other communities provide 4-6 round trips on weekdays; the Orange route to Manchester also operates two round trips on Saturday.

Comments and survey responses from stakeholders and members of the public expressed the need for service beyond 9:00 p.m. in Bennington, additional hours that would accommodate 2nd and 3rd shift work trips, and weekend service.

Gaps for Specific Rider Groups, Trip Types

Access to jobs was identified as an important issue in Bennington County, particularly for those who work non-traditional hours, such as early morning or evening hours, 3rd shifts, or weekends.

People with disabilities noted the need for more options for shopping and recreational trips.

Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in Bennington County in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

Table 3: Estimated Transit Market Segments, Bennington County, 2017

Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	6,264
Young adult (18-24), employed/student	X (by choice)	3,101
Adult (25-64)		13,005
Adult (25-64), below poverty line	X	1,317
People with disabilities (under age 80)	X	4,800
Younger seniors (65-79)		4,158
Older seniors (80+)	X	1,966
Total		34,612

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In Bennington County, market segments that are likely to have limited or no access to a car make up 50% of the population.

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for Bennington County on the various transit sub-markets in the region.

Many gaps are broad enough to affect all market segments. These include travel challenges or needs related to:

▶ Geographic coverage
▶ Accessibility, which can include access to bus stops for all potential riders, not just those with disabilities
▶ Information about transit options
▶ Technology to make use of transit service more convenient

Other gaps are applicable to all but the youngest and oldest market segments because they deal with access to jobs or other types of trips those segments are not likely to make.

Finally, some gaps are specific to certain market segments. For example, only older adults and people with disabilities are affected by funding constraints in the E&D transportation program that can limit numbers or trip types.

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Table 4: Gap Analysis by Transit Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	X	X (by choice)		X	X		X
Geographic Gaps							
Rural communities lack transit options	X	X	X	X	X	X	X
Employers in some communities are not served by transit		X	X	X	X		
Temporal Gaps							
Fixed route services end at 6:00 pm in Bennington, earlier in other communities		X	X	X	X	X	X
Regional routes operate more limited hours		X	X	X	X	X	X
Saturday service is limited		X	X	X	X	X	X
Trip Type Gaps							
Existing service hours do no accommodate work trips in non-traditional hours		X	X	X	X		
Options for shopping and recreational trips are needed					X		X
Accessibility Needs							
Bus stops need to be made more visible, convenient, and safer	X	X	X	X	X	X	X
Taxi and volunteer driver services, which could provide service during non-transit hours, are not accessible					X		X
Technology Challenges							
Older adults are less likely to use smartphone apps						X	X
Information Gaps							
Not an issue for riders in this region							
Affordability Issues							
20% copay for E&D rides is difficult for some					X	X	X

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Appendix E – Chittenden County Analysis

Contents

List of Figures

TRANSIT SERVICE GAPS AND NEEDS

Transit service gaps and needs and estimates of the resources needed to improve transit services in the region of the Chittenden County Regional Planning Commission (CCRPC), which includes 19 cities, towns, villages, and unincorporated areas in Chittenden County, are discussed below.

Overview of Existing Services

Fixed Route Services

Green Mountain Transit (GMT), formed in 2011 through the merger of Chittenden County Transportation Authority (CCTA) and Green Mountain Transit Agency (GMTA) and renamed GMT in 2016, is the primary provider of transit services in Chittenden County. GMT also operates service in Washington, Lamoille, and Franklin/Grand Isle counties.

As shown in Figure 1, GMT operates several different types of bus service in Chittenden County: l

- ‣ Local routes focused on the core Chittenden County communities of Burlington, South Burlington, Winooski, Essex, Williston and Shelburne
- ‣ Regional commuter routes connecting the outlying Chittenden County towns of Milton and Hinesburg, and Cambridge in Lamoille County, with the core
- ‣ LINK Express routes between downtown Burlington and Montpelier, St. Albans, Middlebury, and Barre
- ‣ Shopping shuttles offer service between senior housing complexes and select grocery stores in Burlington

Two of the seven local bus routes offer a high level of service, with buses running every 20 minutes through most of the day and every 30 minutes on Saturdays. These routes run for 18 hours on weekdays and Saturdays (6:00 AM to midnight) and every 45 minutes on Sundays from roughly 8:00 AM to 9:00 PM. Three other local routes run every 30 minutes through most of the day; two of these run for 18 hours and the other for 12 hours. These routes run on Sunday as well, with service every 45 minutes or every hour. Two routes operating in the Essex area offer a lower level of service.

The three regional commuter routes offer two trips during morning peak hours and two trips during afternoon peak hours, with the Milton Commuter also operating a midday trip.

Shopping Special shuttles serve South Burlington residents on Tuesdays, Winooksi residents on Wednesdays, and Burlington residents on Thursdays, picking up at each housing complex at a designated time for a scheduled drop-off, and later pick-up at the designated store.

Addison County Transit Resources (ACTR) also provides service in Chittenden County in conjunction with GMT. ACTR operates the Saturday services on the Middlebury LINK Express and shares responsibility for operating the 116 Commuter route.

Intercity bus service to Albany is provided by Vermont Translines, along US 7. Megabus and Greyhound both provide service to Boston, along I-89; Greyhound also offers service to Montreal. Amtrak's Vermonter provides service by train to New York City and Washington, DC.

Figure 1: Transit Services in Chittenden County

Chittenden County Region
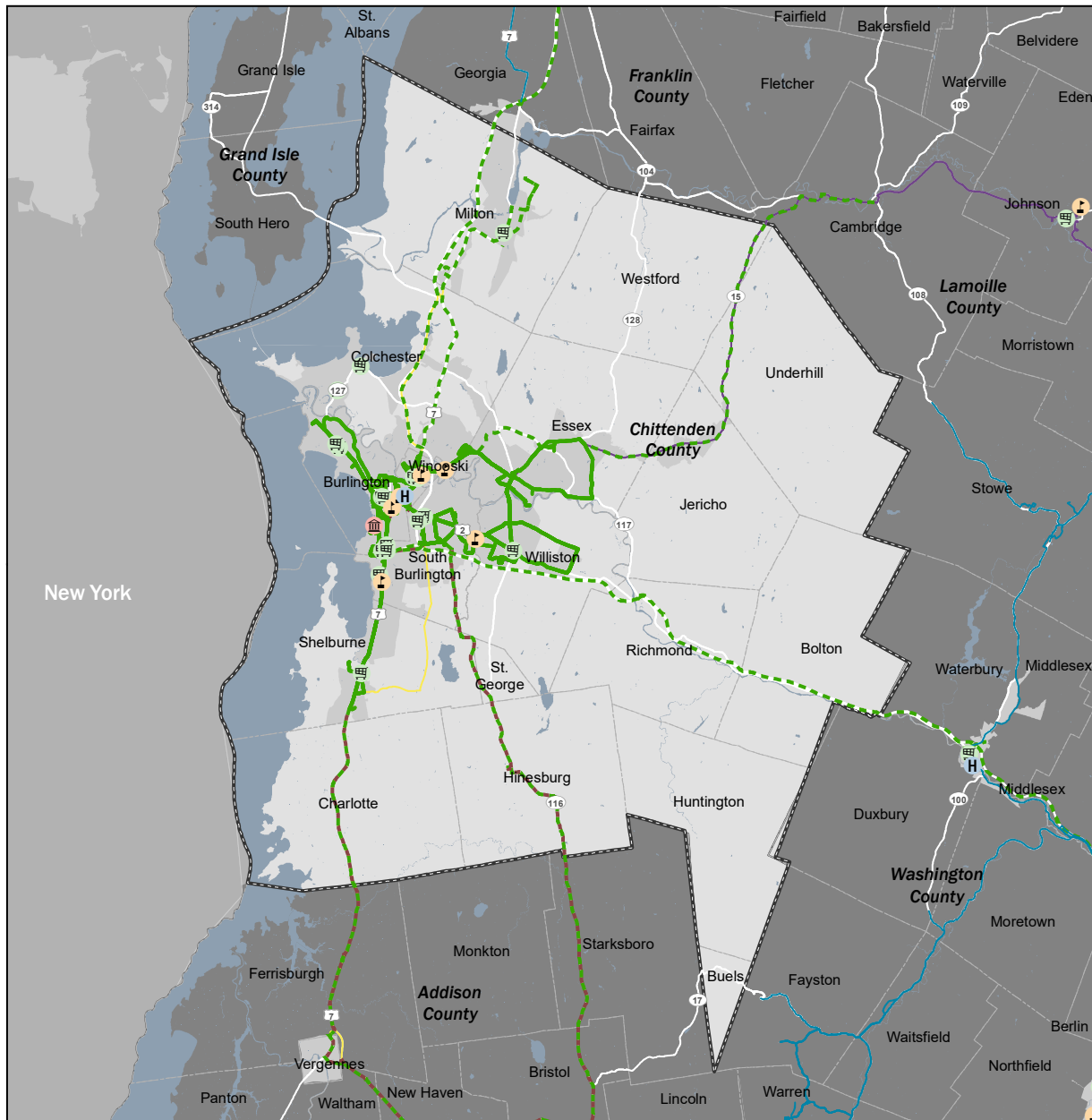
Existing Transit Services

- ——— GMT Chittenden - Local
- - - - GMT Chittenden - Commuter
- ——— GMT / ACTR - Commuter
- ——— GMT - Rural
- ——— Rural Comm. Transp.
- ——— Vermont Translines

- Veterans Affairs Center
- Social Security Office
- H Hospital
- Higher Education
- Retail Center

- Regional Planning Commission Boundary
- Municipal Boundary
- Urban Areas

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Dial-A-Ride and Other Services

Demand response services in Chittenden County are operated by Special Services Transportation Agency (SSTA), a non-profit transportation provider under contract to GMT. SSTA uses agency operated vans and sedans and volunteer drivers using their own cars to provide services such as:

▶ ADA complementary paratransit service for individuals with disabilities who are unable to use the fixed route system

▶ Coordinated service for individuals participating in programs and services offered by organizations that partner with GMT in the Elders and Persons with Disabilities (E&D) transportation program, including cities and towns and human service agencies such as Age Well, Champlain Valley Senior Center, Visiting Nurse Association's Adult Day Programs, and Cathedral Square

▶ Non-emergency medical transportation for Medicaid recipients

▶ The Tilley Drive Shuttle, which provides free service between GMT bus stops at University Mall in South Burlington and the offices at Tilley Drive off Hinesburg Road

Days and hours of service for these demand response services vary. ADA paratransit service days/hours mirror those of GMT's local fixed bus routes. Days and hours of service for E&D clients are established by GMT and its partner agencies. Medicaid transportation may be provided at any time of day or week.

In addition to SSTA's services, two municipalities offer transportation services. The Town of Essex Senior Bus provides service within Essex for individuals 60 years of age and older on weekdays and Sunday mornings; 24-hour advance notice is required to reserve a trip. The Town of Hinesburg's Community Resource Center administers Hinesburg Rides, a program that publicizes and encourages use of GMT bus service, ridesharing matching through Go! Vermont, the transportation-related support provided to employers by the Campus Area Transportation Management Administration (CATMA), and SSTA's volunteer driver program in Hinesburg. In addition, "Affordable Transportation" is operating as a pilot program to offer service within Hinesburg for older adults and people with disabilities on Tuesday morning for a suggested donation.

Numerous taxi companies also operate in Chittenden County.

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following areas:

Retail Areas

▶ Downtown Burlington

▶ North Avenue

▶ US 7, Dorset Street, and US 2 in South Burlington

▶ Taft Corners in Williston

▶ Winooski and Colchester

Educational Institutions

▶ Burlington—University of Vermont, Champlain College

▶ Colchester—Saint Michael's College

▶ Winooski—CCV

Medical Facilities

▶ UVM Medical Center

▶ Tilley Drive, Timberlane

▶ Vermont Medical Center, Fanny Allen Urgent Care in Colchester

▶ Health centers in Burlington, Williston

Human Service Agencies

▶ All core communities and Milton

Some of those key destinations are shown in Figure 1(more detail can be found on the route maps posted on the GMT website, http://ridegmt.com/gmt-schedules/ GMT bus routes serve many local and regional destinations.

Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the Chittenden County region. The greatest concentration of employers is in the core area, but moderate to large employers—those with as few as 50 employees up to those with 500—are also located in many of the county's outlying towns.

Figure 3 shows the location of employers of various sizes in the core communities of Burlington, South Burlington, Winooski, Essex, Colchester, Williston, and Shelburne. There is a very dense cluster of large employers (100 employees or more) in downtown Burlington, but many large employers are located in all of the core communities. US 7, US 2, and VT 15 frame the most important employment corridors in the core area.

Most employers are served by GMT bus routes or those operated by neighboring transit systems. Communities in which moderately sized or large employers appear to be located away from bus routes include Bolton, Colchester, Essex, and Jericho.

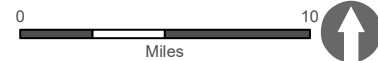Figure 2: Employers in Chittenden County

Chittenden County Core
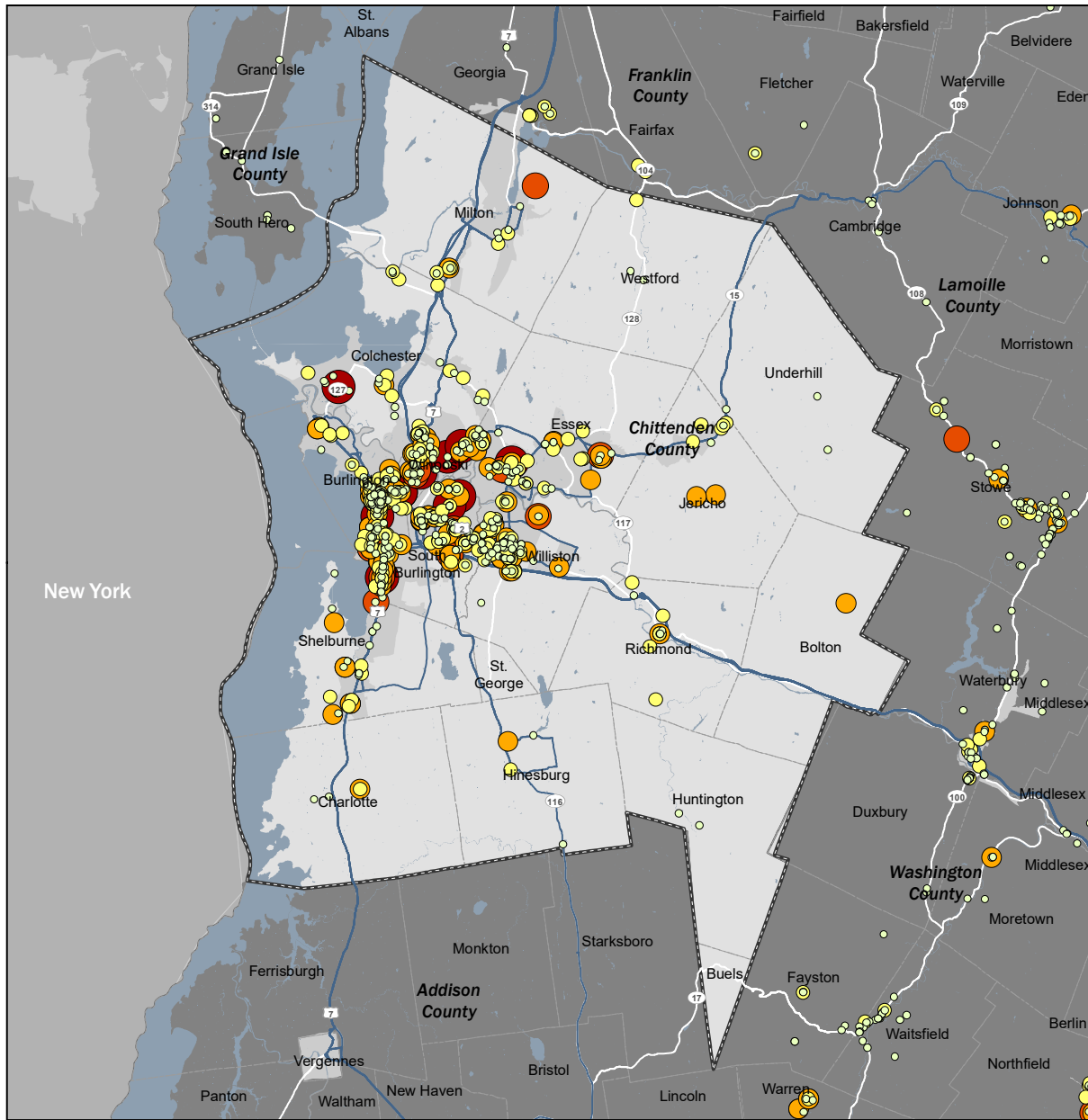
**Employers by
Number of Employees**

- ○ 25 - 49
- ○ 50 - 99
- ○ 100 - 299
- ○ 300 - 499
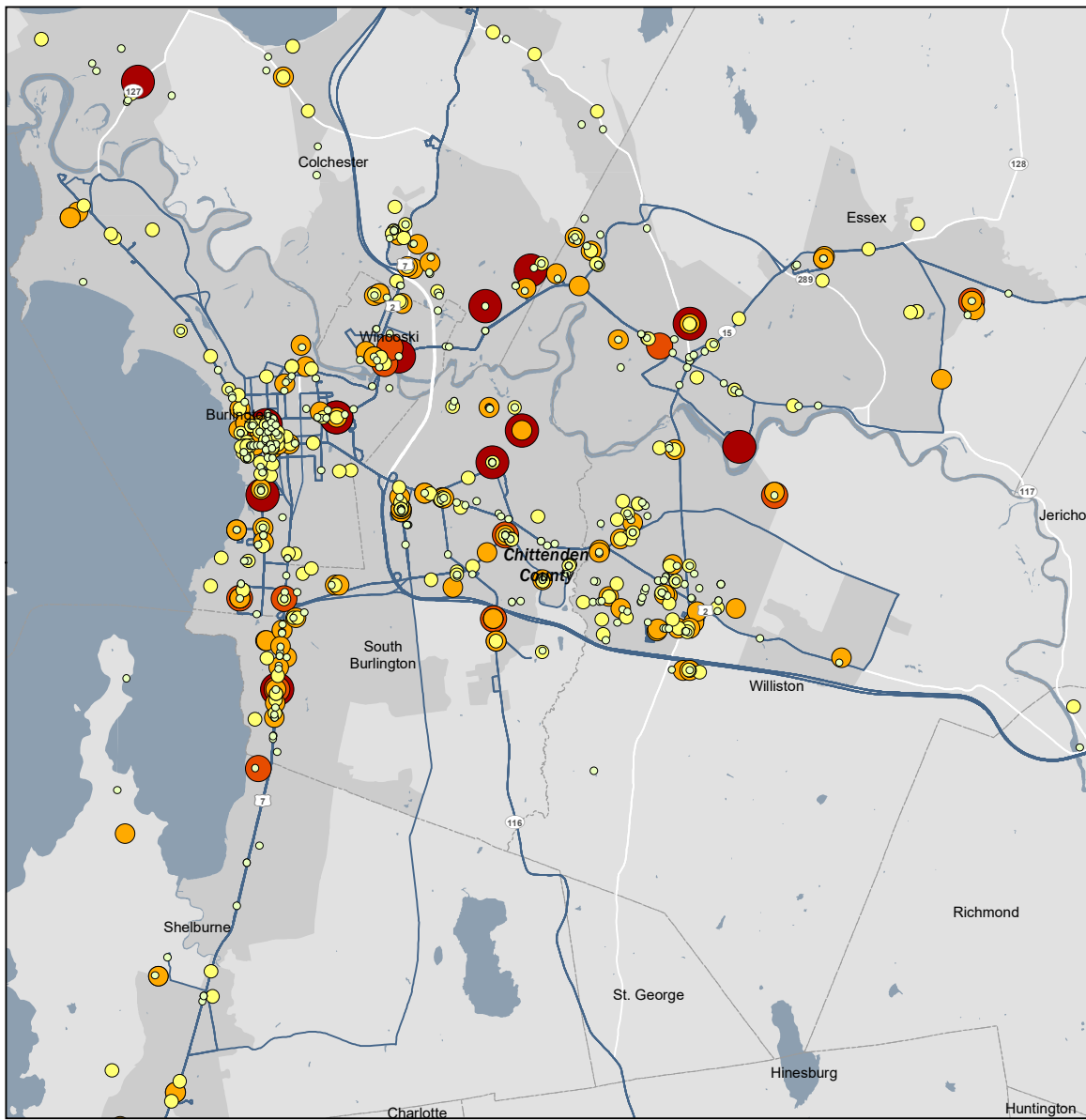- ● 500 +

Source: Dun & Bradstreet, 2016

Regional Planning
Commission Boundary

Township Boundary

Urban Areas

Transit Routes

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Commuting Patterns

Table 1 presents an overview of where Chittenden County residents work and where individuals who are employed in Chittenden County live.

In 2015, 102,243 individuals were employed in Chittenden County. Of those, 68% were county residents. Over a third of Chittenden county workers resided in other areas—27% in other Vermont counties including Franklin, Washington, Addison, Lamoille, Rutland, and Grand Isle counties, and 5% in other states, such as New York, New Hampshire, Massachusetts, and Connecticut.

Over 80% of the 85,508 Chittenden County residents who were employed in 2015 worked in the county. Of those who worked elsewhere, 15% worked in other Vermont counties, primarily Washington, Franklin, Windsor, Addison, and Lamoille counties. Another 3% of employed county residents worked in other states, including New York, Massachusetts, New Hampshire, Connecticut, Maine, and others.

Table 1: Employment in the Chittenden County Region, 2015

Employment	Number	Percent of Total Chittenden County Employment	Percent of Total Employed Chittenden County Residents
Workers in Chittenden County			
Total Employees in Chittenden County	102,243	100%	
Chittenden County Residents Employed in Chittenden County	69,950	68%	
Residents of Other Areas Working in Chittenden County	32,293	32%	
Residents of Other Vermont Counties	27,385	27%	
Residents of Other States	4,908	5%	
Residents of Chittenden County			
Total Employed Chittenden County Residents	85,508		100%
Chittenden County Residents Employed in Chittenden County	69,950		82%
Chittenden County Residents Employed in Other Areas	15,558		18%
Working in Other Vermont Counties	12,859		15%
Working in Other States	2,699		3%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Figure 4 illustrates the daily commuting travel flows into the core of the Chittenden County region at the city/town level. The core includes the highest employment density portions of Burlington, South Burlington and Winooski.

As shown in Figure 4, Chittenden County core communities, which contain nearly 40,000 jobs, generate the highest daily commuting trips in the region. The highest daily flows—500 trips or more--originate within the core communities. Adjacent communities surrounding the core each generate 100-500 daily commuting trips into the core. Communities located further away that generate 100 or more daily commuting trips to core communities include Montpelier, Rutland, Barre, Barre Town, Alburgh, and St. Johnsbury.

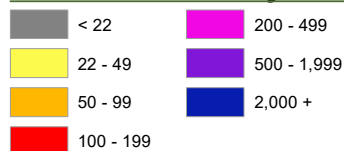Figure 4: Daily Commuters to the Core of the Chittenden County Region
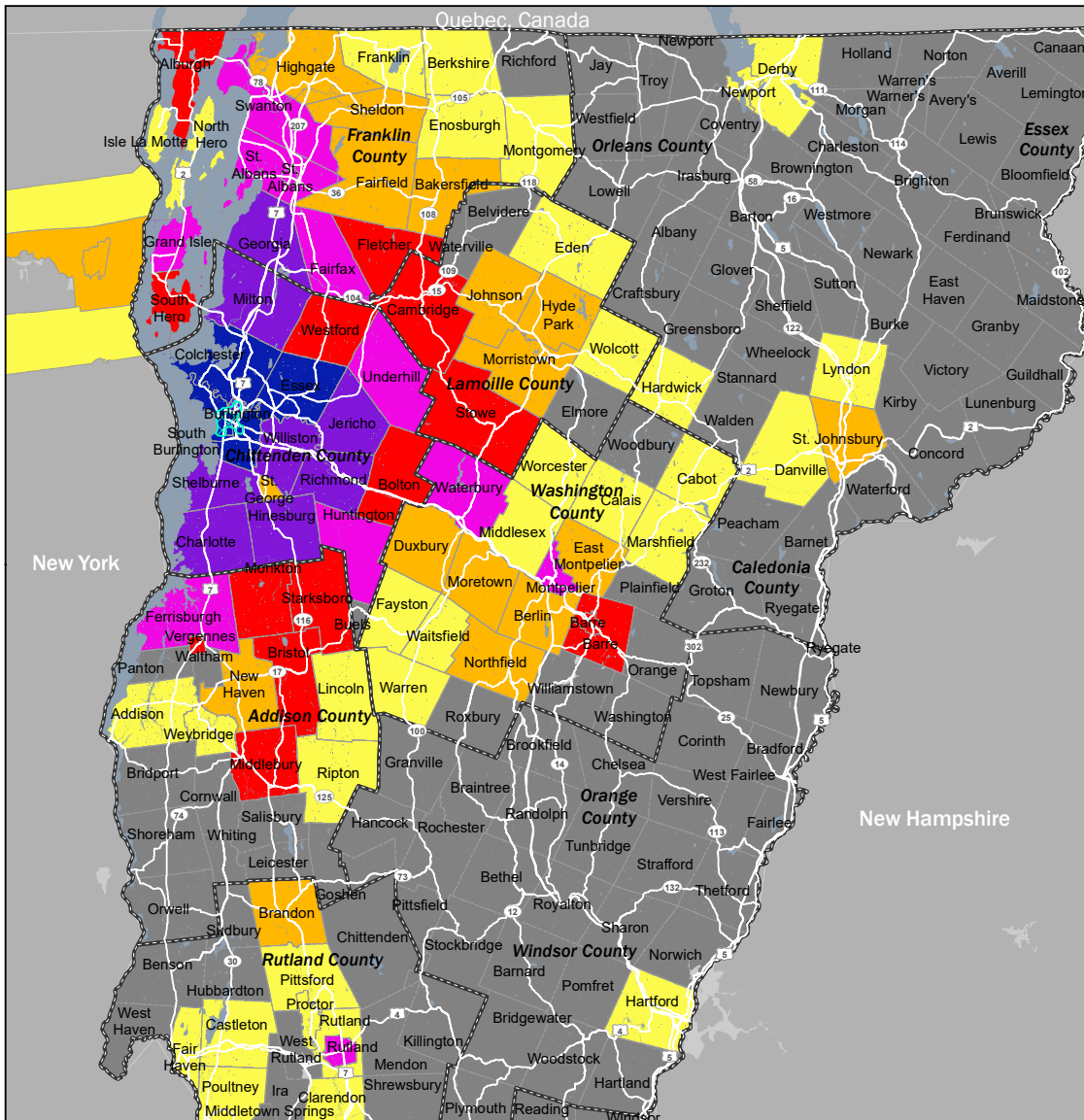
Demographic Overview

This section presents an overview of the demographic characteristics of Chittenden County and summarizes the location and density of the general population of the county and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for Chittenden County as of 2016, as compared to Vermont as a whole.

Table 2: Demographic Characteristics of Chittenden County, 2012-2016

	Chittenden County	Vermont
Total population	160,510	626,249
Population density	299 persons per square mile	68 persons per square mile
Population age 60 and over	19%	24%
Population age 80 and over	3.6%	4.3%
Residents living below poverty line	11.5%	11.6%

Source: American Community Survey 5-year Average 2012-2016

Chittenden County is home to 26% of the state's population. At 299 people per square mile, the county's population density is much higher than the density of the state as a whole and of other planning regions. In terms of key public transportation target groups, the percentage of county residents who are living in poverty are roughly the same as the state average. The percentages of the county's population age 80 and over or age 60 and over are somewhat lower than the state as a whole, reflecting the large student population and preponderance of working-age adults in the largest employment center in Vermont.

Population Density

Figure 5 shows the concentration of the population in Chittenden County. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The highest numbers of residents per square mile—between 1,000 and 5,000 or more—are found in the core communities. Jericho, Hinesburg, Milton, and St. George show moderate levels of density, between 500 and 1,000 residents per square mile. Most outer ring communities have population densities that can be considered rural.

Figure 6 enlarges the map of population density in the core communities. A true urban level of density—5,000 or more residents per square mile—is found in Burlington and Winooski. Moderate to high population density (500-4,999 persons per square mile) is found in Burlington's New North End, most of South Burlington, Essex Junction, and parts of Essex and Colchester.

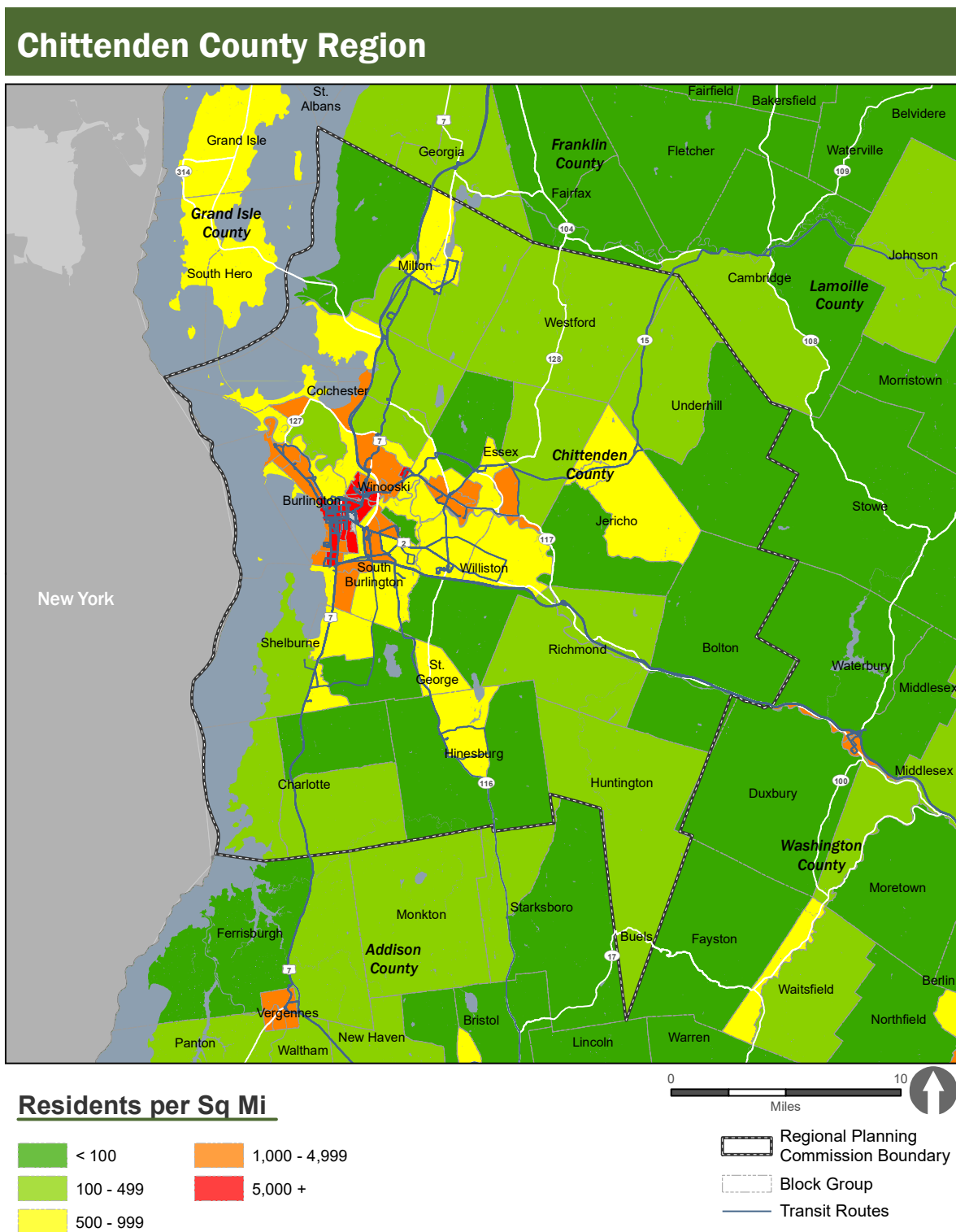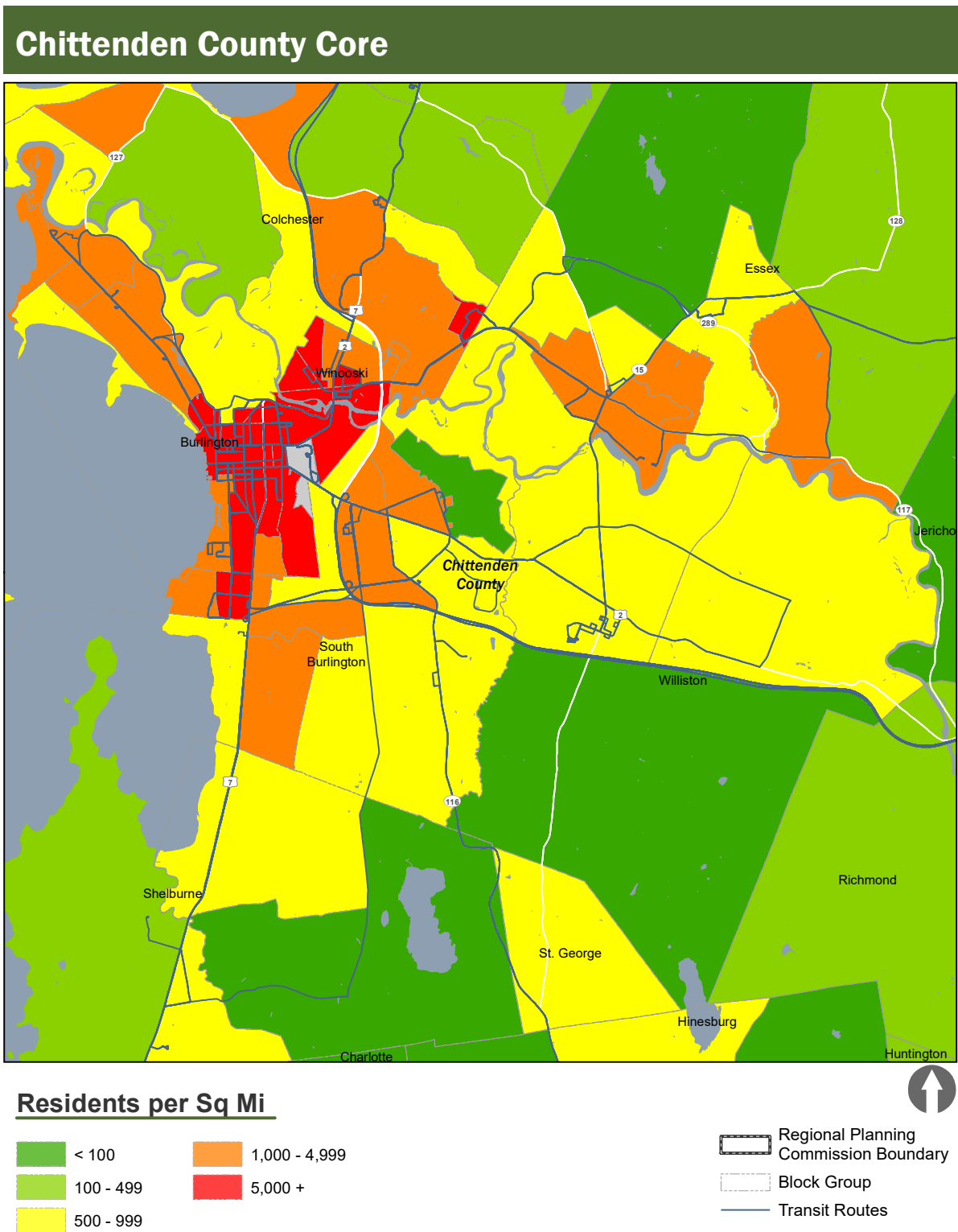Figure 5: Population Density in Chittenden County, 2017

Chittenden County Core

Residents per Sq Mi

- < 100
- 100 - 499
- 500 - 999
- 1,000 - 4,999
- 5,000 +

Regional Planning Commission Boundary

Block Group

Transit Routes

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Market Segments and Transit Propensity

Groups that are likely to need transit services include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Some of these groups do not drive because they are not able to, but others choose to live without a car. Figure 7 through Figure 9 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Chittenden County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 7 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in the Chittenden County region. The focus in Figure 7 is on this older age group because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

The highest numbers of older adults in the county-over 750 per community—live in Burlington and South Burlington. While the number of adults over 80 in Burlington is relatively high, older adults as a percentage of the city's population is below the state average. The same is true for communities with fewer older seniors, including Colchester, Winooski, Essex, and most of the outlying towns. In South Burlington, Williston, and Shelburne, the percentage of adults over 80 is 1 to 2 times the state average.

People with Disabilities

Figure 8 shows the number and percentage of people with disabilities, as compared to the statewide average, in Chittenden County communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

Burlington has the highest number of people with disabilities of any other community—about 3,000 individuals. The percentage of the city's population made up by people with disabilities is lower than the state average, however, as it is in every Chittenden County city or town except Winooski, where that population is between one and two times the state average.

Auto Ownership

The number and percentage of households in Chittenden County towns with limited access to an auto in 2012-2016 are shown in Figure 9. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

Burlington by far contains the highest number of households with limited access to an auto, reflecting the availability of transit service in the city and its walkability. The percentage of such households in Burlington, South Burlington, and Winooski are each 1-2 times the state average. Other communities fall below the state average in terms of households with limited auto access; only South Burlington and Winooski contain percentages that are over the state average.

Chittenden County Region

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- ° 1
- ○ 250
- ○ 500
- ○ 750
- ○ 1,000

Regional Planning Commission Boundary

Municipal Boundary

Urban Areas

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Chittenden County Region

% of Population with a Disability

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 2x - 3x Average

VT Average = 14.0%

Total Population with a Disability

- ° 1
- ○ 750
- ○ 1,500
- ○ 2,250
- ○ 3,000

⬜ Regional Planning Commission Boundary

⬜ Municipal Boundary

⬜ Urban Areas

0 ————— 10
Miles

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Chittenden County Region

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- ○ 1
- ○ 500
- ○ 1,000
- ○ 1,500
- ○ 2,000
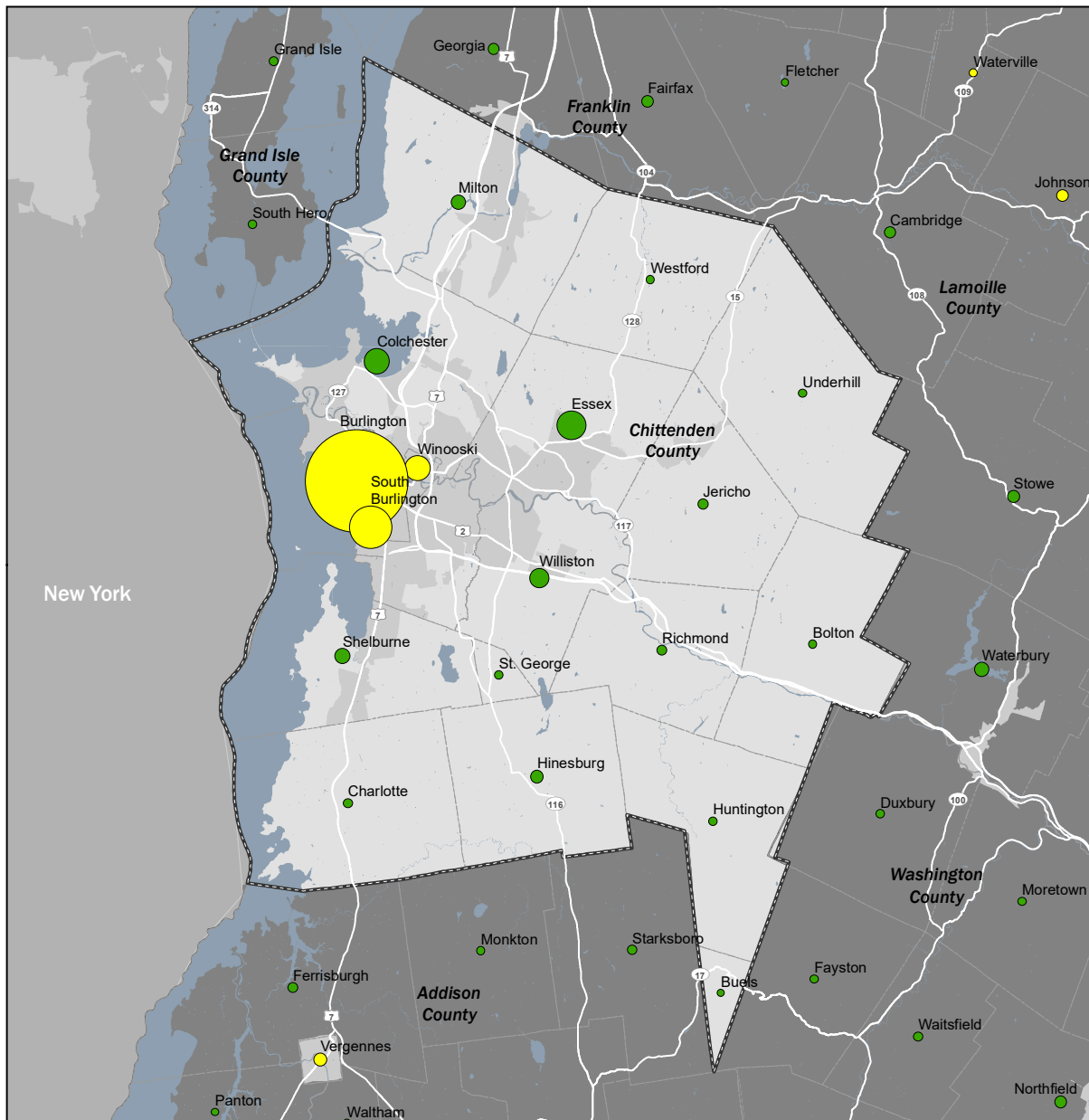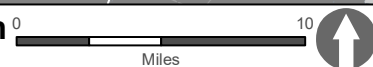
Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 10 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

As shown in Figure 10, the highest transit propensity—in the High and Moderate-High ranges—is found in parts of Burlington and Winooski. Much of the rest of the core area communities show transit propensity at the Moderate level. Outside of the core area, transit propensity is Low or in the Low-Moderate range.

Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held in Winooski at the offices of the Chittenden County Regional Planning Commission on November 28, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps and Challenges

- There are no options for seniors to get from Jericho to the county core
- Colchester
- Hinesburg
- Employment with three shifts poses a challenge:
  - People traveling from Milton to jobs with shift work schedules
  - Commuters from Franklin
  - Essex Center
- Indirect connections between towns
- Grand Isle commuters and ferry users
- First/last mile in Tri-Town area (Cambridge, Underhill, Jericho)
  - Midday for other non-employment needs
  - Seniors
- Williston by interstate is unsafe
- Exit 16 P&R
- Shelburne Farm to Route 7

Temporal Gaps

- Seniors not comfortable driving after dark, resulting in social isolation
- Lack of Sunday service is an employment issue
- Midday service for longer trips (timewise)
- CIDER (Champlian Islands) is great but it requires advance notice
- Access to ski resorts for recreation

Figure 10: Transit Propensity Index, Chittenden County
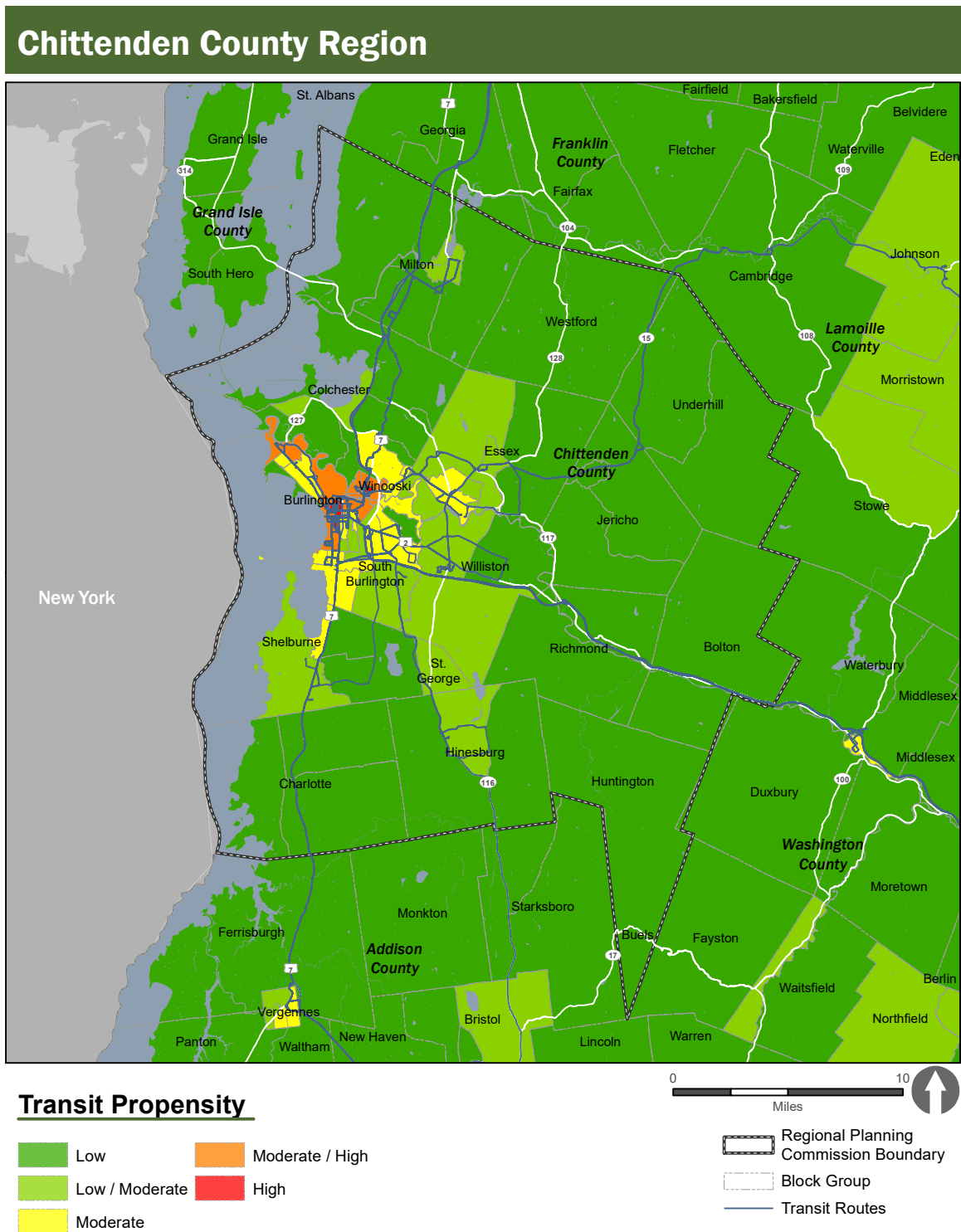
Trip Type Gaps and Challenges

- Coordinating medical appointments with transportation schedules is a challenge
- Need to consider individualized solutions when there are no other options (e.g. subsidize taxi trips)
- Education trips to colleges are challenging particularly for
  - After hours
  - Employment programs

Accessibility Needs

- Sidewalks /ADA
- Safety for youth
- Accessible information for seniors
- Bike access and safety and better coordination

Technology Challenges

- Fewer TNC drivers are available during inclement weather

Affordability Gaps

- Not identified as an issue in the region

Information Gaps

Forum attendees had the following recommendations related to increasing awareness of transportation options:

- Use the buses as ad platforms
- Reach people in community centers and senior centers
  - Educating users about other providers
- Peer to peer traveling training
- Google Transit + Go! Vermont

Other Gaps

- Better communication among providers
  - Improve logistical coordination
- Home to job challenges:
  - Local services includes paratransit, not just commuter service
  - Rural vs. urban divide, different needs

Other Comments

- Many younger seniors don't drive, or don't drive during inclement weather or after dark, not just those over 80
- Access to drivers is an issue (locally and nationally)
  - This needs to be addressed at a larger scale, including the use of volunteer drivers
- We need additional methods to make it easier for people to find carpool options.

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- Increased transit in rural areas must include many options, and technology will play a role in this.
- An attendee mentioned the need for safety, particularly for youth.
- The importance of filling seats on existing transit was noted as a need.

Potential Solutions

When asked to rank potential service improvements, forum participants most often chose the options listed below.

Information
- Centralized transportation service directory – Go! Vermont
- One-Call/One-Click system including some or all of the above (tied for 1st)
- Trip planning assistance

Service Enhancements
- Expanded service areas
- Extended service hours
- Volunteer driver program enhancements
- Use of available demand-response vehicle seats

Accessibility Improvements
- Sidewalks or curb cuts
- Bus shelters

Technology
- Mobile information, reservations, real-time vehicle location (apps)
- Automatic Vehicle Location (AVL) systems

When asked to indicate their interest in the options noted above by "voting" with sticky dots, forum participants ranked potential improvements as follows:

Recommendation	Votes
Mobile information	18
Expanded service areas	14
Enhanced volunteer driver programs	14
Extended service hours	12
Sidewalks/curb cuts	11
Use available DR seats	10
AVL systems	10
Go! Vermont	9
Bus shelters	5
One-call/one-click system	3

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Comments from Chittenden E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including Chittenden County. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

Services in Chittenden County that are supported with E&D program funds are provided by GMT and SSTA; the Town of Essex also operates a Senior Bus for its residents. Services include demand response services and rides provided by volunteer drivers for older adults, people with disabilities, and individuals participating in programs and services offered by the partners. Age Well, Champlain Valley Senior Center, Visiting Nurse Association's Adult Day Programs, and Cathedral Square, as well as the cities of Burlington, South Burlington and Winooski and the towns of Milton, Richmond, Williston, Colchester, and Hinesburg are among the Chittenden County E&D partner organizations.

The biggest and most recent issues related to transportation needs and service gaps for older adults and people with disabilities in Chittenden County are the following:

▶ Lack of ability to travel across county lines
▶ Lack of sufficient resources to provide social/wellness trips

The United Way of Northwest Vermont, working with the Chittenden County Regional Planning Commission (CCRPC) and SSTA, conducted a survey of SSTA riders in 2018 to determine strengths and areas for improvement for the services provided on behalf of E&D partner organizations. Overall, 89% of respondents reported that the service was meeting their needs, citing scope of service, schedule reliability, and positive interactions with drivers as strengths of the services. Areas for improvement included:

▶ Expansion of service
▶ Accuracy of schedules
▶ Better information about the service
▶ Comfort of vehicles

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

A summary of desired trip origin/destination pairs is provided elsewhere in the PTPP. Over 500 residents of the Chittenden County region commented on their desired trips. Most respondents live in Burlington, South Burlington, and Winooski.

Burlington residents most frequently identified locations in Burlington to which they would like transit access (113 comments). Other communities to which respondents desire transit connections include Barre,

Bennington, Colchester, Essex, Montpelier, Randolph, Richmond, Rutland, Shelburne, Stowe, Waterbury, Williston, Winooski, Woodstock, and Vergennes.

Similarly, South Burlington and Winooski residents most often identified locations in their home community for desired transit connections. South Burlington residents also mentioned Burlington, Middlebury, Montpelier, and St. Albans. Winooski residents also mentioned Burlington, South Burlington, and Montpelier.

Transit service to the airport and Amtrak stations was mentioned by respondents from each community, as was service to out of state destinations such as Boston, New York City, Montreal, and other locations in Canada.

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable
- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving

Of the 1,393 responses to this question from residents of Chittenden County, 76% were in the top four categories: more frequent service (24%), service in the evenings and/or weekends (18%), more service to my destinations (18%), and more service near my home (17%).

Summary of Transit Service Gaps and Needs

The information presented above about Chittenden County's demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for the Chittenden County region.

Geographic Service Gaps

Residents of Chittenden County communities who live beyond the reach of fixed route services and residents of the other towns in the county have limited public transit service options, if any, available to them. Public forum participants noted that the transportation needs of residents in the rural communities in the county are different from those of people who live in Burlington or the surrounding cities/towns.

The need for options for first/last mile travel to make use of existing bus routes was noted in public forum comments.

Moderate to large employers that do not appear to be served by existing bus routes are located in Bolton, Colchester, Essex, and Jericho.

Temporal Gaps

GMT offers a high level of service in terms of span, or days and hours during which service is available. The seven local routes generally operate for 12-18 hours of service on weekdays and Saturdays. Sunday service is provided for roughly 11 hours on three of those routes. Frequency of service ranges from every 20 minutes to one hour.

Commuter and LINK Express routes serve important employment destinations, but limit service to 2-3 trips during morning peak hours and 2-3 trips during afternoon peak hours on weekdays (other than the Montpelier LINK Express, which has more than a dozen trips per weekday). Such schedules are not useful for those who commute to jobs that have non-traditional hours. Specific origins for individuals commuting for shift work schedules that are not served by transit, mentioned by regional forum participants, include Milton, Franklin, and Essex Center. Regional forum participants also noted that lack of Sunday service on some routes limits employment opportunities.

Some communities are served only by commuter routes, which limits the ability of residents to make midday trips to Burlington. Seniors living in Jericho who participated in the Chittenden County regional forum noted this gap.

Gaps for Specific Rider Groups/Trip Types

To manage limited funding, partner organizations limit the types and/or number of trips that can be made by an individual. Eligible trip types generally include critical care medical appointments, non-Medicaid medical appointments, grocery shopping, congregate meal sites, and specific types of social/personal trips as determined by the partner organization, although not all partners allow all those types of trips. Partners report that funding constraints may limit their ability to provide social/personal trips. Most partners also limit the number of trips per month or per week that an individual may make.

Trip type gaps mentioned by regional forum participants included after hours and work trips for college students.

Other Gaps

Information Gaps

Regional forum participants suggested that more accessible information about transportation options be made available for seniors.

Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in Chittenden County in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In

Chittenden County, market segments that are likely to have limited or no access to a car make up 49% of the population.

Table 3: Estimated Transit Market Segments, Chittenden County Region, 2017

Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	27,814
Young adult (18-24), employed/student	X (by choice)	25,068
Adult (25-64)		70,456
Adult (25-64), below poverty line	X	4,007
People with disabilities (under age 80)	X	15,341
Younger seniors (65-79)		12,364
Older seniors (80+)	X	6,047
Total		161,177

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for Chittenden County on the various transit sub-markets in the region.

Several gaps are broad enough to affect all market segments. These include:

▸ **Geographic Coverage**: Rural communities lack transit options, making transportation an issue for all types of trips for those without access to a car or other means of a ride. Residents of Chittenden County who live beyond the reach of fixed route services also lack transit options.

▸ **Accessibility**: Sidewalks and paths to bus stops may not be safely accessible, especially during winter months.

▸ **Information**: Individuals and agency staff members may not be aware of the service options available. Service gaps and needs may be perceived rather than actual.

Other gaps are specific to certain market segments. For example:

▸ **All adult market segments**, who may need to travel to work or school, are affected by the limited schedules on which commuter routes operate. Available services do not match non-traditional work or school hours. The regional destinations served by commuter routes are not accessible by transit outside of morning and afternoon peak hours.

▸ **People with disabilities** are affected by limitations in E&D program funding. Options for shopping, social/personal, and wellness trips may not be available.

▸ **Older adults, especially those over age 80,** are also affected by limits on trips provided with E&D program funding and may be unable to make all but the most critical medical or adult day service trips.

▸ **Individuals living in poverty** may have Medicaid transportation to eligible medical appointments but may have no other options for other types of trips.

Table 4: Gap Analysis by Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	X	X (by choice)		X	X		X
Geographic Gaps							
Need for first/last mile options limits fixed route use	X	X	X	X	X	X	X
Residents beyond the fixed route service area and in towns without fixed route bus service have limited options	X	X	X	X	X	X	X
Moderate to large employers are not served by bus routes in Bolton, Colchester, Essex, and Jericho		X	X	X	X		
Temporal Gaps							
Peak-only schedules of commuter routes do not help those with non-traditional work hours		X	X	X	X	X	
Trip Type Gaps							
Social/recreational/wellness trips are at lower end of E&D eligible trip priorities					X	X	X
E&D funding constraints limit trips for older adults and people with disabilities					X	X	X
Accessibility Needs							
More bus shelters and sidewalks/curb cuts would encourage fixed route use	X	X	X	X	X	X	X
Technology Challenges							
Mobile apps for reservations and real-time vehicle location are desirable	X	X	X	X	X	X	X
Information Gaps							
Forum comments and survey responses indicate some lack of knowledge of available transportation options	X	X	X	X	X	X	X
Affordability Issues							
Not an issue for riders							

Note: X indicates that a service gap is relevant to that demographic market segment

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Appendix F – Central Vermont Analysis

Contents

List of Figures

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Transit service gaps and estimates of the resources needed to improve transit services in the Central Vermont region are discussed below. The region includes the 23 communities in the service area of the Central Vermont Regional Planning Commission (CVRPC). Twenty of the Central Vermont cities and towns are located in Washington County, three in Orange County.

Overview of Existing Services

Fixed Route Services

Transit service in the Central Vermont region is provided primarily by Green Mountain Transit (GMT). GMT's Capital District service includes fixed and deviated fixed route circulators for local mobility in Montpelier, Barre, and Berlin, shopper and community shuttles that operate on limited days, commuter routes for regional connections, and seasonal service in Montpelier and the Mad River Valley. GMT's Capital District routes are shown in Figure 1.

Local Routes

The routes listed below offer deviations to riders reserve a pickup or drop-off at a home or destination within ¾ of mile of the bus route in advance or while onboard the vehicle.

- City Commuter, connecting Montpelier, Berlin, and Barre City operating from 5:30 a.m. to 9:30 a.m. and 3:30 p.m. to 7:30 p.m. Monday through Saturday with a frequency of two trips per hour
- City Route Mid-Day operating in Montpelier Monday through Saturday from roughly 9:30 AM to 4:00 PM, at a frequency of about an hour and 15 minutes, to complement the peak-period only City Commuter route
- Montpelier Circulator which consists of two consecutive loops operating on weekdays with hourly service from 7:00 AM to 5:30 PM
- Montpelier Hospital Hill and Barre Hospital Hill routes, providing hourly service from those communities to Central Vermont Medical Center, other facilities on Berlin hill, and the Berlin Mall retail area Monday through Saturday from approximately 7:00 AM to 7:00 PM

Commuter Routes

The routes below offer one to three trips during morning peak hours and during afternoon peak hours on weekdays.

- Waterbury Commuter, between Montpelier and Waterbury
- Northfield Commuter, between Northfield and Montpelier
- Route 100 Commuter, between Morrisville (Lamoille County) and Waterbury
- US 2 Commuter between St. Johnsbury (Caledonia County) and Montpelier (jointly operated with Rural Community Transportation, RCT)
- Montpelier LINK Express, connecting Montpelier and Burlington
- Barre LINK Express, connecting Barre and Burlington

Also shown in Figure 1 is the 89er North commuter route operated by Stagecoach Transportation Services, part of Tri-Valley Transit, between Randolph (Upper Valley region) and Montpelier.

Local Shuttles

▶ The fare-free Hannaford Shopping Special, supported by Hannaford, operates on Tuesdays between 10:00 AM and 1:00 PM, offering four pickups/drop-offs at the store from a number of housing complexes.

▶ Northfield Community Shuttle operates on Wednesdays from 9:00 AM until 11:15 AM. Deviations are available if requested onboard or in advance.

▶ Health Center in Plainfield Shuttle, supported by The Health Center, offers free service on Tuesdays between 10:00 AM and 2:00 PM from Barre, on Wednesdays from 8:00 AM to 12:00 PM from Washington County towns, and on Thursdays from 10:00 AM to 2:00 PM from Washington County towns.

▶ Hospital Hill Demand Response service operates on Tuesdays, Wednesdays, and Thursdays from Barre to medical facilities and offices in Barre and Berlin. All trips, not only deviations, must be reserved in advance.

Seasonal Service

▶ Four GMT fixed routes serve Mad River Valley businesses and resorts, including Sugarbush and Mad River Glen, between mid-December and late March.

▶ The Capital District Shuttle offers free service between state offices and the statehouse in Montpelier on weekdays during the state legislative session. Service operates every 20 minutes between 7:30 AM and 5:30 PM; deviations of up to 1/10 of a mile are available by request onboard or calling in advance.

Private Transportation Services

Amtrak, Greyhound, Megabus services can all be accessed in Montpelier for connections to Boston, New York City, Washington, D.C., and Montreal.

Several taxi companies also serve Central Vermont communities.

Dial-A-Ride and Other Services

GMT also operates services for older adults and people with disabilities who are clients of partner organizations through the Elders and Persons with Disabilities (E&D) transportation program. GMT's partners in the Central Vermont include Services provided by GMT on behalf of its E&D partners region include the Central Vermont Council on Aging (CVCOA), Vermont Center for Independent Living (VCIL), and Barre Project Independence. GMT provides service using volunteer drivers as well as staff and agency-owned vehicles.

Ticket to Ride (TTR) is a program funded with a portion of the region's E&D allotment to allow eligible individuals to obtain rides for purposes other than the medical, adult day, and shopping trips which are the focus of the majority of the E&D program. Older adults and people with disabilities can use the TTR program for social trips or personal business, etc. The amount of funding for TTR varies from year to year, depending on the needs of the other, higher priority trip purposes.
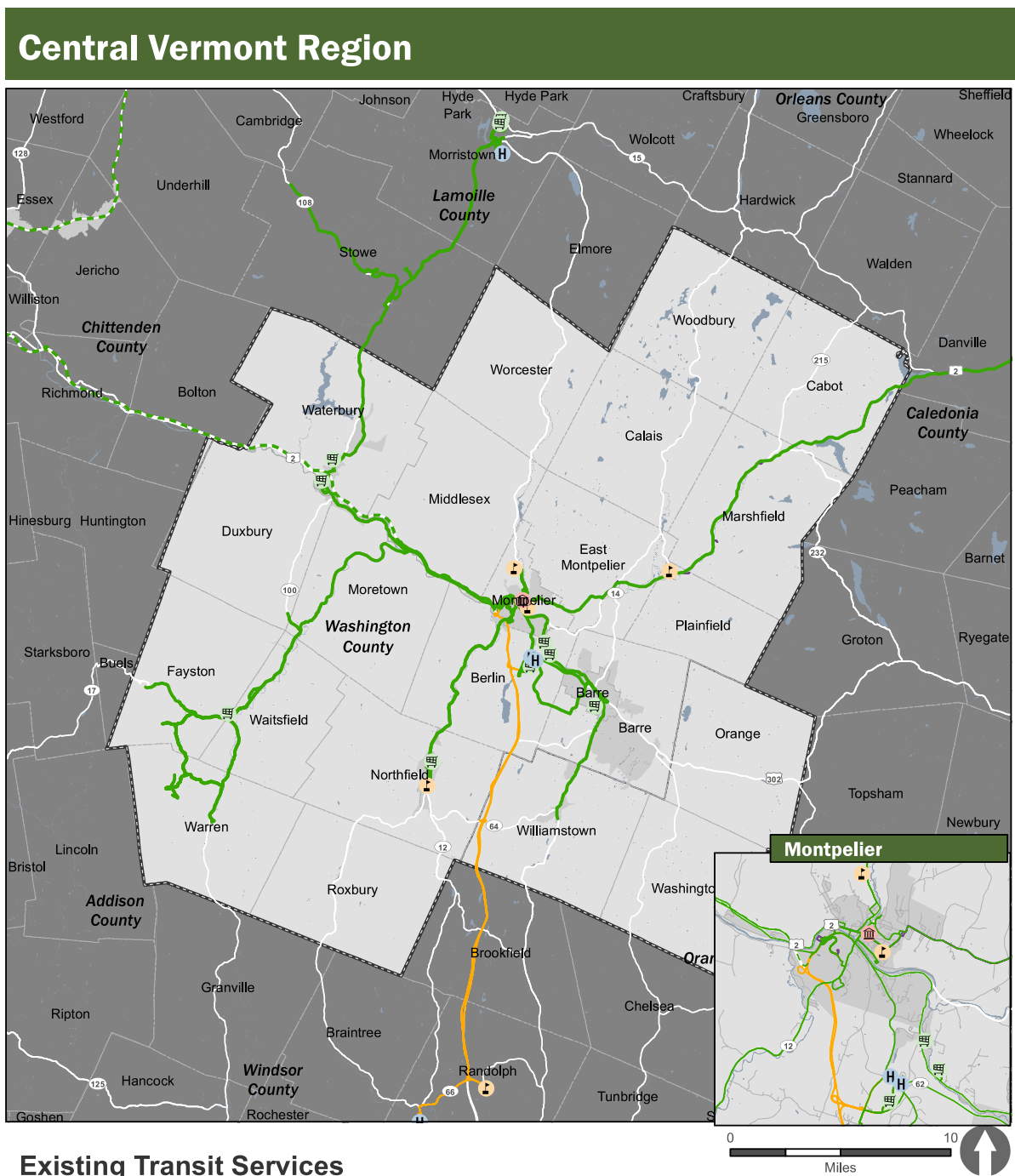
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Figure 1: Transit Services in the Central Vermont Region

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following communities:

Retail
- Downtown Montpelier
- Berlin Mall and area
- South Barre
- Waterbury

Health Care
- Berlin (Central Vermont Medical Center)
- Barre
- Montpelier
- Plainfield
- Waterbury

Education
- Montpelier (Community College of Vermont, Vermont College of Fine Arts, New England Culinary Institute)
- Northfield (Norwich University)
- Plainfield (Goddard College)

Human Services
- Barre
- Montpelier
- Waterbury

Some of those key destinations are shown in Figure 1 (more detail can be found on the route maps posted on the GMT website, http://ridegmt.com/gmt-schedules/ . GMT bus routes serve many local and regional destinations.

Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the county.

The highest concentrations of employers are found in Montpelier and Barre City; significant clusters of employers are found in Berlin, Northfield, and Waterbury. Those five communities contain major employers and/or office/industrial parks. Employers of medium size (100 employees or more) are also located in Plainfield, Warren, Moretown, and Barre Town.

As shown in Figure 2, many employers are located on or near bus routes. Communities in which medium-large employers do not appear to be located close to bus routes include Barre Town, Moretown, and Warren.

Central Vermont Region

Employers by Number of Employees

- ○ 10 - 49
- ○ 50 - 99
- ○ 100 - 299
- 🔴 300 - 499
- 🔴 500 +

Source: Dun & Bradstreet, 2017

Regional Planning Commission Boundary
Township Boundary
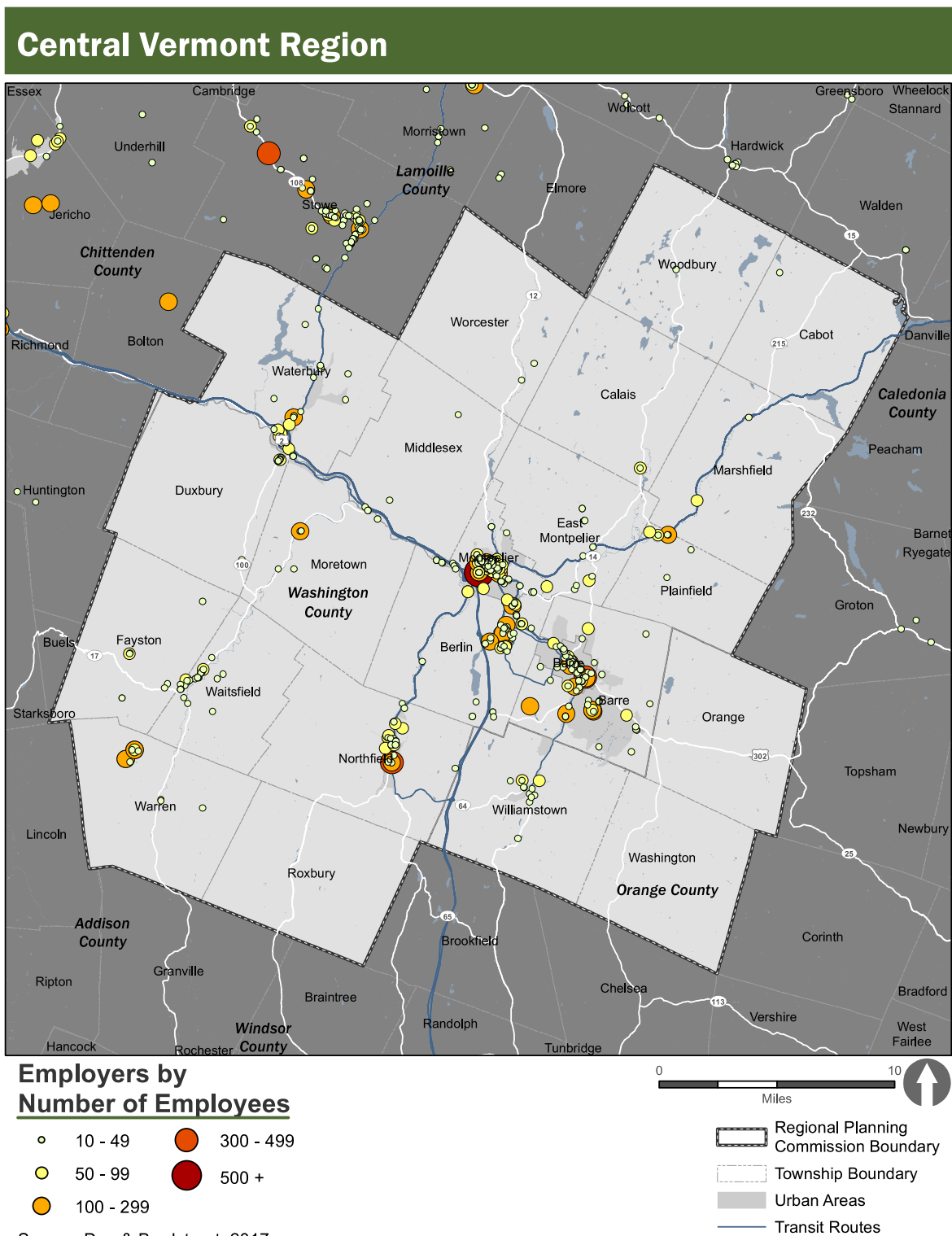Urban Areas
Transit Routes

0 — 10 Miles

Figure 3 illustrates the daily commuting travel flows into Montpelier at the town level.

Downtown Montpelier draws commuters from a large radius and from towns in every direction. The highest flows of commuters come from within Montpelier and from Barre City and Town, East Montpelier, Williamstown, Northfield, Berlin, Middlesex, Waterbury, and also Burlington and South Burlington. The latter two communities send a significant number of daily commuters to Montpelier—164 and 106, respectively.

The Chittenden County core communities of Burlington, South Burlington, and Winooski attract high numbers of commuters from Central Vermont towns. As shown in Figure 4, hundreds of commuters travel to the Chittenden County core communities daily from Montpelier, Barre City and Town, and Waterbury.

Commuting Patterns

Table 1 presents an overview of where Central Vermont residents work and where individuals who are employed in Central Vermont communities live.

Table 1: Employment in the Central Vermont Region, 2015

Employment	Number	Percent of Total Central Vermont Region Employment	Percent of Total Employed Central Vermont Region Residents
Workers in Central Vermont Region			
Total Employees in Central Vermont Region	32,118	100%	
Central Vermont Region Residents Employed in Central Vermont Region	20,373	63%	
Residents of Other Areas Working in Central Vermont Region	11,745	37%	
Residents of Other Vermont Counties	10,188	32%	
Residents of Other States	1,557	5%	
Residents of Central Vermont Region			
Total Employed Central Vermont Region Residents	31,449		100%
Central Vermont Region Residents Employed in Central Vermont Region	20,373		65%
Central Vermont Region Residents Employed in Other Areas	11,076		35%
Working in Other Vermont Counties	9,577		30%
Working in Other States	1,499		5%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Most employees who work in in the Central Vermont region also live there—63%. Of the 37% of Central Vermont employees who live elsewhere, 32% live in other Vermont counties, primarily Chittenden and Caledonia and Orange counties (outside of the towns of Orange, Washington, and Williamstown, which are part of the Central Vermont region), but also Lamoille, Rutland, Windsor, Franklin, Addison, and Orleans

Figure 3: Daily Commuters to Montpelier — Central Vermont Region
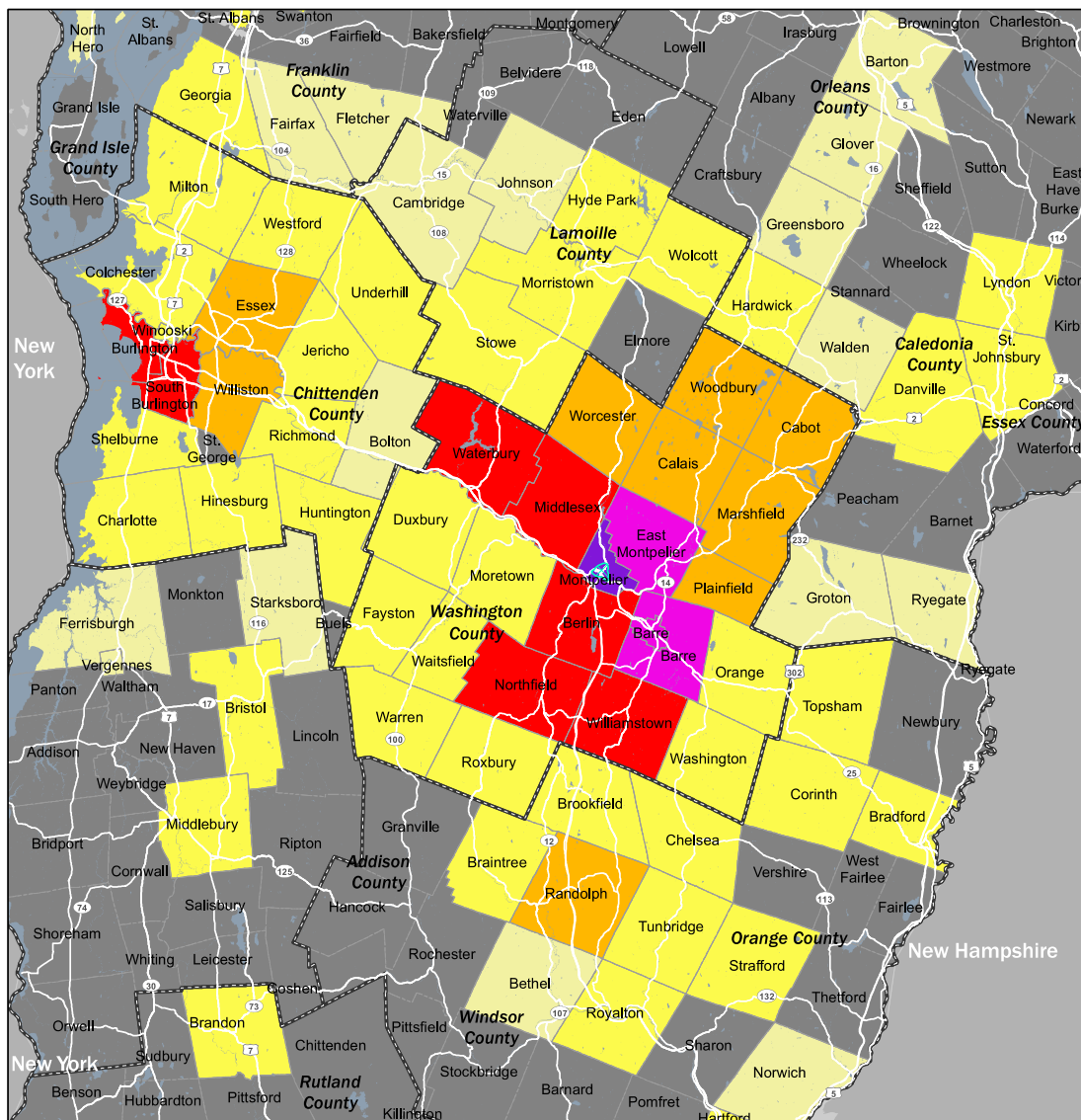
Commuters to Montpelier
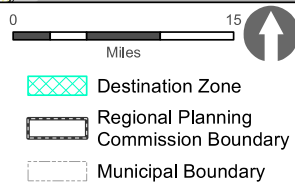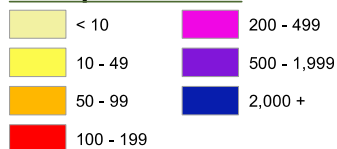
- < 10
- 10 - 49
- 50 - 99
- 100 - 199
- 200 - 499
- 500 - 1,999
- 2,000 +

Destination Zone
Regional Planning Commission Boundary
Municipal Boundary

0   15 Miles

Central Vermont Region

Commuters to
Chittenden County Core

	< 10		200 - 499
	10 - 49		500 - 1,999
	50 - 99		2,000 +
	100 - 199		

Destination Zone

Regional Planning Commission Boundary

Municipal Boundary

0 — 10 Miles

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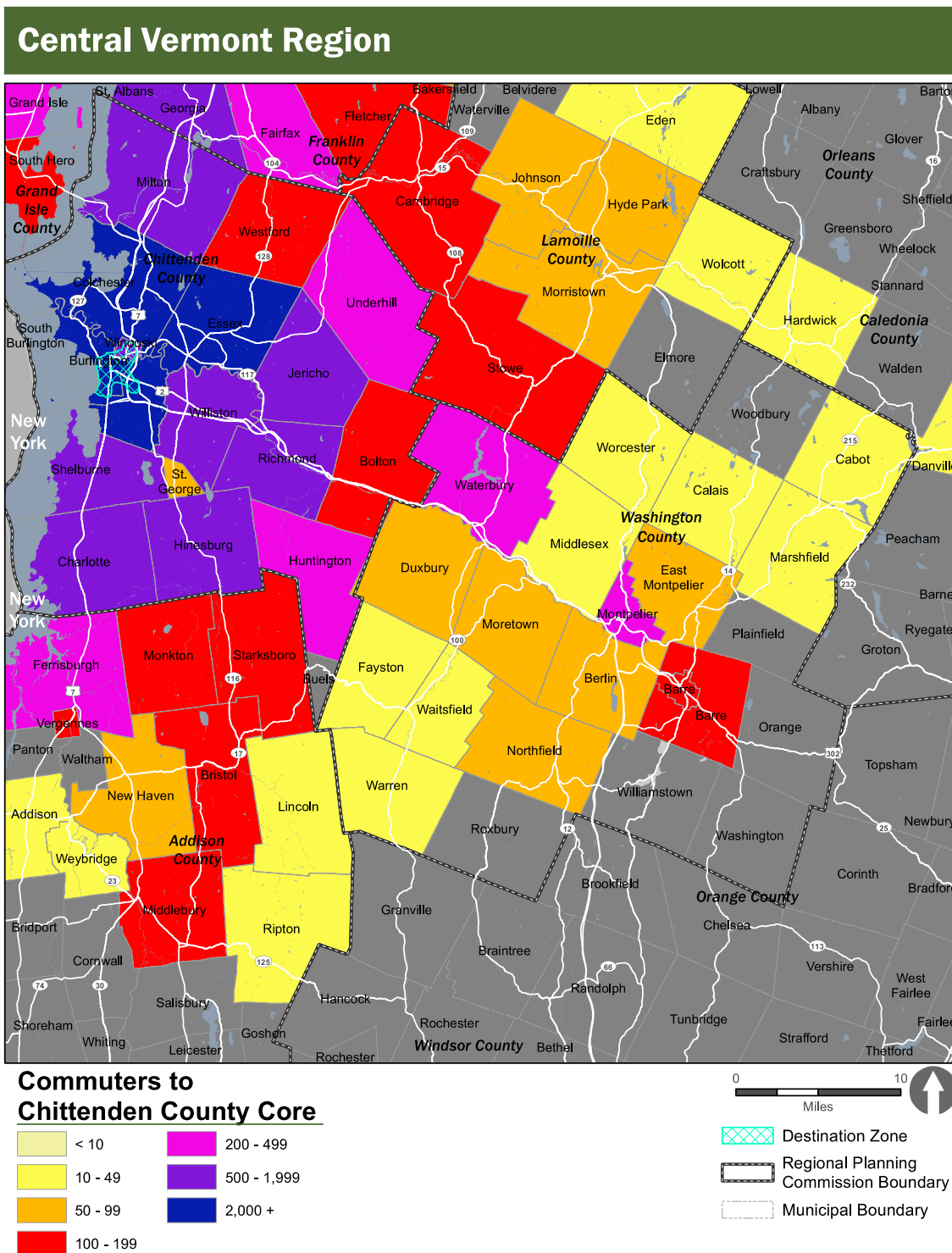
counties. Another 5% of the Central Vermont region's workers live in other states—New Hampshire, New York, and Massachusetts.

Similarly, 65% of the employed residents of the Central Vermont region work there as well. Thirty percent of employed residents of the region work in other counties—primarily Chittenden, Orange (apart from the Orange County towns mentioned above), Lamoille, and Windsor counties. Five percent of those who live in the region and work elsewhere work in other states, such as New Hampshire, New York, and Massachusetts.

Demographic Overview

This section presents an overview of the demographic characteristics of the Central Vermont Region and summarizes the location and density of the general population of the county and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for Central Vermont communities as of 2016, as compared to Vermont as a whole.

Table 2: Demographic Characteristics of Central Vermont Communities, 2012-2016

	Central Vermont Region	Vermont
Total population	64,567	626,249
Population density	80 persons per square mile	68 persons per square mile
Population age 60 and over	25%	24%
Population age 80 and over	4.1%	4.3%
Residents living below poverty line	11.3%	11.6%

Source: American Community Survey 5-year Average 2012-2016

The region contains over 10% of the state's population. At 80 people per square mile, its population density exceeds that of the state as a whole. The region is fairly similar to the state averages in terms of the percentages of younger seniors, older seniors, and those living in poverty among its residents.

Population Density

Figure 5 shows the concentration of the population in the Central Vermont region. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The highest density in the region, of 1,000 to 4,999 people per square mile in each community, is located in downtown Montpelier, Barre City, and downtown Northfield. Moderate levels of density, between 500 and 999 people per square mile, are found in Barre Town, the rest of Montpelier, Northfield Falls, and Waitsfield. The other communities in the region exhibit a level of density that can be considered rural.

Figure 5: Population Density in the Central Vermont Region, 2017
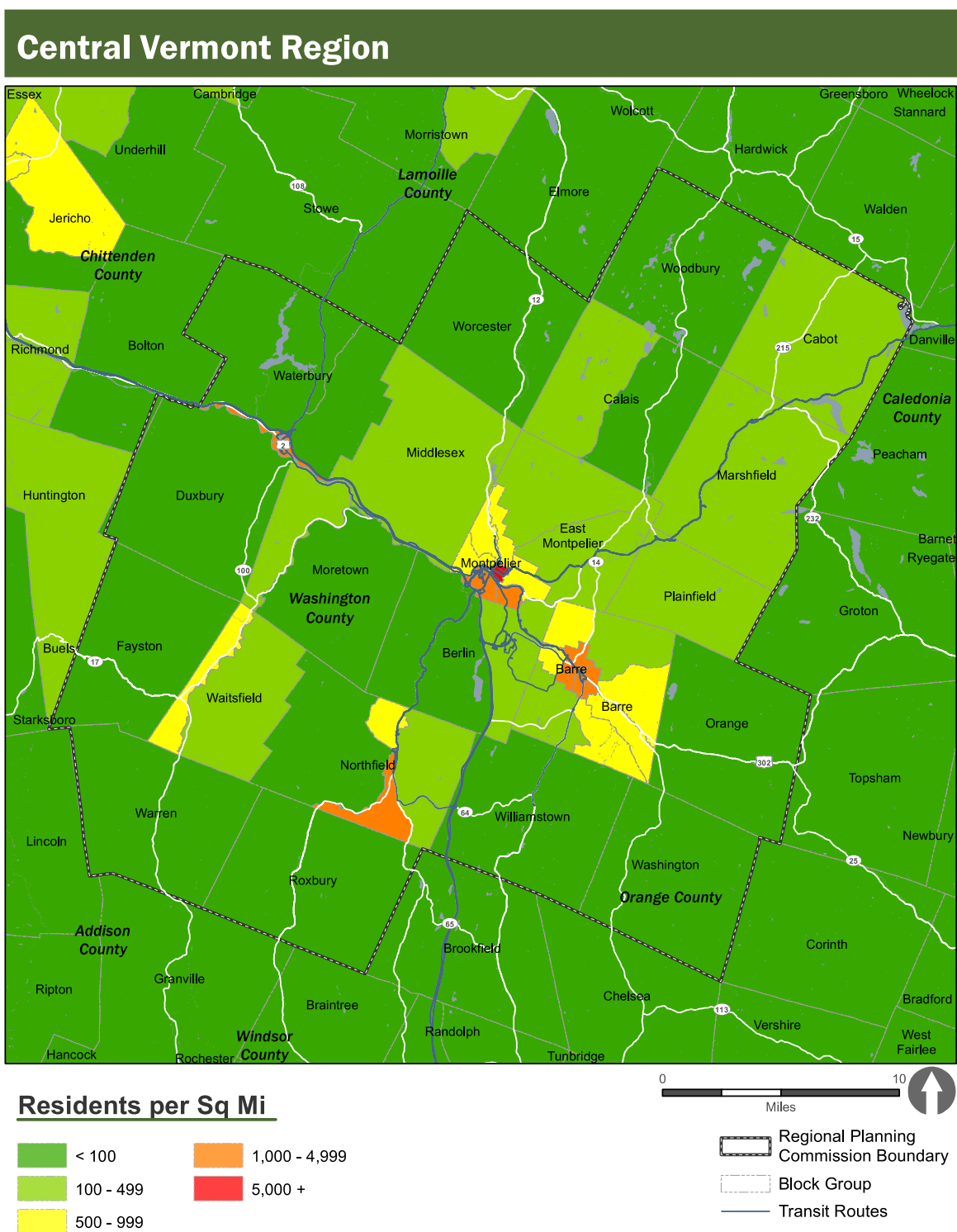
Central Vermont Region

Residents per Sq Mi

- < 100
- 100 - 499
- 500 - 999
- 1,000 - 4,999
- 5,000 +

Regional Planning Commission Boundary

Block Group

Transit Routes

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Market Segments and Transit Propensity

Groups that are likely to need transit services because they do not drive, for reasons of disability, income, or choice, include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Figure 6 through Figure 8 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Rutland County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 6 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in the Central Vermont region. The focus in Figure 6 is on this older age group because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

A high percentage of older seniors live in Berlin—two times the state average. The percentages of older seniors in Montpelier and Barre City are between one and two times the state average. In other communities, both the percentage and number of older seniors is relatively low.

People with Disabilities

Figure 7 shows the number and percentage of people with disabilities, as compared to the statewide average, in Central Vermont communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

The percentage of people with disabilities in Barre City, Berlin, and other small towns on the southern edge of the region are between one and two times the state average, but numbers are small. In other communities, including Montpelier, the number and/or percentage of older seniors is small.

Auto Ownership

The number and percentage of households in Central Vermont towns with limited access to an auto in 2012-2016 are shown in Figure 8. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

Significant numbers of households with limited auto ownership are located in Montpelier and Barre City, which are also 1-2 times the state average in terms of percentage of such households in the community. In most towns, the number and/or percentage of such households is low.

Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 9 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

The highest levels of transit propensity—Moderate and Moderate/High—are seen in downtown Montpelier and Barre City. Most of the region shows a low level of transit propensity.

Central Vermont Region

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- ○ 1
- ○ 250
- ○ 500
- ○ 750
- ○ 1,000

Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

0   10
Miles

Central Vermont Region

% of Population with a Disability

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 2x - 3x Average

VT Average = 14.0%

Total Population with a Disability

- ○ 1
- ○ 750
- ○ 1,500
- ○ 2,250
- ○ 3,000

Regional Planning Commission Boundary

Municipal Boundary

Urban Areas

0 ⸻ 10 Miles

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Figure 8: Number and Percentage of Households with Limited Auto Ownership in Central Vermont Communities, 2012-2016
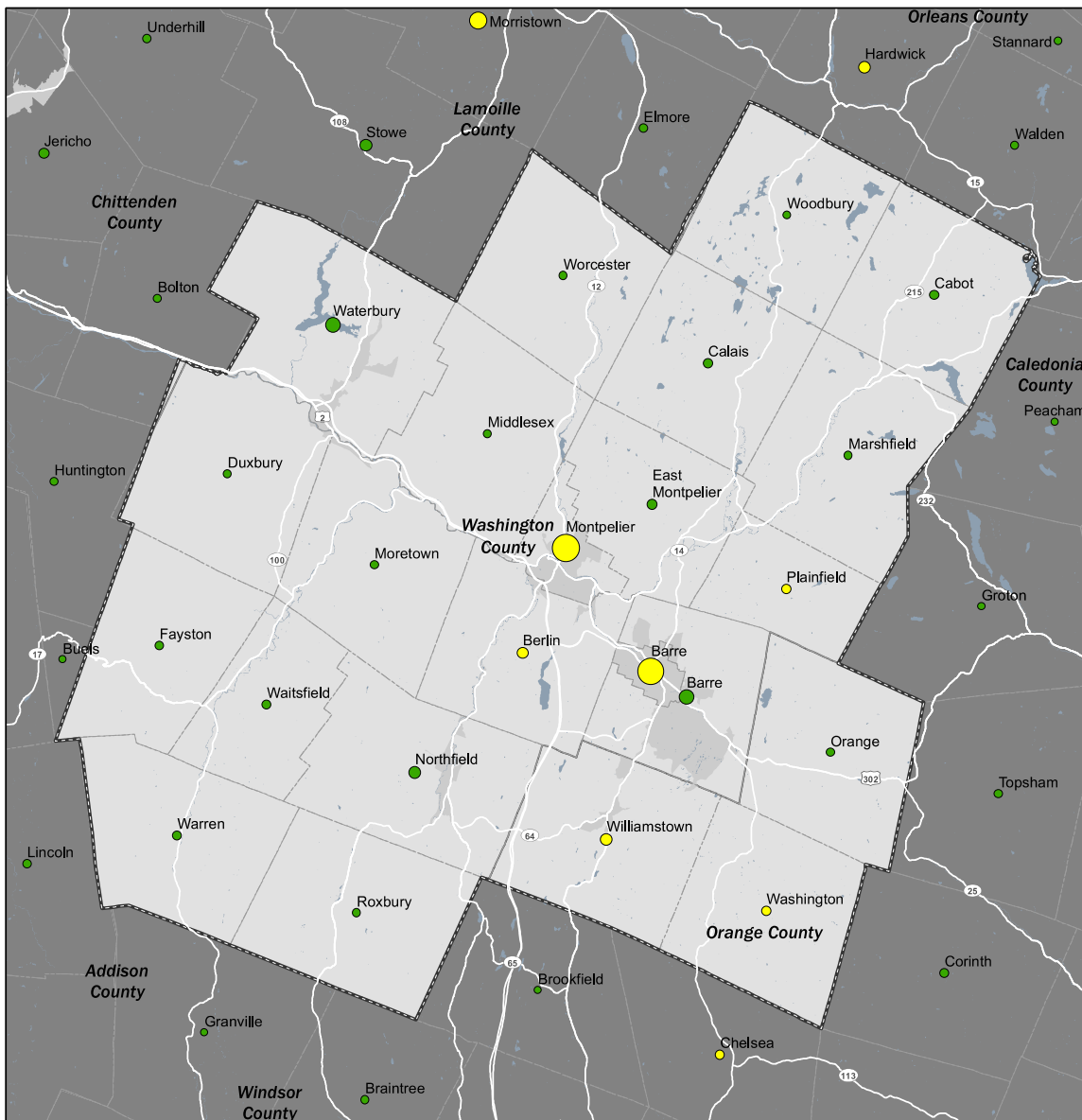
Central Vermont Region

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars
- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars
- ○ 1
- ○ 500
- ○ 1,000
- ○ 1,500
- ○ 2,000
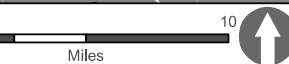
Regional Planning Commission Boundary
Municipal Boundary
Urban Areas

Figure 9: Transit Propensity Index, Central Vermont Region
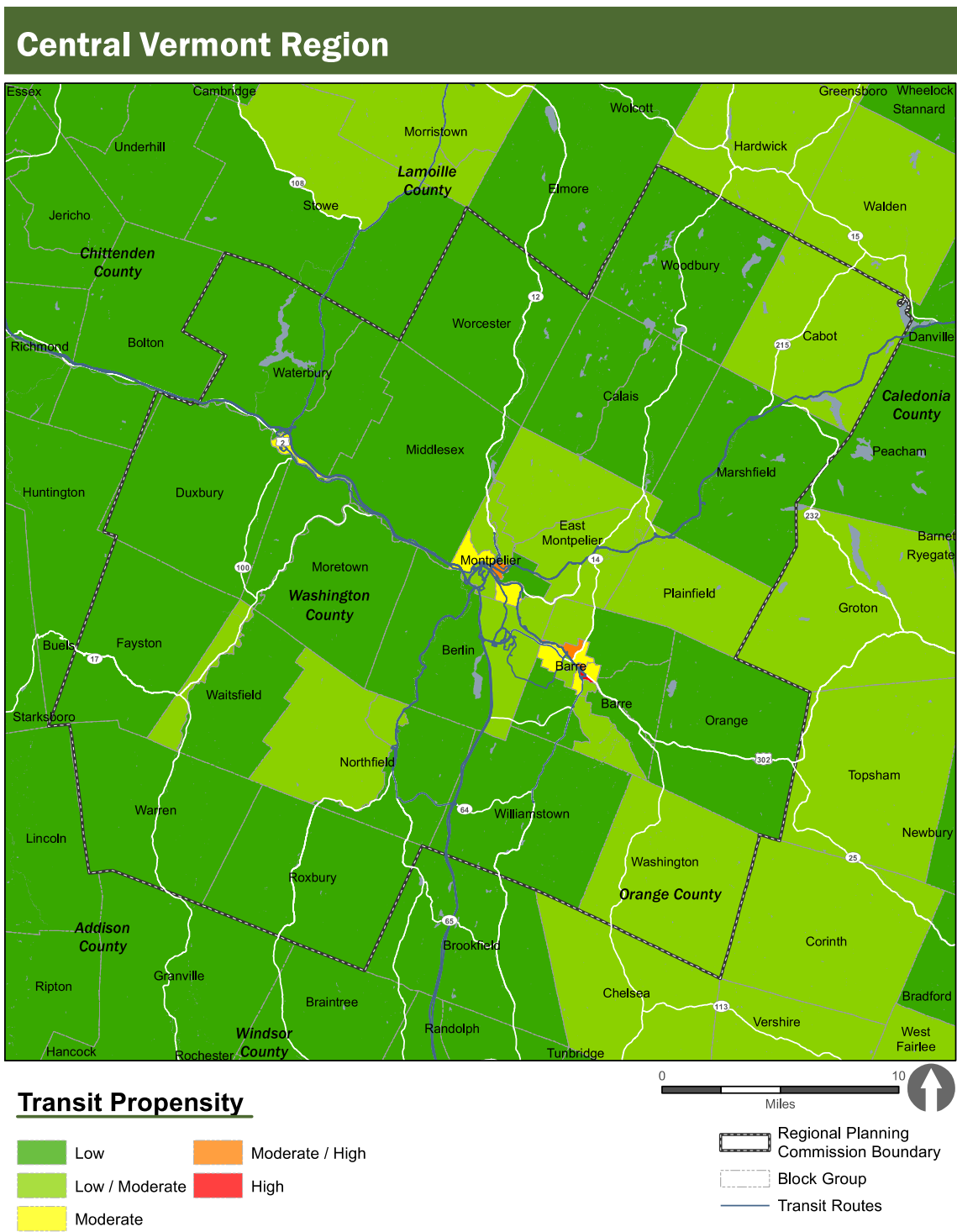
Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held at the Waterbury Town Office on November 28, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps
- Between Waterbury and Wakefield
- Route 14 Hardwick
- Direct service to Rutland
- Mad River Valley to Montpelier
- Commuter service to/from Middlesex
- Wrightsville Beach / Hannaford and East Barre

Temporal Gaps
- Evening service for:
  - Community College of Vermont
  - Employment
    - Restaurant workers
  - Medical appointments
  - Capstone / Job Training
- Weekend service for socialization

Trip Type Gaps
- Education related
  - Access to schools is a gap
- Career training
- Recreation/sports (evenings, weekends)
- Socializing (non-peak, evening, weekend)
- Civic engagement (evening)
- Dialysis (varies by region)

Accessibility Needs
- Crosswalk visibility is an issue, particularly when there is snow
- The following items are potential barriers:
  - Distance to the bus stop; a lack of benches; lack of snow maintenance (sidewalks, crosswalks); a lack of shelters (snow removal at shelters); and poor maintenance of shelters
- Some users have difficulty getting from to/from the bus, especially when they have goods to carry. Things to consider related to this include:
  - Driver rules
  - Having a bus buddy
  - High floor buses

Technology Challenges
▸ Intermodal connectivity is an issue including:
  – Coordinating of schedules, vehicle types, and span
▸ Information for intercity travelers is lacking
▸ Technology is a barrier for many users, particularly seniors
▸ Lack of cell service is a barrier for some

Affordability Gaps
▸ What can we do to increase funding and funding sources? Leverage existing programs:
  – Community transportation
  – "Adopt-a-shelter"
▸ GMT sees lack of funding from lower density communities
▸ Lower income residents are under-served but low density is a challenge to serve
▸ Need to encourage Community/Business "ownership" of local transit
▸ Need more education on fare structure
▸ Rural access vs. school service
  – Potential to use open seats

Other Gaps
▸ It was noted that disability and aging in place are not static issues. People are often stuck where they are or are forced to move to be nearer to services and/or transit.
▸ Volunteer drivers are great but locally we need more

Potential Solutions
When asked to rank potential service improvements, forum participants most often chose the options listed below.

Information
▸ One-call/one-click option for trip planning
▸ Centralized transportation information

Service Enhancements
▸ More eligible trip types
▸ Extended service hours
▸ Volunteer driver program enhancements
▸ Use of available demand-response vehicle seats

Accessibility Improvements
▸ Sidewalks or curb cuts
▸ Bus shelters

Technology
▸ Mobile information, reservations, real-time vehicle location (apps)
▸ Automatic Vehicle Location (AVL) systems

When asked to indicate their interest in the options noted above by "voting" with sticky dots, forum participants ranked potential improvements as follows:

Recommendation	Votes
GO!Vermont	5
One call/one-click	0
Trip types	2
Extended service hours	3
Vol driver program	8
Use available DR seats	4
Sidewalks	6
Bus shelters	1
AVL	3
Mobile information	2

Comments from the Central Vermont E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including the Central Vermont region. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

GMT's partners in the Central Vermont include the Central Vermont Council on Aging (CVCOA), Vermont Center for Independent Living (VCIL), and Barre Project Independence.

Trip priorities are: critical care medical trips, non-Medicaid medical trips, congregate meals, shopping, and personal business. Generally, funding is sufficient to enable individuals to make personal business trips. Demand for dialysis trips is once again increasing in this region.

Informal procedures rather than limits on numbers of trips are used to ensure that priority trips are provided. Partners have the ability to manage their funds to address priorities. Individuals are informed of a dollar amount to cover their anticipated trips for a year; those living outside the area and those who use wheelchairs (and therefore need to travel by accessible van) are given higher limits. GMT informs riders when they are getting close to their limits and lets them know how to access more funding if necessary. If additional needs come up during the year, funds are reallocated among partners to accommodate priority trips.

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

Seventy-five residents of the Central Vermont region commented on their desired trips. Several identified locations out of state to which they would like to travel, including Portland, Albany, Boston, New York City, and Montreal. More often, respondents identified the towns and destinations listed below as locations to which they would like to take transit services.

- Downtown Montpelier
- Specific destinations or addresses in Montpelier
- Barre
- Waterbury
- Downtown Waitsfield
- Plainfield
- Burlington: downtown, UVM, and Burlington International Airport
- Williston
- Winooski
- Essex Village
- Richmond (Chittenden County)
- Bennington
- Randolph, including Vermont Technical College
- Downtown Middlebury
- Downtown Rutland

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable
- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving

The first four categories had notably more responses than the remaining six: more service near my home (24%), more frequent service (24%) more service to my destinations (18%), and service in the evenings and/or weekends (20%).

Summary of Transit Service Gaps and Needs

The information presented above about the Central Vermont region's demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for the Central Vermont region.

Geographic Service Gaps

GMT fixed and deviated fixed bus routes, with the deviations that extend the reach of those services, provide service in in the communities that contain most of the Central Vermont region's population, including concentrations of likely transit users, and key destinations. Those communities include:

- Montpelier
- Berlin
- Barre
- Northfield
- Plainfield
- Waterbury

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Residents of those communities who live beyond the fixed route service area, and residents of other towns in the county, have limited if any public transit service options available to them.

Many employers in the region are located on or near bus routes. However, there are medium-large employers in Barre Town, Moretown, and Warren that are not located close to bus routes.

Temporal Service Gaps

GMT's local bus routes in the Central Vermont region offer 7-12 hours of service on weekdays; three routes also operate on Saturdays. Service frequency ranges from hourly to slightly longer other than the City commuter which runs every half hour. This level of service is good for small urban and rural communities that do not have the density needed to support longer or more frequent service. However, service hours do not accommodate people whose work schedules extend into the early morning or evening hours or Sundays. Students and those wishing to make social/recreational trips in the evenings are also unable to do so using transit.

Service on commuter routes operate during morning and afternoon peak hours only, appropriate for riders with traditional work schedules, but not useful for those with longer or more varied hours, or individuals who would like access to the regional destinations served by these routes for non-work trips or during the mid-day hours.

GMT's shuttle services operate on specific days that vary by community and during limited hours, providing a basic level of service in more rural communities for shopping, medical appointments, and other personal business trips.

Gaps for Specific Rider Groups/Trip Types

Regional forum participants commented on the need for transit options for the following types of trips. These trip type gaps mostly echo the need for services that operate during evening hours and on weekends.

- Education related
- Career training
- Recreation/sports (evenings, weekends)
- Socializing (non-peak, evening, weekend)
- Civic engagement (evening)
- Dialysis (varies by region)

E&D partner organizations noted that resources are generally sufficient to enable individuals to make social/personal trips, which are of a lower priority than critical care medical, non-Medicaid medical, congregate meals, and shopping trips. However, limits to the dollar amount allocated to each rider are in place to help partners manage their E&D budgets.

Other Gaps

Comments made during the Central Valley regional forum and MetroQuest survey responses seem to indicate that information about transit options may be incomplete among the region's residents.

Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in the Central Vermont region in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

Table 3: Estimated Transit Market Segments, Central Vermont Region, 2017

Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	27,894
Young adult (18-24), employed/student	X (by choice)	25,068
Adult (25-64)		70,456
Adult (25-64), below poverty line	X	4,007
People with disabilities (under age 80)	X	15,341
Younger seniors (65-79)		12,364
Older seniors (80+)	X	6,047
Total		161,177

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In the Central Vermont region, market segments that are likely to have limited or no access to a car make up nearly 49% of the population.

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for the Central Vermont on the various transit sub-markets in the region.

Several gaps are broad enough to affect all market segments. These include:

▸ **Geographic Coverage**: Rural communities lack transit options, making transportation an issue for all types of trips for those without access to a car or other means of a ride. In communities with transit service, difficulty making first/last-mile connections to bus stops or destinations further limits transit use.

▸ **Accessibility**: Sidewalks and paths to bus stops may not be safely accessible, especially during winter months. If fixed route service is available, it may not be usable or convenient.

▸ **Information**: Individuals and agency staff members may not be aware of the service options available. Service gaps and needs may be perceived rather than actual.

Other gaps are specific to certain market segments. For example:

- ▶ **All adult market segments**, who may need to travel to work or school, are affected by limited fixed route span of service. GMT local service operates from 6:00 AM to 7:00 PM, Monday through Saturday on most routes.
- ▶ **People with disabilities** are affected by limitations in E&D program funding. Dollar amounts are allocated to riders to help partners manage budgets.
- ▶ **Older adults, especially those over age 80,** are also affected by limits on trips provided with E&D program funding.
- ▶ **Individuals living in poverty** may have Medicaid transportation to eligible medical appointments but may have no other options for other types of trips.

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Table 4: Gap Analysis by Transit Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	X	X (by choice)		X	X		X
Geographic Gaps							
Need for first/last mile options limits fixed route use	X	X	X	X	X	X	X
Residents beyond the fixed route service area and in towns without fixed route bus service have limited options	X	X	X	X	X	X	X
Moderate to large employers are not served by bus routes in Barre, Moretown, and Warren		X	X	X	X		
Temporal Gaps							
Local routes do not offer early morning or evening hours of service	X	X	X	X	X	X	X
Peak-only schedules of commuter routes do not help those with non-traditional work hours		X	X	X	X	X	
Local shopping and medical shuttles operate on designated days and during limited hours				X	X		X
Trip Type Gaps							
Social/personal trips are at lower end of E&D eligible trip priorities					X	X	X
E&D funding constraints limit trips for older adults and people with disabilities					X	X	XX
Accessibility Needs							
More bus shelters and sidewalks/curb cuts would encourage fixed route use	X	X	X	X	X	X	X
Technology Challenges							
Mobile apps for reservations and real-time vehicle location, supported by Automatic Vehicle Location (AVL) systems, are desirable	X	X	X	X	X	X	X
Information Gaps							
Forum comments and survey responses indicate some lack of knowledge of available transportation options	X	X	X	X	X	X	X
Affordability Issues							
Funding constraints identified as an issue for providers, which limits services for harder to serve communities and individuals				X	X	X	X

Note: X indicates that a service gap is relevant to that demographic market segment

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Appendix G – Lamoille County Analysis

Contents

List of Figures

TRANSIT SERVICE GAPS AND NEEDS

Transit service gaps and needs in Lamoille County are discussed below. The 15 municipalities in Lamoille County receive planning services from the Lamoille County Planning Commission (LCPC).

Overview of Existing Services

Fixed Route Services

Transit services in Lamoille County are provided by Rural Community Transportation (RCT) and Green Mountain Transit (GMT).

As shown in Figure 1, RCT operates shopper routes that provide limited options in rural Lamoille County communities and connections to Orleans County and Chittenden County communities. All RCT routes are fare-free.

GMT operates three local routes (one with seasonal service only) and two commuter routes that serve Lamoille County communities.

RCT Services

- The Johnson Shopper operates on the first and third Thursdays of the month between Morrisville and Johnson via Hyde Park.
- The Williston Shopper operates on the second and fourth Tuesdays of the month from Newport (Orleans County) to Williston (Chittenden County), serving a number of communities in Lamoille County.

Both shopper routes offer one round trip per day.

GMT Services

The Morrisville Loop provides local service within Morrisville on weekdays from 8:00 AM to 3:00 PM, at roughly half-hour intervals. Deviations of up to ¾ of a mile are available on request with 24 hours' notice.

The Morrisville Shopping Shuttle operates on weekdays between Morrisville and Stowe. Connections to the Morrisville Loop offer service to additional locations. One round trip northbound to Morrisville and one round trip southbound to Stowe each day facilitate shopping trips to and from each community.

The Mountain Road Shuttle operates between late November and early April from Stowe to various tourist destinations along Route 108 plus the Stowe ski resort. The fare-free service operates seven days a week from 6:30-7:00 AM to 9:30-10:00 PM, every 15 minutes during peak morning and afternoon hours and every 30 minutes at other times. Curb-to-curb accessible van service is provided for customers with disabilities who are unable to use the fixed route shuttle.

The Route 100 Commuter travels between Morrisville and Waterbury (Washington County). Connections to GMT commuter routes to Barre, Montpelier, and Waterbury are possible using the Route 100 Commuter. Service operates Monday through Friday, with 1-2 trips in the morning peak hours and 2-3 trips in the afternoon peak hours.

Figure 1: Transit Services in Lamoille County

Lamoille County Region

Existing Transit Services

ROUTE_ID

Green Mountain Transit

GMT Chittenden - Commuter

Rural Community Transp.

Veterans Affairs Center

Social Security Office

Hospital

Higher Education

Retail Center

Regional Planning Commission Boundary

Municipal Boundary

Urban Areas
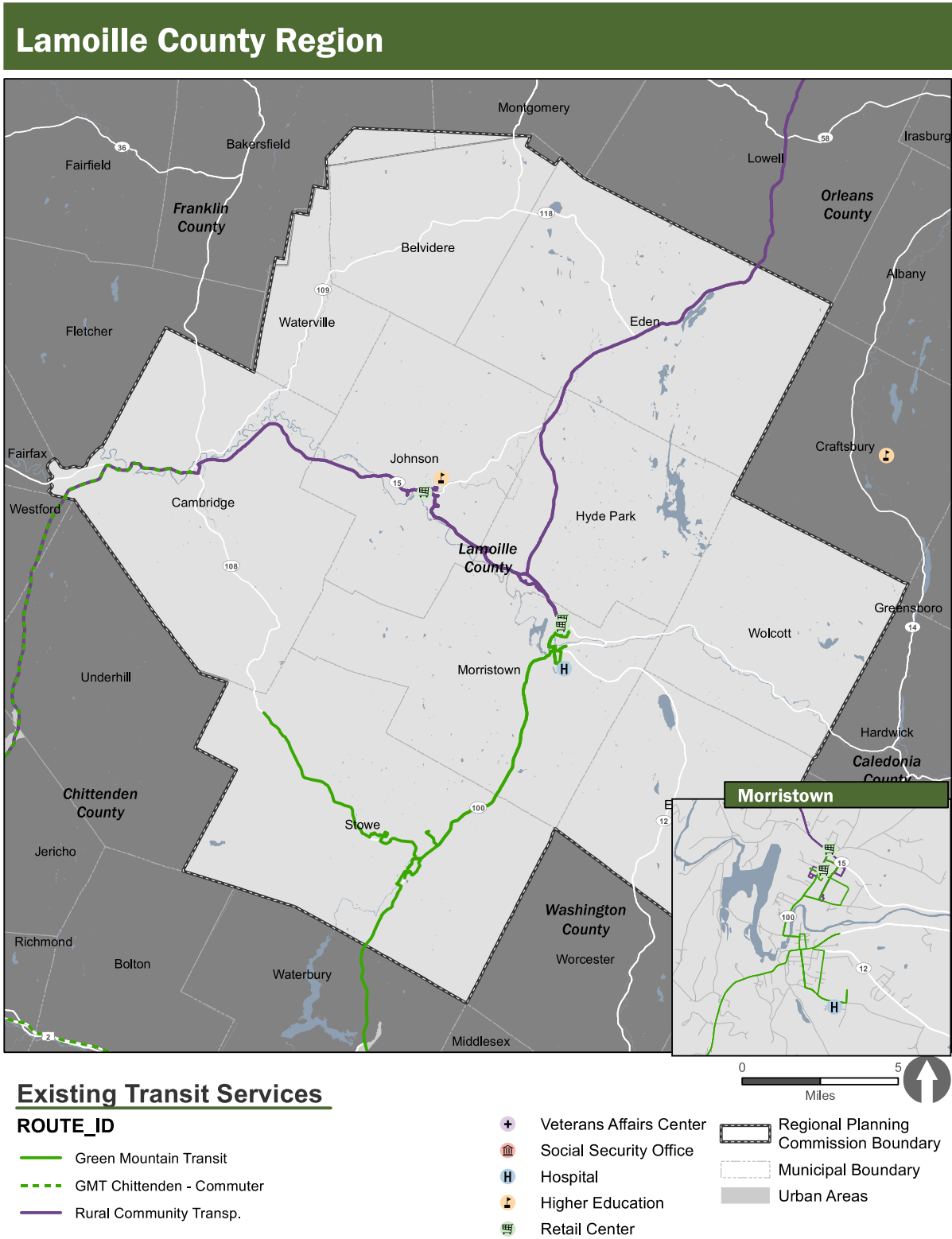
The Jeffersonville Commuter originates in Jeffersonville (a village in the Town of Cambridge, Lamoille County) and travels to Burlington via Underhill, Jericho and Essex on weekdays. Two trips in the morning peak hours and two trips in the afternoon peak hours are provided in each direction.

Dial-A-Ride and Other Services

RCT provides services for seniors, people with disabilities, and clients of human service agencies such as the Central Vermont Council on Aging, and a number of adult day health providers. Those organizations are RCT's partners in the delivery of services through the Vermont Elders and Persons with Disabilities (E&D) Transportation Program. RCT also provide non-emergency medical transportation for Medicaid recipients. RCT utilizes the services of volunteer drivers and taxi companies as well as its own vehicles and drivers to provide such trips.

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following communities:

▸ Morrisville

▸ Stowe

▸ Johnson

Some of those key destinations are shown in Figure 1 (more detail can be found on the route maps posted on the GMT and RCT websites, http://www.riderct.org/route-info/ and http://ridegmt.com/gmt-schedules/ . GMT and RCT bus routes serve many local and regional destinations.

Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the county.

The highest concentrations of employers, and most of the county's larger employers, are found in Morrisville and Stowe. Another small cluster of employers is located in Johnson. Smaller employers, with fewer than 100 employees, are scattered throughout the more rural communities.

As shown in Figure 2, many employers are located on or near bus routes. The Mountain Road Shuttle is not shown on the map because it is not a year-round route, but the large employers in Stowe along Mountain Road do receive this service during the season of greatest demand (and employment).However, employers in Stowe that are open year-round are not accessible by transit from April until late November.

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Figure 2: Employers in Lamoille County
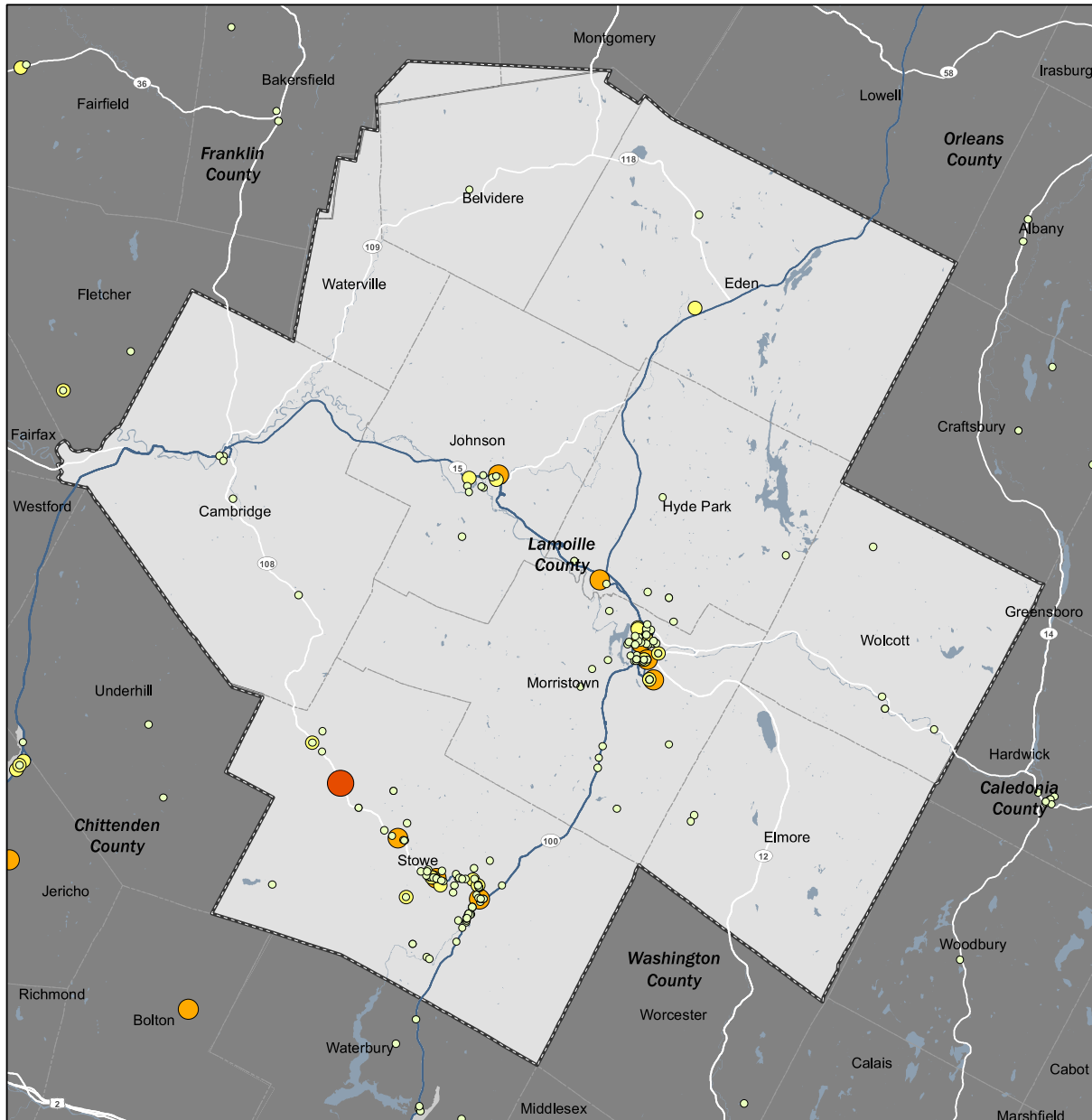
Lamoille County Region

Employers by Number of Employees

- ○ 10 - 49
- ○ 50 - 99
- ○ 100 - 299
- ● 300 - 499
- ● 500 +

Source: Dun & Bradstreet, 2017

0 ――― 5
Miles
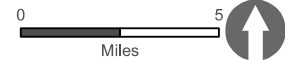
- ▭ Regional Planning Commission Boundary
- ┈ Township Boundary
- ▨ Urban Areas
- — Transit Routes

Commuting Patterns

Table 1 presents an overview of where Lamoille County residents work and where individuals who are employed in Lamoille County live.

Table 1: Employment in Lamoille County, 2015

Employment	Number	Percent of Total Lamoille County Employment	Percent of Total Employed Lamoille County Residents
Workers in Lamoille County			
Total Employees in Lamoille County	11,816	100%	
Lamoille County Residents Employed in Lamoille County	6,587	56%	
Residents of Other Areas Working in Lamoille County	5,229	44%	
Residents of Other Vermont Counties	4,651	39%	
Residents of Other States	578	5%	
Residents of Lamoille County			
Total Employed Lamoille County Residents	11,753		100%
Lamoille County Residents Employed in Lamoille County	6,587		56%
Lamoille County Residents Employed in Other Areas	5,166		44%
Working in Other Vermont Counties	4,625		39%
Working in Other States	541		5%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Just over half of the individuals who are employed in Lamoille County also live there (56%). The majority of those who are employed in Lamoille County but live elsewhere live in other Vermont counties, primarily Chittenden, Washington, Franklin, Caledonia, and Orleans counties. Several hundred Lamoille County workers also live in other states, primarily New York, New Hampshire, and Massachusetts.

Just over half of employed Lamoille County residents work as well as live in the county (56%). Most of the other 44% of employed county residents work in other Vermont counties—notably Chittenden and Washington counties, but a number of others as well—and other states (New Hampshire, Massachusetts, New York, and others).

Figure 3 illustrates the daily commuting travel flows into Stowe, the county's largest job center, at the town level.

As shown in Figure 3, Stowe draws a significant number of daily commuters from most Lamoille County communities and from Waterbury, in Washington County. Stowe and Morristown generate the highest number of daily trips—500 to 1,999 trips each. Hyde Park and Waterbury each generate 200-499 daily trips to Stowe, followed by Johnson and Wolcott at 100-199 daily trips each. Burlington, South Burlington, and Montpelier also send significant numbers of daily commuters to Stowe (50-200 commuters from each community).

Lamoille County Region

Commuters to Stowe

< 10	200 - 499
10 - 49	500 - 1,999
50 - 99	2,000 +
100 - 199	

Regional Planning Commission Boundary
Municipal Boundary
Destination Zone

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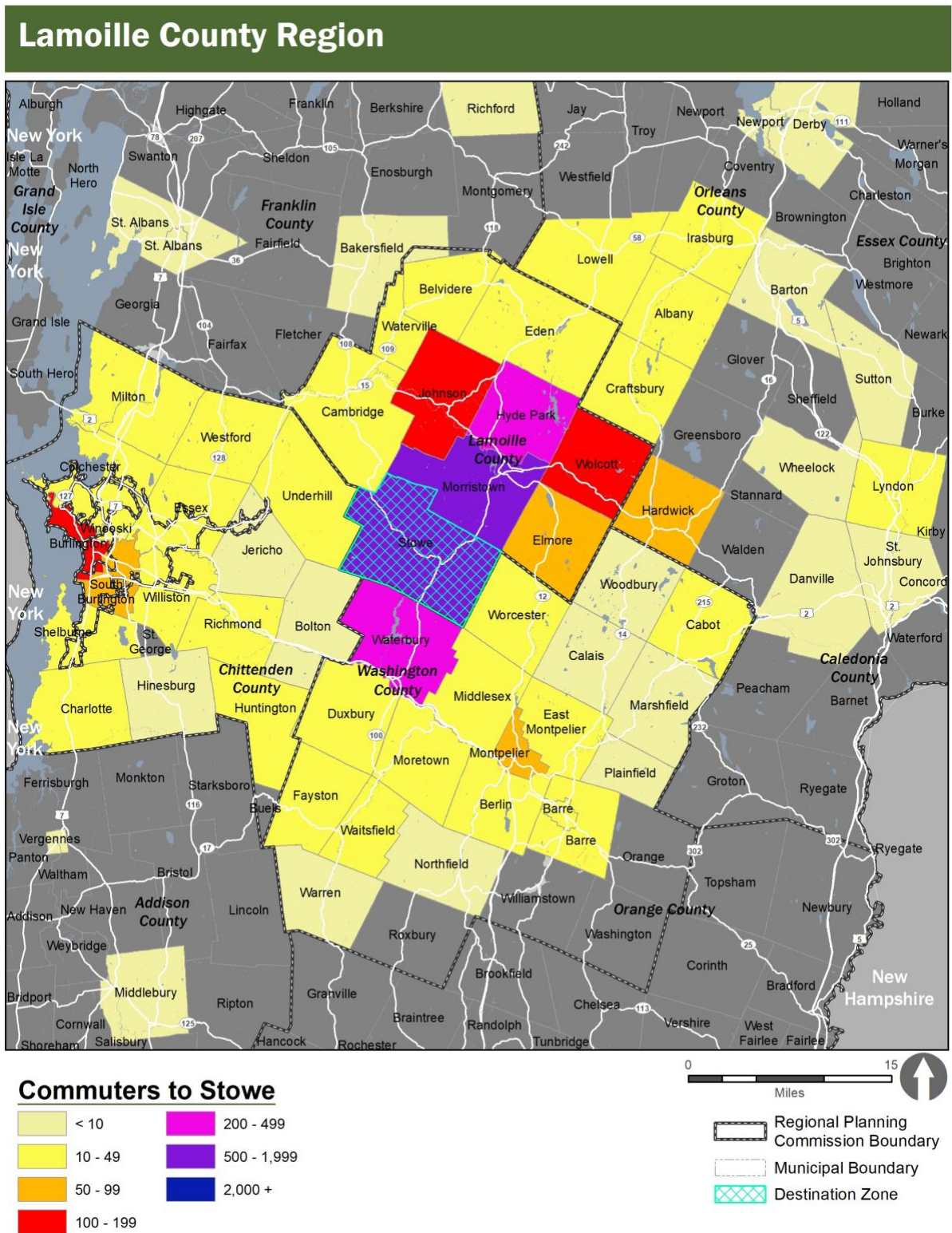
Figure 4 shows the daily commute trips into the core Chittenden County communities (Burlington, South Burlington, and Winooski). Those communities are the most important job destination for Lamoille County residents outside of the county. As shown in Figure 4, over 100 commuters from Stowe and Cambridge travel to the Chittenden County core daily. Central Lamoille County communities each generate over 50 daily commute trips to that area.

Demographic Overview

This section presents an overview of the demographic characteristics of Lamoille County and summarizes the location and density of the general population of the county and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for Lamoille County as of 2016, as compared to Vermont as a whole.

Table 2: Demographic Characteristics of Lamoille County, 2012-2016

	Lamoille County	**Vermont**
Total population	25,136	626,249
Population density	58 persons per square mile	68 persons per square mile
Population age 60 and over	21.5%	24%
Population age 80 and over	3.6%	4.3%
Residents living below poverty line	13%	11.6%

Source: American Community Survey 5-year Average 2012-2016

The total population of the county in 2016 was 25,136, or 4% of the state's population. At 58 residents per square mile, the county is less densely populated than the state as a whole. The percentage of older adults among Lamoille County's population is slightly lower than the state average—22% of county residents are age 60 and over, and nearly 4% are age 80 and over. Those percentages of older adults are the third lowest and second lowest among all eleven regions of the state, respectively. A higher percentage of the county's population lives below the federal poverty line than in the state as a whole; 13% compared to 11.6%.

Population Density

Figure 5 shows the concentration of the population in Lamoille County. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The only area of even moderate density (500-999 people per square mile) is Hyde Park. The more developed part of Morrisville, which has moderate to high density, is part of a block group that has a lot of rural territory, and thus does not show up on the map as a dense cluster. All other communities show a rural density of 499 or less residents per square mile.

Northwest Region

Quebec,
Canada

**Commuters to
Chittenden County Core**

< 10	200 - 499
10 - 49	500 - 2,000
50 - 99	2,000 +
100 - 199	

Regional Planning
Commission Boundary

Municipal Boundary

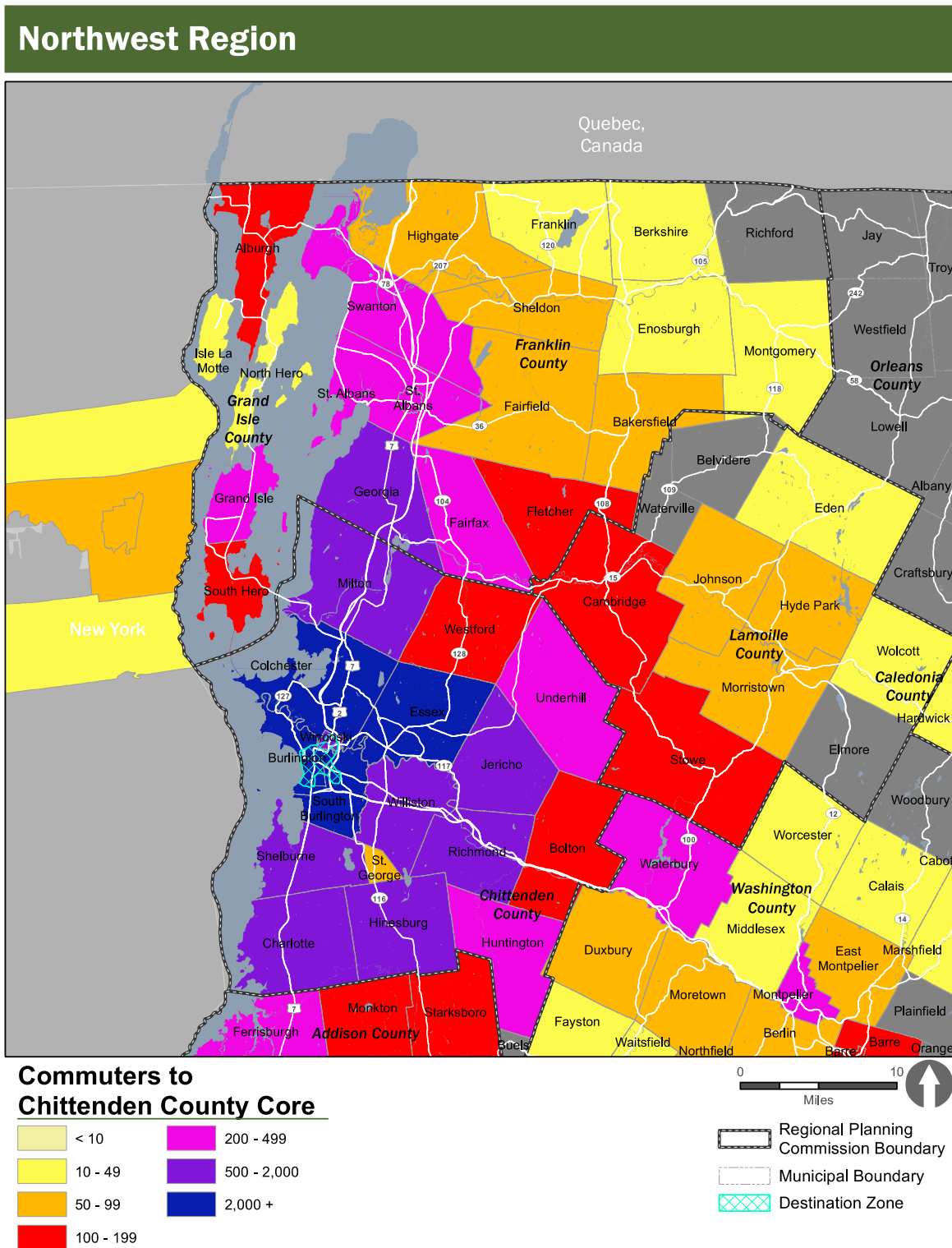Destination Zone

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Figure 5: Population Density in Lamoille County, 2017

Market Segments and Transit Propensity

Groups that are likely to need transit services because they do not drive, for reasons of disability, income, or choice, include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Figure 6 through Figure 8 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Rutland County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 6 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in the Lamoille County region. The focus in Figure 6 is on this older age group because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

As shown in Figure 6, the percentage of older seniors in Stowe, Morristown, and Eden is above the state average, but the number of individuals in each community is small (250 or less).

People with Disabilities

Figure 7 shows the number and percentage of people with disabilities, as compared to the statewide average, in Lamoille County communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

The highest numbers of people with disabilities—up to 750 per community—live in Morristown, Stowe, Johnson, and Hyde Park. In those towns, and most others, the percentage of residents with a disability is lower than the state average. Only Wolcott and Belvidere are above the state average with regard to percentage of residents with a disability, but the numbers of individuals in those towns is very small.

Auto Ownership

The number and percentage of households in Lamoille County towns with limited access to an auto in 2012-2016 are shown in Figure 8. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

The highest numbers of households with limited access to a vehicle are found in Morristown and Johnson—up to 500 or so households in each town. In those communities and Belvidere and Waterville, the percentage of such households exceeds the state average. The number of households in Belvidere and Waterville with limited auto access is small, however. In Stowe, Elmore, Wolcott, Hyde Park, Cambridge, and Eden, the percentage of households with limited auto access is below the state average.

Lamoille County Region

Fairfield

Bakersfield

Lowell

58

36

Franklin County

Belvidere

118

Orleans County

109

Fletcher

Waterville

Eden

Craftsbury

Johnson

15

Cambridge

Hyde Park

108

Lamoille County

Wolcott

14

Morristown

Underhill

Hardwick

Chittenden County

Caledonia County

Elmore

Stowe

100

12

Woodbury

Bolton

Washington County

Worcester

2

Waterbury

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- ○ 1
- ○ 250
- ○ 500
- ○ 750
- ○ 1,000

0   5

Miles

▭ Regional Planning Commission Boundary

▭ Municipal Boundary

▭ Urban Areas

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Lamoille County Region

Fairfield

Bakersfield

Lowell

36

58

Franklin County

Belvidere

118

Orleans County

109

Waterville

Eden

Fletcher

Craftsbury

Johnson

15

Cambridge

Hyde Park

108

Lamoille County

Wolcott

14

Underhill

Morristown

Hardwick

Caledonia County

Elmore

Chittenden County

Stowe

12

100

Woodbury

Bolton

Washington County

Worcester

Waterbury

2

% of Population with a Disability

🟢 Below Average

🟡 1x - 2x Average

🔴 2x - 3x Average

VT Average = 14.0%

Total Population with a Disability

o 1

○ 750

○ 1,500

○ 2,250

○ 3,000

0   5

Miles

▭ Regional Planning Commission Boundary

┈ Municipal Boundary

▨ Urban Areas

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Lamoille County Region

Fairfield

Bakersfield

Lowell

Franklin County

Orleans County

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Johnson

Cambridge

Hyde Park

Lamoille County

Wolcott

Underhill

Hardwick

Caledonia County

Chittenden County

Morristown

Elmore

Stowe

Woodbury

Washington County

Bolton

Worcester

Waterbury

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- ∘ 1
- ○ 500
- ○ 1,000
- ◯ 1,500
- ◯ 2,000

0   5
Miles

Regional Planning Commission Boundary

Municipal Boundary

Urban Areas

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Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 9 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

All of Lamoille County's towns show Low to Low/Moderate propensity for transit use. Some of the villages, such as Morrisville, likely have higher levels of propensity, but census geography limits calculation of the propensity index at that level.

Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held at the Hyde Park Town Office on November 14, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps

- Areas with no service like Route 15/100
  - RCT TDP had recommendations for this but it needs funding
  - Rural trips (non-qualifying)
  - Johnson: Access to health care, and to Morrisville for shopping and services
- Need to connect campuses

Temporal Gaps

- Hospitality industry
  - Shifts and weekend work
- Quality of life trips (midday, evening, weekend)
- Some medical trips are difficult timing wise
- Shopping could drop due to lack of funding

Trip Type Gaps

- No dialysis/treatment center in Lamoille County (nearest is 1 hour away)
- Small/medium employers that are remote
- Long-distance trips are inconvenient
  - Hard to access intercity
- Getting rural users to fixed route, if they were available
- Treatment for substance abuse to hubs outside Lamoille County
  - Daily, for months or years
- Access to jobs

Accessibility Needs

- P&R availability, convenience for buses
- Bus stops safe and walkable?
  - Results in underutilization

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Lamoille County Region

Montgomery
Irasburg
Bakersfield
Lowell
58
Fairfield
36
Orleans County
Franklin County
118
Albany
Belvidere
109
Waterville
Eden
Fletcher
Craftsbury
Johnson
Fairfax
15
Westford
Cambridge
Hyde Park
Lamoille County
Greensboro
108
Wolcott
14
Underhill
Hardwick
Caledonia County
Morristown
Chittenden County
Elmore
Jericho
Stowe
100
12
Woodbury
Richmond
Washington County
Bolton
Worcester
Waterbury
Calais
Cabot
2
Middlesex
Marshfield

Transit Propensity

■ Low		■ Moderate / High	
■ Low / Moderate		■ High	
■ Moderate			

0 — 5 Miles

▭ Regional Planning Commission Boundary
▭ Block Group
— Transit Routes

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Affordability Gaps
- Non-drivers seek to leave due to inability to drive and lack of transit
- Affordable and available transit is an E&D issue (car ownership cost)
- Difficult to fill jobs (transportation is one aspect of this)
- Transit provides life-style choice
- Transportation funding in Lamoille County is limited
  - Could consider E&D funding pools?
- Affordable housing
- Eligibility, funding, and lack of access for employment and E&D are all related
- Some counties are providing opioid/employment trips

Information Gaps
- We need to connect the community to GO! Vermont

Other Comments
- Taxi service can be difficult (getting to airport)
- RCT/GMT are doing a good job of supporting the community. How can we expand eligibility for employment related trips? How can we enhance what we have (access to jobs)?
- We need funding beyond the short term
- Serving young people
- Missing destinations:
  - Attendees noted that there are some satellite human services in Hyde Park.
  - Veteran housing was mentioned.
  - The Smuggs ski resort is a large employer (350 employees) that may not be adequately represented on maps.
  - MSI in Morrisville may not be adequately represented on maps, as it houses multiple employers. They are a contract assembler with 225 employees. They run their own vans from Burlington.
- Existing service:
  - Hardwick, though included in the Northeast Kingdom region, is a crossroads, and is served by services in Morrisville.
- Funding for microtransit pilot
- View public transit as a public good
  - Need more funding, and this would also help overcome transit stigma
- Partnership w/hospital to reduce transportation costs

Potential Solutions
When asked to rank potential service improvements, forum participants most often chose the options listed below.

Information
- Trip planning assistance

- ▸ Trip reservations assistance

Other comments:

- ▸ Municipalities can help communicate services
- ▸ Handouts for seniors & local events
  - – How to make case for local funding
  - – Distribute through common destinations
- ▸ Take advantage of VTrans marketing support

Service Enhancements
- ▸ More eligible trip types
- ▸ Expanded service areas
- ▸ Volunteer driver program enhancements
- ▸ Use of available demand-response vehicle seats

Accessibility Improvements
- ▸ Sidewalks or curb cuts
- ▸ Accessible signals or signage

Technology
- ▸ Scheduling/dispatching software 1st
- ▸ Mobile information, reservations, real-time vehicle location (apps)

When asked to indicate their interest in the options noted above by "voting" with sticky dots, forum participants ranked potential improvements as follows:

Recommendation	Votes
Trip planning assistance	4
Trip reservation assistance	0
More eligible trip types	8
Expanded service areas	2
Vol. driver program	7
Use of DR seats	0
Sidewalks/curb cuts	2
Accessible signage	0
Scheduling software	2
Real time info	2
Fare free	1

Comments from the Lamoille County/Northeast Kingdom E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including the combination of Lamoille County and the Northeast Kingdom. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for

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their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

RCT provides services for seniors, people with disabilities, and clients of its E&D partners such as the Northeast Vermont Area Agency on Aging, the Central Vermont Council on Aging, Northeast Kingdom Community Action, Northeast Kingdom Human Services and a number of adult day health providers. RCT utilizes the services of volunteer drivers and taxi companies as well as its own vehicles and drivers to provide such trips.

Comments regarding transportation needs and service gaps include the following:

▶ There is a huge demand for rides. Although significant resources have been put into the volunteer driver program and there are 85-90 active drivers at any given time, recruiting and retention are still difficult. Sickness and unavailability for other reasons cannot be covered. A 50% increase in the number of available drivers would be helpful.
▶ Demand for non-Medicaid medical trips, including adult day health trips, has really grown.
▶ No formal trip limits are in place; it is up to the partner organizations to balance trip priorities and funding constraints. Partners typically work with RCT to mitigate overspending by additional funds, utilizing E&D funding from a partner that is underspending, and/or limiting trips. In the past there have been years in which funds were depleted before the end of the year and service was suspended temporarily.
▶ Trip priorities, in order, are:
  − Critical care
  − Non-Medicaid medical, including adult day health
  − Social/personal or shopping. Social/personal is the last priority, along with wellness trips, including trips to meal sites. Funding limits don't really allow these types of trips to be provided.
▶ Unmet needs cannot be examined too closely, because of a lack of funding and volunteer drivers to address them.

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

Forty-seven residents of Lamoille County commented on their desired trips. Several identified locations out of state to which they would like to travel, including Boston and Montreal. More often, respondents identified the following as locations to which they would like to take transit services.

■ Cambridge
■ Elmore Village
■ GMT bus stop
■ Hardwick
■ Hyde Park

■ Jeffersonville to Morrisville (Northern Vermont University)
■ Johnson
■ Morrisville
■ Newport

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- Richmond (Park & Ride)
- Stowe
- Wolcott
- Burlington
- Middlebury
- Montpelier
- Vergennes
- Williston (shopping)
- Winooski

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable
- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving
- Other

Of the 74 responses to this question from Lamoille County, 89% were in the top four categories: more service near my home (28%), more service to my destinations (22%), more frequent service (20%) and service in the evenings and/or weekends (19%).

Summary of Transit Service Gaps and Needs

The information presented above about Lamoille County demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for Lamoille County.

Geographic Service Gaps

GMT and RCT bus routes provide service in the towns that contain most of Lamoille County's population, including concentrations of likely transit users and key destinations. Those towns include:

- Eden
- Hyde Park
- Morristown
- Johnson
- Cambridge
- Stowe

Residents of those communities who live beyond the fixed route service area, and residents of other towns in the county, have limited if any public transit service options available to them.

Many employers in the county are located on or near bus routes. However, employers in Stowe that are open year-round are not accessible by transit from April until late November when the seasonal Mountain Road Shuttle is not in operation.

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Temporal Service Gaps

GMT's Morrisville Shuttle in Lamoille County operates for seven hours a day, Monday through Friday. Customers wishing to travel in the early morning, late afternoon/evening hours, or on weekends, do not have transit options for those trips. The Morrisville Shopper operates Monday through Friday, providing one trip in each direction. A very high level of service is provided on the Mountain Road Shuttle in Stowe, but that route operates only during the winter and early spring months.

GMT's commuter routes operate on weekdays, providing a limited number of trips during morning and afternoon peak hours. The commuter routes offer connections to other routes for access to a number of communities, but schedules do not accommodate individuals who would like to have access to those areas during mid-day hours.

RCT's bus service in the county consists of shopper shuttles that operate only two days a month.

Gaps for Specific Rider Groups/Trip Types

Regional forum participants and E&D partner organizations commented on the need for additional resources so that more social/wellness, shopping, and congregate meal trips can be provided for older adults and people with disabilities. Funding constraints mean that higher priority types of trips—critical medical care and adult day health trips are served first.

Other trip types that are difficult or impossible to make using transit include:

▸ Dialysis/treatment trips
▸ Work trips to small/medium employers that are remotely located
▸ Access to jobs in general
▸ Long-distance trips are inconvenient
▸ Treatment for substance abuse to hubs outside Lamoille County

Other Gaps

MetroQuest survey responses and comments from regional forum participants indicate that there is a need for more education and marketing about transportation options in Lamoille County.

Affordability issues were also identified for Lamoille County, not only for providers who must deal with funding constraints, but also individuals who may not be able to afford car ownership or get to a job and therefore need to have transit service available.

Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in Lamoille County in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

Table 3: Estimated Transit Market Segments, Lamoille County, 2017

Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	11,853
Young adult (18-24), employed/student	X (by choice)	4,613
Adult (25-64)		25,013
Adult (25-64), below poverty line	X	2,479
People with disabilities (under age 80)	X	9,311
Younger seniors (65-79)		7,050
Older seniors (80+)	X	2,980
Total		63,299

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In Lamoille County, market segments that are likely to have limited or no access to a car make up nearly 43% of the population.

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for Lamoille County on the various transit sub-markets in the region.

Several gaps are broad enough to affect all market segments. These include:

▸ **Geographic Coverage**: Rural communities lack transit options, making transportation an issue for all types of trips for those without access to a car or other means of a ride. In communities with transit service, difficulty making first/last-mile connections to bus stops or destinations further limits transit use.

▸ **Accessibility**: Sidewalks and paths to bus stops may not be safely accessible, especially during winter months. If fixed route service is available, it may not be usable or convenient.

▸ **Information**: Individuals and agency staff members may not be aware of the service options available. Service gaps and needs may be perceived rather than actual.

Other gaps are specific to certain market segments. For example:

▸ **All adult market segments**, who may need to travel to work or school, are affected by limited fixed route span of service. GMT local service operates from 8:00 AM to 3:00 PM on weekdays. No service is available on weekends. Regional routes operate more limited hours. Making work trips more difficult is the fact that not all employers are served by existing routes.

▸ **People with disabilities** are affected by limitations in E&D program funding. Options for shopping, social/personal, and wellness trips may not be available.

▸ **Older adults, especially those over age 80,** are also affected by limits on trips provided with E&D program funding and may be unable to make all but the most critical medical or adult day service trips.

▸ **Individuals living in poverty** may have Medicaid transportation to eligible medical appointments but may have no other options for other types of trips.

Table 4: Gap Analysis by Transit Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	**X**	**X (by choice)**		**X**	**X**		**X**
Geographic Gaps							
Need for first/last mile options limits fixed route use	X	X	X	X	X	X	X
Residents beyond the fixed route service area and in towns without fixed route bus service have limited options	X	X	X	X	X	X	X
Year-round employers along the Mountain Road Shuttle are not served by transit from April until late November							
Temporal Gaps							
Peak-only schedules of commuter routes do not help those with non-traditional work hours		X	X	X	X	X	
GMT shopper shuttle offer limited numbers of round trips; RCT shoppers operate only two days per month			X	X	X	X	X
Trip Type Gaps							
Social/wellness/shopping/congregate meals trips are at lower end of E&D eligible trip priorities					X	X	X
E&D funding constraints limit trips for older adults and people with disabilities					X	X	X
Dialysis and substance abuse treatment trips are long due to a lack of local facilities		X	X	X	X	X	X
Access to jobs		X	X	X	X	X	
Accessibility Needs							
More bus shelters, sidewalks/curb cuts and accessible signage or signals would encourage fixed route use	X	X	X	X	X	X	X
Technology Challenges							
Reservations/scheduling software and mobile apps for reservations and real-time vehicle location are desirable	X	X	X	X	X	X	X
Information Gaps							
Forum comments and survey responses indicate some lack of knowledge of available transportation options	X	X	X	X	X	X	X
Affordability Issues							
Affordable transit is needed for those who do not own cars and need transportation to get to work		X		X	X	X	

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Appendix H – Northeast Kingdom Analysis

Contents

List of Figures

Transit service gaps and estimates of the resources needed to improve transit services in the Northeast Kingdom (NEK) region are discussed below. The NEK region includes the 55 communities in Caledonia, Essex, and Orleans counties in the northeast section of the state, which comprise the service area of the Northeast Vermont Development Association (NVDA), the region's planning organization.

Overview of Existing Services

Fixed Route Services

Rural Community Transportation, Inc. (RCT) is the region's public transportation provider. As shown in Figure 1, RCT operates deviated fixed route shuttles and commuter routes to connect NEK communities and provide access to other areas (commuter routes run to Montpelier and New Hampshire). Shopper routes provide access on a more limited basis in rural communities. All RCT routes are fare-free.

Deviated Fixed Routes

The Jay-Lyn/Jay-Lyn Express Shuttle operates from roughly 5:00 a.m. to 5:00 p.m. between St. Johnsbury and Lyndonville, with intervals of 1-2 hours between trips.

The Highlander Shuttle operates Monday through Saturday from 7:15 a.m. to 4:30 p.m. between Newport and Derby Line. Two trips operate in the morning and two trips in the afternoon.

Deviations of up to ¼ of a mile are available to individuals with disabilities but must be reserved a day in advance.

Commuter Routes

Service to Montpelier from St. Johnsbury and Danville is provided by the US 2 Commuter route, which offers two trips in the morning and two in the afternoon hours on weekdays. One trip in the morning and in the afternoon is operated by Green Mountain Transit; a $2 fare is charged on those trips.

The Twin City Route operates one trip in the morning and one trip in the afternoon on weekdays between St. Johnsbury and Littleton, NH.

RCT's newest route, the 15/14 commuter, operates one round-trip in the morning and one in the afternoon between Morrisville and Barre via Hardwick. It connects with the US 2 Commuter in East Montpelier to allow for Route 14 residents to reach Montpelier as well as Barre.

Shopper Routes

Four shopper routes provide limited local service in rural communities.

▸ The Island Pond Shopper operates on Thursdays. Service from Island Pond to Newport and Derby Line operates through Morgan on the first, third, and fifth Thursdays of the month. Service from Island Pond to Newport and Derby Line operates through E. Charleston on the second and fourth Thursdays.
▸ The Kingdom Shopper 2 operates on the fourth Wednesday of the month between Island Pond and Derby via Barton, Orleans, and Glover.
▸ The Greenleaf Shopper operates on the second and fourth Tuesdays of the month from Lyndonville to St. Johnsbury and through Danville, Peacham, Groton, and South Ryeback to the Walmart in Woodsville, NH.

Figure 1: Transit Services in the Northeast Kingdom Region
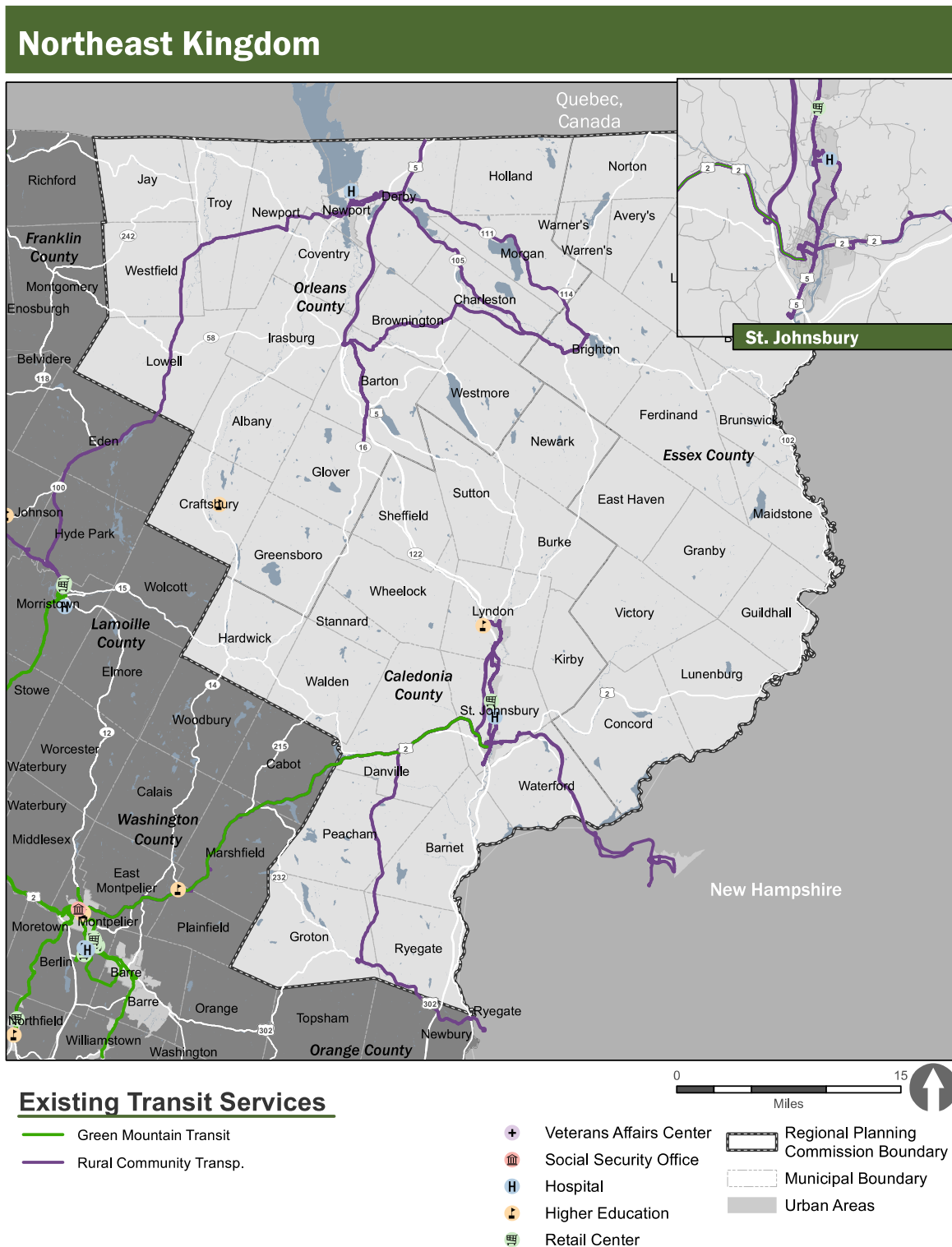
Note that this map shows the former Williston Shopper route from Newport through Lamoille County. This route was discontinued at the end of 2019.

All shopper routes provide one round trip per day.

RCT customers can use two mobile apps—Swiftly and Transit—to track vehicle locations and service disruptions and do simple trip planning.

Dial-A-Ride and Other Services

RCT provides services for seniors, people with disabilities, and clients of human service agencies such as the Northeast Vermont Area Agency on Aging, the Central Vermont Council on Aging, Northeast Kingdom Community Action, Northeast Kingdom Human Services and a number of adult day providers. Those organizations are RCT's partners in the delivery of services through the Vermont Elders and Persons with Disabilities (E&D) Transportation Program. RCT also provide non-emergency medical transportation for Medicaid recipients. RCT utilizes the services of volunteer drivers and taxi companies as well as its own vehicles and drivers to provide such trips.

A few taxi companies also serve NEK communities.

Key Destinations

Retail areas (including supermarkets), health care facilities, colleges and universities, and human service agency offices are primarily located in the following communities:

- St. Johnsbury
- Newport
- Derby
- Lyndonville
- Craftsbury
- Orleans, Concord, Danville, Island Pond, Hardwick—Northern Counties Health Care clinics

Some of those key destinations are shown in Figure 1 (more detail can be found on the route maps posted on the RCT website, www.riderct.org . RCT bus routes serve many local and regional destinations, including several in New Hampshire).

Employment and Commuting Patterns

Employers

Figure 2 shows the location of employers of various sizes in the county.

The highest concentrations of employers are in St. Johnsbury and Newport. Moderate clusters of employers are located in Lyndonville, Barton, and Derby. A few small employers, with 100 or fewer employees, are scattered in the more rural towns. Very few employers are located in Essex County.

Most moderate to large employers are served by existing bus routes. Employers with 100 or fewer employees that do not appear to be located near fixed routes can be found in Jay, Newport, Greensboro, Lyndon, Concord, and Ryegate. One larger employer in Burke, with 100-299 employees, is not located close to a bus route.

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Figure 2: Employers in the Northeast Kingdom Region

Northeast Kingdom

Employers by Number of Employees

- ○ 10 - 49
- ○ 50 - 99
- ○ 100 - 299
- ● 300 - 499
- ● 500 +

Source: Dun & Bradstreet, 2017

- ▭ Regional Planning Commission Boundary
- ▭ Township Boundary
- ▭ Urban Areas
- — Transit Routes

0 — 15 Miles

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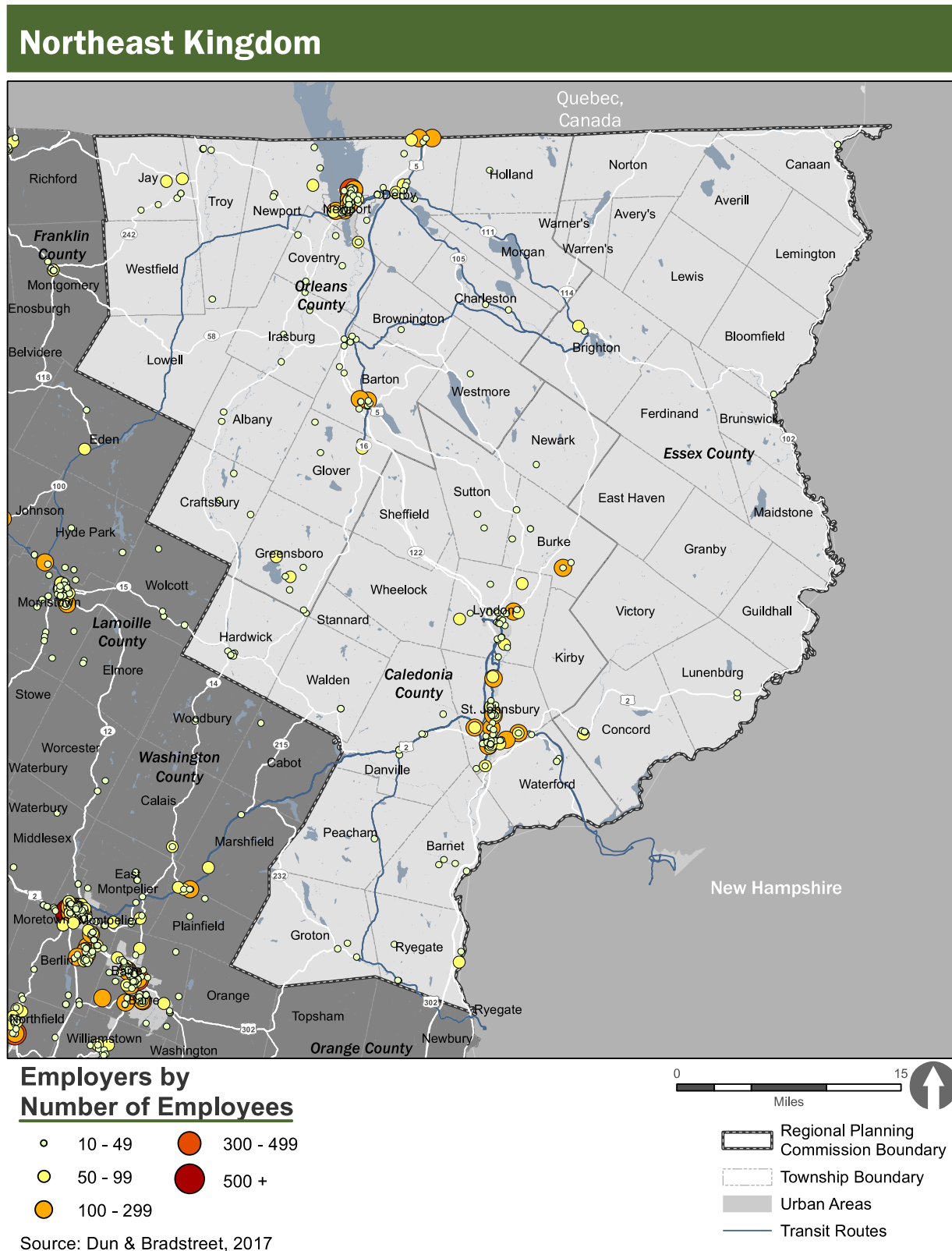
Commuting Patterns

Table 1 presents an overview of where NEK residents work and where individuals who are employed in NEK live.

Table 1: Employment in the Northeast Kingdom Region, 2015

Employment	Number	Percent of Total Northeast Kingdom Employment	Percent of Total Employed Northeast Kingdom Residents
Workers in Northeast Kingdom			
Total Employees in Northeast Kingdom	21,829	100%	
Northeast Kingdom Residents Employed in Northeast Kingdom	16,825	77%	
Residents of Other Areas Working in Northeast Kingdom	5,004	23%	
Residents of Other Vermont Counties	3,195	15%	
Residents of Other States	1,809	8%	
Residents of Northeast Kingdom			
Total Employed Northeast Kingdom Residents	26,452		100%
Northeast Kingdom Residents Employed in Northeast Kingdom	16,825		64%
Northeast Kingdom Residents Employed in Other Areas	9,627		36%
Working in Other Vermont Counties	6,978		26%
Working in Other States	2,649		10%

Source: U.S. Census, Longitudinal Employer-Household Dynamics, 2015

Over three-quarters of the individuals employed in the NEK region also live there (77%). Two-thirds of those who work in the region and live elsewhere live in other Vermont counties, primarily Chittenden, Washington, and Lamoille counties. NEK employees also live in Grafton and Coos counties, New Hampshire, and in other states.

Two-thirds of employed NEK residents (64%) work in the region. The majority of those who live in the region and are employed outside of it work in other Vermont counties, primarily Chittenden, Washington, and Lamoille counties. NEK residents also work in New Hampshire, particularly in Grafton and Coos counties, and other states.

Commuting Patterns

Figure 3 illustrates the daily commuting travel flows into St. Johnsbury/Lyndon at the town level.

St. Johnsbury/Lyndon draws daily commuters from a radius of about 40 miles. The I-91 and US 2 corridors provide good access to NEK employers. US 5 through Burke and Sutton are also important.

As shown in Figure 3, the highest numbers of commuters come from within the region, mostly from those two communities and nearby towns, including Barnet, Danville, Burke, Waterford, Concord, and Sutton. Lower numbers of daily commuters travel to St. Johnsbury/Lyndon from other NEK communities as well as surrounding counties and New Hampshire.

Figure 4 shows the daily commuting travel flows into Newport/Derby at the town level.

Figure 3: Daily Commuters to St. Johnsbury/Lyndon

Northeast Kingdom

Commuters to St. Johnsbury / Lyndon

< 10		200 - 499	
10 - 49		500 - 1,999	
50 - 99		2,000 +	
100 - 199			

Destination Zone

Regional Planning Commission Boundary

Municipal Boundary

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Northeast Kingdom

Commuters to
Newport / Derby

< 10	200 - 499
10 - 49	500 - 1,999
50 - 99	2,000 +
100 - 199	

Destination Zone

Regional Planning Commission Boundary

Municipal Boundary

0   15
Miles

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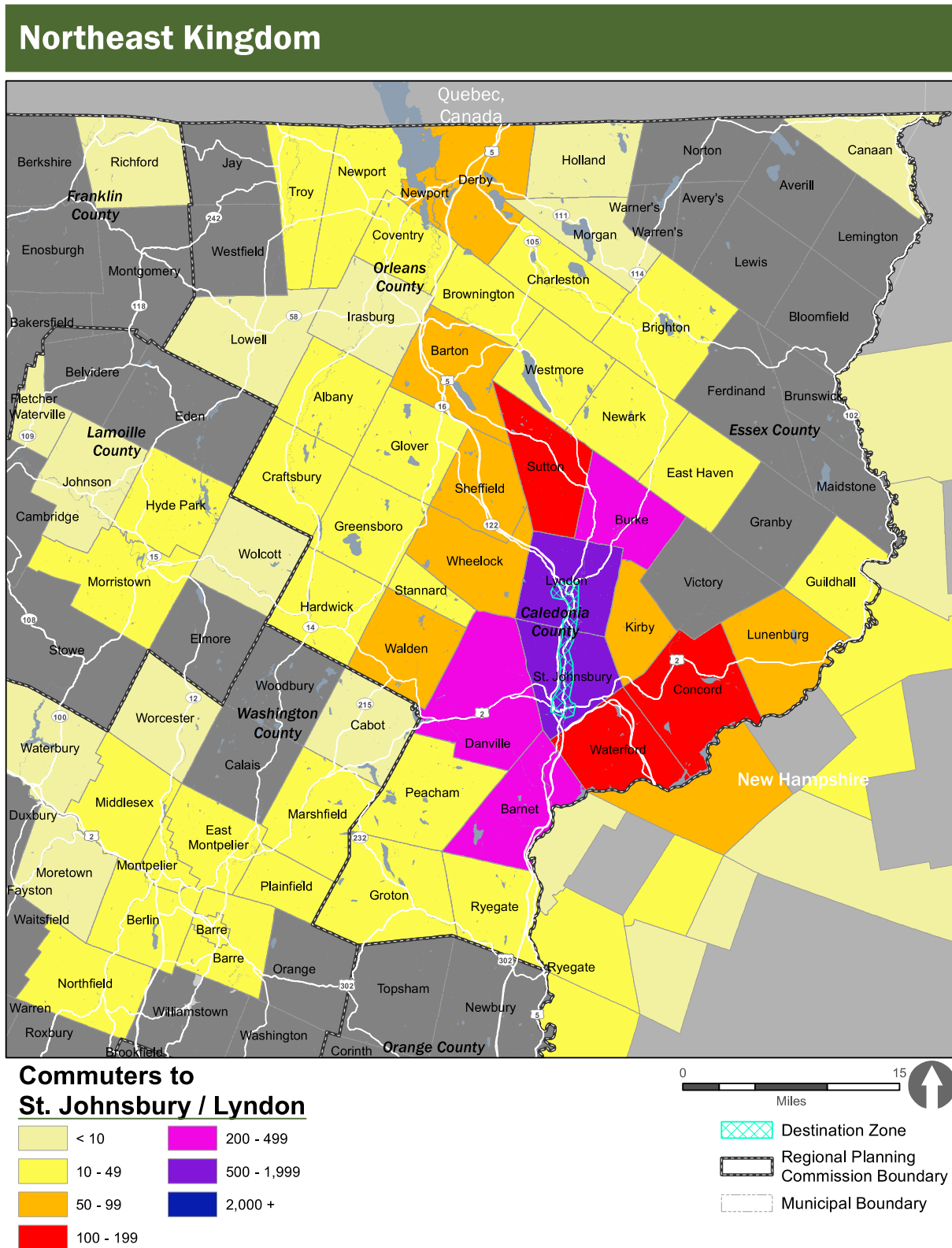
Most commuters to Newport/Derby come from northern Orleans County, primarily Derby, Barton, Newport, Troy, Coventry, Brownington, and Charleston. St. Johnsbury and Lyndon also generate commuting trips to Newport/Derby via I-91.

Demographic Overview

This section presents an overview of the demographic characteristics of the NEK region. It also summarizes the location and density of the general population of the region and specific market segments that are likely to need transit service because they cannot or choose not to drive.

Table 2 provides summary demographic characteristics for the NEK region as of 2016, as compared to Vermont as a whole.

Table 2: Demographic Characteristics of the Northeast Kingdom Region, 2012-2016

	Northeast Kingdom Region	Vermont
Total population	64,112	626,249
Population density	32 persons per square mile	68 persons per square mile
Population age 60 and over	27.7%	24%
Population age 80 and over	4.8%	4.3%
Residents living below poverty line	13.6%	11.6%

Source: American Community Survey 5-year Average 2012-2016

Over 10% of Vermont's population lived in the Northeast Kingdom as of 2016. The region is much less dense than the state as a whole, with 32 residents per square mile. It has more population age 60 and older and slightly residents age 80 and older than the state—28% and 5%, respectively. At nearly 14%, the Northeast Kingdom has the second highest percentage of population with incomes below the federal poverty line in the state.

Population Density

Figure 5 shows the concentration of the population in the NEK region. Density is a helpful characteristic to consider in the context of public transportation services because it is one measure of where service, particularly fixed route service, is likely to be needed and cost-effective.

The only areas showing moderate to high density—over 1,000 people per square mile—are St. Johnsbury and Newport. Moderate levels of density—between 500 and 1,000 people per square mile—exist in St. Johnsbury, Lyndonville, Orleans, Newport, and Derby Line. The rest of the communities in Caledonia, Orleans, and Essex counites show levels of population density that can be considered rural.

Figure 5: Population Density in the Northeast Kingdom Region, 2017
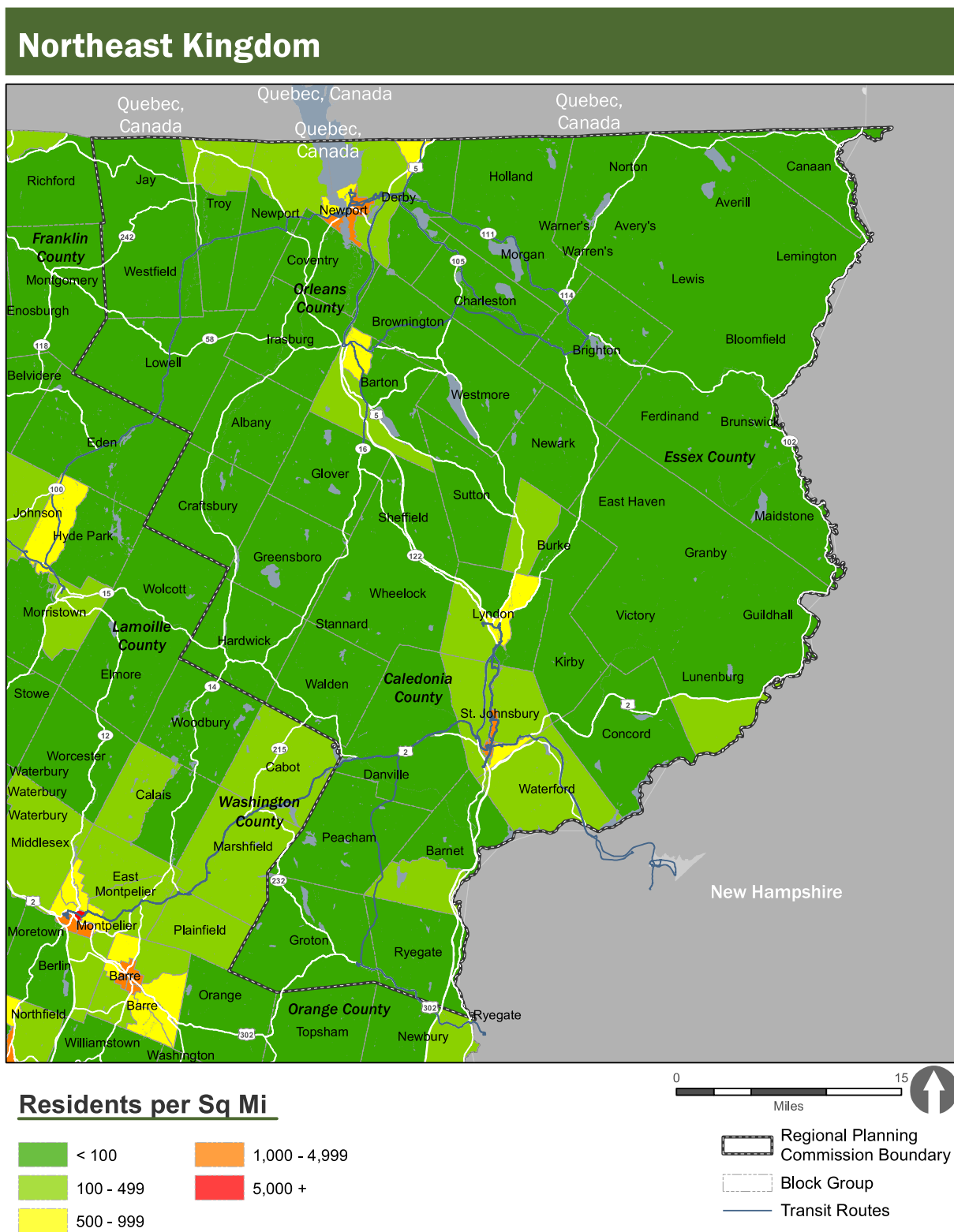
Market Segments and Transit Propensity

Groups that are likely to need transit services because they do not drive include older adults, people with disabilities, individuals with limited or no access to a car, and younger adults. Figure 6 through Figure 8 show the number and percentage (as compared to the state average) of individuals in the first three groups at the town level in Rutland County. All data was obtained from the American Community Survey (ACS) 2012-2016 Five-year Estimates.

Older Adults

Figure 6 shows the number and percentage of adults age 80 and over in 2012-2016, as compared to the statewide average, in the NEK region. The focus in Figure 6 is on this older age group because younger seniors typically continue to drive and because a significant rise in this population is expected in Vermont (and nationwide) in the next 10-20 years.

The highest numbers of older adults live in St. Johnsbury, Newport, Barton, and Derby. Each of those communities includes 250-500 older seniors and is above the state average in terms of the percentage that group makes up of the total population. In many smaller communities, older seniors make up a percentage of the population that is more than twice the state average, even though the number of individuals is lower than in the more populated towns.

People with Disabilities

Figure 7 shows the number and percentage of people with disabilities, as compared to the statewide average, in NEK communities. Four types of disabilities are included: those associated with hearing, vision, cognition, and working.

St. Johnsbury is home to the largest number of people with disabilities—between 750 and 1,500 individuals. Most NEK communities have a percentage of residents with disabilities that is 1-2 times higher than the state average. In Ferdinand and Lemington, in Essex County, the percentage of residents with disabilities is 2-3 times the state average, although the number of individuals is very low.

Auto Ownership

The number and percentage of households in NEK towns with limited access to an auto in 2012-2016 are shown in Figure 8. Households with one resident and no vehicle and those with two or more members but only one vehicle or no vehicle are included.

The highest numbers of households with limited auto access, between 500 and 1,000 households, are located in St. Johnsbury, Lyndon, Newport, and Derby. Most small communities are below the state average in terms of the percentage of such households, while the larger communities are above the state average.

Northeast Kingdom

% of Population Over 80

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 4.3%

Total Population Over 80

- 1
- 250
- 500
- 750
- 1,000

☐ Regional Planning Commission Boundary
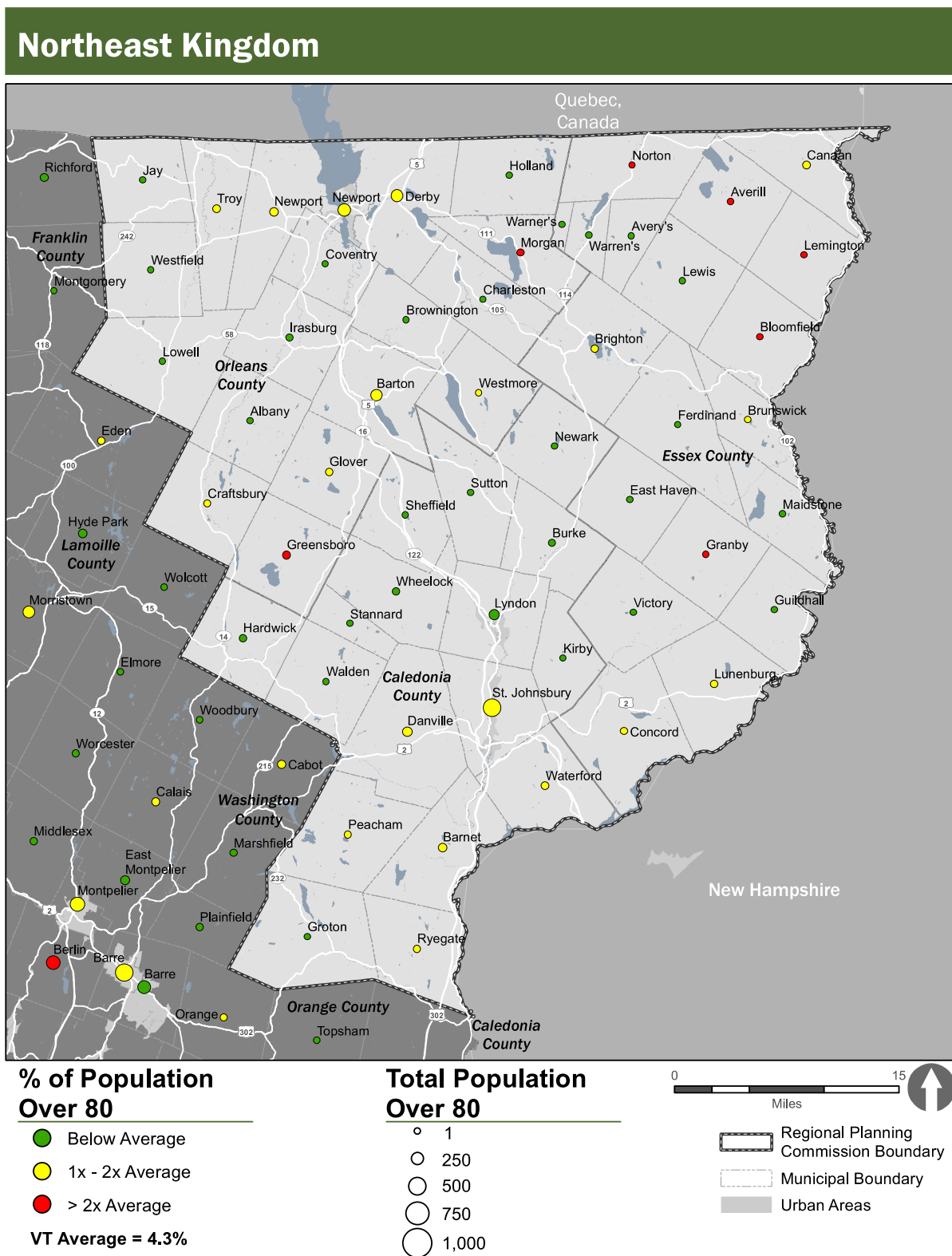
┈ Municipal Boundary

▨ Urban Areas

0 — 15 Miles

Figure 7: Number and Percentage of People with Disabilities in Northeast Kingdom Communities, 2012-2016
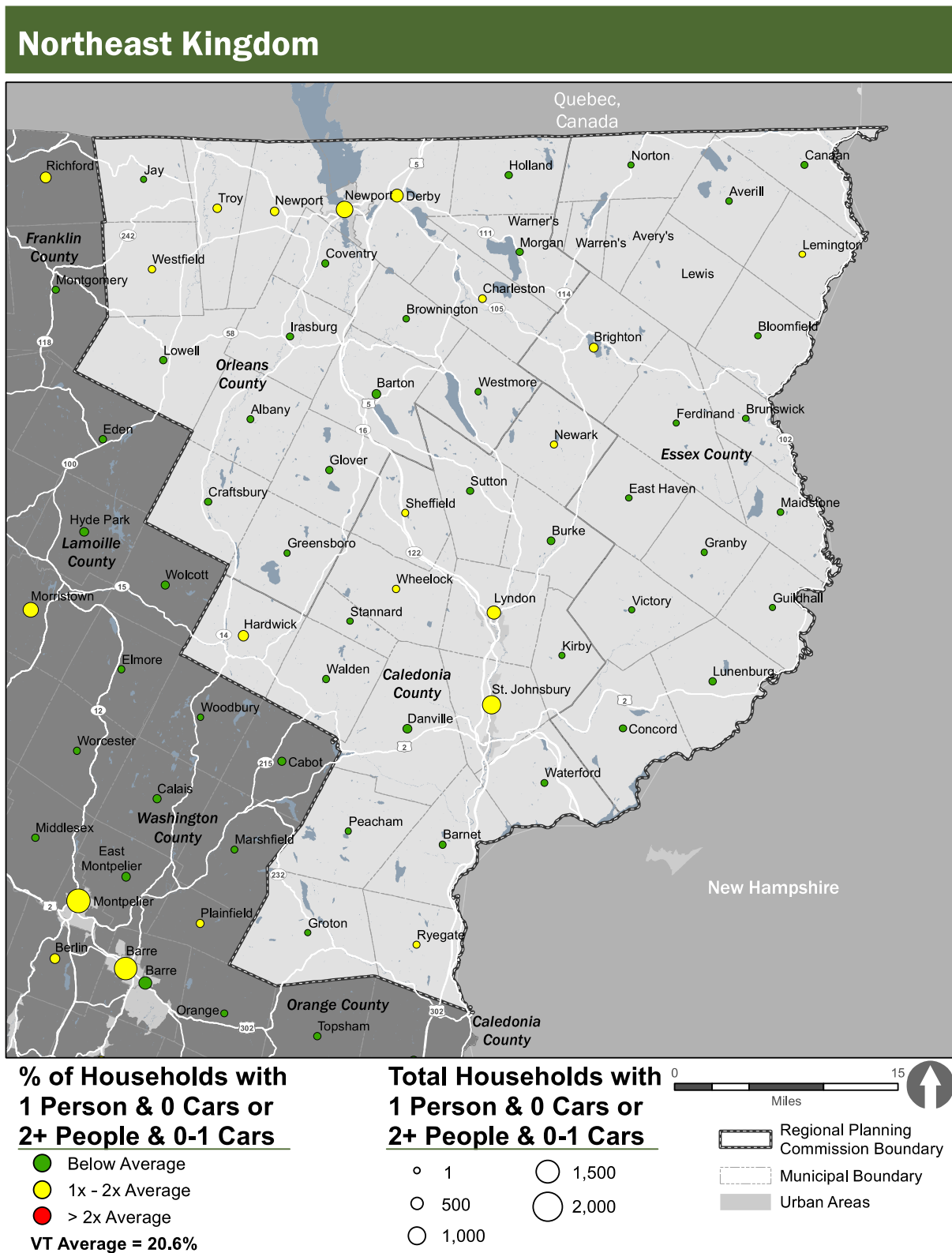
Northeast Kingdom

% of Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- 🟢 Below Average
- 🟡 1x - 2x Average
- 🔴 > 2x Average

VT Average = 20.6%

Total Households with 1 Person & 0 Cars or 2+ People & 0-1 Cars

- ◦ 1
- ○ 500
- ○ 1,000
- ○ 1,500
- ○ 2,000

0   15
Miles

Regional Planning Commission Boundary

Municipal Boundary

Urban Areas

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Transit Propensity

As noted above, older adults, people with disabilities, individuals with lower incomes, and younger adults are likely to need transit services because they cannot or do not drive. The transit propensity index mapped in Figure 9 combines information about the location and weighted size of the county's total population and of various populations that are typically dependent on transit services—youth, older adults, people with disabilities, people living in poverty, and households with one car or less.

As shown in Figure 9, a Moderate/High level of transit propensity exists in St. Johnsbury, while Lyndonville and Newport show Moderate levels of propensity. Much of the region shows a transit propensity in the Low/Moderate range.

Regional Forum Comments

Stakeholders and members of the public who participated in the regional forum held in St. Johnsbury at Catamount Arts on November 14, 2018 made comments regarding service gaps, travel challenges, unmet transportation needs, and potential solutions, as summarized below.

Service Gaps and Challenges

Geographic Gaps

▸ People in Newbury are difficult to reach
▸ Getting to Littleton for work (work schedules don't match transit)
▸ White River/Upper Valley
▸ There is a need to work with New Hampshire and for better intercity coordination

Temporal Gaps

▸ Frequency of service for the Jay-Lyn Shuttle
▸ Shift workers struggle with finding transportation:
  − 3:00-11:00 PM holidays, weekends
  − Time 6:00-2:00 PM vs. 7:00-3:00 PM
  − Odd hour businesses
  − Sat/Sun three volunteers
  − Holidays
▸ Medical discharges after hours
▸ Education: getting to after-hours classes

Trip Type Gaps

▸ Social isolation is an issue and there are not enough funds to support transit for socialization
▸ Getting to jobs that are part of a rehab program (this may be an issue of funding source restrictions)
▸ Industrial Park and student runs
▸ There are unmet needs for E&D trips
  − We need more funding, more coordination on land use/housing, more attractive senior housing, more affordable housing
  − Shopping only twice a month is limiting
▸ Counseling, probation, rehab (this may be an issue of funding source restrictions)
▸ Should consider role models to ride bus to help overcome the stigma (travel training)

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Figure 9: Transit Propensity Index, Northeast Kingdom Region
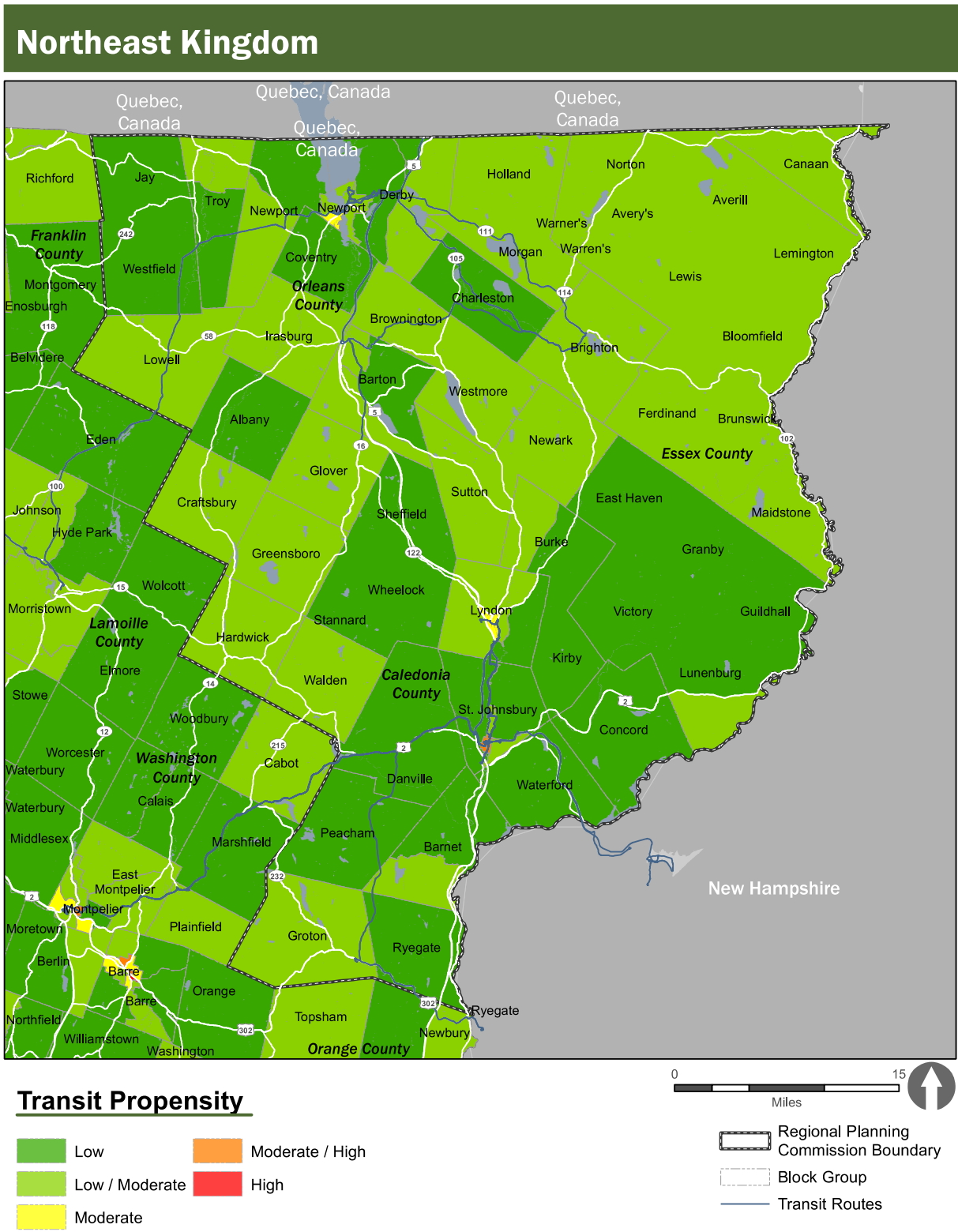
Accessibility Needs
▸ Moving elderly, insurance related to assisting, vehicle access

Technology and Information Challenges
▸ How can we overcome the lack of awareness of existing services?
▸ It is challenging to get information out and provide good customer service
▸ There is a lack of reliable cell service (impacts use of apps)
▸ Most seniors use paper
  – Education and communications could be improved including through:
    ▸ Libraries
    ▸ Civic functions
    ▸ Local news

Affordability Gaps
▸ Client paid trips are subsidized
▸ Understanding the societal cost of missed trips

Other Comments

Forum participants had the following comments on existing services in the Northeast Kingdom:

▸ Fare-free service is a positive and E&D is great service to the community
▸ On-demand services vs. scheduled trips is a strength
▸ Large demand, at times providing 200 same-day trips
▸ RCT is a good partner and will try to make it work
▸ Agencies have funding for transportation

Comments on current challenges in the Northeast Kingdom included the following:

▸ A shortage of volunteer drivers and part-time drivers
▸ System capacity is stressed:
  – 80,000 trips between July and November
  – Drug related trips
  – Alternative education
  – Adult day services
  – Volunteeer driver programs are complicated
    ▸ Rules, details, care
▸ Bradford buses are full
▸ There is a negative vibe associated with the big red bus that could be helped with an advertising campaign
▸ The potential to use funding for car maintenance as an incentive
▸ The need for more education and coordination
▸ Need to fill vans

Potential Solutions

When asked to rank potential service improvements, forum participants most often chose the options listed below.

Information
▸ One-call/one-click option for trip planning
▸ Trip planning assistance

Service Enhancements
▸ Expand service areas
▸ Expand service hours
▸ Volunteer driver program enhancements
▸ Flexible voucher program

Accessibility Improvements
▸ Accessible signals or signage
▸ Bus shelters

Technology
▸ Mobile information, reservations, real-time vehicle location (apps)
▸ Automatic Vehicle Location (AVL) systems

Comments from Lamoille County/NEK E&D Committee

Development of the PTPP included discussions with the stakeholder committees that provide oversight for administration of the Vermont Elders and Persons with Disabilities (E&D) Transportation Program in each of nine regions, including the combination of Lamoille County and the NEK. Members of the E&D advisory committees typically include the local public transportation provider; partner organizations—municipalities, human service agencies, and other organizations—that receive services for their clients from the provider, and sometimes also operate services for those clients directly; and the regional planning agency that serves the area.

The discussions with those committees yielded additional comments about transportation needs and potential solutions in those regions.

RCT provides services for seniors, people with disabilities, and clients of its E&D partners such as the Northeast Vermont Area Agency on Aging, the Central Vermont Council on Aging, Northeast Kingdom Community Action, Northeast Kingdom Human Services and a number of adult day health providers. RCT utilizes the services of volunteer drivers and taxi companies as well as its own vehicles and drivers to provide such trips.

Comments regarding transportation needs and service gaps include the following:

▸ There is a huge demand for rides. Although significant resources have been put into the volunteer driver program and there are 85-90 active drivers at any given time, recruiting and retention are still difficult. Sickness and unavailability for other reasons cannot be covered. A 50% increase in the number of available drivers would be helpful.

▸ Demand for non-Medicaid medical trips, including adult day health trips, has really grown.

- No formal trip limits are in place; it is up to the partner organizations to balance trip priorities and funding constraints. Partners typically work with RCT to mitigate overspending by additional funds, utilizing E&D funding from a partner that is underspending, and/or limiting trips. In the past there have been years in which funds were depleted before the end of the year and service was suspended temporarily.
- Trip priorities, in order, are:
  - Critical care
  - Non-Medicaid medical, including adult day health
  - Social/personal or shopping. Social/personal is the last priority, along with wellness trips, including trips to meal sites. Funding limits don't really allow these types of trips to be provided.
- Unmet needs cannot be examined too closely, because of a lack of funding and volunteer drivers to address them.

MetroQuest Responses

Respondents to the online MetroQuest survey conducted in September through December 2018 had the opportunity to identify a trip they would like to make using transit service but cannot due to lack of service or infrequent/inconvenient schedules. Respondents were also able to provide comments about the origin and/or destination of the trip they would like to make.

Forty-four residents of the NEK region commented on their desired trips. Several identified locations out of state to which they would like to travel, including Montreal, Quebec, and Canaan and Littleton, NH. More often, respondents identified the following locations as those to which they would like to transit access:

- St. Johnsbury
- Barton
- Brighton
- Burke
- Charleston
- Concord
- Derby/Newport
- East Haven
- Holland
- Island Pond

- Bigger metropolitan areas in the NEK region
- Hardwick
- Lyndonville
- Morgan
- Orleans
- Morrisville (Lamoille County)
- Barre
- Burlington (including UVM Medical Center specifically)
- Montpelier

Survey respondents were also asked to choose up to three transit improvements that would make them or people they know more willing to use public transportation. Choices were:

- More service near my home
- Service to my desired destinations
- More frequent service
- Service that runs evenings and/or weekends
- Faster service
- More reliable

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- Cheaper
- If I felt safer riding on it
- If I understood how it works
- Nothing, I prefer driving

Of the 74 responses to this question from the NEK region, 81% were in the top four categories: more service near my home (21%), more service to my destinations (17%), more frequent service (14%) and service in the evenings and/or weekends (8%).

Summary of Transit Service Gaps and Needs

The information presented above about NEK demographic characteristics, location of employers and key destinations, existing transit services, and comments from residents and stakeholders point to the following transit service gaps and needs for the NEK region.

Geographic Service Gaps

RCT deviated fixed route bus routes and shopper shuttles provide service in the communities that contain most of the Northeast Kingdom's population, including concentrations of likely transit users and key destinations. Those communities include:

- St. Johnsbury
- Lyndon
- Newport
- Derby

Service is also available in smaller communities, such as:

- Waterford
- Danville
- Peacham
- Ryegate and South Ryegate
- Brighton

- Morgan
- Brownington
- Barton
- Westfield
- Lowell

Residents of those communities who live beyond the fixed route service areas and the ¼-mile deviation zones that extend the reach of the bus routes, and residents of other towns and villages, have limited if any transit service options available to them. Areas without service include Essex County and the central portion of the region.

Individuals who qualify for E&D transportation program trips are not limited to the communities that receive fixed route or shopper services but may face other transportation challenges, as discussed below.

Many employers of all sizes are located on or near RCT routes. Employers with 100 or fewer employees that do not appear to be located near fixed routes can be found in Jay, Newport, Greensboro, Lyndon, Concord, and Ryegate. One larger employer in Burke, with 100-299 employees, is not located close to a bus route.

Temporal Service Gaps

Fixed route shuttles provide service for approximately 10-12 hours a day, Monday through Friday; one route also operates on Saturday. Service frequency on two routes is 1-2 hours between trips; the other two routes

offer two morning trips and two afternoon trips, limiting their usefulness for some potential riders. Regional forum participants commented that service on the Jay-Lyn Shuttle (1-2 hours between trips) is not frequent enough.

Shopper services are limited in terms of days of operation, from one to three days a month, depending on the community.

Commuter routes offer one or two trips in the morning peak hours and several trips in the afternoon peak hours—good for commuters who work traditional hours, but not as useful for those with non-traditional work schedules. Regional forum participants mentioned being unable to use the bus to get to work in Littleton, NH because bus schedules do not accommodate work hours. They also identified the following work schedules that transit should accommodate:

- 3:00-11:00 PM
- 6:00-2:00 PM
- Weekends
- Holidays

Commuter routes also do not work for individuals who would like to reach regional destinations during mid-day hours for non-work purposes.

Regional forum participants mentioned that hospital discharges can happen at all times of day, including hours during which transportation services are not in operation. Students noted that they cannot use transit to get to evening classes.

Gaps for Specific Rider Groups/Trip Types

Regional forum participants and E&D partner organizations commented on the need for additional resources so that more social/wellness, shopping, and congregate meal trips can be provided for older adults and people with disabilities. Funding constraints mean that higher priority types of trips—critical medical care and adult day health trips are served first.

Other types of trips that are difficult to make using transit include trips associated with participation in a rehab program, including trips to work, counseling, and meetings related to probation.

Other Gaps

MetroQuest survey responses and comments from regional forum participants indicate that there is a need for more education and marketing about transportation options in the Northeast Kingdom.

Transit Market Segments

Size of Market Segments

For the purposes of developing public transit policies that focus transit investments on the markets that will most benefit from those policies, the number of individuals in the NEK region in each of seven sub-markets has been estimated. Market segments are mainly related to age but are also subdivided by income. Automobile availability is treated as a secondary characteristic, related to the age and income of each particular group. The results are shown in Table 3.

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Market Segment	Likely Low-Auto Access	Estimated Number in Region, 2017
Youth (under 18)	X	11,853
Young adult (18-24), employed/student	X (by choice)	4,613
Adult (25-64)		25,013
Adult (25-64), below poverty line	X	2,479
People with disabilities (under age 80)	X	9,311
Younger seniors (65-79)		7,050
Older seniors (80+)	X	2,980
Total		63,299

Source: U.S. Census, American Community Survey (ACS) 5-Year Estimates

Youth and young adults, adults living in poverty, people with disabilities, and older seniors—those age 80 and older—are likely to have less access to a car for personal travel than adults with higher incomes and "newer" seniors, who typically continue to drive. Young adults, for reasons having to do with a number of generational trends, may prefer not to drive or own a car. For members of the other market segments, however, lack of access to a car is likely due more to an inability to drive or afford a car than to a choice. In the Northeast Kingdom, market segments that are likely to have limited or no access to a car make up nearly 43% of the population.

Impacts of Service Gaps on Market Segments

Table 4 summarizes the effect of the service gaps identified for the Northeast Kingdom region on the various transit sub-markets in the region.

Many gaps are broad enough to affect all market segments. These include travel challenges or needs related to:

▶ Geographic coverage
▶ Accessibility, which can include access to bus stops for all potential riders, not just those with disabilities
▶ Information about transit options
▶ Technology to make use of transit service more convenient

Other gaps are applicable to all but the youngest and oldest market segments because they deal with access to jobs or other types of trips those segments are not likely to make.

Finally, some gaps are specific to certain market segments. For example, only older adults and people with disabilities are affected by funding constraints in the E&D transportation program that can limit numbers or trip types.

Table 4: Gap Analysis by Transit Market Segment

Market Segment	Youth (under 18)	Young Adult (18-24), Employed or Student	Adult (25-64)	Adult (25-64), Below Poverty Line	People with Disabilities	Younger Seniors (65-79)	Older Seniors (80+)
Likely Low Auto Access	X	X (by choice)		X	X		X
Geographic Gaps							
Residents beyond the fixed route service area and in towns without fixed route bus service have limited options	X	X	X	X	X	X	X
Need for first/last mile options limits fixed route use	X	X	X	X	X	X	X
Small to moderate employers are not served by bus routes in Jay, Newport, Greensboro, Lyndon, Concord, Burke, and Ryegate		X	X	X	X		
Temporal Gaps							
Peak-only weekday schedules of commuter routes and hours of fixed route shuttles do not help those with non-traditional work hours. Work schedules to accommodate include 3-11 pm, 6 am – 2 pm, weekends, and holidays. Longer hours would also help students get to evening classes.		X	X	X	X	X	
Service days for shopper routes in rural communities, from 1-3 days per month, limit shopping opportunities		X	X	X	X	X	X
Hospital discharges can occur when transit services are not in operation		X	X	X	X	X	X
Trip Type Gaps							
E&D funding constraints limit social/wellness, shopping, and congregate meal trips for older adults and people with disabilities					X	X	X
Trips associated with rehab programs – work, counseling, probation meetings-are not provided/subsidized.		X	X	X	X		
Accessibility Needs							
More bus shelters and accessible signage or signals would encourage fixed route use	X	X	X	X	X	X	X
Technology Challenges							
Mobile apps for reservations and real-time vehicle location are desirable	X	X	X	X	X	X	X
Information Gaps							
Forum comments and survey responses indicate some lack of knowledge of available transportation options	X	X	X	X	X	X	X
Affordability Issues							
Not an issue for riders							