KFH GROUP, INC.

SHORT-RANGE PUBLIC TRANSPORTATION PLAN FOR *ADVANCE TRANSIT*

Final Report

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Prepared for

State of Vermont
Agency of Transportation

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CHAPTER 1

INTRODUCTION

BACKGROUND

This document presents the Short-Range Public Transportation Plan (SRPTP) for the area of Vermont served by Advance Transit (AT). It has been prepared by the KFH Group under contract to the Vermont Agency of Transportation (VTrans), with the assistance and cooperation of AT and the Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC).

An SRPTP is a study process that includes determining the transit needs of the community, analyzing current transportation services and their ability to meet those needs, and recommending both organizational and service initiatives aimed at improving service delivery and meeting identified unmet needs, over a five-year time frame.

The planning process was guided by the AT Board. The consultant team met periodically with the Board as it reviewed materials, provided input, and guided the direction of this study (a list of AT Board members is included in Appendix A). In addition, the study team 1) met with the UVLSRPC's TAC to obtain input, 2) conducted surveys of major employers in the region, and 3) conducted surveys of human services agencies that provide transportation to their clients. Finally, two public forums on public transit needs and alternatives were held in White River Junction; one at the beginning of the project and another to review alternatives with the public. The remainder of this chapter presents some background on why and how the SRPTP was developed, including both local and state goals of the project and issues addressed during the planning process.

Chapter 2 presents the land use and demographic characteristics for the two counties that affect public transit needs and services. Chapter 3 presents a review of the current transportation services in the area including the results of the employer survey. An overall assessment of the potential for transit services and coordination is included in Chapter 4, along with alternatives for improving public transit in the AT service area. Chapter 5 presents the plan for improving public transit services in the AT service area, including a projected budget and funding plan.

PURPOSE OF PLANS AND LEGISLATIVE REQUIREMENT

In Section 13 of H760/Act 144, the Vermont legislature required that VTrans produce a Public Transportation Policy Plan (PTPP) that includes legislative recommendations. VTrans produced a final report to the legislature on January 15, 2000. This report described the proposed planning policy for public transit in Vermont, which identified the roles of the transit operator, the regional planners, and the state.

The primary transit planning tool was identified as the SRPTP, prepared under the direction of the local system provider, with input from the Regional Planning Commission Transportation Planning Committees, the Board of each system, the VTrans public transit program, agency contract customers, and the public. A recommended scope of work for use in each SRPTP was provided in this report, which corresponds to the process of this study and recognizes the need to address additional local issues.

VTrans provides a very significant portion of the funding for the capital and operating expenses of the rural transit services in Vermont in its role as the recipient of Federal Transit Administration (FTA) funding for the rural and small urban systems, for Job Access, for Congestion Mitigation and Air Quality (CMAQ) funding, and as a provider of state operating funds. Consequently, it has an interest in ensuring that the funds are used to provide effective transit services needed by the residents of the state, and are used in an efficient manner as part of a statewide public transportation program. This is reflected in the state statutes that require these plans. It should be noted that the New Hampshire Department of Transportation provides a significant portion of AT's funding for services in its New Hampshire towns.

AT PUBLIC TRANSIT SERVICES

AT, headquartered in Wilder, VT, provides fixed-route and rideshare services in the Hanover, NH/White River Junction, VT area including the Vermont Towns of Norwich, Hartford, and Hartland and the New Hampshire Towns of Hanover, Lebanon, Canaan, and Enfield. The area examined in this study consists of the three Vermont towns of Hartford, Hartland, and Norwich. Figure 1-1 provides an overview of the service area for this SRPTP.

The three towns in Vermont include only 135 square miles and a population of 17,134 according to the 2000 Census (for an overall population density of 127 persons per square mile). Hartford has the bulk of the population and a much higher population density (230 persons per square mile). The population on the Vermont side of the AT service area grew by about eleven percent between 1990 and 2000, with Norwich experiencing the highest growth level (15%) and Hartland the least (8%).

REVIEW OF PREVIOUS STUDIES

AT had a SRTP prepared in April 1995 and updated in 2000. In addition to the SRTPs prepared specifically for AT, the UVLSRPC has a RTP that addresses the need for public transit within the context of overall transportation needs including highways, rail, aviation, and bike/pedestrian. The following section includes a review of previous plan content and recommendations.

1995 Short Range Transit Plan for Advance Transit

In 1995 Multisystems, Inc. and its subcontractors performed a study for AT to develop a five-year SRTP. Based on demographic analysis and a number of surveys to determine transit needs and preferences in the area, the study formulated recommendations for public improvements and a capital and financial plan. A Marketing Plan was developed as a separate document. The plan included the following goals:

- To provide the Upper Valley with efficient, reliable, accessible, attractive, safe, comfortable, and affordable fixed-route transit.

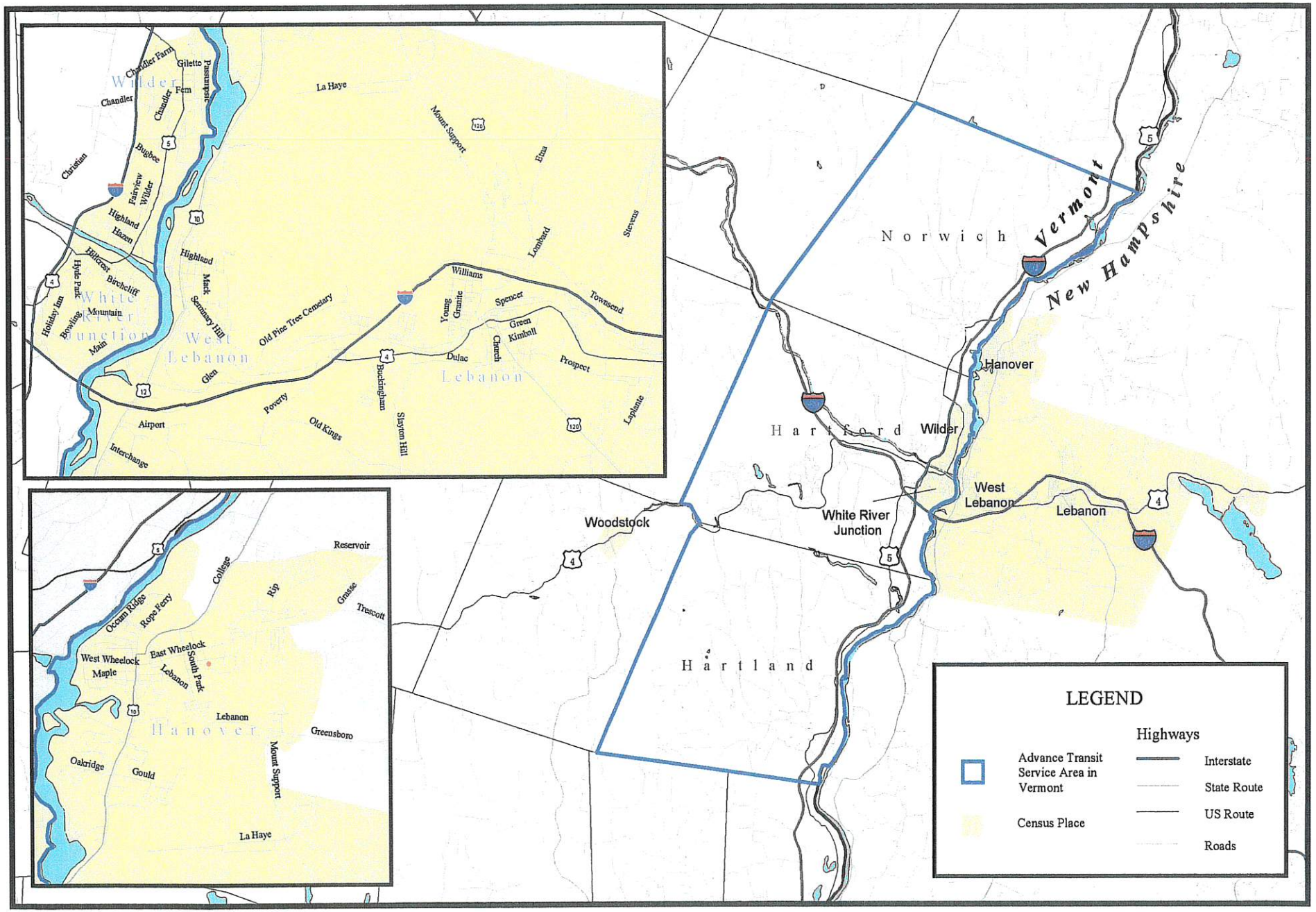


Figure 1-1: VERMONT SERVICE AREA OVERVIEW

- To work closely with Upper Valley officials, businesses, organizations, and individuals to promote use and support of AT as a mechanism to:

  - reduce traffic congestion, air pollution, highway development,
  - preserve the quality of life, environmental integrity, and small-town New England character of the region, and at the same time,
    -- stimulate business and economic growth,
    -- increase the availability of customer parking in downtown areas, and
    -- provide accessible and convenient bus stops.

- To inform Upper Valley residents and visitors as to the availability and benefits of public transportation alternatives to single-occupant vehicles; and to encourage their use of AT.

- To provide Upper Valley workers with competitive alternatives to single-occupant vehicles such as frequent commuter bus services that provides access to all major employment centers in the region, and other commuting alternatives, including paratransit and ridesharing services.

- To provide college students with access to college campuses, downtown centers, and shopping facilities, as well as Upper Valley residents with access to the region's college campuses.

- To expand access to medical services, shopping and nutrition programs and other life-enhancing and life sustaining services, as well as to personal and recreational pursuits.

- To provide area students with home-to-school and/or school-to-after-school public transit services that provide an alternative to single-occupant, and are not duplicative of school-operated transportation services.

- To assist in the development of a transportation network which provides convenient links with intercity bus, rail, and airline services.

- To improve coordination with human service agency transportation providers within the Upper Valley as well as public transportation service providers and human service agency transportation providers from other regions.

The plan also included performance standards for schedule adherence, reliability, rider satisfaction, accident ratios, cost per trip, and cost per mile.

Service Area Profile

The study team found that the AT service area had a more densely-populated core over the towns of Hanover and Lebanon, NH, and Norwich and Hartford/White River Junction/Wilder, VT. On the other hand, segments of the population that are more likely to be transit-dependent, notably seniors, persons with mobility limitations, autoless households, and low-income households, were scattered throughout the service area and in some cases were more prevalent in outlying areas.

Of the ten major employers surveyed, most indicated that all their employees drove alone to work. Dartmouth-Hitchcock Medical Center (DHMC) and Dartmouth College reported that some employees rode transit to work, a fact that is borne out by the ridesharing arrangements that AT had with these institutions. AT ridership data showed that DHMC and Dartmouth College employees use transit for work-related trips, even more frequently than reported by their employers. The VA Hospital reported some transit use by its employees and also had a carpool program in place.

A survey of human service agencies revealed that, although they provided some transportation services, significant unmet needs remained, partly due to insufficient funding. The study team found that AT's level of fixed-route trips per capita was consistent with those of peer transit services, indicating little or no unmet demand for additional fixed-route service, but that there was enough unmet demand to support additional paratransit service.

Recommendations

The study team recommended that *existing* routes be reconfigured to eliminate deadheading (operation of empty vehicles to reach one end of a non-continuous route), make more efficient use of existing vehicles, and simplify schedules for passengers and drivers. Efforts were also made to tailor schedules to the work schedules of different employers for improved commuting options, and to improve connections between routes.

The team also recommended *adding* service which would require more vehicles, including more frequency on the Blue and Red Routes and expanded service hours on the

Orange Route. Other recommendations included a possible local Lebanon feeder and Saturday service.

Given the evidence of unserved demand for paratransit service, the study team included an examination of possible paratransit options. Recommendations included limited service areas and hours, and curb-to-curb as opposed to door-to-door service in order to limit liability.

2000 Short-Range Transit Plan

Early in the Year 2000, Tom Crikelair Associates submitted its final report on an updated SRTP. The study found that AT reached or surpassed the cost reduction and ridership growth objectives established in the 1995 plan. Further service modifications and improvements were recommended based on changes in the service area.

The planning process included an extensive public participation process that involved many meetings with local stakeholders and included elected municipal officials, town managers, planners, and economic development staff, regional planners, Dartmouth College, DHMC, other area employers, and bus riders. Stakeholders meetings, focus groups, and public workshops were held; an on-board survey of riders was conducted. The plan includes 12 goals for AT that are applicable to this SRPTP (see section on goals below).

Service Area Characteristics

The plan surveyed recent commercial and residential developments in the service area. Key developments include a new parking garage in downtown Hanover aimed at making short-term parking easier; expansion on the Dartmouth College campus and the DHMC; and a number of residential and commercial projects, notably the Centerra complex, either on the fringe or outside of the areas served by current routes.

Short-Term Recommendations

The study team recommended changes to existing routes, combining some and streamlining others, and adding services including a Hanover/Dartmouth shuttle, a new White

River Junction/Hanover route, and a peak hour bus on the DHMC shuttle route. According to the study, AT should reduce or eliminate Saturday service. Wheelchair accessibility is also a major focus of concern: the study team recommends establishing separate wheelchair vans to provide more efficient accesible service and to minimize disruptions to other passengers.

Long-Term Recommendations

The study team also recommended that eventually AT establish separate service to Centerra in order to minimize the significant delays to the Blue Route and to streamline service for riders who feel that the route is too long already. Other recommendations include: adding a second bus to the Red Route, establishing park-and-ride shuttle services at interstate exits and other key locations, and adding service to industrial parks.

UVLSRPC Regional Transportation Plan

The most recent RTP for the Upper Valley Lake Sunapee Region was developed by UVLSRPC in 1998. The RTP presents a set of goals and recommendations for all transportation modes that are aimed at avoiding the traffic and air quality problems that plague other areas, including a number of goals that relates directly to transit, including:

- Reduce single occupant vehicle use,
- Increase public transit ridership, ridesharing, and use of alternative transportation modes,
- Integrate linkages between both passenger and freight rail service with other transportation modes, and
- Work closely with the region's public transit providers to obtain the necessary funding to maintain adequate age and size fleet of public transit vehicles.

The RTP recommends that the local public transit operators (including AT) determine minimum route performance levels for fixed-route services and consider eliminating routes that fall below these levels. It also recommends that the operators develop a method and formula for analyzing new services areas and routes. The plan also recommends that VTrans construct a

park and ride lot near US Route 5 and I-91, Exit 11. And, finally, the plan recommends encouraging Vermont Transit to continue services in the towns it now serves.

Other Local Studies

The 2000 SRTP also reviews a number of master plans and traffic studies conducted by and for the local town including *Lebanon: A Look Ahead, Hanover Traffic Surveys, 1986-1998, Hanover Master Plan and Town Reports, Hanover Parking Facility Operation Study, and Hanover Employee Survey.* Of note is the *Hanover Master Plan* recommendation for a single system to address parking and shuttle bus needs for central Hanover, Dartmouth College, and the DHMC and the need for four peripheral parking lots:

- South of Hanover on Route 120
- South of Hanover on Route 10
- North of Hanover on Route 10
- West of Hanover in Norwich

INITIAL PUBLIC MEETING

In the public meeting and in meetings with AT and regional planners, the study team gathered information about the community's goals for transit service, including unmet needs, potential service changes, and coordination with other transit services in the region. The initial meeting to elicit public input on the area's transit needs and how they are currently being met by the AT system took place on Tuesday, June 26, 2001 at 6:00 p.m. at the Bugbee Senior Center in White River Junction. There were 11 attendees including representatives of AT and UVLSRPC. The section below provides details of issues discussed in the meetings as well as on changing institutional developments that will affect the need for public transit in the AT service area.

Service Design and Transit Needs

- There is a potential to serve choice riders in the AT service area. The region (especially Hanover and Lebanon (DHMC)) are facing traffic congestion and parking problems. Parking and congestion issues are *driving* public transit.

- Major employment locations are the DHMC, the College, retail stores along 12A (Lebanon), and at various locations in the White River Junction area. These areas are also where growth is occurring. The College has a Student Life Initiative to build more student housing (on what are now parking lots). There is a need to look at transit as a way to reduce parking needs.

- Services need to be expanded to outlying towns. Transit is also seen as essential in dealing with the housing problems of the area. Many workers cannot afford to live in Hanover or Lebanon. They need a reliable way to get into town for working, shopping, and medical.

- The study should look at the potential for additional park-and-ride facilities (especially to reduce cars coming into Hanover and Norwich).

- There is a potential to partner with additional employers – not only to address parking and traffic needs, but also to bring workers into this tight labor market.

- Some participants expressed a need for Saturday and evening service on some routes especially to DHMC, the college, and along 12A shopping.

- There may be a potential for mid-day service and evening service on the Canaan route.

- Riders would like to be able to go from Norwich to DHMC without transferring.

- Services of AT need to be integrated into other private and public transit systems in the region. Riders should be able to understand how to transfer from one system to another. Brochures and marketing materials should show the routes of various transit operators.

- Some participants felt that AT should provide some demand-responsive service, especially for the elderly and persons with disabilities. Is there a potential for a pilot project?

- There is a lot of support for the fare free concept.

- Riders like the bike racks on buses – what about bike lockers for commuters (e.g. Norwich).

- There is a need to connect Claremont, NH to Lebanon/Hanover.

- What about a feeder service to Vermont Transit/Dartmouth Coach routes? What about feeder to Amtrak in White River Junction?

Other Study Issues Identified

- The SRPTP needs to build on recent transit planning; needs to include destinations and needs in New Hampshire.

- The study needs to plan for how to best use AT's Job Access and Reverse Commute grant (JARC). AT has received a grant from VTrans to provide transportation that will allow Temporary Assistance to Needy Families clients and other low income workers to access jobs. The original concept that AT proposed, along with Stagecoach and Marble Valley Regional Transit District (MVRTD), was to create a series of regional routes using Woodstock and Killington as transfer points. Stagecoach would operate a route from Randolph to Woodstock (via Killington). MVRTD would operate from Rutland to Killington/Snowshed. And, AT would operate a route from West Lebanon/White River Junction to Woodstock. AT has not implemented its route to date and AT management questions whether this route would be successful or meet the work trip needs of job access clients. Stagecoach has not started its route from Randolph to Woodstock. And, while MVRTD already provides some service to Killington, it also has not made the service improvements to Killington that were proposed under the JARC grant.

Recent and Emerging Developments in the Community that Affect Transit

- Indications in the press are that TVB may cease operation in the near future. AT could assume some role in serving the area currently served by TVB. If so, this is not reflected in this SRPTP; it would have to be revised if AT became involved in any new services to the TVB area.

- Ridership on the system is growing quickly as a result of service and fare improvements implemented in the past few years; a result, in part, of the effective partnership AT has forged with the College, DHMC, and the towns. The parking shuttles and fare free zone have helped to more than double its ridership in the past four years to over 500,000 annual trips.

- Over time, the system has made some changes to fares that will have increased ridership. In 2000, Vermonters began riding for free (with a special VTrans grant though June 30, 2002); all trips that began in Vermont were free with Vermonters obtaining a token from the driver for the return trips from New Hampshire. In addition, Dartmouth College employees and students rode free on AT routes by showing the Dartmouth ID card (the cost was reimbursed to AT by the College). All routes have been free since January 2002 due to additional funds from DHMC and Dartmouth College.

- Recently the Dartmouth Dewey Shuttle was extended to the Hanover Inn to improve links between the campus and downtown Hanover.

- The Town of Hanover recently constructed a new parking garage on Lebanon Street in downtown but still struggles with providing enough parking. The AT shuttles are an integral part of the Town's solutions.

- Dartmouth College has and continues to construct new residences and classrooms that have necessitated a policy of limiting the construction of new on-campus parking lots. Instead, the College's master plan calls for increasing peripheral parking areas and the College recognizes that increased shuttle services will be needed to make this concept work.

- DHMC is also expanding --- This will require parking at additional locations with shuttles to the new facilities with the possibility of midday shuttles linking DHMC buildings internally as well as to remote parking and the Centerra complex.

- Shopping centers continue to expand, primarily along Route 12A (plazas) and in the new Centerra completes (on the east side of Route 120 opposite the Heater Road entrance to DHMC). Serving these areas is important, but difficult to do because of the nature of the developments. On the Vermont side, the Sykes Avenue and Gilman Center complex have been cited as likely new areas for commercial development. The 2000 SRPT recommends that AT look closely at the future need for two-way service along Sykes Ave and Mountain Ave (to replace the existing one-way loop).

- There are also many new residential developments that need to be considered on the Vermont side of the AT service area including new senior and apartment complexes.

GOALS FOR THE SRPTP

VTrans and the local community established goals for this study upon its initiation. There are two sets of goals for this SRPTP – one set from the perspective of the state and another from the local community perspective. Both are reviewed below.

Local Goals for Public Transit

The following public transit goals were developed based on discussions with AT staff, input from UVLSRPC, a review of previous studies, and the initial public meeting. The goals for this SRPTP are taken from AT's ***2000 SRTP*** with some additions. Based on initial discussions with AT staff and the public meeting, it was felt that the goals set in the 2000 plan are still appropriate and should be applied to this SRPTP. Goals were added to deal with a potential expansion of the AT facility and the need to develop more park and ride lots. While the

issue of park and ride facilities is implied by many of the goals above (reducing congestion, assisting with parking strategies), there is a need to highlight the issue. There is only one park and ride lot in the AT service area – on US 5 in Hartland (at US Route 5 and I-91, Exit 9 and only contains 20 spaces). The lot is used primarily by people commuting into Lebanon/Hanover from the south.

SRPTP goals are as follows:

- Reduce traffic congestion in village centers and help to preserve the small-town character of area communities by providing residents and commuters with an alternative to increased automobile use.
- Assist towns, employers, and area institutions with parking management strategies.
- Provide area commuters with efficient and convenient alternatives to driving alone.
- Provide improved access to jobs and increased employment opportunities for area residents.
- Help ensure that area senior citizens can continue to participate fully in their communities without driving a car.
- Provide enhanced mobility and improve transportation options for area residents with disabilities.
- Offer convenient transit access to area hospitals, shopping centers, schools, and social service agencies.
- Operate bus routes that are productive and efficient, ensuring that public investments generate meaningful and worthwhile results.
- Offer transit services that are reliable and on-time.
- Assist towns, school departments, hospitals, and social service agencies by helping to meet their transportation needs.
- Develop bus routes that offer convenient intermodal links to intercity bus, rail, and airline services.
- Develop a capital reserve fund and add program revenue each year so that local match needs can be met in the future without borrowing.
- Explore potential for facility expansion, and

- Work with state and town officials to develop effective park and ride lots with transit shuttles to control traffic congestion and parking problems (with emphasis on the Vermont side of the service area).

State Goals for Public Transit

The overriding state purpose in requiring that local areas develop a SRPTP is to improve public transit services throughout the state. The State of Vermont has established State Goals for Public Transportation.

Following the completion of the PTPP, the 2000 session of the Vermont legislature adopted a declaration of policy for public transportation. The state policy goals for the maintenance of existing public transit services and creation of new services include, in order of precedence, the following:

(1) Provision for basic mobility for transit-dependent persons, as defined in the public transit policy plan of January 15, 2000, including meeting the performance standards for urban, suburban, and rural areas. The density of a service area's population is an important factor in determining whether the service offered is fixed-route, demand-response, or volunteer drivers.

(2) Access to employment, including creation of demand-response service.

(3) Congestion mitigation to preserve air quality and the sustainability of the highway network.

(4) Advancement of economic development with emphasis directed toward tourist areas. Applicants for "new starts" in this service sector shall demonstrate a high level of locally derived income for operating costs from fare-box recovery, contract income, or other income.

As can be seen, this statement sets forth goals for public transportation in Vermont that need to be addressed in each SRPTP, both in terms of the analysis and the proposals for service and organizational changes. The SRPTP addresses the question of the needs for basic mobility in each transit service area in terms of the population characteristics, the density of the population as it will affect the possible service alternatives, the need for employment transportation, travel patterns, or potential markets that could support transit service levels

attractive to auto users (which addresses congestion mitigation), and transportation needs for economic development (in terms of the likely destinations or trip-generators).

Increased equity is another statewide goal being addressed in the allocation of state transit resources, and increased equity will result in a higher level of funding for some areas. This funding should be provided only in response to identified and adopted local plans that will address identified needs in an efficient and effective manner. New services proposed in the SRPTPs will need to address the multiple goals for transit in the state, and hold the prospect of meeting usage and cost targets that are appropriate to the service area and type of service. Thus the SRPTP process is critical to the growth and improvement of transit statewide.

Because of these policies and the state funding formula, it is important for the SRPTPs to examine the relative needs in each service area in terms of the state policy priorities and the statewide level of need using these measures.

State Goals for the Plan

As indicated above, the role of the SRPTP in the planning process is critical as it forms the principle tool for assessing existing services, for identifying local needs, and for developing alternatives to better meet these needs. It is mandated if grantees are to receive state and federal funds through the agency. The 2000 session of the Vermont legislature created the Public Transit Advisory Council (PTAC), as recommended in the PTPP. This advisory body will act as a state-level Advisory Committee for the preparation of the SRPTPs. In addition, it is tasked with developing standards for evaluating the efficiency and effectiveness of existing services in terms of meeting identified priority goals for public transit in Vermont. Such standards can be developed, but the PTAC will need to know the range of current performance on basic standards in order to help define the appropriate standards and the desired levels for each. The SRPTP process is a statewide data collection process that can and should bring this information together and provide it to the PTAC, so that it can fulfill its mandate. Thus a goal of the SRPTPs is to collect standardized, detailed operating data by service type from all of Vermont's transit operators.

Another state goal for the SRPTPs is to produce consistent, comparable data and plans for all the public transportation providers in the state. The plans are being developed

simultaneously, to the same scope, and as part of a statewide process to ensure consistency in the plans, and to develop comparable performance assessments. The scope is designed to provide information needed for VTrans, the PTAC, and the legislature to be able to project capital and operating needs for public transit in Vermont, based on sound replacement plans for existing vehicles, and fleet and facility needs to provide service in areas that are currently unserved or underserved.

Another goal for the SRPTPs was development of plans that will address transit service coverage of the entire state. The plans consider both regional and intermodal service connections to create seamless transportation services across the state. Vermont desires a truly multimodal system that offers not only local mobility, but also access to other regions in the state, and to and from destinations outside the state.

A final goal from the state's perspective is that the SRPTP be a useful management tool for the local operators, who need to know how they are doing and if there are better ways to meet local needs by shifting resources from one service type or area to another, as well as through expansion. An outside look can aid an operator by providing external confirmation that some services need to be changed or reduced, and by helping to identify new ways to address needs. The plans can also support capital requests, and requests for demonstration (new service) funding.

CHAPTER 2

POPULATION PROFILE AND TRANSPORTATION NEED ANALYSIS

INTRODUCTION

This chapter documents the transportation needs of residents in this region. An analysis of the population of the region is included, presenting areas with relatively higher concentrations of persons likely to need or use transit, including the elderly, youth, persons with mobility limitations, autoless households, and persons living in poverty. These areas represent potential trip origin areas for transit services. Locations of affordable (principally multi-family) housing are also identified as possible trip origin locations. Potential trip destinations are presented in this chapter, including employment sites, educational and training institutions, medical facilities, and shopping centers. Finally, employers in the region were surveyed to determine if they had any concerns about employee transportation, and the results of this survey are included here.

SERVICE AREA

The service area for AT, and thus for the SRPTP, is the Hanover, NH/White River Junction, VT area including the Vermont Towns of Norwich, Hartford, and Hartland and the New Hampshire Towns of Hanover, Lebanon, Canaan, and Enfield. The area examined in this study consists of the three Vermont towns of Hartford, Hartland, and Norwich. Figure 1-1 illustrates the service area characteristics. Table 2-1 presents basic population data for the two counties from the 2000 Census. The three towns in Vermont include only 135 square miles and

Table 2-1 - ADVANCE TRANSIT CENSUS DATA 2000

Towns	Land Area (Sq. Mi.)	Population	Population Density	Youth (12 -17)	Elderly (60+)	Disability	Poverty	Autoless Households	Population 1990	Percent Change 1990 - 2000
Norwich	10.2	1,333	130.5	168	196	36	83	36		
Norwich	34.5	2,211	64.1	307	331	63	50	17		
Norwich Total	**44.7**	**3,544**	**79.3**	**475**	**527**	**99**	**133**	**53**	**3,093**	**15%**
Hartford	4.3	1,947	449.8	145	370	62	140	42		
Hartford	9.0	733	81.0	82	99	16	94	8		
Hartford	9.7	1,136	116.9	96	210	12	55	20		
Hartford	7.9	1,026	130.7	78	289	28	104	0		
Hartford	9.4	1,062	113.1	85	236	74	40	14		
Hartford	0.5	875	1749.7	65	171	74	84	21		
Hartford	0.6	866	1508.5	79	145	29	91	38		
Hartford	1.1	1,703	1583.8	164	361	99	200	137		
Hartford	2.2	189	84.3	12	44	11	7	0		
Hartford	0.4	830	1934.1	104	112	6	60	16		
Hartford Total	**45.2**	**10,367**	**229.6**	**910**	**2,037**	**411**	**875**	**296**	**9,404**	**10%**
Hartland	21.8	962	44.2	85	184	11	23	8		
Hartland	11.4	841	73.7	90	124	31	32	0		
Hartland	11.8	1,420	120.8	143	207	45	27	12		
Hartland Total	**45.0**	**3,223**	**71.7**	**318**	**515**	**87**	**82**	**20**	**2,988**	**8%**
Vermont Total	**134.8**	**17,134**	**381.1**	**1,703**	**3,079**	**597**	**1,090**	**369**	**15,485**	**11%**
Lebanon	41.2	12,568	305.0	499	1,843	160	1,089	582	**12,183**	**3%**
Hanover	50.0	10,850	216.8	677	1,811	98	633	187	**9,212**	**18%**
Enfield	43.1	4,618	107.2	318	702	95	231	103	**3,979**	**16%**
Canaan	55.0	3,319	60.4	365	455	60	199	62	**3,045**	**9%**
New Hampshire Total	**189.3**	**31,355**	**689**	**1,360**	**4,811**	**413**	**2,152**	**934**	**28,419**	**10%**
REGION TOTAL	**324.1**	**48,489**	**1,071**	**3,063**	**7,890**	**1,010**	**3,242**	**1,303**	**43,904**	**10%**

a population of 17,134 according to the 2000 Census (for an overall population density of 127 persons per square mile). On the Vermont side, Hartford has the bulk of the population and a much higher population density (10,367 residents and 230 persons per square mile). On the New Hampshire side, Lebanon and Hanover have populations and population densities comparable to the town of Hartford (with 12,568 and 10,850 residents, respectively).

The population on the Vermont side of the AT service area grew by about eleven percent between 1990 and 2000, with Norwich experiencing the highest growth level (15%) and Hartland the least (8%). On the New Hampshire side, the population also grew about 10% with the highest growth rates in Hanover (18%) and Enfield (16%).

POPULATION PROFILE – POTENTIAL TRANSIT TRIP ORIGINS

The following analysis provides a review of relative transit needs in the Vermont portion of the AT service area in terms of those population segments that are potentially transit dependent as well as the overall population distribution. Potentially transit dependent population segments are those segments of the population that, because of demographic characteristics such as age, disability, income, or automobile availability, may potentially require transit service to meet mobility needs (as an alternative to the private automobile). These segments of the population are defined -- using Bureau of the Census data -- as youth (persons age 12 to 17), elderly (persons age 60 and above), mobility limited, persons living below the poverty level, and autoless households.

In order to conduct an analysis of transit needs, it was first necessary to extract the data for each of these five variables from the 2000 Census STF3A files. The analysis was conducted on the block group level with the raw data summarized for each of the five variables. Using total population data for each variable and data on land area, the density (persons per square mile) and percentage of the population were calculated for each of the five variables within each block group. Each block group was then ranked relative to the other block groups based on the density and percentage of each of the five variables. The density and percentage rankings were first conducted for each variable individually. These individual variable rankings were then summed, resulting in two combined rankings that represent relative need based on 1) the density of potentially transit dependent persons and 2) the percentage of potentially transit dependent

persons. In addition to examining transit dependent populations in terms of the combined rankings for all five variables, we examined the density of autoless households in the region, as this variable is of particular importance in determining transit need. Finally, the total population and population density were ranked.

The rankings were performed on a statewide basis to provide a comparable basis for evaluating needs, and to reflect the fact that the new state funding formula is based on statewide needs. Tables providing the detailed data analyses are attached in Appendix B.

Transit Dependent Summary Rankings

As indicated, two representations of relative need were identified based on the density and percentage of transit dependent populations. These representations were developed by first ranking each of the five variables individually and then summing the individual rankings. The results of these two combined rankings are presented in the following discussion.

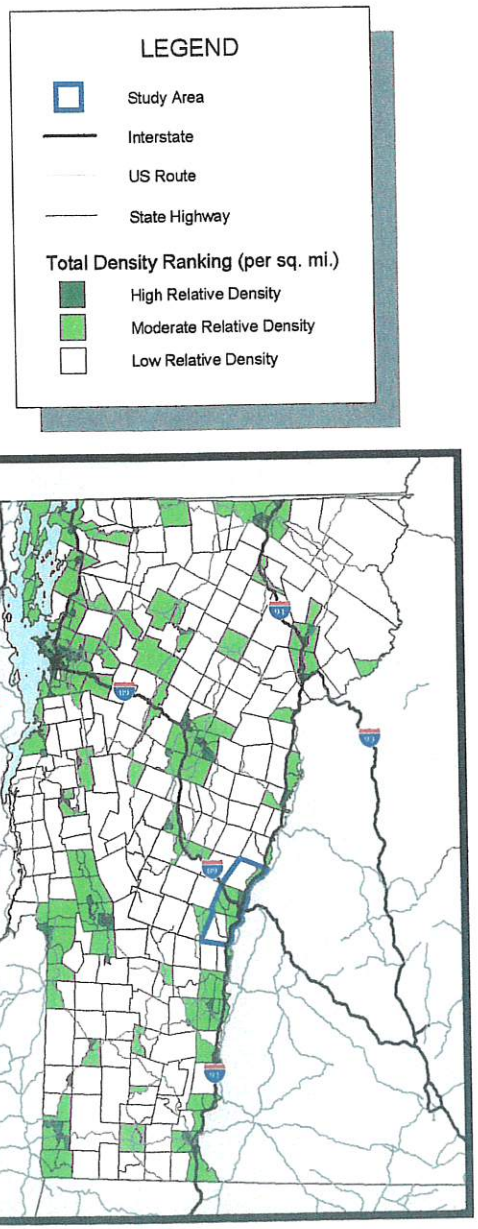
Density Ranking of Transit Dependent Populations

The first of the summary rankings involved examining the population density of each of the five variables. Figure 2-1 presents the graphic representation of that ranking. Areas of high relative need based on the density of transit dependent populations are expected in the more populated cities and towns and this was the case. These areas include White River Junction and Wilder.

Percentage Ranking of Transit Dependent Populations

The second summary ranking was based on the percentage of potentially transit dependent persons for each of the five variables. The five variables were ranked separately -- as with the density ranking -- and the five individual rankings summed. This sum was used to provide an overall ranking of block groups, and the areas with the highest relative need based on percentage were found in two block groups, in White River Junction, and Wilder. Figure 2-2 provides a graphic representation.

Figure 2-1:
BLOCK GROUPS RANKED BY
THE DENSITY OF POTENTIALLY
TRANSIT DEPENDENT PERSONS
(2000 Census)



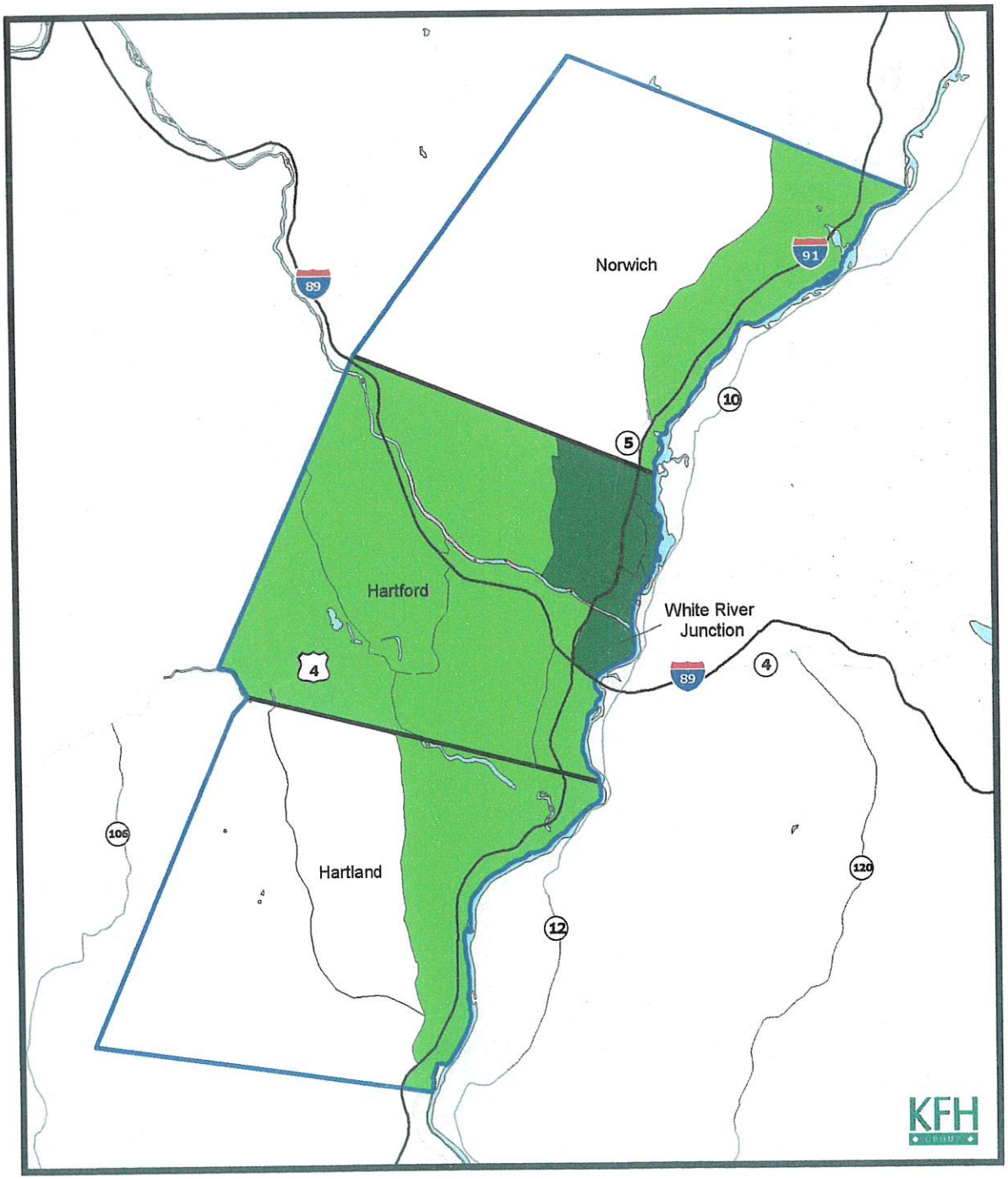
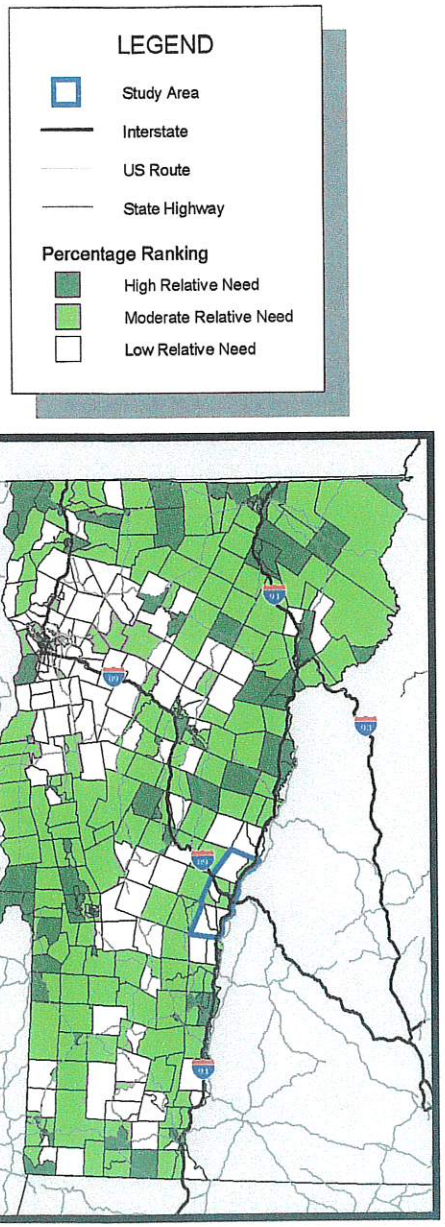
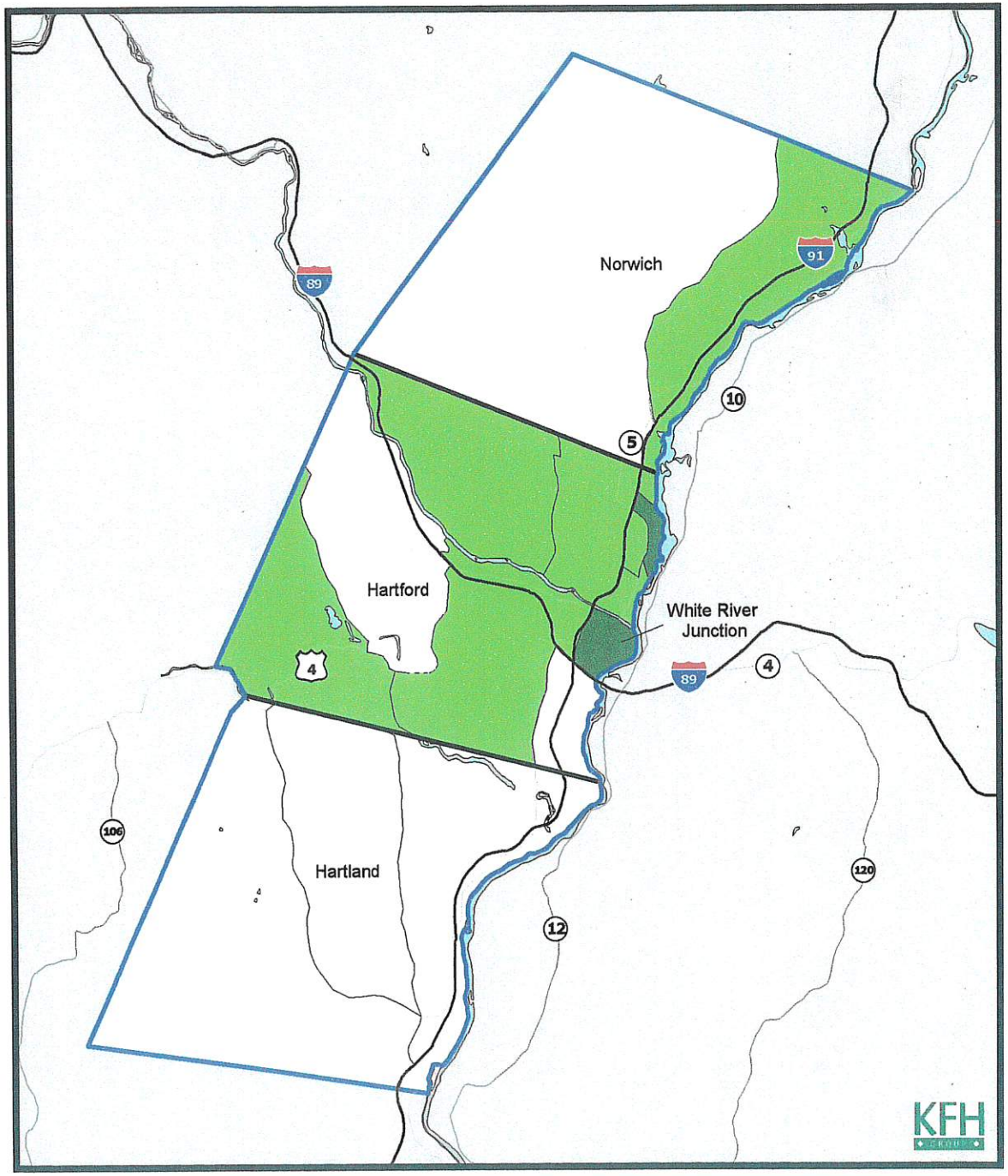


Figure 2-2:
BLOCK GROUPS BY THE PERCENTAGE OF POTENTIALLY TRANSIT DEPENDENT PERSONS
(2000 Census)





While this ranking does help identify areas of high relative need, it should be noted that a block group may have a relatively small population with just a few transit dependent persons and appear as high need given the small overall population. Thus it is necessary to use this in conjunction with the density summary rankings to determine areas of highest relative need.

Autoless Households

Concentrations of autoless households are particularly important in identifying transit needs given that without an available automobile, persons in these households must rely on alternative modes of transportation such as public transportation. For this reason, we have broken out our analysis of the density of autoless households from the aggregate rankings of the five variables. The block groups that rank highest in this category are the same ones that have densities or percentages of potentially transit dependent groups, namely White River Junction and Wilder. A graphic representation of the ranking of statewide and AT area block groups based on the number of autoless households is provided in Figure 2-3.

Affordable Housing

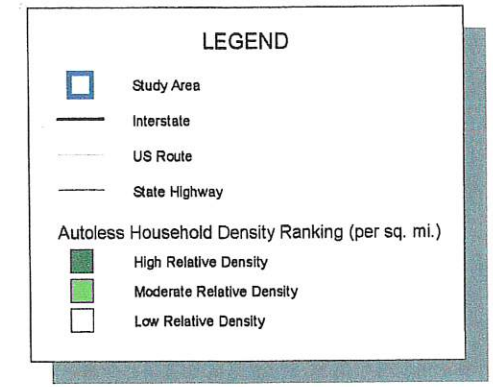
Another indicator of where transit may be needed is the location of affordable housing in the area. Table 2-2 presents a list of affordable housing units on the Vermont side of the AT service area. Most affordable/Section 8 housing is located in the White River Junction and Wilder areas along the Route 5 corridor. Figure 2-4 presents the location of affordable housing units in the AT Vermont towns.

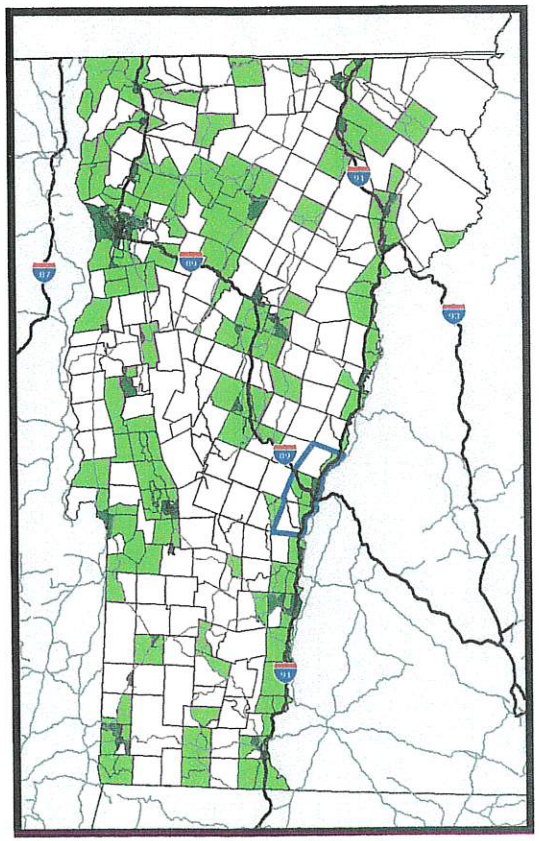
Overall Population Distribution

The final component of the population profile analysis is the distribution of population in the region, particularly in terms of population density. Figure 2-5 illustrates the 2000 population densities of the block groups in the region and state.

A general rule of thumb is that a density of at least 1,000 persons per square mile is needed to make fixed-route transit on multiple frequencies viable. As Figure 2-5 shows, the population density of most of the study area falls below 500 persons per square mile. Only the

Figure 2-3: BLOCK GROUPS RANKED BY THE DENSITY OF AUTOLESS HOUSEHOLDS (2000 Census)





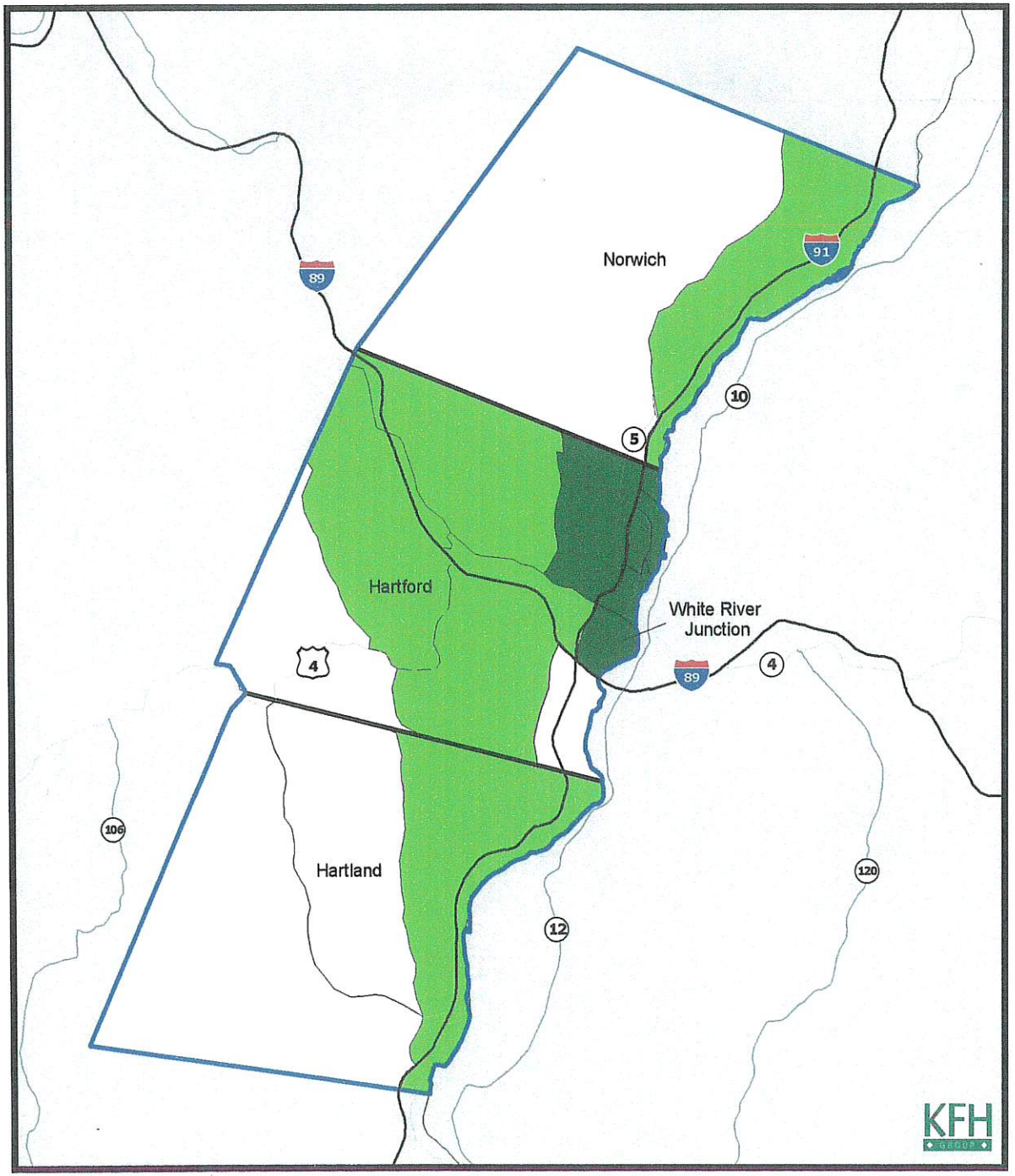


Table 2-2
ADVANCE TRANSIT SERVICE AREA
AFFORDABLE/HIGH-DENSITY HOUSING
(Vermont Locations Only)

NAME	ADDRESS	CITY
Graystone Village	2 Dewitt Dr W	White River Junction
Gates Street Elderly Housing Project	37 Gates St	White River Junction
Hillcrest Manor	25 VA Cutoff Rd	Windsor
School St	6 School St	Hartford
Templeton Court Apartments	Templeton Avenue	White River Junction
Colodny Building	30 S Main St	Hartford
The Briars	Bugbee St	Wilder
Anna Pluhar House	229 Main St	Hartford
Brookview Apartments	Begbee Rd	Wilder
Windsor Hollow	Manning Dr	Wilder
Olcott Falls Mobile Home Park		Hartford
Norwich Senior Center (Elderly)	4 Dorrence Dr	Norwich

Figure 2-4:
AFFORDABLE HOUSING
(Vermont Only)

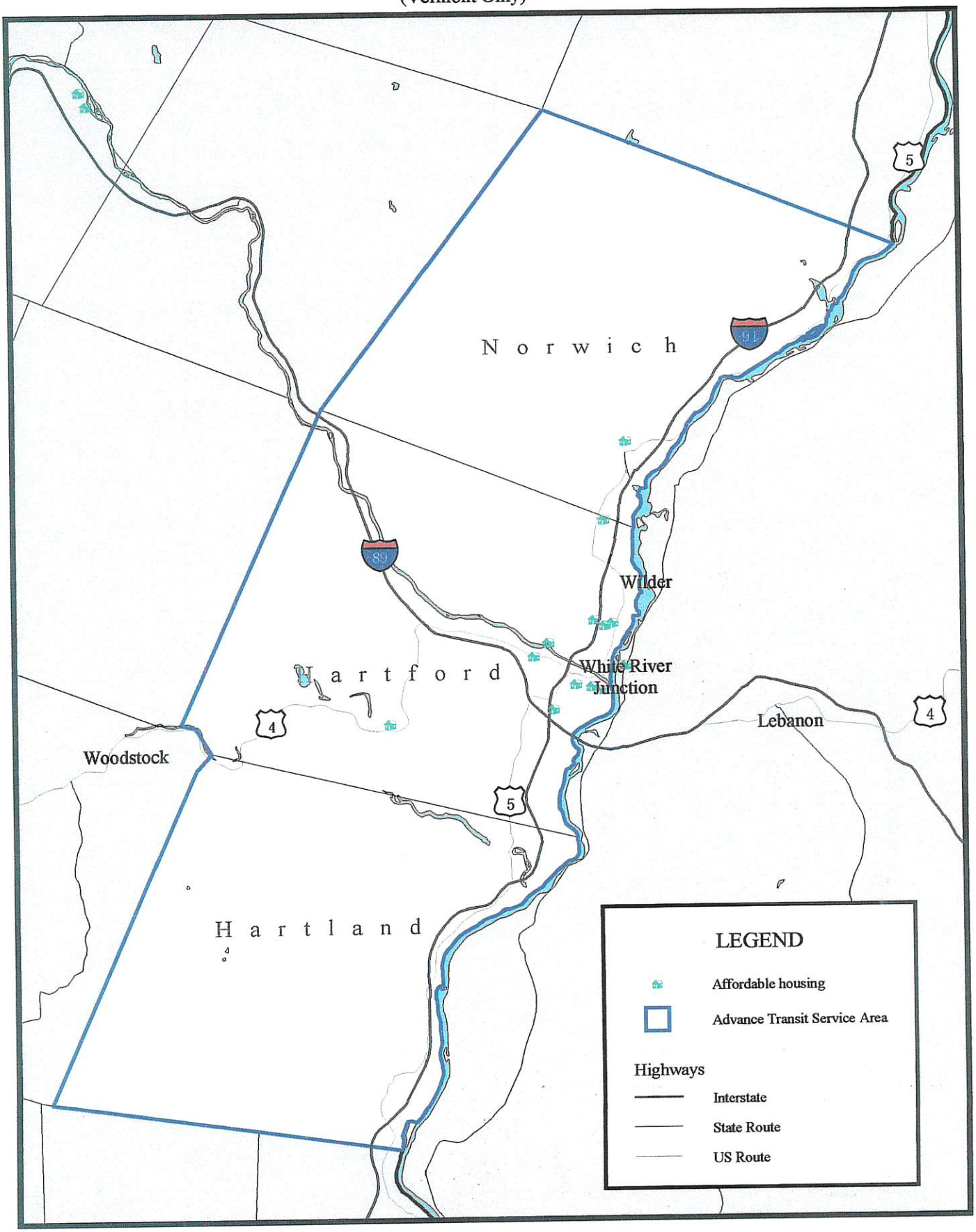
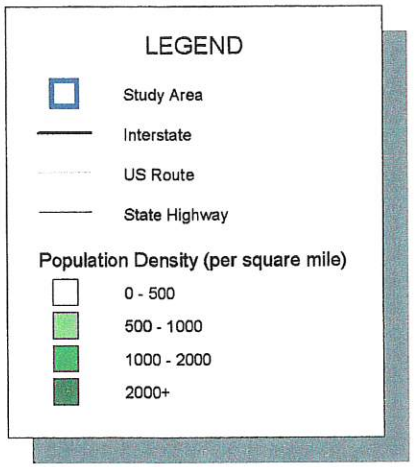
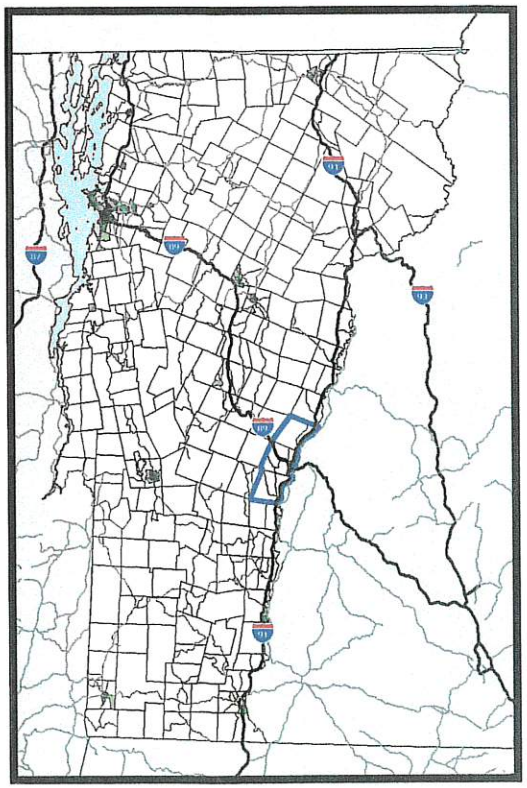
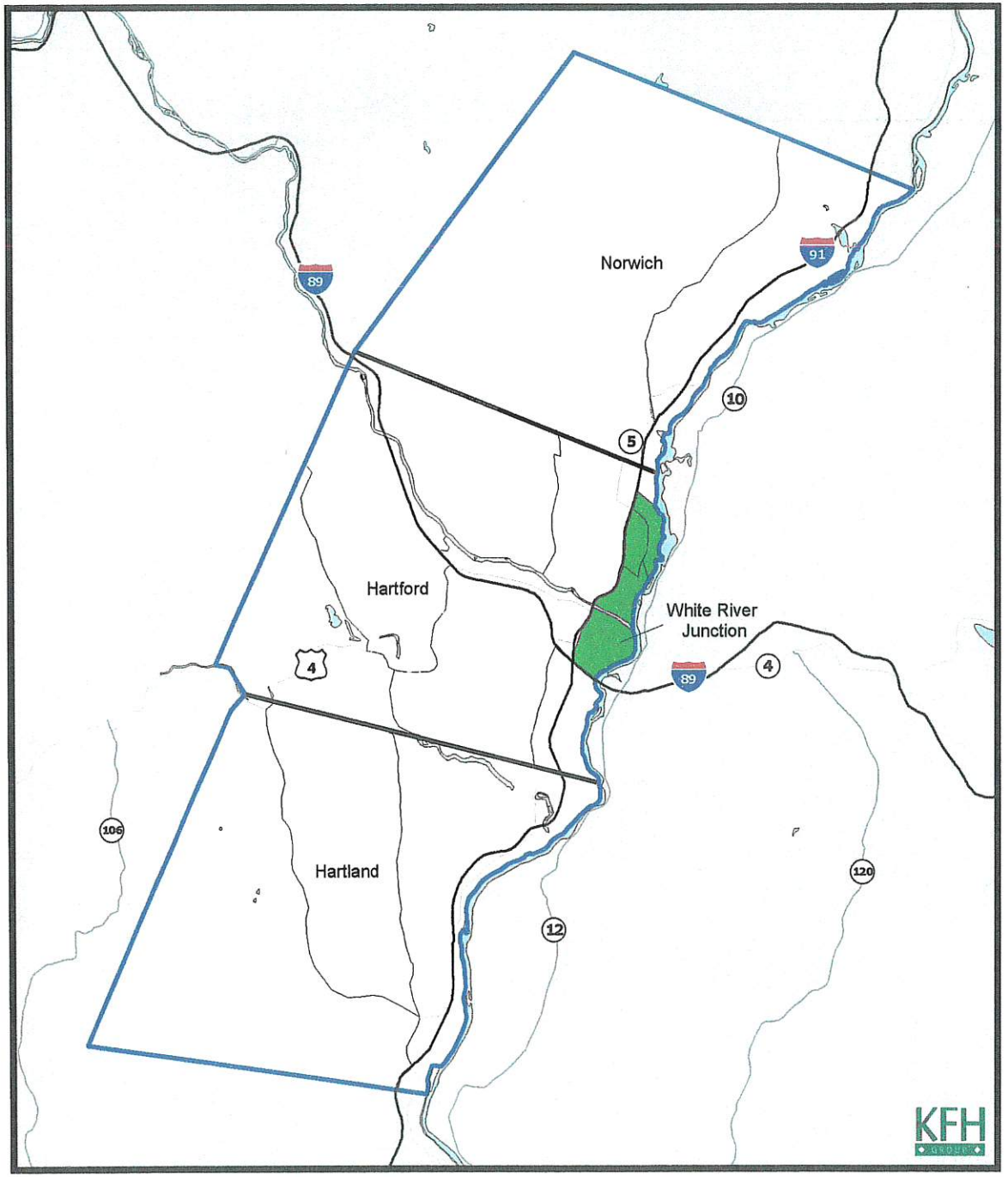


Figure 2-5:
BLOCK GROUPS RANKED BY
POPULATION DENSITY
(2000 Census)







White River Junction and Wilder block groups exceeded the minimum threshold for fixed-route transit, with densities between 1,500 and 1,900 persons per square mile. It is also important to keep in mind that areas with lower densities can support fixed-route transit under special circumstances, such as connecting outlying communities where large numbers of persons commute to jobs in high-density areas (such as the College and DHMC in the AT service area).

Summary of Population Profile Findings

The block groups in White River Junction and north along the Connecticut River including Wilder are high in transit need relative to the rest of the state based on the density summary ranking, the density of autoless households, and the total population density. Lower-density areas outside the Route 5 and Route 4 corridors may be good candidates for demand-responsive service, while the higher-density areas may be good candidates for fixed route or route deviation services.

POTENTIAL TRANSIT TRIP DESTINATIONS

Another component of the transit planning process is to identify major trip destinations including major employment centers, shopping centers, schools, and medical facilities. Most major destinations in the study area, including major employers, medical destinations, schools and technical centers, shopping destinations, and a bus terminal, are located in White River Junction or Wilder. Many of them are spread along US Route 4 and US Route 5. Figure 2-6 shows major trip generators (excluding employment) for the AT area, including destinations on both the Vermont and the New Hampshire sides; these are also listed in Table 2-3. Employers and job opportunities are analyzed separately and presented below.

Employment

The largest employers in the area (as well as the entire region) are DHMC and its clinic in Lebanon and Dartmouth College in Hanover. Employers in the AT service area are concentrated mainly in the US Route 5, Route 4, and Route 120 corridors. Three industrial parks (clusters of smaller employers) were identified including Centerra (on Route 120 opposite the

Figure 2-6: MAJOR TRIP GENERATORS
(Vermont Only)

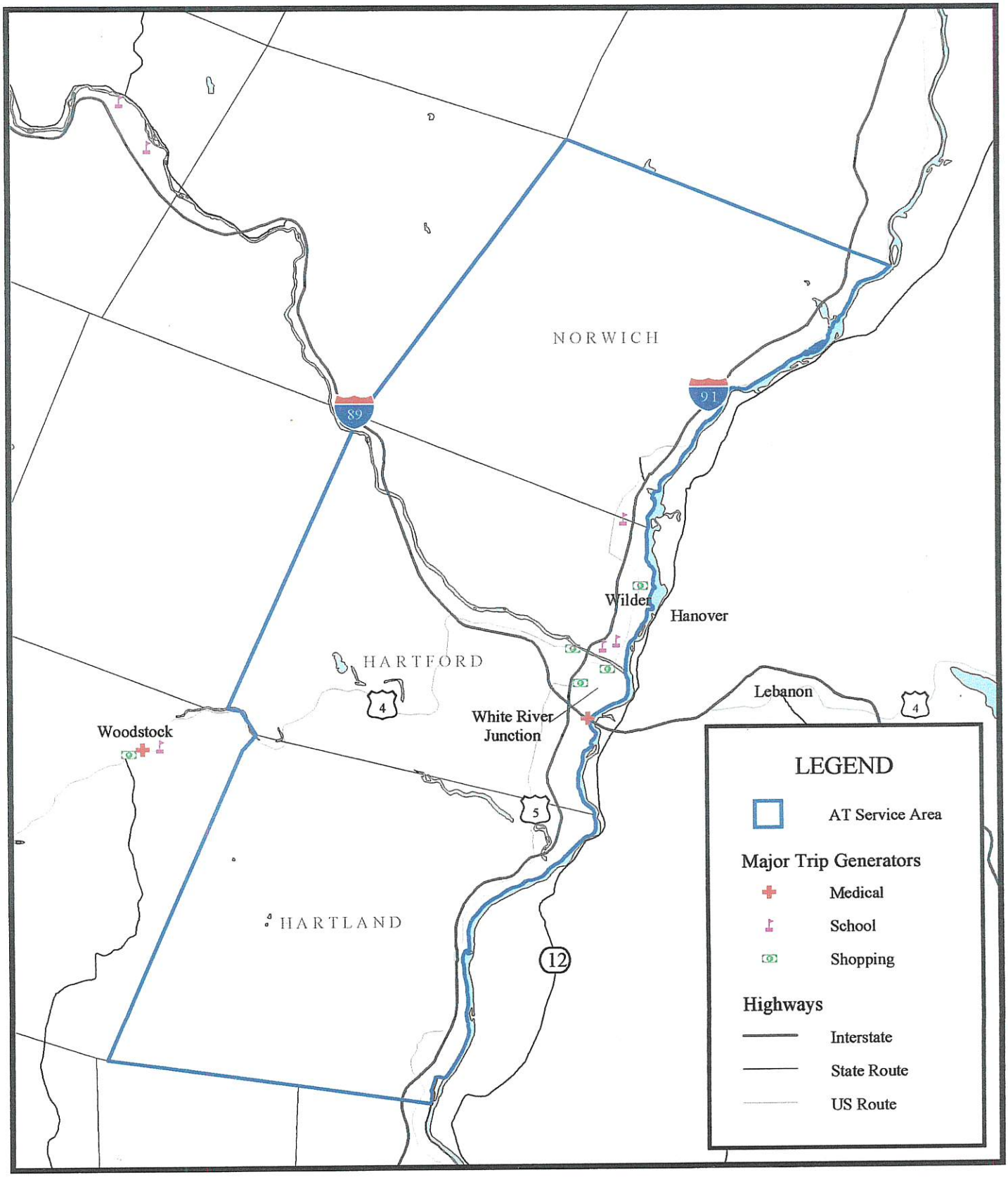


Table 2-3 - ADVANCE TRANSIT SERVICE AREA MAJOR TRIP GENERATORS

Name	Address	Town	State
Schools			
College for Lifelong Learning	325 Mt. Support Rd. Suite 2	Lebanon	NH
Community College of Vermont	52 Olcott Dr.	White River Junction	VT
Crossroads Academy	95 Dartmouth College Highway	Lyme	NH
Dartmouth College	East Wheelock St.	Hanover	NH
Hanover High School	41 Lebanon St.	Hanover	NH
Hartford High School	28 Highland Ave	White River Junction	VT
Lebanon College	15 Hanover St.	Lebanon	NH
Lebanon High School	195 Hanover St.	Lebanon	NH
Mascoma Valley Regional High School	Route 4	West Canaan	NH
New England School of Hair Design	12 Interchange Drive	West Lebanon	NH
Upper Valley Teacher Training Program	Two Whippleplace Suite 304	Lebanon	NH
Medical			
Anna Marsh Behavioral Care Clinic	28 Farmvu Dr	Hartford	VT
Good Neighbor Health Clinic	747 Hartford Ave	White River Junction	VT
Red Logan Dental Clinic	27 1/2 Taft Ave	White River Junction	VT
US Veterans Medical Center	215 N Main St	White River Junction	VT
Valley Acupuncture Health Clinic	Holiday Inn Dr	White River Junction	VT
Alice Peck Day Memorial Hospital	125 Mascoma St	Lebanon	NH
Dartmouth-Hitchcock Medical Center	Medical Center Drive	Lebanon	NH
Technical Centers			
Hartford Area Career and Technical Center	1 Gifford Rd	White River Junction	VT
Shopping			
Al's Country Store	407 Woodstock Rd	Hartford	VT
Big Daddy's Discount Warehouse	4 Interchange Dr	West Lebanon	NH
Boise's Riverdale Store	160 Bank St	Lebanon	NH
Burlington Coat Factory	2 S Park St	Lebanon	NH
Butson's Supermarket	2 Mascoma St	Lebanon	NH
Colonial Mart	96 Hanover St	Lebanon	NH
Colonial Plaza	5 Airport Road	West Lebanon	NH
Co-op Foodstore	45 South Park St	Hanover	NH
Co-op Foodstore	12 Centerra Parkway	Lebanon	NH
Dartmouth Bookstore Inc	33 S Main St	Hanover	NH
Glen Road Plaza	Glen Road	West Lebanon	NH
Grand Union	79 S Main St	Hanover	NH
Hirsch's Clothing Footwear	59 Hanover St	Lebanon	NH
K-Mart / TJ Maxx	200 S Main St # 24	West Lebanon	NH
Ken's Country Store	1775 Hartford Avenue	Wilder	VT
Pat & Tony's General Store	1 Medical Center Dr	Lebanon	NH
Powerhouse Mall	8 Glen Rd	West Lebanon	NH
Shaw's Supermarket	10 Benning St	West Lebanon	NH
Upper Valley Food Co-op	49 N Main St	White River Junction	VT
Upper Valley Plaza	250 Plainfield Rd	West Lebanon	NH
West Lebanon Plaza	285 Plainfield Rd	Lebanon	NH
White River Discount Foods	80 Sykes Mountain A	White River Junction	VT

Heater Road), the Airport Industrial Park in West Lebanon, and the Billings Farm Commerce Park in Wilder (see Table 2-4 and Figure 2-7 for a list of employers and industrial parks). Of note are the Plazas along Route 12A in West Lebanon that provide both shopping and employment opportunities and the Sykes Avenue area and the Gilman Center Complex in Vermont that have clusters of employment destinations.

Employer Survey

In order to collect data regarding the need for employment transportation, the SRPTP included a mail survey of employers of Vermont citizens. The survey asked for information on the number of employees by shift, the numbers of entry-level employees (potentially more likely to need public transportation), and if the employers provided any transportation assistance, or had any interest in transportation assistance. The survey process included the development of a questionnaire, preparation of a mailing list, follow-up with non-respondents, and the analysis of returns.

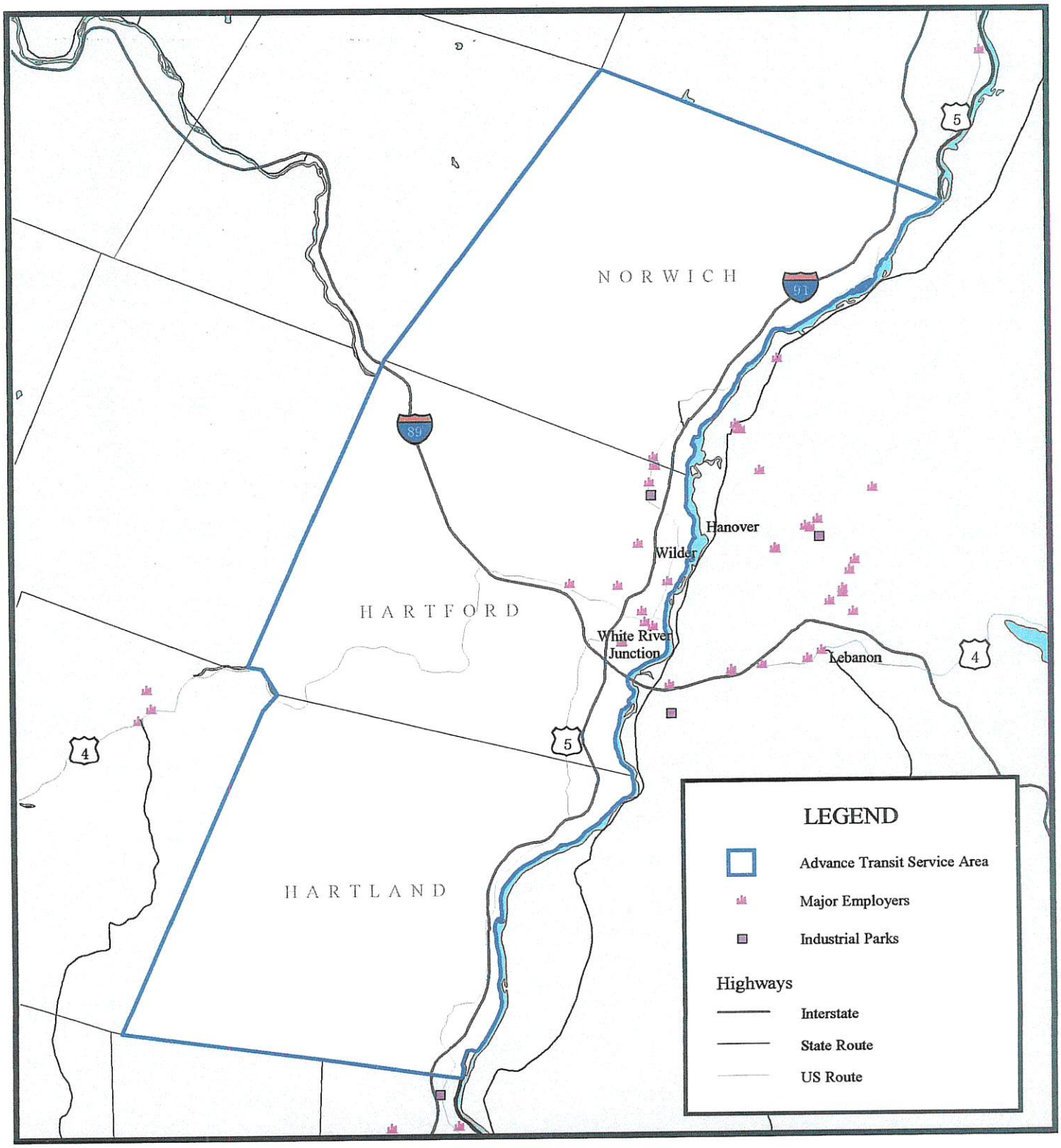
A survey form was drafted and reviewed by VTrans. Suggested changes were made and the survey mailed along with a cover letter statewide. In cases of businesses with two different addresses, the team made certain to use mailing addresses (for example, post office boxes) as opposed to street addresses. Surveys were sent to 53 businesses in the Advance Transit service area; six (11%) have responded to the survey, namely:

- Concepts NREC
- Frasers General Store Inc.
- Mowers News Service Inc.
- The Car Store Inc.
- Vermont Department of Corrections
- Vermont Transit Company Inc.

Table 2-4
ADVANCE TRANSIT SERVICE AREA
MAJOR EMPLOYERS AND INDUSTRIAL PARK

Name	Address	Town	State	Employees
Major Employers				
Blood's Seafood & Catering	71 Taft Ave.	White River Junction	VT	150
Brookside Nursing Home	1200 Christian Street	White River Junction	VT	
Creare	Etna Rd. and Greensboro Rd.	Hanover	NH	100
Daniel Transportation	601 Old River Rd.	White River Junction	VT	100
Dartmouth College		Hanover	NH	3,200
Dartmouth Printing Company	69 Lyme Road	Hanover	NH	260
Dartmouth-Hitchcock Medical Center	1 Medical Center Drive	Lebanon	NH	3,700
Day Alice Peck Memorial Hosp	125 Mascoma St	Lebanon	NH	225
Fanfare Enterprises	66 Benning St.	West Lebanon	NH	120
Federal Express Corporation	41 Labombard Rd	Lebanon	NH	100
Fluent Inc	10 Cavendish Ct.	Lebanon	NH	119
Gateway Motors Inc	190 Sykes Mountain Avenue	White River Junction	VT	
Genesis Health Ventures Lebanon Center	24 Old Etna Rd	Lebanon	NH	100
Geographic Data Technology	11 Lafayette St	Lebanon	NH	600
Grand Union Store 1915	370 Miracle Mile	Lebanon	NH	100
Hanover Inn	Main St.	Hanover	NH	150
DHMC - Clinic	1 Medical Center Drive	Lebanon	NH	1,040
Hypertherm	Etna Rd.	Hanover	NH	450
Johnson and Dix Fuel Corporation	54 Bridge Street	White River Junction	VT	
King Arthur Flour Company	135 US Route 5	Norwich	VT	100
Kleen Laundry & Dry Clg Svcs	1 Foundry St Ste 1	Lebanon	NH	102
Logic Associates	221 Christian St.	White River Junction	VT	140
Luminescent Systems Inc	4 Lucent Dr.	Lebanon	NH	125
M P B Corporation (Split Ballbearing)	336 Mechanic St	Lebanon	NH	750
New Jersey Machine, Inc.	56 Etna Road	Lebanon	NH	140
P & C Food Market	370 Miracle Mile	Lebanon	NH	120
Simon Pearce	Route 5 North	Windsor	VT	200
Spectra	101 Etna Road	Lebanon	NH	130
Tally Systems Corp.	30 Lafayette St.	Lebanon	NH	120
Thayer School of Engineering	Dartmouth College	Hanover	NH	150
Trumbull Nelson	200 Lebanon St.	Hanover	NH	120
US Postal Service	10 Sykes Avenue	White River Junction	VT	540
VA Hospital	215 North Main St.	White River Junction	VT	800
Vermont Community College	52 Olcott Drive	White River Junction	VT	
Industial Parks				
Centerra Resource Park	Route 120	Lebanon	NH	
Airport Industrial Park	Commerce Avenue	West Lebanon	NH	
Billings Commerce Park	Route 5	Wilder	VT	

Figure 2-7: MAJOR EMPLOYERS
AND INDUSTRIAL PARKS



Employer Survey Results

Six employers in the AT service area, ranging in size from Vermont Transit Company with 120 employees to the Vermont Department of Corrections with 17 employees, returned surveys. Appendix C presents their responses. Percentages of employees driving alone ranged from 80 at Fraser's General Store Inc. to 100 at Mower's News Service and the Vermont Department of Corrections. Fraser's General Store reported that a relatively high percentage (9) of its employees carpool. The Car Store, Inc., Concepts NREC and Vermont Transit Company also report some carpooling. Vermont Transit Company is the only employer to report any transit use, but this consists of employees taking advantage of free rides on the company's routes. To a lesser extent, employers reported that their employees also walk, bicycle, and motorcycle to work.

Of the six employers who returned surveys, one indicated that it made transportation available to employees. None indicated that transportation seemed to be a problem for employees, but one felt that it was an issue in hiring. Three had worked with PATH or DET in hiring. One employer was interested in the transit pass program.

Shopping

As shown in Figure 2-6, the major regional shopping for the area is centered in Plazas along Route 12A in West Lebanon. Other shopping opportunities exist in the City and town centers in Lebanon, Hanover and White River Junction.

Medical

The major medical centers are the DHMC in Lebanon and the VA Hospital in White River Junction. In addition, the area has a regional hospital in Lebanon and number of clinics in White River Junction/Hartford.

Social Service Agencies

Most of the human service agencies that Vermont residents need transit to are located in White River Junction, although there are some agencies in Hanover, Lebanon, and West Lebanon that would service Vermont residents. Table 2-5 presents a list of the human service agencies that are included in Figure 2-8.

REGIONAL COMMUTE PATTERNS

Unfortunately, the most recent information on commuting patterns is found in the 1990 U.S. Census journey-to-work data. At that time, a total of about 7,512 daily work trips were made by residents of the three Vermont towns in the AT area (counting only those workers who did not work at home). As shown in Table 2-6, of the 6,172 Vermont workers commuting within the AT service area, about 23 percent commuted to Hanover CDP, 26 percent to White River Junction CDP, and 22 percent to the City of Lebanon. The rest commute to locations in the Towns of Hanover, Hartford, Norwich, or Hartland, and only 18 percent commuted to destinations outside the AT service area. It is cautioned that these commuting patterns have probably changed significantly since 1990, given recent development patterns at the College and Hospital.

General traffic flow data available from the VTrans provide insights into the major commuter travel corridors. As shown in Figure 2-9, the major traffic flows on the Vermont side are along the Route I-89 and I-91 corridors as well as along Route 4 and Route 5. For Vermont residents traveling to jobs in Lebanon and Hanover, the bridge crossing over the Ledyard Bridge is an essential link with significant traffic.

SUMMARY

This chapter was intended to explain the process by which the need for public transportation services is determined, through the use of both qualitative and quantitative research methods. The needs outlined in this chapter are compared to the services provided in Chapter 3, and became the basis for improvements outlined in Chapter 4.

Table 2-5
ADVANCE TRANSIT SERVICE AREA
HUMAN SERVICE AGENCIES

Name	Address	Town	State
Headrest	14 Church Street	Lebanon	NH
AIDS Community Resource Network	29 School St.	Lebanon	NH
AIDS Community Resource Network	14 Taft Avenue	White River Junction	VT
West Central Services	Rivermill	Lebanon	NH
West Central Services	20 W. Park St.	Lebanon	NH
West Central Services	2 Whipple Place	Lebanon	NH
WISE	79 Hanover St.	Lebanon	NH
Listen Community Services & Thrift Store	60 Hanover St.	Lebanon	NH
Hanover Youth in Action	6 Claflin Circle	Hanover	NH
SEVCA	4 Gilman Office Complex	White River Junction	VT
United Developmental Services	85 Mechanic St.	Lebanon	NH
Stoughton House	46 N. Main St.	Windsor	VT
Emerge Family Advocates	Sykes Ave.	White River Junction	VT
The Family Place	1 Taft Ave.	White River Junction	VT
Casey Family Services	7 Palmer Ct.	White River Junction	VT
Good Neighbor Health Clinic	27 1/2 Taft Ave.	White River Junction	VT
Red Logan Dental Clinic	27 1/2 Taft Ave.	White River Junction	VT
Twin State Coalition for Health & Human Resources	24 Airport Rd.	Lebanon	NH
Child & Family Services	3 Atwood Ave.	Lebanon	NH
Life Skills	25 Taft Ave.	White River Junction	VT
Parent to Parent of New Hampshire	12 Flynn St.	Lebanon	NH
Volunteers in Action	54 Main St.	Windsor	VT
Stepping Stone Center	188 Broad St.	Claremont	NH
Good Beginnings of the Upper Valley	Mount Support Rd.	Lebanon	NH
Hannah House	10 Abbott St.	Lebanon	NH

Figure 2-8: HUMAN SERVICE AGENCIES

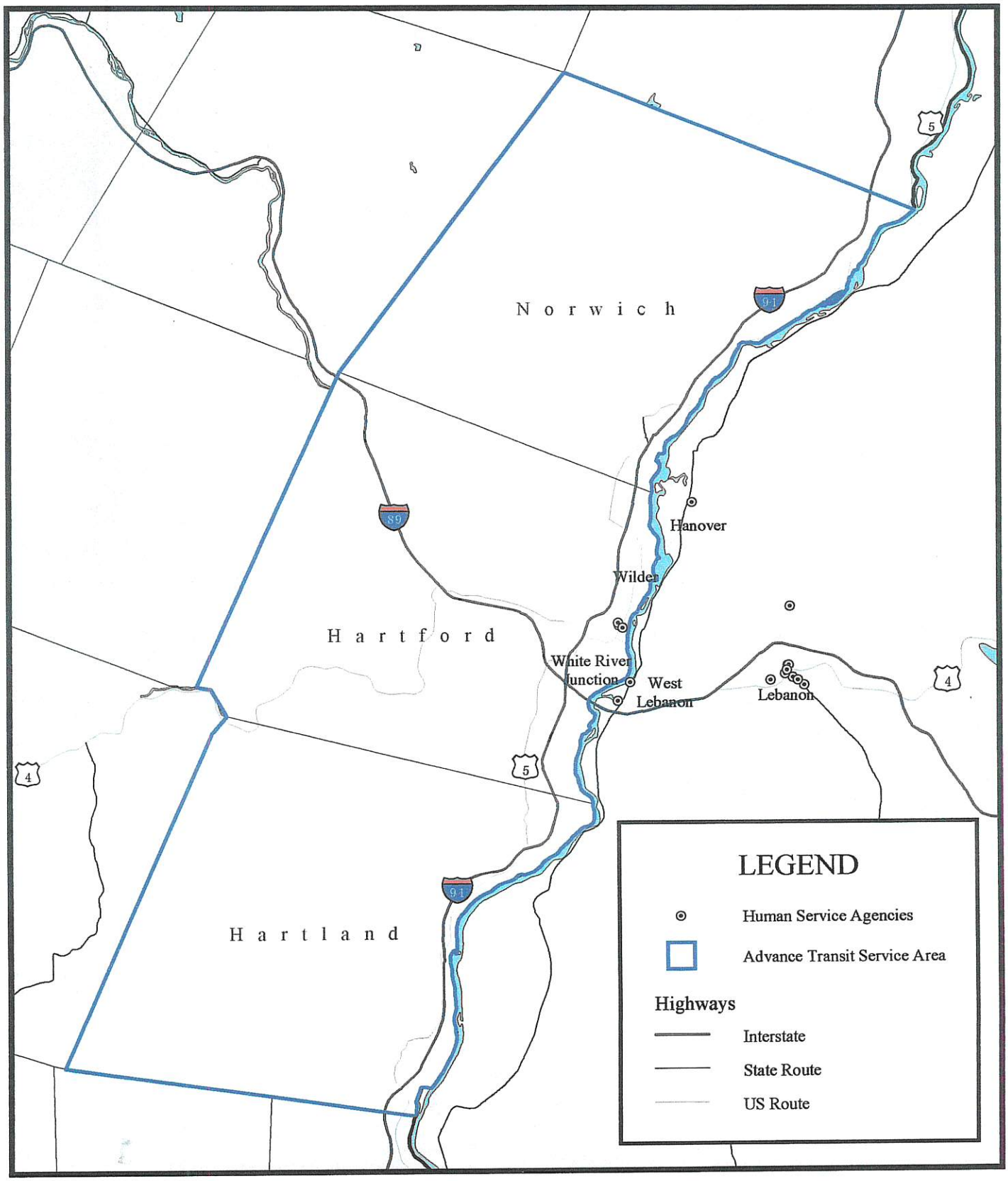


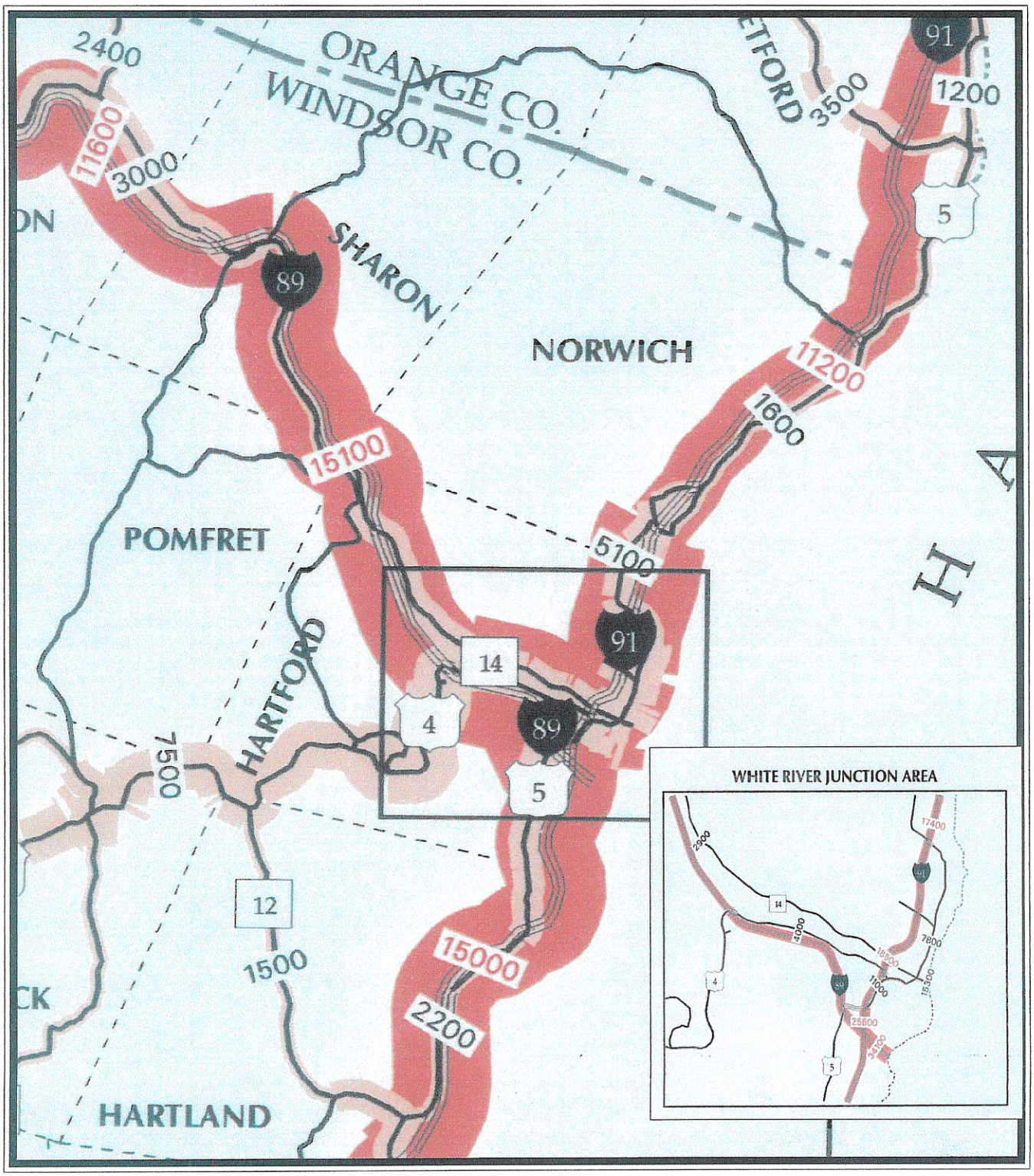
Table 2-6
ADVANCED TRANSIT SERVICE AREA
JOURNEY-TO-WORK 1990 CENSUS DATA
(Vermont Origins Only)

To	*From* Norwich	White River Junction	Hartford	TOTAL
Inside Service Area				
Hanover CDP, NH	521	200	540	1,261
Hanover Town, NH	87	32	122	241
Hartford Town, VT	62	72	492	626
Lebanon City, NH	132	387	564	1,083
Norwich Town, VT	294	20	100	414
White River Junction CDP, VT	56	375	939	1,370
Outside Service Area				
Vermont:				
Alburg Town	5			5
Barnard Town			5	5
Berlin Town	4			4
Bradford Town	8			8
Brattleboro CDP			7	7
Bridgewater Town		8		8
Essex Junction Village	4			4
Fairlee Town	13			13
Hartland Town	5		22	27
Montpelier City			16	16
Plymouth Town		9		9
Pomfret Town		6		6
Randolph Town	3		16	19
Rockingham Town		10		10
Royalton Town	5	7	14	26
Rutland City		4		4
Sharon Town			7	7
Sherburne Town			9	9
Sourth Burlington City	3		16	19
Springfield			42	42
Strafford Town			8	8
Thetford Town	14	7	28	49
Topsham Town	18		36	54
Weathersfield Town			5	5
Windsor Town	11	13	68	92
Woodstock Town	25	14	136	175

Table 2-6 (continued)

To	*From* Norwich	White River Junction	Hartford	TOTAL
New Hampshire:				
Charleston Town	4			4
Claremont City	28	12	39	79
Concord City		8		8
Cornish Town	6			6
Enfield Town		12	19	31
Franklin City		9		9
Grafton Town			6	6
Keene	6			6
Lyme Town	14	6	22	42
New London Town			6	6
Newport CDP	8			8
Newport Town			7	7
Orford Town	17		8	25
Plainfield Town	27	6	4	37
Warner Town			4	4
Remainder	32		40	72
TOTAL	1,412	1,217	3,347	5,976
% Out-migration	*18%*	*11%*	*18%*	*16%*

Figure 2-9
AT SERVICE AREA: TRAFFIC FLOWS



CHAPTER 3

EXISTING TRANSPORTATION IN ADVANCE TRANSIT SERVICE AREA

INTRODUCTION

This chapter presents a description and assessment of existing transit services in the area, with the focus on AT and the services that it provides. This review was important because it provided the basis for designing new or revising existing public transit service improvements; in a manner that leaves effective current services intact, while adjusting services that could be improved.

The consultant also has developed an inventory of other publicly funded, private non-profit agency transportation services, as well as services provided by private for-profit companies (intercity bus, taxi, etc). A description of these services is presented at the end of the chapter.

REVIEW OF CURRENT AT SERVICES

AT, headquartered in Wilder, VT, provides fixed-route and rideshare services in the Hanover, NH/White River Junction, VT area including the Vermont Towns of Norwich, Hartford, and Hartland and the New Hampshire Towns of Hanover, Lebanon, Canaan, and Enfield.

AT Governance

AT is a private non-profit corporation with 501©(3) status under the New Hampshire Revised Statues Annotated (NHRSA) Chapter 292. Policy at AT is made by a 15 member Board of Directors. The Executive Committee is made up of the President, Vice President, Secretary, Treasurer, and the chairs of the following standing committees: 1) finance and administration, 2) personnel, 3) program planning and evaluation, 4) executive, and 5) public relations (the finance committee is chaired by the Treasurer and the Executive Committee is chaired by the President).

Board members are appointed by the towns served (two from Hartford, two from Hanover, two from Lebanon, and one from the other towns) as well as some at large members. The rules governing AT are included in its By-Laws. According to its By-Laws, the purpose of AT is to *provide a comprehensive transportation network for several towns of the Upper Valley of New Hampshire and Vermont.*

Service Summary

The system operates six regular fixed routes and three shuttle services, as well as ridesharing services for the Upper Valley. All routes are operated on weekdays only with the general span of service from about 6:30 a.m. – 7:00 p.m. Table 3-1 presents basic service characteristics for AT services. Figure 3-1 presents an overall system map and Figure 3-2 presents a close up of services in the White River Junction, Hanover and Lebanon area.

As shown, the core routes form a triangle with transfer points in Hanover, Lebanon, and West Lebanon (also serving White River Junction). Two of the core routes operate on 30-minute headways and three operate on 60-minute headways. Service extends beyond the core routes to Norwich in the north, Enfield and Canaan in the southeast, and to the Route 12A plazas and Hartland area in the southwest. Buses meet at the transfer points although the system does not maintain a strict pulse at all transfer points.

When this SRPTP was initiated, the system operated three shuttle services – two in Hanover and one at the Dartmouth Hitchcock Medical Center (DHMC) on 5-10 minute

Table 3-1 - SERVICE INVENTORY FOR ADVANCE TRANSIT

Service Name	Service Type (FR, RD, DR)	Service Descriptor	Rural, or Small Town or Urban	Weekday Span of Service	Number of Weekday Hours of Service	Days of Service (M-F, or Tues only)	Season: (Winter, summer)	Frequency of Service		Funding Source	Public Fare
								Peak (30 min., etc.)	Off-Peak (2 hours, etc.)		
Regular Fixed Routes											
Blue - Canaan-Lebanon-DHMC-Hanover	FR	in-town fixed-route	small town	5:20 am - 7:19 pm	33.0	Mon - Fri	All	30 min	30 min	GP	free
Brown - Norwich-Hanover-CRREL	FR	in-town fixed-route	small town	6:50 am - 5:40 pm	10.5	Mon - Fri	All	30 min	30 min	GP	free
Green - W.Lebanon-Hartford-Wilder-Hanover	FR	in-town fixed-route	small town	6:30 am - 5:55 pm	11.0	Mon - Fri	All	60 min	60 min	GP	free
Orange - VA Hospital-WRJ-W.Lebanon-Hanover	FR	in-town fixed-route	small town	6:30 am - 6:15 pm	12.0	Mon - Fri	All	60 min	60 min	GP	free
Red - Lebanon-W.Lebanon-Route 12A Plazas	FR	in-town fixed-route	small town	6:20 am - 6:25 pm	11.8	Mon - Fri	All	60 min	60 min	GP	free
Yellow - Hartland-Hartford HS-Wilder-Hanover-DHMC	FR	in-town fixed-route w/regional connection	rural	6:30-7:45 am; 2:20-6:25 pm	5.1	Mon - Fri	All	4 runs a day		GP	free
Shuttle Services											
Dewey Lot Shuttle	FR	in-town shuttle	small town	7:00 am - 7:00 pm	12.0	Mon - Fri	All	10 min	10 min	GP	free
Thompson Lot Shuttle	FR	in-town shuttle	small town	7:00-10:00am; 2:00-7:00 pm	8.0	Mon - Fri	All	10 min	10 min	GP	free
DHMC Parking Lot Shuttle	FR	parking shuttle	small town	6:00 am - 6:00 pm	23.5	Mon - Fri	All	5 min	10 min	GP	free
Rideshare	Ride Share	car and van pooling	small town	na	na	na	All	na	na	Ride-sharing	na

Figure 3-1: ALL ROUTES OPERATED BY ADVANCE TRANSIT

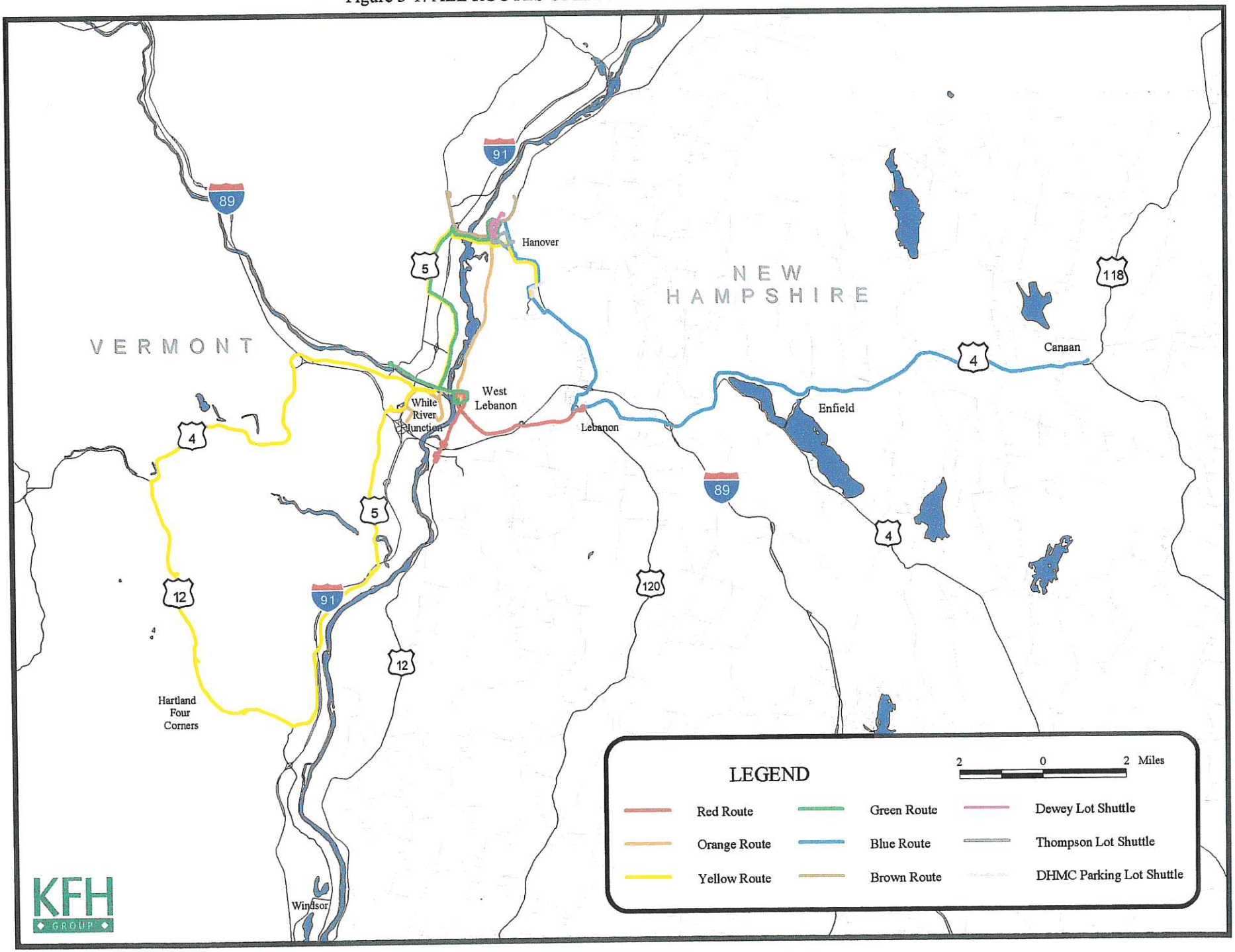
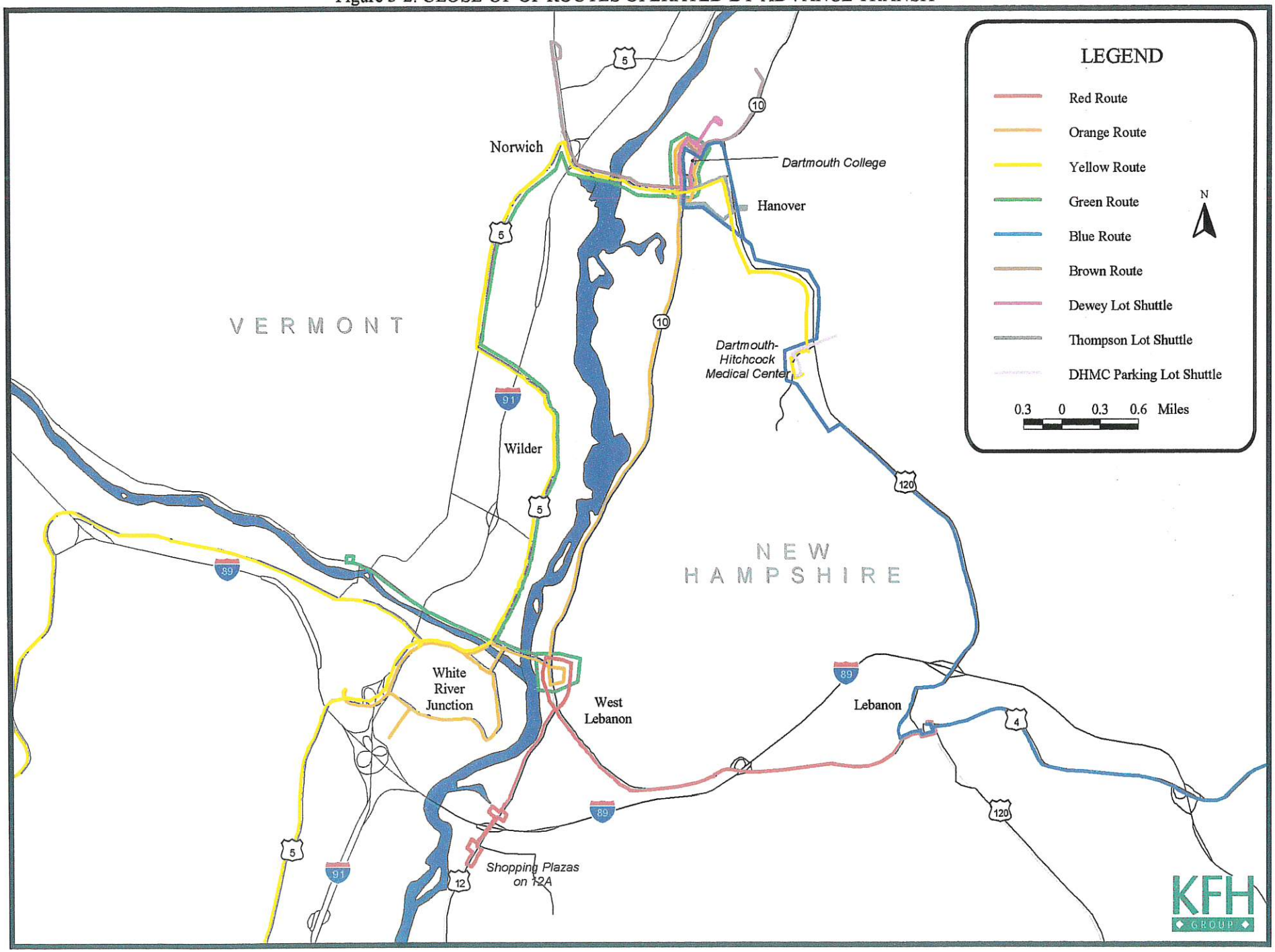


Figure 3-2: CLOSE-UP OF ROUTES OPERATED BY ADVANCE TRANSIT



headways. Since then AT has added another shuttle at DHMC. Finally, AT operates this ridesharing program for the region.

Major sites served include Dartmouth College and Medical School, DHMC, Centerra Plaza, CRREL, the Route 12A Plazas in West Lebanon, the VA Hospital and Gilman Center in White River Junction, and the Lebanon, Hanover, and Hartford High Schools.

The system has experienced tremendous growth over the past five years. Total ridership for FY 2000 was 401,407 trips, an increase of more than 112,000 new passenger trips, or 39 percent over the previous year. Total ridership for FY 2001 was almost 448,000 one-way trips. Ridership in 2002 was over 500,000 one-way trips.

The system is funded by a combination of fares, federal grants (from Vermont and New Hampshire), Vermont State funding grants, and contributions from local municipalities, the College, and DHMC.

Fares

The AT fare policy is fairly unique and is now totally fare-free (it has been moving to a fare-free concept for a number of years). The first step toward zero fares was an extensive fare free zone extending from Lebanon – Hanover – Norwich, VT; including the shuttle services. The Hanover portion of the fare free zone was underwritten by the Town of Hanover, Dartmouth College, Dartmouth Medical School, and DHMC and the Lebanon portion was underwritten by the City of Lebanon and DHMC.

Then, using a Congestion Mitigation and Air Quality Improvement (CMAQ) grant from VTrans, all trips that started in Vermont were free and Vermont to New Hampshire riders could obtain a token from the driver for a free return ride. In the Fall of 2001, the system began to offer free fares to all Dartmouth College students, faculty, and staff (underwritten by the College) and in January 2002 it began to offer free rides on all of its bus routes. Much of the data analysis below is for FY 2001 when limited fares were being charged. At that time, all passengers not in the fare-free zone paid a regular fare of $1.25 per one-way trip.

AT Administration and Staff

AT has a staff of 32 persons. There are six administrative positions including the Executive Director who reports to the Board of Directors. In addition, the system has an Administrative Assistant, a Bookkeeper, a Rideshare Coordinator, an Operations Manager, and a Maintenance Manager. The bookkeeper is responsible for all bookkeeping and record-keeping/reporting.

The Operations Manager supervises the drivers (and is responsible for route scheduling, dispatching, driver supervision, and training as well as day-to-day operations). The Maintenance Manager oversees two mechanics and a bus washer. The system currently has 20 full-time and two part-time drivers, all with Commercial Drivers Licenses (CDLs). The Rideshare Coordinator has a part-time assistant.

Fleet and Facility

The system is operated out of its own facility located in Wilder (which was subsidized by VTrans). Vehicles are owned by the system and were subsidized by the Federal Transit Administration and both VTrans and New Hampshire Department of Transportation (NHDOT). The facility has heated indoor parking for the vehicles, two maintenance bays, and a fueling station. AT has outgrown this facility in many ways and needs to expand.

AT has a total of 25 operating vehicles purchased with state/federal funds and four older vehicles purchased entirely with local funds (see Table 3-2). The fleet consists primarily of small buses. While the six 1988 and 1996 buses are higher mileage, the rest of AT's fleet are low mileage; the system should continue to plan for replacement in future years, but the fleet is in good condition. The system needs at least 15 vehicles to operate (see Table 3-3) including three vehicles for the Blue Route, five for the DHMC shuttle, and one each of the other routes.

Table 3-2 - VEHICLE INVENTORY - ADVANCE TRANSIT

Agency Fleet Number	Model Year	Vehicle Identification Number (VIN)	Manufacturer	Model	Vehicle Type	Design Life	Fuel Type	No. of Seats	Lift or Ramp?	No. of WC Positions	Mobile Radio or Cell Phone	Farebox	Owned or Leased	Funding Source	Condition *(excellent, good, fair, poor)*	Current Odometer Reading (January 2003)	Miles operated in January 2003	Backup or regular service
CURRENT VEHICLES:																		
Vermont Funded Vehicles																		
9714	1997	1BAGHBSA0VF075286	Blue Bird		Bus	10 yr	diesel	37	lift	2	radio	no	owned	VTrans - S.5311	good	177,656	2,373	regular
2004	2000	1HVBEABL7YH329194	International		Bus	5 yr	diesel	27	lift	2	radio	no	owned	VTrans - S.5311	good	84,561	2,220	regular
2005	2000	1HVBEABL9YH329195	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	VTrans - S.5311	good	80,131	1,735	regular
2006	2000	1HVBEABL0YH329196	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	VTrans - S.5311	good	80,734	1,431	regular
2007	2000	1FDXE45F8YHA80466	Ford	Phoenix	Bus	7 yr	diesel	16	lift	2	radio	no	owned	VTrans - S.5311	good	73,791	2,223	regular
2014	2002	1HVBEABL62H507524	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	VTrans - S.5311	excellent	38,259	4,152	regular
New Hampshire Funded Vehicles																		
9609	1996	1FDJE30F4THA78041	Ford	Eldorado	Bus	5 yr	diesel	9	lift	2	radio	no	owned	NH DOT - S.5310	fair	163,847	728	back-up
9610	1996	1BAGGBSAXTFO71665	Blue Bird		Bus	10 yr	diesel	33	lift	2	radio	no	owned	NH DOT - S.5309	fair	176,979	1,751	regular
9611	1996	1BAGGBSAXTFO71666	Blue Bird		Bus	10 yr	diesel	33	lift	2	radio	no	owned	NH DOT - S.5309	fair	171,245	1,819	regular
9612	1996	1FDLE40F9THB16583	Ford	Eldorado	Bus	5 yr	diesel	18	lift	2	radio	no	owned	NH DOT - S.5309	fair	192,228	1,547	regular
9613	1996	1FDLE40F9THB16584	Ford	Eldorado	Bus	5 yr	diesel	18	lift	2	radio	no	owned	NH DOT - S.5309	fair	213,819	3,742	regular
9615	1996	1FDLE40F9THA71855	Ford	Eldorado	Bus	5 yr	diesel	18	lift	2	radio	no	owned	NH DOT - S.5311	fair	234,415	4,292	regular
2001	2000	1HVBEABL1YH329191	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	good	68,190	3,429	regular
2002	2000	1HVBEABL3YH329192	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	good	82,483	1,648	regular
2003	2000	1HVBEABL5YH329193	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	good	82,256	2,849	regular
2008	2001	1HVBEABL71H365165	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	65,284	2,578	regular
2009	2001	1HVBEABL01H365167	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	62,281	3,289	regular
2010	2001	1HVBEABL91H365166	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	52,588	219	regular
2011	2001	1HVBEABL21H365168	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	51,513	4,055	regular
2012	2001	1HVBEABL41H404083	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	40,277	2,338	regular
2013	2001	1HVBEABL61H404084	International		Bus	7 yr	diesel	27	lift	2	radio	no	owned	NH DOT - S.5311	excellent	38,671	2,897	regular
Vehicles Purchased with Local Funds																		
8801	1988	15GCD1213J1082159	Gillig	Phantom	Bus	3 yr	diesel	48	lift	2	radio	no	owned	Local	poor		834	back-up
8802	1988	15GCD1213J1082162	Gillig	Phantom	Bus	3 yr	diesel	48	lift	2	radio	no	owned	Local	poor		1,180	back-up
8803	1988	15GCD1212J1082167	Gillig	Phantom	Bus	3 yr	diesel	48	lift	2	radio	no	owned	Local	poor		1,184	back-up
8804	1988	15GCD12141082168	Gillig	Phantom	Bus	3 yr	diesel	48	lift	2	radio	no	owned	Local	poor		-	back-up

Table 3-3 - VEHICLE UTILIZATION FOR ADVANCE TRANSIT

Usual Vehicle Size	Route Name or Number	One-Way Trip Length	Usual No. of Riders/ Day	Days of Week	Hours of Day Operated a.m. 5 6 7 8 9 10 11 12 p.m. 1 2 3 4 5 6 7
3 - larger buses	Blue - Canaan-Lebanon-DHMC-Hanover		338	M-F	
1 - larger bus	Brown - Norwich-Hanover-CRREL		71	M-F	
1 - larger bus	Green - W.Lebanon-Hartford-Wilder-Hanover		43	M-F	
1 - larger bus	Orange - VA Hospital-WRJ-W.Lebanon-Hanover		130	M-F	
1 - larger bus	Red - Lebanon-W.Lebanon-Route 12A Plazas		125	M-F	
1 - larger bus	Yellow - Hartland-Hartford HS-Wilder-Hanover-DHMC		69	M-F	
1 - small bus	Dewey Lot Shuttle		67	M-F	
1 - small bus	Thompson Lot Shuttle		125	M-F	
5 - small buses	DHMC Parking Lot Shuttle		795	M-F	

AT Service Statistics and Performance

The following section reviews the operating and financial statistics for AT services. Unfortunately, the data are for FY 2001 and reflect a snapshot of the services operating at that time. However, the conclusions drawn from the data are still valid and relevant to the planning process.

Ridership, Hours, and Miles

The estimated FY 2001 ridership, vehicle miles, and service hours for each of the AT routes are presented in Table 3-4. As shown, the system operated over 32,000 revenue hours and almost 529,000 revenue miles in FY 2001. The estimated boardings were over 447,000, almost half of which are taking the DHMC parking shuttles.

Costs and Revenue

In FY 2001, the operating cost for AT services was almost $1.3M and the farebox revenue was about $40,000. The low farebox recovery rate is misleading since the system has many services that were free to the rider but underwritten by the Towns, College, and DHMC. Thus, much of the $1.4M deficit was made up through contributions to the fare free program.

In addition to farebox revenue, the services are funded using federal funds (Section 5311) that are received from VTrans, NHDOT, State of Vermont transit funds, various municipalities, and contributions for private sources (Dartmouth College and DHMC).

The FY 2003 budget for AT is presented in Table 3-5.

Coverage

The total population in Vermont that is within a quarter mile of an AT route is 5,351 persons (2000 Census data). This means that 31 percent of the residents in the Vermont AT service area towns could walk a quarter mile to one or more of AT's routes. Widening the transit

Table 3-4 - OPERATING STATISTICS FOR SERVICES PROVIDED BY ADVANCE TRANSIT (FY2001)

Service Name	Service Type	Service Descriptor	Annual Revenue Hours	Annual Revenue Miles	Annual Operating Cost	Annual Farebox Revenue (est)	Annual Net Operating Deficit	Estimated Annual Boardings (Total)
Regular Fixed Routes								
Blue - Canaan-Lebanon-DHMC-Hanover	FR	in-town fixed-route	8,415	152,465	$355,259	-	$355,259	85,492
Brown - Norwich-Hanover-CRREL	FR	in-town fixed-route	2,678	51,408	115,728	-	115,728	15,099
Green - W.Lebanon-Hartford-Wilder-Hanover	FR	in-town fixed-route	2,805	50,490	118,112	5,346	112,766	11,690
Orange - VA Hospital-WRJ-W.Lebanon-Hanover	FR	in-town fixed-route	3,060	55,718	129,441	13,436	116,006	29,379
Red - Lebanon-W.Lebanon-Route 12A Plazas	FR	in-town fixed-route	3,009	41,871	115,281	15,105	100,176	33,029
Yellow - Hartland-Hartford HS-Wilder-Hanover-DHMC	FR	in-town fixed-route w/regional connection	1,301	24,786	56,040	6,469	49,571	14,146
Shuttle Service								
Dewey Lot Shuttle	FR	in-town shuttle	3,060	25,704	$ 101,554	-	$ 101,554	19,568
Thompson Lot Shuttle	FR	in-town shuttle	2,040	17,136	67,702	-	67,702	41,001
DHMC Parking Lot Shuttle	FR	parking shuttle	5,993	109,058	253,438	-	253,438	198,054
Rideshare	Rideshare	car and van pooling	na	na	na	na	na	na
TOTAL			32,360	528,635	$1,312,556	40,356	$1,272,200	447,458

Table 3-5
ADVANCE TRANSIT - OPERATING BUDGET FY 2003
(October 1, 2003 - September 30, 2003)

	FY 2003	
EXPENSES		
Administrative		
Salaries	167,241	
Fringe Benefits	62,789	
Travel	2,000	
Training/Recruiting	1,200	
Office Supplies	6,000	
Meetings	2,200	
Office Equipment	850	
Office Equipment Maintenance	500	
RTAP Expense Reimbursement	3,000	
Professional Services/Consulting	20,350	
Telephone	10,412	
Postage	2,200	
Insurance	84,749	
Vehicle Taxes/Registration	6,743	
Fees	1,000	
Dues	2,600	
Regulatory Expenses	6,000	
Radio Operations	5,000	
Utilities	23,100	
Interest	225	
Purchase Discounts	(192)	
Marketing	35,600	
Subtotal		443,567
Ridesharing - VT and NH		
Salaries	46,286	
Fringe Benefits	8,246	
Travel	800	
Training	240	
Office Supplies and Equipment	500	
Professional Services	250	
Telephone	1,600	
Postage	700	
Marketing	11,600	
Insurance	1,347	
General Overhead	2,257	
Subtotal		73,826
Service Operating Expenses		
Driver Salaries	606,711	
Fringe Benefits	253,009	
Travel	350	
Uniforms	14,061	
Training	250	
Fuel	90,741	
Oil	5,750	
Subtotal		970,872

Table 3-5 (continued)

	FY 2003	
Maintenance Operating Expenses		
Maintenance Salaries	151,252	
Fringe Benefits	53,540	
Travel	500	
Tools	1,000	
Uniforms	2,288	
Training	200	
Preventive Maintenance	54,000	
Repairs	105,200	
Tires	23,600	
Plowing/Rubbish	5,000	
Building Maintenance	12,000	
Subtotal		408,580
TOTAL (Excluding Depreciation)		1,896,845
REVENUES		
Fares	-	
Municipalities	134,242	
Private Contributions	908,788	
Vermont State Operating Subsidy	143,334	
Federal Operating Subsidy	713,226	
Rideshare Grant	66,443	
Other Grants	3,000	
Other Income	3,500	
TOTAL REVENUE		1,972,533

shed to a half mile on either side of the routes increases the coverage in Vermont to 7,625 persons or almost 45 percent of the Vermont service area population.

Performance

AT is already both effective and efficient for a transit system of its size. As shown in Table 3-6, in FY 2001 the system averaged almost 14 boardings per hour and one boarding per mile. The average operating cost per hour was $40.56 and operating cost per mile was $2.48. Thus, the total cost per rider was $2.93. Again the "deficits" are high and farebox recovery low because of the fare free programs, but the deficits were underwritten by the local community.

Performance does vary by route, with the shorter shuttle services more productive than the longer regular routes. Even so, the regular routes average almost nine riders per hour and .5 riders per mile. The only route that should be examined in terms of efficiency is the Green Route, but even this route has four riders per hour, which is good relative to other rural or small town transit systems.

In addition to developing the performance measures for services within the CCTA system, each of AT's public transit routes in Vermont was evaluated based upon performance assessment guidelines developed for Vermont systems. These guidelines are based on public transit data provided by the systems broken into two dimensions of categories:

1) services were classified as either
   - demand-responsive,
   - route deviation, or
   - fixed-route, and

2) operating environments were classified as either
   - rural,
   - small town,
   - urban, or
   - ski area.

For each type of service, ranges of the following five operating measures were identified as being successful, acceptable, or in need of review:

Table 3-6 - PERFORMANCE MEASURES FOR ADVANCE TRANSIT SERVICES (FY 2001)

Service Name	Service Type	Boardings per Revenue Hour	Boardings per Revenue Mile	Total Operating Cost/Rev Hour	Total Operating Cost/Rev Mile	Total Operating Cost per Boarding	Farebox Revenue Per Boarding	Net Deficit per Boarding	Farebox Recovery
Regular Fixed Routes									
Blue - Canaan-Lebanon-DHMC-Hanover	FR	10.2	0.56	$42.22	$2.33	$4.16	$0.00	$4.16	0%
Brown - Norwich-Hanover-CRREL	FR	5.6	0.29	43.22	2.25	7.66	0.00	7.66	0%
Green - W.Lebanon-Hartford-Wilder-Hanover	FR	4.2	0.23	42.11	2.34	10.10	0.46	9.65	5%
Orange - VA Hospital-WRJ-W.Lebanon-Hanover	FR	9.6	0.53	42.30	2.32	4.41	0.46	3.95	10%
Red - Lebanon-W.Lebanon-Route 12A Plazas	FR	11.0	0.79	38.31	2.75	3.49	0.46	3.03	13%
Yellow - Hartland-Hartford HS-Wilder-Hanover-DHMC	FR	10.9	0.57	43.09	2.26	3.96	0.46	3.50	12%
Average		*8.6*	*0.5*	*$41.88*	*$2.38*	*$5.63*	*$0.30*	*5.3*	*7%*
Shuttle Services									
Dewey Lot Shuttle	FR	6.4	0.76	33.19	3.95	5.19	-	5.19	0%
Thompson Lot Shuttle	FR	20.1	2.39	33.19	3.95	1.65	-	1.65	0%
DHMC Parking Lot Shuttle	FR	33.1	1.82	42.29	2.32	1.28	-	1.28	0%
Average		*19.8*	*1.7*	*$36.22*	*$3.41*	*$2.71*	*$0.00*	*2.7*	*0%*
Rideshare	Rideshare	na	na	na	na	na	na	na	na
System Average		13.8	0.85	40.56	2.48	2.93	0.09	2.84	3%

- Boardings per hour,
- Boardings per mile,
- Cost per mile,
- Cost per hour, and
- Cost per passenger.

Within this structure, all of AT's fixed-route services were classified as small town routes. Table 3-7 provides guidelines for service evaluation for this type of service, along with AT FY 2001 operating performance measures for the routes in Vermont. Relative to other comparable public transit services in Vermont in FY 2001, the AT routes performed successfully or acceptably on both the cost and ridership measures.

Fixed-Route Profiles – Route-by-Route

All routes operate only on weekdays. Appendix D presents route profile maps and summary data for each of the AT fixed routes.

Blue Route – Canaan-Lebanon-DHMC-Hanover

This route operates from 5:20 a.m. to 7:19 p.m. on half-hour headways. The base route operates from Lebanon north on Route 120 to DHMC and then into downtown Hanover. The Lebanon to Hanover portion is within the fare free zone. Alternating runs serve either the Old Etna Road area or the Centerra Business Park. Seven times a day the route is extended east to Enfield and then Canaan (three times in the morning and four round trips in the late afternoon/evening).

This route requires three vehicles, operating a total of 33 hours each weekday. It is estimated that the Blue Route required 152,000 revenue miles and 8,400 revenue hours to serve 85,500 passengers in FY2001, at a total operating cost of $355,000. Productivity on the route is ten passengers per hour and .56 passengers per mile. Operating cost per passenger is estimated at $4.16.

Table 3-7 - ADVANCE TRANSIT PEER PERFORMANCE ASSESSMENT RATING
(Vermont Routes Only)

	Route Name	Boardings per Hour	Boardings per Mile	Cost per Mile	Cost per Hour	Cost per Passenger
	Needs Review	<3	<2	>$3.30	>$45.00	>$12.00
	Acceptable	3-7.5	2-6	$2.25-3.30	$35.00-$45.00	$5.00-$12.00
	Successful	7.5<	6<	<$2.25	<$35.00	<$5.00
Small Town Routes	Orange Route	9.6 Successful	0.53 Acceptable	$2.32 Acceptable	$42.30 Acceptable	$4.41 Successful
	Green Route	4.2 Acceptable	0.23 Acceptable	$2.34 Acceptable	$42.11 Acceptable	$10.10 Acceptable
	Yellow Route	10.9 Successful	0.57 Acceptable	$2.26 Acceptable	$43.09 Acceptable	$3.96 Successful
	Total Small Town	*8.2 Successful*	*0.44 Acceptable*	*2.31 Acceptable*	*42.50 Acceptable*	*6.16 Acceptable*

Brown Route – Norwich-Hanover-CRREL

This route operates from 6:50 a.m. to 5:40 p.m. on half-hour headways. The route operates from Norwich through downtown Hanover and then north on Lyme Road to CRREL and Rivercrest.

This route requires one vehicle operating a total of 10.5 hours each weekday. It is estimated that the Brown Route required 51,000 revenue miles and 2,700 revenue hours to serve 15,000 passengers in FY 2001, at a total operating cost of $116,000. Productivity on the route is six passengers per hour and .3 passengers per mile. Operating cost per passenger is estimated at $7.66.

Green Route – W. Lebanon – Hartford-Wilder-Hanover

Beginning in West Lebanon, the Green Route operates to Hartford Village (Elk Street) and then proceeds north on the Vermont side of the river (along Route 5) through Wilder and into downtown Hanover. The Green Route operates from 6:30 a.m. to 5:55 p.m. on hourly headways. Passengers going to Lebanon, DHMH, or Centerra would transfer in Hanover to the Blue Route. Passengers going to the Plazas on 12A would transfer to the Red Route in West Lebanon.

This route requires one vehicle operating a total of 11 hours each weekday. It is estimated that the Green Route required 50,500 revenue miles and 2,800 revenue hours to serve 11,700 passengers in FY 2001, at a total operating cost of $118,000. Productivity on the route is four passengers per hour and .2 passengers per mile. Operating cost per passenger is estimated at $10.10.

Orange Route – White River Junction-West Lebanon- Hanover

The Orange Route begins with a circulator in White River Junction that services the VA Hospital, the courthouse, and the Gilman State Center. The route then proceeds through West Lebanon and on to downtown Hanover. The Orange Route operates from 6:30 a.m. to 6:15 p.m.

on hourly headways. Passengers going to Lebanon, DHMC or Centerra would transfer in Hanover to the Blue Route. Passengers going to the Plazas on 12A would transfer to the Red Route in West Lebanon.

This route requires one vehicle operating a total of 12 hours each weekday. It is estimated that the Orange Route required 56,000 revenue miles and 3,100 revenue hours to serve 29,000 passengers in FY 2001, at a total operating cost of $129,000. Productivity on the route is ten passengers per hour and .53 passengers per mile. Operating cost per passenger is estimated at $3.49.

Red Route – Lebanon-West Lebanon-Route 12A Plazas

The Red Route connects downtown Lebanon with West Lebanon (along Route 4) and the shopping areas along Route 12A. The Red Route operates from 6:20 a.m. to 6:25 p.m. on hourly headways. Passengers going to Hanover, DHMH, or Centerra would transfer to the Blue Route in Lebanon. Passengers going to White River Junction or Hartford would transfer to the Orange or Green Routes in West Lebanon.

This route requires one vehicle, operating a total of 11.8 hours each weekday. It is estimated that the Red Route required 42,000 revenue miles and 3,000 revenue hours to serve 33,000 passengers in FY 2001, at a total operating cost of $115,000. Productivity on the route is 11 passengers per hour and .8 passengers per mile. Operating cost per passenger is estimated at $3.49.

Yellow Route – Hartland-Hartford High School-Wilder-Hanover-DHMC

The Yellow Route operates to and from Hartland three times per day (one in the morning and two in the afternoon/evening). This route operates out Route 4, south to Hartland via the Hartland-Quechee Road, and then north along Route 5 to North Hartland, White River Junction (the VA hospital), Hartford High School, Hanover High School, and on to DHMC. One trip is made from Hartland to DHMC from 6:30 a.m. – 7: 45 a.m. A return trip is made from DHMC to

Hartland from 5:05 p.m. – 6:25 p.m. In between, a complete loop is made from Wilder to Hartland and returning to the VA hospital from 2:20 p.m. – 3:40 p.m.

This route requires one vehicle operating a total of 5.1 hours each weekday. It is estimated that the Yellow Route required 25,000 revenue miles and 1,300 revenue hours to serve 14,000 passengers in FY 2001, at a total operating cost of $56,000. Productivity on the route is 11 passengers per hour and .6 passengers per mile. Operating cost per passenger is estimated at $3.96.

DHMC Shuttles

AT operates shuttles from DHMC parking lot to the medical center. Buses run every five minutes from 6:00 am to 7:00 p.m. As with all AT services, the shuttles are free to the rider. Since the TDP was initiated, AT has added another shuttle that requires three additional vehicles. This shuttle now requires five vehicles.

In 2001, it is estimated that the original DHMC parking shuttle required 109,000 revenue miles and 6,000 revenue hours to serve 198,000 passengers in FY 2001 at a total operating cost of $253,000. Productivity on the route is 33 passengers per hour and 1.8 passengers per mile. Operating cost per passenger is estimated at $1.28.

Dewey Lot Shuttle

The Dewey Lot Shuttle is available for trips across Hanover and the Dartmouth College campus. The shuttle originates at Dewey Field and brings passengers into downtown Hanover. Buses run every ten minutes from 7:00 a.m. – 7:00 p.m.

This shuttle requires one vehicle operating a total of 12 hours each weekday. It is estimated that the Dewey Lot shuttle required 26,000 revenue miles and 3,000 revenue hours to serve 20,000 passengers in FY 2001, at a total operating cost of $102,000. Productivity on the route is six passengers per hour and .8 passengers per mile. Operating cost per passenger is estimated at $5.19.

Thompson Lot Shuttle

The Thompson Lot Shuttle connects Dartmouth's Thompson Arena with downtown Hanover. Free parking is available at Thompson for Hanover employees and Dartmouth staff. Buses run every ten minutes from 7:00 a.m. – 10:00 a.m. and again from 2:00 p.m. – 7:00 p.m.

This shuttle requires one vehicle operating a total of eight hours each weekday. It is estimated that the Thompson Lot shuttle required 17,000 revenue miles and 2,000 revenue hours to serve 41,000 passengers in FY 2001 at a total operating cost of $68,000. Productivity on the route is 20 passengers per hour and 2.3 passengers per mile. Operating cost per passenger is estimated at $1.65.

Rideshare Program – Upper Valley Rideshare (UVRS)

AT also operates the UVRS program to provide carpool and vanpool matching in the area (receiving ridesharing funds from both VTrans and NHDOT). The system is a full-time Rideshare Coordinator and a part-time rideshare assistant. The program has over 1,200 registered commuters and weekly carpool listings are available on UVRS's website "rideboard". For matched carpools, UVSR offers a Guaranteed Ride Home program to provide up to six free rides home a year in the event of an emergency.

OTHER PUBLICLY FUNDED TRANSPORTATION

Human Service Agencies

There are several human service agencies in the AT service area, some of which are based in Vermont and some of which are based in New Hampshire. For those agencies that were based in Vermont and were known to have vehicles, KFH Group staff contacted each one by telephone to ask what services they provided and to solicit some details concerning their transportation programs. Agencies that do not own or operate vehicles were mailed surveys that asked a variety of questions about their programs and how their clients accessed their program

sites. The survey also asked about unmet client transportation needs in the area. The information gathered through this effort is presented below.

Providers

The following agencies were considered to be transportation providers:

- Bugbee Senior Center
- Grafton County Senior Center (New Hampshire)
- Windsor County Head Start
- United Developmental Services
- West Central Services

We were able to gather information from three of these providers: the Bugbee Senior Center, the Grafton County Senior Center, and Windsor County Head Start. Surveys were mailed to the New Hampshire-based United Developmental Services and West Central Services, but they were not returned.

Bugbee Senior Center - The Bugbee Senior Center provides a variety of services for senior citizens, including transportation. The Center is based in White River Junction, and the service area includes the towns of Hartford and Norwich. The Center operates a congregate meal site to which transportation is provided. Transportation is also provided for medical, shopping, and personal errand trips. About 100 people are served by the transportation program.

Services are provided Monday through Friday between 8:30 a.m. and 4:00 p.m. One vehicle is used for the transportation program and there is one driver. Service is operated on a demand-response basis. Maintenance is provided by a local garage.

In Fiscal Year 2001, 11,300 passenger trips were provided and the vehicle traveled 15,000 vehicle miles.

Grafton County Senior Citizens Council, Inc. (New Hampshire) - The Grafton County Senior Citizens Council, based in Lebanon, New Hampshire, provides recreational, educational, and health-related programs at several senior centers located throughout Grafton County, New Hampshire. Programs include adult day care, volunteer opportunities, chore services, telephone reassurance, congregate meals, home delivered meals, transportation, outreach, and social services. The agency serves persons aged 60 and older and their families, as well as disabled adults aged 18 and older. The agency serves 6,601 people annually (unduplicated).

Transportation services are provided using a fleet of nine vehicles. Transportation is available to medical and other appointments, local stores, and the senior centers. In Fiscal Year 2001, 41,454 passenger trips were provided traveling 120,648 vehicle miles. Revenue hours for the year were 9,168. The agency also provides transportation to Harvest Hill, providing 1,224 annual passenger trips. The total client transportation costs for the Senior Citizens Council in FY 2001 was $379,148. These expenses were funded through Title IIIB, local and county contributions, the United Way, fund raising, and participant contributions. Volunteers also provide transportation, primarily for long-distance medical trips.

The Executive Director indicated that there are unmet needs in the area, including Warren, Wentworth, the Bristol area, Lincoln, and Woodstock. More adequate funding from state and federal sources would help improve transportation for these areas.

Windsor County Head Start - The Windsor County Head Start program is run out of the Southeastern Vermont Community Action Agency (SEVCA). The program provides educational opportunities and support services for pre-school children and their families in Windsor County. A variety of services are offered.

Transportation is provided for the preschool site in Springfield using a small bus. The bus is used to bring the children to the site in the morning and to bring them home at noon. There is minimal transportation provided by the Head Start program in the AT service area, as the program in that area involves home visits and socialization and not program sites. A minivan is used to support these programs, and clients are transported on the van occasionally.

Head Start staff indicated that they are looking at a potential program site in Wilder. If they decide to develop a site in Wilder, then it will be necessary to provide transportation to the site for the children.

Non-Providers

The following agencies that do not own or operate vehicles were surveyed by mail for this study effort:

- The Vermont Department of Employment and Training, White River Junction District
- Vermont Supported Living
- Windsor County Community Services
- Health Care and Rehabilitation of Southeast Vermont

As of December 20, 2001, only one of these agencies has responded to the survey. The information provided is presented below.

The Vermont Department of Employment and Training - The Department of Employment and Training provides job services, Workforce Investment Act (WIA) services, Food Stamps, apprenticeship programs, and Reach Up. Eligibility varies by program. The district based in White River Junction serves Windsor and Orange Counties. The agency serves about 2,500 people annually.

Many of the clients are transportation dependent and the agency does not provide transportation services. Clients reach their programs through a variety of modes, including riding with family or friends, riding on vehicles from other support agencies, public transportation, taxis, carpools, and volunteers.

The District Manager indicated that additional transportation services are needed for job sites that are not on the regular route and for people whose work schedules included odd or swing shifts. Geographic areas needing additional services include: Corinth, Chelsea, Pomfret,

Rochester, Plymouth, Bridgewater, Post Mills, Strafford, Vershire, and Tunbridge. The remoteness of the area was listed as an obstacle.

Other Public Transit Operators

Both the Town and Village Bus (TVB)[1] and SSTI (Stagecoach) transit systems provide some services in the AT service area. Stagecoach is the Medicaid service provider for AT's three Vermont towns, providing door-to-door service for Medical Assistance trips.

TVB has a fare-free fixed-route from Springfield/Bellows Falls to the DHMC in Lebanon. This route has been operating since July 2000. The Dartmouth Hitchcock Route runs from 6:00 a.m. to 6:10 p.m. weekdays. It makes six round trips to the Exit 9 park-and-ride in Hartland per day, with three trips from the Springfield Transit Center at Springfield Plaza and two trips from downtown Bellows Falls.

PRIVATE OPERATORS IN THE UPPER VALLEY

Intercity Bus - Vermont Transit

Vermont Transit, a wholly-owned subsidiary of Greyhound Lines, Inc., operates the majority of the intercity bus services in the region. The station is currently located at 6 Sykes Avenue in White River Junction. The station is served by the AT Orange and Yellow Routes.

The services operated by Vermont Transit/Greyhound Lines are intercity in nature, using high-deck over-the-road coaches (which are not wheelchair lift-equipped) with limited stops and schedules oriented to arrival times in distant major cities. Services are operated on four corridors through White River Junction.

- **Boston – Montreal** – Five daily buses in each direction serve White River Junction on a route from Montreal through Burlington that continues on to Boston. An additional four buses run daily in each direction only between White River Junction and Boston. Although some of the buses do serve or connect with Hanover, NH, the

[1] The TVB organization is currently in transition and its service area may be served by another entity in the near future.

times are such that commuting there from White River Junction by bus for a day shift is not possible. There is no intercity bus service to or from Lebanon, NH, although riders could reach the area by transferring onto AT (with multiple transfers).

- **WRJ – Rutland** – Two buses daily in each direction run between White River Junction and Rutland. One bus in each direction has a flag stop in Quechee. From this route it is possible to connect with Albany and New York City.

- **WRJ – New York** – Three daily buses run in each direction between White River Junction and Springfield, MA, serving Bellows Falls, Brattleboro, and, once a day, Keene. An additional bus in each direction runs on Fridays and Sundays. Connecting service is available to and from Springfield, MA, and Hartford, CT, and New York City. One reservations-only bus runs in each direction between White River Junction and Foxwoods Casino on Wednesdays and Saturdays only.

- **WRJ – Newport** – One bus runs daily in each direction on a White River Junction—St. Johnsbury—Newport route.

Intercity Bus - Dartmouth Coach

Dartmouth Coach (and its successor, the Dartmouth Cab Co.) started to provide service from Hanover, NH to Boston's Logan Airport in 1991. Dartmouth Coach offers seven weekday and six Sunday trips from Hanover, Lebanon, and New London to Logan Airport. In October 2000, Boston South Station was added to the Logan Airport service. The Dartmouth Bus stops in front of the Hanover Inn and free long term parking is available at the operators Dartmouth Regional Transportation Center at 90 Etna Road in Lebanon, NH.

Taxis and Limo Operators

Private operators in the region represent potential resources to the community and potential contractors for service. Following is a review of the taxi and limo operators in the AT service area.

- **Yellow Taxi** – Based in Hanover, the Yellow Taxi company has about ten taxis that serve the Upper Valley region. Within Hanover, White River Junction, and Lebanon, the fares are flat rates per zones; outside the zoned areas the fare is $1.50 per mile. All cars are radio equipped and some have cell phones. The company has many contracts with human service agencies, including STSI (agencies are charged a discounted rate of about $1.25 per mile).

- **Lebanon Taxi** - Lebanon Taxi, though located in New Hampshire, provides local and long distance service over a large area. The company has one phone-equipped van. Lebanon Taxi will serve people with disabilities, although the van is not lift-equipped. Rates are $1.50 per mile. Lebanon Taxi does not contract with any human service providers or transit agencies.

- **P&P's Twin State Taxi** - P&P's Twin State Taxi, based in Hartford, has two cell phone-equipped vehicles (one van and one car) that mainly serve Hartford, White River Junction, Lebanon, NH, and elsewhere in the Upper Valley, although they will go anywhere that passengers request. P&P's Twin State Taxi expressed interest in installing wheelchair lifts in their vehicles. Per-mile rates are $1.50 outside a central area. In town, service may be by flat fee.

- **Hanover Limousine Service** - Hanover Limousine Service, based in West Lebanon, NH, has five vehicles of various types, which take passengers to many destinations, including New York, Boston, and into Vermont. All cars are phone-equipped. Rates are $1.50 per mile for a basic car; transportation in better or newer cars costs more. Hanover Limousine Service does do contract work, but with private companies rather than with human service agencies.

Amtrak

Amtrak's "Vermonter" runs from Washington, D.C. to St. Albans, Vermont with an intermediate stop at White River Junction. The Vermonter operates one trip daily in each direction. Exhibit 3-1 presents the schedule for the Vermonter.

Ethan Allen Express

Rutland • Albany • New York • (Washington)

294	296	◄ Train Number ►			291	293
Mo-Sa	Su	◄ Normal Days of Operation ►			Sa-Th	Fr
		◄ Will Also Operate ►				
12/25, 1/1		◄ Will Not Operate ►				
Read Down		Mile	▼		Symbol	▲	Read Up	
9 10A	5 00P	0	Dp	Rutland, VT (ET)	● ♿	Ar	8 00P	10 40P
9 30A	5 20P	14		Fair Haven, VT	●		D 7 25P	D10 07P
10 27A	6 29P	44		Fort Edward-Glens Falls, NY	●		6 34P	9 19P
10 50A	6 52P	63		Saratoga Springs, NY	⊘ ♿		6 12P	8 57P
11 19A	7 24P	82		Schenectady, NY	♿		5 43P	8 28P
11 45A 12 00N	7 45P 8 15P	100	Ar Dp	Albany-Rensselaer, NY	🚌	Dp Ar	5 20P 5 10P	8 05P 7 55P
12 25P	8 40P	128		Hudson, NY	🚌		4 45P	7 28P
12 46P	9 01P	153		Rhinecliff-Kingston, NY	🚌		4 22P	7 05P
1 02P	9 17P	169		Poughkeepsie, NY	🚌 1 9		4 07P	6 50P
1 38P	9 53P	209		Croton-Harmon, NY	1 9		3 29P	6 11P
1 58P	10 13P	227		Yonkers, NY	♿ 1 9		3 09P	
2 25P	10 45P	241	Ar	New York, NY–Penn Sta.	♿ ✱	Dp	2 45P	5 30P
85	631	Connecting Train at Penn Sta.					184/82	R186
3 05P	11 45P	241	Dp	New York, NY–Penn Sta.	⊘ ♿ ✱	Ar	1 24P	4 35P
R 3 20P	11 59P	257	Ar	Newark, NJ	⊘ ♿	Dp	D 1 07P	D 4 14P
3 37P		266		Metropark, NJ	⊘ ♿		12 52P	3 58P
3 59P	12 32A	289		Trenton, NJ	⊘ ♿		12 31P	3 32P
4 26P	1 00A	332		Philadelphia, PA –30th St. Sta.	⊘ ♿ ✱		12 02P	3 05P
4 51P		332		Wilmington, DE	⊘ ♿		11 38A	2 40P
5 18P				Aberdeen, MD				
5 43P		426		Baltimore, MD	⊘ ♿		10 52A	1 47P
5 56P		437		BWI Airport, MD	⊘ ♿ 7		10 37A	1 32P
D 6 10P		458		New Carrollton, MD	⊘ ♿		R 10 21A	R 1 16P
6 30P		467	Ar	Washington, DC (ET)	⊘ ♿ ✱	Dp	10 10A	1 05P

Services on the Ethan Allen Express

Coaches: Reservations required for travel north of Albany.
Business Class: Reserved deluxe seating.
Cafe Car: Sandwiches, snacks and beverages.
⊘ **Smoking is prohibited entirely on these trains.**

The Ethan Allen Express is financed in part through funds made available by the Vermont State Department of Transportation. State supported trains are operated at the discretion of each state and their operation is dependent upon continued state financial support.

See other side for explanation of symbols and reference marks.

Vermonter

Montréal • St. Albans • Burlington • Montpelier • Springfield • New York • Washington

55	57	◄ Train Number ►			56	54
Mo-Fr	SaSu	◄ Normal Days of Operation ►			Mo-Fr	SaSu
	12/25, 1/1	◄ Will Also Operate ►				12/25, 1/1
12/25, 1/1		◄ Will Not Operate ►			12/25, 1/1	
Read Down		Mile	▼		Symbol	▲	Read Up	
🚌 Vermont Transit Thruway Connection—Montréal, QC/St. Albans, VT								
8055	8055			Thruway Number			8056	8056
4 05A	6 05A	0	Dp	Montréal, QC Central Sta. (ET)	⊘ ✱	Ar	10 20P	10 20P
5 35A	7 35A	69	Ar	St. Albans, VT	⊘ ♿	Dp	8 50P	8 50P
6 35A	8 35A	0	Dp	St. Albans, VT (Jay Peak)	● ♿	Ar	8 40P	8 40P
7 05A	9 05A	24		Burlington-Essex Jct., VT	● ♿		7 59P	8 00P
7 33A	9 33A	47		Waterbury-Stowe, VT	●		7 31P	7 31P
7 47A	9 47A	56		Montpelier-Barre, VT	● ♿		7 17P	7 17P
8 22A	10 22A	86		Randolph, VT	●		6 42P	6 42P
9 05A 9 10A	11 05A 11 10A	118	Ar Dp	White River Jct., VT (Lebanon-Hanover, NH)	● ♿	Dp Ar	6 00P 5 55P	6 00P 5 55P
9 28A	11 28A	131		Windsor-Mt. Ascutney, VT	●		5 35P	5 35P
9 39A	11 39A	140		Claremont, NH	●		5 23P	5 23P
10 01A	12 01P	167		Bellows Falls, VT	●		5 00P	5 00P
10 36A	12 36P	181		Brattleboro, VT	●		4 25P	4 25P
11 24A	1 24P	216		Amherst, MA	●		3 35P	3 35P
12 45P 12 55P	2 45P 2 55P	251	Ar Dp	Springfield, MA	🚌	Dp Ar	2 30P 2 20P	2 30P 2 20P
1 30P	3 31P	277		Hartford, CT	🚌		1 44P	1 44P
1 46P	3 46P	288		Berlin, CT	⊘ ♿			
1 56P	3 56P	295		Meriden, CT	⊘ ♿			
2 23P 2 41P	4 21P 4 41P	309	Ar Dp	New Haven, CT	⊘ 🚌	Dp Ar	1 00P 12 36P	1 00P 12 36P
3 01P	5 01P	322		Bridgeport, CT	♿ 9		12 12P	12 12P
3 26P	5 26P	345		Stamford, CT	♿		11 48A	11 48A
4 20P 4 35P	6 20P 6 50P	380	Ar Dp	New York, NY –Penn Sta.	♿ ✱	Dp Ar	11 00A 10 40A	11 00A 10 45A
4 50P	7 05P	391		Newark, NJ	♿		10 25A	10 25A
5 03P	7 19P	405		Metropark, NJ	♿		10 10A	10 10A
5 25P	7 41P	438		Trenton, NJ	⊘ ♿		9 50A	9 50A
5 53P	8 08P	471		Philadelphia, PA –30th St. Sta.	♿ ✱		9 21A	9 21A
6 31P	8 34P	497		Wilmington, DE	⊘ 🚌		8 58A	8 58A
7 17P	9 21P	565		Baltimore, MD –Penn Sta.	⊘ ♿		8 12A	8 12A
7 30P	9 34P	576		BWI Airport, MD	♿ 7		7 57A	7 57A
D 7 43P	D 9 47P	597		New Carrollton, MD	⊘ ♿		R 7 41A	R 7 41A
7 59P	10 05P	606	Ar	Washington, DC (ET)	⊘ ♿ ✱	Dp	7 30A	7 30A

Services on the Vermonter

Coaches: Reservations required
Business Class: Reserved deluxe seating.
Quiet Car®: Service is available Monday through Friday only.
Cafe Car: Sandwiches, snacks and beverages.
Trails and Rails Program: In a cooperative effort with the National Park Service, volunteer rangers provide a narrative along the route (weekends and holidays).
⊘ **Smoking is prohibited entirely on this train.**

The Vermonter is financed in part through funds made available by the Vermont State Department of Transportation. State supported trains are operated at the discretion of each state and their operation is dependent upon continued state financial support.

Proper documentation is required to cross U.S./Canadian border. (See other side.)

See other side for explanation of symbols and reference marks.

CHAPTER 4

SERVICE AND ORGANIZATIONAL ALTERNATIVES

This chapter presents the range of options that were developed and evaluated for improving public transit services in the AT service area. In this process, needs were compared with the existing services in order to develop meaningful alternatives. Various scenarios were formulated, discussed, and evaluated by AT and the public for potential inclusion in the recommended plan. All of the options below were presented to the AT Board and the public for input. Modifications to the original service alternatives are discussed in the final plan -- Chapter 5.

The chapter begins with a summary of transit needs and an assessment of the potential for transit services in the area. The summary of transit needs presented below concludes that public transit services are needed throughout the area, but that the type of transit services should vary in different areas depending on local area needs and population densities. The selection of the preferred options is critical to the development of a recommended plan.

The implementation of service improvements in future years will be dependent on the availability of increased funds. The options identified for immediate implementation are constrained by known funding levels for FY 2003 and FY 2004. Future years take the availability of funds into account, but are not fiscally constrained. However, some judgments have been made for which options might be implemented in the short-term (FY 2005 or FY 2006) and which might be implemented in the long-term based on local service priorities and goals.

Service Options are based on our analysis of the data presented in Chapter 2 and Chapter 3. Basic options for the next five years were developed that address the goals and concerns for public transit in the area. Options were examined in terms of how well they service the identified markets, the degree to which they address adopted local and Vermont state goals for transit, the service type, likely impacts on operating costs and ridership, capital requirements, and any other particular needs or requirements. Alternatives addressed improvements to existing AT services in response to changes in population and developments at the college and Dartmouth Hitchcock Medical Center (DHMC). In addition, the alternatives were aimed at reducing congestion and alleviating parking problems, particularly in the Hanover area.

Organizational Options were also considered, but no organizational changes are recommended at this time.

SUMMARY OF TRANSIT POTENTIAL

The results of the needs assessment, including the needs analysis, the identification of major trips generators, and data on existing services, were used as the foundation for the development of service options. The options were built on existing AT transportation arrangements and services. Several of the key findings of the needs assessment, which affected the development of alternatives, are summarized below.

Where People Live Who Need Transit

AT currently serves the Vermont towns of Norwich, Hartford, and Hartland as well as the towns of Lebanon, Hanover, Enfield and Canaan in New Hampshire. Areas of relatively high need are scattered throughout the three Vermont towns based on both the *number and percentage* of transit dependent persons. According to the 2000 Census, areas of relatively high need in Vermont based on the *density* of these same populations are found in White River Junction and Wilder. In addition, White River Junction, Wilder, and Hartford town are hubs for high density housing with additional high density housing in Norwich.

The location of persons who are transit dependent parallels the general public population to a large extent. For example, high concentrations or clusters of autoless households and other transit dependent persons are found in White River Junction, Wilder, and to some extent, Norwich. Areas with higher percentages of their population that are transit dependent are also found in the White River Junction and Wilder areas. It should be noted that even though these areas represent higher clusters of transit dependent populations, there are pockets of captive riders scattered throughout the three towns.

Where People Need to Go on Transit

Major trip generators tend to be found on the New Hampshire side of the river or in White River Junction or Wilder. In 1990, residents of the three Vermont towns made 7,512 daily work trips, 6,172 of which were to jobs within the AT services area (about 26% commute to White River Junction, 23% to Hanover, and 22% to Lebanon). Major traffic flows on the Vermont side of the river are along route I-89 and I-91 corridors as well as along Route 4 and Route 5.

Appropriate Types of Transit Services

As indicated above, the concentration of potential origins and destinations will determine the types of transit service that are appropriate and the frequency of those services. The design of transit services matches potential demand with the type and frequency of service, looking for the most efficient and effective service design.

The potential for operating fixed-route services was assessed using overall population density as the primary indicator of the potential success. A general rule of thumb is that in order to support these more traditional fixed-route services, the overall population densities must be at least 2,000 persons per square mile, although areas with 1,000 - 2,000 may be considered for some non-traditional fixed-route services. Based on this rule of thumb, the portions of AT's Vermont service area with population concentrations (origins) that could be considered for some

type of fixed-route services in Vermont are White River Junction and Wilder, areas already served by AT fixed routes.

OPTIONS CONSIDERED

The following section presents a number of options that were considered for improving public transit and in the AT service area along with preliminary costs, vehicle needs, and the advantages and disadvantages of each.

INSTITUTIONAL OPTIONS

AT is a private non-profit corporation with 501©(3) status under the New Hampshire Revised Statues Annotated (NHRSA) Chapter 292. Policy at AT is made by a 15 member Board of Directors. The Executive Committee is made up of the President, Vice President, Secretary, Treasurer, and the chairs of the following standing committees: 1) finance and administration, 2) personnel, 3) program planning and evaluation, 4) executive, and 5) public relations (the finance committee is chaired by the Treasurer and the Executive Committee is chaired by the President).

Board members are appointed by the towns served (two from Hartford, two from Hanover, two from Lebanon, and one from the other towns) as well as some at large members. The rules governing AT are included in its By-Laws. According to its By-Laws, the purpose of AT is to *provide a comprehensive transportation network for several towns of the Upper Valley of New Hampshire and Vermont.*

AT went through the process of exploring changes to its institutional structure during its last Short Range Transit Plan (1995)[1], when the organization was moving its offices from New Hampshire to Vermont. Options considered included remaining a New Hampshire private non-profit corporation, or becoming a Vermont Private non-profit corporation, a New Hampshire Municipal Transit Authority, a Vermont Regional Transit Authority, a Vermont Regional Transit District, or a Bi-State Authority. At the time it was decided that none of these entities would be significantly better for AT than the status quo and several have serious disadvantages. No

1 *Advance Transit Short Range Transit Plan: Final Report,* prepared by Multisystems, April 1995.

change was recommended at that time and no institutional changes are recommended at this time.

SERVICE OPTIONS

There are two basic considerations in designing an effective and efficient transit system in the area. The system is *effective* if it meets the travel needs of the residents. This means identifying the markets for transit and determining if those markets are served. A system is *efficient* if it meets those needs in a manner that maximizes travel, while minimizing resources expended. This means providing a mix of services that is appropriate to the situation. To the extent possible, services should be scheduled in such a way as to maximize the convenience of transfers between the AT various routes and with intercity bus. Links with Amtrak are also desirable.

The service options presented below are conceptual. Not all of the options are appropriate for implementation in the short-term; some will be phased in over the five year period. Service improvements are summarized and presented in three categories:

- Immediate – FY 2003 and FY 2004
- Short-Term – FY 2005-FY 2006
- Long-Term

It is important to note that AT has been expanding services steadily over the past five years. While we have identified a need for additional services, they will have to be implemented slowly, over time. The cost of service is increasing faster than the local and state subsidies – this creates a need to prioritize service improvements.

It is also important to note that demand-responsive, subscription, or route deviation would be new types of service for AT – requiring additional call taking/scheduling/dispatching functions. Evening and Saturday service would be new for AT. In addition to drivers, this would require having dispatchers, support, and/or supervisory staff during these hours.

Immediate Service Options[2]

Option #1 - Continue to Coordinate with Stagecoach and Town and Village Bus (TVB)

The overall regional concept in place is for AT to provide core fixed-route services within the three Vermont and four New Hampshire towns. Other Vermont providers, Stagecoach and TVB, provide commuter services from their outlying service areas. Most of these commuter routes are operated as express services and terminate at the DHMC. From there, riders can take AT to travel to other locations within the core area. All AT services are free to the rider so transfers are not an issue.

Option #2 - Provide Americans with Disabilities Act (ADA) Complementary Paratransit

AT may need to begin providing ADA complementary paratransit, depending on a pending Federal Transit Administration (FTA) ruling. There is some question about whether the complementary paratransit requirements apply to private non-profit organizations like AT. If FTA determines that private-non-profit agencies are required to provide ADA paratransit, AT may have to begin planning for this soon and may have to implement the service in FY04. The ADA regulations include detailed requirements for provision of ADA complementary paratransit. The ADA complementary paratransit must be provided to any ADA eligible individual during the same times as the fixed-route days and hours of service. The regulations require only curb-to-curb service. The ADA service area, which at a minimum includes all origins and destinations within corridors with a width of ¾ mile of each fixed route, must be served. Requests for reservations must be accepted during normal business hours on a "next day" basis (not 24 hours in advance); on all days prior to days of service (e.g. weekends, holidays); and trips must be scheduled within one hour of the requested pickup time. Advance

2 The project team did consider whether it was possible to through-route the Red and Green Routes to minimize transfers, but it only works if a second bus is added on the Red Route. We also considered reversing direction on the Yellow Route for the return trip – going to Three Corners first – return trip would be DHMC, Hanover HS, Wilder, Hartford HS, VA, N. Hartland, Three Corners, Four Corners, Independence Road, US 4, and Hartland Road. This option was dropped because of increasing ridership along the Independence Road portion of the route that makes it important to service this segment.

reservations may be permitted up to 14 days before a desired trip. The ADA complementary paratransit fare cannot exceed twice the base fixed-route fare, (potentially a very significant issue for AT with its fare free program). No restrictions or priorities may be based on trip purpose and subscription services may not absorb more than 50 percent of the number of trips available at a given time, unless there is non-subscription capacity.

If AT has to provide ADA paratransit services, they would probably do eligibility certification in-house and contract for services with a local human service agency (may take trip requests in-house for control purposes). As noted above, AT is not currently set up to operate demand-responsive services. The cost of implementing ADA complementary paratransit in the AT service area would depend on anticipated demand for services and will be estimated if such services are needed.

Service Options in the Short-Term – FY 2005 and FY 2006

FY 2005 – Depending on Funding Availability

Option #3 - Extend Evening Hours on Orange Route - This option would extend the hours on the Orange Route by one hour in the evening. This would allow riders from DHMC to transfer onto two more of the later Blue Route runs (5:44 p.m. and 6:19 p.m. at Maynard). This one hour extension would also allow riders to connect with Amtrak (Vermonter). Amtrak goes through southbound at 10:30 a.m. and northbound at 6:30 p.m. The Orange Route last serves the area about 6:00 p.m. (Note: AT has connections to Vermont Transit on Sykes Ave. in White River Junction and to Dartmouth Coach at the Hanover Inn in Hanover.) Extending the Orange Route is a higher priority than extending the Brown or Green routes since it meets two goals; the increased evening connectivity for DHMC riders and connection to the return trip on the Vermonter. At $60 per hour, this would cost about $15,600 annually in operating cost. No additional vehicles would be needed.

Option #4 - Extend Evening Hours on Brown Route – This option would extend the Brown Route by one hour in the evening. As with the Orange Route, this would allow riders

from DHMC to transfer onto two more of the later Blue Route runs (5:44 p.m. and 6:19 p.m. at Maynard). At $60 per hour, this would cost about $15,600 annually in operating costs. No additional vehicles would be needed.

Option #5 - Extend Evening Hours on Green Route – Extending the Green Route about one hour would also allow this route to connect with Amtrak (Vermonter). As mentioned above, Amtrak goes through southbound at 10:30 a.m. and northbound at 6:30 p.m. The Green Route last serves Hartford village at 5:55 p.m. At $60 per hour, this would cost about $15,600 annually in operating costs. No additional vehicles would be needed.

FY 2006

Option #6 - Shorten Headway on Orange Route – This option would shorten the headways on the Orange Route from hourly to 30 minutes. Productivity and ridership on this route warrant increased service. This would require another bus on the Orange Route, for 12 additional revenue hours per day. The annual cost of this would be about $187,200 for operating costs plus the cost of one vehicle.

Option #7 - Shorten Headway on Red Route – This option would also increase service on the Red Route, by adding another bus, to allow for half hour headways. This is the most productive "non shuttle" route in the system. Even though this route operates wholly in NH, it is key to Vermonter travel since it connects riders on the Orange and Green Routes to shopping along 12A, Lebanon, and DHMC. With this improvement, the system could create a time transfer with the Green Route. Also requiring an additional 12 revenue hours per day, the annual cost of this improvement would be about $187,200 for the operation plus the cost of one vehicle.

Option #7 - Extend Orange Route to DHMC and Centerra – Extending the Orange Route to DHMC and Centerra would create a direct connection from WRJ to these major trip generators (rather than having riders transfer). This would make the route too long to stay on regular hourly headways (about 20 minutes would be added – the route would have to go to 90

minute headways). In this case, a reduction in frequency would be traded-off for fewer riders having to transfer. This improvement is more promising if AT adds another bus to the Orange Route (see #1 above), but adding this extra leg would mean 40-45 minute rather than 30 minute headways. This would also make connections in West Lebanon more difficult for riders.

Option #8 - Add Limited Saturday Service – This option would add limited Saturday service creating one route that would combine the Green and Red Route with the Orange Route loop through White River Junction. Only one vehicle would be operated, with two-hour headways, for about 12 hours (8:00 a.m. – 8:00 p.m.). This would cost about $37,440 annually for operating plus the increased administrative cost of having supervisors/office personnel available on Saturday. No additional vehicles would be needed.

Such limited service would serve only basic travel needs and would not be as productive as weekday service. AT has tried limited Saturday service in the past which was discontinued due to low productivity. AT management feels that if Saturday services were resurrected, the level of service would have to be high enough to provide riders with reasonable travel times and frequency.

Service Options in the Long-Term

Options that also could be implemented beyond FY2006, but within the five year time frame, include the following.

Option #9 - Coordinate Yellow Route Service with TVB route – Currently AT operates the Yellow Route and TVB operates its DHMC route independently, but both operate from Hartland to Lebanon. The AT Yellow Route could meet the TVB bus at the Three Corners park and ride to transfer riders; TVB could go directly to the medical center and AT could go to White River Junction and the college. This connection would not increase the operating cost of the route. However, AT has indicated that if they are going to serve many additional commuters, they may need another bus because the current bus is standing room only.

Option #10 - Split Yellow Loop Route into Two Linear Routes– The Yellow Route operates as a big loop.[3] One option is to split the Yellow Route into linear routes creating two routes from outlying areas into jobs in White River Junction, Lebanon, and Hanover. One route would go east-west along Route 4 to just beyond Woodstock and another route would go north-south to Hartland/Four Corners. Service would continue to be operated only in peak commute and school hours. One additional bus would be needed, as well as the cost of added miles and hours of service. It should be noted that Stagecoach if considering operating a route from Woodstock to White River Junction as part of their Short-Range Public Transportation Plan (SRPTP); making this leg of the route unnecessary.

The ***Route 4*** route from Woodstock to Hartford to Wilder would serve jobs at DHMC, Centerra, and Hanover (via West Lebanon). It would start west of **Woodstock** at Riverside Mobile Homes and serve low income workers at Riverside Mobile Home (40 units), School Street (8 units), Briars (24 units), Brookview Apts (34 units), and Windsor Hollow (26 units).

In addition to serving Hanover High School, the ***Route 5*** route from Windsor to White River Junction would also serve jobs at DHMC, Centerra, and Hanover (via West Lebanon). It would serve low income workers in **Windsor** and at affordable housing located at Armory Square, Windsor (74 units), Hillcrest Manor (9 units), Central Street (4 units), and Phelps Court (15 units). It would also serve low income workers in **White River Junction** and at Templeton Court (36 units), Colony Building (8 units), and Prospect Street (7 units).

This split would require AT to essentially double the amount of service required from 1,300 hours to 2,600 hours. The estimated operating cost for this expansion is $78,000 annually. The improvement would also require one additional vehicle.

[3]AT had received a grant from VTrans to provide transportation that will allow Temporary Assistance to Needy Families (TANF) clients and other low income workers to access jobs (under the federal Job Access and Reverse Commute - JARC - program). The original concept that AT proposed, along with Stagecoach and Marble Valley Regional Transit District (MVRTD), was to create a series of regional routes using Woodstock and Killington as transfer points. Stagecoach would operate a route from Randolph to Woodstock (via Killington). MVRTD would operate from Rutland to Killington/Snowshed. And, AT would operate a route from West Lebanon/White River Junction to Woodstock. These routes were not implemented.

Option #11 - Demand-Responsive Services - The implementation of demand-responsive services is categorized as long-term because it involves creating a new type of service, requiring scheduling and dispatching capabilities. If AT is building these capabilities in the short- term because of the ADA complementary paratransit requirement, these services could be implemented sooner. Two paratransit options for the general public (as distinct from federally mandated ADA paratransit) being considered include:

- General demand-response could be provided for persons living or needing to travel outside the AT fixed-route service area. Assuming that the service would operate using two vehicles, from 7:00 am – 7:00 p.m., and an operating cost of $30/hr (for demand-responsive service), this service would require 6,240 vehicle hours and $280,800 in operating cost annually. Two new paratransit vehicles would be required.

- Another option would be to allow route deviations (perhaps ½ mile) during off-peak hours on the Green Route. This route is not as productive as the other routes; nor is it on the timed transfer. This could allow the route to serve more people for the same cost.

Table 4-1 presents a summary of the service characteristics of the options presented above. The AT Board and public selected which options to carry forward into the plan and prioritized when each should be implemented.

OTHER IMPROVEMENTS

Other improvements that might be considered include the following.

1. Increase size of AT facility.

2. On-going vehicle replacement and expansion plan.

3. Signal prioritization for buses (12A and Ledyard bridge area) – should be built as the new I-89 Exit 20 interchange is redesigned

4. Bike lockers for commuters – especially in Norwich area. A low cost, short-term option to encourage commuters would be to install bike lockers along AT transit routes.

Table 4-1: SUMMARY OF SERVICE CHARACTERISTICS AND COST FOR PUBLIC TRANSIT OPTIONS

Service Type	Added Daily Round-trips	Headway	Hours of Service	No. of Added Vehicles	Days of Service	Added Estimated Annual Riders	Added Annual Vehicle Service Miles	Added Annual Vehicle Service Hours	Added Estimated Operating Costs*	Notes on Operation
Immediate - FY03										
Continue to Coordinate with Stagecoach and TVB Provide ADA Complementary Paratransit	na	na	5:30 am - 7:00 pm	4 (Small Buses)	M-F	12,500	83,000	8,300	$373,500	Assumes contracted service
Short-Term - FY04 and FY05										
Extend Evening Hours on Orange Route	1	na	6:15 - 7:15 pm	0	M-F	2,496	4,680	260	$15,600	Assumes AT direct operation
Extend Evening Hours on Brown Route	1	na	5:40 - 6:40 pm	0	M-F	1,456	4,940	260	$15,600	Assumes AT direct operation
Extend Evening Hours on Green Route	1	na	5:55 - 6:55 pm	0	M-F	1,092	4,680	260	$15,600	Assumes AT direct operation
Shorten Headway on Orange Route	12	30 minute	6:30 am - 7:15 pm	1	M-F	18,720	56,160	3,120	$187,200	Assumes AT direct operation
Shorten Headway on Red Route	12	30 minute	6:20 am - 6:25 pm	1	M-F	24,960	56,160	3,120	$187,200	Assumes AT direct operation
Extend Orange Route to Centerra	12	45-90 minute	6:30 am - 7:15 pm	0	M-F	na	na	na	na	No increase over existing cost
Add Limited Saturday Service	6	2 hr	8:00 am - 8:00 pm	0	Sat	3,744	11,232	624	$37,440	Assumes AT direct operation
Long-Term - FY06 and FY07										
Coordinate Yellow Route with TVB	na	na	peak commute hours	0	M-F	na	na	na	na	No increase over existing cost
Split Yellow Loop into Two Linear Routes	4	4 times/day	peak commute hours	1	M-F	7,800	24,700	1,300	$78,000	Assumes AT direct operation
Demand-Responsive in Vermont	na	na	7:00 am - 7:00 pm	2	M-F	12,480	62,400	6,240	$280,800	Assumes contracted service

*Assumes $45 per hour for contracted service and $60 per hour for AT direct operations

PARK AND RIDE LOTS

Park and ride lots are essential to AT's ridesharing program and an integral part of its commuter transit service (parking and traffic congestion is a large issue in Hanover and Lebanon). Lack of suitable locations is a factor – land that is convenient to the interstate exits is not readily available. AT and the UVLSRPC feels that success will require working with existing private or public lots to share, expand, or improve these existing lots so they can be used as park and ride lots (e.g., churches, Armory).

Traffic patterns and congestion on the Ledyard Bridge indicate that there is a market for park and ride or satellite parking on the Vermont side of the bridge, as long as convenient shuttle bus service is available into Hanover. A review of Dartmouth parking permits for the Hanover campus indicates that about 42 percent of those parking at the college commute from Vermont. The large majority of these commuters (85%) enter Hanover via the Ledyard Bridge (32% from these come from the north and northwest and 68% from the south and west). Further, traffic on the bridge is increased by the need to get school children from Vermont to the schools in Hanover (Hanover High School serves the bi-state Dresden School District which includes the towns of Hanover, New Hampshire, and Norwich, Vermont).

A number of options were considered for new park and ride lots. The recommendation is being made that a thorough study of park and ride options be conducted for the area. This study should concentrate on locations on the Vermont side of the river.

SUMMARY

Table 4-2 provides a summary of the strengths and weaknesses of the various service options, as compared to the local and state goals for public transit (along with a summary of estimated costs). As shown:

- All of the proposed service options would increase ridership and improve the mobility of local residents. Most would improve the efficiency and convenience of the system.

Table 4-2 - RELATIVE STRENGTHS AND WEAKNESSES OF SERVICE OPTIONS

Goals	SERVICE IMPROVEMENTS										
Local Goals	Continue to Coordinate with TVB and Stagecoach	Provide ADA Paratransit	Extend Evening Hours on Orange, Brown, and Green Routes	Shorten Headway on Orange Route	Shorten Headway on Red Route	Extend Orange Route to DHMC and Centerra	Add Limited Saturday Service	Coordinate Yellow Route with TVB Route to DHMC	Split Yellow Loop into Two Linear Routes	General Demand-Response Service in Three VT Towns	Route Deviations on Green Route
Reduce traffic congestion in village centers/help to preserve small town character	+	o	+	+	+	+	o	+	+	o	+
Assist towns and employers with parking management strategies	+	o	+	+	+	+	o	+	+	o	+
Provide commuter with efficient/convenient alternative to driving alone	+	o	+	+	+	+	o	+	+	o	+
Ensure area seniors can continue to participate in community without driving a car/enhanced mobility to residents with disabilities	o	+	+	o	o	o	+	o	o	+	+
Offer convenient transit access to area hospitals, shopping, schools, social services	+	+	+	+	+	+	+	+	+	+	+
Operate routes that are productive and efficient to maximize results of public investments	+	-	+	+	+	+	o	+	+	-	+
Offer transit that is reliable and on-time	o	o	o	+	+	o	o	o	+	o	-
Assist towns, schools, hospitals, and agencies by helping to meet their transportation needs	+	+	+	+	+	+	o	+	+	+	+
Develop routes that offer convenient intermodal links	+	o	+	+	+	+	o	+	o	o	o
Develop capital reserve fund and add program revenue each year for local match without borrowing	o	o	o	o	o	o	o	o	o	o	o

Table 4-2 (continued)

	Continue to Coordinate with TVB and Stagecoach	Provide ADA Paratransit	Extend Evening Hour on Orange, Brown, and Green Routes	Shorten Headway on Orange Route	Shorten Headway on Red Route	Extend Orange Route to DHMC and Centerra	Add Limited Saturday Service	Coordinate Yellow Route with TVB Route to DHMC	Split Yellow Loop into Two Linear Routes	General Demand-Response Service in Three VT Towns	Route Deviations on Green Route
Explore potential for expanded facility	o	o	o	o	o	o	o	o	o	o	o
Work with state and town officials to develop park and ride lots with transit shuttles	o	o	o	o	o	o	o	+	o	o	o
State Goals											
Provision for basic mobility for transit-dependent persons	+	+	+	+	+	+	+	+	+	+	+
Access to employment	+	+	+	+	+	+	o	+	+	+	+
Congestion mitigation	o	o	+	+	+	+	o	o	o	o	o
Advancement of economic development	+	o	+	+	+	+	o	o	o	o	o
Estimated Cost of Improvement	None	$373,500	$16K/route $47K total	$187K plus one bus	$187K plus one bus	Reduction in headways	$37K	None	$78K plus one bus	$281K plus two DR vans	None

\+ Improvement over Existing Conditions
\- Detrimental to Existing Conditions
o Neutral compared to Existing Conditions

- Some of the options, such as improving headways and extending the Orange Route to DHMC have more of a focus on commuter or choice riders. Even though these improvements would also benefit the transit dependent, they are more effective in terms of reducing congestion and alleviating parking problems.

- Other options, such as providing ADA paratransit, adding Saturday service and general public demand-responsive services, would tend to benefit transit dependent riders. These are more effective in terms of meeting the basic mobility goals of residents of the area.

MARKETING INITIATIVES

AT does an excellent job with marketing and community relations/outreach. There is little that could be improved on as part of the SRPTP. One issue that AT may have to address, depending on whether ADA service is required, is the need to involve the disabled community in planning and implementing that service. Also, the system will need marketing for any new services it decides to implement as the result of this plan.

CHAPTER 5

SHORT-RANGE PUBLIC TRANSPORTATION PLAN

The purpose of this chapter is to present a plan for transit service improvements in the AT service area with a focus on improving the services to residents of Vermont. The plan covers a five-year period but the pace and order of implementation will depend on the availability of both state and local funding.

Planned recommendations are based on the analysis of the transportation needs of the region (presented in Chapter 2 of this report), and an analysis of the current transit services (Chapter 3). Service alternatives developed to address the identified needs and service issues are presented in Chapter 4. These were reviewed by the AT Board and the public. Based on their input, the alternatives have been modified as needed and the phasing of the implementation has been adjusted for inclusion here as the Short-Range Public Transportation Plan (SRPTP).

The service alternatives are presented in this chapter according to the priority ranking provided by the AT Board. Financing and capital plans are included for each year. All of the options are presented independently, so that AT will be able to implement them or rearrange them as opportunities arise, needs change, or funding permits. AT's first priority is to maintain those routes and services it already operates. Complicating the funding of service improvements is the fact that the cost to provide existing services is rising faster than state and federal subsidies. The system will need increased funding simply to maintain its current system and may find it difficult to fund the recommended improvements

SERVICE RECOMMENDATIONS

This section presents an overview of the service recommendations in light of the comments and input provided by the AT Board, management and the public. This input was used to modify the alternatives and prioritize services for inclusion in the plan. More detail is provided on the services recommendations in the Plan section at the end of the chapter. No changes to the organizational structure of AT are recommended at this time.

Discussions with AT Board and the public resulted in some modifications to the original alternatives that are presented in Chapter 4, the changes affect primarily the phasing and order of implementation. Each alternative is presented independently, in order that AT can implement them as they fit into funding constraints, and so that they can be reordered as necessary as new demands and needs are identified in the upcoming years.

A phased plan for implementation of improved services was developed, which includes information on the purpose and rationale of the change, identification of the route or service area, schedules (span of service and headways), the required revenue hours and miles to provide the service, the number of vehicles required, and the anticipated ridership (based on Vermont experience).

As mentioned above, implementation of most of these improvements will require additional funding. Because of the manner in which AT services are funded, using transit grants from both VTrans and the New Hampshire Department of Transportation, additional funding may have to be secured from both entities in order to implement improvements operating in both states (costs are allocated to each state based on revenue miles of operation in that state).

Immediate Actions

One overall concept that will be continued is coordination of AT services with neighboring transit operators – namely Stagecoach and the operator that replaces Town and Village Bus (TVB). This includes AT continuing to provide core fixed-route services within the three Vermont and four New Hampshire towns. The other Vermont providers, Stagecoach and TVB, will continue to provide commuter services from their outlying service areas. Most of

these commuter routes are operated as express services and terminate at the Dartmouth-Hitchcock Medical Center (DHMC). From there, riders can take AT to travel to other locations within the core area. All AT services are free to the rider so transfers are not an issue.

Another immediate action could be planning for creation of an Americans with Disabilities Act (ADA) complementary paratransit service. As noted in Chapter 4, AT may need to begin providing ADA complementary paratransit, depending on a pending Federal Transit Administration (FTA) ruling. If FTA determines that ADA complementary paratransit requirements apply to private non-profit organizations like AT, the system will have to begin to create this service immediately. In all likelihood, AT will have some time to plan and arrange for this service before implementation.

Depending on the funding availability, other service improvements would be implemented in phases as follows.

Short-Term – FY05 and FY06

- Shorten headway on the Red Route – from 60-minute to 30-minute frequency
- Extend the hours on the Orange, Brown, and Green Routes by one hour in the evening
- Shorten the headway on the Orange Route and, perhaps extend the route to Centerra

Other Long-Term Improvements

- Add limited Saturday service
- Split Yellow Loop into Two Linear Routes
- Provide Demand-Responsive Services outside the fixed-route services areas in Vermont

OTHER ISSUES AND RECOMMENDATIONS

In addition to the service changes recommended, there are several other issues that were considered, and some recommendations addressing these are included in the plan. These include consideration to the need for additional park and ride lots, needed improvements to the AT facility, the need for additional computerized management systems, and the impact that complementary paratransit requirements of ADA could have on the system.

Computerized Management, Scheduling, and Dispatching

Many rural transit systems are purchasing and implementing improved computerized data management systems, including scheduling and dispatching systems. When, and if, AT implements ADA complementary paratransit or other demand-responsive services, it may be appropriate for AT to consider purchase and implementation of software to facilitate billing and record-keeping associated with the allocation of costs of the demand-responsive services, and computer-aided scheduling and dispatching (depending on whether these services are operated in-house or by a contractor).

Fare Policy

Fares were not addressed during the development of this plan since the AT service is now totally fare free. One fare issue that AT might be facing is the long-term viability of remaining fare-free. As AT buses reach capacity, and more hours of service are needed to meet demand on existing routes, there will be an increased need for either local funding or farebox revenue (AT currently relies on the College and DHMC to subsidize the fares). Another potential farebox issue will be the need to charge a fare for ADA paratransit (which the ADA regulation caps at twice the base fare – in this case free). Providing free paratransit service could affect the funding available for AT to operate fixed-route services.

Facilities

The system is operated out of its own facility located in Wilder (which was subsidized by VTrans). The facility has heated indoor parking for the vehicles, two maintenance bays, and a fueling station. AT has outgrown this facility in many ways has begun to plan for a facility expansion. The expansion will include additional bus and fuel storage as well as an automatic bus wash system and wash bay.

ADA Complementary Public Transit

Currently federal policy does not require that private non-profit organizations (such as AT) provide complementary paratransit (pre-scheduled curb-to-curb service to eligible persons with trips beginning within ¾ of a mile of the fixed-route). All public entities providing fixed-route service are required to provide this service as a complement to their fixed routes, for persons unable to use the fixed-route service (although commuter routes, such as the Yellow Route and the extension of the Blue Route to Canaan, are exempt from this requirement).

The FTA is currently reconsidering policy in this area, and it may conclude that private non-profits providing fixed-route service must offer ADA paratransit. In that case, AT would need to set up a program to certify individuals regarding their eligibility for ADA service, and would need to provide this demand-responsive service in its core service area. It is assumed that AT would contract for this service with a local human service or transportation provider. As seen in Table 5-1, it is estimated that approximately 437 of the 31,000 persons in the area served by AT's fixed routes would be eligible for the service. Estimated usage of an ADA complementary paratransit service is about 12,500 trips annually, requiring 8,300 services hours, at a cost of about $375,000 (assuming $45 per hour).

Marketing

Marketing is essential to the success of existing and new services. Marketing is a critical function of even rural public transit systems. Marketing efforts can take many paths and AT has done an excellent job of community outreach. A marketing budget of at least two percent of the operating budget is recommended and AT is budgeted to spend about 2.5 percent on marketing (for transit and ridesharing) in FY 2003.

Park and Ride

As indicated in Chapter 4, park and ride lots are essential to AT's ridesharing program and an integral part of its commuter transit service. Traffic patterns and congestion on the Ledyard Bridge indicate that there is a market for park and ride or satellite parking on the

Table 5-1: ADA ESTIMATES - ADVANCE TRANSIT
(Includes Vermont and New Hampshire)

2000 Population		**31,000**	portions of Norwich, Hartford, Lebanon, Hanover
Annual Service Days		**260**	
Trips Per Hour		**1.5**	
Cost Per Hour	**$**	**60.00**	directly operated
	$	**45.00**	contracted

Category of Eligible Person	**Eligible Population**	**Trips/Day (Trip Rates per Day) 0.110**	**Trips Per Year**	**Annual Hours**	**Annual Cost Direct Operation**	**Annual Cost Contracted**
Unable to Board, Ride, Disembark Accessible Vehicle 0.007% (only if inaccessible fixed-route vehicles)	22	2.39	621	414	$24,825	$18,619
Unable to Use System Due to Visual or Mental Impairment 0.990%	307	33.76	8,777	5,852	$351,094	$263,320
Unable to Reach Boarding or Destination Location 0.42%	130	14.32	3,724	2,482	$148,949	$111,712
Total if Fixed-Route Fleet is Accessible	437	48.08	12,501	8,334	$500,042	$375,032

Estimated Trips per Hour

Rural	*1.4*
Small Urban	*1.5*
Urban	*2*

Vermont side of the bridge, as long as convenient shuttle bus service is available into Hanover. Since the lack of suitable locations is a factor – land that is convenient to the interstate exits is not readily available, one recommendation of the SRPTP is that the area have a comprehensive park and ride study concentrating on park and ride or satellite parking opportunities on the Vermont side of the river. In the meantime, possible locations identified on the **Vermont** side of the AT service area are:

- **Norwich** – other side of Ledyard Bridge (AT is working with the town to identify a park and ride site – although little land is available).

- **White River Junction** – somewhere near I-89 and I-91 intersection. Currently VT has a park and ride project in Hartford/White River Junction, but is having a hard time finding a suitable location. Multiple sites were examined, but only one lot is still being considered. There are actually more locations in Lebanon than WRJ (e.g. Heater Road and 120 – see below). Another location to be explored as a potential park and ride lot is the site where the Dresden School District may build playing fields, about a mile from the Interstate going south on Route 5.

Possible locations on the **New Hampshire** side of the AT service area include:

- **Exit 18** – (for access up Route 120 to DHMC and Hanover) - most promising location in terms of need, but most challenging because little land is available. The Dartmouth Coach park and ride facility is at this exit, off 120, down Etna Road. Although no contact has been made with NH DOT, there is also the possibility of working with the Armory to create a park and ride at this facility (this lot is gravel and would need improvements).

- **Exit 17** – more likely but less convenient as satellite parking.

- **Canaan/Enfield** (or where Route 4 meets I-89 at Exit 17).

Other possible park and ride locations in New Hampshire, but outside AT service area, are:

- Woodsville (NH)/Wells River (VT)
- Plainfield
- Cornish/South Cornish
- Exit 13 – Grantham
- Exit 16 – also would serve people traveling south

SERVICE PLAN

The following assumptions were made during the planning process:

- Estimated costs are based on an estimated AT hourly service cost of $60 per service hour, which is a fully-allocated operating cost per revenue service hour. It is assumed that ADA complementary paratransit and other demand-responsive services would be contacted at a rate of $45 per hour. By using fully-allocated costs, the cost estimates contained in the plan are inherently conservative—incremental costs of limited service expansions may be less costly to implement.

- Peak vehicle needs are identified for each recommended service change. Vehicle choice and costs are presented in greater detail in the capital plan; although only a few new vehicles are required to implement the services changes (assuming ADA paratransit services would be contracted with the contractor providing the vehicles).

- Productivity estimates are based on the type of service and the level of productivity identified in the statewide performance assessment of Vermont services. It is assumed that new service productivity will grow over time, and the final assessment should not be made until at least 18 months of service have elapsed. The goals is that at the end of the first year the service would be in the "acceptable" range for that type of service, and that it would be "successful" after 18 months.

- 260 weekdays and 52 Saturdays were used to calculate revenue hours.

Table 5-2 presents an overview of the entire plan, with proposed phasing and the estimated incremental cost of each improvement. Each improvement is detailed following the table. It is recognized that this is an ambitious plan, and that implementation is dependent on the availability of federal, state, and local funding—but there is a need to set forth a goal and vision, and an outline of the steps needed to get there.

Table 5-2: AT SERVICE IMPROVEMENT SUMMARY - INCREMENTAL EXPENSES ONLY

	Route/Service	Description	Peak Vehicles	Daily Hours	Annual Service Hours	Hourly Base Cost Initial Yr	Note	Additional Annual Cost
FY2004	Continue to Coordinate with Stagecoach and TVB	No change	n/c	n/c	n/c	n/c	A	n/c
	Begin Planning and Providing ADA Paratransit	New Service	4 (contractor)	32	8,300	$45.00	B	$ 373,500
		Immediate Subtotal	**no change**	**32**	**8,300**			**$373,500**
FY2005	Shorten Headway on Red Route	Improve Frequency	1	12	3,120	$63.65	C	$198,600
	Extend Evening Hour on Orange Route	Extend Span	0	1	260	$63.65	C	$16,550
	Extend Evening Hour on Brown Route	Extend Span	0	1	260	$63.65	C	$16,550
	Extend Evening Hour on Green Route	Extend Span	0	1	260	$63.65	C	$16,550
		FY 2005 Subtotal	**1**	**15**	**3,900**			**$248,251**
FY2006	Shorten Headway on Orange Route	Improve Frequency	1	**12**	3,120	$65.56	C	$204,558
	Extend Orange Route to Centerra	Extend Span	0	0	-	$65.56	C	$0
		FY 2006 Subtotal	**1**	**12**	**3,120**			**$204,558**
Long Term	Add Limited Saturday Service	New Service	0	12	624	$67.53	C	$42,139
	Split Yellow Loop into Two Linear Routes	Service Adjustment	1	5	1,300	$67.53	C	$87,790
	Demand-Responsive in Vermont	New Service	2 (contractor)	24	6,240	$52.17	B	$325,524
		Long-Term Subtotal	**3**	**41**	**8,164**			**$455,453**
		PLAN TOTAL	**5 (plus contractor vehicles)**	**100**	**15,216**			**$908,294**

Notes:

A This is an on-going initiative.

B Contracted cost for operations and vehicles of $45 per hour; increased three percent annually for inflation.

C Based on an estimated $60 per hour for fully allocated costs; increased three percent annually for inflation.

YEAR 2003 OR 2004
PLAN AND IMPLEMENT ADA PARATRANSIT
(IF REQUIRED)

POSSIBLE NEW SERVICE

Service Statistics

Span: Monday through Friday
5:30 am – 7:00 pm

Frequency: Demand-responsive
Vehicle: Small – contractor-owned

Possible Changes

- Only if required by FTA
- Users certified as ADA eligible (probably internally) – persons who are unable to use the fixed routes
- Service contracted to local transportation operators or human service agency
- Curb-to curb service ¾ mile either side of AT fixed routes (excluding the commuter routes – Yellow and Canaan portion of the Blue Route)
- Reserve by close of business day before
- Same hours and days as fixed routes

Benefits

- Provide increased mobility for persons unable to use AT's fixed routes

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	0	0	0
Service Changes	8,300	$373,500	4 (contracted)
TOTAL	8,300	$373,500	4

SHORT-TERM
SHORTEN HEADWAY ON RED ROUTE

INCREASED SERVICE

Service Statistics

Span: Monday through Friday
6:20 am – 6:25 pm

Frequency: 30 minute
Vehicle: Bus

Recommended Changes

- Improve headway from 60 minutes to 30 minutes
- Increases from one to two buses

Benefits

- More convenient service for riders – less wait time
- More frequent service is warranted on this route – highest productivity of non-shuttle routes
- Could allow for a timed transfer with the Green Route

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	3,009	$180,540	1
Service Changes	3,120	$187,200	1
TOTAL	6,129	$367,740	2

SHORT-TERM
EXTEND EVENING HOUR ON ORANGE ROUTE

EXTEND SPAN OF SERVICE

Service Statistics

Span:	Monday through Friday 6:30 am – 7:15 pm	Frequency: Vehicle:	hourly Bus

Recommended Changes

- Extend route one hour in evening

Benefits

- Increases service for Vermont riders from the Hanover and Lebanon areas into White River Junction
- Allow DHMC riders from the Blue Route to transfer onto two more of the later Orange Route runs.
- Allow riders to connect with Amtrak

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	3,060	$183,600	1
Service Changes	260	$ 15,600	0
TOTAL	3,320	$199,200	1

SHORT-TERM
EXTEND EVENING HOUR ON BROWN ROUTE

EXTEND SPAN OF SERVICE

Service Statistics

Span:	Monday through Friday 6:50 am – 6:40 pm	Frequency: Vehicle:	hourly Bus

Recommended Changes

- Extend route one hour in evening

Benefits

- Increases service for Vermont riders from CRREL and the Hanover and Lebanon areas into White River Junction and Norwich
- Allow riders on the Blue Route from DHMC to transfer onto two more of the later Brown Route runs.

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	2,678	$160,680	1
Service Changes	260	$ 15,600	0
TOTAL	2,938	$176,280	1

SHORT-TERM
EXTEND EVENING HOUR ON GREEN ROUTE

EXTEND SPAN OF SERVICE

Service Statistics

Span:	Monday through Friday 6:30 am – 6:55 pm	Frequency: Vehicle:	hourly Bus

Recommended Changes

- Extend route one hour in evening

Benefits

- Increases service for Vermont riders from the Hanover and Lebanon areas into the Hartford Village area
- Allow DHMC riders working late to transfer from the Blue Route onto a later Green Route run.

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	2,805	$168,300	1
Service Changes	260	$ 15,600	0
TOTAL	3,065	$183,900	1

SHORT-TERM
SHORTEN HEADWAY ON ORANGE ROUTE

INCREASED SERVICE

Service Statistics

Span: Monday through Friday
6:30 am – 6:15 pm

Frequency: 30 minute
Vehicle: Bus

Recommended Changes

- Improve headway from 60 minutes to 30 minutes
- Increases from one to two buses

Benefits

- More convenient service for riders – less wait time
- More frequent service is warranted on this route – second highest productivity of non-shuttle routes
- Could allow for extension of the Orange line to the Centerra and DHMC (this would increase the headway to 45 minutes – see below)

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	3,060	$183,600	1
Service Changes	3,120	$187,200	1
TOTAL	6,180	$370,800	2

LONG-TERM
ADD LIMITED SATURDAY SERVICE
(Figure 5-1)

NEW SERVICE

Service Statistics

Span: Saturday
8:00 am – 8:00 pm

Frequency: 2 hour
Vehicle: Small Bus

Recommended Changes

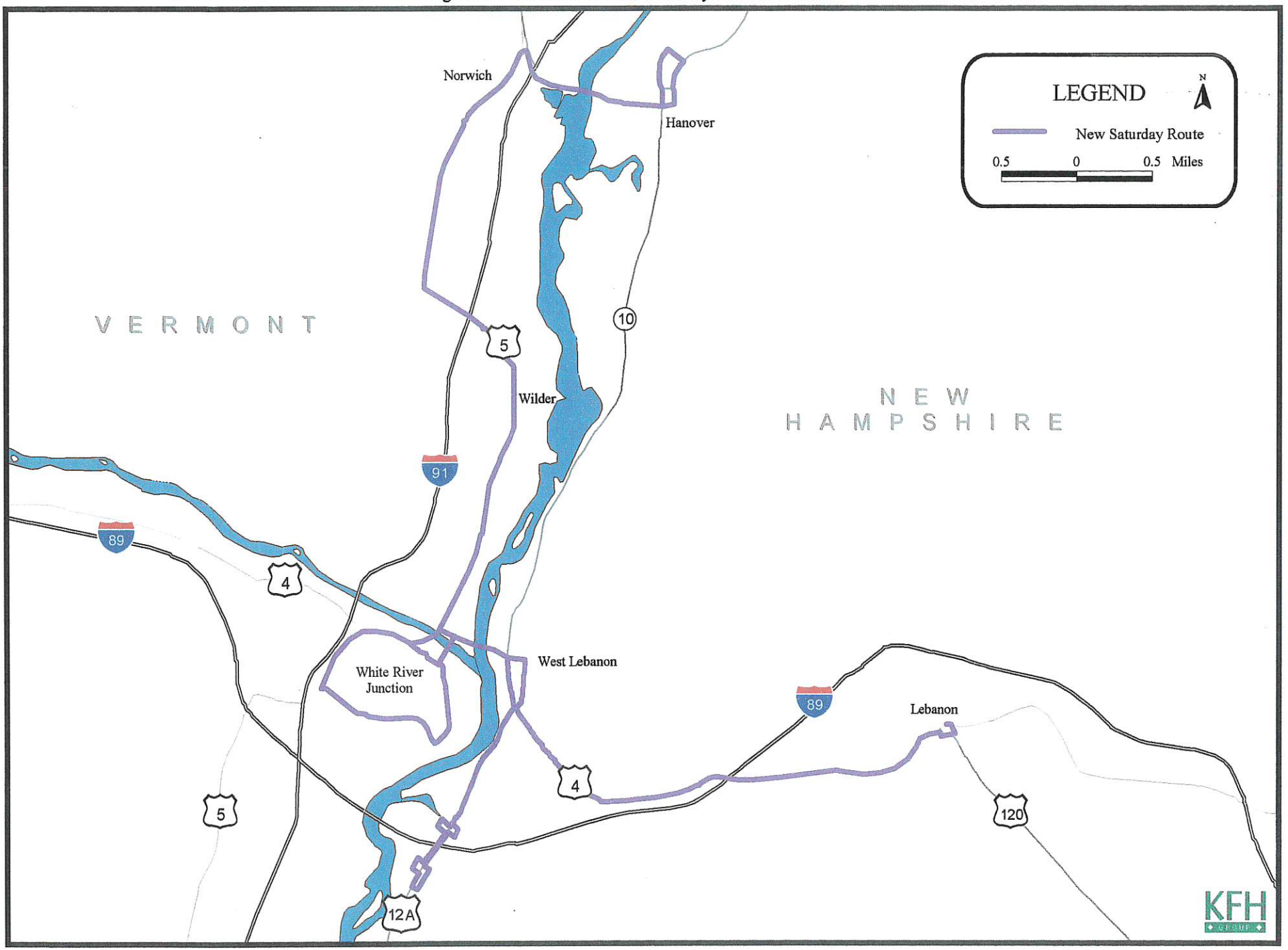
- Create one loop to operate on Saturday
- Combine the Green and Red Routes with the Orange Route loop through White River Junction
- Requires one vehicle and would require two hours per round trip
- Note that the proposed service focuses on the Vermont side of AT's service area. If Saturday service was implemented, additional links would probably be included within New Hampshire (e.g., Lebanon to Hanover or direct services from Hanover to the shopping along Route 12A).

Benefits

- Increase mobility for transit dependent population
- Provide residents with opportunities to get to work and shop on Saturdays

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	0	$ 0	0
Service Changes	624	$37,440	1
TOTAL	624	$37,440	1 (use existing)

Figure 5-1: Potential Limited Saturday Service Route



LONG-TERM
SPLIT YELLOW LOOP INTO TWO LINEAR ROUTES
(Figure 5-2)

ROUTE REVISION

Service Statistics

Current Span:	Monday through Friday	Frequency:	4 round trips/day
	6:30 – 7:45 a.m.		(for each route)
	3:15 – 6:25 p.m.	Vehicle:	Large and Sm Buses

Recommended Changes

- Replace Yellow Loop with two linear routes
- Yellow Route 4 – from west of Woodstock to Hartford, Wilder, Hanover, and DHMC -- with connections to core routes
- Yellow Route 5 – from Windsor to White River Junction, Wilder, Hanover and DHMC -- with connections to core routes
- Will require an additional vehicle – keeping large vehicle on Route 5 segment and potentially using a smaller bus on the Route 4 segment

Benefits

- Improves access from the mobile homes and low income housing areas along Route 4 and in Windsor.

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	1,300	$ 78,000	1
Service Changes	1,300	$ 78,000	1
TOTAL	2,600	$156,000	2

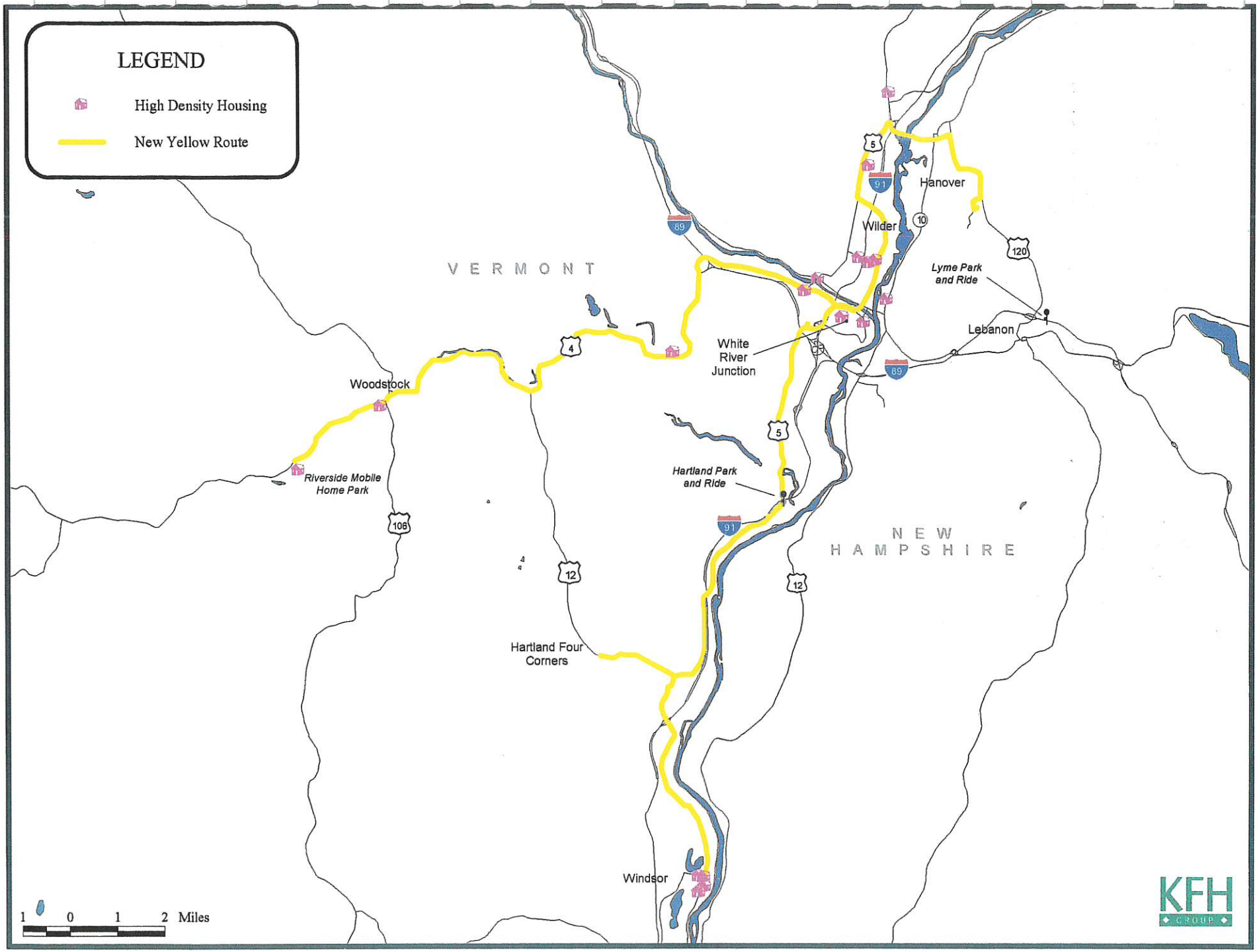


Figure 5-2: REVISED YELLOW ROUTE

LONG-TERM
DEMAND RESPONSIVE SERVICE IN VERMONT

NEW SERVICE

Service Statistics

Proposed Span:	Monday through Friday 7:00 a.m. to 7:00 p.m.	Frequency: Vehicle:	Demand-Responsive Mini-Buses

Recommended New Service

- Provide demand-responsive services throughout the three Vermont areas, but outside the current fixed-route service area
- Service would be for those unable to use the fixed routes either because of a disability or because the routes do not service them (this service would be distinct from the ADA service so that it does not have to meet strict, legal requirements of ADA).
- Riders from outlying areas could transfer onto fixed routes once transported to core service area to complete trip
- The service would be limited to the capacity of vehicle hours budget – in this case two vehicles for 12 hrs. each is suggested
- This is one service that AT could charge a fare to use
- This is a new type of service for AT and could be contracted out to a private transportation provider or local human service agency

Benefits

- Provides mobility, particularly for medical and shopping trips, for persons currently without transit services
- Permits an opportunity to test markets
- Increases supply of service with ability to control costs

	Annual Revenue Hours	(FY04) Annual Cost	Buses Required
Existing	0	0	0
Service Changes	6,240	$280,800	2
TOTAL	6,240	$280,800	2

FINANCIAL PLAN

Table 5-3 presents the proposed system budget for the five year period from FY04-FY08. In order to provide some guidance about the financial impact of the proposed changes, and the anticipated funding sources, the existing funding levels have been assumed. This baseline budget was inflated at three percent per year, with the projected incremental costs of new services added in the proposed year.

In terms of funding sources, it is clear that the expanded services for the general public will require substantial additional funding. Under the Vermont *Public Transportation Policy Plan*, it was assumed that new starts or substantial expansions would be funded through the state using CMAQ funding for the first three years of operation, and if the services met state service objectives and performance goals, would be included in the overall S. 5311 program. The new or expanded public transit services in this plan would be considered as new starts, competing for the available funding, and transitioning to S. 5311 under the legislatively-adopted funding formula.

In this plan, full implementation of the proposed service expansion would likely require a significant amount of local operating match, even if Vermont fully implements the new funding formula. It is recognized that obtaining local match is a major problem for transit systems in Vermont, as there is no source of local match except local property taxes collected by town governments, donations, and "profits" earned on contract services. As discussed previously, because AT allocation costs between its VT and NH programs, based on revenue miles of service in each state, any service improvements that service both states would require additional local funding from both. Currently Vermont, like many other states, is facing a severe budget, and it is unlikely that there will be significant funding increases for transit in the near future. However, there are still needs for expanded transit, particularly in this area of Vermont, and so this plan was developed to address the needs and policy direction set down in previous state policy plans and legislation, and it is hoped that over time, funding will become available to expand basic mobility throughout this region.

Table 5-3: FIVE YEAR OPERATING BUDGET FOR AT WITH IMPROVEMENTS

Service	FY 2003 Budget	FY 2004 Base* with Improvements	FY 2005 Base* with Improvements	FY 2006 Base* with Improvements	FY 2007 Base* with Improvements	FY 2008 Base* with Improvements
Current Services						
Fixed Routes	$1,823,019	$1,877,710	$1,934,041	$1,992,062	$2,051,824	$2,113,379
Ridesharing	73,826	76,041	$78,322	$80,672	$83,092	$85,585
Service Improvements						
Continue to Coordinate with Stagecoach and TVB			$0	$0	$0	$0
Begin Planning and Providing ADA Paratransit			$373,500	$384,705	$396,246	$408,134
Shorten Headway on Red Route			$198,600	$204,558	$210,695	$217,016
Extend Evening Hour on Orange Route			$16,550	$17,047	$17,558	$18,085
Extend Evening Hour on Brown Route			$16,550	$17,047	$17,558	$18,085
Extend Evening Hour on Green Route			$16,550	$17,047	$17,558	$18,085
Shorten Headway on Orange Route				$204,558	$210,695	$217,016
Extend Orange Route to Centerra				$0	$0	$0
Add Limited Saturday Service					$42,139	$43,403
Split Yellow Loop into Two Linear Routes					$87,790	$90,424
Demand-Responsive in Vermont						$325,524
TOTAL	$1,896,845	$1,953,750	$2,634,113	$2,917,694	$3,135,154	$3,229,209

*Base has an increase of three percent annually.

CAPITAL PLAN

Vehicles

The capital portion of this plan is broken into two primary categories, replacement vehicles and expansion vehicles. Replacement of AT's current fleet is based on the anticipated mileage generated over the course of the five-year plan, and considers the current condition of the fleet. The expansion fleet is required as a result of the new services provided, and they are included in the purchase years, in anticipation of the service starting in the following year.

Table 5-4 details the capital replacement schedule. The table provides an estimate of the replacement year for each vehicle in regular service based on its useful life. The useful life of small and medium duty cutaways is estimated at 5 year/150,000 miles; medium duty buses is 7 years/200,000 miles, and larger buses is 10 years/350,000 miles. For planning purposes, one column provides estimated replacement year based on the years of operation and another provides replacement year based on projected miles (based on miles operated in January 2003). As shown, using the two methods does not always project the same replacement year – the "useful life" miles of some vehicles are being consumed faster for some vehicles than others. Overall, AT can adjust the use of its vehicles over time to "even out" the miles each is operated before replacement.

The estimated cost of the capital program, divided into local, state, and federal portions, can be found in Table 5-5. The replacement years and costs are projected based on years of operation (rather than miles).

Facility

As indicated above, as AT has added services and vehicles, the system has outgrown the vehicle and fuel storage capacity at its Wilder facility. The current facility has heated indoor parking for the vehicles and includes two maintenance bays and a fueling station. AT would like to increase its bus storage and fuel storage capacity, along with adding a bus wash system and

Table 5-4 - VEHICLE REPLACEMENT PLAN - ADVANCE TRANSIT

Agency Fleet Number	Model Year	Vehicle Type	Design Life	No. of Seats	Current Odometer Reading (January 2003)	Miles operated in January 2003	Replacement Year Based on Age	Replacement Year Based on Projected Miles
VEHICLE REPLACEMENTS								
Vermont Funded Vehicles								
9714	1997	Bus	10 yr	37	177,656	2,373	2007	2010
2005	2000	Bus	5 yr	16	84,561	2,220	2005	2005
2005	2000	Bus	7 yr	27	80,131	1,735	2007	2008
2006	2000	Bus	7 yr	27	80,734	1,431	2007	2010
2007	2000	Bus	7 yr	27	73,791	2,223	2007	2008
2014	2002	Bus	7 yr	27	38,259	4,152	2009	2006
New Hampshire Funded Vehicles								
9612	1996	Bus	5 yr	18	192,228	1,547	2004	2004
9613	1996	Bus	5 yr	18	213,819	3,742	2004	2004
9615	1996	Bus	5 yr	18	234,415	4,292	2004	2004
9610	1996	Bus	10 yr	33	176,979	1,751	2006	2011
9611	1996	Bus	10 yr	33	171,245	1,819	2006	2011
2001	2000	Bus	7 yr	27	68,190	3,429	2007	2006
2002	2000	Bus	7 yr	27	82,483	1,648	2007	2009
2003	2000	Bus	7 yr	27	82,256	2,849	2007	2006
2008	2001	Bus	7 yr	27	65,284	2,578	2008	2007
2009	2001	Bus	7 yr	27	62,281	3,289	2008	2007
2010	2001	Bus	7 yr	27	52,588	3,000	2008	2007
2011	2001	Bus	7 yr	27	51,513	4,055	2008	2007
2012	2001	Bus	7 yr	27	40,277	2,338	2008	2008
2013	2001	Bus	7 yr	27	38,671	2,897	2008	2008
VEHICLE EXPANSIONS - Not including Contractor Vehicles for ADA or Demand-Responsive Service								
	2005	Bus	7 yr	27	*For Red Route Expansion*			
	2006	Bus	7 yr	27	*For Orange Route Expansion*			
	2007	Bus	5 yrs	18	*For Yellow Route Split*			

Does not include the 1988 Gillig buses purchased with local funds.

Table 5-5: ESTIMATED VEHICLE REPLACEMENT COSTS - AT

Replacement Fleet - Not Including Replacement of 1988 Gilligs Purchased with Local Funds

For Plan Year	Vehicle Type	Estimated Cost*	Number Required	Total Cost	Local Match	State Funds	Federal Funds	Replacing
FY04	mini-bus - sm. cutaway	$ 74,500	3	$ 223,500	$ 22,350	$ 22,350	$ 178,800	1996 small buses
FY05	mini-bus - sm. cutaway	$ 74,500	1	$ 74,500	$ 7,450	$ 7,450	$ 59,600	2000 small bus
FY06	large buses	$ 225,000	2	$ 450,000	$ 45,000	$ 45,000	$ 360,000	1996 large buses
FY07	med duty buses	$ 104,500	6	$ 627,000	$ 62,700	$ 62,700	$ 501,600	2000 med-duty buses
FY08	med duty buses	$ 104,500	6	$ 627,000	$ 62,700	$ 62,700	$ 501,600	2001 med-duty buses
FY09	med duty buses	$ 104,500	1	$ 104,500	$ 10,450	$ 10,450	$ 83,600	2002 med-duty bus

Expansion Fleet - Not Including Vehicles Used by Contactor for Parartransit Services

For Plan Year	Vehicle Type	Estimated Cost*	Number Required	Total Cost	Local Match	State Funds	Federal Funds	Use
FY05	bus - med duty	$ 104,500	1	$ 104,500	$ 10,450	$ 10,450	$ 83,600	Red Route Expansion
FY06	bus - med duty	$ 104,500	1	$ 104,500	$ 10,450	$ 10,450	$ 83,600	Orange Route Expansion
FY07	mini-bus - sm. cutaway	$ 74,500	1	$ 74,500	$ 7,450	$ 7,450	$ 59,600	Yellow Route Split

*Cost includes diesel and fixed route package (headsigns, stop indicators, drop farebox)

wash bay. The system has received FY03 funding for engineering from VTrans ($20,000) and has requested $1.2M in federal funds to help subsidize the improvements.

Other Capital Items

In addition to vehicle acquisitions and the facility project, AT is requesting capital funding from VTrans in FY04 for radio equipment ($25,000) and computer equipment ($10,000). Other capital projects in the AT service area could include:

- Signal prioritization for buses (12A and Ledyard Bridge area) – should be built as the new I-89/Exit 20 interchange is redesigned.
- Bike lockers for commuters – especially in Norwich area. A low cost, short-term option to encourage commuters would be to install bike lockers along AT transit routes.

STAFFING REQUIREMENTS

AT has six administrative positions including the Executive Director, who reports to the Board of Directors, an Administrative Assistant, a Bookkeeper, a Rideshare Coordinator, an Operations Manager, and a Maintenance Manager. The bookkeeper is responsible for all bookkeeping and record-keeping/reporting.

An Operations Manager supervises the drivers (and is responsible for route scheduling, dispatching, driver supervision, and training as well as day-to-day operations). The Maintenance Manager oversees two mechanics and a bus washer. The system currently has 20 full-time and two part-time drivers, all with Commercial Drivers Licenses (CDLs). The Rideshare Coordinator has a part-time assistant.

The only staffing changes anticipated as a result of this plan are:

- additional drivers for new services.
- a scheduler/dispatcher if new demand-responsive zonal service is implemented and not contracted out.

The cost of these staff changes are included in the plan as cost elements in the fully allocated cost per revenue service hour.

IMPLEMENTATION PLAN

The following is an outline of the implementation plan for AT. It corresponds with the service plan and capital plan previously outlined, providing a phased implementation of the recommended improvements. Each service alternative is detailed individually in terms of the financial impact on operations, and therefore can be implemented independently of one another.

Immediate – FY04

- begin planning ADA
- continue working with Stagecoach and TVB
- Implement ADA (if needed) – may not implement until FY05
- Request replacement vehicles and expansion vehicles needed for FY05 improvements

FY05

- Shorten headway on Red Route
- ~~Extend evening hour on Orange, Brown, and Green Routes~~
- Purchase replacement vehicles and expansion vehicles needed for FY06 improvements
- Market and advertise changes – hold public hearings.
- Update and distribute system brochure

FY06

- Shorten headway on Orange Route
- Extend Orange Route to Centerra
- Purchase replacement vehicles and expansion vehicles needed for FY07 improvements
- Market and advertise changes – hold public hearings
- Update and distribute system brochure

Long-Term

- Add limited Saturday Service
- Split Yellow Loop into Two Linear Routes
- Add demand-responsive service in three Vermont towns

- Purchase replacement vehicles and expansion vehicles needed for future improvements
- Market and advertise changes – hold public hearings
- Update and distribute system brochure

SUMMARY

This five-year plan provides a road map for AT to follow in continuing to provide these valuable services in a manner that best suits the geographic and demographic profiles of the area, and attempts to meet the needs of the communities through efficient service delivery. It represents a significant expansion of general public transit to meet basic mobility needs throughout this large region. It is an ambitious plan, one that will require a strong partnership between the transit operator, local communities, human service agencies, and the state.

APPENDIX A

ADVANCE TRANSIT'S OFFICERS AND DIRECTORS

APPENDIX A

ADVANCE TRANSIT'S OFFICERS AND DIRECTORS

PRESIDENT
William A. Barr
Hanover, NH 03755

VICE PRESIDENT
Matt Osborn
White River Jct., VT 05001

SECRETARY
Stanley W. Brown
West Lebanon, NH 03784

TREASURER
Pat O'Bryan
Grantham, NH 03753

David Roberts
Plainfield, NH 03781

William Baschnagel
Etna, NH 03750

Judith Rocchio
Hanover, NH 03755

Ralph Lehman
White River Jct., VT 05001

Theresa Grigsby
Lebanon, NH 03766

Jason Rasmussen
Upper Valley Lake Sunapee R.P.C.
Lebanon, NH 03766

Raymond Busky
Lebanon, NH 03766

Evelyn Palmer
Norwich, VT 05055

Ned Connell
Lebanon, NH 03766

Sharon D. Racusin
Norwich, VT 05055

APPENDIX B

DETAILED CENSUS DATA

Table B-1: NUMBER AND RANK OF TRANSIT DEPENDENT BLOCK GROUPS FOR ADVANCE TRANSIT RELATIVE TO THE STATE - 2000 CENSUS

Census Block Groups	Town	Elderly (60+)		Youth (12 - 17)		Disability		Below Poverty		Autoless Households	
		Number	Rank	Number	Rank	Number	Rank	Number	Rank	Number	Rank
500279650001	Norwich	196	206	168	45	36	313	83	273	36	136
500279650002	Norwich	331	40	307	5	63	137	50	401	17	270
500279655001	Hartford	370	19	145	83	62	141	140	117	42	125
500279655002	Hartford	99	469	82	330	16	483	94	233	8	407
500279655003	Hartford	210	170	96	251	12	506	55	382	20	238
500279655004	Hartford	289	61	78	346	28	387	104	204	0	524
500279655005	Hartford	236	121	85	309	74	100	40	438	14	332
500279656001	Hartford	171	274	65	408	74	98	84	269	21	231
500279656002	Hartford	145	349	79	344	29	375	91	239	38	132
500279656003	Hartford	361	23	164	55	99	43	200	55	137	14
500279656004	Hartford	44	528	12	527	11	512	7	521	0	530
500279656005	Hartford	112	436	104	216	6	526	60	361	16	288
500279657001	Hartland	184	238	85	311	11	513	23	490	8	415
500279657002	Hartland	124	409	90	281	31	361	32	465	0	503
500279657003	Hartland	207	175	143	86	45	249	27	483	12	354

Table B-2: DENSITY RANKING OF TRANSIT DEPENDENT BLOCK GROUPS FOR ADVANCE TRANSIT RELATIVE TO STATE RANKINGS - 2000 CENSUS

Census Block Groups	Town	Elderly (60+)		Youth (12 - 17)		Disability		Below Poverty		Autoless Households	
		Density	Rank	Density	Rank	Density	Rank	Density	Rank	Density	Rank
500279650001	Norwich	19.19	250	16.45	220	3.52	267	8.12	248	3.52	205
500279650002	Norwich	9.60	333	8.91	278	1.83	349	1.45	482	0.49	354
500279655001	Hartford	85.48	151	33.50	167	14.32	172	32.35	154	9.70	161
500279655002	Hartford	10.94	300	9.07	275	1.77	352	10.39	234	0.88	300
500279655003	Hartford	21.61	241	9.88	264	1.23	410	5.66	285	2.06	229
500279655004	Hartford	36.81	202	9.94	262	3.57	265	13.25	211	0.00	514
500279655005	Hartford	25.14	229	9.05	276	7.88	208	4.26	325	1.49	254
500279656001	Hartford	341.94	84	129.98	96	147.97	63	167.97	78	41.99	106
500279656002	Hartford	252.57	103	137.61	87	50.51	111	158.51	82	66.19	82
500279656003	Hartford	335.73	87	152.52	82	92.07	82	186.00	74	127.41	63
500279656004	Hartford	19.61	248	5.35	341	4.90	242	3.12	367	0.00	521
500279656005	Hartford	260.99	99	242.35	54	13.98	177	139.81	86	37.28	111
500279657001	Hartland	8.45	357	3.90	389	0.51	503	1.06	503	0.37	384
500279657002	Hartland	10.86	305	7.88	291	2.72	299	2.80	388	0.00	518
500279657003	Hartland	17.61	257	12.16	240	3.83	258	2.30	422	1.02	290

Table B-3: PERCENTAGE RANKING OF TRANSIT DEPENDENT BLOCKGROUPS FOR ADVANCE TRANSIT RELATIVE TO STATE RANKINGS - 2000 CENSUS

Census Block Groups	Town	Elderly (60+)		Youth (12 - 17)		Disability		Below Poverty		Autoless Households	
		Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
500279650001	Norwich	15	353	13	9	3	410	6	338	6	160
500279650002	Norwich	15	343	14	2	3	386	2	492	2	390
500279655001	Hartford	19	176	7	427	3	362	7	308	5	208
500279655002	Hartford	14	393	11	56	2	457	13	105	3	307
500279655003	Hartford	18	193	8	337	1	515	5	415	3	341
500279655004	Hartford	28	22	8	415	3	408	10	201	0	502
500279655005	Hartford	22	82	8	386	7	73	4	455	3	305
500279656001	Hartford	20	156	7	428	8	32	10	219	5	189
500279656002	Hartford	17	269	9	268	3	337	11	189	9	107
500279656003	Hartford	21	102	10	197	6	126	12	140	17	39
500279656004	Hartford	23	72	6	482	6	124	4	457	0	529
500279656005	Hartford	13	395	13	12	1	525	7	306	5	209
500279657001	Hartland	19	170	9	302	1	512	2	488	2	394
500279657002	Hartland	15	350	11	99	4	303	4	452	0	512
500279657003	Hartland	15	357	10	155	3	364	2	502	2	365

APPENDIX C

DETAILED EMPLOYER RESPONSES TO SURVEY

AT

Concepts NREC 217 Billings Farm Rd. WRJ VT 05001

Contact Person Jon Stearns *fax* 8022962325

phone 8022962321 *e-mail*

Employees 60

Mode of Transportation

Drive Alone	90	*Transit*	0	*Bike*	2
Carpool	7	*Taxi*	0	*Motorcycle*	0
Vanpool	0	*Walk*	1	*Other*	0

Work Shifts

Weekday	*Shift 1:*	7:00:00 AM	*to*	4:00:00 PM	*Employees:*	4	*Entry Level:* 2
	Shift 2:	8:00:00 AM	*to*	5:00:00 PM	*Employees::*	56	*Entry* 9
	Shift 3:		*to*		*Employees:*	0	*Entry Level* 0
Weekend	*Shift 1:*		*to*		*Employees:*	0	*Entry Level* 0
	Shift 2:		*to*		*Employees:*	0	*Entry Level* 0
	Shift 3:		*to*		*Employees:*	0	*Entry Level* 0

Entry Level Employees 11

Seasonal Employment No *Peak Months:* *Employees:* 0

Nonpeak Months: *Employees:* 0

Where employees commute from *Town* *Employees*

Springfield	0
Claremont, NH	0
Lebanon, NH	0
Norida	0
Hanover	0
	0
	0

Offer employee transportation program? No *Describe:*

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees No

Transportation to child care a problem No

Company has worked with PATH or DET Yes

Describe transportation problems

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating No

Additional Comments:

AT

Frasers General Store INC 319 Main St, P.O. box 157 Norwich VT 05055

Contact Person Jack Fraser *fax* 802-649-1950

phone 802-649-1602 *e-mail*

Employees 62

Mode of Transportation

Drive Alone	80	*Transit*	0	*Bike*	5
Carpool	9	*Taxi*	0	*Motorcycle*	1
Vanpool	0	*Walk*	5	*Other*	0

Work Shifts

Weekday	*Shift 1:*	7:00:00 AM *to*	1:00:00 PM	*Employees:*	15	*Entry Level:*	5
	Shift 2:	1:00:00 PM *to*	6:00:00 PM	*Employees::*	10	*Entry*	4
	Shift 3:	6:00:00 PM *to*	9:00:00 PM	*Employees:*	10	*Entry Level*	4
Weekend	*Shift 1:*	*to*		*Employees:*	0	*Entry Level*	0
	Shift 2:	*to*		*Employees:*	0	*Entry Level*	0
	Shift 3:	*to*		*Employees:*	0	*Entry Level*	0

Entry Level Employees 25

Seasonal Employment Yes *Peak Months:* jun-dec *Employees:* 62

Nonpeak Months: jan-mar *Employees:* 50

Where employees commute from	*Town*	*Employees*
	Norwich, VT	49
	Hanover, NH	3
	Hartford, VT	2
	Lyme, NH	2
	Thetford, VT	5
	Lebanon, NH	1
		0

Offer employee transportation program? No *Describe:*

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees No

Transportation to child care a problem No

Company has worked with PATH or DET Yes

Describe transportation problems we make sure everyone we hire has dependable transportation available

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating No

Additional Comments: please do not increase the taxes we pay to support some new State/ Federal transportation program

AT

Mowers News Service Inc 239 Hanes St White River Junction VT 05001

Contact Person B. Parker Fernacles *fax* 802-296-5036

phone 802-295-7082 *e-mail* mowers.news.service@valley.net

Employees 29

Mode of Transportation

Drive Alone	100	*Transit*	0	*Bike*	0
Carpool	0	*Taxi*	0	*Motorcycle*	0
Vanpool	0	*Walk*	0	*Other*	0

Work Shifts

Weekday	*Shift 1:*		*to*	*Employees:*	0	*Entry Level:*	0
	Shift 2:		*to*	*Employees::*	0	*Entry*	0
	Shift 3:		*to*	*Employees:*	0	*Entry Level*	0
Weekend	*Shift 1:*		*to*	*Employees:*	0	*Entry Level*	0
	Shift 2:		*to*	*Employees:*	0	*Entry Level*	0
	Shift 3:		*to*	*Employees:*	0	*Entry Level*	0

Entry Level Employees 29

Seasonal Employment No *Peak Months:* *Employees:* 0

Nonpeak Months: *Employees:* 0

Where employees commute from *Town* / *Employees*

Town	Employees
Hartford	17
Lebanon, NH	4
Norwich	1
Ascutney	3
Sharon	1
Strafford	1
Canaan, NH	1

Offer employee transportation program? No *Describe:*

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees No

Transportation to child care a problem No

Company has worked with PATH or DET No

Describe transportation problems

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating No

Additional Comments:

AT

The Car Store, INC PO box 160 Rt 5 South Norwich VT 05055

Contact Person Trish Cavey *fax* 802-649-3806

phone 802-649-1010 *e-mail* admin@thecarstorevt.com

Employees 25

Mode of Transportation

Drive Alone	95	*Transit*	0	*Bike*	0		
Carpool	5	*Taxi*	0	*Motorcycle*	0		
Vanpool	0	*Walk*	0	*Other*	0		

Work Shifts

Weekday	*Shift 1:*	7:30:00 AM	*to*	4:30:00 PM	*Employees:*	13	*Entry Level:*	3
	Shift 2:	8:00:00 AM	*to*	5:00:00 PM	*Employees::*	7	*Entry*	0
	Shift 3:	9:00:00 AM	*to*	6:00:00 PM	*Employees:*	5	*Entry Level*	2
Weekend	*Shift 1:*		*to*		*Employees:*	0	*Entry Level*	0
	Shift 2:		*to*		*Employees:*	0	*Entry Level*	0
	Shift 3:		*to*		*Employees:*	0	*Entry Level*	0

Entry Level Employees 5

Seasonal Employment No *Peak Months:* *Employees:* 0

Nonpeak Months: *Employees:* 0

Where employees commute from	*Town*	*Employees*
	Lebanon, NH	5
	Windsar, VT	10
	Hartford, VT	5
	Misc	5
		0
		0
		0

Offer employee transportation program? No *Describe:*

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees Yes

Transportation to child care a problem No

Company has worked with PATH or DET Yes

Describe transportation problems

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating Yes

Additional Comments:

AT

Vermont Department of Corrections 224 Holiday Drive Suite B White River Junction VT 05001

Contact Person Thomas Hunter *fax*

phone 802-296-5574 *e-mail* thunter@docstate.vt.gov

Employees 17

Mode of Transportation

Drive Alone	100	*Transit*	0	*Bike*	0
Carpool	0	*Taxi*	0	*Motorcycle*	0
Vanpool	0	*Walk*	0	*Other*	0

Work Shifts

Weekday	*Shift 1:*	7:00:00 AM	*to*	4:30:00 PM	*Employees:* 0	*Entry Level:*	0
	Shift 2:	2:00:00 PM	*to*	11:00:00 PM	*Employees::* 0	*Entry*	0
	Shift 3:		*to*		*Employees:* 0	*Entry Level*	0
Weekend	*Shift 1:*		*to*		*Employees:* 0	*Entry Level*	0
	Shift 2:		*to*		*Employees:* 0	*Entry Level*	0
	Shift 3:		*to*		*Employees:* 0	*Entry Level*	0

Entry Level Employees 2

Seasonal Employment No *Peak Months:* *Employees:* 0

Nonpeak Months: *Employees:* 0

Where employees commute from

Town	*Employees*
Springfield	1
Windsor	2
Ludlow	1
Bradford	1
Charlestown, NH	1
Vershire	1
Enfield, NH	1

Offer employee transportation program? No *Describe:*

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees No

Transportation to child care a problem No

Company has worked with PATH or DET No

Describe transportation problems difficult between WRJ and springfield

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating No

Additional Comments:

AT

Vermont Transit Co., Inc Sykes Mountain Avenue White River Junction VT 05001

Contact Person Chris Anderson *fax* 802-295-8067

phone 802-295-5074 *e-mail* canderson@vermonttransit.com

Employees 120

Mode of Transportation

Drive Alone	91	*Transit*	5	*Bike*	0
Carpool	2	*Taxi*	0	*Motorcycle*	0
Vanpool	0	*Walk*	2	*Other*	0

Work Shifts

Weekday	*Shift 1:*	*to*	*Employees:*	0	*Entry Level:*	0
	Shift 2:	*to*	*Employees::*	0	*Entry*	0
	Shift 3:	*to*	*Employees:*	0	*Entry Level*	0
Weekend	*Shift 1:*	*to*	*Employees:*	0	*Entry Level*	0
	Shift 2:	*to*	*Employees:*	0	*Entry Level*	0
	Shift 3:	*to*	*Employees:*	0	*Entry Level*	0

Entry Level Employees 30

Seasonal Employment No *Peak Months:* *Employees:* 0

Nonpeak Months: *Employees:* 0

Where employees commute from *Town* / *Employees*

Town	Employees
Burlington Area	40
Rutland	20
White River	40
	0
	0
	0
	0

Offer employee transportation program? Yes *Describe:* Employees may ride our service for free.

Employees indicate transportation is a problem No

Transportation is an issue in hiring and retaining employees No

Transportation to child care a problem No

Company has worked with PATH or DET No

Describe transportation problems

Interested in participating in employee transportation program No

Describe:

Familiar with federal tax-free transit pass benefit program No

Interested in participating No

Additional Comments:

APPENDIX D

TRANSIT ROUTE PROFILES

BLUE ROUTE

SERVICE DESCRIPTION

Service Type	Fixed Route
Service Description	In-town
Area Description	Small town
Hours of Service	5:20am – 7:19pm
Days of Service	Monday through Friday
Seasons of Operation	Year-round
Headways	30 Round Trips per Day Peak: 30 minutes Mid-day: 30 minutes Early-morn/late-eve: about 1 hour
Fares	Free
Round Trip Miles	23 miles Lebanon-Hanover-Lebanon; extra 23 miles each way when Enfield and Canaan are served
Round Trip Hours	50 minutes Lebanon-Hanover-Lebanon; extra 25-30 minutes each way when Enfield and Canaan are served

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	85,492
Annual Revenue Hours	8,415
Annual Revenue Miles	152,465
Annual Operating Cost	$355,259
Boardings per Revenue Hour	10.2
Boardings per Revenue Mile	0.56
Operating Cost per Revenue Hour	$42.22
Operating Cost per Revenue Mile	$2.33
Operating Cost per Boarding	$4.16

Band does not touch Vermont

MAJOR TRIP GENERATORS

Affordable Housing
New Hampshire sites are not considered.

Employment
Dartmouth College
Centerra Plaza

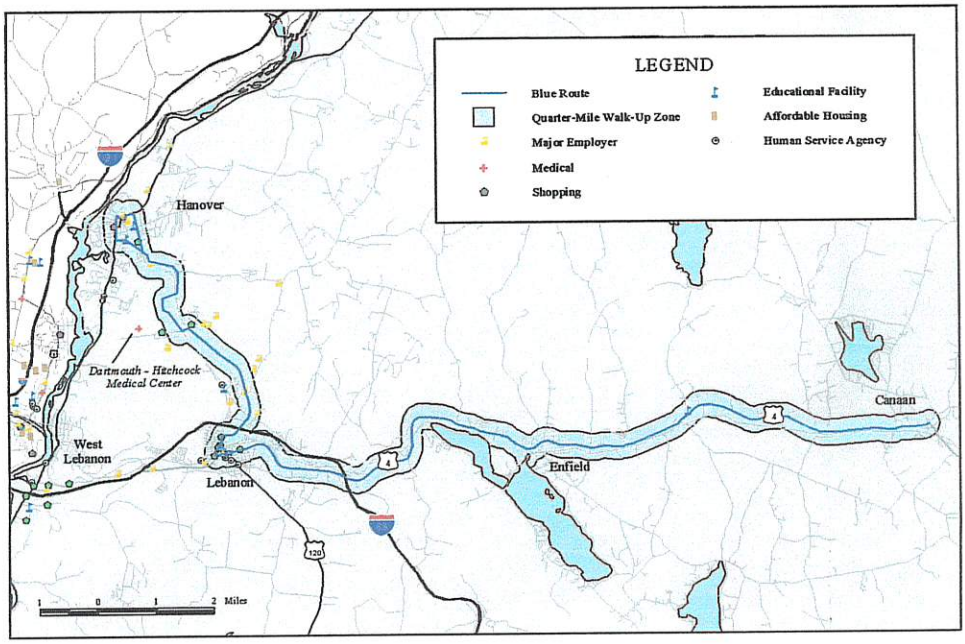
Medical Facilities
Dartmouth Hitchcock Medical Center

Educational Facilities
Dartmouth College

Social Service Agencies
WISE
Listen
Headrest
Hannah House
West Central Services
Parent to Parent of New Hampshire
AIDS Community Resource Network
Grafton Senior Center
Senior Center, downtown Hanover

Major Shopping
Downtown Hanover and Lebanon

Park-and-Ride Lots
None



BROWN ROUTE

SERVICE DESCRIPTION

Service Type	Fixed Route
Service Description	In-town
Area Description	Small town
Hours of Service	6:50am – 5:40pm
Days of Service	Monday through Friday
Seasons of Operation	Year-round
Headways	21 Round Trips per Day
	Peak: 30 minutes
	Non-Peak: 30 minutes
Fares	Free
Round Trip Miles	8 miles
Round Trip Hours	30 minutes

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	15,099
Annual Revenue Hours	2,678
Annual Revenue Miles	51,408
Annual Operating Cost	115,728
Boardings per Revenue Hour	5.6
Boardings per Revenue Mile	0.29
Operating Cost per Revenue Hour	43.22
Operating Cost per Revenue Mile	2.25
Operating Cost per Boarding	7.66

MAJOR TRIP GENERATORS

Affordable Housing
Norwich Senior Center

Employment
Dartmouth College
CRREL

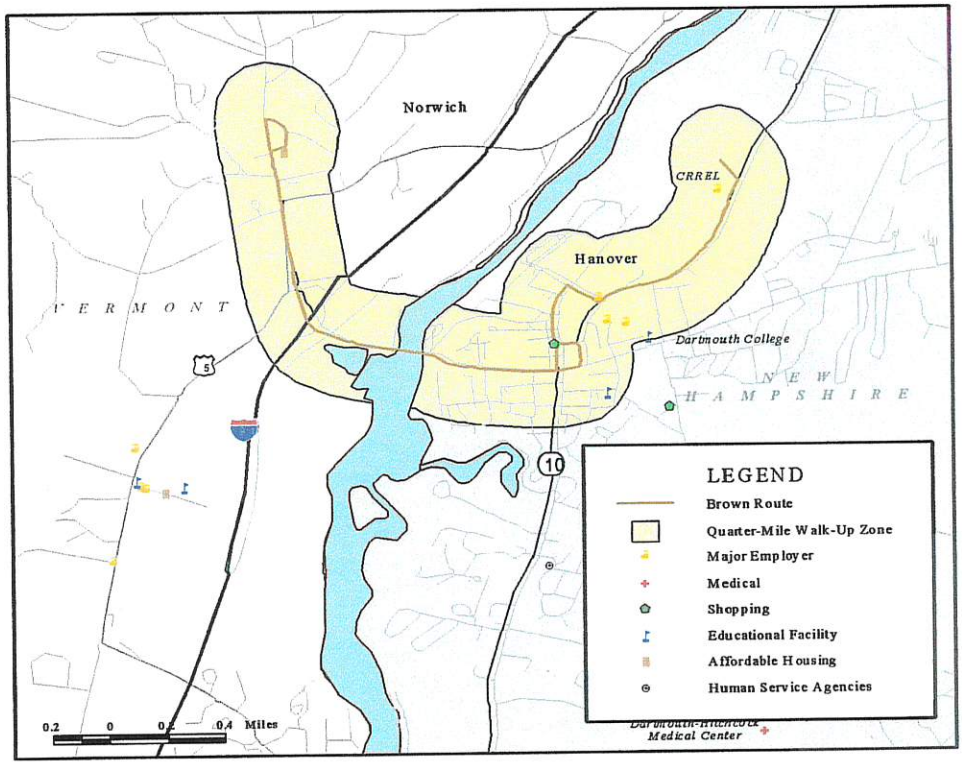
Medical Facilities
None

Educational Facilities
Dartmouth College

Social Service Agencies
Senior Center, downtown Hanover

Major Shopping
Downtown Hanover

Park-and-Ride Lots
None



GREEN ROUTE

SERVICE DESCRIPTION

Service Type	Fixed Route
Service Description	In-town
Area Description	Small town
Hours of Service	6:30 am – 5:55 pm
Days of Service	Monday through Friday
Seasons of Operation	Year-round
Headways	11 Round Trips Per Day
	Peak: 1 hour
	Non-Peak: 1 hour
Fares	Free
Round Trip Miles	32
Round Trip Hours	55 minutes

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	11,690
Annual Revenue Hours	2,805
Annual Revenue Miles	50,490
Annual Operating Cost	118,112
Boardings per Revenue Hour	4.2
Boardings per Revenue Mile	0.23
Operating Cost per Revenue Hour	$42.11
Operating Cost per Revenue Mile	$2.34
Operating Cost per Boarding	$10.10

MAJOR TRIP GENERATORS

Affordable Housing
School St.
Brookview Apartments
Windsor Hollow
Olcott Falls Mobile Home Park

Employment
Dartmouth College
Logic Associates, Inc.
P & C Food Market
King Arthur Flour Co.
Johnson and Dix Fuel Corporation
Bloods Seafood & Catering
Vermont Supported Living, Inc.

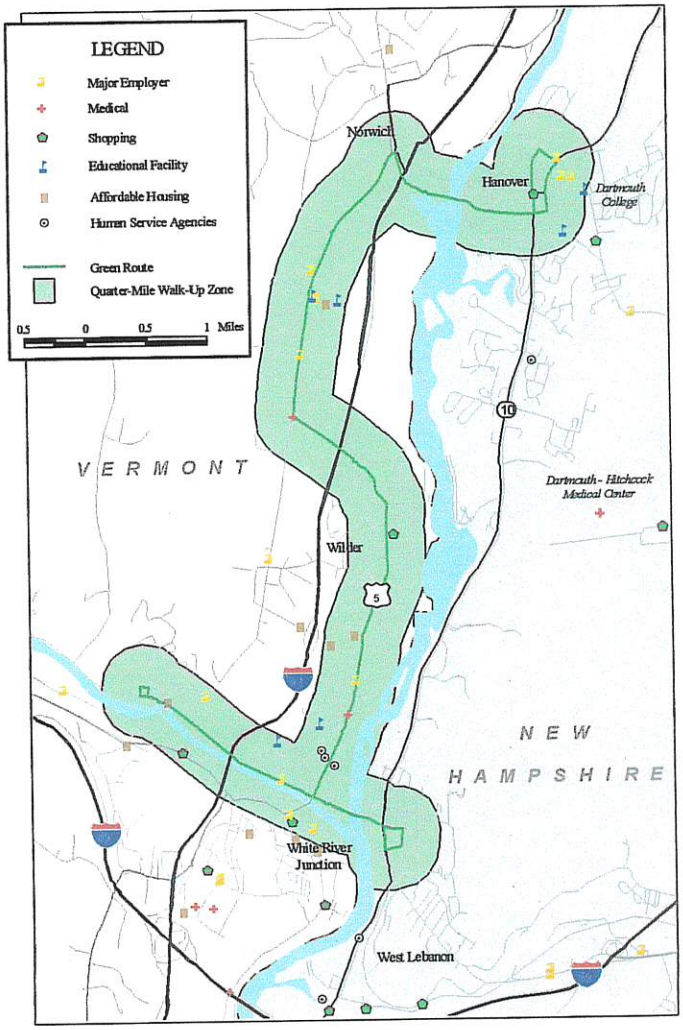
Medical Facilities
Red Logan Dental Clinic
Good Neighbor Health Clinic

Educational Facilities
Hartford High School
Hartford Area Career and Technical Center
Community College of Vermont

Social Service Agencies
Vermont Gilman Center
Bugbee Senior Center
Senior Center, downtown Hanover

Major Shopping
Upper Valley Food Co-op
Mr. G's Twin State Discount
Downtown White River Junction and Hanover

Park-and-Ride Lots
None



ORANGE ROUTE

SERVICE DESCRIPTION

Service Type	Fixed Route
Service Description	In-town
Area Description	Small town
Hours of Service	6:30 am – 6:15 pm
Days of Service	Monday through Friday
Seasons of Operation	Year-round
Headways	11 round trips daily beginning at the VA Hospital; 12th trip beginning at West Lebanon Peak: 1 hour Non-Peak: 1 hour
Fares	Free
Round Trip Miles	25 miles
Round Trip Hours	1 hour

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	29,379
Annual Revenue Hours	3,060
Annual Revenue Miles	55,718
Annual Operating Cost	$129,441
Boardings per Revenue Hour	9.6
Boardings per Revenue Mile	0.53
Operating Cost per Revenue Hour	$42.30
Operating Cost per Revenue Mile	$2.32
Operating Cost per Boarding	$4.41

MAJOR TRIP GENERATORS

Affordable Housing
Graystone Village
Templeton Court
Gates Street Elderly Housing
Colodny Building

Employment
Gateway Motors Inc.
USPS
Johnson and Dix Fuel Corporation
VA Medical Center
P&C Food Market
Dartmouth College

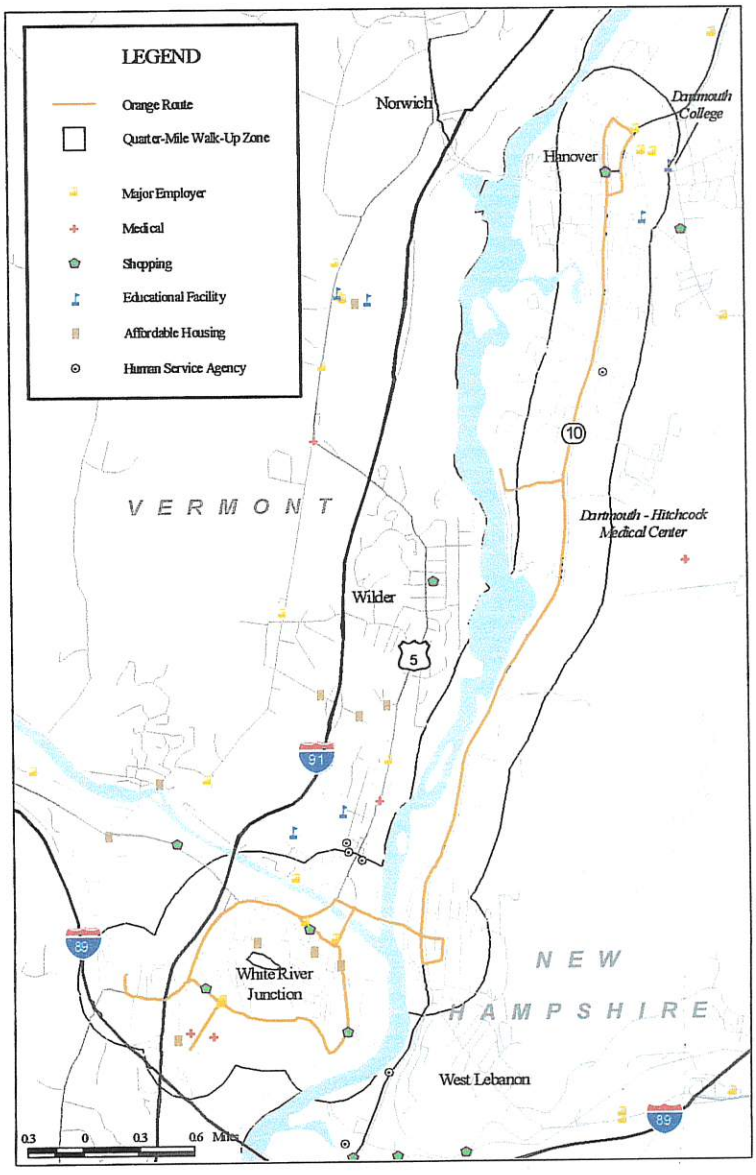
Medical Facilities
Valley Acupuncture Health Clinic
Anna Marsh Behavioral Care Clinic
VA Medical Center

Educational Facilities
None

Social Service Agencies
Bugbee Senior Center
Senior Center, downtown Hanover
Hanover Youth in Action

Major Shopping
White River Discount Foods
Upper Valley Food Co-op
Downtown White River Junction and Hanover

Park-and-Ride Lots
None



RED ROUTE

SERVICE DESCRIPTIONS

Service Type	Fixed Routes
Service Description	In-town
Area Description	Small town
Hours of Service	6:20 am – 6:25 pm
Days of Service	Monday – Friday
Seasons of Operation	Year Round
Headways	12 Daily round trips from Lebanon. 1 one-way trip to W. Lebanon Peak: 1 Hour Off-Peak: 1 Hour
Fares	Free
Round Trip Miles	21
Round Trip Hours	55 minutes

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	33,029
Annual Revenue Hours	3,009
Annual Revenue Miles	41,871
Annual Operating Cost	$115,281
Boardings per Revenue Hour	11
Boardings per Revenue Mile	.79
Operating Cost per Revenue Hour	$38.31
Operating Cost per Revenue Mile	$2.75
Operating Cost per Boarding	$3.49

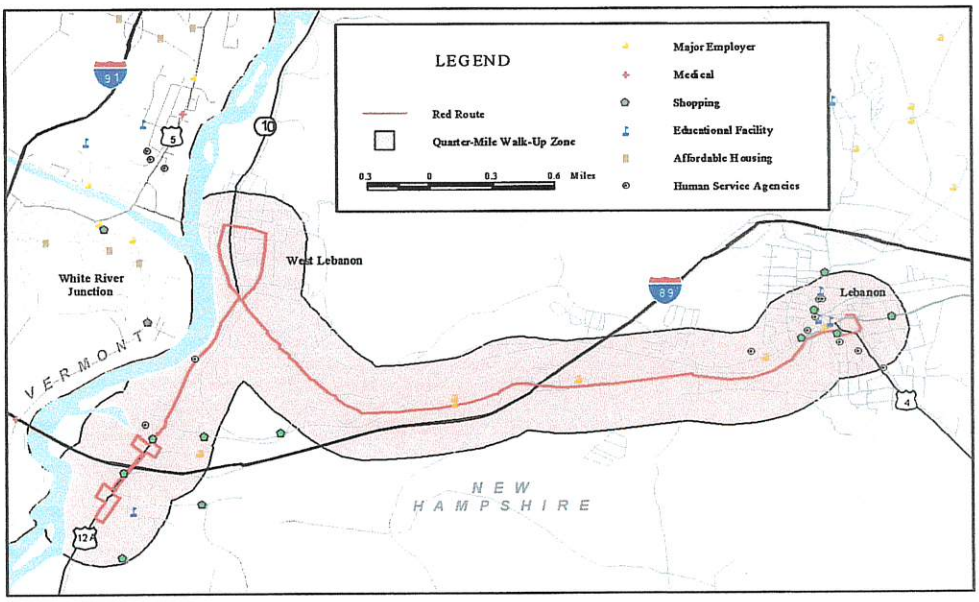
MAJOR TRIP GENERATORS

<u>Affordable Housing</u>
New Hampshire sites were not considered.

<u>Employment</u>
Retail establishments on Route 12A including:
Payless
JC Penney
Wal-Mart
Powerhouse Mall
Shaw's Supermarket

<u>Medical Facilities</u>
Alice Peck Day Memorial Hospital

<u>Educational Facilities</u>
None



<u>Social Service Agencies</u>
Listen
WISE
Headrest
Hannah House
West Central Services
- Child and Family Services
- United Developmental Services
- Parent to Parent of New Hampshire
- AIDS Community Resource Network
- Twin State Coalition for Health & Human Resources

<u>Major Shopping</u>
Downtown Lebanon
Plazas on Route 12A including:
Payless
JC Penny
Wal-Mart
Powerhouse Mall
Shaw's Supermarket

<u>Park-and-Ride Lots</u>
None

YELLOW ROUTE

SERVICE DESCRIPTION

Service Type	Fixed Route
Service Description	In-town with regional connection
Area Description	Rural
Hours of Service	6:30 am – 7:45 am and 2:20 pm to 6:25 pm
Days of Service	Monday through Friday
Seasons of Operation	Year-round
Headways	Daily: 1 full trip (Hartland-DHMC) each way, and 1 partial trip each way. Non-Peak: no service
Fares	Free
Miles, full trip one-way	53 miles
Hours, full trip one-way	75-80 minutes

PRODUCTIVITY DATA (FY 2001)

Annual Boardings	14,146
Annual Revenue Hours	1,301
Annual Revenue Miles	24,786
Annual Operating Cost	$56,040
Boardings per Revenue Hour	10.9
Boardings per Revenue Mile	0.57
Operating Cost per Revenue Hour	$43.09
Operating Cost per Revenue Mile	$2.26
Operating Cost per Boarding	$3.96

MAJOR TRIP GENERATORS

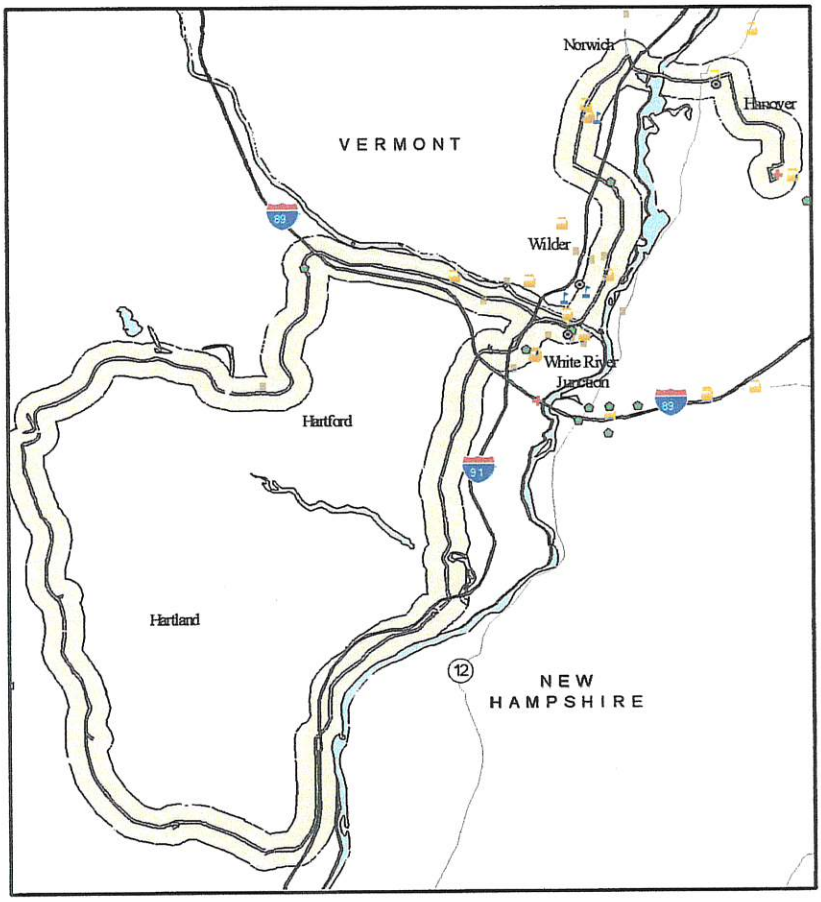
Affordable Housing
Quechee Pines
Hillcrest Manor
Graystone Village
Templeton Court Apartments
Gates Street Elderly Housing
Brookview Apartments
Windsor Hollow

Employment
Daniel Transportation
Gateway Motors Inc.
Dartmouth College
United State Postal Service
P&C Food Market
VA Medical Center
Johnson and Dix Fuel Corporation
Bloods Seafood & Catering
King Arthur Flour Company
Vermont Supported Living

Medical Facilities
Valley Acupuncture Health Clinic
Red Logan Dental Clinic
Good Neighbor Health Clinic
Dartmouth-Hitchcock Medical Center
VA Medical Center

Educational Facilities
Hartford Area Career and Technical Center
Community College of Vermont

Social Service Agencies
Bugbee Senior Center
Windsor County Head Start
Vermont Gilman Center
Senior Center, down town Hanover



Major Shopping
Al's Country Store
Upper Valley Food Coop
Mr. G's Twin State Discounts
Downtown White River Junction. and Hanover

Park-and-Ride Lots
None

LEGEND
- Yellow Route
- Quarter-Mile Walk-Up Zone

Major Trip Generators
- Major Employer
- Medical
- Shopping
- Educational Facilities
- Affordable Housing
- Human Service Agencies