Public Transportation in Vermont

An Assessment of Applicable Methods of Improvement and Funding for Vermont Transportation

PRS Policy Brief 0809-03
March 1, 2009

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This report was written by undergraduate students at Dartmouth College under the direction of professors in the Rockefeller Center. Support for the Policy Research Shop is provided by the Ford Foundation.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**

1. INTRODUCTION **4**

1.1 PUBLIC TRANSPORTATION VARIES THROUGHOUT VERMONT 4
1.2 VERMONT: A PREDOMINANTLY RURAL STATE/ISSUE FOR TRANSPORTATION 4
1.3 ISSUE WITH COORDINATING VT TRANSPORTATION AND FUNDING METHODS

2. THE CURRENT STATE OF PUBLIC TRANSPORTATION IN VERMONT **5**

2.1 PUBLIC TRANSPORTATION VARIES THROUGHOUT VERMONT 5
2.2 LOCAL PUBLIC TRANSPORTATION AGENCIES 7
2.2.1 Addison County Transit Resources 7
2.2.2 Advance Transit Inc. 8
2.2.3 Chittenden County Transportation Authority 8
2.3 FUNDING OF VERMONT'S LOCAL PUBLIC TRANSIT SYSTEMS 9
2.3.1 Fare free systems: Advanced Transit 10
2.3.2 Limited fare systems: Addison Country Transit Resources 10
2.3.3 Typical fare systems: Chittenden Country Transportation Authority 10
2.4 INTERSTATE AND LONG-DISTANCE PUBLIC TRANSPORTATION OPTIONS 11
2.4.1 Greyhound Line 11
2.4.2 Rail 11
2.4 GO VERMONT 122
2.4.1 Carpooling 12
2.4.2 Vanpooling 12
2.4.3 Park-and-Ride 13
2.5 ANALYSIS OF CURRENT PUBLIC TRANSPORTATION SERVICE IN VERMONT 13
2.5.1 Funding Challenges of Vermont 14

3. PUBLIC TRANSPORTATION SYSTEMS USED BY OTHER STATES **16**

3.1 FUNDING EFFORTS AND SYSTEMS UTILIZED IN OTHER STATES 16
3.1.1 School funding contracts: Manchester Transit Authority 16
3.1.2 Community economic demographic funding: Concord Area Transit 17
3.1.3 Funding without state assistance: Cooperative Alliance for Seacoast Transportation 17
3.3 CONNECTIONS BETWEEN SERVICES AND FUNDING 17
3.4 AGGREGATION OF SERVICES AND REGIONALIZATION PROGRAMS IN OTHER STATES 23
3.4.1 Neighboring States' Mass Transportation Coordination Organizations 24
3.4.2 Coordination between programs and agencies 25

4. POLICY RECOMMENDATIONS **25**

4.1 COORDINATION: INFORMATION AND REGIONALIZATION 25
4.1.1 Challenges to regional public transportation *26*
4.1.2 Implementation of regional public transportation *26*
4.2 WORKING WITH SCHOOL TRANSPORTATION SYSTEMS 27
4.3 2009 FEDERAL STIMULUS PACKAGE 28

5. REFERENCES **30**

EXECUTIVE SUMMARY

Due to the lack of cohesion within Vermont Transportation system, the ability to have an enhanced unified system secured financially has been on ongoing issue. The current twenty six transportation systems of Vermont have been able to operate themselves through various forms of localized and federal funding and contributing agencies; but the need for a unified transportation system is essential for economic feasibility and better service for commuters throughout the state.

Questions we considered in this report include:

- How can Vermont coordinate its public transportation systems effectively?
- How can a feasible plan to coordinate Vermont transportation be implemented successfully?

In identifying the current agency systems of Vermont, their funding methods and comparing this analysis to other local states' transportation system and funding methods, an improved system can be identified for the state of Vermont. Essentially, the issue of improving Vermont transportation is not only suppressed by lack of effective integrating system ideas but also financial restraints sweeping the nation.

Reasons for Vermont's dysfunctional transportation system include:

- Variance in population density of the state with few centers of dense population but dominance of relatively low population levels
- Variance in available public transit through local and regional public transportation services being provided by thirteen agencies, including one regional authority, one transit district, two towns, and nine private non-profit corporations.
- In recent years, the market for commuter express services has been growing, and new routes but irregular have been established to meet that demand
- There is significant lack of public transit coverage in some areas of Vermont compared to other areas around the state.
- There is often a large disconnect between the areas that the public providers say they cover and the reality of where they actually have routes and services.
- This map shows where there is lack of public transit coverage, in terms of bus routes and Fixed and Deviated Fixed services.

Currently there are several options for mass transportation in Vermont.

- Vermont boasts an interstate bus service as well as once-a-day rail service offered by Amtrak.
    - Vermont currently has a substantial amount of track in place which, while not sufficiently expansive to serve at the local level, does a good job connecting areas with relatively high population density to one another.
- Various services including: public transit routes, rail, carpool and vanpool services, and park and ride information are all linked together in the Go Vermont program with centralized method of operation.

- Vermont has 27 State Park-and-Rides facilities and lots located throughout the state. These locations make it easier for commuters and consumers to connect with public transit services, and can also be used in conjunction with carpooling and vanpooling options
    - Park-and-Ride facilities are an effective method for reducing traffic congestion, decreasing the use of fossil fuel, while minimizing fuel emissions, providing connectivity between Park-and-Ride facilities and inter-regional public transit routes and saving valuable urban land for more aesthetically appealing and productive uses

Funding for Vermont's current public transportation services is extremely varied and lacks the cohesion of a state-implemented solution. Therefore, to serve as points of comparison for a potential statewide public transportation effort, several other companies were identified and analyzed.

- In doing so, a fare free system, a contract based system and the typical fare system are analyzed for comparison.
- Across the six systems there is a great diversity in the source of funding each receives and its relation to the total amount of operating funds required.
- All six received a significant portion of their funding from federal coffers; however, variance in state funding was great among the companies.
- The charging usage fees may discourage overall ridership.
- On average across the companies, a full time employee is hired for every 20,000 rides on buses.
- This ridership intensity of Vermont's CCTA is unique especially when population density is taken into account.

Also considered are the efforts that other states are making in consolidating their own public transportation systems.

- There are currently efforts in regions of multiple states attempting to coordinate public transportation on a regional level with the goal of reducing costs and eliminating or decreasing gaps in transit coverage
- The coordination between human services programs and other rural transit programs pools all the funding and resources from the different sources with the ultimate goal of providing better coverage and efficiency over the entire region

With the newly incorporated option to turn to regionalization and integrating with the school transportation system, along with the current financial opportunity of the stimulus bill, Vermont currently has the opportunity it needs to finally improve the transportation system effectively. All of this considered our policy recommendations for the state of Vermont are as follows:

- It may be worthwhile for Vermont to consider aggregating and coordinating the thirteen different transportation systems a regional rather than county scale
- Along with federal and state aid, a solid list of contributors from educational institutions is a good option to fund a transportation system in Vermont as the

state boasts 24 different colleges and numerous pre college educational institutions.

- Vermont has received $126 million under the Federal Stimulus package titled American Recovery & Reinvestment Act. Therefore, it is reasonable to consider focusing on improving transportation systems within Vermont to make sure that more time is spent using the stimulus funds appropriately instead of finding loopholes within the allocation criteria.

1. INTRODUCTION

1.1 Public transportation varies throughout Vermont

There is a broad spectrum of public transportation services available in Vermont, serving both citizens of and visitors to the state. The State of Vermont works to provide public transportation services to enhance mobility and accessibility to consumers, particularly those with special transportation needs. To achieve this goal, the Public Transit Section of the Vermont Agency of Transportation provides financial and technical assistance to transit districts, transit authorities, municipal transit systems, and non-profit public transit systems.

1.2 Vermont: a predominantly rural state/Issue for Transportation

Part of Vermont's dysfunctional transportation system is due to the state's population dispersion. Other than a few centers of (rather) dense population (such as the center of Chittenden County and other major towns), public transportation in Vermont serves areas of relatively low populations levels, dispersed in low densities throughout the state. As defined by the 2000 US Census, Vermont is the most rural state in the United States. This means that Vermont has the greatest proportion of its population living outside high density areas, which presents special challenges to the provision of public transportation. Figure 1 shows the population density of Vermont from the 2000 United States Census.

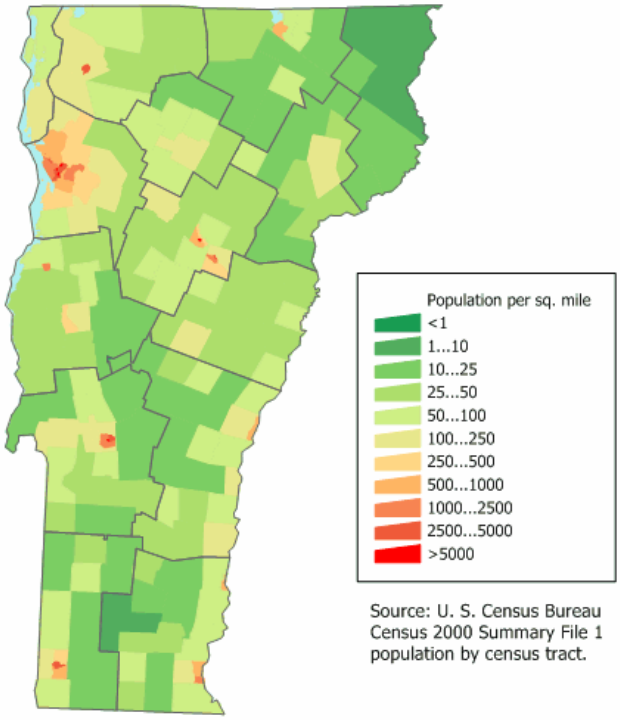


Figure 1. Population density of Vermont in 2000

1.3 Issue with coordinating Vermont transportation and funding methods

Finding a solution of Vermont Transportation's uncoordinated system is reliant upon the identification of factors contributing to its complication. By analyzing the current systems available and comparing other effective coordinated transportation systems, applicable options can be found for Vermont Transportation.

2. THE CURRENT STATE OF PUBLIC TRANSPORTATION IN VERMONT

2.1 Public transportation varies throughout Vermont

As mentioned previously, available public transit in Vermont varies throughout the state. Local and regional public transportation service in Vermont is provided by thirteen agencies, including one regional authority, one transit district, two towns, and nine private non-profit corporations. These agencies also work with other non-profits and human service agencies in the area of human service transportation. Other than the Chittenden County Transportation Authority, which is a direct recipient of urban transit funding, the majority of funding for the other agencies is a combination of section 5311 rural funding and Medicaid transportation funds. In terms of interstate and even international transportation, commercial companies, such as Greyhound Bus lines or Amtrak provide service to and from New York, Boston, and Montreal, connecting Vermonters with other metropolises and states.

The thirteen systems provide a variety of services, including Fixed route local buses, commuter express routes, Deviated Fixed route services, Demand & Response services, and volunteer driver programs. In recent years, the market for commuter express services has been growing, and new routes have been established to meet that demand. In many areas, former fixed routes have been converted to deviated fixed routes or demand response service to increase coverage and provide better access for people with disabilities. Most notably some of the main transportation agencies include Addison County Transit Resources, Advanced Transit, Chittenden County Transportation Authority, Connecticut River Transit, Deerfield Valley Transit, Green Mountain Agency, Green Mountain Community Network, Marble Valley Regional Transit District, Northwest Vermont Public Transit Network, Stagecoach Transportation Services, Rural Community Transportation, Town of Brattleboro, and Town of Stowe to name of few. Table one gives an overview of the transportation agencies in Vermont, including their rider-ship and base fares. For the purposes of this report we will focus on the first three due to their funding and transportation methods.

Table 1: Ridership and Base Fares of Vermont Public Transportation Agencies.

NAME	RIDERSHIP	BASE FARE
Addison County Transit Resources	200,000	Free Inside County
Advanced Transit	476,887	Free
Chittenden County Transit Authority	1.6 million	$1.25 on Fixed Routes ADA Paratransit fare is $2.00
Connecticut River Transit	198,388	
Northwest Vermont Public Transit Network		$1.00-$3.00 on Fixed Routes, Varied by Service/Distance.
Deerfield Valley Transit Association	200,000	Free
Green Mountain Transit Agency	136,439	$0.50 - $4.00, depending on the service.
Green Mountain Community Network	70,000	$0.50 on Fixed Routes; Others varied by service and distance
Marble Valley Regional Transit District	728,000	Free in Rutland City; $1.00 Proctor; Varies by type of service
Stagecoach Transportation Services	75,000	$1.50 - 2.50 depending on route.
Rural Community Transportation		1.50 on Fixed Routes; $20.00 for monthly passes; $13.50 for 10 day pass
Town of Brattleboro	71,516	$0.75 One-way Adults (ages 19 over)$0. 50 One-way Students (Ages 13-18)$0. 25 One-way Child (Ages 12 and under)
Town of Stowe	47,266	$1.00

2.2 Local public transportation agencies

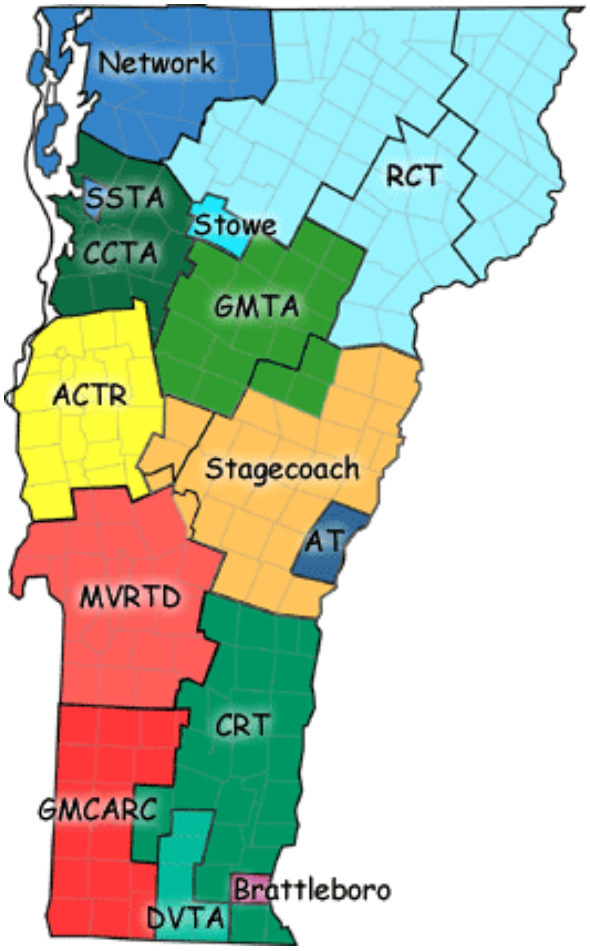


Figure 2. Areas covered by local transit providers in Vermont

2.2.1 Addison County Transit Resources

Addison County Transit Resources (ACTR) provides rural transportation services for Addison County, offering routes and transportation services within the county, in addition to partnering with other public transit providers outside (outside what?) to provide additional options for commuters and consumers. ACTR offers an extensive shuttle-bus system that is free of charge, with the exception of the routes that travel outside the county. ACTR's service profile shows that it provides Deviated Fixed route services, Demand & Response services, and volunteer driver and carpool options. These services run Monday through Friday, 6:00am to 10:00pm, and Saturday through Sunday 9:00am to 5:30pm. Additionally, to provide connecting services and transit to areas outside Addison County, ACTR partners with Chittenden Country Transportation Authority to provide services to Burlington. ACTR is responsible for the Saturday service between Middlebury and Burlington, and provides two runs every Saturday, while

Monday through Friday service is provided by the CCTA. ACTR also partners with Marble Valley Regional Transit District to provide service between Rutland (in Rutland County) and Middlebury. This service is primarily for commuters, for the service runs Monday through Friday, four times per day.

With two 20-passenger buses, one 12-passenger mini-bus, and five 10-passenger vans, ACTR provides 200,000 rides per year. This number includes the rides that are provided through the Demand & Response program. ACTR's public transit system is very focused, demand-driven and market-driven. They analyze their routes annually, and often monthly to make sure the numbers are making sense., there are no routes that are underutilized or underused.

Additionally, there is great demand for additional services in many areas in Addison County. For example, the Tri-Town bus service is in great demand, as it serves three of the main cities in Addison County. Currently, the Tri-Town service route can only meet 50% of the market potential (as measured by ACTR, according to Ms. Barnicle, an employee) due to funding limitations. ACTR has also heard requests for expanded service from areas such as Cornwall, Ripton, Starksboro, and Monkton, all in Addison County.

2.2.2 Advanced Transit, Inc.

Advance Transit is a bi-state regional public transportation provider, offering fixed routes and Car/Van pool services. Advance Transit serves the towns of Hartford, Hartland, and Norwich, Vermont, in addition to Hanover, Lebanon, Enfield and Canaan, New Hampshire, and fares are free. The majority of Advance Transit's passengers use the buses to travel to and from work. Its routes are oriented to connect to the main employment centers in the area, including the two largest employers, the Dartmouth-Hitchcock Medical Center and Dartmouth College in New Hampshire. Advance Transit's services run Monday through Friday, 5:30am to 7:00pm.

With four forty-passenger buses, three thirty-four-passenger buses, thirteen twenty-seven passenger buses, and four twenty-passenger buses, Advance Transit provided 476,887 passenger trips in 2002, a nineteen percent increase over 2001. The increase is largely the result of Advance Transit's "free zone" which has now grown to include its entire service area.[1] Advance Transit's rideshare program, called "Upper Valley Rideshare", had 705 active members in its database, up sixteen percent from 2001. These carpoolers have saved over one million miles per year.[2]

2.2.3 Chittenden County Transportation Authority

Chittenden County Transportation Authority (CCTA) is a regional public transportation provider, offering multi-modal transportation services in Chittenden County. Provided services include: fixed route bus service, Park and Ride lots shuttle service, special weekly supermarket shuttles, neighborhood transportation for local schools, a county-wide ridesharing program, transportation for Medicaid recipients and contracted

paratransit service for people who cannot use the bus. In FY2002, CCTA provided more than 1.6 million rides on its fixed route bus services, a fleet that includes forty-one large transit buses, and eight ten-passenger vans.[3]

CCTA provides service Monday through Friday, from 5:45am to 10:20pm, with reduced hours on Saturdays and limited service on Sundays. CCTA serves Burlington, Essex, Shelburne, South Burlington, Winooski, and Williston. Fares are $1.00 on fixed routes.

In FY2008, CCTA's Route #1, the Umall/Airport route, was CCTA's highest ridership route (carrying 351,900 passengers). The route travels from downtown Burlington, past the University of Vermont campus, to the Umall (the largest mall in the area), through South Burlington neighborhoods, and to the Burlington International airport. The CCTA's second highest ridership route was the Essex Junction route (350,322 passengers), which travels between downtown Burlington and the village of Essex Junction. The route serves the UVM campus, the area's largest hospital, St. Michael's College, IBM, and the Amtrak station.

While these two routes were the CCTA's highest ridership routes, the largest percentage increases were on the long distance commuter routes. CCTA operates three inter-regional commuter routes between Burlington and adjacent counties; the Montpelier Link Express, the Middlebury Link Express, and the St. Albans Link Express. In FY2008, ridership on the Montpelier Link increased 44.6%, ridership on the Middlebury Link increased 41.5%, and ridership on the St. Albans Link increased 33.5%.

In compliance with the Federal Americans with Disabilities Act (ADA), CCTA provides door-to-door transportation services for who are unable to use bus services. A contract with Special Services Transportation Agency (SSTA) provides van services within a 3/4 mile radius of the CCTA fixed route service area. In FY2002, SSTA provided over 23,000 rides beyond the fixed route service. Chittenden County's Rideshare program matches hundreds of residents every year with carpools and vanpools. In addition, CCTA tries to help those who may not be able to afford to pay for public transportation. For example, CCTA's "Give Your Neighbor a Lift" program provides free bus transportation to nonprofit organizations.

2.3 Funding of Vermont's local public transit systems

According to the Vermont Agency of Transportation, federal funding for Vermont transportation is allocated based on operating and capital costs. How these federal funds trickle down to the various transportation agencies in Vermont depends on the agency and its qualifications. Essentially, from looking at the federal allocation of funding of support, it is important to understand other financial avenues that are available to sustain transportation in Vermont. In doing so we find that Vermont transportation systems gain financial support through various systems that incorporate the use of federal, state, fares, and contributions. Agencies in Vermont use three distinct fare

systems, a fare free system, a contract based system and the typical fare system. Each fare system is analyzed for comparison.

2.3.1 Fare free systems: Advanced Transit

Advance Transit, which also operates in New Hampshire is a prominent example of a transportation system that received and allocated funding so well that it became fare free in 2002. The Advance Transit Program is funded by federal and state resources, private donors, and contributions from local towns, municipalities, Lebanon, Hanover, Dartmouth Hitchcock Medical (Transit) and Dartmouth College. "Currently half of the operating funds come from federal and state grant, including the Federal Transit Administration's Section 5311 program". [4] However, the AT does not solely depend on government related funds but also on the contributions of other individuals and organizations, particularly local institutions in a different state.

The success of a Fare Free funding program depends on the continued support of donors and contributors. And the continued support of donors and contributors depends on their satisfaction with the transportation system. In identifying the success of this funding program in comparison to programs that require fares for example, it has the benefit of being in an area where institutions need transportation for their constituents. Several transportation systems in Vermont do not have certain institutions in the area that can offer this lucrative asset.

In addition, this VT system has another vital funding asset; it is in connection to resources from another state: New Hampshire. Now of course the funding is not from the state, but more importantly from the constituents that reside within the state.

2.3.2 Limited fare systems: Addison Country Transit Resources

Under Addison County's Fare system, local services are free and charges are only for ride extensions such as Rutland Connector and the Burlington link express. Due to this limited fare system, fares account for only 1 percent of revenue streams as of 2008. Federal grants contribute 36 percent and State grants contribute 10 percent. Yet according to Addison County Transit Resource's 2008 report,[5] their main source of funding is contract revenues which account for 41 percent of the budget revenue. This funding is almost greater than Federal and State support combined, highlighting the ability for a program to operate effectively if the opportunity for local contracts is available. It is a guaranteed source of funding and satisfies the contractor.

2.3.3 Typical fare systems: Chittenden Country Transportation Authority

Chittenden County Transportation Authority (CCTA) is Vermont's largest and only public transportation authority. Unlike many other Vermont transportation systems, Chittenden County Transportation Authority requires fares for riders to travel. The fare

prices range from $1 to $4 depending on the length of the ride and the age of the rider. With these prices, according to the CCTA main website, the "operating revenue (including passenger fares, Para transit, advertising, special services etc) is about 32 percent of the budget; Local subsidies are 22 percent, state dollars 14 percent and federal aid is 32 percent".[6] Evidently, ride fares help contribute to one third of the funding resources of this system. This is the typical example of a transportation system operating largely on fare revenues.

2.4 Other Modes of Transportation in Vermont

2.4.1 Greyhound Lines

Vermont has several interstate transportation services. Vermont Transit now operates as Greyhound Lines, and provides service to Boston, Albany, New York, and Montreal. In addition, Greyhound Lines offers service to several cities and towns along the I-91/I-89 corridor, including Bellows Falls, Brattleboro, Burlington, Montpelier, and White River Junction. This service is the alternative to Amtrak for those who wish to use public transport for interstate purposes. Service is more frequent than the once-a-day rail service offered by Amtrak, although tends to be more costly and not significantly faster. For example, five buses depart Burlington for New York City daily. The average transit time is between 9 and 10 hours, and fare comes to $75. There are also four buses daily from Burlington to Boston, with an average transit time of 5 hours and fare of $56.

2.4.2 Rail

Vermont currently has a substantial amount of track in place which, while not sufficiently expansive to serve at the local level, does a good job connecting areas with relatively high population density to one another. There is currently limited Amtrak rail serving both in-state and interstate transportation needs. The Vermonter originates in Washington D.C., travels north through New York City, and once in Vermont, follows the first main line from to Brattleboro until it reaches St. Albans. Service is daily, and from Burlington to New York takes around 10 hours and costs $48.

The Ethan Allen Express travels from Rutland through Albany to New York City.[7] This rail service is heavily subsidized by the state of Vermont, to a level approximating $40 per passenger, or $4.0 million total for both lines. This takes into account estimates for 2008 of $9.5 million total operating cost, and $5.5 million total revenue.[8]

There is also limited local state service, run by the Green Mountain Railroad. This service admittedly has a large focus on tourist excursions. There are three main routes throughout Vermont: the White River Flyer from White River Junction to Thetford, the Green Mountain Flyer from Bellows Falls to Chester Depot, and the Champlain Valley Flyer from Burlington to Charlotte. These trains run only in the summer and fall. There are only one to three trains daily and round trip fares are slightly higher than desirable for everyday transport, ranging from $17 to $19 roundtrip, variation depending on train and season.[9]

2.4 Go Vermont

"Go Vermont," launched in January 2008, is a statewide program that aggregates information all transportation options in Vermont. Replacing the Vermont RideShare program that focused only on carpool and vanpool services, Go Vermont dramatically expanded and increased the scope of options for the people of Vermont. With the Go Vermont program, public transit routes, rail, carpool and vanpool services, and park and ride information are all linked together in one program, an example of a centralized method of operation. The website, *connectingcommuters.org*, is dedicated to connecting commuters with ways they can save money and reduce their carbon footprint through the use of alternative transportation modes, such as carpooling and public transit.[10]

Go Vermont runs statewide carpool, rideshare, and vanpool systems through its program. These carpool and vanpool programs use incentives and benefits to entice to Vermonters to sign up and share rides. For example, Guaranteed Ride Home is a free benefit for registered Go Vermont carpoolers and vanpoolers who share rides two or more times a week. The Guaranteed Ride Home program aims to reduce stress for those who share rides. To take the worry out of ridesharing in the event of an unforeseeable circumstance, Go Vermont will pay up to $70 per emergency, up to two times within a single month or six times within a calendar year.[11] These guidelines vary from region to region. According the website, eligible Guaranteed Ride Home requests include personal or family emergency; sudden illness of carpool driver or if carpool driver has an emergency; mechanical breakdown of carpool vehicle; or unexpected overtime at work.

2.4.1 Carpooling

Formerly known as the RideShare Program, the Go Vermont carpool program is a long-standing carpool matching service operated by the Vermont Agency of Transportation. Currently, over 4,000 people in Vermont use the state carpool service.[12] In Fall 2008, Go Vermont launched an improved, automated carpool matching service that provides an immediate e-mail response to online registrations and listing services that accommodate those who are looking to find a match for their daily commutes or for a single trip only. It provides carpool information for the whole state, with lists of classifieds where people can describe what kind of carpool or rideshare options for which they are looking.

2.4.2 Vanpooling

Since September 2008, VPSI, Inc. has been the state's third-party vanpool provider (what's the relationship between this and Go Vermont vanpooling? Where does it operate) coordinating the vanpool services. VPSI works with transit agencies across the country, through systems commonly referred to as "third-party" vanpooling, or the process of providing vanpool service to the general commuting public on behalf of a sponsoring agency who helps defray the cost to participants. VPSI has over 30 years of experience in organizing vanpools and has over 5,000 vans on the road in the US. The partnership with VPSI allows the Transportation Agency to promote a professional

vanpool service and offset the per-seat costs by way of a monthly subsidy payment.[13] The process for setting up a vanpool through VPSI is as follows: VPSI requires that a group of people— a minimum of eight people— and devise a commuter trip that works for everyone. The group has to choose who will be the primary driver, back-up driver and the overall vanpool coordinator. A 30-day contract will then be offered by VPSI to the drivers and coordinator, and the group receives a new van within 30-60 days. Maintenance, insurance, and fare collection will all be managed by VPSI. The final costs for each vanpool group will generally be different (depending on the vehicle chosen, number of participants, and total miles driven), but case studies suggest that 10 people going 70 miles per day could expect to pay between $90-$115 per month per person.[14]

2.4.3 Park-and-Ride

Vermont has 27 State Park-and-Rides facilities and lots located throughout the state. These locations make it easier for commuters and consumers to connect with public transit services, and can also be used in conjunction with carpooling and vanpooling options.[15] A 2004 study of the Park-and-Ride facilities looked at the conditions and usage of Park and Ride facilities, and found that counts provided an overall statewide average of 55.6 percent of available spaces used, with some locations experiencing overflow.[16]

In conclusion, the study determined that Park-and-Ride facilities are an effective method for reducing traffic congestion, decreasing the use of fossil fuel, while minimizing fuel emissions, providing connectivity between Park-and-Ride facilities and inter-regional public transit routes and saving valuable urban land for more aesthetically appealing and productive uses.[17] Additionally, the study determined that Park-and-Ride projects are a popular choice with the public, but that existing Park-and-Ride facilities are sited on small, constrained parcels of land and are not easily adapted for public transit use.[18]

2.5 Analysis of current public transportation service in Vermont

There is significant lack of public transit coverage in some areas of Vermont compared to other areas around the state. Typically, the areas with the least public transit coverage correspond to areas with the lowest population density, according to the population density of Vermont from the 2000 US Census. For example, the entirety of Essex County has 1 person or less per square mile, and subsequently no bus routes or fixed services running through the towns there. Areas with higher density population have more public transit services and options. As one might expect, the town of South Burlington, with a population density of 500-1000 people per square mile, has many public transit services provided by the Chittenden County Transit Agency, the Green Mountain Transit Agency, and the Addison County Transit Resources.

There is often a large disconnect between the areas that the public providers say they cover and the reality of where they actually have routes and services. For example, Rural Community Transportation (RCT) says they serve Caledonia, Essex, Orleans and Lamoille Counties, and from the map of the public transit coverage shown in Figure 2, one would assume that all those four counties (Caledonia, Essex, Orleans, and Lamoille)

have adequate public transportation services. However, RCT only have two bus routes, serving the towns of Newport and Derby in Orleans County, and the towns of Lyndon and St. Johnsbury in Caledonia County, leaving people in the other 56 towns in those four counties (Morristown and Stowe in Lamoille County have services provided by Green Mountain Transit Agency and the town of Stowe) to rely on personal cars, taxis, volunteer drivers, vanpools, carpools, rideshare services.

Figure 3 shows the counties and towns of Vermont, along with the population density of each, illustrating which areas actually have public transit services, in terms of Fixed and Deviated Fixed route services, which are frequently the most utilized and needed services throughout Vermont. In addition, the map shows the locations of railroad stations in the state in order to demonstrate options for intrastate transportation options.

This map shows where there is lack of public transit coverage, in terms of bus routes and Fixed and Deviated Fixed services. By examining which towns and populated areas have bus routes and transit services and which do not, one can extrapolate where there may be potential need of new or expanded public transportation services.

2.5.1 Funding Challenges of Vermont

The funding challenges that Vermont transportation experiences is lack of cohesion amongst the different transportation agencies. While having several streams of funding contributors is always a positive element, not having the ability to coordinate and track funding causes Vermont transportation to spend more than necessary because budgets cannot be coordinated under this unconnected system.

Currently, according to reports from the Vermont Agency of Transportation, Vermont recieves both Federal and State funding with supplemental support from local agencies to run its transportation system. “Vermont transit subsidies are allocated seperately for operating and capital. Capital requests are considered on a case by case basis and awards are made based on the merit of the request. The majority of operating subsidies are allocated to local systems based on historical funding. Due to the castegorical nature of funding support from the federal government, funds are supplemented on the local level by communities through contract income”. [19](VAOT).

Aside from analyzing the funding streams of Vermont transportation, it is also important to look into the funding methods of transportation systems in Vermont and local states soan effective system that combines the unique funding qualities of successive programs can be applied. Through this method, Vermont can overlook the common fare revenue model that many states apply and see potential in other sources of funding including educational institutions, unique government grants and support, effective contracts, and generous contributions from individuals, other states and organizations. As of now, we have accessed the funding systems that is found in Vermont transportation and in continuing our analysis we look to other financial systems of other states’ transportation systems

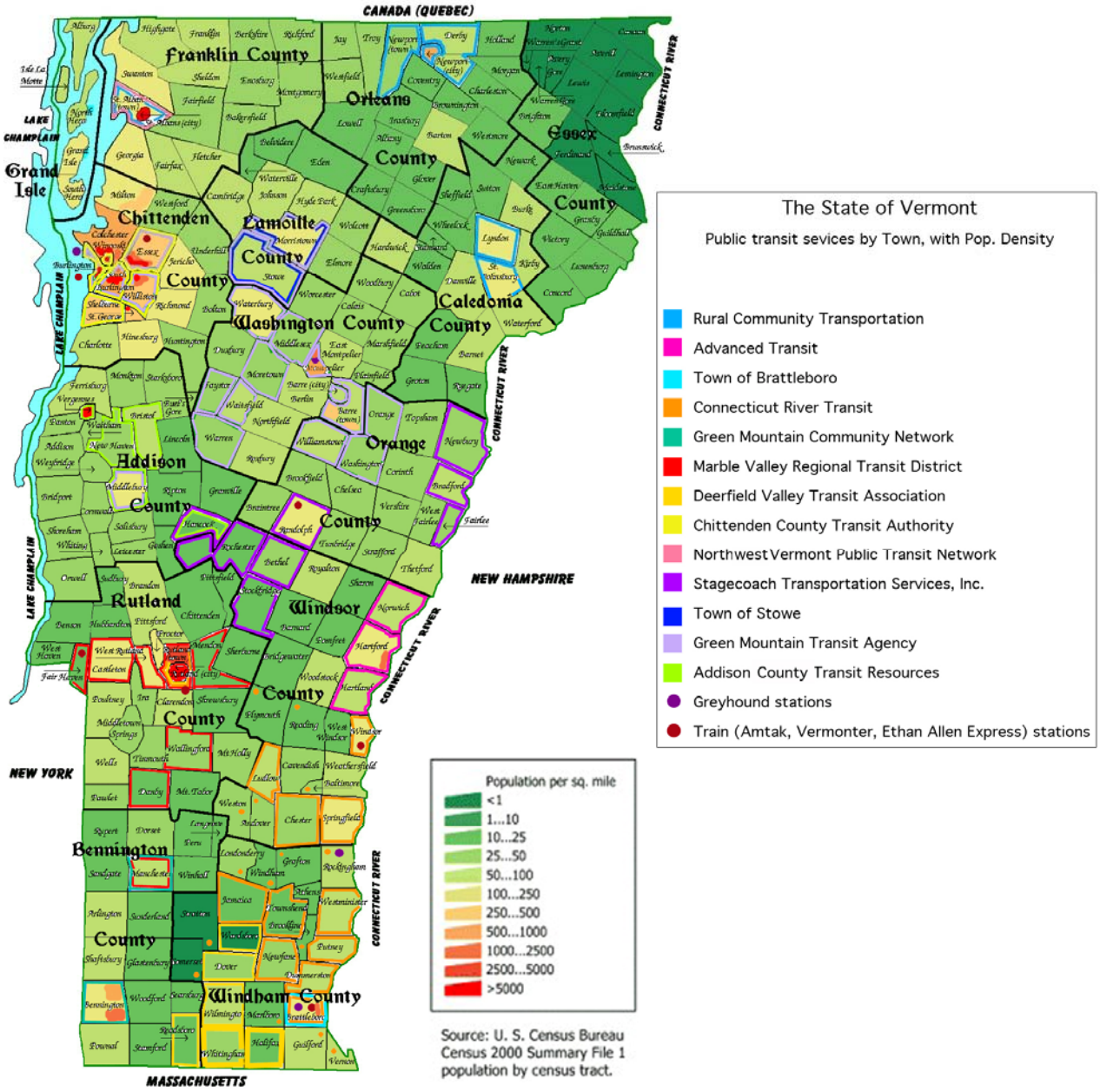


Figure 3. Public transit coverage in Vermont by town (Source: graphic created by Alexandra Mahler-Haug)

3. PUBLIC TRANSPORTATION SYSTEMS USED BY OTHER STATES

3.1 Funding efforts and systems utilized in other states

In addition to focusing on transit systems in Vermont, it is helpful to analyze successfully funded systems in other states. By studying systems outside the state of Vermont, we do not limit ourselves to location and might find feasible funding programs that can be effectively implemented in Vermont. The target states are those with the same rural like demeanor as Vermont and close in location. Other states such as highly urbanized cities are not applicable forms of comparison since the methods of funding and demographic culture are significantly different.

3.1.1 School funding contracts: Manchester Transit Authority

Created in 1973, The Manchester Transit Authority operates thirteen routes with service charges. The line services 47 square miles and 143,500 people throughout the Manchester area.[20] They offer both a bus and a demand response service to the area's residents. The bus service receives a much larger volume of customers than the demand response service. Furthermore, the bus service operates with 14 buses, while the demand response only operates with 5.[21] Each service charges a fare to ride; however, the fare is not their prominent source of funding. "Funding for transit and Para transit operations is derived from a General Fund contribution from the City of Manchester, federal operating funds, and operating income. Operating income is derived from fares, bus and shelter advertising, and a terminal building lease. Capital funding needs are met with a combination of local Community Improvement Program and Federal Transit Administration funds. Funding of school bus operation and capital needs is derived from the MTA's competitively negotiated contract with the Manchester School District" [22].

Similar to Advance Transit's lucrative opportunity to receive funding from a local institution, this program also benefits from a local school. The only difference is that this source of funding isn't voluntarily; it is by contract so it is guaranteed funding. However, based on this example, only students within the range of the district were allowed to use the transportation system that the Manchester district supported. Thus the idea of school contracted funding sources for Vermont would be to use these school district transportation systems during the hours in which students are not using them (after school hours). Due to a social stigma, and concerns with contracting bus companies or unions, a partnership with school-district bus systems may be unpopular at first, but the benefits of a guaranteed funding source for Vermont Transportation as well as a system that can provide transportation in areas not covered by current transportation systems might be an opportunity worth the effort.

3.1.2 Community economic demographic funding: Concord Area Transit

Many of the transportation systems receive funding on the basis of operational need and demand. However, Concord's transportation system is one prime example of \ a funding resource based on the economic wealth and challenges of a county. According to a 2005 Concord Mayor and Council report, The Metropolitan Transportation Commission (MTC) initiated a Community Base Transportation Planning (CBTP) program in 2002. "The city of Concord was awarded $60, 000 under this program in 2005. The grant is used to assist low income areas to identify barriers to mobility and to develop plans to overcome them"[23]. This highlights sources of funding that can be attained due to the demographic and economic make up of a state.

3.1.3 Funding without state assistance: Cooperative Alliance for Seacoast Transportation

The Cooperative Alliance for Seacoast Transportation or COAST operates out of Dover, NH and serves the New Hampshire seacoast and Berwick, ME encompassing an area of 143 square miles and a population of 94,734.[24] COAST offers both a bus service and demand response service. The bus service operates 11 vehicles while the demand response service operates only one. Therefore, COAST attains an overwhelming proportion of its profit from operation of the bus service than the demand response vehicle.[25]

With all transportation systems, the need for government financial support, both federal and state is always a factor. What is unique about the COAST system is that it has no state funding. According to 2003 National Transit Database report, "58 percent of the operating funds come from the federal government"[26] and other funds vary from local contributions to fare revenues. Yet the state of New Hampshire contributes zero percent to the operation of this transportation system. This explains why their federal aid is significantly higher in comparison to other local transportation systems.

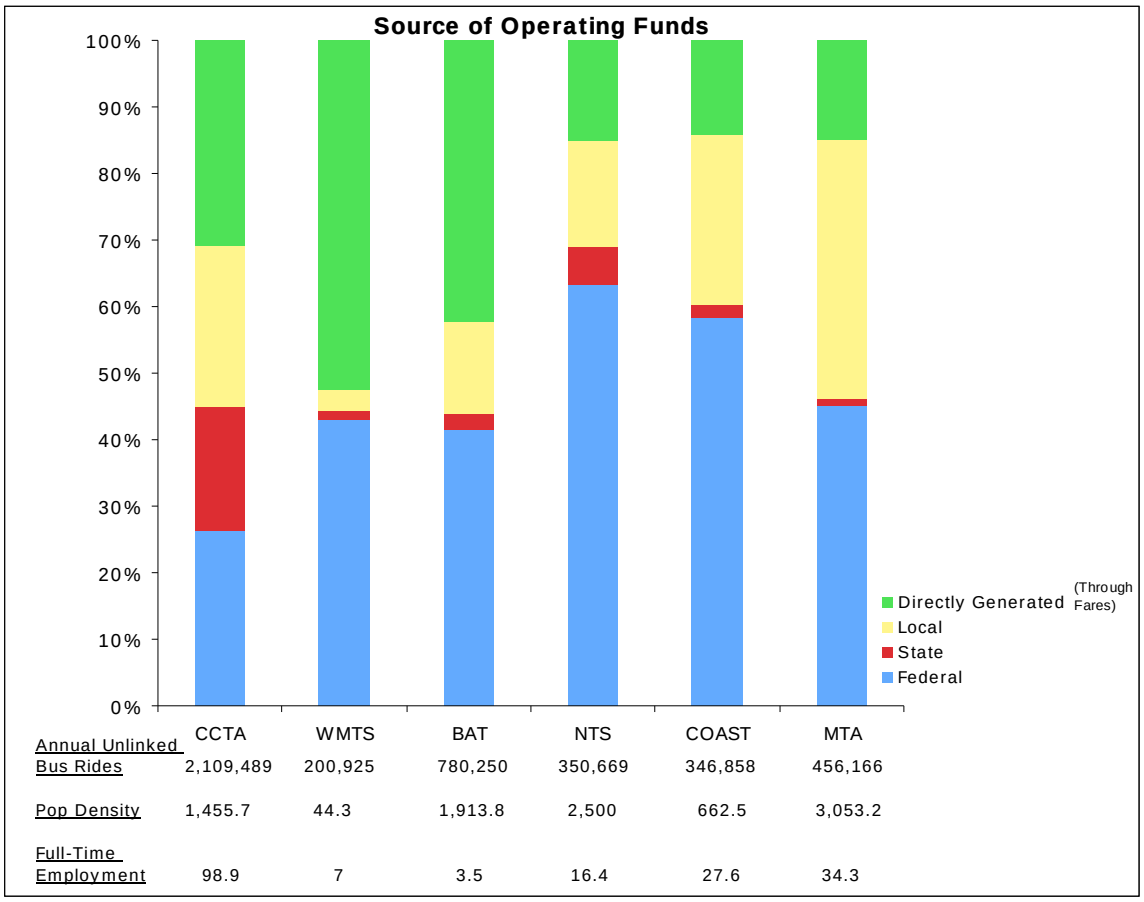
In addition, COAST provides service in Stafford County, an urban area. As a result they receive additional federal funding for this demographic quality. According to a 2003 New Hampshire Dept of Transportation report, along with Manchester and Nashua, the "COAST system is one of New Hampshire's three Urbanized Area Formula Grants Program Recipients from the Federal Transit Administration (FTA)"[27].

3.3 Connections between services and funding

Making connections and mapping correlations across transit systems in the Northern New England region will further the understanding of the options available to Vermont in creating a more accessible mass transportation system that will run throughout the state. The following graphs compare six mass transit bus systems: Chittenden County Transportation Authority (CCTA) in Burlington, VT; Western Maine Transportation

Services Inc. (WMTS) in Auburn, ME; BAT Community Connector (BAT) in Bangor, ME; Nashua Transit System (NTS) in Nashua, NH; Cooperative Alliance for Seacoast Transportation (COAST) in Dover, NH; and Manchester Transit Authority (MTA) in Manchester, NH.

Across the six systems there is a great diversity in the source of funding each receives and its relation to the total amount of operating funds required. This variation is shown in Figure 4. Included at the bottom of the figure for easier comparison are the statistics for annual unlinked bus rides, population density, and the number of full time employees.



	CCTA	WMTS	BAT	NTS	COAST	MTA
Annual Unlinked Bus Rides	2,109,489	200,925	780,250	350,669	346,858	456,166
Pop Density	1,455.7	44.3	1,913.8	2,500	662.5	3,053.2
Full-Time Employment	98.9	7	3.5	16.4	27.6	34.3

Figure 4. Source: the NTD Annual Database for 2007 located at http://204.68.195.57/ntdprogram/data.htm

CCTA receives comparatively the smallest proportion of their funds from federal coffers; however, the actual amount of federal funds it receives is greater than any other company. In addition, CCTA receives more state funds than any other company both proportionally and in real terms. This shows that the state of Vermont has a significant interest in the service provided by CCTA and is willing to promote its success monetarily.

In addition, WMTS hosts the least amount of unlinked bus rides annually but derives most of its operating funds (proportionally more than any other company) from directly

generated actions. The relatively low population density of the area WMTS serves could account for this variance in funding source. Because WMTS serves a small population it does not provide enough service to attract state or federal funding; therefore, the company's only choice is to charge its riders a fee for this specialized service that would not otherwise be available in an area of such low population density. If Vermont were to expand its public transit to include areas with comparable population density, directly generated funds through ride fares might become a necessity.

It seems that CCTA has reached its limit in terms of state and federally allotted funds and has been forced to dip into local and directly generated funds in order to obtain enough money to operate. This is probably due to the high volume of rides they provide. If services were to be expanded, the state and federal funds would most likely need to be increased to meet the new demand since generating funds directly can impact ridership and the accessibility of the service.

In today's economic world, job creation is a vital component in the social value of an industry. To attract federal and state investment in public transit in Vermont, it is important to take into account the quality and quantity of employment. To better analyze the employment contributions of various public transit organizations, full time positions were compared to both popularity of the service as shown by annual unlinked bus rides and population density. Part time employment is also included at a discounted value of half of full time employment.

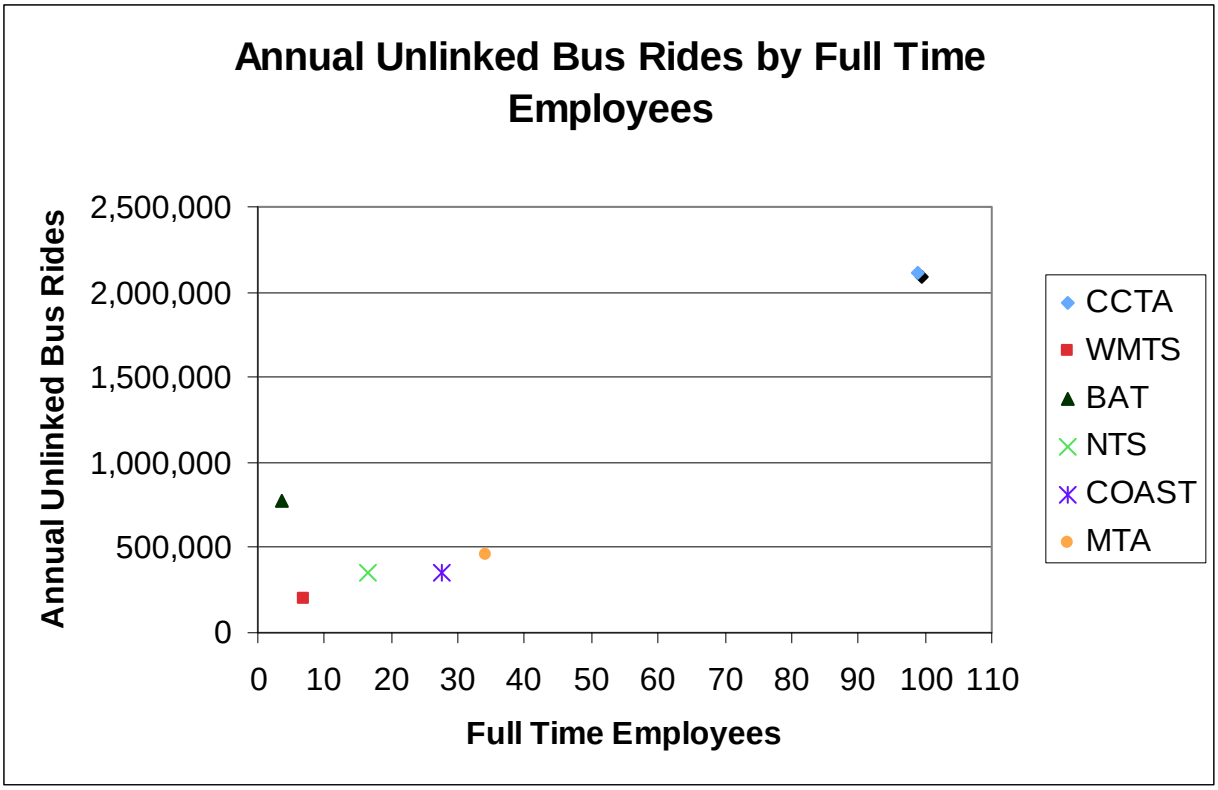


Figure 5. Source: the NTD Annual Database for 2007 located at http://204.68.195.57/ntdprogram/data.htm

CCTA employs the most people overall with 98.9 full time employees; however, the company also hosts the most unlinked bus rides annually by a large margin of 3 to 10 times the total number of annual unlinked bus rides. This makes CCTA an outlier in both categories. In order to equalize results and facilitate further comparison, the ratios of unlinked bus rides to full time employees are found.

	Ratio of Full Time Employees: Annual Unlinked Bus Rides
CCTA	1 : 21,329.5
WMTA	1 : 28,703.5
BAT	1 : 222,928
NTS	1 : 21,382.2
COAST	1 : 12,567.3
MTA	1 : 13,299.3

In analyzing these ratios, it is evident that COAST and MTA offer the most full time jobs per annual unlinked bus rides, and CCTA's full time positions correspond to annual unlinked bus rides in accord with other companies. In this way, CCTA offers am industry comparable number of full time positions according to the volume of rides they provide. The other outlier, BAT offers so little full time positions per unlinked rides because they rely primarily upon part time employees with more than 31 employees of this type.

Because there was so much variation in the way companies offered employment, it was necessary to include part time employment in the equation. The best way to do this was to assume that a part time employee is worth half the value of a full time one. The results of this are shown in Figure 6.

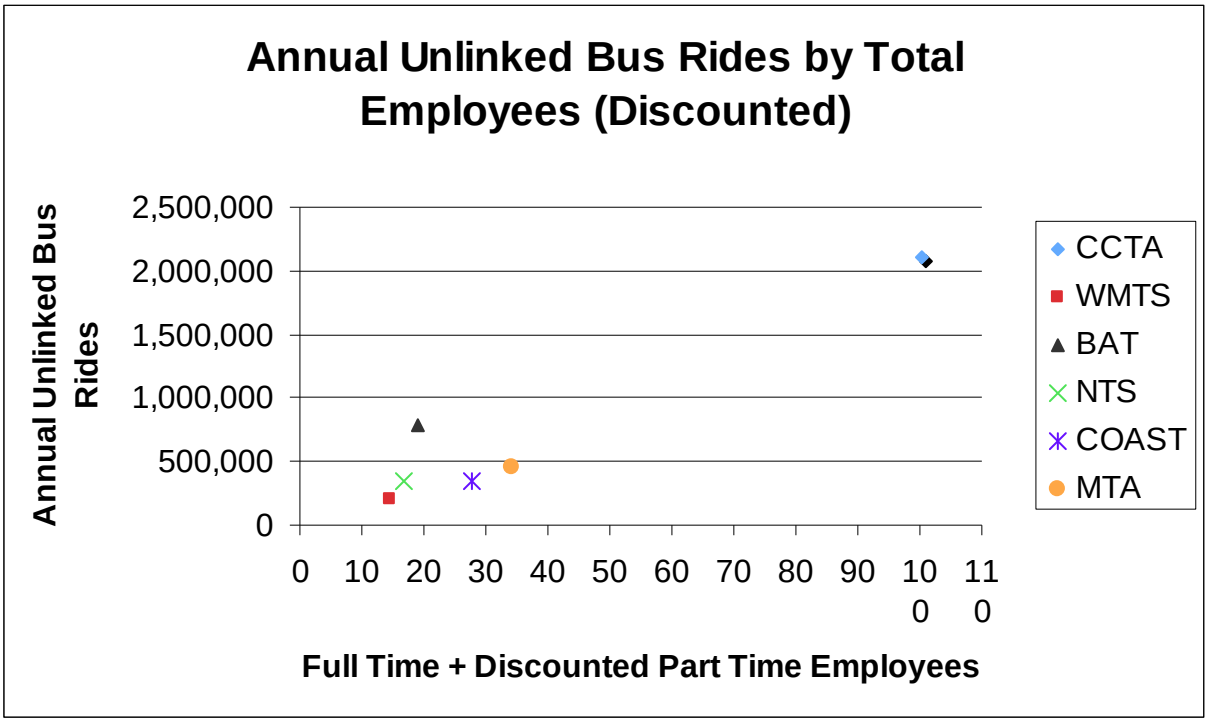


Figure 6. Source: the NTD Annual Database for 2007 located at http://204.68.195.57/ntdprogram/data.htm

Looked at in this way, CCTA remains an outlier due to its volume of annual unlinked bus rides while the other companies all remain clustered at about 20 employees and 500,000 annual unlinked bus rides. Therefore, in order to equalize results and facilitate further comparison, the ratios of unlinked rides to total (discounted) employees are found.

	Ratio of Total Employees (Discounted): Annual Unlinked Bus Rides
CCTA	1 : 21,101.8
WMTA	1 : 12,356.9
BAT	1 : 41,065.8
NTS	1 : 20,749.6
COAST	1 : 12,567.3
MTA	1 : 13,229.3

In comparing ratios of total employees to annual unlinked bus rides, the range of rides to one employee ranges from 12,567.3 rides per employee to 41,065.8 rides per employee. CCTA falls in the middle of this range with 21,101.8 rides per employee. Therefore, CCTA does not offer an unusual amount of employment according to the volume of rides they provide.

Population density is a determining factor to calculating demand for mass transportation. Figure 7 charts the relationship between annual unlinked bus rides and population density.

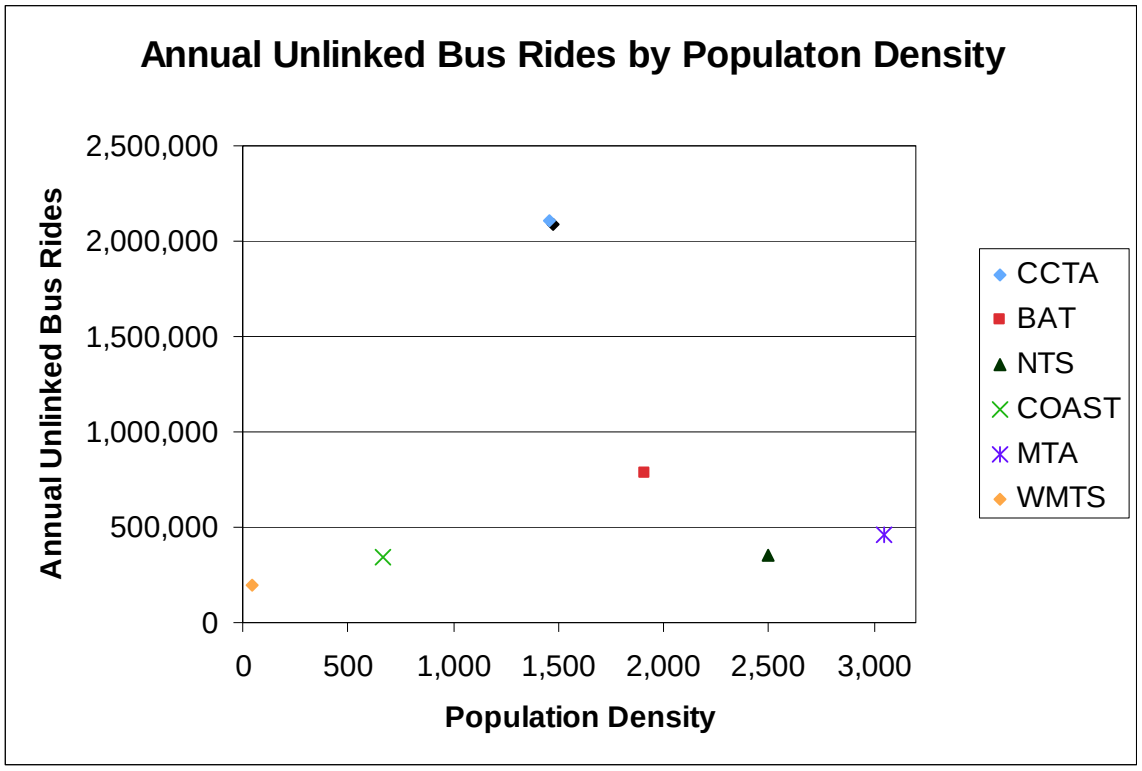


Figure 7. Source: the NTD Annual Database for 2007 located at http://204.68.195.57/ntdprogram/data.htm

When comparing population densities and annual unlinked bus rides across the transit companies of the region, CCTA again is an outlier due to its high volume of annual unlinked bus rides. All other organizations cluster with rides below 1,000,000 despite the large variance in population densities. Reasons for the peak of CCTA are not apparent. Influences could be related to variations in poverty rates, environmental awareness, competition with other mass transit systems, or the quality of routes offered.

The relationship between the number of full time employees to population density in the area serves by the organization is useful in determining the share of the labor market that the organization provides and how vital this system is to job creation in the community. The results of the comparison are shown in Figure 8.

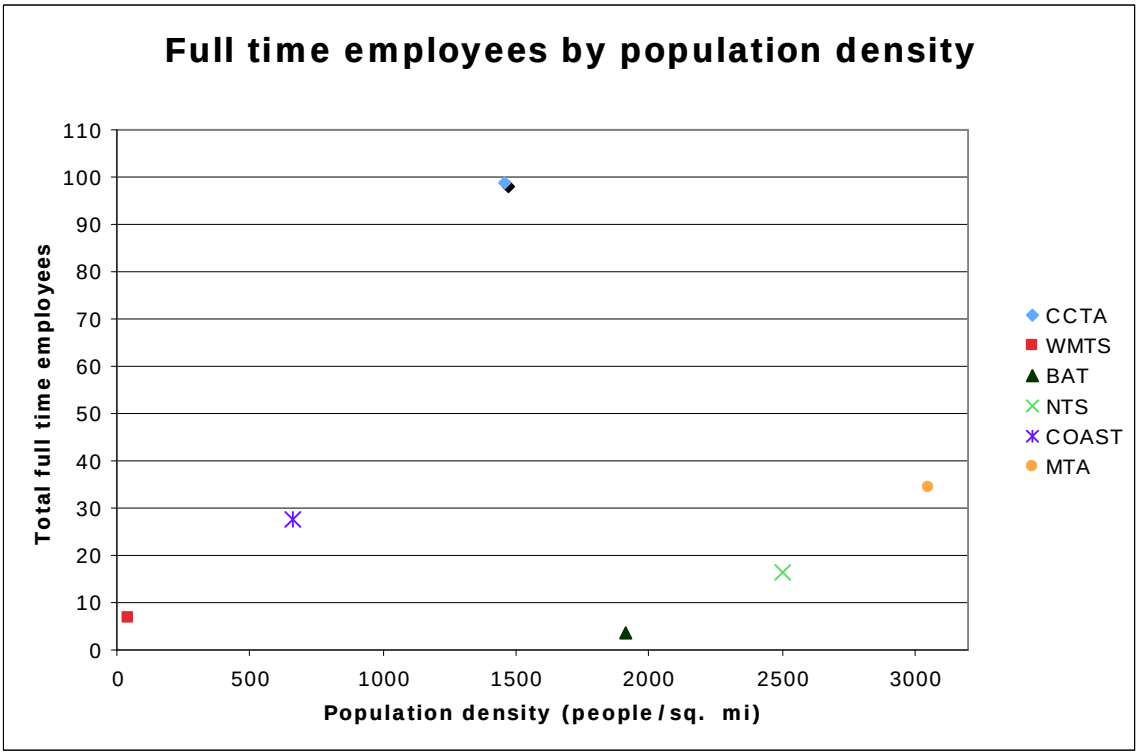


Figure 8. Source: the NTD Annual Database for 2007 located at http://204.68.195.57/ntdprogram/data.htm

Again, CCTA is the outlier in this comparison. However, there seems to be a general trend of increasing employees with increasing population density. BAT, however, is not a part of this trend because significant portion of their labor demands is being met with part time employment.

The data shows that CCTA is somewhat dissimilar to the other transit systems included in the analysis primarily due to the large volume of rides that they supply. This ridership intensity is unique especially when population density is taken into account.

3.4 Aggregation of services and regionalization programs in other states

There are currently efforts in regions of multiple states attempting to coordinate public transportation on a regional level with the goal of reducing costs and eliminating or decreasing gaps in transit coverage. These regions include including New Hampshire's North Country, Georgia's Coastal Region, and Minnesota's Region 9. The areas of these three states that are under consideration for coordination efforts are similar to Vermont in that they contain no major cities. Because of this similarity, many of the measures and ideas used in these states' plans, may therefore be relevant to Vermont. It is worth noting that all three of these states have similar plans that involve regional coordination of resources and funds between programs providing general public transportation and programs providing transportation through the respective Departments of Human Services or Department of Human Resources (DHR).

3.4.1 Neighboring States' Mass Transportation Coordination Organizations

Throughout the state of Maine, GO MAINE works as the intermediary between transit operators, commuters, employers, business associations, and planning agencies to integrate the public transportation services and information available in the state.[28] On their website, the organization offers information on carpooling, vanpooling, bus/ferry/rail service, biking and walking trails, and park and ride services as well as a special emergency ride home service.

Once registered with the organization, GO MAINE provides the commuter with personalized matches for applicable carpool, vanpool, and local public transit services like ferry, rail, and bus. While the organization does not actively make an attempt to link city-based or regional public transportation through its services, it provides the user with recommendations for applicable public transportation options offered throughout the state.

State institutions completely control the management and sponsorship of GO MAINE. The Greater Portland Council of Governments, a non-profit organization composed representatives from twenty five Maine municipalities created by state legislation in 1969, administers the program.[29] Moreover, the Maine Department of Transportation and Maine Turnpike Authority sponsor GO MAINE financially.

While the organization does not ensure linked public transportation throughout the state, GO MAINE attempts to superficially link the various transit organizations throughout the state by providing citizens detailed and personalized information and routes that take full advantage of the state's public transportation opportunities. The organization in this sense caters more towards the assistance of the citizen commuter rather than the communication and development of the state's transportation providers.

In the neighboring state of New Hampshire, the New Hampshire Transit Association fills a role similar to GO MAINE. The organization seeks to provide support, information, and education to the various transportation providers in the state as well as to improve the mobility of the citizens of New Hampshire.[30] Transportation operators, government agencies, private suppliers, and transportation planners compromise the membership of the New Hampshire Transit Association.[31] These members work with the association to facilitate communication across agencies and promote public awareness and support for mass transportation services. In addition, the association offers legislative support and lobbying as well as a source of knowledge to providers to improve their system.

While beneficial to its members, the New Hampshire Transit Association does little to integrate and coordinate the transportation organizations it represents. Therefore, the association cannot be said to improve the overall ease of attaining linked public transportation throughout the state of New Hampshire. The association, rather than being a resource for its citizens and commuters, focuses upon the growth and development of transportation providers throughout the state. While the association lists improving the mobility of New Hampshire citizens as one of its goals, it approaches this improvement

indirectly through assisting transportation organizations in their communications with each other.

3.4.2 Coordination between programs and agencies

New Hampshire, Georgia, and Minnesota all have plans that heavily rely on coordination between the Department of Human Services programs (referred to as DHS in New Hampshire and Minnesota and DHR in Georgia) and other rural public transit programs. In 2005, Congress passed the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU), which provides funding for transportation programs including Section 5311for Rural Public Transportation.[32] Section 5311 is a federal formula grant that provides funds for providing transportation in public areas.[33] Both Georgia and Minnesota have 5311-funded vehicles, which play a large role in their transportation coordination plans.[34] In Georgia, the coordination plan calls for the initiation of 5311 systems in all ten counties of the region.[35] However, 5311 programs alone are rarely able to deliver enough public transportation to sufficiently cover an area because there are simple not enough matching funds from local governments.

The coordination between human services programs and other rural transit programs pools all the funding and resources from the different sources with the ultimate goal of providing better coverage and efficiency over the entire region. While the state and local government is still required to provide services to those helped by the DHS, the hope is that coordination of agencies will allow the streamlining of public transportation so that more of the general public can be served at the same time.

4. POLICY RECOMMENDATIONS

4.1 Coordination: Information and Regionalization

First, Vermont may consider focusing resources and state efforts on centrally coordinating information from all transportation agencies in the state for easy consumer use. The GoVermont program could be expanded and improved to be more like the GO MAINE system, giving users all transportation information rather than just providing links to agency information. As 35 percent of Vermonters do not have access to an internet-connected computer, this central information system should include a hotline. With this coordination of information, uses will find it easier to plan their trip route and its expense. Likewise, the state can use this central map of transit-covered areas to determine areas that lack necessary transportation services.

Second, Vermont may consider regionalizing its transportation system by coordinating the services of the different transit agencies. One of the main advantages of a regionally coordinated transportation system is that it can more smoothly provide transportation on a regional rather than county scale. Most transit providers in Vermont and in the three mentioned states provide transit only within their county, without any crossing of county lines.[36] This makes it very hard for someone relying on public transportation to reach areas that are not in their county of residence. A regionally coordinated system would

allow people to access any part of the region by calling a single, central call station. Another advantage of a regionally coordinated public transportation system is that it can provide service to more people and at a wider range of times. Transportation providers with idle vehicles could help out providers with overcrowded routes so that all vehicles are being used efficiently.[37] This allows the regional service to potentially provide more total rides, and have vehicles available for earlier routes. The presence of a central call center also makes regionalized transit more attractive to public transportation users. It gives people the ability to call a single number for all their regional transportation needs, rather than have to call multiple providers if they want to travel long distances. An advantage of regional transportation organization mentioned in the Georgia report is the increased coordinated in the event of an emergency or evacuation.[38] Having one centralized entity makes it much easier to coordinate evacuations or other emergency responses.

4.1.1 Challenges to regional public transportation

Two of the main obstacles to having regional transportation organization are insurance coverage and reimbursement issues. There is currently no single insurance provider for all the many transit agencies, which means that vehicles might not be covered when providing services for other companies.[39] Some sort of overarching insurance plan would have to be figured out to ensure complete coverage. Also, many transit agencies in Minnesota voiced uncertainty about how reimbursement would work.[40] There must be some sort of standardized reimbursement procedure for when one provider lends vehicles or personnel to assist another. Another concern of the providers in Minnesota was the loss of control in dealing with their own customers.[41] They were unsure they could provide the same level of personal service to their own customers while operating under a regional organization. Finally, there was also a concern that coordination was too much of a hassle, and would result in new and burdensome paperwork for the already understaffed transit providers.[42]

4.1.2 Implementation of regional public transportation

Though none of the three states mentioned has yet fully implemented their transportation plans, they do describe some of the steps necessary for implementation, which is helpful for Vermont's situation. For the regions in these states, the effort for regional coordination of public transportation was spearheaded by some sort of regional economic planning agency, which are somewhat analogous to Vermont's Regional Planning Commissions.[43] Many of the plans were developed by coordination between this type of organization and the Department of Transportation. In all three, there is a definite need for added technology to assist with communication. Vehicles must be equipped with cell phones or 2-way radios, and new software must be purchased to plan ride coordination.[44] Also, there must be some sort of central coordinating location. There should be one place that coordinates all the rides for the region, and also only one place where a person needs to call for a ride anywhere in the region.[45] The NH report also states the need for volunteer drivers and vehicles to be cataloged and placed into a central database.[46]

Additionally, there should be someone in charge of the regional transportation. For example, in New Hampshire, this role is called the Regional Transit Coordinator.[47]

There are also some steps that these states plan to take or have already taken before they can start organizing regional transit. First, information must be gathered about the needs of the consumers and the current services provided. Minnesota Region 9 sent out surveys to both to citizens and to the major transit providers in the region.[48] The goal of these surveys was to determine how well the population was being served, and to gain a better understanding of what was possible to change from the transit providers. Another important preliminary step that was taken in all three cases was the investigation of the region's demographics to estimate need for public transportation. Census data was analyzed to find areas containing those living in poverty, elderly citizens, disabled persons, and individuals receiving medical aid.[49] Finally, some of the obstacles such as insurance coverage and reimbursement must be solved through legislative means before any real coordination at the regional level can take place.

4.2 Working with school transportation systems

Two of the successful transportation systems this report has identified had some type of monetary contract with a local educational system; the Advance Transit and Manchester Transportation Authority. Along with federal and state aid, a solid list of contributors from educational institutions can be the best option to fund a transportation system in Vermont. The fact that students need transportation to get to school can provide an incentive for colleges, high schools or other educational institutions to be a consistent source of funding.

In a state like Vermont where there are over 24 different colleges and numerous pre college educational institutions, the funding from such a project would be substantial; perhaps greater than any other source of aid.

The obstacles such an initiative would face would include, securing funding pledges from participating schools, infusing this educational system of funding with the current twenty six transportation systems, and overcoming any legislative or social opposition. These are just the obvious potential issues that a program of this kind will face. However, if Vermont can through rigorous efforts, surpass these obstacles, it will be left with a well funded transportation system.

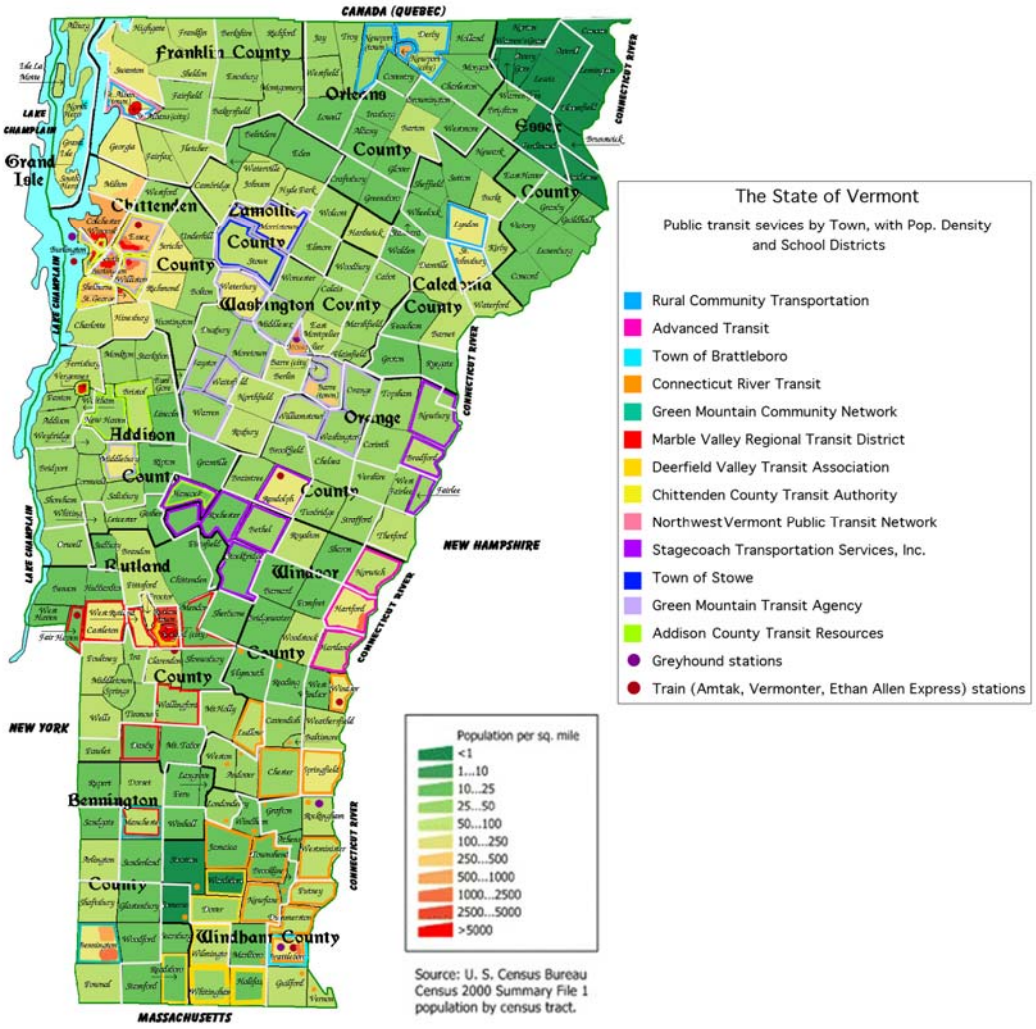


Figure 9: Public Transit by Town and School District

If we look at the current school transportation routes and current Vermont transportation routes (Figure 9), the areas where services overlap should be evaluated for a school-district partnership. Combining routes and rearranging routes to fill in gaps where transportation is not provided with school and Vermont transportation routes is a viable method of improving and connecting transportation routes.

4.3 2009 Federal Stimulus Package

Currently, Vermont has received $126 under the Federal Stimulus package titled American Recovery & Reinvestment Act. According to recent reports from The Vermont Agency of Transportation, Vermont League of Cities and Towns, and Vermont's regional planning commissions, the primary criteria for allocating these funds is based on

eligibility and readiness. The funds from the stimulus package must meet the federal requirements that limits the use of stimulus funds for certain projects and that the funds must be spent in an expedited fashion according to the "use it or lose it" provision of the stimulus bill. According to the bill, $44 million of the funds must be obligated towards a project within 120days of receiving it or the state will lose up to 50 percent of the money and the opportunity to gain funds from other states' recaptured funds.

Within this time frame for using stimulus funds, the state of Vermont is focused on spending these funds predominately on infrastructure. Vermont has various areas of poor roads and weak bridges that need to be repaired to prevent harm to commuters. Currently, legislative work is discussing the allocation of $86 million from the stimulus funds to fund over 31 essential infrastructure improvement projects.

Yet under the current economy, the stimulus funds can also be a funding opportunity for the improvement of Vermont transportation. While infrastructure is a primary concern, the overwhelming disregard to improving Vermont transportation needs to be re-visited.

The American Recovery and Reinvestment Act Transportation Eligibility clearly marks many strict restrictions and regulations to what projects can be funded, which provides great financial support for infrastructure related projects because they meet these regulations and promote the funds goal of employment opportunity. However, "the ability to flex stimulus bridge and highway funds towards public transportation" is allowed. Whether Vermont is willing to flex funds towards transportation is to be seen in upcoming months. To ensure that transportation improvement is considered amongst states, the American Recovery and Reinvestment Act "included funds specifically for public transit of $5.6 million. It is important to note that this fund is separated from the $126 million amount that Vermont received under the stimulus fund. The American Recovery and Reinvestment Act also has consistently placed transportation improvement as a top priority for state improvement. "With such a strong commitment in other parts of the Economy Recovery Act directed towards public transit, Vermont must assess how strong a priority it assigns to flexing highway and bridge money to public transit uses rather than deploying more funds to the considerable deficiencies that exists within its road and bridge network"(American Recovery Transportation Eligibility).

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http://www.rndc.org/documents/finalplan12_31.pdf
[46] http://www.ruraltransportation.org/files/nhtransit.pdf
[47] http://www.ruraltransportation.org/files/nhtransit.pdf
[48] MN
[49] ALL http://www.nado.org/conference_files/gatrans2.pdf
http://www.ruraltransportation.org/files/nhtransit.pdf
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