

Chapter 3

Market Analysis

Located in the heart of Vermont, Washington County and the three towns of Orange County that together make up the Central Vermont study area cover approximately 807 square miles. It includes two cities, Montpelier and Barre, and 21 towns (see Table 3.1 for full list). The area is home to the state capital and many state government offices, as well as large employers and institutions such as National Life, Rock of Ages, Cabot Creamery, and Central Vermont Medical Center.

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

Demographic Profile

The study area, with an estimated 63,963 residents in the year 2009, has a population density of Central Vermont is about 79 persons per square mile, a bit higher than the statewide average of 66 persons per square mile. In comparison to other parts of Vermont, it is slightly more populated than Rutland County, but has only about 42% of the population of Chittenden County.

Table 3.1 provides an overview of demographic characteristics of Central Vermont by city/town. The majority of the data reported is from the 2005-2009 American Community Survey from the Census Bureau.

GMTA year-round routes serve a limited part of Central Vermont: Barre City, Berlin and Montpelier have full day service while Middlesex, Waterbury, Cabot, East Montpelier, Plainfield and Marshfield have commuter service. The three municipalities with full-day service had an estimated 19,318 persons in 2009, making up 30% of the area’s total population, but only about 6% of the area’s land mass. The population density of these two cities and one town is 380 persons per square mile. Population density outside of GMTA’s year-round route service area is much lower, about 59 persons per square mile.

Table 3.1 Central Vermont Demographics

Town	Est. 2009 Pop.	2000 Pop.	Est. Change	Persons per Sq.Mi.	Pop. 65+	Disability Status	Total HH	Median HH Income	0-Veh. HU
Barre city	8,789	9,291	-5%	2,186	1,796	2,061	3,963	\$39,332	618
Barre town	7,968	7,602	5%	260	1,232	1,312	3,256	\$62,160	78
Berlin	2,824	2,864	-1%	76	572	560	1,098	\$55,870	26
Cabot	1,343	1,213	11%	35	241	242	543	\$46,989	7
Calais	1,553	1,529	2%	40	115	260	647	\$58,229	19
Duxbury	1,302	1,289	1%	30	191	216	585	\$59,821	12
East Montpelier	2,731	2,578	6%	85	325	256	1,092	\$64,728	15
Fayston	1,240	1,141	9%	34	158	119	490	\$63,194	3
Marshfield	1,586	1,496	6%	37	214	209	685	\$57,022	9
Middlesex	1,869	1,729	8%	47	147	272	705	\$61,953	13
Montpelier	7,705	8,035	-4%	751	1,043	1,438	3,695	\$50,855	490
Moretown	1,724	1,653	4%	43	139	242	659	\$54,028	16
Northfield	5,732	5,791	-1%	131	562	933	1,742	\$55,378	107
Orange	960	965	-1%	25	160	157	440	\$52,241	17
Plainfield	1,333	1,286	4%	63	115	243	429	\$51,652	25
Roxbury	565	576	-2%	14	112	116	250	\$46,667	3
Waitsfield	1,692	1,659	2%	63	284	203	779	\$57,422	33
Warren	1,729	1,681	3%	43	180	189	635	\$57,314	0
Washington	1,092	1,047	4%	28	148	189	406	\$55,150	4
Waterbury	5,348	4,915	9%	107	600	730	2,232	\$60,118	73
Williamstown	3,215	3,225	0%	80	422	599	1,316	\$49,604	86
Woodbury	807	809	0%	21	87	144	412	\$42,159	0
Worcester	856	902	-5%	22	86	180	378	\$60,179	11
<i>GMTA Service Area</i>	<i>63,963</i>	<i>63,276</i>	<i>1%</i>	<i>79</i>	<i>8,929</i>	<i>10,870</i>	<i>26,437</i>	<i>N/A</i>	<i>1,665</i>
<i>Vermont</i>	<i>621,760</i>	<i>608,827</i>	<i>2%</i>	<i>66</i>	<i>85,467</i>	<i>97,167</i>	<i>250,375</i>	<i>\$63,482</i>	<i>15,138</i>

Residential Density

As previously indicated, Central Vermont is a bit more densely populated than the state of Vermont as a whole. Nevertheless, some 99.6% of the residential development in the county has a rural density of less than one household per acre. As shown in Map 3.1, outside of the cities of Barre and Montpelier, there are only a few isolated census blocks (the smallest unit of census geography) in Northfield, Barre Town and Waterbury where density rises above one household per acre.

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

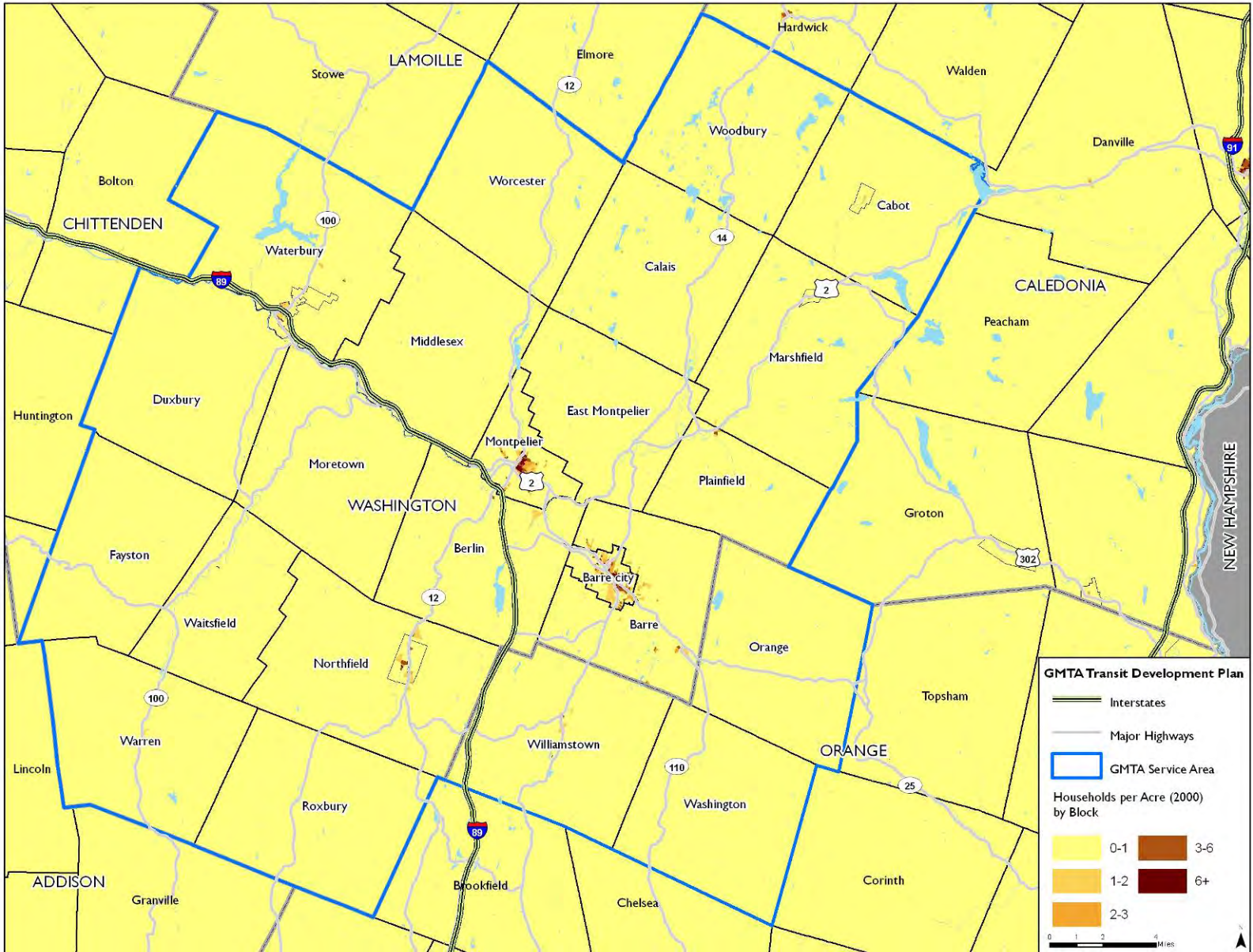
Map 3.2 zooms in on the “core area” of Central Vermont—the cities of Barre and Montpelier and surrounding towns—with an overlay of GMTA’s current year-round routes. The map shows that virtually all of the census blocks with more than 6 households per acre are within close proximity to a bus route, and that the great majority of blocks with more than 3 households per acre are also close to current routes. Some exceptions are some isolated blocks in Berlin along VT 12 (very near to the GMTA garage²) and a development along Prospect Street in Barre City (Highgate Drive). Unfortunately, these isolated blocks are difficult to reach with traditional bus routes, as GMTA would incur significant operating costs to reach them and would see only a marginal increase in ridership.

Certain characteristics of the population can make people more or less likely to use transit service. The following section provides maps and a brief analysis on certain target populations more likely to utilize public transit: older adults (persons 65 and older), low income households (household earning less than \$30,000 per year), and zero-vehicle households. All data included in this analysis was obtained from the U.S. Census Bureau’s American Community Survey for the period 2005-2009. These data represent an average over that five-year span of time.

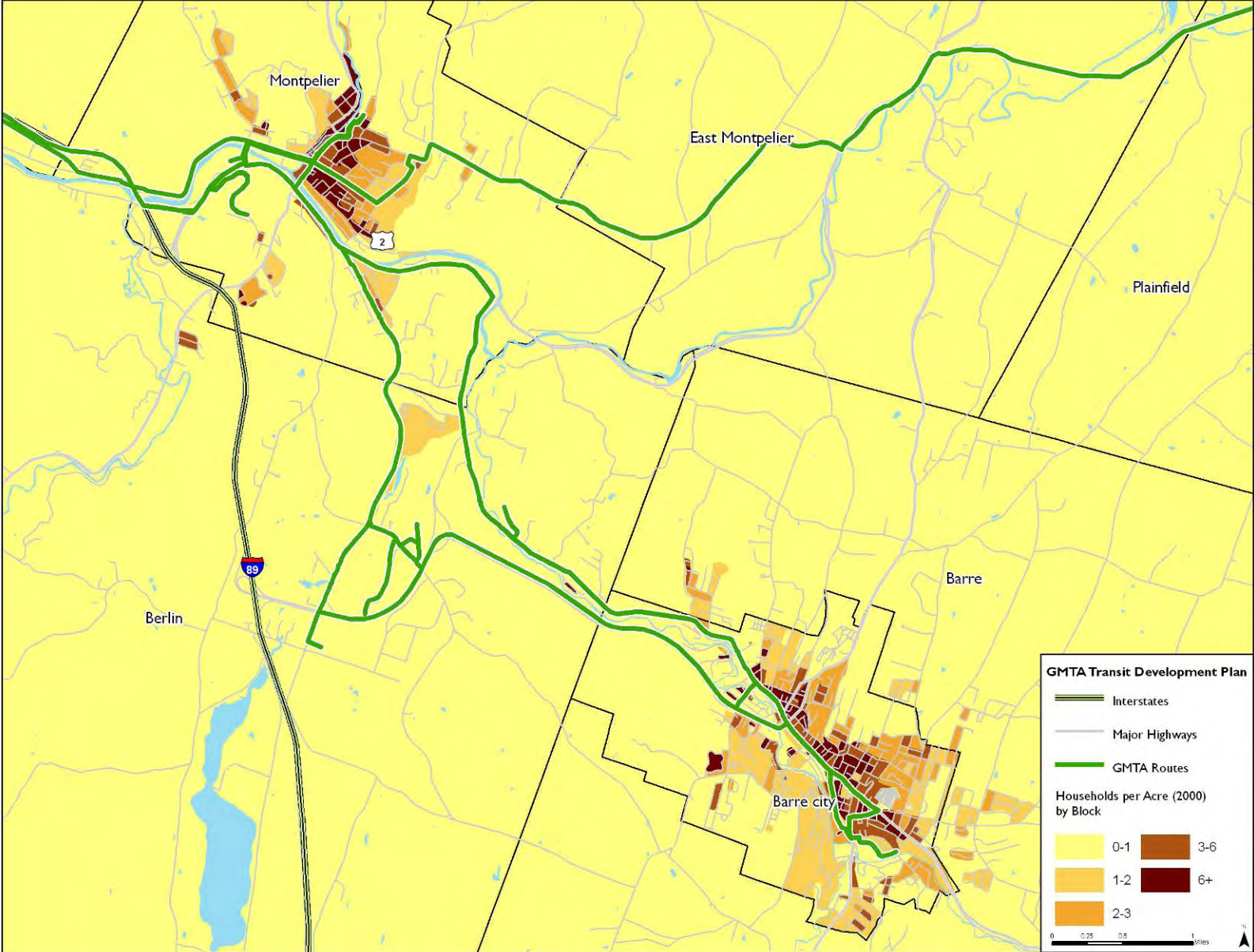
¹ See TCRP Report 100, *Transit Capacity and Quality of Service Manual*, page 3-33. Employment density of 4 jobs per acre is also considered supportive of transit service. Transit corridors that have both sufficient residential and employment density can support higher frequency service than would be suggested by each of the measures separately.

² In theory, GMTA could serve this area at little or no extra cost using “deadhead” trips between the garage and the beginning of the route (mostly in downtown Montpelier). These deadhead trips are at odd times, however, and there are only a few of them spread over the course of the day, with many of them coming at the very beginning or the very end of the service day.

Map 3.1 Central Vermont Household Density



Map 3.2 Core Area Population Density



Older Adults

Map 3.3 shows the percentage of persons age 65 and older. It shows high percentages of older adults in the eastern part of Berlin and sections of Barre City, with a very high concentration in Northfield Falls. Moderate percentages of seniors are spread through many towns in Central Vermont. The apparent clustering of older adults near the core of the area may be due to the desire of older adults to have easier access to municipal services, senior centers, shopping, and medical facilities. The fact that the more rural towns have relatively fewer seniors indicates that remote housing in hilly areas, accessible only by dirt road, may be less attractive to people as they get older.

Most of the areas with high percentages of older adults are served by the current bus route network (Barre and Berlin) or by community shuttle services (Northfield). Demand response service, as described in chapter 2, covers the entire Central Vermont region.

Low Income Households

A sizable portion of the Central Vermont area exhibits a moderate to high percentage of low-income residents, as shown in Map 3.4. Other than the concentration of government jobs in Montpelier, the lack of a major employment center in the vicinity means that there are relatively few well-paying jobs in the region, in contrast to Chittenden County. Many households (25% to 35%) in the largely rural sections of Central Vermont earn less than \$30,000, which was used as the definition of “low income” for the purpose of this analysis.

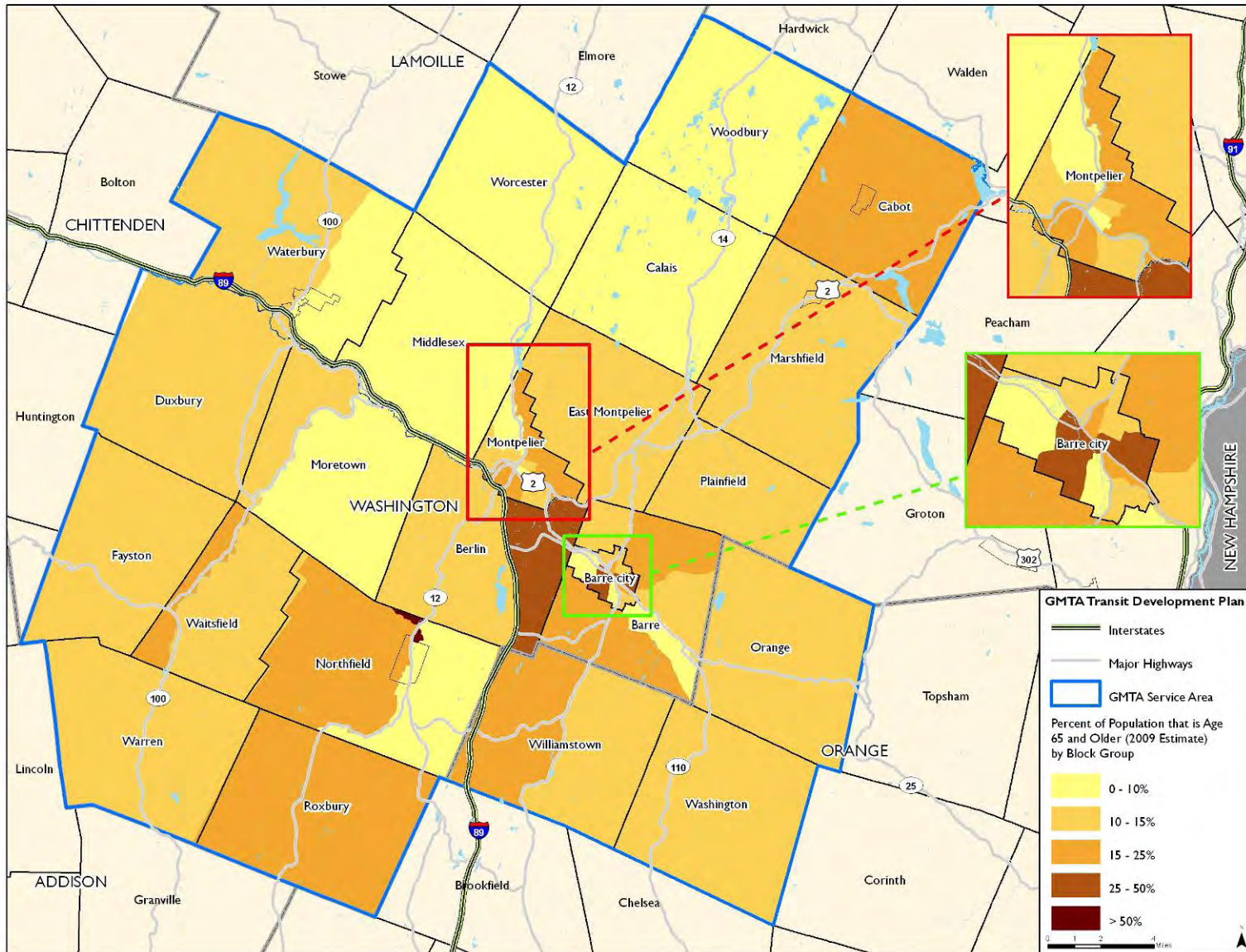
The highest concentrations of low income households are located in Barre City, portions of Montpelier, Northfield Falls, eastern Berlin and southeastern Barre Town. Western Barre and downtown neighborhoods along South Main Street and just north of Washington Street have over 50% of their households earning less than \$30,000. The other areas mentioned have between 35% and 50% of households below that threshold. The availability of full-day GMTA service in most of these areas provides needed mobility for many families that likely cannot afford an automobile.

Zero Vehicle Households

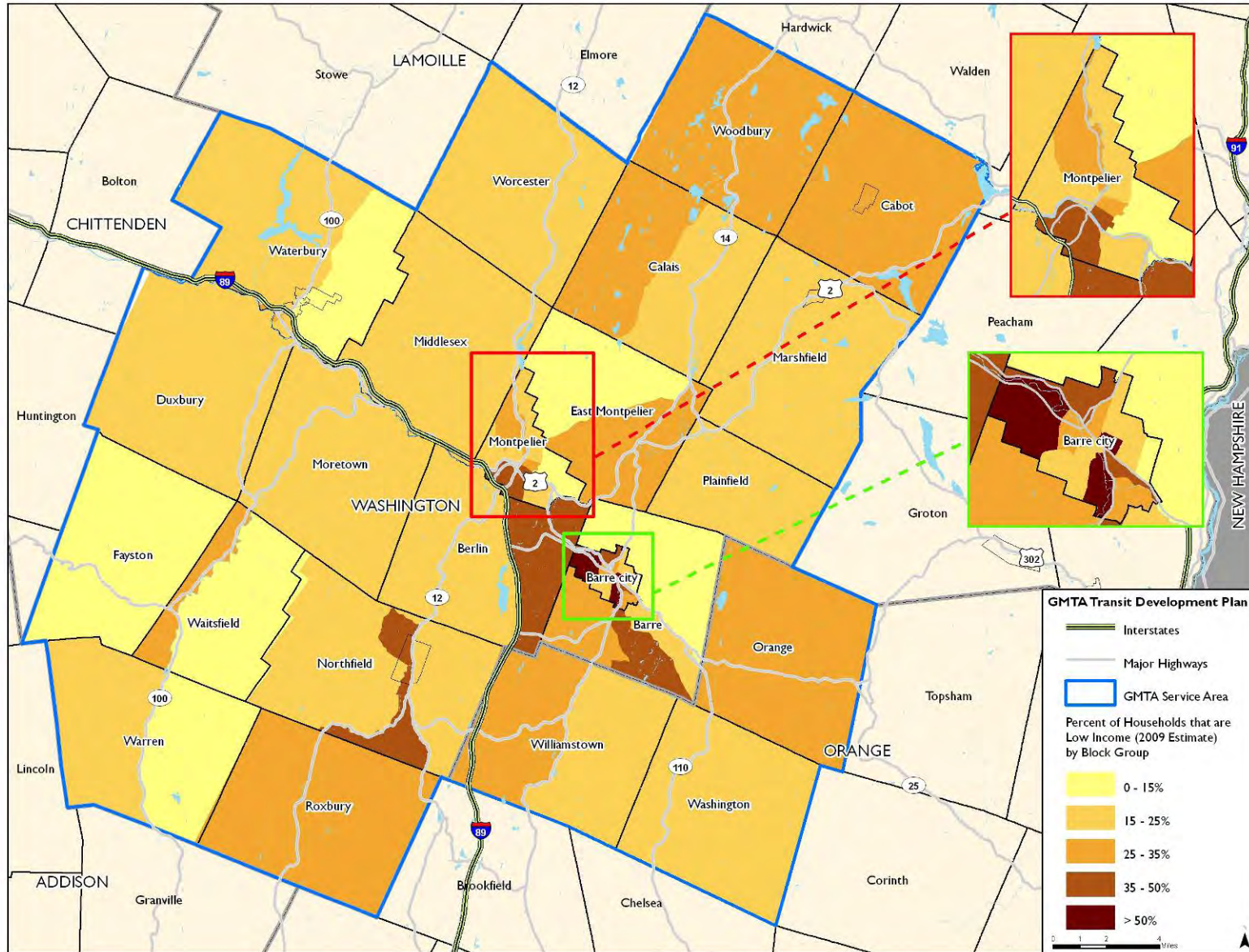
Map 3.5 shows the percentage of households that do not own any vehicles by Census block group. Note that Census data regarding automobile ownership is provided in terms of housing units and not households. Because the difference between the two is generally insignificant, the terms are used interchangeably here to symbolize a “household” with no access to an automobile.

For the great majority of the county, less than 10% of households lack access to an automobile. The only areas where more than 10% of households lack an automobile are located in Montpelier, Barre City and Northfield. Indeed, the parts of Barre and Montpelier that showed high percentages of low-income residents have more than 25% of households without a car,

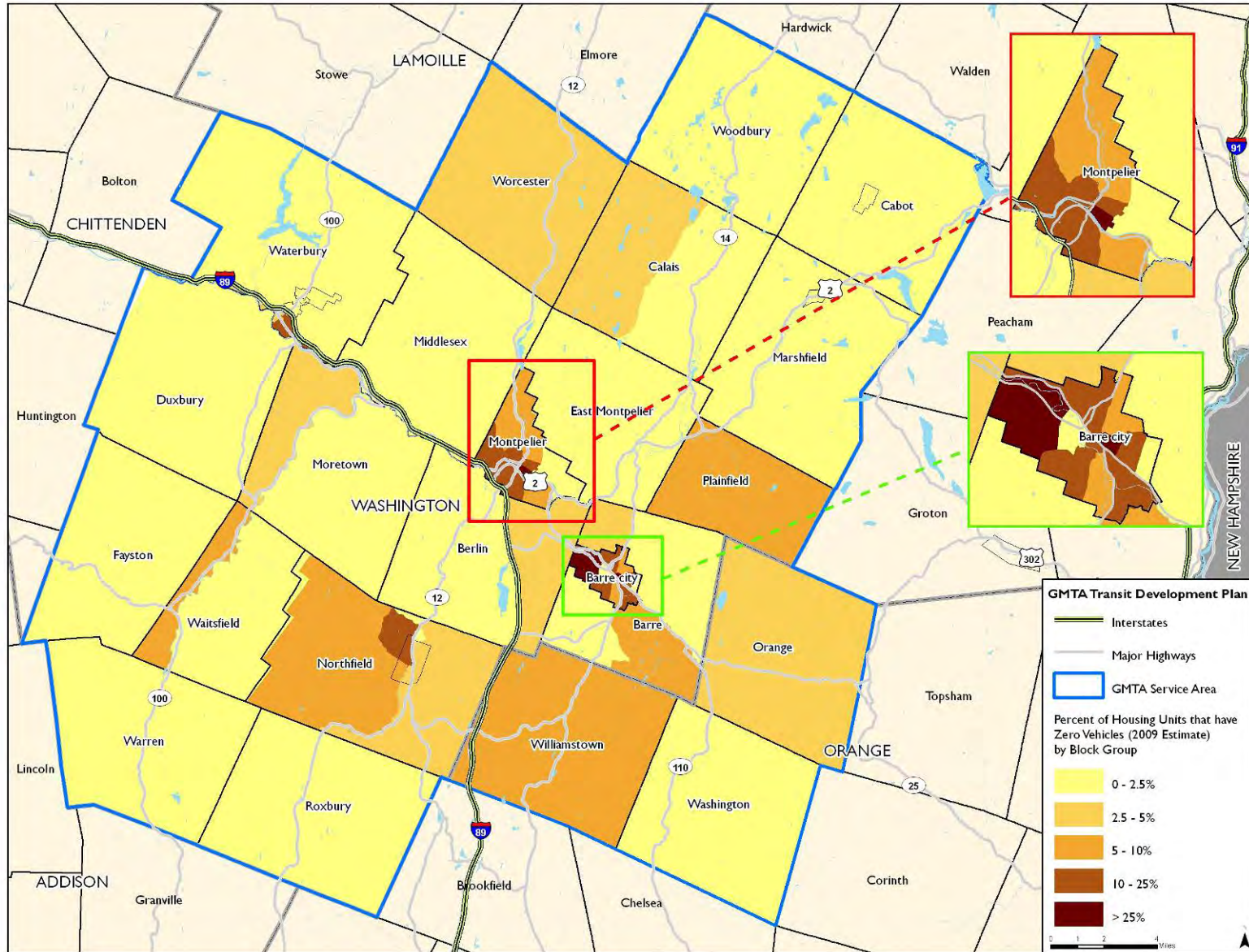
Map 3.3 Percentage of Population Ages 65 and Older



Map 3.4 Percentage of Low Income Households



Map 3.5 Percentage of Zero Vehicle Housing Units



including the Barre Street section of Montpelier, western Barre and the section of downtown Barre just north of US 302. These areas exhibit two factors which depress auto ownership: low income residents and close proximity to city centers and transit. That is to say, many residents in these areas cannot afford a car, but there are also residents here who choose not to own a car because walking and transit provide all of the mobility they need. It is here, where transit access is best, that it is most feasible to live without a car.

Trip Generators for Transit-Dependent Populations

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

Map 3.6 shows some of the trip generators within Central Vermont, including:

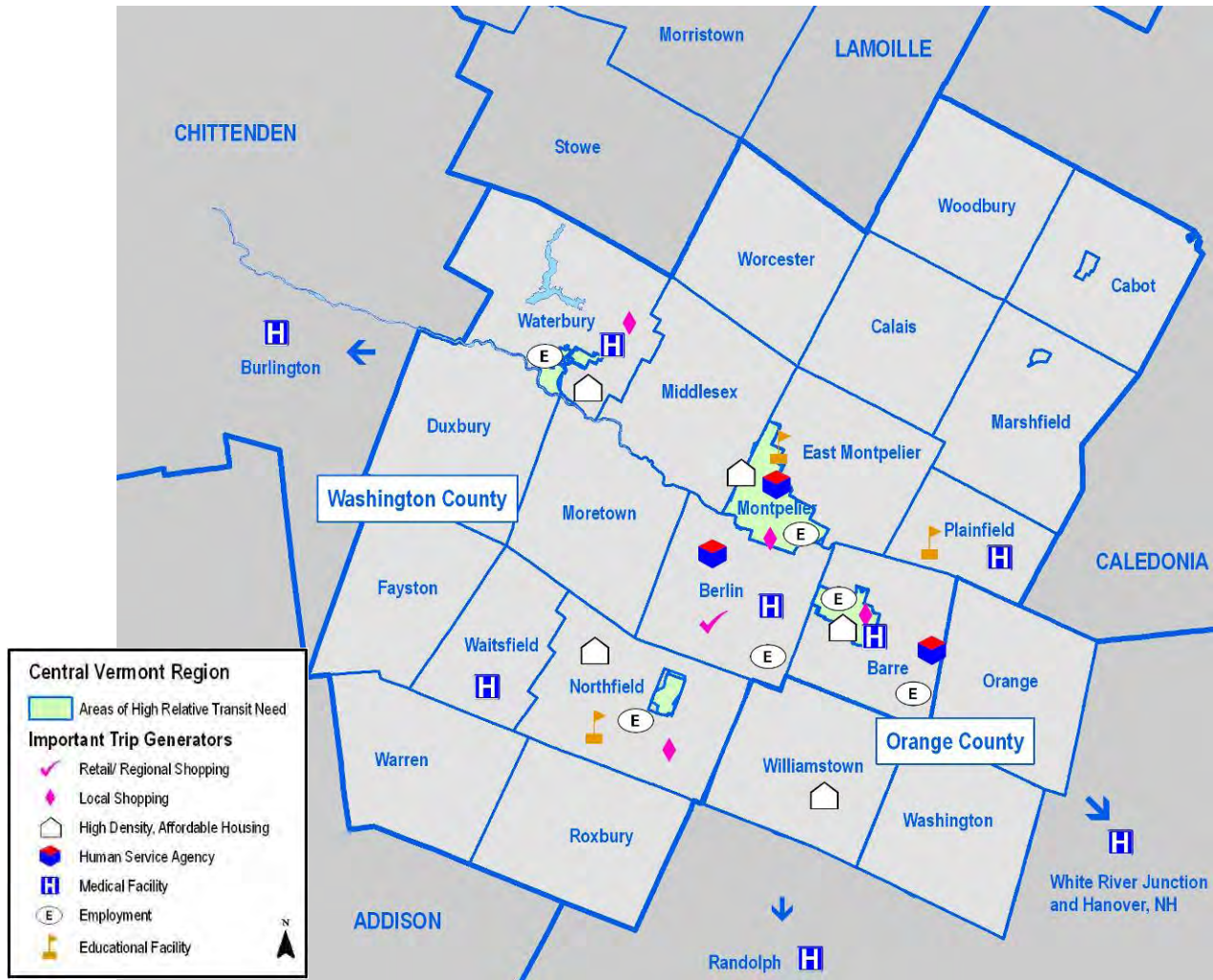
- Accessible housing
- Affordable/ income restricted housing
- Apartment complexes
- Human service agencies
- Medical facilities
- Senior centers and housing

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

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

Not surprisingly, many generators are concentrated in more densely-populated areas: Barre, Berlin and Montpelier. Northfield, Waterbury and Plainfield also have several important trip generators. GMTA's current routes provide connections to the great majority of these generators, though not necessarily at a high level of service. As discussed in chapter 2, while Barre, Berlin and Montpelier have full day routes with year-round service, Waterbury has only peak period service and Northfield and Plainfield have very limited service of a few hours per week.

Map 3.6 Trip Generators



Employers

Data on Central Vermont employers were purchased from Dun & Bradstreet and are shown on Maps 3.7 and 3.8.³ The employers shown are worksites with 10 or more employees. As expected, these employers are clustered in Montpelier, Berlin and Barre and along roadway corridors such as VT 100 (Waterbury and Waitsfield), VT 12 in Northfield, and VT 14 in Barre and Williamstown. Some of the largest area employers include:

- State of Vermont (various agencies in Montpelier) – >1,000 Employees
- Central Vermont Medical Center (Berlin) – >1,000 Employees
- National Life (Montpelier) – 900 Employees
- Vermont Agency of Human Services (Waterbury) – 750 Employees
- Rock of Ages (Graniteville) – 400 Employees

³ Data were purchased in 2005, and thus the number of employees should be treated as estimates.

- Vermont College of Fine Arts (Montpelier) – 370 Employees
- Autumn Rose Quarry (Barre) – 320 Employees
- Blue Cross/Blue Shield (Montpelier) – 310 Employees
- Cabot Creamery (Montpelier) – 300 Employees

It can be seen that the GMTA routes serve many of these employment clusters, with the notable exceptions of Waitsfield, Northfield and South Barre. There is a limited amount of service in the Mad River Valley (not shown on the map), which operates only during ski season: the SnowCap Commuter runs along VT 100B and 100 through Moretown and Waitsfield but runs one round trip on weekends and holidays only.

Map 3.8 provides a detailed view of employers in Montpelier, Berlin, and Barre, again with GMTA’s local and commuter routes overlaid. It is clear from this map why commuter routes in the region are focused on downtown Montpelier, as it has the greatest concentration of large employers in a relatively focused area. A number of employers in Berlin appear to not be served by GMTA routes, but they are, in fact, within the deviation zone of the routes (3/4 of a mile from the route) so that riders can be dropped off and picked up at these locations.

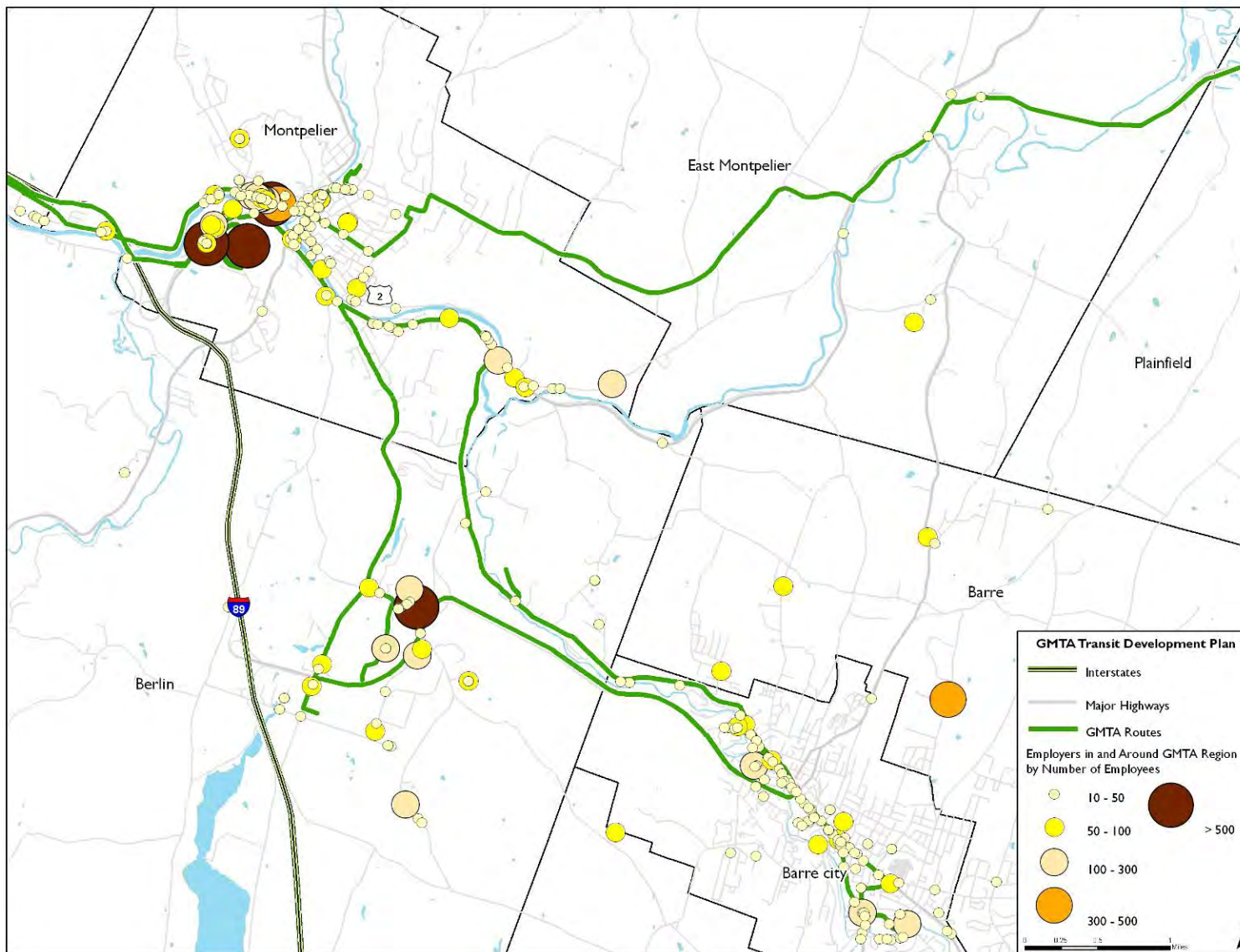
Commuting Patterns

Data from the Journey-to-Work portion of the 2000 Census provide direct information connecting residences to workplaces. Maps 3.9 and 3.10 illustrate some of the commuting patterns related to Central Vermont.

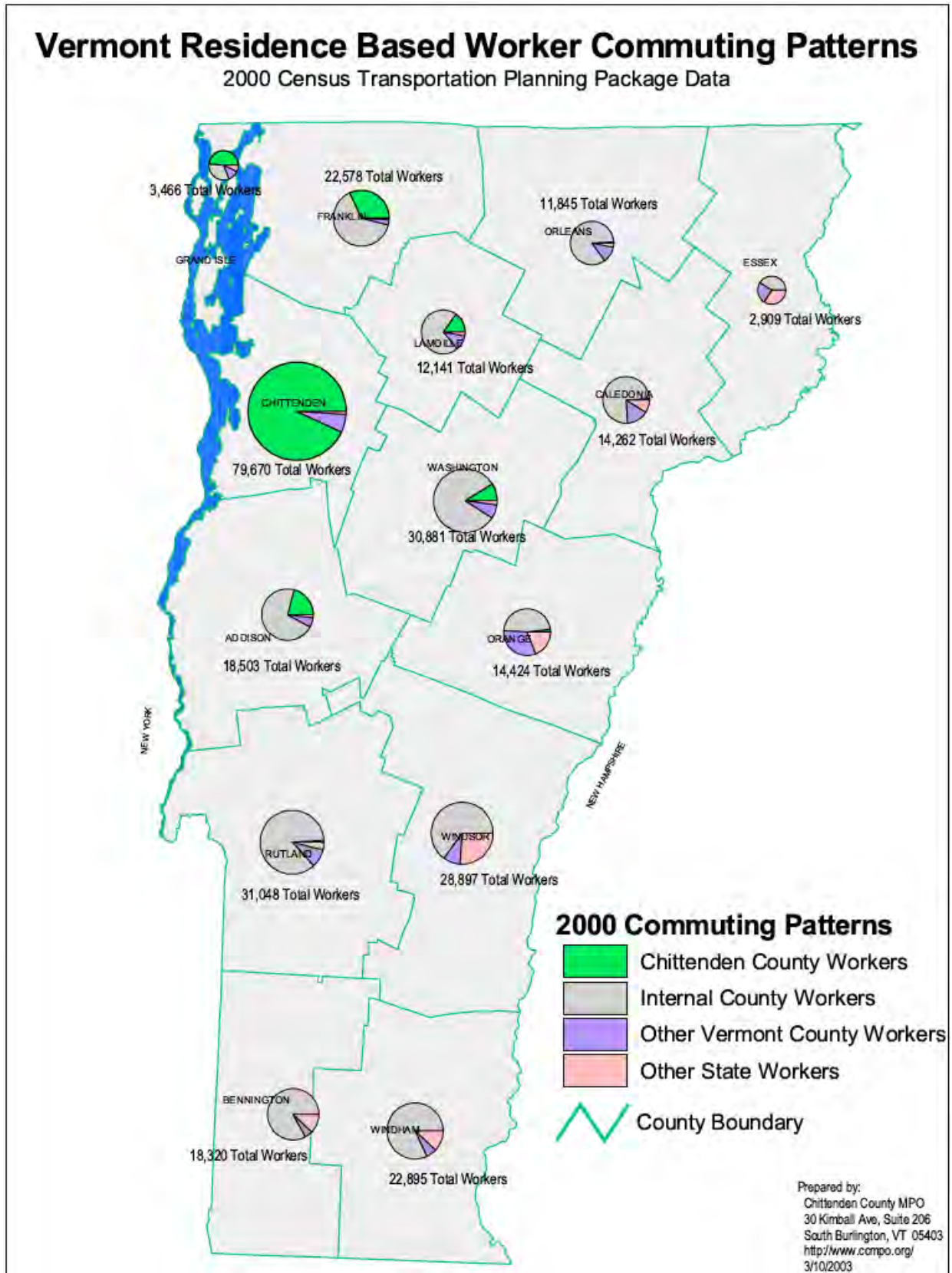
In Map 3.9, prepared by CCMPO, the share of commuters traveling to various places is shown for all Vermont counties. The bright green slice in each county graph shows the percentage of commuters headed to Chittenden County. While Washington County contributes about 9% of its workers to Chittenden County, about 82% of Washington County employed residents work within Washington County. A few Washington County residents work out of state, but most of the other 9% work in surrounding counties, especially Lamoille (Stowe and Morrisville) and Orange (Randolph and Royalton/Vermont Law School).

Besides Washington County itself, the largest contributors of workers to Washington County are Orange County (nearly 2,800 workers or 19% of its employed residents), Chittenden County (1,850 workers or 2.3% of its employed residents), Lamoille County (930 workers or 7.7% of its employed residents) and Caledonia County (800 workers or 5.6% of its employed residents). GMTA operates three commuter routes to tap these markets: the LINK Express between Montpelier and Burlington (jointly operated with CCTA), the Route 100 Commuter between Waterbury and Morrisville, and the US 2 Commuter between Montpelier and St. Johnsbury (jointly operated with RCT). Stagecoach Transportation Services, Inc. operates a commuter service between Montpelier and Randolph/Royalton, but it currently serves only the market of people commuting to Orange County, not people commuting from Orange County to jobs in Washington County.

Map 3.8 Core Area Employers



Map 3.9 Vermont County Commuting Patterns



Finally, Map 3.10 provides a more detailed look at the origin locations of people who work in Montpelier. Based on the 2000 Census data, all towns within a 10-mile radius of downtown Montpelier send at least 100 workers to the capital city. Barre City and Barre Town each send more than 700 workers. Waterbury and Williamstown, both a bit over 10 miles from Montpelier, each send more than 260 workers. The pattern of moderate-to-high-volume commuter source towns (at least 50 commuters) extends somewhat further to the north and west than in other directions. Access provided by VT 14, 12, and 100 and US 2 allow commuters to reach Montpelier relatively easily. Though Chittenden County dwarfs Central Vermont in terms of the number of jobs available, the high concentration of residents there results in substantial numbers of commuters to Montpelier. South and east of the capital, there is relatively less commuting into Central Vermont, as those areas are more oriented to the Upper Valley job center in Hanover and Lebanon, NH.

More distant communities such as St. Albans and Newport send between 10 and 20 commuters to Montpelier, and Hartford contributes nearly 40. To a large extent, the double-digit figures from these places result from their more substantial population bases, rather than any special connection to Montpelier. It does speak to the mobility in the region (and the low gasoline prices in 2000) that a city with just under 9,000 jobs in total draws workers from a radius of 60 miles and more.

Concentrations of workers along corridors offer opportunities for express transit services oriented toward commuters. Indeed, as discussed elsewhere in this TDP, GMTA is operating services to tap into these markets, with the LINK Express route operating to and from Burlington via I-89, and commuter routes on US 2 to the east and west. Of these, the most successful is the Burlington LINK because of the high volume of commuters traveling in both directions in both peak periods.

Conclusion

This analysis has found that GMTA provides some level of transit access to high-density residential areas and important trip generators. A few areas were identified that have transit-supportive densities but are outside of the current service area. The further removed these areas are from current routes, the greater the cost will be to tie them into the system.

Overall, the town of Northfield has the greatest potential for supporting regular transit service both in terms of needy populations and employment. Barre City, though it currently has bus service, has the highest concentration of low-income and zero-vehicle households in the region and could likely support a higher level of transit access. The same is true for Montpelier (to a somewhat lesser extent), but the high level of employment offers opportunities for more commuter services. These needs will be further addressed in the next chapter.

Map 3.10 Commuters to Montpelier (year 2000)

