



# MASS.commuting

A JOINT PROJECT OF:

**MassINC**

THE MASSACHUSETTS INSTITUTE FOR A NEW COMMONWEALTH  
Publisher of *CommonWealth* magazine  
A Project of the Economic Prosperity Initiative



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MassINC has a long history of work within this initiative. Past research projects include: *The Graying of Massachusetts* (2004), *Mass.Migration* (2003), *The State of the American Dream in Massachusetts, 2002* (2002), *The Changing Workforce: Immigrants and the New Economy in Massachusetts* (1999), *The Road Ahead: Emerging Threats to Workers, Families, and the Massachusetts Economy* (1998), and *Lessons Learned: 25 Years of State Economic Policy* (1998). Recent articles in *Common Wealth* magazine include: “Mass. Production” (Summer 2003), “The Sprawl Doctor” (Spring 2003), “Life After Lucent: A region tries to adjust” (Winter 2002), and “Heritage Road, Five Years Later: The American Dream, Still Elusive in Suburbia” (Spring 2001).

All of MassINC’s research and *Common Wealth* articles are available free-of-charge through our website, [www.massinc.org](http://www.massinc.org).

# MASS.commuting

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October 2004

Dear Friend:

MassINC is proud to present *Mass.Commuting*, a report produced in partnership with the UMass Donahue Institute and made possible by the generous support of MassHousing.

In the MassINC Quality of Life poll, respondents ranked the “roads and traffic situation” as the second highest policy issue in need of major improvement. It trailed only the issue of affordable housing as the most pressing threat to the quality of life in the Bay State.

Thanks to this study, we now know they have good reason to be concerned. With the ninth longest average commute times in the nation, the average Massachusetts commuter spent almost as much time traveling to work as the average California commuter. In 2000, nearly one in five commuters spent at least 45 minutes getting to work each way. Perhaps of more concern is the fact that our commute times have been increasing at a relatively fast pace over the last 20 years. In fact, of the states with the longest commute times, our commute times have increased the second fastest since 1980—trailing only Georgia in this respect.

The cost of these lengthening commutes is steep for families, communities, and the Commonwealth. More time commuting means less time available for family, friends, and engagement in one’s community. Harvard’s Robert Putnam suggests that an additional 10 minutes in daily commuting times reduces involvement in community affairs by 10 percent. This is felt in terms of fewer public meetings attended, less volunteering, and similar declines in other civic activities. In addition, this time crunch exacerbates the strains that families are facing.

While the solutions are not simple, we believe the challenges are important to tackle. Quality of life is an important factor affecting our state’s ability to compete for the highly skilled workers who drive the state’s economic growth. Easing commuting strains has to be part of this strategy.

In presenting these findings, we owe a debt of gratitude to our partners: Bob Nakosteen of UMass Amherst, Mike Goodman of the UMass Donahue Institute, and their colleagues, who conducted the research. We would also like to thank the many reviewers whose critical insights have strengthened the final report. Lastly, we owe special thanks to Dr. Dana Ansel, MassINC’s Research Director, for her leadership in making this critical report a success. Finally, we would like to thank our sponsors at MassHousing, who have been generous and enthusiastic partners, encouraging the authors to go where the data led them.

We hope you find *Mass.Commuting* an informative and timely resource. This report also marks an important beginning for MassINC. In the coming months and years, MassINC will be looking at how patterns of growth and development across the state are impacting middle-class families, their quality of life and the state’s civic and economic vitality. As always, we welcome your feedback and invite you to become more involved in MassINC.

Sincerely,



Ian Bowles  
President & CEO



Gloria Cordes Larson  
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# TABLE OF CONTENTS

Executive Summary .....	4
Key Facts .....	4
How Massachusetts Commuters Travel to Work .....	15
Regional Differences .....	16
The Lengthening Massachusetts Commute .....	18
Regional Differences .....	18
Commute Times and Mode of Transportation .....	21
Worsening Traffic Congestion .....	22
Increasing Distances Traveled by Massachusetts Commuters .....	23
Commuting between Different Regions of Massachusetts .....	25
Job Centers and Bedroom Communities .....	26
Uneven Economic Development .....	27
The Profile of Long Commuters .....	28
Interstate Commuting: Commuting into Massachusetts .....	29
Interstate Commuting: Commuting out of Massachusetts .....	30
The Costs of Commuting .....	32
Environmental Costs .....	32
Lost Time: Economic and Personal Costs .....	32
Concluding Thoughts .....	33
Appendix A: Region Definitions by City and Town .....	37
Appendix B: Average Commute Time, Rank in Massachusetts, and Change by City and Town .....	40
Appendix C: Share Driving Alone, Commuting via Public Transit, and Working at Home by City and Town .....	48
Appendix D: Share of Short, Medium, and Long Commuters by City and Town .....	56

## Executive Summary

Massachusetts families have traffic on their minds. In the MassINC Quality of Life poll, respondents ranked the “roads and traffic situation” as the second highest policy issue in need of major improvement.<sup>1</sup> This new study reveals that they have good reason for concern. While commute times in Massachusetts were roughly in line with the national average two decades ago, they have since increased considerably and at a much faster pace than the nation as a whole. In fact, from 1980 to 2000, Massachusetts commute times increased at the sixth fastest rate in the nation. Massachusetts workers endure the ninth longest commutes in the nation, nearly matching those of California commuters.<sup>2</sup> Time lost to commuting increased by nearly 20 percent between 1990 and 2000. By 2000, Massachusetts workers lost the equivalent of 25 workdays (8-hour days) commuting back and forth to their jobs.

The economic and social costs of these

lengthening commute times to the Commonwealth and its residents are steep indeed. As commuting times increase, less time is available for family, friends, hobbies, and engagement in one’s community. Beyond such strains and their negative effect on communities, longer commuting times also potentially undermine the Commonwealth’s ability to attract and retain highly educated young workers.

Massachusetts workers are spending more time getting to work.<sup>3</sup> In 1980, the average commute time was 21.4 minutes each way, which was roughly in line with the national average. By 2000—the most recent year for which complete data are available—the average commuter spent 27 minutes traveling each way to work. In addition, both the number and share of commuters who spend less than 15 minutes traveling to work each way—the short commuters—has been shrinking over the last 20 years, from 35 to 27 percent. During the same time,

### KEY FACTS

- In 2000, the average Massachusetts worker spent 27 minutes traveling to work each way. This was the 9th longest commute time in the nation.
- The average distance traveled by Massachusetts commuters increased by approximately 10% between 1990 and 2000, and more commuters are traveling between different regions of the state.
- In 2000, the average Massachusetts commuter lost the equivalent of about 25 (8-hour) workdays commuting to and from work. Time spent commuting has increased by almost 19% since 1990.
- Nearly 1 in 5 Massachusetts commuters (18%) or 551,738 commuters spent at least 45 minutes getting to work each way.
- In Massachusetts, there are five commuting hot spots, where residents endure particularly long commutes: 1) Western Mass. Hill Towns; 2) Quabbin Region; 3) Nashoba Valley; 4) Metrowest-495 South; and 5) Coastal South Shore.
- In 2000, commuters in Southeastern Massachusetts were the most likely to face a long commute, with 22% spending at least 45 minutes commuting each way. The Berkshire and Cape and Islands regions have the largest share of commuters with a short commute time (less than 15 minutes).
- Between 1980 and 2000, Massachusetts commute times increased at the sixth fastest rate in the nation.

the number and share of commuters spending at least 45 minutes traveling to work each way—the long commuters—has been growing. In 1980, only 11 percent of commuters were long commuters. By 2000, nearly 1 in 5 commuters (18%) or 551,738 commuters spent at least 45 minutes each way getting to work.

**ES TABLE 1. Top Ten States with the Longest Commute Times, 2000**

RANK	STATE	AVERAGE COMMUTE TIME (MINUTES)
1	New York	31.7
2	Maryland	31.2
3	New Jersey	30.0
4	Washington, D.C.	29.7
5	Illinois	28.0
6	California	27.7
7	Georgia	27.7
8	Virginia	27.0
<b>9</b>	<b>Massachusetts</b>	<b>27.0</b>
10	West Virginia	26.2
	U.S. Average	25.5

Source: U.S. Census, Journey to Work Data, 2000

### Why the Long Commute?

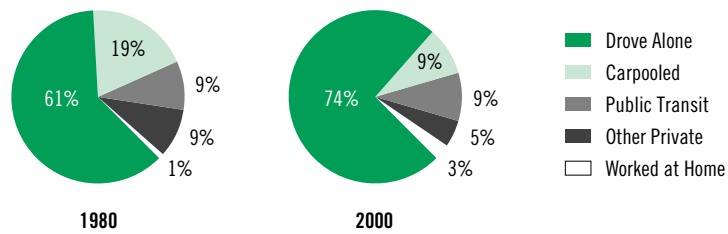
Three key factors—*mode of transportation, worsening traffic congestion and traveling greater distances to work*—help explain the increase in Massachusetts commute times and why they are among the longest in the nation.

### How People Get to Work

Driving alone is, by far, the most common way people get to work in the Bay State. Nearly three out of four Massachusetts workers drove to work alone in 2000, an increase of over 20 percent since 1980. This rate is slightly less than the nation’s. During this same period, the number of commuters carpooling to work slipped from 19 to 9 percent. Carpooling in Massachusetts has declined at a faster rate than in the rest of the nation. Massachusetts commuters, however, have bucked the national trend of declining use of public transportation. While the percentage of commuters tak-

- Compared to other commuters, those workers with the longest commutes (at least 45 minutes) have higher incomes and are more likely to have a college degree, be a professional or manager, and work in the knowledge economy. They are also more likely to own their own homes.
- Driving alone is the most common way that people get to work. In 2000, nearly 3 in 4 workers (74%) drove to work alone.
- In 2000, Massachusetts commuters had the 4th highest rate of public transportation use in the nation and had bucked the national trend of declining transit use.
- Commuters who travel via public transportation have the highest average commute times, a trend consistent with other states with a large share of public transit commuters.
- Traffic congestion in Massachusetts has increased considerably. Between 1992 and 2002, the number of car registrations increased 48%.
- In 2000, the Commonwealth received more workers from other states than it sent to those states (176,741 in-commuters vs. 101,081 out-commuters).
- The Cape and Islands and the Pioneer Valley regions are the only two regions of the state that suffer a net loss of workers to other states. In the Pioneer Valley, 2.5 times as many workers leave the state for work compared with those who enter the region for work (24,843 vs. 9,078 workers).

**ES FIGURE 1. Mode of Transportation, Massachusetts, 1980 and 2000**



Source: U.S. Census, Journey to Work Data, 1980, 2000

ing public transit across the nation has slowly been declining, the proportion in Massachusetts has remained roughly stable with nearly nine percent of all commuters using public transportation. The actual number of commuters who use public transportation increased from 243,611 in 1980 to 270,742 in 2000. In 2000, Massachusetts commuters ranked 4th highest in the nation in their use of public transportation, trailing only the District of Columbia, New York and New Jersey.

Average commuting times in Massachusetts have been increasing for all commuters regardless of what mode of transportation they use, but commuters who take public transit consistently have the highest average commuting times.<sup>4</sup> Commuters taking the commuter rail and ferryboat have the longest average travel times in the Commonwealth (greater than 60 minutes), and those who take the subway or a bus spend about 40 minutes traveling to work. By comparison, those commuters who drive to work have an average travel time of about 25 minutes, which certainly helps explain the appeal of driving alone.

Public transportation and long commutes appear to go hand in hand. This finding is evident across the country: the states with the highest public transportation use also have the longest commute times. It would be a mistake, however, to simply conclude that the use

of public transit is in itself responsible for lengthening commuting times in Massachusetts. Rather, commuters likely choose public transit if the alternative is a long commute time driving alone. It is also important to note that people who drive have more options to shorten their commute times by traveling during off-hours or finding alternative routes, while public transportation users face a fixed cost in terms of their travel time. Moreover, the substantial increase in the share of people who chose to take the commuter rail in areas where service was expanded suggests that for many commuters the benefits of public transportation outweigh the costs.<sup>5</sup> There are, of course, significant differences in the quality of time traveling via public transportation compared to driving alone. Public transit users can take advantage of their commuting times in a number of productive ways (reading, socializing, and even sleeping). Finally, in the face of fuel, tolls and parking costs, public transit can be a more cost effective mode of transportation to work. On the other hand, those who choose to drive alone may value the solitude, in addition to the flexibility offered by that choice.

### Worsening Traffic Congestion

More cars are now on the roads in Massachusetts. In 1980, traffic congestion was largely confined to the Southeast Expressway and Route 128, and even in those places congestion was not very high by modern standards. But by 2000, high levels of congestion extended to the northern and southern parts of Route 93 and along Route 128, and lower levels of congestion spread to northern portions of Route 495 and other adjoining roads. (See Figure 8 on page 24 for a visual representation of the spreading congestion).<sup>6</sup> These trends are confirmed by a recent Texas Transporta-



tion Institute study that found the Boston area to be the 9th most congested of 85 urban areas during peak commuting hours.<sup>7</sup>

Several factors contribute to this increasing congestion, including substantially more drivers and a whopping 48 percent increase in the number of cars registered in Massachusetts between 1992 and 2002.<sup>8</sup> In addition, much of the state’s population growth has occurred in Plymouth County and the southern suburbs of Boston, adding congestion in those areas. Finally, the declining rate of carpooling and rising number of commuters driving alone also translates into more cars on the Commonwealth’s roads and highways, the capacity of which has remained relatively flat during this time.<sup>9</sup>

### Traveling Greater Distances to Work

Over the last decade, Massachusetts workers, on average, traveled farther to get to work. Between 1990 and 2000, we estimate that the distance traveled by the average Massachusetts commuter increased by approximately 10 percent, which is clearly a factor in our longer commute times.<sup>10</sup>

The vast majority of workers (80%) are employed within the same region of the state where they live (See Appendix A for the definitions of the regions).<sup>11</sup> Yet, the share of workers traveling to another region of the state has increased from 14 to 17 percent since 1990. This jump in share, coupled with a growing workforce, means an additional 104,000 workers travel from their home to a different region for work—contributing to increased congestion. Commuters in the Northeast region of Massachusetts are the most likely to work in another region of the state, with 33 percent working outside their home region—mostly in Greater Boston. This marked increase in interregional commuting further supports our

**ES TABLE 2. Average Commute Time by Mode (in minutes), 1990 – 2000\***

MODE	1990	2000	% INCREASE
Drive Alone	21.8	25.7	18.1%
Carpool	24.1	27.5	13.9%
Public Transportation	37.0	44.2	19.4%
Streetcar & Subway	37.0	40.6	9.9%
Bus & Trolley Bus	33.4	40.5	21.3%
Commuter Rail	53.1	62.4	17.5%
Ferryboat	52.3	65.0	24.2%
Other Private Transport	19.6	35.1	79.5%
Taxicab	15.4	17.7	15.2%
Motorcycle	18.0	28.1	55.9%
Bicycle	16.5	17.9	8.0%
Other	21.8	48.8	123.6%
Walk	10.8	12.6	16.6%
<b>Grand Total</b>	<b>22.7</b>	<b>27.0</b>	<b>19.3%</b>

\*These times are slightly different than those reported in the U.S. Census Journey to Work Data. Source: U.S. Census, 5% Public Use Microdata Sample (PUMS), 1990, 2000

finding that Massachusetts workers are traveling increased distances to work.

Commute times are also related to the location and distribution of jobs throughout the state. Some Massachusetts cities and towns are clearly job centers (more jobs than workers), while others are bedroom communities (more workers than jobs).<sup>12</sup> In general, the same

### THE NUMBER OF CAR REGISTRATIONS HAS INCREASED OVER 48% SINCE 1992.

places that experienced job growth have also seen population growth over the last decade. Thus, relative to the working population, the location of the jobs has not changed, but the increase in the number of people surely also contributes to the congestion. There are several notable job clusters across the state. In western Massachusetts, the I-91 and Route 7 corridors are lined with job centers. In the eastern part of the state, jobs follow I-495, Route 128, and the Mass Pike. Jobs centers also line Routes 2

and 3 north of Boston. The city of Boston itself is also, of course, a major job center, with nearly 500,000 jobs compared with a resident workforce of only 283,000 (See Figure 9 on page 29 for a complete map of the job centers in Massachusetts).

While living far from a job center is a recipe for a long commute, living near a job center does not guarantee a short commute in Massachusetts. Because many of the well-paying knowledge economy jobs are highly special-

ized, workers must seek out specific jobs that match their skills, and these jobs are not evenly distributed across the regions of the state. As a result, many Massachusetts workers and families face a difficult set of choices: For many, living in a relatively lower cost area of the state means tolerating long commute times, while for others, living in Greater Boston often means spending a large portion of their incomes to afford the region's high cost of living, especially the cost of housing.

**ES TABLE 3. Share of Long Commuters by Region (in percent), 1980–2000**

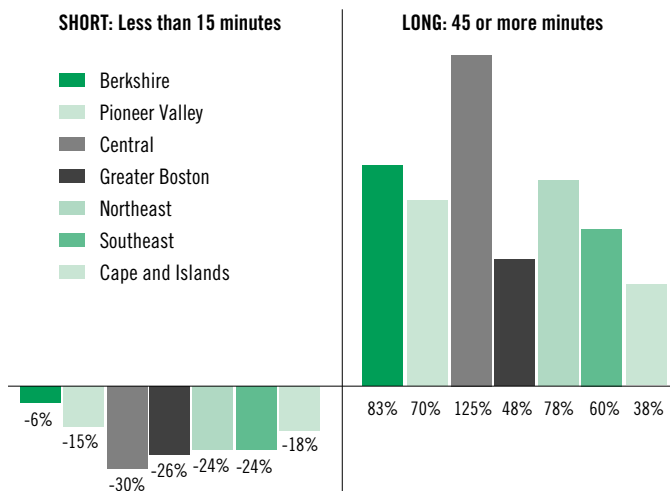
REGION	LONG: 45 OR MORE MINUTES		
	1980	1990	2000
Berkshire	4.4	5.7	8.1
Cape and Islands	9.2	9.4	12.8
Central	7.7	12.2	17.4
Greater Boston	13.6	14.5	20.1
Northeast	10.8	14.0	19.2
Pioneer Valley	5.7	7.6	9.8
Southeast	13.6	16.1	21.8
<b>Statewide</b>	<b>11.4%</b>	<b>13.3%</b>	<b>18.4%</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 1990, 2000

### Who is Affected by the Long Commute?

While the strains of longer commuting times are being felt across the state, commute times do vary geographically. The areas of the state with the longest commutes have not changed significantly over the last ten years, but the commute times have gotten even longer since 1990. In terms of their demographic profile, the characteristics of those commuters who spend at least 45 minutes traveling each way to work illustrate the choices and tradeoffs workers are making in their decisions about where to live.

**ES FIGURE 2. Regional Change in Shares of Short and Long Commuters, 1980–2000**



Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 2000

### Regional Patterns

In 2000, commuters in the Southeast region were the most likely to have a long commute, with more than 1 in 5 workers (22%) spending at least 45 minutes getting to work each way. The Greater Boston, Central, and Northeast regions also have quite high shares of long commuters. Central Massachusetts also experienced a very large increase (125%) in its share of long commuters. At the other end of the spectrum, in the Berkshire and Cape and Islands regions, slightly less than half of the workers in those regions (47% and 42%, respectively) spent less than 15 minutes commuting to work compared with 27 percent statewide.

But while the trend toward longer commutes is evident statewide, significant differences in commuting times exist across the state. With an average commute time of 41.6 minutes, workers in Middlefield in the Pioneer Valley have the state's longest average commute time. In fact, in 2000, six out of the top ten cities/towns with the longest commutes were small, rural hill towns in western Massachusetts between I-91 and Route 7. While these individual towns are very small in population, a clear pattern of long commutes emerges in this region of the state. In addition, we have identified four other regions where there are clusters of cities and towns with long commute times.

### Commuting Hot Spots

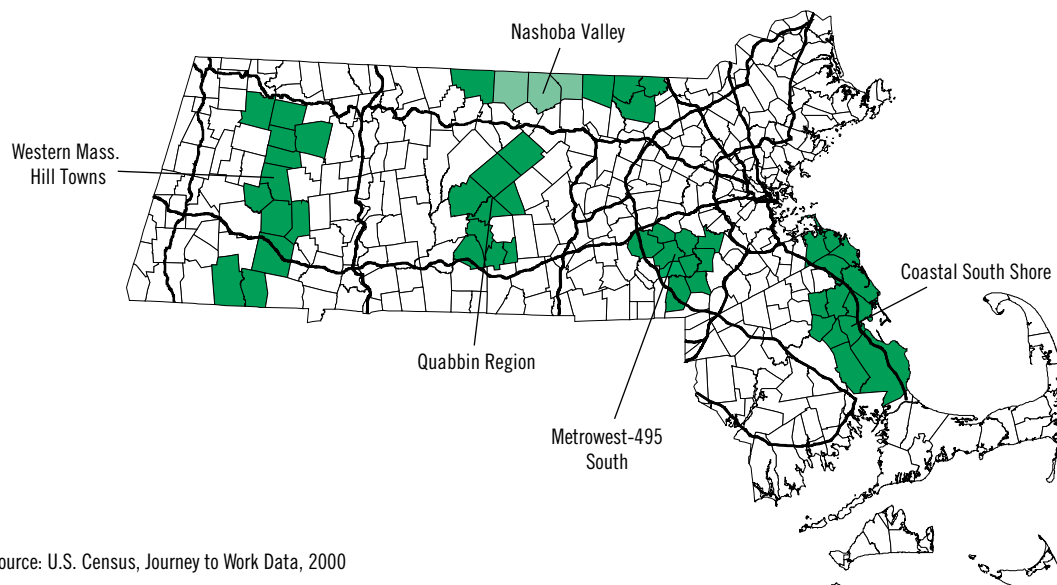
Massachusetts has five commuting hot spots where workers in clusters of adjoining cities and towns endure, on average, particularly long commutes.<sup>13</sup> These same five distinct clusters of long commutes existed in 1990. The times are getting worse, but the patterns appear to

be the same. The five hot spots are:

- 1) **Western Mass. Hill Towns:** Ashfield, Blandford, Chester, Cummington, Hawley, Huntington, Middlefield, Plainfield, Sandisfield, Savoy, Tolland, Worthington.
- 2) **Quabbin Region:** Barre, Brookfield, East Brookfield, Hardwick, Hubbardston, New Braintree, Oakham, Warren, and West Brookfield;
- 3) **Nashoba Valley:** Ashburnham, Ashby, Dunstable, Groton, Pepperell, Royalston, Townsend, and Winchendon;
- 4) **Metrowest-495 South:** Ashland, Dover, Franklin, Holliston, Hopkinton, Medfield, Medway, Millis, Norfolk, and Sherborn;
- 5) **Coastal South Shore:** Carver, Cohasset, Duxbury, Halifax, Hanson, Hingham, Hull, Kingston, Marshfield, Norwell, Pembroke, Plymouth, Plympton, and Scituate.

The reasons for these specific commuting hot spots are varied, underscoring the need for regional transportation and economic strategies. For instance, the long commute times in

**ES FIGURE 3. Commuting Hot Spots, 2000**



Source: U.S. Census, Journey to Work Data, 2000

the Western part of the state speak directly to the lack of readily accessible job opportunities. By 2000, despite a period of strong economic expansion, Western Massachusetts still had not recovered all of the jobs it lost during the recession of the early 1990s.<sup>14</sup> As a result, large numbers of workers in the Pioneer Valley travel to Connecticut for work. In contrast, commuters in the Southern Metrowest hot spot live near many job centers. Their long commutes highlight problems of congestion and also raise important questions about the local job mix and the need for workers with highly specialized skills to travel to find specific types of jobs. Clearly, understanding the local and regional context is critical to crafting solutions to the state's transportation challenges.

### The Profile of the Long Commuters

In many respects, the Massachusetts commuters who spend at least 45 minutes each way commuting to work look very similar to their peers with shorter commutes. In general, they are about the same age, and as likely to be married, to have children, and to have been born in Massachusetts as their counterparts with less time-consuming commutes. Significantly, long commuters were much more likely to use public transit than their peers, again underscoring the association between mode of transportation and commuting time.

What is most striking, however, is that compared to their peers, the long commuters are more economically advantaged. They are much more likely to have a college degree (47% vs. 35%), and nearly half are professionals or managers, compared to 38 percent of other commuters. Long commuters are also somewhat more likely to work in the knowledge economy.<sup>15</sup> It then follows that the typical household income of long commuters was

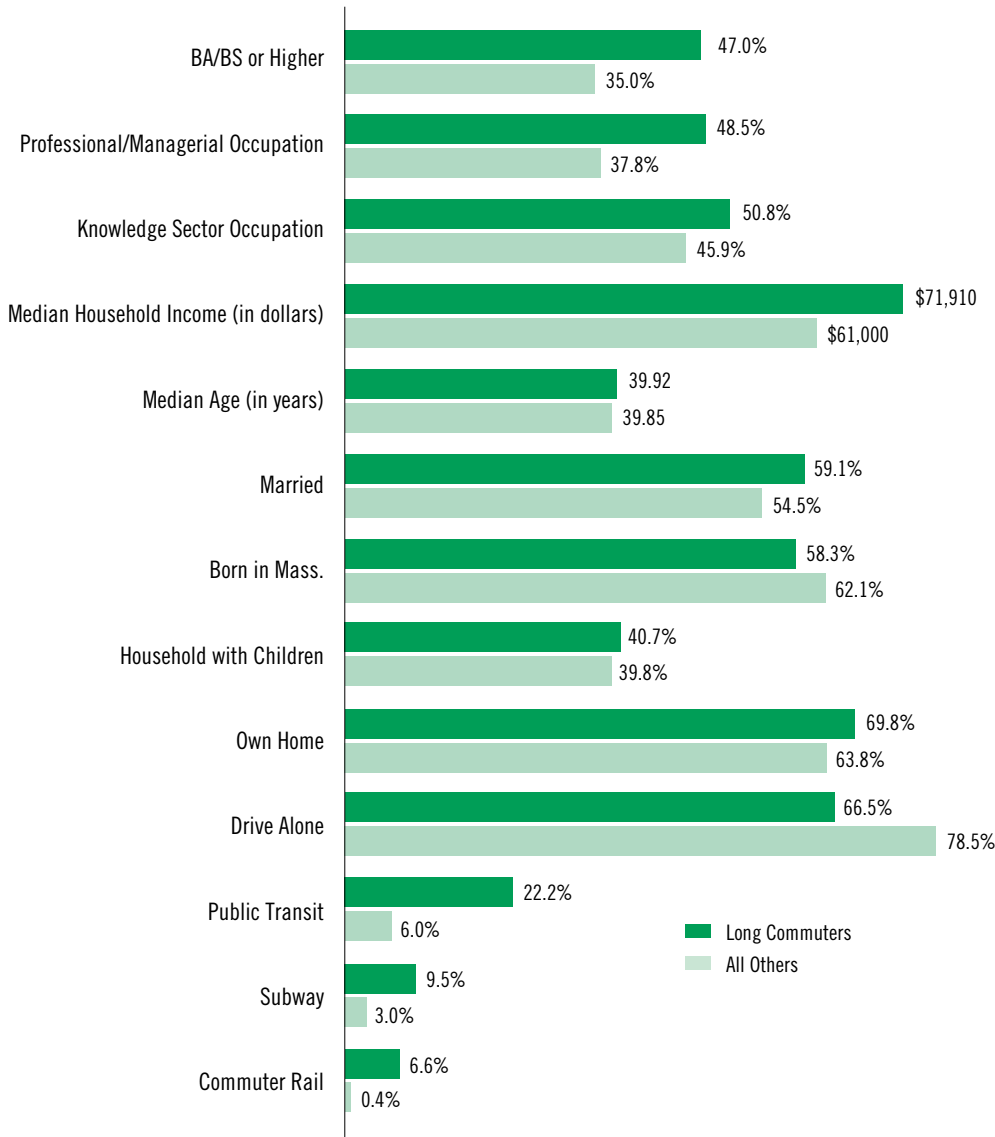
nearly \$11,000 higher than that of all other commuters (\$71,910 vs. \$61,000). Long commuters are also more likely to own their own home, suggesting a willingness of many Massachusetts workers to trade away shorter commutes in order to purchase a home in a community they find desirable.

### Interstate Commuting: Commuting from and into Massachusetts

The Commonwealth's labor market attracts significantly more commuters from other states than it loses to those states. In 2000, about 101,000 workers lived in Massachusetts and worked in another state, compared to about 177,000 workers who came to work in the Bay State—about 5.5 percent of the state's workforce. Between 1990 and 2000, the number of workers commuting into Massachusetts from other states increased just over 15 percent. There are particularly strong commuting streams into Massachusetts from New Hampshire and Rhode Island.<sup>16</sup> Nearly half of all out-of-state commuters came from New Hampshire (46.1%), and nearly one in three (31.8%) of out-of-state commuters came from Rhode Island in 2000. Increasingly, workers are commuting into Massachusetts from other states.

Significantly fewer people live in Massachusetts and work in another state. Since 1990, the number of residents leaving Massachusetts to work in another state is rising but at a much slower rate than the number of people entering the state for work (8.1% vs. 15.1%). Rhode Island was the most common destination for the Massachusetts residents leaving the state for work, accounting for 31 percent of the total. But, between 1990 and 2000, the biggest increase (24%) was in the number of Massachusetts residents heading north to work in New Hampshire. In addition, approx-

**ES FIGURE 4. Demographic Characteristics of the Long Commuters Compared with All Other Commuters**



Source: Authors' calculations using U.S. Census, 5% Public Use Microdata Sample, 2000 and U.S. Census, Journey to Work Data, 2000

imately 27,000 Massachusetts residents work in Connecticut, and over 80 percent of them live in the Pioneer Valley.

The regional patterns of commuting in and out of the state are revealing. Five out of the seven regions of Massachusetts attract more workers than they lose. Greater Boston is the biggest winner, attracting 69,165 workers from other states, while losing only 16,965 residents to another state, for a net gain of 52,200

workers. The Northeast region also experienced a large net gain (29,978 workers in 2000). The Cape and Islands and the Pioneer Valley regions are the only two regions of the state that suffer a net loss of workers to other states. The numbers in the Cape and Islands are small, but in the Pioneer Valley, 2.5 times as many workers leave the state for work compared with the number of workers who enter the region for work. In 2000, the Pioneer

**ES TABLE 4. Commuting into and out of Massachusetts, 2000**

	COMMUTING TO MASS. FROM:	SHARE OF TOTAL (%)	COMMUTING FROM MASS. TO:	SHARE OF TOTAL (%)
Connecticut	14,045	7.9	27,166	26.7
Vermont	2,890	1.6	1,619	1.6
Rhode Island	56,138	31.8	31,506	31.2
New Hampshire	81,490	46.1	23,505	23.3
New York	6,049	3.4	5,036	5.0
Maine	5,048	2.9	898	0.9
All Other Places	11,081	6.3	11,514	11.4
Total	176,741	100.0	101,081	100.0

Valley lost 15,765 more workers than it gained, with the vast majority of those people commuting to Connecticut.

### Concluding Thoughts

The primary competitive advantage of the Massachusetts economy is its highly skilled workforce. With few natural resources and relatively high costs of living, the Commonwealth relies on its well-educated population to attract and retain the critical industries that drive the state's economic growth.

Maintaining a high quality of life is an

## THE SEARCH FOR HOUSING IS ABOUT MORE THAN 4 WALLS AND A DOOR.

important factor in our state's ability to compete for these highly skilled workers, who increasingly have more and more choices about where to live and work. Commuting times in our state are among the longest in the nation, and they have been increasing at a fast pace. The average worker today spends 27 minutes getting to work each way, and nearly one in five workers spends at least 45 minutes traveling to work each way. As workers spend more time getting to work, less time is available for all other activities, and this time crunch places significant strain on families—contributing to a decline in their quality of life.

In addition, families face financial pressures related to the state's high cost of living, which is largely a result of our housing prices. Housing costs have increased rapidly during the last two decades, and while those families that entered the housing market early enough have benefited from rising prices, many families are spending large shares of their income on housing.<sup>17</sup> In particular, younger families who are trying to enter the housing market for the first time have been severely affected by the steep rise in housing costs. And in many cases, these young, highly educated Massachusetts families have chosen to migrate out of Massachusetts entirely.<sup>18</sup>

It is important to realize that the search for affordable housing is about more than four walls and a door. In that search, families are seeking a bundle of goods that includes a house that meets their needs, high quality schools, safe neighborhoods, proximity to work, and other community amenities. Families must weigh these considerations against the cost of such housing. The choices of those people who spend at least 45 minutes traveling to work each way—the long commuters—are telling. Long commuters are among the state's most economically advantaged, and they are more likely than other commuters to own their own home. These facts suggest that the longer commute times may represent a will-

ingness of Massachusetts workers to trade away shorter commutes in order to purchase a home in a community they find desirable.

The strain of increasing commute times and our residents' high level of concern about the roads and traffic situation should give the Commonwealth's public policymakers and business leaders pause. By making it more difficult for highly educated and skilled workers to live in Massachusetts, the Bay State runs the risk of eroding its primary competitive advantage, its world-class workforce. While no silver bullet can solve these challenges, policy makers can and should focus on ways to ease the commuting burden that many families face.

There are ways to address the roads and traffic situation directly through balanced statewide transportation policies. In some areas of the state, increased road capacity is needed to handle the large increases in automobiles these regions have experienced. Creating more incentives for carpooling would also help ease some of the congestion problems. In addition to focusing on the roadways, more public transportation options are necessary as well. The current focus on linking housing to transportation centers is a key part of the solution. Incentives to local communities to create housing development around transit nodes, downtowns, and other underutilized areas should be encouraged. The recent passage of Chapter 40R—The Smart Growth and Housing Production Zoning Districts—is a first step, and the efficacy of the law as it is implemented should be monitored. In addition, another priority should be to examine the efficiency of the use of publicly owned land near transportation facilities. Finally, more efficient land use that is conducive to public transportation should be considered, especially in suburban job centers. The increases in rider-

ship resulting from the recent additions to the commuter rail indicate that there is an appetite for public transportation. Giving commuters more options about how to get to work is important.

Employers have a role to play here as well, and they can help ease some of the pressures on workers at little cost. When possible, allowing workers more flexibility in their work schedules can help shift some of the commuting to off-peak hours. In addition, increasing opportunities for workers to work at home would also help decrease traffic during peak hours. Large employers, especially in suburban areas with limited public transportation options, can support carpooling efforts. These types of initiatives also give workers more choices and opportunities, helping to ease some of the strains of commuting.

But, the challenges outlined in this policy brief are about more than simply building roads and public transportation. Regional transportation planning must be informed by and aligned with a larger economic strategy. A regional approach is essential because different parts of the Commonwealth face very different challenges. In the western part of the state, job creation is an integral part of addressing lengthening commute times. Moreover, a continued commitment to expand the well-paying knowledge economy jobs throughout the state is needed. In the eastern half of the state, creating more middle-class housing, improving schools, and creating safe neighborhoods will help expand the list of desirable towns and cities that are appealing to workers and their families. Successfully addressing these challenges will help to ease the significant strains that many of our families and communities are currently facing while enhancing the state's economic competitiveness.

## ENDNOTES

1. Princeton Survey Research Associates. 2003. *The Pursuit of Happiness: A Survey on the Quality of Life in Massachusetts*. MassINC.
2. North Dakota commuters have the shortest average commute times in the nation, with an average commute of 15.8 minutes in 2000. At 16.6 minutes, South Dakota commuters have the second shortest average commute times.
3. We define commuters as any worker who is at least 16 years old and who works outside the home. The one exception is our analysis of the mode of travel data, where we consider all people who work, including those people who work at home. The total number of workers who worked outside their home was: 2,585,065 in 1980; 2,904,739 in 1990; and 3,005,333 in 2000.
4. The small number of commuters using “other” forms of private transportation, a category that includes air travel also have long average commute times.
5. During the 1990s, the commuter rail expanded in several regions of the state. In 1990, the South Attleboro station opened, and in later years, so did lines terminating at Middleborough, Kingston, and Plymouth. In addition, the Framingham commuter rail was extended to Worcester and service was extended from Ipswich to Newburyport on the North Shore. The authors’ calculations of the increase in ridership are based on changes in rail usage in towns the new lines or line extensions run directly through, whether or not they have a station.
6. Boston Metropolitan Planning Organization. 2004. *Mobility in the Boston Region: Existing Conditions and the Next Steps: The 2004 Congestion Management Report*. Central Transportation Planning Staff.
7. Schrank, David and Tim Lomax. 2004. *The 2004 Annual Urban Mobility Report*. Texas Transportation Institute and The Texas A&M University System. See <http://mobility.tamu.edu/ums>
8. Executive Office of Transportation and Construction. 2004. *Massachusetts Transportation Facts 2004*.
9. The major exception is, of course, the Central Artery Project. While it is not possible to determine the precise impact of this project on commute times, it clearly contributed to lengthening commuting times for some commuters in Greater Boston and will add additional capacity upon its completion.
10. Because this study uses an “as the crow flies” measure for the distance traveled, it almost certainly underestimates the number of commuting miles actually traveled. But this method does allow us to reliably track change over time. In order to measure distance traveled, we have developed a distance matrix that considers the distance between the towns and cities workers live in and the towns and cities where they work. To track changes in the commuting distance traveled we multiplied the distances between the towns of residence and work by the number of workers who make that particular commute. We also estimate the distance traveled for the in-town commuters, which in any given city account for a substantial portion of all commuters.
11. Our regional analysis uses the seven economic regions of the state as defined by Massachusetts Benchmarks, the quarterly journal of the Massachusetts economy published by the UMass Donahue Institute in collaboration with the Federal Reserve Bank of Boston. These regions include: Berkshire, Cape and Islands, Central, Greater Boston, Northeast, Pioneer Valley, and Southeast. For a complete listing of the towns of each region, see Appendix A.
12. For this research, we have defined job centers as those communities where the job to worker ratio exceeds the state average by more than 10 percent, which was 1.02 in 2000.
13. In these five hot spots, all of the cities and towns are adjacent and are all in the top quintile in terms of their commute times, which means that their average commute is between 31.46 and 41.60 minutes. In addition to these specific cities and towns, many of the neighboring ones also have longer than average commutes but are not in the top quintile. The one slight exception is Nashoba Valley, where Winchendon, Ashburnham, and Ashby have longer than average commutes but are not in the top quintile.
14. Sum, Andrew M., Paul Harrington, Neeta P. Fogg et al. 2002. *The State of American Dream in Massachusetts, 2002*. MassINC.
15. For a description of the knowledge sectors, see: Farrant, Robert, Phillip Moss, and Chris Tilly. 2001. *Knowledge Sector Powerhouse: Reshaping Massachusetts Industries and Employment during the 1980s and 1990s*. UMass Donahue Institute.
16. In our previous policy brief, *Mass.Migration*, we found that between 1990 and 2002, Massachusetts suffered a net loss of 78,201 residents moving to New Hampshire. The majority of those people do not continue to work in our state, with only about one-quarter commuting back for work in Massachusetts. However, numerous New Hampshire workers commute to workplaces located in Massachusetts, which is part of the focus of this research. In 2000, 81,490 workers commuted to Massachusetts from the Granite State. Although some of these people may have lived in Massachusetts at one time, others have never lived in the Bay State. Significantly fewer Massachusetts residents commute to the Granite state. In 2000, 23,505 Massachusetts residents worked in New Hampshire up from 18,952 in 1990.
17. Michael Goodman and James Palma, 2004. *Winners and Losers in the Massachusetts Housing Market: Recent Changes in Housing Demand, Supply, and Affordability*. Citizens Housing and Planning Association and the Massachusetts Housing Partnership.
18. Robert Nakosteen, Michael Goodman, and Dana Ansel. 2003. *Mass.Migration*. MassINC.



# MASS.commuting

Transportation issues, including congestion and traffic, are among the most important quality of life issues facing the Commonwealth, according to a recent poll of Massachusetts residents. In this poll, “the roads and traffic situation” was identified by respondents as the second highest policy area in need of major improvement, with half of those surveyed reporting that change is needed.<sup>1</sup> Overall, it trailed only the issue of affordable housing as the most pressing threat to the quality of life in the Bay State.

It is with good reason that Bay State residents are concerned about traffic. Every day Massachusetts commuters endure some of the longest commute times in the nation. The costs of lengthening commute times to the Commonwealth and its residents are steep indeed. Commuters and their families pay the price personally, and over the long term the Commonwealth pays a hefty price in economic, environmental, and civic terms. As commuting times increase, there is less time available in the day to spend with family and friends, as well as less time for engagement in one’s community. These costs clearly put additional strains and pressures on individual families, but they also negatively affect communities, and even the state.

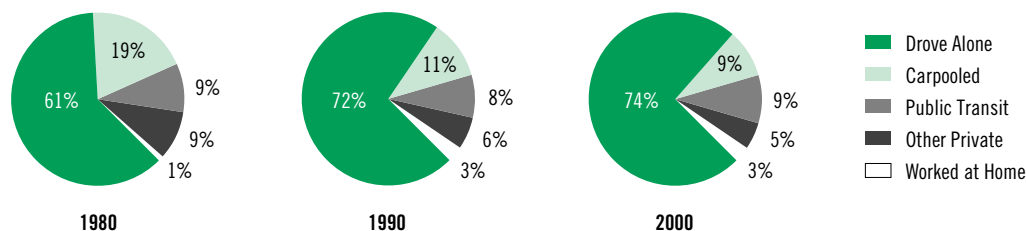
In an effort to improve our understanding

of this critical issue, this policy brief examines current commuting patterns in Massachusetts and documents how they have changed over the past two decades. We also consider regional differences within the state and compare commuting trends in Massachusetts to those of the nation. We find Massachusetts workers are spending more and more time getting to and from work, and our commuting times are increasing faster than the nation’s. When we analyze the socioeconomic and demographic characteristics of those workers with the longest commutes, we find that they are among the most economically advantaged in the state, which raises important questions about the choices and tradeoffs that families are making to live in communities that they find desirable. Finally, we consider what these trends mean for the Commonwealth by considering some of the economic, environmental and civic costs and benefits of increasing commute times.

## How Massachusetts Commuters Travel to Work

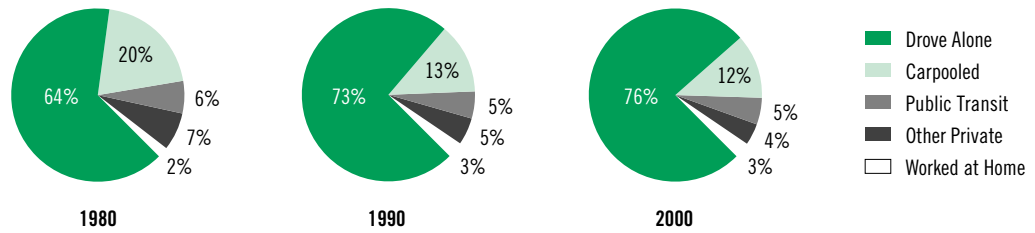
Driving alone is, by far, the most common way that people get to work in the Bay State. Nearly three in four workers (74%) drove to work alone in 2000. This is an increase of over 20 percent from 1980, when only 61 percent of workers

**FIGURE 1. Mode of Journey to Work, Massachusetts, 1980–2000**



Source: U.S. Census, Journey to Work Data, 1980, 1990, 2000

**FIGURE 2. Mode of Journey to Work, U.S., 1980–2000**



Source: U.S. Census, Journey to Work Data, 1980, 1990, 2000

drove to work alone (Figure 1).

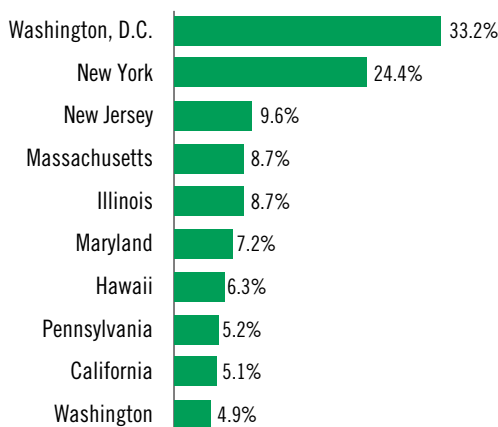
During this same period, there has been a marked decrease in the share of people who carpool to work. In 2000, only 9 percent of all commuters carpooled to work, compared with 19 percent in 1980. Much of this decrease occurred during the 1980s, a decade of significant structural changes in commuting patterns in both Massachusetts and across the nation (Figure 2). While this drop is generally consistent with national trends, the decrease in carpools in Massachusetts has been more dramatic.

Massachusetts commuters also differ from their national peers in terms of their use of public transportation. In 2000, Massachusetts commuters ranked 4th highest in the nation in

their use of public transportation, trailing only the District of Columbia, New York, and New Jersey (Figure 3). Massachusetts has bucked the national trend of declining transit use. Across the country, the percentage of commuters taking public transit has slowly decreased since 1980, dropping to less than 5 percent of all commuters in 2000. Meanwhile, in Massachusetts, nearly 9 percent of all commuters take public transportation, and this proportion remained roughly stable between 1980 and 2000. While the proportion of commuters has stayed constant, the number of commuters who use public transportation increased from 243,611 in 1980 to 270,742 in 2000.

The share of all workers working from home more than doubled during the 1980s and 1990s, although the number of people doing so is still relatively small in absolute terms. Since 1980, there has been a 152 percent increase in the number of people who work at home. By 2000, 3.1 percent of all workers in Massachusetts (97,504) reported working at home. Given the increasing adoption of information technology, it is likely that this number is even higher today.

**FIGURE 3. Top Ten States by Percent of Commuters Using Public Transit, 2000**



Source: U.S. Census, Journey to Work Data, 2000

### Regional Differences

Although the means by which commuters travel to work are generally similar across the different regions of the state, there are a few noteworthy differences. Workers in the Greater

**TABLE 1. Mode of Journey to Work as Share of Commuters by Region (in percent), 1980–2000**

REGION	DRIVE ALONE			CARPOOL			PUBLIC TRANSIT			WORK AT HOME			OTHER		
	1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000
Berkshire	62.9	74.7	79.2	21.6	11.9	9.7	2.3	2.1	1.5	2.0	3.5	3.6	11.2	7.7	6.1
Cape and Islands	71.5	81.2	79.9	13.6	8.1	8.5	2.2	1.1	1.4	3.1	4.5	5.6	9.5	5.1	4.6
Central	65.3	78.8	82.5	21.2	11.6	9.3	2.6	1.8	1.7	1.4	2.3	2.7	9.5	5.4	3.8
Greater Boston	54.5	63.4	63.9	16.8	9.8	8.4	16.9	15.9	16.9	1.4	2.6	3.4	10.4	8.3	7.5
Northeast	66.2	79.5	81.2	22.2	11.1	9.1	3.4	3.0	3.5	1.4	2.3	3.2	6.8	4.2	3.1
Pioneer Valley	65.7	76.8	79.3	19.3	11.0	9.7	4.2	2.7	2.3	1.7	2.6	3.0	9.1	6.9	5.7
Southeast	67.0	79.1	81.4	22.2	12.1	10.0	3.2	2.8	3.8	1.2	2.2	2.3	6.3	3.7	2.5
<b>Statewide</b>	<b>61.0</b>	<b>72.1</b>	<b>73.8</b>	<b>19.1</b>	<b>10.7</b>	<b>9.0</b>	<b>9.3</b>	<b>8.3</b>	<b>8.7</b>	<b>1.5</b>	<b>2.5</b>	<b>3.1</b>	<b>9.1</b>	<b>6.4</b>	<b>5.3</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 1990, 2000

Boston region are much more likely than their peers elsewhere in the state to take public transportation to work (See Appendix A for the definitions of these regions).<sup>3</sup> About 17 percent of Greater Boston commuters take public transportation to work (Table 1). These commuters account for 81 percent or roughly 220,000 of the 271,000 commuters that took public transit in 2000. This is, of course, largely due to the fact that most of the state's public transit infrastructure is located within this region.

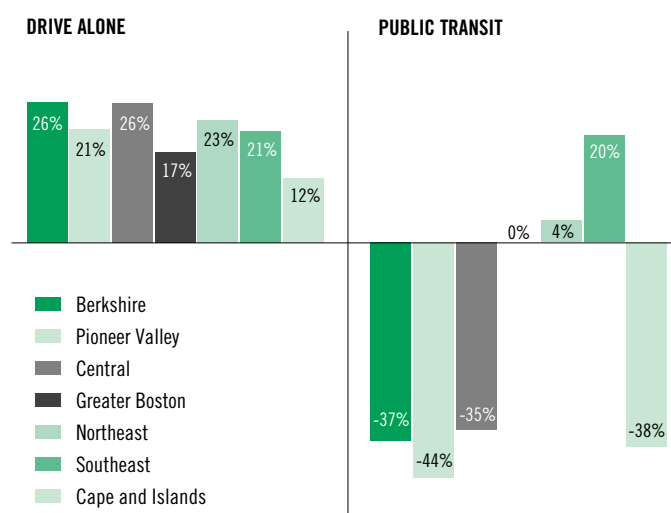
Between 1980 and 2000, one of the only increases (and also the largest increase) in the share of workers taking public transportation occurred in the Southeast region, which experienced a 20 percent jump during this period. This large increase occurred as the region added transit capacity, including the addition of the Old Colony commuter rail lines.<sup>3</sup> An analysis of the towns immediately surrounding areas where new transit capacity was added or expanded reveals that these communities experienced large increases in the share of workers taking the commuter rail, suggesting that if public transit is available, people will use it.

In the Berkshire, Pioneer Valley, Central, and Cape and Islands regions, the share of workers taking public transportation to work

decreased significantly (Figure 4). In those regions, less than 2.5 percent of all commuters utilized public transportation in 2000.

Given its relatively high utilization of public transit, it is not surprising that Greater Boston is home to the smallest proportion of commuters that drove to work alone, although in 2000 a clear majority (64%) still did so. Greater Boston also experienced one of the smallest increases in the share of workers who drive to work alone (17%) between 1980 and 2000. In the Berkshire and Central regions, the share

**FIGURE 4. Regional Changes in Shares of People Driving Alone and Commuting via Public Transit, 1980–2000**



Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 2000

**TABLE 2. Average Minutes to Work, Massachusetts and U.S.**

	1980	1990	2000
Massachusetts	21.4	22.7	27.0
U.S.	21.7	22.4	25.5

Source: U.S. Census, Journey to Work Data, 1980, 1990, 2000

of workers driving alone has grown 26 percent over the two decades. The region with the highest share of workers who drive alone is Central Massachusetts, where 83 percent of all workers commute alone in a car. Overall, the private automobile, driven by a lone driver, is still the predominant method of commuting to work in Massachusetts, and it is becoming even more dominant over time.

**The Lengthening Massachusetts Commute**

Between 1980 and 2000, Massachusetts workers spent more and more time commuting to work (Table 2). In fact, the amount of time increased both in absolute terms and as compared with the national average. In 1980, the average Massachusetts commuter spent 21.4 minutes getting to work each way.<sup>4</sup> At that time, the Commonwealth had the 14th longest average commute time in the U.S. but was roughly in line with the national average commute time (21.4 vs. 21.7 minutes). By 1990, the average travel time for Massachusetts commuters had

increased to 22.7 minutes, slightly outpacing the U.S. average commute time of 22.4 minutes for the 9th longest commute in the nation.

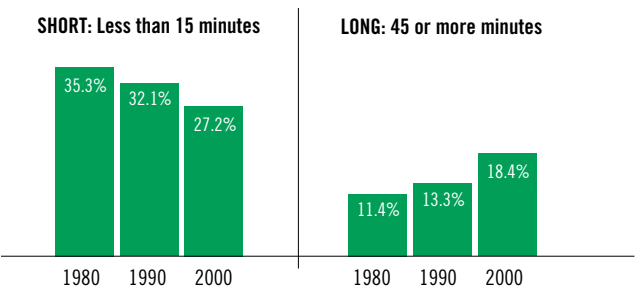
Commuting times in Massachusetts continued to increase during the 1990s, and by the year 2000 the average commute had reached 27.0 minutes. This 19 percent increase in commuting time significantly outpaced the national increase, resulting in an average commute that is 1.5 minutes longer than the U.S. average of 25.5 minutes. However, Massachusetts retained its position as 9th longest in the nation because many other states with long commuting times also experienced increases during the decade.

Moreover, over the past two decades, the proportion of commuters with a short commute (less than 15 minutes) has been shrinking, while the proportion of workers with long commutes (at least 45 minutes) has been growing. In 1980, 35 percent of all workers could boast of a short commute, but by 2000 that number had fallen to 27 percent. While the share of long commuters was 11 percent in 1980, by 2000 nearly one in five commuters (18%) spent at least 45 minutes each way getting to work (Figure 5).

**Regional Differences**

In 2000, the largest share of long commuters lived in the Southeast region, where more than one in five workers (22%) spent at least 45 minutes getting to work (Table 3). The Greater Boston, Central, and Northeast regions also have quite high shares of long commuters. Central Massachusetts also experienced a very large increase, 125 percent, in its share of long commuters (Figure 6). On the other end of the spectrum, the Berkshire and Cape and Islands regions are home to the largest shares of short commuters, with slightly less than half of the workers in those regions spending less than 15

**FIGURE 5. Share of Short and Long Commuters in Massachusetts, 1980–2000**



Source: U.S. Census, Journey to Work Data, 1980, 1990, 2000

**TABLE 3. Share of Short, Medium, and Long Commuters by Region, 1980–2000**

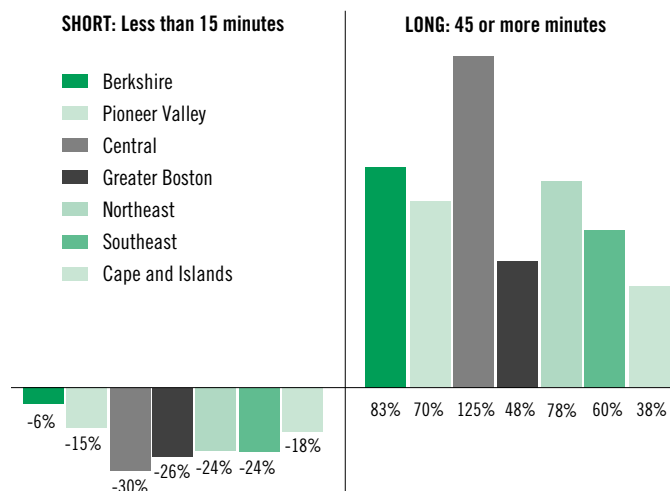
REGION	SHORT: LESS THAN 15 MINUTES			MEDIUM: 15 TO 44 MINUTES			LONG: 45 OR MORE MINUTES		
	1980	1990	2000	1980	1990	2000	1980	1990	2000
Berkshire	50.2	49.2	47.2	45.3	45.1	44.7	4.4	5.7	8.1
Cape and Islands	51.3	47.3	41.8	39.5	43.3	45.4	9.2	9.4	12.8
Central	42.7	36.3	29.8	49.6	51.5	52.8	7.7	12.2	17.4
Greater Boston	29.5	26.6	22.0	56.9	58.9	57.9	13.6	14.5	20.1
Northeast	37.1	32.9	28.0	52.1	53.1	52.8	10.8	14.0	19.2
Pioneer Valley	40.3	38.7	34.2	54.0	53.8	56.0	5.7	7.6	9.8
Southeast	36.8	33.8	27.9	49.6	50.1	50.2	13.6	16.1	21.8
<b>Statewide</b>	<b>35.3</b>	<b>32.1</b>	<b>27.2</b>	<b>53.3</b>	<b>54.6</b>	<b>54.4</b>	<b>11.4</b>	<b>13.3</b>	<b>18.4</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 1990, 2000

minutes commuting to work, as compared with only 27 percent statewide. Overall, however, dramatic increases in the shares of long commuters show that the trend toward longer commute times is being experienced to varying degrees in all regions of the state.

While the trend toward longer commutes is evident statewide, there are significant differences in commuting times within the state, and commuting times can vary considerably across the state (Figure 7). With an average commute time of 41.6 minutes, workers in Middlefield have the longest average commute time in the state. In fact, in 2000, six out of the top 10 cities/towns with the longest commutes were small, rural hill towns in Western Massachusetts. Workers in Worthington, Tolland, Chester, Cummington, and Blandford all ranked near the top of the list of highest average commute times (Table 4). While these individual towns are very small in terms of their population, a clear pattern of long commutes emerges in this region of the state. In addition to this cluster of towns, there are four other clusters of cities and towns across the state where workers endure particularly long commute times. One large cluster of long commuters can be found along the coast in Plymouth County, which is also the

**FIGURE 6. Regional Change in Shares of Short and Long Commuters, 1980–2000**



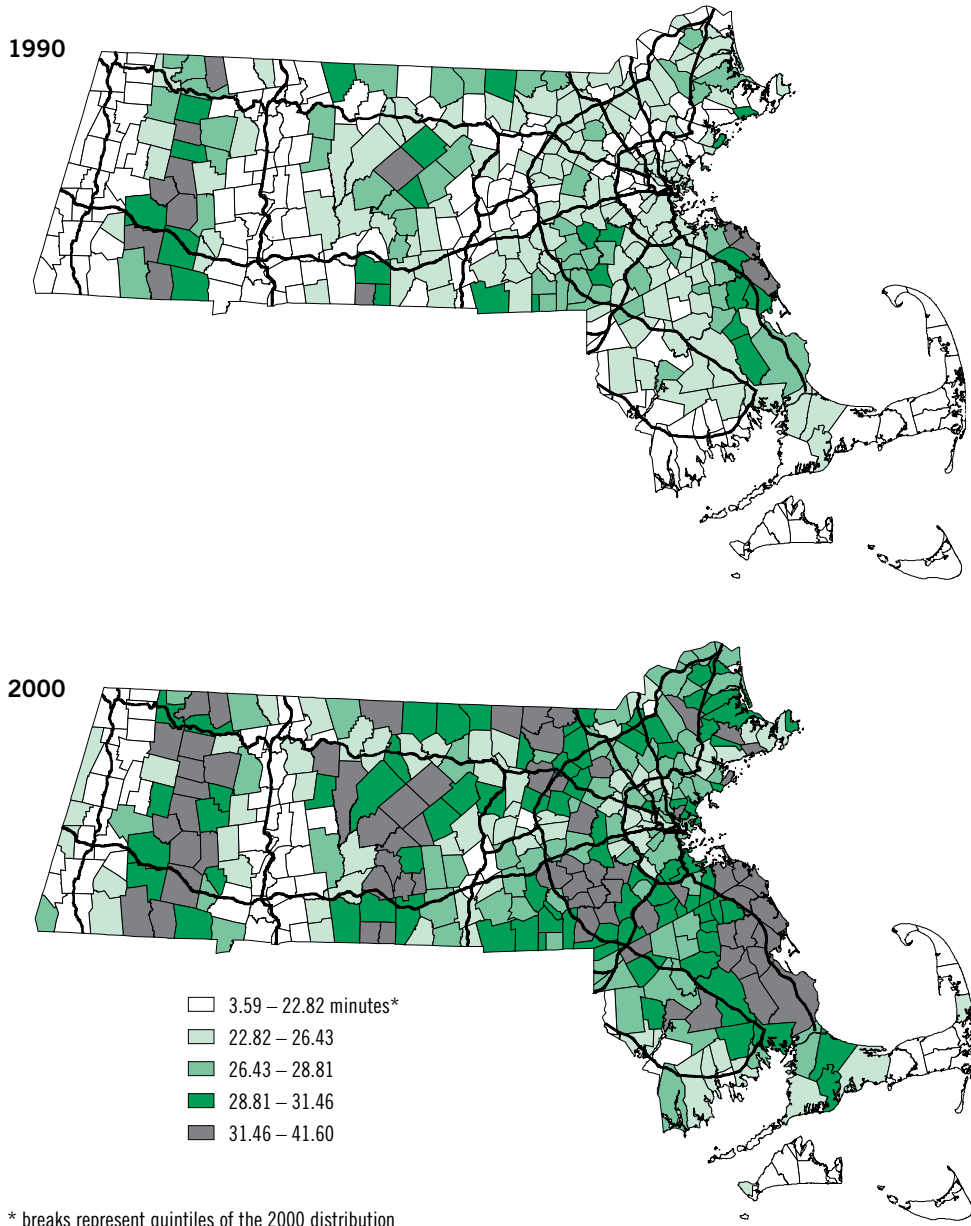
Source: Authors' calculations using U.S. Census, Journey to Work Data, 1980, 2000

**TABLE 4. Ten Longest Commutes in Massachusetts (in minutes), 1990 and 2000**

CITY/TOWN	REGION	1990 AVG	1990 RANK	2000 AVG	CHANGE	2000 RANK
Middlefield	Pioneer Valley	34.8	2	41.6	19.6%	1
Plympton	Southeast	29.8	25	41.5	39.0%	2
Worthington	Pioneer Valley	32.2	8	40.5	25.8%	3
Hull	Greater Boston	34.8	1	39.4	13.3%	4
Tolland	Pioneer Valley	34.2	3	39.4	15.3%	5
Chester	Pioneer Valley	31.7	13	38.9	22.6%	6
Duxbury	Southeast	31.2	16	38.7	24.2%	7
Cummington	Pioneer Valley	30.4	22	38.3	25.8%	8
Scituate	Southeast	34.1	4	38.1	11.8%	9
Blandford	Pioneer Valley	30.8	20	37.5	21.6%	10

Source: U.S. Census, Journey to Work Data, 1990, 2000

**FIGURE 7. Average Commute Time by City and Town in Minutes, 1990–2000**



\* breaks represent quintiles of the 2000 distribution  
 Source: U.S. Census, Journey to Work Data, 1990, 2000

county with the longest average commute in the state. A second cluster is located in the area in between Interstate 95 and the Massachusetts Turnpike in the southern part of the Metrowest region. Workers in Hopkinton, Ashland, Holliston, and Sherborn have longer than average commutes. There also appears to be a cluster of communities with long average commute times along the New Hampshire bor-

der that includes: Ashburnham, Ashby, Dunstable, Groton, Pepperell, and Winchendon. Finally, in Worcester County, workers from Barre, Oakham, and New Braintree all must contend with long average commuting times. As can be seen in Figure 7, while average commute times were shorter in 1990, the same five distinct clusters of long commutes existed: between Route 7 and Route 91 in

western Mass.; in the center of the state in Worcester County; near the New Hampshire border north of Route 2; the Metrowest-495 South region; and along the coastline of Plymouth County. The times are getting worse, but the patterns are the same.

Not surprisingly, some of the shortest average commute times can be found on Martha's Vineyard and Nantucket, where commutes are physically constrained by the limited size of these islands (Table 5). Workers in Gosnold enjoy the shortest commutes in the state, with an average time of less than four minutes. In addition, workers in Provincetown and Orleans also enjoy short commutes. Outside the Cape and the Islands, the only other cities and towns in the top 10 for shortest commutes are Lenox and Williamstown.

While there are numerous reasons for local variation in average commuting times, three key factors help us understand why Massachusetts commute times are increasing and why our commutes are longer than those of the rest of the nation: 1) mode of transportation; 2) increasing congestion on the roadways; and 3) increasing distance traveled to work.

### Commute Times and Mode of Transportation

While average commuting times in Massachusetts have been increasing for all commuters regardless of what mode of transportation they use to get to work, commuters who take public transit have consistently experienced the highest average commuting times (Table 6).<sup>5</sup>

Commuters using commuter rail and ferryboat have the longest average travel times of all commuters in the Commonwealth (greater than 60 minutes). Interestingly, commuters driving to work, on average, spend less than 30 minutes getting to work, helping to explain

**TABLE 5. Ten Shortest Commutes in Massachusetts (in minutes), 1990 and 2000**

CITY/TOWN	REGION	1990 AVG	1990 RANK	2000 AVG	CHANGE	2000 RANK
Gosnold	Cape & Isl.	12.7	7	3.6	-71.6%	1
Nantucket	Cape & Isl.	9.7	1	9.6	-1.2%	2
Provincetown	Cape & Isl.	11.6	5	13.4	15.6%	3
Williamstown	Berkshire	12.6	6	13.6	8.2%	4
Orleans	Cape & Isl.	15.9	19	14.8	-7.3%	5
Tisbury	Cape & Isl.	11.2	4	15.3	36.7%	6
Lenox	Berkshire	16.9	30	15.5	-8.5%	7
Edgartown	Cape & Isl.	10.0	2	15.6	55.3%	8
Chilmark	Cape & Isl.	15.9	18	16.3	2.8%	9
Oak Bluffs	Cape & Isl.	11.2	3	16.5	46.9%	10

Source: U.S. Census, Journey to Work Data, 1990, 2000

the growing appeal of driving alone. It is important to note that commuters who drive have more options to shorten their commute time by traveling during off-peak hours or finding alternative roads. In contrast, those who take public transit face more of a fixed cost in terms of their travel time to work.

The fact that Massachusetts has both a large share of public transit commuters and one of the longest commute times in the nation is consistent with the experience of other similar

**TABLE 6. Average Time by Mode (in minutes), 1990–2000\***

MODE	1990	2000	% INCREASE
Drive Alone	21.8	25.7	18.1%
Carpool	24.1	27.5	13.9%
Public Transportation	37.0	44.2	19.4%
Streetcar & Subway	37.0	40.6	9.9%
Bus & Trolley Bus	33.4	40.5	21.3%
Commuter Rail	53.1	62.4	17.5%
Ferryboat	52.3	65.0	24.2%
Other Private Transport	19.6	35.1	79.5%
Taxicab	15.4	17.7	15.2%
Motorcycle	18.0	28.1	55.9%
Bicycle	16.5	17.9	8.0%
Other	21.8	48.8	123.6%
Walk	10.8	12.6	16.6%
<b>Grand Total</b>	<b>22.7</b>	<b>27.0</b>	<b>19.3%</b>

\*These times are slightly different than those reported in the U.S. Census Journey to Work Data. Source: U.S. Census, 5% Public Use Microdata Sample (PUMS), 1990, 2000

**TABLE 7. Top Ten States by Average Commute Time and by Share Commuting via Public Transportation, 2000\***

RANK	STATE	2000 AVG COMMUTE TIME (MINUTES)	RANK	STATE	SHARE PUBLIC TRANSIT (PERCENT)
1	<b>New York</b>	31.7	1	<b>Washington, D.C.</b>	33.2
2	<b>Maryland</b>	31.2	2	<b>New York</b>	24.4
3	<b>New Jersey</b>	30.0	3	<b>New Jersey</b>	9.6
4	<b>Washington, D.C.</b>	29.7	4	<b>Massachusetts</b>	8.7
5	<b>Illinois</b>	28.0	5	<b>Illinois</b>	8.7
6	<b>California</b>	27.7	6	<b>Maryland</b>	7.2
7	Georgia	27.7	7	Hawaii	6.3
8	Virginia	27.0	8	Pennsylvania	5.2
9	<b>Massachusetts</b>	27.0	9	<b>California</b>	5.1
10	West Virginia	26.2	10	Washington	4.9
	U.S. Average	25.5		U.S. Average	4.7

\* bolded entries appear in both tables  
 Source: U.S. Census, Journey to Work Data, 2000

states. Of the 10 states with the longest average commuting times, seven also appear in the list of the 10 states with the largest share of commuters using public transportation (Table 7). Thus, the fact that Massachusetts has such a high rate of public transportation use relative

for many commuters the benefits of public transportation outweigh the costs.

There are, of course, significant qualitative differences in the experience of commuting time spent on public transportation compared to driving alone. While the average commute via public transit consumes more time, public transit users have the option of using their commuting times in a number of productive ways. Commuters using public transit may work, read, socialize, or even sleep during significant portions of their daily commute. Additionally, when one considers the costs of fuel, tolls and parking, for many commuters public transit is a more cost effective mode of transportation to work. And, as will be described in a later section, the primary alternative to public transit, the automobile, is associated with significant environmental costs.

**PUBLIC TRANSPORTATION AND LONG COMMUTES GO HAND IN HAND.**

to the nation helps to explain why our commute times have consistently been longer than the national average.

It would be a mistake, however, to conclude that the use of public transit is, in and of itself, responsible for lengthening commuting times in Massachusetts, although it is clearly an important contributing factor. Rather, public transportation and long commutes seem to go hand in hand. It is likely that commuters choose to take public transit if they would also face a long commute time driving alone. Moreover, the dramatic increases in the share of people on the South Shore who chose to take the commuter rail when that became an option suggests that when provided a choice,

**Worsening Traffic Congestion**

Increasing roadway congestion is a second key factor that helps to explain lengthening commute times in Massachusetts. The number of cars on Massachusetts highways has increased dramatically since the beginning of the 1990s,



as has the number of miles driven by Massachusetts residents, according to the Federal Highway Administration (FHWA).

In 1993, there were approximately 215 million traffic counts each day on the roads of Massachusetts, according to the Highway Performance Monitoring System (HPMS). Between 1993 and 2001, that number increased by almost 14 percent to 244 million counts per day (Table 8). Worcester and Berkshire Counties experienced the greatest percentage increases in traffic volume, while the highest absolute increase, an additional 6.9 million counts, occurred in Middlesex County.<sup>6</sup>

An analysis of the highways in the communities served by the Boston Metropolitan Planning Organization (MPO) illustrates how congestion has increased and spread throughout much of the Eastern Massachusetts highway system over the last thirty years (Figure 8).<sup>7</sup> In 1980, traffic congestion was largely confined to the Southeast Expressway and Route 128, but, relatively speaking, even these places were not experiencing very high levels of congestion. By 2000, high levels of congestion extended to the northern and southern parts of Route 93 and along Route 128, and lower levels of congestion spread out to northern portions of Route 495 and other adjoining roads. These trends are confirmed by a recent study by the Texas Transportation Institute, which examined 85 urban areas in the U.S. found that Boston was the 9th most congested urban area during peak commuting hours.<sup>8</sup>

The increased congestion is the result of a variety of factors. First, there are substantially more drivers and more cars on the road than in the past. Between 1992 and 2002, the number of licensed drivers in Massachusetts increased by 12 percent, and even more significantly, the number of car registrations in-

**TABLE 8. Average Annual Daily Traffic Counts in Massachusetts, by County, 1993 and 2001**

COUNTY	1993	2001	CHANGE	% CHANGE
Barnstable	8,185,564	9,455,455	1,269,891	15.5%
Berkshire	4,075,274	4,833,067	757,793	18.6%
Bristol	16,202,068	17,680,231	1,478,163	9.1%
Dukes	325,093	328,117	3,024	0.9%
Essex	24,881,011	28,381,574	3,500,563	14.1%
Franklin	2,455,518	2,726,875	271,357	11.1%
Hampden	15,234,632	16,594,450	1,359,818	8.9%
Hampshire	4,276,392	4,677,172	400,780	9.4%
Middlesex	50,824,049	57,745,300	6,921,251	13.6%
Nantucket	48,940	47,648	-1,292	-2.6%
Norfolk	26,994,517	30,675,620	3,681,103	13.6%
Plymouth	13,147,574	15,330,761	2,183,187	16.6%
Suffolk	21,652,150	23,767,816	2,115,666	9.8%
Worcester	26,908,018	31,982,728	5,074,710	18.9%
<b>Massachusetts</b>	<b>215,210,800</b>	<b>244,226,814</b>	<b>29,016,014</b>	<b>13.5%</b>

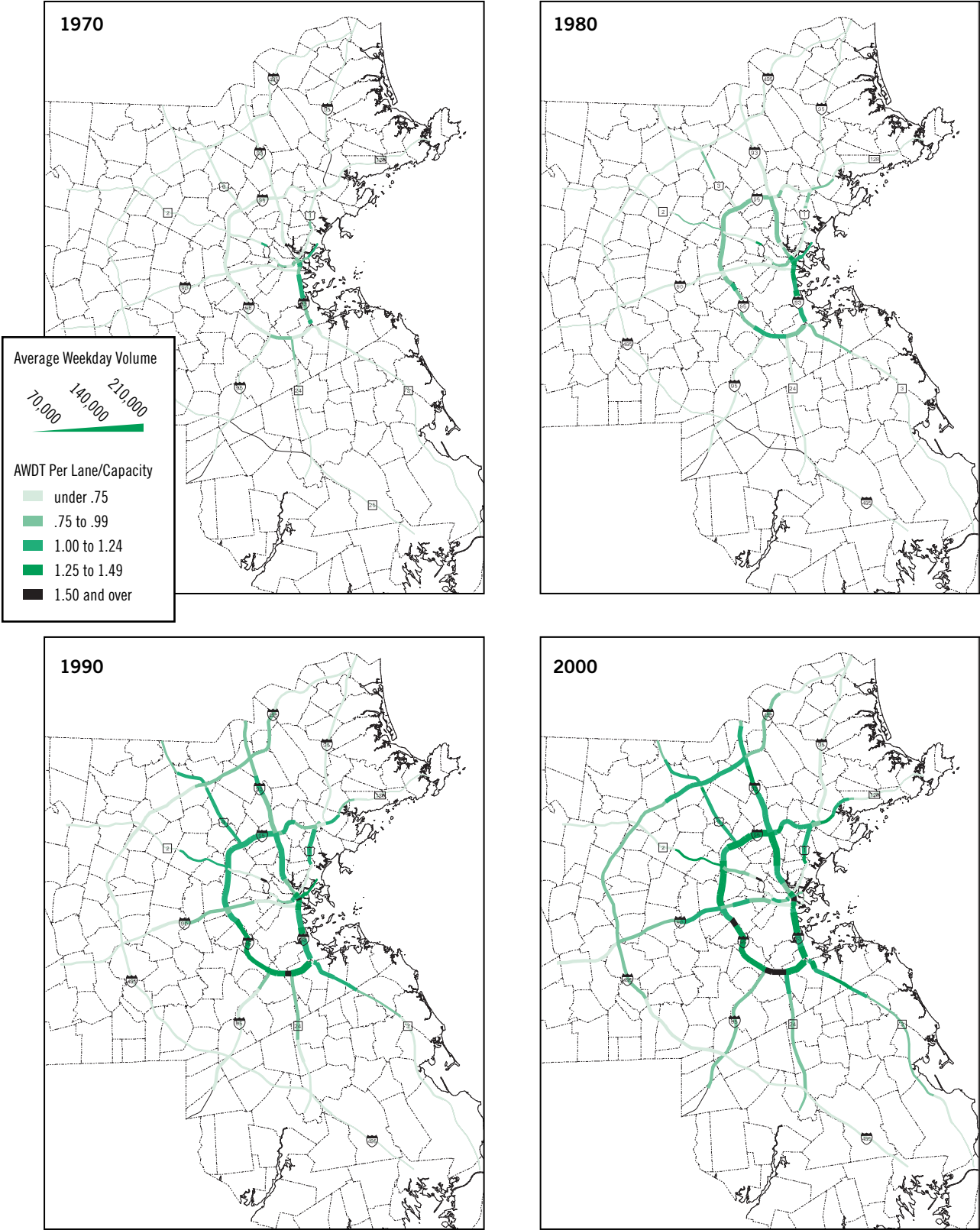
Source: Bureau of Transportation Statistics, Highway Performance Monitoring System (HPMS), 1993-2001

creased a whopping 48 percent during this same period.<sup>9</sup> In addition, much of the state's population growth has occurred in Plymouth County and the southern suburbs of Boston, areas where congestion has increased dramatically. Finally, the large decline in the rate of carpooling over the last two decades and the rise of commuters driving alone has contributed to more cars on the Commonwealth's roads and highways during peak commuting times.

### **Increasing Distances Traveled by Massachusetts Commuters**

One of the difficult choices that Massachusetts working families face is balancing the need to retain access to the opportunities presented by the dynamic Greater Boston regional economy with the high cost of living that increasingly makes it difficult to afford to live in the eastern half of the state. The choice of a residential location is complex, involving numerous factors and subjective assessments

**FIGURE 8. Daily Traffic Volumes and Congestion Levels on Limited-Access Highways in Eastern Massachusetts**



Source: Boston Metropolitan Planning Organization. 2004. *Mobility in the Boston Region: Existing Conditions and Next Steps: The 2004 Congestion Management System Report*. Central Transportation Planning Staff. Figure 3-6.

made by each household as to the relative importance of housing quality and costs; proximity to work; the availability of local amenities (including the quality of local services and educational offerings); location of family and friends; and access to public transit, major roadways and other transportation facilities. While the importance assigned to these considerations varies from household to household, trends in the distance traveled by Massachusetts commuters offer some insight into how commuting considerations are influencing the choices workers make about where to live in Massachusetts.

Over the last decade, Massachusetts workers have, on average, been traveling increasing distances to work. In order to measure distance traveled, we have developed a distance matrix that considers the distance between the towns and cities workers live in and the towns and cities where they work. To track changes in the commuting distance traveled we multiply the distances between the towns of residence and work by the number of workers who make that particular commute, and estimate the distance traveled for the in-town commuters, which in any given city account for a substantial portion of all commuters.<sup>10</sup> Because we use an “as the crow flies” measure for the distance traveled, we are almost certainly underestimating the number of miles people are traveling, but this comparison allows us to examine changes in commuting distances over time in a consistent manner. Between 1990 and 2000, the distance traveled by the average Massachusetts commuter increased approximately 10 percent, making it clear that part of the reason for lengthening commute times is the fact that Massachusetts workers are traveling greater distances to work.

## Commuting between Different Regions of Massachusetts

Examining the patterns of interregional travel provides another lens through which to understand the changes in distances traveled by Massachusetts commuters. In 2000, the vast majority of workers (80%) worked within their region of residence, while 17 percent of all workers traveled to another region within Massachusetts and 3 percent of workers commuted to jobs located outside of the state (Table 9). Commuters in the Northeast region are the most likely to work in another region of Massachusetts, with 33 percent working outside their home region. Most of these commuters work in Greater Boston. The Southeast and Central regions are also home to large num-

## MASSACHUSETTS WORKERS ARE TRAVELING GREATER DISTANCES TO WORK.

bers of workers, 30 percent and 25 percent respectively, who travel to another region to work. Again, most of these workers travel to Greater Boston. In Western Massachusetts, the Berkshire and Pioneer Valley regions have the fewest workers who commute to another region, but as we shall see, large numbers of residents travel out of state for work.

Since 1990, the share of workers traveling to another region has increased slightly from 14 to 17 percent. At the same time, the number of Massachusetts workers expanded from roughly 3.0 million to 3.1 million. As a result, by 2000 an additional 104,000 workers were commuting to a different region. This marked increase in interregional commuting further supports the idea that Massachusetts workers are traveling increased distances to work. Com-

muting times also reflect the geographic distribution of job opportunities in Massachusetts. Because commuting patterns reflect the relationship between where people live and where they work, it is important to understand the geography of jobs across the state and whether that has changed over time.

### Job Centers and Bedroom Communities

The amount of time that commuters spend getting to and from work is closely related to the location and distribution of job opportunities. When we consider the number of jobs relative to the number of workers in a given city or town, we find that some Massachusetts towns are clearly job centers (more jobs than workers), while others are bedroom communities (more workers than jobs). Specifically, for this report we have defined job centers as those communities where the job-to-worker ratio exceeds the state average by more than 10 percent (In 2000, the state average of jobs to workers was 1.02). Over the last 10 years, the location of these job centers has remained roughly constant. In general, the same places that have experienced job growth have also seen population growth. In 2000, there were several notable clusters of job centers across the

state (Figure 9). In western Massachusetts, the Interstate 91 corridor is lined with job centers. Closer to Boston, along I-495, Westborough, Southborough, and Marlborough stand out as job centers, and along Route 128, Burlington, Waltham, and Westwood are distinctive job centers. These job centers are located along major highways, and these amenities undoubtedly help to make these locations more attractive to employers and employees alike. The city of Boston itself is also, of course, a major job center with nearly 500,000 jobs compared with a resident workforce of only 283,000.

Clearly, living far away from a job center results in a longer average commute time. Residents of the western Massachusetts communities between Route 7 and Interstate 91 have among the longest commutes in the state largely due to the distance workers must travel to reach any significant concentration of job opportunities, and many of these opportunities are actually out of state. Proximity to major roads and highways is also an important factor. Those who live in the same region but live along the job centers on Route 7 and I-91 can boast of some of the shortest commute times in the state.

While living far from a job center is a recipe

**TABLE 9. Regional Commuting in Massachusetts, 1990–2000**

RESIDENTS OF:	1990			2000		
	WORK IN REGION	WORK IN OTHER MA REGION	WORK OUT OF STATE	WORK IN REGION	WORK IN OTHER MA REGION	WORK OUT OF STATE
Berkshire	94.2%	1.9%	4.0%	92.7%	2.7%	4.6%
Cape and Islands	88.4%	10.5%	1.2%	87.0%	11.4%	1.7%
Central	78.6%	19.0%	2.3%	72.9%	24.5%	2.6%
Greater Boston	91.1%	7.6%	1.3%	89.0%	9.7%	1.3%
Northeast	66.5%	29.9%	3.7%	63.2%	32.6%	4.2%
Pioneer Valley	89.2%	2.8%	8.0%	88.6%	3.7%	7.7%
Southeast	68.3%	26.3%	5.4%	65.2%	29.5%	5.3%
<b>Statewide</b>	<b>82.5%</b>	<b>14.4%</b>	<b>3.1%</b>	<b>79.6%</b>	<b>17.2%</b>	<b>3.3%</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 1990, 2000

for a long commute, living near a job center does not guarantee a short commute in Massachusetts. This is most apparent when we consider the aforementioned commuting hot spot in the southern portion of the Metrowest region. Despite the presence of several nearby job centers, workers living in this region of the state have among the longest average commute times in the state. Well-documented congestion issues in the area partially explain this seeming discrepancy.<sup>11</sup> In addition, the fact that workers living in communities that abut job centers can still be subject to long average commute times raises questions about the local job mix, the degree of specialization, and more generally uneven economic development patterns across the state.

### Uneven Economic Development

Over the past two decades the Massachusetts economy has undergone a transformation. This transformation has involved significant changes to the Commonwealth's industrial structure that have been driven and sustained by the Bay State's extraordinary science and

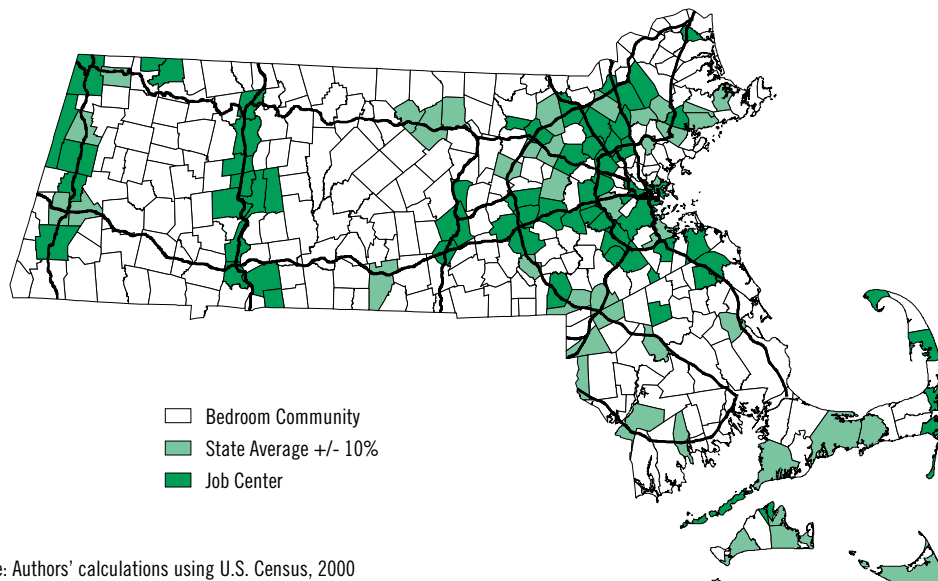
technology infrastructure and world-class workforce.<sup>12</sup> While technology-intensive export-oriented industries have become critical drivers of growth in the state economy, the regions of Massachusetts located outside of the 495 belt have not yet fully benefited from this economic prosperity.<sup>13</sup> These patterns of

## LIVING NEAR A JOB CENTER DOES NOT GUARANTEE A SHORT COMMUTE.

uneven development have left Massachusetts a state of regional haves and have-nots.

The relatively well-paying innovation economy jobs created during the 1990s were largely concentrated in Greater Boston and Northeastern Massachusetts. Moreover, many of these jobs are highly specialized, requiring workers to seek out specific jobs that match their skills, and these jobs are not evenly distributed across the regions. While some of the benefits of this growth have spilled over into adjacent regions and neighboring states, communities in the central, southeastern and western regions of the state have mostly not

FIGURE 9. 2000 Job Centers



Source: Authors' calculations using U.S. Census, 2000

experienced the benefits of the new Massachusetts economy.

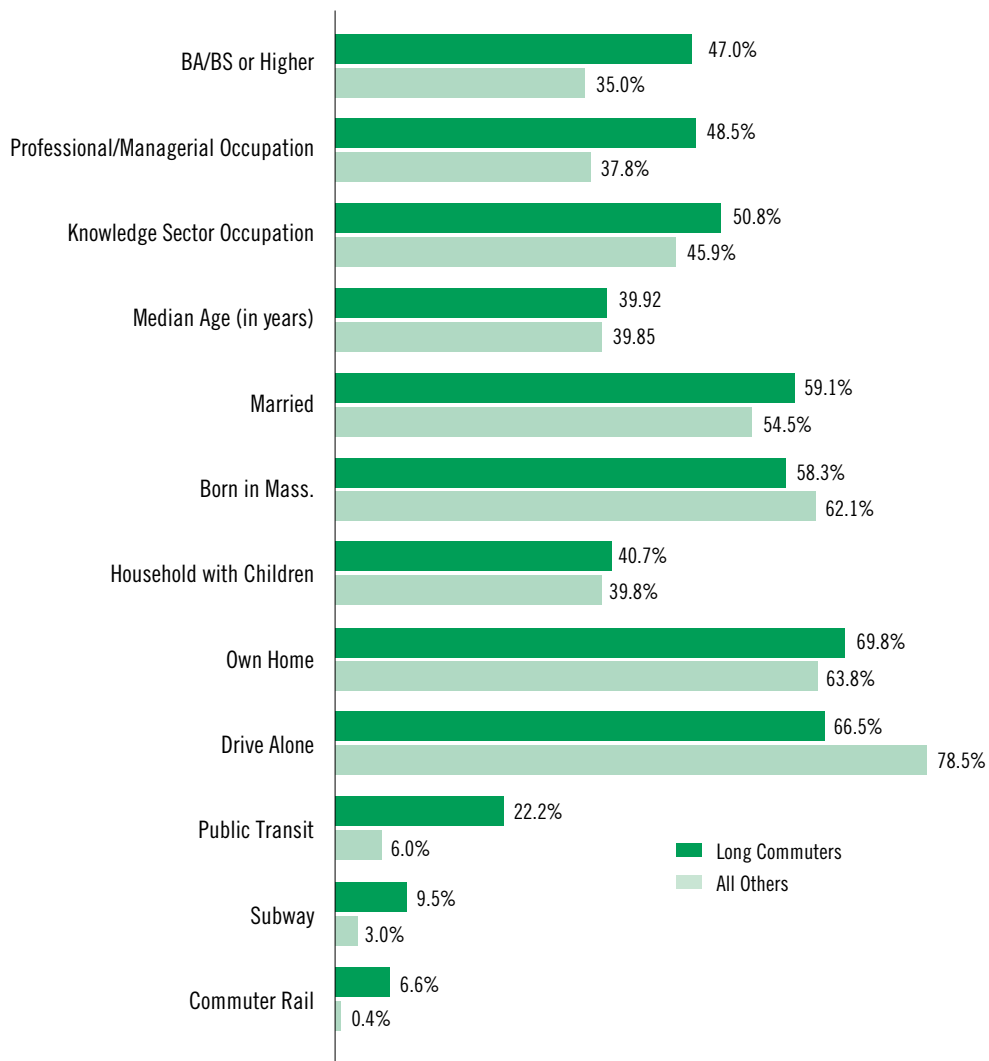
The result of the uneven economic development and the specialization of jobs is that many Massachusetts workers face a difficult set of choices. For many, choosing to live in a relatively lower cost area of the state requires them to tolerate an increasingly long commute time. And many of those choosing to live in Greater Boston are required to spend growing portions of their incomes to keep up

with the region's high cost of living, particularly for housing.<sup>14</sup> As we shall see, these regionally imbalanced development patterns, by encouraging longer and longer commutes, are accompanied by significant environmental and civic costs.

### The Profile of Long Commuters

In many respects, the Massachusetts commuters who spend at least 45 minutes each way commuting to work look very similar to their

**FIGURE 10. Demographic Characteristics of the Long Commuters Compared with All Other Mass. Commuters**

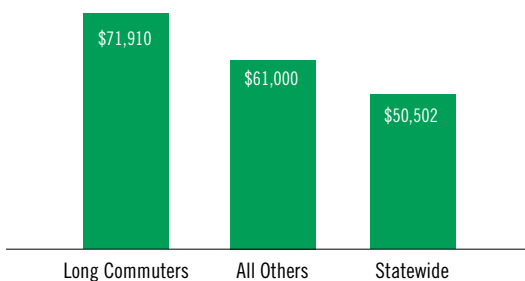


Source: Authors' calculations using U.S. Census, 5% Public Use Microdata Sample, 2000 and U.S. Census, Journey to Work Data, 2000

peers with shorter commutes (Figure 10). In general, they are about the same age, and as likely to be married, to have children, and to have been born in Massachusetts as their counterparts with less time-consuming commutes. Significantly, long commuters were less likely to drive alone to work and more likely to use public transit than all other commuters, again underscoring the association between mode of transportation and commuting time.

In addition, there are a number of notable socioeconomic differences between the profile of long commuters and all other commuters. Overall, the long commuters are a relatively advantaged group economically. Nearly half of long commuters (47%) have a bachelor's degree or higher, compared with only 35 percent of all other commuters. In addition, nearly half (49%) are employed in professional or managerial occupations, compared with only 38 percent of other commuters. Long commuters are also somewhat more likely to work in knowledge sector industries (51% vs. 46%).<sup>5</sup> It then follows that the typical annual household income of long commuters is nearly \$11,000 higher than that of all other commuters (\$71,910 vs. \$61,000). The median household income of long commuters is also

**FIGURE 11. Median Household Income of the Long Commuter Compared with All Other Mass. Commuters and All Mass. Residents**



Source: Authors' Calculations using U.S. Census, 5% Public Use Microdata Sample, 2000

well above the state median, which includes households headed by both retired and unemployed individuals (Figure 11). Additionally, long commuters are also somewhat more likely to own their own homes. Nearly 70 percent of long commuters own their homes, compared with 64 percent of all other commuters. Considering the high cost of housing in Massachusetts, this difference suggests that the longer commute times may in part represent a willingness of Massachusetts workers to trade away shorter commutes in order to purchase a home.

### Interstate Commuting: Commuting into Massachusetts

Increasingly, workers are commuting into Massachusetts from other states. In 2000, 176,741 people commuted into Massachusetts from another state, representing roughly 5.5 percent of the state's workforce. The number of workers living in another state and commuting into Massachusetts rose 15 percent between 1990 and 2000. There are particularly strong commuting streams into Massachusetts from New Hampshire and Rhode Island. Nearly half of all out-of-state commuters come from New Hampshire (46.1%). In 2000, 81,490 people commuted into Massachusetts from the Granite State, an increase of nearly 10 percent from 1990. Nearly one in three (31.8%) of out-of-state commuters came from Rhode Island in 2000. The number of workers living in Rhode Island and working in Massachusetts grew 21 percent between 1990 and 2000 (Table 10).

The destinations of the out-of-state commuters follow predictable patterns in terms of workers traveling to local labor markets closest to their home states. About 84 percent of commuters originating in other states

**TABLE 10. Commuting into Massachusetts, 1990-2000**

COMMUTING FROM:	1990	SHARE OF TOTAL	2000	SHARE OF TOTAL	INCREASE IN NUMBER
Connecticut	12,258	8.0%	14,045	7.9%	14.6%
Vermont	2,461	1.6%	2,890	1.6%	17.4%
Rhode Island	46,391	30.2%	56,138	31.8%	21.0%
New Hampshire	74,382	48.5%	81,490	46.1%	9.6%
New York	5,676	3.7%	6,049	3.4%	6.6%
Maine	3,171	2.1%	5,048	2.9%	59.2%
All Other Places	9,182	6.0%	11,081	6.3%	20.7%
<b>Total</b>	<b>153,521</b>	<b>100.0%</b>	<b>176,741</b>	<b>100.0%</b>	<b>15.1%</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 1990, 2000

commute to Eastern Massachusetts (comprised of the Greater Boston, Northeast, and Southeast regions). More than half (55%) of the commuters originating in New Hampshire work in the Northeast region. Along our southern border, in 2000 over half of the Rhode Island commuters to Massachusetts traveled to work in the Southeast region (28,644 people) (Table 11).

Most of the out-of-state commuters traveling into the Pioneer Valley region originate in Connecticut. In 1990, 5,273 commuters lived in Connecticut and worked in Pioneer Valley, a number that grew to 5,913 by 2000, up 10.8 percent. Significant numbers of Massachusetts-bound workers living in the

Nutmeg State work in Central Massachusetts, over 4,500 in 2000. And in the Berkshires, over 2,500 New Yorkers cross the border to work in that county each day. Overall, between 1990 and 2000, the number of commuters traveling from another state increased in every region in Massachusetts.

#### **Interstate Commuting: Commuting out of Massachusetts**

Significantly fewer people live in Massachusetts and work in another state. In 2000, 101,081 workers lived in Massachusetts and worked in another state, compared with the 176,741 workers who come to the Bay State (Table 12). Thus, on balance the Commonwealth's labor

**TABLE 11. Destinations of Commuters Traveling into Massachusetts, 2000**

RESIDENCE STATE	WORKPLACE REGION							GRAND TOTAL
	BERKSHIRE	CAPE AND ISLANDS	CENTRAL	GREATER BOSTON	NORTHEAST	PIONEER VALLEY	SOUTHEAST	
New Hampshire	14	156	3,519	31,419	45,067	686	629	<b>81,490</b>
Rhode Island	37	345	3,560	22,640	760	152	28,644	<b>56,138</b>
Connecticut	344	137	4,584	2,342	421	5,913	304	<b>14,045</b>
New York	2,557	75	272	2,015	309	663	158	<b>6,049</b>
Maine	6	121	242	2,715	1,634	183	147	<b>5,048</b>
Vermont	1,175	45	86	587	137	784	76	<b>2,890</b>
All Other Places	119	319	896	7,447	887	697	716	<b>11,081</b>
<b>Total</b>	<b>4,252</b>	<b>1,198</b>	<b>13,159</b>	<b>69,165</b>	<b>49,215</b>	<b>9,078</b>	<b>30,674</b>	<b>176,741</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 2000



**TABLE 12. Destinations of Massachusetts Workers Commuting Out of the State, 1990–2000**

COMMUTING TO:	1990	SHARE OF TOTAL	2000	SHARE OF TOTAL	INCREASE IN NUMBER
Connecticut	27,166	29.0%	27,003	26.7%	-0.6%
Vermont	1,416	1.5%	1,619	1.6%	14.3%
Rhode Island	29,136	31.1%	31,506	31.2%	8.1%
New Hampshire	18,952	20.3%	23,505	23.3%	24.0%
New York	4,856	5.2%	5,036	5.0%	3.7%
Maine	1,344	1.4%	898	0.9%	-33.2%
All Other Places	10,670	11.4%	11,514	11.4%	7.9%
<b>Total</b>	<b>93,540</b>	<b>100.0%</b>	<b>101,081</b>	<b>100.0%</b>	<b>8.1%</b>

Source: U.S. Census, Journey to Work Data, 1990, 2000

market attracts significantly more commuters from other states than it loses to them.

While the number of commuters leaving Massachusetts for another state is rising, it is increasing at a significantly slower rate than the number of in-state commuters (8.1% vs. 15.1%). Rhode Island was the most common destination for the out-of-state commuters: 31,506 Bay State residents, mostly from the Southeast region, work in the Ocean State. Commuters to Rhode Island accounted for 31 percent of the total out-of-state commuters. Between 1990 and 2000, the largest increase in Massachusetts commuters leaving the state were those who commuted to New Hampshire. In 2000, 23,505 Bay State resi-

dents worked in the Granite State, 24 percent more than in 1990. There are also significant numbers of Massachusetts residents who work in Connecticut, approximately 27,000, over 80 percent of whom live in the Pioneer Valley (Table 13).

The regional patterns of commuting in and out of the state are also revealing. Five out of the seven regions attract more workers than they lose. Greater Boston is the biggest winner, attracting 69,165 workers from other states, while only losing 16,965 Greater Boston residents to another state, a net gain of 52,200 workers (Table 14). The Northeast region also experienced a large net gain—29,978 workers in 2000. The Cape and Islands and the

**TABLE 13. Origins of Commuters Traveling Out of Massachusetts, 2000**

COMMUTING TO:	RESIDENCE REGION							GRAND TOTAL
	BERKSHIRE	CAPE AND ISLANDS	CENTRAL	GREATER BOSTON	NORTHEAST	PIONEER VALLEY	SOUTHEAST	
Rhode Island	14	523	2,784	4,567	319	99	23,200	<b>31,506</b>
Connecticut	991	164	2,170	923	310	21,890	555	<b>27,003</b>
New Hampshire	8	42	2,547	3,866	16,347	439	256	<b>23,505</b>
New York	1,334	318	466	1,735	381	490	312	<b>5,036</b>
Vermont	378	35	63	189	43	869	42	<b>1,619</b>
Maine	2	27	72	377	297	54	69	<b>898</b>
All Other Places	230	742	1,052	5,308	1,540	1,002	1,640	<b>11,514</b>
<b>Total</b>	<b>2,957</b>	<b>1,851</b>	<b>9,154</b>	<b>16,965</b>	<b>19,237</b>	<b>24,843</b>	<b>26,074</b>	<b>101,081</b>

Source: Authors' calculations using U.S. Census, Journey to Work Data, 2000

**TABLE 14. Net Interstate Commuters by Region**

	REGION							
	BERKSHIRE	CAPE AND ISLANDS	CENTRAL	GREATER BOSTON	NORTHEAST	PIONEER VALLEY	SOUTHEAST	STATEWIDE
Connecticut	-647	-27	2,414	1,419	111	-15,977	-251	-12,958
Maine	4	94	170	2,338	1,337	129	78	4,150
New Hampshire	6	114	972	27,553	28,720	247	373	57,985
New York	1,223	-243	-194	280	-72	173	-154	1,013
Rhode Island	23	-178	776	18,073	441	53	5,444	24,632
Vermont	797	10	23	398	94	-85	34	1,271
All Other Places	-111	-423	-156	2,139	-653	-305	-924	-433
<b>Interstate Total*</b>	<b>1,295</b>	<b>-653</b>	<b>4,005</b>	<b>52,200</b>	<b>29,978</b>	<b>-15,765</b>	<b>4,600</b>	<b>75,660</b>

\* Positive number indicates a gain for the Massachusetts region.  
 Source: Authors' calculations using U.S. Census, Journey to Work Data, 2000

Pioneer Valley regions are the two regions of the state that suffer a net loss of workers to other states. The numbers in the Cape and Islands are small. In 2000, that region lost 653 more workers than it gained. The negative commuter trade balance in the Pioneer Valley is much larger. In that region, two and half times as many workers leave the state for work compared to the number of workers who enter it (24,843 vs. 9,078 workers). In 2000, the Pioneer Valley lost 15,765 more people than it gained, with the vast majority of those workers commuting to Connecticut.

**The Costs of Commuting**

Lengthy commutes can make labor markets function more efficiently by expanding the number of potential workers available to employers, but they are also associated with tangible costs. Long-distance commuting has a negative impact on the physical environment, significant economic costs (lost output and reduced productivity), and personal and civic costs in terms of less time spent with family and engaged in community institutions.

**Environmental Costs**

Increases in commuting by automobile appear to be significantly contributing to air pollution in the region. The entire state of Massachusetts and areas adjacent to Greater Boston in New England are considered “non-attainment areas” for ozone pollution, according to the EPA, which rates the ozone levels as “serious.”<sup>16</sup> The chief source of the pollution is motor vehicle emissions. While overall carbon dioxide (CO<sub>2</sub>) emissions have been decreasing over time in Massachusetts, transportation-related contributions to this total have been increasing. Massachusetts had the highest increase in transportation-related emissions of all New England states. In fact, although Massachusetts did not have the highest increase in CO<sub>2</sub> emissions between 1990 and 1999, its transportation-related increase was higher than that experienced by the entire state of California.<sup>17</sup>

**Lost Time: Economic and Personal Costs**

Increased travel time can create frustrating and costly delays in the movement of goods. The economic costs of commuting include: lost work time, and therefore lost production to the regional economy; higher shipping costs;

and possibly higher employer costs to compensate workers for their longer commutes. Precisely quantifying these costs to the economy of lost time spent commuting is a complicated task, but it is clear that these costs are significant.<sup>18</sup>

In 1990, the average commuter spent 22.7 minutes traveling each way to work for a total of 45.4 minutes per day. Over the course of a year, the average commuter spent 10,215 minutes commuting, or the equivalent of 21 working days getting to and from work. By 2000, that number had increased by nearly 19 percent. In 2000, the average commuter spent 27 minutes getting to work each way, or 54 minutes per day. In 2000, the average Massachusetts commuter spent the equivalent of over 25 workdays traveling to and from work.

Increased commuting times obviously mean less available time to spend with family and friends, and less time for engagement in one's community. Social scientist Robert Putnam suggests that "[i]n round numbers the evidence suggests that each additional ten minutes in daily commuting time cuts involvement in community affairs by 10 percent—fewer public meetings attended, fewer committees chaired, fewer petitions signed, fewer church services attended, less volunteering, and so on."<sup>19</sup> In addition, a recent Boston Foundation survey found that nearly 90 percent of Boston respondents identified issues related to their employment situation as major barriers to increasing their participation in their community.<sup>20</sup> A recent MassINC survey also found that residents of Greater Boston were more likely than residents of other regions of the state to experience conflicts between their work and family responsibilities. Fifty-five percent of all parents surveyed reported that they regularly experience con-

licts between work and family.<sup>21</sup> While it is clear that declining levels of civic engagement and work-life conflicts are part of larger national trends, the increasing time spent getting to and from work by Massachusetts workers is likely contributing to these stresses.<sup>22</sup>

While the costs of commuting can be quite high, it is important to recognize that the willingness of increasing numbers of Massachusetts workers to commute longer distances to work does offer the state important benefits.

## INCREASED COMMUTING TIMES MEAN LESS AVAILABLE TIME TO SPEND WITH FAMILY AND FRIENDS.

The ability of the Commonwealth to attract workers from farther and farther away has helped the state to compensate for its slowly growing labor force and recent out-migration trends.<sup>23</sup> At the same time, it is also clear that the costs of increased commuting to the environment, the economy, families, and the community are significant.

### Concluding Thoughts

The primary competitive advantage of the Massachusetts economy is its highly skilled workforce. With few natural resources and relatively higher costs of living and doing business, the Commonwealth relies on its well educated population to attract and retain the critical export oriented industries that drive the Bay State's economic growth.

Maintaining a high quality of life is an important factor in our state's ability to compete for these highly skilled workers. Without a doubt, long commuting times negatively affect people's quality of life. In our state, commuting times are among the longest in the nation,

and they have been increasing at a fast pace, with the average worker today spending 27 minutes getting to work each way. As workers spend more time getting to work, less time is available to spend with families and communities, and this time crunch creates additional strains on families.

This increased pressure comes at the same time that families are facing increased financial pressure. The income gains that families have enjoyed are largely a result of more members of Massachusetts households working, and those members working more hours, which places additional time pressures on families.<sup>24</sup>

## MASSACHUSETTS WORKERS ARE TRADING AWAY SHORTER COMMUTES TO BUY A HOME IN A DESIRABLE COMMUNITY.

The financial pressures are related to the high cost of living, which is largely a result of our housing prices. Housing costs in particular have grown dramatically during the last two decades. While those households that entered the housing market early enough have benefited from rising prices, many households have been required to spend onerous shares of their income on rent or home mortgages.<sup>25</sup> In addition, younger families who are trying to enter the housing market for the first time have been severely affected by the steep rise in housing costs. And in many cases, these young, highly educated Massachusetts families have chosen to migrate out of Massachusetts entirely.<sup>26</sup>

It is important to realize that the search for affordable housing is about more than four

walls and a door. In that search, families are seeking a bundle of goods that includes a house that meets their needs, high-quality schools, safe neighborhoods, proximity to work, and other community amenities. Families face the difficult choice of weighing these considerations against the cost of such housing. An examination of the characteristics of those people who spend at least 45 minutes traveling to work each way—the long commuters—illustrates the tradeoffs and choices the Commonwealth’s working families are making. Long commuters are slightly more likely than other commuters to own their own homes. In addition, long commuters are more economically advantaged in terms of their education levels and household incomes. These facts suggest that the longer commute times may in part represent a willingness of Massachusetts workers trading away shorter commutes to buy a home in a desirable community.

The strain of increasing commute times and our residents’ high level of concern about the roads and traffic situation should give the Commonwealth’s public policymakers and business leaders pause. By making it more difficult for highly educated and skilled workers to live in Massachusetts, the Bay State runs the risk of eroding its primary competitive advantage, its world-class workforce. While no silver bullet can solve these challenges, policy makers can and should focus on ways to ease the commuting burden that many families face.

There are ways to address the roads and traffic situation directly through balanced statewide transportation policies. In some areas of the state, increased road capacity is needed to handle the large increases in automobiles these regions have experienced. Creating more incentives for carpooling would also help ease

some of the congestion problems. In addition to focusing on the roadways, more public transportation options are necessary as well. The current focus on linking housing to transportation centers is a key part of the solution. Incentives to local communities to create housing development around transit nodes, downtowns, and other underutilized areas should be encouraged. The recent passage of Chapter 40R—The Smart Growth and Housing Production Zoning Districts—is a first step, and the efficacy of the law as it is implemented should be monitored. In addition, another priority should be to examine the efficiency of the use of publicly owned land near transportation facilities. Finally, more efficient land use that is conducive to public transportation should be considered, especially in suburban job centers. The increases in ridership resulting from the recent additions to the commuter rail indicate that there is an appetite for public transportation. Giving commuters more options about how to get to work is important.

Employers have a role to play here as well, and they can help ease some of the pressures on workers at little cost. When possible, allowing workers more flexibility in their work schedules can help shift some of the commuting to off-peak hours. In addition, increasing opportunities for workers to work at home would also help

decrease traffic during peak hours. Large employers, especially in suburban areas with limited public transportation options, can support carpooling efforts. These types of initiatives also give workers more choices and opportunities, helping to ease some of the strains of commuting.

But, the challenges outlined in this policy brief are about more than simply building roads and public transportation. Regional transportation planning must be informed by and aligned with a larger economic strategy. A regional approach is essential because different parts of the Commonwealth face very different challenges. In the western part of the state, job creation is an integral part of addressing lengthening commute times. Moreover, a continued commitment to expand the well-paying knowledge economy jobs throughout the state is needed. In the eastern half of the state, creating more middle-class housing, improving schools, and creating safe neighborhoods will help expand the list of desirable towns and cities that are appealing to workers and their families. Successfully addressing these challenges will help to ease the significant strains that many of our families and communities are currently facing while enhancing the state's economic competitiveness.

## ENDNOTES

1. Princeton Survey Research Associates. 2003. *The Pursuit of Happiness: A Survey on the Quality of Life in Massachusetts*. MassINC.
2. Our regional analysis uses the seven economic regions of the state as defined by Massachusetts Benchmarks, the quarterly journal of the Massachusetts economy published by the UMass Donahue Institute in collaboration with the Federal Reserve Bank of Boston. These regions include: Berkshire, Cape and Islands, Central, Greater Boston, Northeast, Pioneer Valley, and Southeast. For a complete listing of the towns of each region, see Appendix A.
3. In 1990, the South Attleboro station opened, and in later years, so did lines terminating at Middleborough, Kingston, and Plymouth. In addition, in the 1990s, the Framingham commuter rail line was extended to Worcester and service was extended from Ipswich to Newburyport on the North Shore.
4. Throughout this policy brief, the minutes spent getting to work refers to the travel time for one direction only.
5. The one exception is the relatively small numbers of commuters using “other” forms of private transportation that includes air travel.
6. These numbers refer to traffic counts throughout the entire day. Our research is focused on commute times only.
7. Boston Metropolitan Planning Organization. 2004. *Mobility in the Boston Region: Existing Conditions and the Next Steps: The 2004 Congestion Management Report*. Central Transportation Planning Staff.
8. Schrank, David and Tim Lomax. 2004. *The 2004 Annual Urban Mobility Report*. Texas Transportation Institute and the Texas A&M University System. See <http://mobility.tamu.edu/ums/>
9. Executive Office of Transportation and Construction. 2004. *Massachusetts Transportation Facts 2004*.
10. For the in-town commuters, the distance was calculated by assuming that the town was a circle and using the area of the town to calculate a radius for that theoretical circle. We also exclude all travel outside of other New England states and New York. The distances are calculated “as the crow flies,” which is one limitation of this method but is designed to allow valid comparisons of changes over time.
11. The 495/Metrowest partnership recently completed its Transportation Nightmares Project, which documented major congestion problems in the region. See <http://www.arc-of-innovation.org/> for more information.
12. See Farrant, Robert, Phillip Moss, and Chris Tilly. 2001. *Knowledge Sector Powerhouse: Reshaping Massachusetts Industries and Employment during the 1980s and 1990s*. Donahue Institute, University of Massachusetts; MassInsight and Battelle Memorial Institute. 2004. *Choosing to Lead: The Race for National R&D Leadership & New Economy Jobs*.
13. For more background on regional development patterns in Massachusetts, see Massachusetts Department of Economic Development and the UMass Donahue Institute. 2002. *Towards a New Prosperity: Building Regional Competitiveness Across the Commonwealth*.
14. See Michael Goodman and James Palma. 2004. *Winners and Losers in the Massachusetts Housing Market: Recent Changes in Housing Demand, Supply, and Affordability*. Citizens Housing and Planning Association and the Massachusetts Housing Partnership.
15. See Farrant, Robert, Phillip Moss, and Chris Tilly. 2001. *Knowledge Sector Powerhouse: Reshaping Massachusetts Industries and Employment during the 1980s and 1990s*. Donahue Institute, University of Massachusetts.
16. <http://www.epa.gov/oar/oaqps/greenbk/anay.html>
17. Authors’ calculations using data from the EPA’s State-Level Energy CO2 Inventories, found at: <http://yosemite.epa.gov/OAR/globalwarming.nsf/content/EmissionsStateEnergyCO2Inventories.html>
18. See Office of the Secretary of Transportation. 1997. *Guidelines for the Valuation of Travel Time for Economic Analysis*. U.S. DOT; Weisbrod, Vary and Treyz. 2001. Economic Implications of Congestion. National Cooperative Highway Research Board, Report 463.
19. Putnam, Robert. 2001. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster. p. 213.
20. For more information see the website for the Social Capital Community Benchmark Survey at <http://www.ksg.harvard.edu/saguaro/communitysurvey/ma2.html>.
21. Princeton Survey Research Associates. 2003. *The Pursuit of Happiness: A Survey on the Quality of Life in Massachusetts*. MassINC, p. 36.
22. For more on these trends see the Bowling Alone website at <http://www.bowlingalone.com/>.
23. For a detailed analysis of these trends see Robert Nakosteen, Michael Goodman, and Dana Ansel. 2003. *Mass.Migration*. MassINC.
24. Andrew M. Sum, Paul Harrington, et al. 2002. *The State of the American Dream in Massachusetts, 2002*. MassINC. See also: Randy Albelda and Marlene Kim. 2002. *A Tale of Two Decades: Changes in Work and Family in Massachusetts, 1979–1999*. Donahue Institute, University of Massachusetts.
25. Michael Goodman and James Palma, 2004. *Winners and Losers in the Massachusetts Housing Market: Recent Changes in Housing Demand, Supply, and Affordability*. Citizens Housing and Planning Association and the Massachusetts Housing Partnership.
26. Robert Nakosteen, Michael Goodman, and Dana Ansel. 2003. *Mass.Migration*. MassINC.

## APPENDIX A | Region Definitions by City and Town

CITY/TOWN	REGION		REGION		REGION
ABINGTON	Southwest	BROCKTON	Southwest	EASTON	Southwest
ACTON	Greater Boston	BROOKFIELD	Central	EDGARTOWN	Cape and Islands
ACUSHNET	Southwest	BROOKLINE	Greater Boston	EGREMONT	Berkshire
ADAMS	Berkshire	BUCKLAND	Pioneer Valley	ERVING	Pioneer Valley
AGAWAM	Pioneer Valley	BURLINGTON	Greater Boston	ESSEX	Northeast
ALFORD	Berkshire	CAMBRIDGE	Greater Boston	EVERETT	Greater Boston
AMESBURY	Northeast	CANTON	Greater Boston	FAIRHAVEN	Southwest
AMHERST	Pioneer Valley	CARLISLE	Greater Boston	FALL RIVER	Southwest
ANDOVER	Northeast	CARVER	Southwest	FALMOUTH	Cape and Islands
AQUINNAH	Cape and Islands	CHARLEMONT	Pioneer Valley	FITCHBURG	Central
ARLINGTON	Greater Boston	CHARLTON	Central	FLORIDA	Berkshire
ASHBURNHAM	Central	CHATHAM	Cape and Islands	FOXBOROUGH	Greater Boston
ASHBY	Central	CHELMSFORD	Northeast	FRAMINGHAM	Greater Boston
ASHFIELD	Pioneer Valley	CHELSEA	Greater Boston	FRANKLIN	Greater Boston
ASHLAND	Greater Boston	CHESHIRE	Berkshire	FREETOWN	Southwest
ATHOL	Central	CHESTER	Pioneer Valley	GARDNER	Central
ATTLEBORO	Southwest	CHESTERFIELD	Pioneer Valley	GEORGETOWN	Northeast
AUBURN	Central	CHICOPEE	Pioneer Valley	GILL	Pioneer Valley
AVON	Southwest	CHILMARK	Cape and Islands	GLOUCESTER	Northeast
AYER	Central	CLARKSBURG	Berkshire	GOSHEN	Pioneer Valley
BARNSTABLE	Cape and Islands	CLINTON	Central	GOSNOLD	Cape and Islands
BARRE	Central	COHASSET	Greater Boston	GRAFTON	Central
BECKET	Berkshire	COLRAIN	Pioneer Valley	GRANBY	Pioneer Valley
BEDFORD	Greater Boston	CONCORD	Greater Boston	GRANVILLE	Pioneer Valley
BELCHERTOWN	Pioneer Valley	CONWAY	Pioneer Valley	GREAT BARRINGTON	Berkshire
BELLINGHAM	Greater Boston	CUMMINGTON	Pioneer Valley	GREENFIELD	Pioneer Valley
BELMONT	Greater Boston	DALTON	Berkshire	GROTON	Central
BERKLEY	Southwest	DANVERS	Northeast	GROVELAND	Northeast
BERLIN	Central	DARTMOUTH	Southwest	HADLEY	Pioneer Valley
BERNARDSTON	Pioneer Valley	DEDHAM	Greater Boston	HALIFAX	Southwest
BEVERLY	Northeast	DEERFIELD	Pioneer Valley	HAMILTON	Northeast
BILLERICA	Northeast	DENNIS	Cape and Islands	HAMPDEN	Pioneer Valley
BLACKSTONE	Central	DIGHTON	Southwest	HANCOCK	Berkshire
BLANDFORD	Pioneer Valley	DOUGLAS	Central	HANOVER	Southwest
BOLTON	Greater Boston	DOVER	Greater Boston	HANSON	Southwest
BOSTON	Greater Boston	DRACUT	Northeast	HARDWICK	Central
BOURNE	Cape and Islands	DUDLEY	Central	HARVARD	Central
BOXBOROUGH	Greater Boston	DUNSTABLE	Northeast	HARWICH	Cape and Islands
BOXFORD	Northeast	DUXBURY	Southwest	HATFIELD	Pioneer Valley
BOYLSTON	Central	EAST BRIDGEWATER	Southwest	HAVERHILL	Northeast
BRAINTREE	Greater Boston	EAST BROOKFIELD	Central	HAWLEY	Pioneer Valley
BREWSTER	Cape and Islands	EAST LONGMEADOW	Pioneer Valley	HEATH	Pioneer Valley
BRIDGEWATER	Southwest	EASTHAM	Cape and Islands	HINGHAM	Greater Boston
BRIMFIELD	Pioneer Valley	EASTHAMPTON	Pioneer Valley	HINSDALE	Berkshire

HOLBROOK	.Greater Boston	MERRIMAC	.Northeast	PALMER	.Pioneer Valley
HOLDEN	.Central	METHUEN	.Northeast	PAXTON	.Central
HOLLAND	.Pioneer Valley	MIDDLEBOROUGH	.Southeast	PEABODY	.Northeast
HOLLISTON	.Greater Boston	MIDDLEFIELD	.Pioneer Valley	PELHAM	.Pioneer Valley
HOLYOKE	.Pioneer Valley	MIDDLETON	.Northeast	PEMBROKE	.Southeast
HOPEDALE	.Central	MILFORD	.Greater Boston	PEPPERELL	.Northeast
HOPKINTON	.Greater Boston	MILLBURY	.Central	PERU	.Berkshire
HUBBARDSTON	.Central	MILLIS	.Greater Boston	PETERSHAM	.Central
HUDSON	.Greater Boston	MILLVILLE	.Central	PHILLIPSTON	.Central
HULL	.Greater Boston	MILTON	.Greater Boston	PITTSFIELD	.Berkshire
HUNTINGTON	.Pioneer Valley	MONROE	.Pioneer Valley	PLAINFIELD	.Pioneer Valley
IPSWICH	.Northeast	MONSON	.Pioneer Valley	PLAINVILLE	.Southeast
KINGSTON	.Southeast	MONTAGUE	.Pioneer Valley	PLYMOUTH	.Southeast
LAKEVILLE	.Southeast	MONTEREY	.Berkshire	PLYMPTON	.Southeast
LANCASTER	.Central	MONTGOMERY	.Pioneer Valley	PRINCETON	.Central
LANESBOROUGH	.Berkshire	MOUNT WASHINGTON	.Berkshire	PROVINCETOWN	.Cape and Islands
LAWRENCE	.Northeast	NAHANT	.Greater Boston	QUINCY	.Greater Boston
LEE	.Berkshire	NANTUCKET	.Cape and Islands	RANDOLPH	.Greater Boston
LEICESTER	.Central	NATICK	.Greater Boston	RAYNHAM	.Southeast
LENOX	.Berkshire	NEEDHAM	.Greater Boston	READING	.Northeast
LEOMINSTER	.Central	NEW ASHFORD	.Berkshire	REHOBOTH	.Southeast
LEVERETT	.Pioneer Valley	NEW BEDFORD	.Southeast	REVERE	.Greater Boston
LEXINGTON	.Greater Boston	NEW BRAINTREE	.Central	RICHMOND	.Berkshire
LEYDEN	.Pioneer Valley	NEW MARLBOROUGH	.Berkshire	ROCHESTER	.Southeast
LINCOLN	.Greater Boston	NEW SALEM	.Pioneer Valley	ROCKLAND	.Southeast
LITTLETON	.Greater Boston	NEWBURY	.Northeast	ROCKPORT	.Northeast
LONGMEADOW	.Pioneer Valley	NEWBURYPORT	.Northeast	ROWE	.Pioneer Valley
LOWELL	.Northeast	NEWTON	.Greater Boston	ROWLEY	.Northeast
LUDLOW	.Pioneer Valley	NORFOLK	.Greater Boston	ROYALSTON	.Central
LUNENBURG	.Central	NORTH ADAMS	.Berkshire	RUSSELL	.Pioneer Valley
LYNN	.Greater Boston	NORTH ANDOVER	.Northeast	RUTLAND	.Central
LYNNFIELD	.Northeast	NORTH ATTLEBOROUGH	.Southeast	SALEM	.Northeast
MALDEN	.Greater Boston	NORTH BROOKFIELD	.Central	SALISBURY	.Northeast
MANCHESTER-BY-THE-SEA	.Northeast	NORTH READING	.Northeast	SANDSFIELD	.Berkshire
MANSFIELD	.Southeast	NORTHAMPTON	.Pioneer Valley	SANDWICH	.Cape and Islands
MARBLEHEAD	.Northeast	NORTHBOROUGH	.Central	SAUGUS	.Greater Boston
MARION	.Southeast	NORTHBRIDGE	.Central	SAVOY	.Berkshire
MARLBOROUGH	.Greater Boston	NORTHFIELD	.Pioneer Valley	SCITUATE	.Southeast
MARSHFIELD	.Southeast	NORTON	.Southeast	SEEKONK	.Southeast
MASHPEE	.Cape and Islands	NORWELL	.Southeast	SHARON	.Greater Boston
MATTAPOISETT	.Southeast	NORWOOD	.Greater Boston	SHEFFIELD	.Berkshire
MAYNARD	.Greater Boston	OAK BLUFFS	.Cape and Islands	SHELBURNE	.Pioneer Valley
MEDFIELD	.Greater Boston	OAKHAM	.Central	SHERBORN	.Greater Boston
MEDFORD	.Greater Boston	ORANGE	.Pioneer Valley	SHIRLEY	.Central
MEDWAY	.Greater Boston	ORLEANS	.Cape and Islands	SHREWSBURY	.Central
MELROSE	.Greater Boston	OTIS	.Berkshire	SHUTESBURY	.Pioneer Valley
MENDON	.Central	OXFORD	.Central	SOMERSET	.Southeast



SOMERVILLE	.Greater Boston	WEST BOYLSTON	.Central
SOUTH HADLEY	.Pioneer Valley	WEST BRIDGEWATER	.Southeast
SOUTHAMPTON	.Pioneer Valley	WEST BROOKFIELD	.Central
SOUTHBOROUGH	.Greater Boston	WEST NEWBURY	.Northeast
SOUTHBRIDGE	.Central	WEST SPRINGFIELD	.Pioneer Valley
SOUTHWICK	.Pioneer Valley	WEST STOCKBRIDGE	.Berkshire
SPENCER	.Central	WEST TISBURY	.Cape and Islands
SPRINGFIELD	.Pioneer Valley	WESTBOROUGH	.Central
STERLING	.Central	WESTFIELD	.Pioneer Valley
STOCKBRIDGE	.Berkshire	WESTFORD	.Northeast
STONEHAM	.Greater Boston	WESTHAMPTON	.Pioneer Valley
STOUGHTON	.Southeast	WESTMINSTER	.Central
STOW	.Greater Boston	WESTON	.Greater Boston
STURBRIDGE	.Central	WESTPORT	.Southeast
SUDBURY	.Greater Boston	WESTWOOD	.Greater Boston
SUNDERLAND	.Pioneer Valley	WEYMOUTH	.Greater Boston
SUTTON	.Central	WHATELY	.Pioneer Valley
SWAMPSCOTT	.Greater Boston	WHITMAN	.Southeast
SWANSEA	.Southeast	WILBRAHAM	.Pioneer Valley
TAUNTON	.Southeast	WILLIAMSBURG	.Pioneer Valley
TEMPLETON	.Central	WILLIAMSTOWN	.Berkshire
TEWKSBURY	.Northeast	WILMINGTON	.Northeast
TISBURY	.Cape and Islands	WINCHENDON	.Central
TOLLAND	.Pioneer Valley	WINCHESTER	.Greater Boston
TOPSFIELD	.Northeast	WINDSOR	.Berkshire
TOWNSEND	.Central	WINTHROP	.Greater Boston
TRURO	.Cape and Islands	WOBURN	.Greater Boston
TYNGSBOROUGH	.Northeast	WORCESTER	.Central
TYRINGHAM	.Berkshire	WORTHINGTON	.Pioneer Valley
UPTON	.Central	WRENTHAM	.Greater Boston
UXBRIDGE	.Central	YARMOUTH	.Cape and Islands
WAKEFIELD	.Greater Boston		
WALES	.Pioneer Valley		
WALPOLE	.Greater Boston		
WALTHAM	.Greater Boston		
WARE	.Pioneer Valley		
WAREHAM	.Southeast		
WARREN	.Central		
WARWICK	.Pioneer Valley		
WASHINGTON	.Berkshire		
WATERTOWN	.Greater Boston		
WAYLAND	.Greater Boston		
WEBSTER	.Central		
WELLESLEY	.Greater Boston		
WELLFLEET	.Cape and Islands		
WENDELL	.Pioneer Valley		
WENHAM	.Northeast		

## APPENDIX B | Average Commute Time, Rank in Massachusetts, and Change by City and Town

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
ABINGTON	24.73	137	29.67	125	19.97%
ACTON	25.90	98	30.99	88	19.65%
ACUSHNET	18.84	298	23.66	273	25.58%
ADAMS	19.13	292	21.54	308	12.58%
AGAWAM	18.68	301	20.51	320	9.76%
ALFORD	18.76	299	21.78	306	16.07%
AMESBURY	22.62	213	27.93	181	23.44%
AMHERST	14.65	343	18.03	337	23.08%
ANDOVER	23.71	178	29.05	146	22.55%
AQUINNAH	21.65	239	26.04	229	20.29%
ARLINGTON	24.65	141	28.99	147	17.61%
ASHBURNHAM	26.82	75	31.35	75	16.92%
ASHBY	28.10	47	31.37	74	11.63%
ASHFIELD	27.48	60	31.99	63	16.40%
ASHLAND	27.02	70	32.78	48	21.32%
ATHOL	19.29	289	24.58	255	27.46%
ATTLEBORO	21.45	247	26.74	209	24.66%
AUBURN	18.58	303	21.91	299	17.91%
AVON	22.46	219	29.89	117	33.07%
AYER	19.77	277	28.33	164	43.34%
BARNSTABLE	19.33	287	23.68	272	22.52%
BARRE	31.91	10	33.74	38	5.73%
BECKET	29.14	34	31.40	73	7.76%
BEDFORD	19.51	283	24.32	261	24.64%
BELCHERTOWN	23.83	173	28.10	175	17.95%
BELLINGHAM	27.17	65	31.11	82	14.51%
BELMONT	22.72	207	26.40	220	16.19%
BERKLEY	26.49	84	31.98	64	20.75%
BERLIN	22.77	203	21.85	304	-4.01%
BERNARDSTON	18.18	307	19.67	326	8.18%
BEVERLY	22.77	204	25.49	241	11.99%
BILLERICA	23.36	183	26.63	214	13.99%
BLACKSTONE	26.61	81	28.08	176	5.52%
BLANDFORD	30.80	20	37.45	10	21.59%
BOLTON	26.05	92	31.06	86	19.26%
BOSTON	24.95	129	28.81	152	15.49%
BOURNE	24.17	159	28.06	178	16.10%
BOXBOROUGH	25.16	118	31.70	67	25.99%
BOXFORD	28.08	48	35.79	19	27.46%
BOYLSTON	19.86	273	25.77	236	29.78%
BRAINTREE	24.27	154	28.38	163	16.96%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
BREWSTER	17.78	313	21.74	307	22.28%
BRIDGEWATER	24.87	133	30.88	93	24.18%
BRIMFIELD	31.22	15	30.14	111	-3.43%
BROCKTON	24.29	153	28.21	170	16.11%
BROOKFIELD	26.98	72	32.44	55	20.24%
BROOKLINE	24.46	148	28.00	180	14.47%
BUCKLAND	21.17	251	23.01	281	8.69%
BURLINGTON	21.38	248	24.32	260	13.75%
CAMBRIDGE	21.46	246	23.80	271	10.91%
CANTON	24.57	145	30.85	94	25.59%
CARLISLE	27.27	63	32.69	49	19.91%
CARVER	29.99	23	35.74	20	19.15%
CHARLEMONT	26.76	76	30.07	112	12.37%
CHARLTON	24.36	150	28.32	168	16.28%
CHATHAM	15.67	337	17.92	338	14.38%
CHELMSFORD	23.14	188	27.62	189	19.34%
CHELSEA	24.70	140	30.74	98	24.43%
CHESHIRE	21.52	244	22.14	296	2.87%
CHESTER	31.70	13	38.86	6	22.61%
CHESTERFIELD	25.85	99	29.41	137	13.79%
CHICOPEE	17.50	316	19.27	330	10.11%
CHILMARK	15.89	334	16.34	343	2.82%
CLARKSBURG	17.19	321	18.75	332	9.09%
CLINTON	21.62	240	24.02	269	11.07%
COHASSET	32.09	9	34.74	29	8.25%
COLRAIN	20.85	254	27.88	183	33.70%
CONCORD	25.13	119	28.54	158	13.59%
CONWAY	26.33	87	27.44	191	4.21%
CUMMINGTON	30.44	22	38.28	8	25.77%
DALTON	15.58	339	17.66	339	13.32%
DANVERS	20.62	259	26.07	228	26.43%
DARTMOUTH	18.61	302	24.41	258	31.17%
DEDHAM	22.99	194	26.28	222	14.32%
DEERFIELD	18.08	309	22.70	288	25.56%
DENNIS	17.75	314	21.24	312	19.66%
DIGHTON	24.76	135	28.98	148	17.03%
DOUGLAS	29.21	33	30.95	89	5.97%
DOVER	29.77	26	32.48	54	9.11%
DRACUT	23.97	168	28.06	177	17.09%
DUDLEY	23.51	180	27.23	196	15.83%
DUNSTABLE	28.81	38	32.34	56	12.25%
DUXBURY	31.19	16	38.72	7	24.16%
EAST BRIDGEWATER	24.35	151	29.95	115	23.03%
EAST BROOKFIELD	25.39	110	32.17	60	26.74%
EAST LONGMEADOW	19.81	275	21.88	301	10.47%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
EASTHAM	16.82	324	26.43	219	57.15%
EASTHAMPTON	17.93	312	21.11	315	17.77%
EASTON	25.18	116	28.44	161	12.95%
EDGARTOWN	10.02	350	15.56	344	55.29%
EGREMONT	18.47	305	22.50	293	21.79%
ERVING	19.15	291	22.62	291	18.11%
ESSEX	22.01	230	24.71	253	12.24%
EVERETT	22.93	195	34.77	27	51.62%
FAIRHAVEN	17.40	317	22.82	286	31.13%
FALL RIVER	18.14	308	22.12	297	21.96%
FALMOUTH	19.21	290	24.72	252	28.68%
FITCHBURG	19.79	276	23.18	279	17.10%
FLORIDA	25.12	120	29.23	141	16.37%
FOXBOROUGH	24.93	131	29.33	140	17.69%
FRAMINGHAM	23.94	170	26.85	206	12.17%
FRANKLIN	27.76	54	32.16	62	15.86%
FREETOWN	24.26	155	26.74	210	10.21%
GARDNER	19.94	272	24.08	268	20.75%
GEORGETOWN	25.90	97	30.45	105	17.56%
GILL	17.31	319	21.89	300	26.46%
GLOUCESTER	20.13	268	23.47	274	16.59%
GOSHEN	27.55	57	31.04	87	12.67%
GOSNOLD	12.65	345	3.59	351	-71.58%
GRAFTON	23.12	189	28.18	173	21.87%
GRANBY	21.13	252	20.62	319	-2.41%
GRANVILLE	29.32	31	29.53	133	0.71%
GREAT BARRINGTON	16.06	332	21.13	314	31.55%
GREENFIELD	15.20	340	20.39	321	34.18%
GROTON	24.57	143	33.54	40	36.52%
GROVELAND	24.32	152	28.47	160	17.08%
HADLEY	15.63	338	21.88	302	39.93%
HALIFAX	28.33	44	36.09	17	27.40%
HAMILTON	24.18	158	31.65	68	30.89%
HAMPDEN	23.58	179	26.40	221	11.95%
HANCOCK	21.98	231	26.01	231	18.35%
HANOVER	27.78	53	31.46	72	13.25%
HANSON	27.48	61	32.56	53	18.50%
HARDWICK	27.59	56	32.85	46	19.09%
HARVARD	16.19	330	32.25	58	99.19%
HARWICH	15.71	336	21.22	313	35.06%
HATFIELD	19.95	270	20.87	317	4.62%
HAVERHILL	22.37	221	26.68	213	19.27%
HAWLEY	29.49	29	37.08	11	25.73%
HEATH	32.31	6	35.55	21	10.03%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
HINGHAM	28.56	42	33.51	42	17.34%
HINSDALE	20.01	269	22.66	289	13.28%
HOLBROOK	26.34	86	29.51	134	12.03%
HOLDEN	21.23	250	25.38	244	19.55%
HOLLAND	30.73	21	34.23	34	11.42%
HOLLISTON	28.79	40	32.25	57	12.01%
HOLYOKE	16.64	327	18.59	333	11.72%
HOPEDALE	25.61	105	30.56	101	19.34%
HOPKINTON	25.43	109	33.50	43	31.76%
HUBBARDSTON	30.86	19	35.52	22	15.12%
HUDSON	23.07	190	24.59	254	6.55%
HULL	34.79	1	39.41	4	13.29%
HUNTINGTON	28.71	41	34.36	32	19.69%
IPSWICH	27.88	51	29.80	121	6.89%
KINGSTON	24.97	127	32.66	51	30.80%
LAKEVILLE	26.26	89	33.77	37	28.60%
LANCASTER	20.29	265	26.23	225	29.24%
LANESBOROUGH	17.23	320	19.59	327	13.72%
LAWRENCE	19.13	293	21.79	305	13.90%
LEE	16.62	328	17.38	340	4.55%
LEICESTER	22.48	217	27.10	201	20.52%
LENOX	16.91	323	15.48	345	-8.45%
LEOMINSTER	20.58	262	25.51	239	23.96%
LEVERETT	21.55	242	25.18	248	16.83%
LEXINGTON	22.85	199	27.05	202	18.34%
LEYDEN	24.94	130	25.50	240	2.25%
LINCOLN	19.29	288	25.55	238	32.45%
LITTLETON	24.55	147	30.38	106	23.74%
LONGMEADOW	18.02	311	20.28	322	12.50%
LOWELL	20.41	264	24.28	264	18.92%
LUDLOW	19.43	284	21.25	311	9.37%
LUNENBURG	23.77	176	26.03	230	9.48%
LYNN	22.54	216	27.53	190	22.13%
LYNNFIELD	24.41	149	28.21	169	15.59%
MALDEN	25.47	108	30.06	113	17.99%
MANCHESTER-BY-THE-SEA	29.55	27	31.78	66	7.56%
MANSFIELD	26.74	77	33.27	44	24.42%
MARBLEHEAD	29.03	35	32.69	50	12.60%
MARION	21.54	243	27.14	198	26.03%
MARLBOROUGH	22.31	225	25.82	234	15.77%
MARSHFIELD	32.43	5	36.84	13	13.60%
MASHPEE	25.95	94	29.55	129	13.86%
MATTAPOISETT	19.36	286	26.24	224	35.52%
MAYNARD	22.92	196	28.65	155	25.02%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
MEDFIELD	27.93	50	34.62	30	23.93%
MEDFORD	22.86	198	27.27	193	19.29%
MEDWAY	28.24	45	31.51	71	11.59%
MELROSE	24.22	157	28.43	162	17.39%
MENDON	26.85	74	29.21	143	8.78%
MERRIMAC	24.72	138	28.19	171	14.02%
METHUEN	20.54	263	25.40	243	23.67%
MIDDLEBOROUGH	23.77	177	30.48	103	28.24%
MIDDLEFIELD	34.78	2	41.60	1	19.61%
MIDDLETON	21.91	235	28.33	165	29.29%
MILFORD	25.17	117	26.53	216	5.42%
MILLBURY	19.13	294	24.09	267	25.93%
MILLIS	27.40	62	32.58	52	18.87%
MILLVILLE	29.94	24	31.33	76	4.64%
MILTON	24.12	161	29.61	126	22.77%
MONROE	27.94	49	27.37	192	-2.04%
MONSON	22.32	223	29.54	132	32.37%
MONTAGUE	19.12	295	22.97	283	20.08%
MONTEREY	19.39	285	25.91	232	33.66%
MONTGOMERY	25.65	103	29.69	124	15.72%
MOUNT WASHINGTON	22.68	210	28.48	159	25.59%
NAHANT	29.41	30	31.63	69	7.57%
NANTUCKET	9.66	351	9.55	350	-1.21%
NATICK	25.31	112	29.07	145	14.85%
NEEDHAM	24.05	165	27.13	199	12.81%
NEW ASHFORD	15.75	335	19.78	325	25.54%
NEW BEDFORD	19.04	296	22.92	284	20.37%
NEW BRAintree	28.36	43	32.83	47	15.76%
NEW MARLBOROUGH	20.63	257	23.43	275	13.57%
NEW SALEM	25.00	125	32.17	61	28.70%
NEWBURY	25.92	96	28.60	156	10.35%
NEWBURYPORT	25.93	95	29.93	116	15.41%
NEWTON	22.61	214	26.10	227	15.41%
NORFOLK	31.31	14	33.86	36	8.14%
NORTH ADAMS	16.51	329	18.36	334	11.24%
NORTH ANDOVER	22.90	197	28.75	153	25.56%
NORTH ATTLEBOROU	22.03	228	27.70	188	25.74%
NORTH BROOKFIELD	27.71	55	30.78	96	11.05%
NORTH READING	23.80	175	30.25	108	27.12%
NORTHAMPTON	16.65	326	20.05	324	20.42%
NORTHBOROUGH	22.69	209	26.19	226	15.45%
NORTHBRIDGE	24.10	162	27.92	182	15.84%
NORTHFIELD	20.76	256	24.54	256	18.21%
NORTON	24.60	142	29.82	120	21.23%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
NORWELL	31.17	17	34.26	33	9.91%
NORWOOD	24.12	160	28.60	157	18.56%
OAK BLUFFS	11.20	349	16.45	342	46.85%
OAKHAM	31.04	18	36.32	16	17.01%
ORANGE	22.46	218	25.07	249	11.61%
ORLEANS	15.92	333	14.77	347	-7.25%
OTIS	31.81	12	31.31	78	-1.59%
OXFORD	21.71	237	25.02	250	15.24%
PALMER	19.52	282	22.87	285	17.19%
PAXTON	24.97	126	24.00	270	-3.91%
PEABODY	21.51	245	24.14	265	12.21%
PELHAM	21.77	236	22.32	295	2.52%
PEMBROKE	29.53	28	35.79	18	21.22%
PEPPERELL	28.81	39	34.85	26	20.95%
PERU	25.53	106	29.42	136	15.24%
PETERSHAM	25.02	124	29.55	130	18.10%
PHILLIPSTON	24.92	132	29.40	138	17.98%
PITTSFIELD	14.72	342	17.05	341	15.84%
PLAINFIELD	32.30	7	33.52	41	3.79%
PLAINVILLE	23.05	193	29.76	122	29.10%
PLYMOUTH	27.52	59	34.75	28	26.27%
PLYMPTON	29.83	25	41.47	2	39.04%
PRINCETON	26.72	78	31.23	79	16.87%
PROVINCETOWN	11.61	347	13.41	349	15.55%
QUINCY	25.27	114	31.09	85	23.05%
RANDOLPH	27.05	69	32.18	59	18.96%
RAYNHAM	22.83	200	28.19	172	23.43%
READING	22.75	206	26.51	217	16.52%
REHOBOTH	24.07	163	26.58	215	10.45%
REVERE	24.74	136	29.61	127	19.68%
RICHMOND	20.18	267	24.12	266	19.53%
ROCHESTER	24.56	146	29.84	119	21.50%
ROCKLAND	23.82	174	29.49	135	23.77%
ROCKPORT	26.16	91	29.59	128	13.11%
ROWE	27.79	52	34.87	25	25.47%
ROWLEY	25.68	102	31.20	81	21.50%
ROYALSTON	27.06	67	35.11	24	29.76%
RUSSELL	24.86	134	28.11	174	13.08%
RUTLAND	26.71	80	29.84	118	11.75%
SALEM	23.07	192	27.25	195	18.11%
SALISBURY	22.03	227	27.12	200	23.09%
SANDISFIELD	27.06	68	36.99	12	36.74%
SANDWICH	26.43	85	30.20	110	14.27%
SAUGUS	22.44	220	26.69	212	18.96%

CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
SAVOY	26.99	71	31.82	65	17.91%
SCITUATE	34.11	4	38.14	9	11.84%
SEEKONK	19.82	274	22.75	287	14.81%
SHARON	27.52	58	34.22	35	24.32%
SHEFFIELD	16.18	331	22.62	290	39.80%
SHELBURNE	19.73	278	22.11	298	12.08%
SHERBORN	28.89	37	35.38	23	22.45%
SHIRLEY	24.01	166	30.94	90	28.84%
SHREWSBURY	20.24	266	26.77	207	32.26%
SHUTESBURY	26.91	73	29.22	142	8.57%
SOMERSET	21.08	253	26.24	223	24.48%
SOMERVILLE	24.05	164	27.80	185	15.60%
SOUTH HADLEY	16.91	322	19.35	329	14.40%
SOUTHAMPTON	20.58	261	24.75	251	20.27%
SOUTHBOROUGH	23.32	184	28.33	167	21.46%
SOUTHBRIDGE	18.69	300	24.34	259	30.24%
SOUTHWICK	21.62	241	26.44	218	22.33%
SPENCER	25.69	101	27.83	184	8.35%
SPRINGFIELD	18.55	304	21.46	309	15.67%
STERLING	23.95	169	28.84	151	20.41%
STOCKBRIDGE	17.50	315	18.13	335	3.59%
STONEHAM	21.93	234	25.77	237	17.47%
STOUGHTON	25.06	121	29.75	123	18.71%
STOW	25.06	122	31.10	84	24.08%
STURBRIDGE	23.16	187	30.93	92	33.51%
SUDBURY	27.18	64	33.23	45	22.23%
SUNDERLAND	20.62	258	20.24	323	-1.88%
SUTTON	23.07	191	28.33	166	22.78%
SWAMPSCOTT	25.52	107	30.78	95	20.62%
SWANSEA	19.94	271	23.41	276	17.38%
TAUNTON	22.72	208	27.20	197	19.72%
TEMPLETON	23.31	185	25.24	247	8.28%
TEWKSBURY	24.25	156	29.38	139	21.14%
TISBURY	11.22	348	15.33	346	36.65%
TOLLAND	34.16	3	39.39	5	15.32%
TOPSFIELD	27.06	66	28.95	149	6.99%
TOWNSEND	29.25	32	36.45	15	24.59%
TRURO	17.35	318	18.06	336	4.08%
TYNGSBOROUGH	26.21	90	31.23	80	19.14%
TYRINGHAM	23.88	171	19.38	328	-18.86%
UPTON	25.95	93	30.93	91	19.19%
UXBRIDGE	25.81	100	30.57	100	18.47%
WAKEFIELD	22.31	224	26.99	204	20.98%
WALES	31.84	11	36.75	14	15.39%
WALPOLE	25.20	115	30.28	107	20.16%



CITY/TOWN	1990 AVERAGE COMMUTE TIME	1990 RANK IN MA	2000 AVERAGE COMMUTE TIME	2000 RANK IN MA	CHANGE IN AVERAGE COMMUTE TIME
WALTHAM	18.88	297	23.31	278	23.48%
WARE	23.42	181	25.82	235	10.26%
WAREHAM	26.28	88	30.45	104	15.86%
WARREN	21.94	233	34.38	31	56.71%
WARWICK	28.97	36	27.79	186	-4.05%
WASHINGTON	22.79	202	27.79	187	21.94%
WATERTOWN	22.81	201	25.85	233	13.32%
WAYLAND	25.31	113	31.31	77	23.73%
WEBSTER	20.79	255	24.52	257	17.93%
WELLESLEY	23.39	182	24.30	262	3.88%
WELLFLEET	15.03	341	20.75	318	38.08%
WENDELL	28.17	46	31.56	70	12.06%
WENHAM	21.70	238	29.20	144	34.57%
WEST BOYLSTON	22.02	229	23.04	280	4.65%
WEST BRIDGEWATER	20.62	260	26.89	205	30.43%
WEST BROOKFIELD	24.96	128	33.61	39	34.63%
WEST NEWBURY	26.55	82	31.11	83	17.17%
WEST SPRINGFIELD	18.05	310	20.90	316	15.77%
WEST STOCKBRIDGE	19.73	279	25.37	245	28.61%
WEST TISBURY	14.09	344	18.92	331	34.28%
WESTBOROUGH	22.68	211	26.70	211	17.75%
WESTFIELD	19.71	281	22.58	292	14.56%
WESTFORD	25.04	123	29.98	114	19.76%
WESTHAMPTON	22.35	222	25.24	246	12.91%
WESTMINSTER	24.00	167	28.70	154	19.61%
WESTON	23.83	172	27.26	194	14.41%
WESTPORT	21.95	232	27.00	203	23.04%
WESTWOOD	24.72	139	28.85	150	16.72%
WEYMOUTH	25.61	104	30.62	99	19.53%
WHATELY	21.24	249	22.46	294	5.74%
WHITMAN	26.50	83	30.23	109	14.07%
WILBRAHAM	22.64	212	24.29	263	7.31%
WILLIAMSBURG	22.59	215	23.32	277	3.24%
WILLIAMSTOWN	12.61	346	13.64	348	8.19%
WILMINGTON	22.76	205	26.76	208	17.59%
WINCHENDON	22.06	226	29.54	131	33.89%
WINCHESTER	23.21	186	28.03	179	20.77%
WINDSOR	24.57	144	25.41	242	3.43%
WINTHROP	25.34	111	30.76	97	21.37%
WOBURN	19.72	280	22.99	282	16.54%
WORCESTER	18.32	306	21.87	303	19.41%
WORTHINGTON	32.20	8	40.51	3	25.79%
WRENTHAM	26.72	79	30.53	102	14.24%
YARMOUTH	16.75	325	21.38	310	27.64%
<b>Statewide</b>	<b>22.74</b>		<b>26.96</b>		<b>18.55%</b>

## APPENDIX C | Share Driving Alone, Commuting via Public Transit, and Working at Home by City and Town

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
ABINGTON	83.59%	83.42%	3.72%	6.25%	1.15%	1.24%
ACTON	84.25%	80.78%	3.55%	4.52%	2.39%	5.63%
ACUSHNET	79.99%	86.18%	1.66%	0.52%	3.31%	2.77%
ADAMS	74.34%	82.65%	1.05%	1.25%	1.26%	1.58%
AGAWAM	86.29%	89.38%	0.57%	0.51%	1.70%	2.19%
ALFORD	74.33%	70.85%	4.28%	5.03%	10.70%	15.08%
AMESBURY	79.48%	82.23%	1.45%	1.84%	2.72%	3.63%
AMHERST	45.84%	52.63%	10.98%	7.53%	4.63%	5.35%
ANDOVER	81.93%	81.35%	2.54%	3.78%	3.72%	4.92%
AQUINNAH	73.91%	65.63%	2.90%	0.63%	0.00%	16.25%
ARLINGTON	68.37%	67.61%	16.30%	17.75%	2.85%	4.71%
ASHBURNHAM	81.19%	88.30%	2.15%	0.82%	2.41%	1.99%
ASHBY	80.78%	88.06%	0.00%	0.40%	4.54%	5.04%
ASHFIELD	70.68%	74.68%	0.00%	0.68%	11.83%	11.59%
ASHLAND	83.62%	84.39%	3.19%	4.84%	3.34%	3.98%
ATHOL	73.58%	76.16%	0.31%	1.14%	1.78%	1.50%
ATTLEBORO	78.12%	80.20%	4.25%	5.25%	1.88%	1.93%
AUBURN	86.16%	88.16%	0.68%	0.48%	2.19%	1.74%
AVON	78.04%	84.65%	4.97%	6.18%	2.18%	2.41%
AYER	78.63%	84.12%	1.34%	2.02%	1.61%	1.48%
BARNSTABLE	81.78%	80.32%	1.65%	1.64%	3.47%	4.77%
BARRE	79.12%	80.02%	1.05%	0.45%	4.91%	3.26%
BECKET	79.48%	82.55%	0.87%	0.24%	4.34%	4.72%
BEDFORD	81.02%	84.55%	2.18%	2.02%	3.63%	4.90%
BELCHERTOWN	85.75%	84.82%	1.21%	0.75%	2.54%	2.33%
BELLINGHAM	83.59%	85.61%	2.08%	2.71%	2.12%	2.06%
BELMONT	70.30%	69.95%	12.81%	12.09%	3.61%	5.26%
BERKLEY	82.66%	88.12%	0.89%	0.97%	3.68%	2.32%
BERLIN	82.84%	85.16%	0.23%	2.74%	6.01%	3.23%
BERNARDSTON	83.48%	87.88%	0.00%	0.71%	4.58%	2.04%
BEVERLY	78.74%	78.07%	5.23%	7.08%	2.15%	3.35%
BILLERICA	85.43%	87.47%	1.96%	2.26%	1.61%	1.76%
BLACKSTONE	83.75%	85.79%	0.45%	0.60%	2.38%	1.80%
BLANDFORD	84.68%	84.56%	0.00%	0.00%	2.19%	3.90%
BOLTON	81.52%	85.44%	2.32%	0.95%	5.35%	8.91%
BOSTON	40.14%	41.52%	31.54%	32.29%	2.21%	2.37%
BOURNE	82.61%	81.35%	1.43%	1.31%	2.98%	3.59%
BOXBOROUGH	84.55%	84.61%	0.90%	2.44%	5.38%	5.87%
BOXFORD	88.70%	83.99%	1.06%	1.82%	3.40%	7.21%
BOYLSTON	87.87%	88.82%	0.67%	0.83%	2.91%	2.92%
BRAINTREE	78.33%	77.95%	8.14%	8.91%	1.24%	2.08%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
BREWSTER	82.96%	82.80%	0.90%	0.42%	7.28%	8.06%
BRIDGEWATER	77.24%	81.13%	1.44%	5.78%	2.97%	1.57%
BRIMFIELD	80.30%	81.03%	0.00%	0.77%	3.96%	6.36%
BROCKTON	75.09%	72.93%	5.61%	7.51%	1.58%	1.06%
BROOKFIELD	82.35%	85.47%	0.43%	0.25%	3.75%	4.04%
BROOKLINE	46.20%	45.29%	27.36%	28.73%	5.06%	6.86%
BUCKLAND	76.75%	82.80%	0.59%	0.27%	6.21%	3.66%
BURLINGTON	85.70%	86.60%	3.23%	3.04%	1.41%	2.76%
CAMBRIDGE	37.49%	35.01%	23.53%	25.07%	3.89%	5.28%
CANTON	78.74%	76.60%	8.94%	12.27%	1.96%	3.59%
CARLISLE	80.80%	77.11%	1.23%	2.81%	9.89%	13.94%
CARVER	85.96%	86.02%	0.66%	2.67%	2.45%	1.70%
CHARLEMONT	78.71%	73.04%	0.51%	0.41%	7.33%	4.95%
CHARLTON	84.36%	86.23%	0.12%	0.85%	2.43%	2.99%
CHATHAM	80.92%	77.34%	0.28%	0.57%	7.57%	8.31%
CHELMSFORD	86.99%	87.77%	1.27%	2.29%	1.99%	3.00%
CHELSEA	50.22%	47.80%	23.37%	24.92%	1.56%	2.08%
CHESHIRE	82.95%	86.07%	1.76%	0.53%	4.22%	3.28%
CHESTER	73.54%	82.61%	0.49%	0.60%	4.71%	3.60%
CHESTERFIELD	80.07%	87.20%	0.52%	0.00%	6.01%	2.68%
CHICOPEE	79.26%	82.07%	1.66%	1.43%	1.46%	1.38%
CHILMARK	83.15%	72.04%	0.00%	0.71%	11.47%	14.45%
CLARKSBURG	83.80%	84.80%	0.70%	0.24%	2.46%	2.26%
CLINTON	78.00%	81.95%	0.54%	0.56%	1.44%	2.01%
COHASSET	72.07%	74.40%	10.26%	9.08%	6.34%	8.32%
COLRAIN	79.46%	82.64%	0.49%	0.33%	6.40%	8.35%
CONCORD	75.58%	76.82%	5.73%	5.21%	6.48%	9.10%
CONWAY	79.46%	78.05%	0.25%	1.23%	8.66%	10.88%
CUMMINGTON	76.27%	77.94%	0.00%	0.00%	10.60%	12.85%
DALTON	81.50%	85.45%	1.30%	0.27%	1.36%	2.31%
DANVERS	85.24%	86.49%	1.54%	2.57%	1.37%	2.62%
DARTMOUTH	81.40%	85.17%	0.76%	0.99%	2.58%	3.27%
DEDHAM	77.77%	79.49%	7.67%	9.38%	2.79%	2.39%
DEERFIELD	76.56%	85.30%	0.99%	1.03%	3.61%	2.87%
DENNIS	84.75%	82.38%	1.17%	0.91%	2.63%	4.50%
DIGHTON	82.81%	88.14%	0.98%	1.17%	1.55%	2.24%
DOUGLAS	83.62%	87.99%	0.22%	0.34%	4.20%	3.32%
DOVER	78.68%	79.00%	8.34%	7.16%	6.64%	8.39%
DRACUT	82.26%	87.71%	1.28%	1.52%	1.43%	1.97%
DUDLEY	80.52%	85.36%	0.33%	0.33%	2.58%	1.50%
DUNSTABLE	86.80%	87.29%	0.83%	0.52%	4.46%	6.26%
DUXBURY	79.66%	80.32%	3.36%	7.50%	5.44%	5.59%
EAST BRIDGEWATER	84.07%	84.25%	1.36%	3.12%	2.87%	2.07%
EAST BROOKFIELD	82.14%	88.60%	0.20%	0.00%	2.76%	3.62%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
EAST LONGMEADOW	86.74%	90.84%	0.54%	0.00%	2.99%	3.26%
EASTHAM	82.78%	81.79%	0.25%	0.76%	4.57%	5.38%
EASTHAMPTON	80.85%	83.66%	0.50%	0.38%	1.28%	3.00%
EASTON	82.36%	81.11%	3.17%	3.81%	2.68%	3.71%
EDGARTOWN	76.46%	73.32%	0.86%	0.99%	9.14%	6.14%
EGREMONT	75.28%	70.75%	0.16%	2.09%	11.08%	11.14%
ERVING	83.70%	83.02%	0.73%	0.67%	1.91%	3.21%
ESSEX	79.37%	81.04%	1.67%	2.15%	4.71%	8.85%
EVERETT	61.18%	60.20%	17.73%	19.92%	0.68%	0.74%
FAIRHAVEN	84.13%	86.52%	0.94%	1.13%	1.10%	1.87%
FALL RIVER	71.84%	78.90%	2.27%	1.46%	0.91%	0.96%
FALMOUTH	81.69%	81.65%	1.31%	1.87%	4.53%	5.02%
FITCHBURG	75.42%	76.78%	1.87%	2.21%	1.83%	2.11%
FLORIDA	84.24%	88.60%	0.00%	0.00%	1.15%	1.99%
FOXBOROUGH	81.40%	83.60%	4.63%	6.03%	2.79%	2.83%
FRAMINGHAM	80.55%	77.31%	2.89%	4.99%	2.12%	3.35%
FRANKLIN	80.69%	81.86%	5.05%	6.85%	2.60%	4.37%
FREETOWN	82.29%	86.35%	0.57%	0.33%	2.46%	3.25%
GARDNER	75.07%	79.73%	1.14%	1.82%	2.53%	2.08%
GEORGETOWN	79.23%	86.97%	0.50%	2.38%	3.45%	4.28%
GILL	76.20%	84.15%	0.67%	0.79%	5.23%	3.70%
GLOUCESTER	75.00%	78.46%	3.30%	3.83%	3.39%	4.32%
GOSHEN	76.92%	87.52%	0.81%	0.56%	5.26%	5.21%
GOSNOLD	15.49%	8.82%	8.45%	0.00%	8.45%	5.88%
GRAFTON	86.09%	86.25%	0.27%	1.03%	2.74%	4.41%
GRANBY	84.08%	88.11%	0.38%	0.55%	2.68%	3.56%
GRANVILLE	79.24%	83.74%	1.54%	0.25%	5.89%	5.79%
GREAT BARRINGTON	71.11%	76.45%	1.51%	1.93%	6.20%	5.98%
GREENFIELD	76.20%	77.46%	1.19%	1.38%	2.62%	4.42%
GROTON	81.97%	83.99%	0.52%	2.10%	5.16%	5.00%
GROVELAND	83.26%	87.31%	1.36%	1.51%	2.75%	2.00%
HADLEY	80.62%	89.74%	2.05%	1.22%	4.59%	2.89%
HALIFAX	84.34%	82.04%	0.58%	5.27%	1.20%	1.92%
HAMILTON	81.89%	81.45%	4.26%	6.20%	3.32%	5.02%
HAMPDEN	86.42%	90.97%	1.12%	0.50%	2.27%	2.00%
HANCOCK	80.80%	86.35%	0.00%	0.56%	5.44%	3.90%
HANOVER	83.47%	85.63%	4.09%	3.22%	2.18%	3.07%
HANSON	84.43%	85.92%	1.75%	4.10%	2.30%	3.14%
HARDWICK	74.56%	84.00%	0.28%	0.49%	6.29%	3.35%
HARVARD	55.49%	84.12%	12.85%	3.23%	3.59%	6.29%
HARWICH	86.71%	86.61%	0.43%	1.05%	2.79%	5.41%
HATFIELD	81.08%	88.24%	0.00%	0.27%	5.38%	2.71%
HAVERHILL	79.72%	81.63%	2.66%	2.32%	2.27%	2.74%
HAWLEY	67.83%	73.46%	1.40%	1.23%	16.08%	15.43%
HEATH	75.91%	74.55%	2.44%	0.00%	4.88%	7.43%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
HINGHAM	76.32%	76.89%	8.96%	12.78%	3.79%	5.51%
HINSDALE	85.70%	87.50%	1.40%	0.00%	2.58%	2.35%
HOLBROOK	74.64%	79.65%	7.33%	6.31%	2.37%	1.57%
HOLDEN	87.59%	89.83%	0.51%	0.87%	2.42%	2.69%
HOLLAND	83.45%	86.57%	0.00%	0.15%	1.39%	1.84%
HOLLISTON	84.23%	85.29%	2.41%	3.24%	3.38%	4.80%
HOLYOKE	71.27%	74.73%	3.08%	3.22%	2.46%	2.03%
HOPEDALE	83.06%	86.10%	1.43%	1.87%	2.39%	3.41%
HOPKINTON	83.95%	84.88%	0.92%	2.50%	4.48%	5.10%
HUBBARDSTON	79.03%	85.58%	0.21%	0.00%	4.98%	4.44%
HUDSON	82.86%	84.84%	0.64%	0.73%	1.80%	2.59%
HULL	74.31%	75.84%	8.42%	8.63%	1.67%	3.27%
HUNTINGTON	82.21%	84.84%	0.00%	0.85%	4.47%	2.71%
IPSWICH	79.65%	82.23%	4.31%	4.52%	3.16%	4.59%
KINGSTON	80.04%	82.93%	3.01%	7.17%	3.65%	4.37%
LAKEVILLE	87.61%	85.61%	0.21%	3.07%	2.03%	2.70%
LANCASTER	75.25%	79.11%	0.00%	0.32%	2.81%	5.44%
LANESBOROUGH	82.66%	83.14%	0.44%	1.74%	2.86%	4.42%
LAWRENCE	66.82%	64.53%	4.73%	6.33%	1.54%	2.00%
LEE	75.04%	81.23%	1.94%	0.47%	4.74%	2.73%
LEICESTER	83.03%	83.56%	1.08%	1.80%	1.82%	1.67%
LENOX	76.80%	81.33%	1.45%	2.28%	7.51%	6.88%
LEOMINSTER	81.72%	84.32%	1.18%	1.73%	1.72%	2.24%
LEVERETT	76.20%	79.96%	0.49%	0.43%	9.54%	11.25%
LEXINGTON	80.33%	78.55%	4.86%	6.46%	4.42%	6.72%
LEYDEN	79.88%	86.44%	0.00%	0.00%	8.88%	2.67%
LINCOLN	73.07%	79.09%	3.57%	4.14%	6.68%	7.18%
LITTLETON	86.87%	85.47%	2.54%	3.02%	2.25%	5.19%
LONGMEADOW	87.83%	90.81%	0.25%	0.04%	3.15%	3.99%
LOWELL	72.95%	73.76%	3.33%	3.43%	1.05%	1.26%
LUDLOW	84.51%	87.89%	0.19%	0.55%	1.33%	0.91%
LUNENBURG	83.75%	87.58%	0.62%	0.57%	3.01%	4.58%
LYNN	69.39%	70.37%	8.97%	9.28%	1.45%	1.42%
LYNNFIELD	88.01%	81.76%	2.89%	3.86%	3.21%	6.65%
MALDEN	57.93%	59.93%	24.13%	23.73%	1.20%	1.69%
MANCHESTER-BY-THE-SEA	71.99%	76.88%	6.33%	5.29%	5.18%	6.70%
MANSFIELD	80.17%	77.43%	7.99%	10.08%	2.41%	3.68%
MARBLEHEAD	76.08%	76.87%	6.62%	5.97%	4.93%	6.61%
MARION	81.40%	80.62%	1.28%	1.64%	4.18%	3.21%
MARLBOROUGH	82.60%	81.75%	0.69%	1.27%	1.44%	2.60%
MARSHFIELD	81.30%	85.82%	2.33%	2.54%	3.26%	2.94%
MASHPEE	86.20%	83.26%	0.63%	1.25%	2.02%	3.19%
MATTAPOISETT	85.97%	88.42%	1.30%	1.63%	2.44%	2.55%
MAYNARD	81.58%	82.56%	1.57%	2.64%	2.64%	3.29%
MEDFIELD	81.35%	79.43%	5.28%	6.66%	3.54%	6.02%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
MEDFORD	65.55%	65.25%	16.61%	18.05%	1.86%	1.89%
MEDWAY	84.38%	84.51%	2.97%	3.23%	1.33%	5.71%
MELROSE	70.17%	70.68%	15.70%	14.69%	1.57%	2.82%
MENDON	80.62%	91.02%	0.57%	0.75%	2.06%	3.48%
MERRIMAC	78.69%	86.23%	0.83%	1.26%	3.92%	2.76%
METHUEN	82.10%	84.92%	1.97%	1.55%	1.72%	1.78%
MIDDLEBOROUGH	82.31%	83.16%	0.28%	3.18%	2.89%	2.83%
MIDDLEFIELD	75.77%	67.00%	1.03%	0.66%	6.70%	11.22%
MIDDLETON	88.05%	87.17%	0.64%	1.56%	0.68%	3.21%
MILFORD	81.02%	86.49%	1.07%	0.62%	2.35%	1.91%
MILLBURY	82.81%	84.78%	0.53%	1.30%	1.72%	4.05%
MILLIS	85.30%	85.85%	2.58%	4.09%	2.30%	3.85%
MILLVILLE	81.06%	90.37%	0.26%	0.58%	2.82%	2.44%
MILTON	71.86%	73.04%	10.28%	12.24%	2.11%	3.41%
MONROE	75.00%	89.47%	0.00%	0.00%	2.94%	0.00%
MONSON	84.25%	88.81%	0.63%	0.15%	2.27%	2.72%
MONTAGUE	76.76%	79.64%	1.48%	0.39%	3.52%	3.24%
MONTEREY	65.33%	67.35%	2.13%	3.90%	11.47%	11.29%
MONTGOMERY	85.51%	90.03%	0.00%	0.55%	1.69%	2.49%
MOUNT WASHINGTON	72.13%	79.01%	4.92%	7.41%	8.20%	2.47%
NAHANT	76.78%	78.17%	9.71%	8.67%	2.76%	3.66%
NANTUCKET	69.11%	65.25%	0.00%	0.19%	7.24%	6.45%
NATICK	77.83%	79.18%	7.12%	9.12%	2.27%	2.89%
NEEDHAM	76.37%	73.98%	10.10%	11.49%	4.10%	6.83%
NEW ASHFORD	75.86%	84.78%	1.72%	0.00%	6.03%	2.90%
NEW BEDFORD	70.17%	74.14%	3.69%	2.77%	1.75%	1.20%
NEW BRAINTREE	81.19%	82.25%	0.00%	0.00%	8.26%	6.90%
NEW MARLBOROUGH	70.97%	81.05%	2.12%	1.08%	9.56%	6.45%
NEW SALEM	82.06%	78.50%	0.72%	0.77%	5.74%	8.06%
NEWBURY	77.86%	84.67%	1.17%	2.30%	6.12%	6.19%
NEWBURYPORT	77.60%	80.22%	2.91%	2.81%	2.05%	6.36%
NEWTON	68.55%	68.42%	11.68%	12.31%	5.33%	6.54%
NORFOLK	79.42%	79.28%	6.43%	7.89%	5.05%	3.59%
NORTH ADAMS	69.00%	75.83%	2.77%	1.07%	1.63%	2.93%
NORTH ANDOVER	82.89%	83.23%	2.02%	2.80%	1.98%	4.55%
NORTH ATTLEBOROU	83.06%	86.39%	2.91%	3.02%	1.85%	2.45%
NORTH BROOKFIELD	83.42%	81.65%	0.60%	0.53%	1.81%	4.03%
NORTH READING	83.98%	83.82%	2.49%	2.39%	2.36%	4.71%
NORTHAMPTON	66.70%	70.00%	2.77%	3.17%	3.21%	4.41%
NORTHBOROUGH	85.33%	89.12%	0.59%	0.89%	3.51%	4.03%
NORTHBRIDGE	80.52%	87.49%	0.24%	0.20%	2.45%	2.66%
NORTHFIELD	78.46%	80.22%	1.09%	0.00%	5.79%	4.32%
NORTON	77.96%	82.69%	2.87%	3.96%	2.58%	2.18%
NORWELL	81.98%	78.45%	2.96%	7.11%	3.86%	5.39%
NORWOOD	76.52%	77.02%	9.69%	10.87%	1.72%	2.11%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
OAK BLUFFS	76.14%	76.52%	1.10%	1.59%	6.04%	6.64%
OAKHAM	83.36%	88.38%	0.00%	0.80%	3.22%	3.08%
ORANGE	73.42%	76.65%	0.16%	0.42%	4.49%	3.79%
ORLEANS	79.47%	80.65%	0.76%	1.14%	9.60%	8.35%
OTIS	76.05%	84.53%	0.96%	0.29%	7.85%	6.13%
OXFORD	83.21%	87.49%	0.53%	0.33%	1.89%	2.77%
PALMER	84.90%	83.26%	0.72%	0.08%	2.65%	2.32%
PAXTON	82.75%	81.99%	0.00%	0.46%	4.52%	5.52%
PEABODY	83.17%	85.91%	1.72%	2.24%	1.62%	1.80%
PELHAM	83.12%	82.81%	0.38%	0.38%	3.15%	6.95%
PEMBROKE	82.57%	83.06%	1.77%	6.03%	3.42%	2.28%
PEPPERELL	83.74%	86.23%	0.57%	0.85%	3.59%	3.53%
PERU	86.90%	80.14%	0.53%	0.00%	3.48%	3.11%
PETERSHAM	66.20%	68.53%	1.23%	0.51%	7.92%	7.95%
PHILLIPSTON	77.44%	87.65%	0.00%	0.24%	4.02%	4.12%
PITTSFIELD	74.98%	79.82%	3.33%	2.35%	1.78%	1.68%
PLAINFIELD	72.00%	78.83%	0.73%	1.09%	11.27%	10.95%
PLAINVILLE	81.43%	86.44%	2.20%	2.81%	2.79%	2.50%
PLYMOUTH	80.32%	81.98%	2.25%	5.02%	2.50%	2.86%
PLYMPTON	81.87%	83.92%	1.19%	3.15%	3.56%	5.75%
PRINCETON	88.98%	88.32%	0.33%	0.73%	1.22%	2.96%
PROVINCETOWN	46.89%	49.23%	1.33%	0.00%	10.82%	15.57%
QUINCY	63.73%	63.09%	18.06%	21.28%	1.14%	1.45%
RANDOLPH	77.10%	73.22%	5.87%	10.32%	1.15%	2.08%
RAYNHAM	87.45%	84.25%	1.15%	1.28%	1.74%	4.04%
READING	80.92%	83.13%	4.68%	5.64%	3.03%	3.61%
REHOBOTH	83.33%	86.53%	1.71%	1.56%	3.69%	3.55%
REVERE	61.71%	62.41%	20.82%	20.83%	1.46%	1.04%
RICHMOND	85.19%	82.68%	0.24%	0.46%	6.58%	6.70%
ROCHESTER	83.46%	85.99%	1.83%	1.10%	4.36%	2.48%
ROCKLAND	81.14%	83.84%	3.09%	2.97%	1.48%	2.12%
ROCKPORT	68.47%	74.88%	5.50%	5.57%	5.42%	5.10%
ROWE	76.47%	77.97%	0.00%	0.00%	8.50%	12.43%
ROWLEY	83.79%	84.09%	2.64%	2.13%	3.09%	4.23%
ROYALSTON	75.85%	77.64%	0.40%	0.35%	3.59%	6.76%
RUSSELL	83.99%	88.95%	0.24%	0.23%	1.67%	2.07%
RUTLAND	88.14%	87.48%	0.00%	0.15%	3.39%	2.41%
SALEM	70.47%	71.97%	7.85%	8.74%	1.93%	2.80%
SALISBURY	82.65%	83.32%	1.24%	1.27%	1.66%	1.32%
SANDISFIELD	72.59%	80.00%	0.00%	1.23%	9.65%	9.63%
SANDWICH	81.92%	85.02%	0.90%	2.44%	4.29%	5.82%
SAUGUS	80.81%	80.73%	6.25%	7.76%	1.45%	2.01%
SAVOY	87.72%	89.28%	0.30%	0.87%	1.20%	0.58%
SCITUATE	78.78%	78.83%	5.35%	6.09%	3.74%	5.35%
SEEKONK	87.78%	88.76%	1.52%	1.41%	2.26%	2.48%

CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
SHARON	78.01%	72.43%	10.11%	13.07%	4.05%	5.17%
SHEFFIELD	74.35%	81.35%	0.86%	1.63%	10.63%	7.32%
SHELBURNE	71.20%	72.34%	0.51%	0.97%	7.56%	7.16%
SHERBORN	85.78%	82.51%	4.95%	4.57%	3.38%	7.27%
SHIRLEY	83.01%	86.96%	1.67%	1.07%	1.80%	2.58%
SHREWSBURY	87.74%	87.61%	0.58%	1.25%	2.00%	2.39%
SHUTESBURY	82.28%	77.75%	0.36%	0.38%	6.19%	8.98%
SOMERSET	86.44%	86.65%	0.38%	0.81%	1.58%	2.38%
SOMERVILLE	46.17%	45.27%	27.33%	29.19%	2.07%	2.39%
SOUTH HADLEY	73.67%	75.23%	0.87%	0.39%	3.32%	3.99%
SOUTHAMPTON	88.21%	90.40%	0.00%	0.00%	2.64%	3.85%
SOUTHBOROUGH	84.11%	87.36%	0.98%	1.28%	3.59%	3.86%
SOUTHBRIDGE	74.28%	81.31%	0.20%	1.24%	2.09%	1.63%
SOUTHWICK	83.26%	87.04%	0.00%	0.00%	2.72%	1.75%
SPENCER	81.39%	88.15%	1.09%	0.36%	0.67%	2.15%
SPRINGFIELD	74.21%	72.97%	5.40%	5.77%	1.62%	1.96%
STERLING	83.07%	88.66%	0.28%	0.69%	4.06%	3.76%
STOCKBRIDGE	73.80%	75.57%	1.06%	0.25%	10.31%	9.84%
STONEHAM	82.41%	81.53%	4.77%	7.70%	0.90%	3.22%
STOUGHTON	77.52%	78.03%	6.07%	9.02%	1.71%	2.36%
STOW	82.10%	84.22%	3.03%	3.53%	5.55%	5.78%
STURBRIDGE	80.56%	86.57%	0.10%	0.44%	3.25%	3.71%
SUDBURY	85.65%	84.81%	2.11%	3.12%	4.31%	5.89%
SUNDERLAND	69.24%	79.25%	14.17%	8.23%	3.91%	3.85%
SUTTON	86.96%	87.46%	0.00%	0.47%	3.06%	3.50%
SWAMPSCOTT	78.22%	74.31%	9.34%	11.98%	2.93%	4.55%
SWANSEA	83.68%	87.41%	0.49%	0.23%	2.41%	1.58%
TAUNTON	79.79%	82.36%	2.29%	2.42%	0.88%	1.11%
TEMPLETON	81.69%	84.59%	0.17%	0.00%	4.20%	3.91%
TEWKSBURY	83.91%	87.53%	1.71%	2.93%	1.84%	2.45%
TISBURY	68.87%	68.73%	0.79%	2.77%	6.95%	11.72%
TOLLAND	79.03%	81.70%	0.00%	0.00%	13.71%	4.46%
TOPSFIELD	85.90%	84.11%	1.91%	3.97%	3.19%	5.59%
TOWNSEND	86.56%	87.80%	0.23%	0.48%	1.69%	3.80%
TRURO	79.14%	76.86%	0.71%	0.44%	7.57%	9.12%
TYNGSBOROUGH	85.63%	89.00%	0.97%	0.77%	1.69%	2.42%
TYRINGHAM	79.70%	74.44%	1.52%	1.35%	8.63%	13.45%
UPTON	85.79%	86.50%	1.05%	0.88%	3.97%	5.98%
UXBRIDGE	81.11%	85.80%	0.25%	0.43%	2.51%	2.98%
WAKEFIELD	77.64%	78.34%	7.43%	9.15%	1.92%	3.14%
WALES	80.59%	88.84%	0.00%	0.43%	4.45%	3.29%
WALPOLE	80.31%	85.20%	6.70%	6.33%	2.60%	3.73%
WALTHAM	71.44%	72.97%	6.05%	8.45%	1.54%	2.41%
WARE	80.93%	84.98%	0.00%	0.31%	2.22%	1.63%
WAREHAM	80.55%	85.20%	1.46%	1.50%	2.09%	1.56%



CITY/TOWN	1990 DRIVING ALONE	2000 DRIVING ALONE	1990 PUBLIC TRANSIT	2000 PUBLIC TRANSIT	1990 WORKING AT HOME	2000 WORKING AT HOME
WARREN	75.63%	83.67%	0.38%	0.00%	2.58%	3.27%
WARWICK	78.05%	71.14%	0.00%	0.00%	9.45%	9.43%
WASHINGTON	80.65%	76.07%	0.00%	1.43%	4.30%	6.43%
WATERTOWN	66.68%	66.28%	16.37%	15.12%	1.94%	4.25%
WAYLAND	83.14%	80.65%	3.60%	3.83%	5.44%	7.31%
WEBSTER	78.57%	81.90%	0.25%	0.49%	1.41%	2.53%
WELLESLEY	67.33%	65.93%	8.91%	9.57%	4.95%	7.89%
WELLFLEET	83.84%	75.92%	0.00%	0.38%	6.93%	8.36%
WENDELL	81.43%	75.43%	0.42%	0.87%	4.85%	9.86%
WENHAM	66.39%	75.31%	2.50%	8.89%	5.09%	3.21%
WEST BOYLSTON	83.29%	87.89%	0.78%	0.36%	4.20%	5.18%
WEST BRIDGEWATER	86.67%	86.56%	0.97%	4.25%	2.42%	1.63%
WEST BROOKFIELD	82.63%	85.93%	0.31%	0.23%	4.47%	7.67%
WEST NEWBURY	80.25%	85.63%	1.00%	0.32%	6.11%	4.78%
WEST SPRINGFIELD	82.89%	83.50%	2.10%	2.11%	1.90%	1.54%
WEST STOCKBRIDGE	78.89%	82.34%	1.85%	0.70%	8.56%	6.54%
WEST TISBURY	74.83%	71.89%	1.02%	0.74%	9.18%	15.38%
WESTBOROUGH	87.44%	85.35%	0.74%	1.34%	2.52%	4.70%
WESTFIELD	80.68%	84.59%	1.26%	1.35%	1.65%	2.06%
WESTFORD	88.68%	88.01%	0.62%	1.16%	1.90%	4.81%
WESTHAMPTON	86.25%	90.79%	0.00%	0.00%	1.62%	4.49%
WESTMINSTER	87.27%	87.58%	0.26%	0.69%	3.02%	3.52%
WESTON	73.96%	73.72%	6.56%	4.77%	9.29%	10.85%
WESTPORT	81.97%	85.75%	0.52%	0.63%	4.73%	4.14%
WESTWOOD	80.97%	78.92%	7.45%	9.73%	3.85%	4.79%
WEYMOUTH	76.67%	79.05%	7.42%	8.55%	1.38%	1.66%
WHATELY	85.51%	87.96%	0.89%	0.44%	5.08%	5.25%
WHITMAN	81.02%	80.46%	1.79%	5.12%	2.35%	1.66%
WILBRAHAM	86.88%	90.28%	1.29%	0.21%	2.26%	3.65%
WILLIAMSBURG	76.66%	83.90%	0.35%	0.28%	8.11%	8.79%
WILLIAMSTOWN	60.13%	59.98%	0.64%	0.55%	5.58%	5.18%
WILMINGTON	82.63%	86.39%	3.13%	3.34%	1.96%	2.76%
WINCHENDON	79.43%	83.04%	0.35%	0.68%	2.21%	2.33%
WINCHESTER	76.10%	72.51%	8.91%	10.67%	3.65%	5.91%
WINDSOR	80.81%	82.85%	0.00%	0.00%	2.78%	8.02%
WINTHROP	55.84%	61.56%	24.66%	21.45%	2.04%	2.65%
WOBURN	82.54%	84.95%	4.01%	4.41%	1.54%	1.75%
WORCESTER	70.96%	73.59%	4.49%	4.28%	1.67%	1.68%
WORTHINGTON	76.58%	77.15%	0.90%	0.31%	9.37%	9.55%
WRENTHAM	79.75%	85.11%	3.04%	3.35%	3.84%	5.27%
YARMOUTH	86.45%	81.50%	0.85%	1.68%	2.39%	3.37%
<b>Statewide</b>	<b>72.09%</b>	<b>73.81%</b>	<b>8.30%</b>	<b>8.73%</b>	<b>2.51%</b>	<b>3.14%</b>

## APPENDIX D | Share of Short, Medium, and Long Commuters by City and Town

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
ABINGTON	29.44%	24.48%	52.46%	51.99%	18.11%	23.53%
ACTON	29.65%	23.49%	54.24%	51.13%	16.10%	25.37%
ACUSHNET	39.95%	30.61%	51.20%	57.02%	8.86%	12.37%
ADAMS	39.83%	38.62%	54.16%	54.73%	6.01%	6.65%
AGAWAM	35.12%	34.79%	58.02%	57.69%	6.86%	7.52%
ALFORD	36.53%	38.46%	56.89%	47.93%	6.59%	13.61%
AMESBURY	38.10%	30.12%	46.39%	49.29%	15.51%	20.59%
AMHERST	60.13%	52.54%	34.91%	39.63%	4.96%	7.82%
ANDOVER	30.19%	26.80%	54.59%	49.99%	15.21%	23.21%
AQUINNAH	24.64%	43.28%	69.57%	47.76%	5.80%	8.96%
ARLINGTON	21.38%	16.46%	64.64%	64.34%	13.98%	19.20%
ASHBURNHAM	22.20%	15.63%	54.19%	60.82%	23.61%	23.55%
ASHBY	19.47%	17.68%	60.33%	56.88%	20.21%	25.44%
ASHFIELD	23.22%	18.39%	58.28%	57.49%	18.50%	24.12%
ASHLAND	23.06%	20.15%	55.03%	48.83%	21.91%	31.03%
ATHOL	53.79%	40.29%	31.59%	42.28%	14.62%	17.43%
ATTLEBORO	35.86%	29.92%	51.56%	51.03%	12.59%	19.04%
AUBURN	39.52%	32.85%	52.13%	56.20%	8.35%	10.95%
AVON	32.47%	25.73%	51.90%	50.67%	15.62%	23.59%
AYER	45.11%	27.18%	44.94%	52.76%	9.95%	20.06%
BARNSTABLE	45.62%	37.69%	44.92%	50.57%	9.46%	11.74%
BARRE	27.92%	27.02%	41.90%	42.88%	30.18%	30.10%
BECKET	17.67%	13.86%	63.14%	66.58%	19.18%	19.55%
BEDFORD	42.28%	29.44%	48.68%	56.64%	9.04%	13.92%
BELCHERTOWN	23.03%	17.96%	69.15%	68.89%	7.82%	13.15%
BELLINGHAM	25.47%	23.96%	54.68%	49.57%	19.84%	26.47%
BELMONT	25.97%	20.07%	63.70%	66.62%	10.33%	13.32%
BERKLEY	18.78%	16.91%	65.92%	59.85%	15.30%	23.24%
BERLIN	28.96%	29.08%	57.43%	62.08%	13.61%	8.83%
BERNARDSTON	32.95%	30.62%	61.11%	62.87%	5.94%	6.50%
BEVERLY	39.30%	34.39%	44.63%	46.24%	16.07%	19.37%
BILLERICA	25.99%	20.72%	62.05%	62.30%	11.97%	16.99%
BLACKSTONE	25.33%	21.32%	55.79%	57.02%	18.88%	21.67%
BLANDFORD	11.19%	9.83%	62.13%	54.45%	26.68%	35.73%
BOLTON	25.74%	14.69%	57.50%	63.47%	16.76%	21.84%
BOSTON	21.13%	17.64%	64.55%	63.32%	14.32%	19.05%
BOURNE	38.38%	29.56%	43.38%	49.86%	18.24%	20.59%
BOXBOROUGH	26.17%	15.80%	61.61%	56.13%	12.22%	28.07%
BOXFORD	16.96%	14.90%	64.02%	53.52%	19.01%	31.57%
BOYLSTON	29.82%	24.77%	64.08%	59.96%	6.10%	15.27%
BRAINTREE	32.06%	25.28%	50.61%	52.30%	17.33%	22.41%
BREWSTER	39.27%	40.40%	54.24%	48.19%	6.49%	11.42%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
BRIDGEWATER	27.79%	26.57%	55.56%	47.19%	16.65%	26.24%
BRIMFIELD	18.88%	23.73%	51.67%	50.03%	29.45%	26.24%
BROCKTON	32.05%	25.03%	50.60%	54.51%	17.35%	20.45%
BROOKFIELD	28.52%	18.37%	52.17%	52.40%	19.31%	29.23%
BROOKLINE	19.14%	15.09%	68.71%	69.11%	12.15%	15.79%
BUCKLAND	32.77%	30.58%	56.93%	57.17%	10.29%	12.25%
BURLINGTON	30.82%	29.82%	60.57%	56.33%	8.62%	13.85%
CAMBRIDGE	29.35%	27.89%	61.61%	60.66%	9.04%	11.45%
CANTON	26.60%	19.75%	57.19%	55.73%	16.21%	24.52%
CARLISLE	18.02%	16.99%	64.62%	52.35%	17.36%	30.66%
CARVER	17.50%	19.06%	57.20%	49.72%	25.31%	31.22%
CHARLEMONT	19.85%	28.51%	60.11%	49.20%	20.04%	22.29%
CHARLTON	23.08%	19.01%	64.29%	62.95%	12.63%	18.03%
CHATHAM	61.19%	60.05%	32.20%	31.38%	6.61%	8.56%
CHELMSFORD	26.40%	23.55%	62.17%	58.06%	11.44%	18.39%
CHELSEA	30.38%	21.54%	53.18%	53.85%	16.44%	24.61%
CHESHIRE	17.61%	23.23%	78.10%	70.05%	4.28%	6.72%
CHESTER	14.31%	8.55%	54.17%	55.99%	31.52%	35.46%
CHESTERFIELD	15.17%	15.75%	74.41%	65.44%	10.42%	18.81%
CHICOPEE	41.31%	41.35%	52.94%	52.50%	5.75%	6.15%
CHILMARK	35.63%	40.72%	64.37%	56.79%	0.00%	2.49%
CLARKSBURG	46.33%	48.24%	46.09%	39.98%	7.58%	11.79%
CLINTON	34.69%	30.57%	53.19%	56.76%	12.12%	12.67%
COHASSET	23.68%	27.96%	43.07%	32.54%	33.25%	39.50%
COLRAIN	29.30%	15.71%	61.63%	68.11%	9.07%	16.19%
CONCORD	27.51%	26.64%	55.51%	52.33%	16.98%	21.02%
CONWAY	20.60%	14.86%	65.04%	71.02%	14.36%	14.12%
CUMMINGTON	21.13%	15.72%	55.41%	51.35%	23.45%	32.92%
DALTON	47.17%	49.49%	48.64%	43.01%	4.20%	7.51%
DANVERS	40.62%	36.91%	48.15%	46.18%	11.23%	16.92%
DARTMOUTH	41.27%	28.04%	50.09%	56.69%	8.65%	15.27%
DEDHAM	29.89%	24.99%	57.78%	57.99%	12.33%	17.02%
DEERFIELD	40.83%	29.40%	51.61%	62.32%	7.56%	8.28%
DENNIS	45.64%	36.72%	47.20%	54.05%	7.15%	9.23%
DIGHTON	26.23%	18.13%	59.61%	63.58%	14.16%	18.29%
DOUGLAS	17.95%	16.35%	59.05%	58.73%	22.99%	24.93%
DOVER	16.17%	12.91%	59.26%	59.73%	24.57%	27.36%
DRACUT	23.47%	20.28%	63.45%	60.92%	13.08%	18.80%
DUDLEY	32.97%	30.60%	53.77%	49.76%	13.25%	19.64%
DUNSTABLE	15.72%	12.32%	64.16%	64.62%	20.12%	23.06%
DUXBURY	27.54%	23.09%	41.56%	37.52%	30.89%	39.40%
EAST BRIDGEWATER	31.30%	26.91%	52.38%	48.69%	16.31%	24.41%
EAST BROOKFIELD	32.63%	28.73%	49.42%	44.51%	17.94%	26.76%
EAST LONGMEADOW	32.27%	26.87%	59.33%	65.41%	8.40%	7.71%
EASTHAM	50.67%	44.93%	45.24%	43.99%	4.10%	11.08%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
EASTHAMPTON	38.47%	32.86%	57.62%	60.24%	3.91%	6.90%
EASTON	27.52%	27.67%	51.99%	48.63%	20.49%	23.70%
EDGARTOWN	59.92%	59.45%	40.08%	35.90%	0.00%	4.65%
EGREMONT	44.58%	49.69%	46.57%	38.09%	8.84%	12.23%
ERVING	36.38%	26.24%	55.69%	62.98%	7.93%	10.77%
ESSEX	30.40%	36.15%	56.63%	42.91%	12.97%	20.93%
EVERETT	30.01%	23.50%	57.12%	54.29%	12.87%	22.21%
FAIRHAVEN	46.98%	41.72%	44.77%	43.36%	8.25%	14.92%
FALL RIVER	46.99%	39.86%	44.80%	48.12%	8.21%	12.02%
FALMOUTH	48.05%	40.03%	41.24%	43.29%	10.71%	16.68%
FITCHBURG	44.39%	35.57%	44.28%	49.43%	11.33%	15.00%
FLORIDA	19.42%	10.76%	64.93%	72.67%	15.65%	16.57%
FOXBOROUGH	30.16%	26.17%	51.73%	49.30%	18.12%	24.53%
FRAMINGHAM	30.15%	26.61%	55.89%	53.67%	13.96%	19.72%
FRANKLIN	30.44%	25.44%	45.99%	45.96%	23.56%	28.60%
FREETOWN	21.77%	21.08%	63.59%	63.76%	14.64%	15.16%
GARDNER	49.06%	41.46%	38.00%	41.04%	12.94%	17.50%
GEORGETOWN	26.48%	19.25%	58.09%	57.39%	15.42%	23.36%
GILL	47.18%	42.52%	45.07%	47.05%	7.75%	10.43%
GLOUCESTER	51.18%	46.10%	34.05%	36.05%	14.78%	17.85%
GOSHEN	19.87%	12.77%	62.61%	68.17%	17.52%	19.06%
GOSNOLD	73.85%	100.00%	21.54%	0.00%	4.62%	0.00%
GRAFTON	24.73%	18.23%	63.12%	63.60%	12.14%	18.17%
GRANBY	25.56%	24.55%	67.88%	71.21%	6.56%	4.24%
GRANVILLE	18.63%	15.42%	56.78%	61.57%	24.59%	23.01%
GREAT BARRINGTON	55.65%	46.69%	38.90%	45.77%	5.45%	7.54%
GREENFIELD	61.70%	45.70%	31.39%	46.32%	6.91%	7.99%
GROTON	31.74%	19.16%	51.76%	54.66%	16.50%	26.19%
GROVELAND	26.31%	24.19%	59.52%	54.96%	14.17%	20.84%
HADLEY	48.04%	40.39%	48.79%	50.46%	3.17%	9.14%
HALIFAX	19.65%	11.51%	57.86%	57.97%	22.49%	30.52%
HAMILTON	35.55%	24.36%	46.65%	49.04%	17.79%	26.60%
HAMPDEN	18.07%	18.54%	71.65%	69.66%	10.28%	11.80%
HANCOCK	26.06%	22.03%	68.18%	68.41%	5.76%	9.57%
HANOVER	30.75%	25.08%	44.09%	47.52%	25.16%	27.40%
HANSON	25.28%	18.81%	53.89%	53.44%	20.83%	27.75%
HARDWICK	32.38%	18.16%	44.52%	50.93%	23.10%	30.91%
HARVARD	59.17%	19.97%	31.74%	52.31%	9.08%	27.72%
HARWICH	52.17%	41.92%	42.29%	48.51%	5.54%	9.57%
HATFIELD	35.08%	28.67%	57.38%	62.86%	7.54%	8.48%
HAVERHILL	36.66%	29.20%	49.20%	52.90%	14.15%	17.90%
HAWLEY	18.33%	13.14%	57.50%	51.82%	24.17%	35.04%
HEATH	16.67%	17.27%	53.85%	55.23%	29.49%	27.49%
HINGHAM	25.31%	24.22%	48.13%	40.71%	26.57%	35.07%
HINSDALE	28.70%	27.79%	66.45%	64.33%	4.86%	7.88%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
HOLBROOK	26.99%	20.09%	53.98%	56.38%	19.03%	23.53%
HOLDEN	31.37%	23.44%	58.87%	61.92%	9.77%	14.64%
HOLLAND	18.39%	15.87%	52.26%	51.92%	29.35%	32.21%
HOLLISTON	20.19%	17.78%	56.01%	53.20%	23.80%	29.02%
HOLYOKE	46.99%	39.58%	47.86%	54.25%	5.15%	6.17%
HOPEDALE	32.97%	31.55%	46.74%	42.86%	20.29%	25.60%
HOPKINTON	23.69%	19.87%	59.53%	48.37%	16.78%	31.76%
HUBBARDSTON	17.65%	13.07%	55.95%	59.79%	26.40%	27.14%
HUDSON	33.78%	33.45%	50.29%	51.82%	15.93%	14.73%
HULL	16.17%	15.72%	49.33%	43.94%	34.50%	40.34%
HUNTINGTON	14.92%	16.19%	68.41%	54.74%	16.67%	29.07%
IPSWICH	32.31%	25.65%	42.89%	49.48%	24.81%	24.87%
KINGSTON	36.98%	27.85%	43.76%	41.65%	19.27%	30.50%
LAKEVILLE	26.31%	21.44%	54.74%	51.30%	18.95%	27.26%
LANCASTER	39.11%	31.07%	51.18%	49.54%	9.71%	19.39%
LANESBOROUGH	39.31%	34.51%	57.23%	59.44%	3.47%	6.05%
LAWRENCE	38.36%	34.20%	53.60%	55.53%	8.04%	10.27%
LEE	54.57%	46.28%	39.84%	46.73%	5.59%	6.99%
LEICESTER	26.26%	25.08%	62.88%	60.87%	10.85%	14.05%
LENOX	47.70%	48.30%	46.56%	48.39%	5.75%	3.31%
LEOMINSTER	39.39%	35.96%	50.69%	47.29%	9.91%	16.74%
LEVERETT	26.52%	24.88%	65.00%	63.65%	8.48%	11.47%
LEXINGTON	28.82%	22.54%	59.34%	61.40%	11.84%	16.06%
LEYDEN	11.69%	15.30%	79.55%	73.06%	8.77%	11.64%
LINCOLN	43.29%	35.65%	47.01%	46.98%	9.70%	17.37%
LITTLETON	31.14%	24.13%	52.05%	53.38%	16.81%	22.49%
LONGMEADOW	39.66%	36.26%	53.73%	56.96%	6.62%	6.77%
LOWELL	34.52%	29.30%	56.62%	56.82%	8.86%	13.88%
LUDLOW	32.26%	29.13%	61.57%	64.60%	6.17%	6.27%
LUNENBURG	32.94%	26.85%	49.90%	55.92%	17.16%	17.22%
LYNN	33.26%	24.47%	52.00%	56.62%	14.73%	18.91%
LYNNFIELD	22.03%	20.59%	62.63%	58.37%	15.34%	21.04%
MALDEN	23.43%	19.47%	60.39%	57.89%	16.18%	22.64%
MANCHESTER-BY-THE-SEA	27.21%	28.04%	43.78%	41.59%	29.01%	30.37%
MANSFIELD	26.09%	19.12%	53.05%	49.92%	20.86%	30.95%
MARBLEHEAD	30.75%	30.54%	40.02%	33.36%	29.24%	36.09%
MARION	38.88%	34.47%	47.75%	42.64%	13.37%	22.90%
MARLBOROUGH	34.79%	28.91%	51.66%	52.68%	13.55%	18.41%
MARSHFIELD	21.02%	19.63%	45.78%	42.97%	33.21%	37.41%
MASHPEE	23.33%	25.00%	60.11%	56.19%	16.56%	18.81%
MATTAPOISETT	38.40%	32.47%	52.28%	51.00%	9.32%	16.53%
MAYNARD	34.62%	23.95%	51.17%	56.81%	14.22%	19.24%
MEDFIELD	23.51%	18.39%	55.33%	47.75%	21.16%	33.86%
MEDFORD	26.93%	20.06%	61.26%	63.16%	11.81%	16.78%
MEDWAY	25.11%	20.99%	53.00%	52.73%	21.89%	26.28%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
MELROSE	27.25%	20.94%	58.45%	59.36%	14.30%	19.71%
MENDON	24.04%	26.65%	55.54%	47.35%	20.42%	25.99%
MERRIMAC	28.45%	19.86%	55.68%	59.38%	15.87%	20.76%
METHUEN	36.24%	29.14%	52.62%	55.75%	11.13%	15.10%
MIDDLEBOROUGH	35.16%	25.25%	50.39%	53.41%	14.45%	21.34%
MIDDLEFIELD	8.29%	6.32%	55.25%	47.21%	36.46%	46.47%
MIDDLETON	33.38%	25.99%	54.58%	55.48%	12.03%	18.53%
MILFORD	32.86%	31.54%	48.20%	48.48%	18.93%	19.97%
MILLBURY	35.06%	27.88%	57.85%	59.60%	7.08%	12.53%
MILLIS	24.40%	17.37%	54.05%	53.29%	21.55%	29.34%
MILLVILLE	15.68%	16.88%	61.29%	59.47%	23.03%	23.66%
MILTON	25.17%	21.01%	60.93%	55.76%	13.90%	23.23%
MONROE	25.76%	36.84%	51.52%	47.37%	22.73%	15.79%
MONSON	34.62%	22.99%	51.81%	56.86%	13.57%	20.14%
MONTAGUE	40.33%	32.18%	52.46%	56.26%	7.21%	11.56%
MONTEREY	35.54%	27.08%	58.13%	57.41%	6.33%	15.51%
MONTGOMERY	10.07%	9.09%	76.41%	78.69%	13.51%	12.22%
MOUNT WASHINGTON	26.79%	29.11%	60.71%	49.37%	12.50%	21.52%
NAHANT	26.93%	23.14%	46.20%	44.07%	26.88%	32.79%
NANTUCKET	79.75%	81.76%	18.52%	16.84%	1.73%	1.40%
NATICK	30.18%	24.58%	53.06%	52.66%	16.76%	22.75%
NEEDHAM	30.83%	27.78%	55.78%	51.60%	13.39%	20.62%
NEW ASHFORD	42.20%	29.10%	55.96%	64.93%	1.83%	5.97%
NEW BEDFORD	45.95%	40.88%	43.67%	44.96%	10.37%	14.15%
NEW BRAintree	16.25%	16.53%	61.50%	53.81%	22.25%	29.66%
NEW MARLBOROUGH	34.25%	33.76%	58.90%	56.75%	6.85%	9.48%
NEW SALEM	27.92%	17.75%	55.84%	57.83%	16.24%	24.43%
NEWBURY	31.38%	34.62%	48.52%	43.97%	20.10%	21.40%
NEWBURYPORT	40.48%	34.58%	36.18%	38.47%	23.34%	26.95%
NEWTON	26.10%	20.96%	63.78%	64.73%	10.12%	14.31%
NORFOLK	19.61%	22.09%	52.00%	46.42%	28.39%	31.49%
NORTH ADAMS	56.32%	54.68%	35.32%	35.76%	8.36%	9.57%
NORTH ANDOVER	33.33%	27.93%	51.37%	50.25%	15.30%	21.82%
NORTH ATTLEBOROU	35.01%	28.40%	52.48%	52.08%	12.51%	19.53%
NORTH BROOKFIELD	29.65%	27.65%	47.06%	44.98%	23.29%	27.37%
NORTH READING	24.83%	18.88%	62.31%	60.03%	12.86%	21.09%
NORTHAMPTON	52.85%	42.62%	41.29%	49.76%	5.86%	7.62%
NORTHBOROUGH	30.55%	30.09%	55.19%	53.02%	14.27%	16.90%
NORTHBRIDGE	30.23%	25.47%	57.33%	54.91%	12.44%	19.62%
NORTHFIELD	32.34%	26.40%	59.55%	60.81%	8.10%	12.79%
NORTON	31.61%	24.62%	51.42%	49.18%	16.97%	26.20%
NORWELL	24.53%	20.39%	45.83%	43.24%	29.64%	36.36%
NORWOOD	34.29%	26.67%	49.30%	50.36%	16.42%	22.96%
OAK BLUFFS	69.36%	63.92%	28.61%	31.37%	2.04%	4.70%
OAKHAM	14.31%	9.17%	62.86%	61.34%	22.83%	29.49%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
ORANGE	41.22%	39.12%	41.25%	43.58%	17.53%	17.30%
ORLEANS	56.93%	63.47%	37.42%	31.96%	5.64%	4.58%
OTIS	20.58%	21.31%	51.77%	50.86%	27.65%	27.84%
OXFORD	26.08%	25.39%	63.38%	59.47%	10.55%	15.13%
PALMER	40.99%	36.13%	51.34%	50.56%	7.67%	13.31%
PAXTON	20.61%	20.42%	65.67%	68.48%	13.72%	11.10%
PEABODY	32.34%	29.70%	56.82%	55.35%	10.83%	14.94%
PELHAM	27.57%	36.68%	63.85%	52.17%	8.58%	11.14%
PEMBROKE	21.34%	17.58%	55.38%	47.56%	23.28%	34.86%
PEPPERELL	23.12%	18.42%	54.42%	49.28%	22.45%	32.30%
PERU	8.31%	14.57%	81.72%	74.81%	9.97%	10.62%
PETERSHAM	31.93%	27.94%	46.65%	46.32%	21.41%	25.74%
PHILLIPSTON	26.65%	13.99%	55.69%	64.79%	17.66%	21.23%
PITTSFIELD	56.33%	55.21%	39.67%	38.16%	4.00%	6.63%
PLAINFIELD	16.39%	20.49%	53.28%	48.36%	30.33%	31.15%
PLAINVILLE	29.62%	23.70%	53.92%	51.49%	16.46%	24.81%
PLYMOUTH	31.28%	24.84%	43.98%	42.86%	24.74%	32.31%
PLYMPTON	19.95%	17.79%	57.31%	46.77%	22.74%	35.44%
PRINCETON	15.31%	12.78%	69.99%	67.36%	14.69%	19.86%
PROVINCETOWN	77.30%	77.21%	18.16%	15.47%	4.54%	7.32%
QUINCY	24.50%	20.16%	59.26%	54.28%	16.24%	25.56%
RANDOLPH	23.40%	18.46%	55.94%	52.86%	20.66%	28.68%
RAYNHAM	30.88%	27.92%	55.67%	52.64%	13.45%	19.44%
READING	29.38%	26.41%	58.28%	55.13%	12.34%	18.46%
REHOBOTH	21.27%	18.56%	68.46%	65.39%	10.27%	16.05%
REVERE	24.66%	23.39%	60.18%	53.35%	15.17%	23.27%
RICHMOND	22.64%	25.25%	72.45%	66.34%	4.91%	8.42%
ROCHESTER	20.74%	15.50%	67.06%	63.37%	12.20%	21.14%
ROCKLAND	34.93%	27.41%	48.24%	50.39%	16.83%	22.20%
ROCKPORT	36.89%	39.56%	41.83%	35.62%	21.28%	24.82%
ROWE	32.14%	25.16%	48.57%	45.81%	19.29%	29.03%
ROWLEY	28.04%	23.11%	52.77%	52.37%	19.19%	24.52%
ROYALSTON	15.94%	11.52%	68.32%	62.27%	15.73%	26.21%
RUSSELL	25.64%	19.27%	56.14%	62.98%	18.23%	17.74%
RUTLAND	21.04%	15.82%	67.59%	64.45%	11.37%	19.73%
SALEM	37.84%	31.09%	44.26%	46.80%	17.90%	22.10%
SALISBURY	43.74%	34.25%	42.35%	42.51%	13.91%	23.24%
SANDSFIELD	26.92%	16.67%	51.28%	51.09%	21.79%	32.24%
SANDWICH	26.94%	26.11%	54.79%	51.78%	18.26%	22.10%
SAUGUS	29.18%	23.54%	58.48%	59.89%	12.34%	16.58%
SAVOY	13.94%	15.16%	73.33%	67.64%	12.73%	17.20%
SCITUATE	21.79%	22.41%	41.12%	39.81%	37.09%	37.78%
SEEKONK	35.30%	35.08%	57.26%	54.04%	7.43%	10.88%
SHARON	21.43%	17.10%	55.90%	49.92%	22.66%	32.99%
SHEFFIELD	50.64%	39.81%	43.17%	47.65%	6.19%	12.54%

CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
SHELburnE	36.35%	32.29%	53.48%	60.10%	10.17%	7.60%
SHERBORn	25.22%	17.64%	49.16%	47.48%	25.62%	34.88%
SHIRLEY	34.86%	23.83%	51.16%	52.52%	13.97%	23.65%
SHREWSBURy	35.89%	29.63%	53.37%	51.00%	10.73%	19.37%
SHUTESBURy	12.68%	12.38%	70.38%	70.30%	16.95%	17.31%
SOMERSET	34.53%	29.69%	54.50%	56.40%	10.97%	13.91%
SOMERVILLE	22.89%	17.72%	65.47%	65.47%	11.63%	16.81%
SOUTH HADLEY	45.46%	42.56%	49.39%	50.34%	5.15%	7.10%
SOUTHAMPTON	25.98%	19.07%	67.00%	69.18%	7.02%	11.75%
SOUTHBOROUGH	30.25%	23.31%	55.87%	56.70%	13.89%	19.99%
SOUTHBRIDGE	52.89%	42.01%	35.74%	41.46%	11.37%	16.52%
SOUTHWICK	27.02%	22.77%	64.94%	63.88%	8.04%	13.35%
SPENCER	24.59%	26.34%	61.85%	55.42%	13.56%	18.23%
SPRINGFIELD	36.33%	33.18%	57.20%	58.11%	6.47%	8.71%
STERLING	21.60%	21.57%	69.42%	60.01%	8.98%	18.43%
STOCKBRIDGE	46.94%	47.70%	45.97%	44.87%	7.09%	7.43%
STONEHAM	30.34%	23.23%	60.84%	61.30%	8.82%	15.48%
STOUGHTON	30.28%	23.26%	51.39%	50.41%	18.33%	26.33%
STOW	25.76%	19.51%	57.89%	53.24%	16.35%	27.25%
STURBRIDGE	38.29%	28.80%	44.09%	44.21%	17.62%	26.99%
SUDBURY	25.25%	18.40%	56.85%	55.82%	17.90%	25.78%
SUNDERLAND	30.57%	34.00%	60.52%	60.00%	8.92%	6.00%
SUTTON	22.72%	18.93%	67.48%	62.59%	9.80%	18.47%
SWAMPSCOTT	33.13%	27.18%	45.48%	40.43%	21.38%	32.39%
SWANSEA	35.86%	32.82%	55.87%	54.70%	8.27%	12.48%
TAUNTON	34.03%	27.68%	52.00%	54.03%	13.97%	18.29%
TEMPLETON	38.23%	28.97%	42.86%	52.25%	18.91%	18.78%
TEWKSBURY	27.13%	19.55%	58.78%	59.73%	14.09%	20.73%
TISBURY	64.13%	61.50%	35.30%	32.89%	0.57%	5.61%
TOLLAND	14.02%	14.95%	48.60%	35.05%	37.38%	50.00%
TOPSFIELD	18.08%	26.67%	62.28%	54.75%	19.65%	18.58%
TOWNSEND	21.82%	16.88%	50.12%	50.20%	28.06%	32.93%
TRURO	46.52%	54.10%	46.06%	38.68%	7.42%	7.22%
TYNGSBOROUGH	19.88%	16.97%	62.76%	61.39%	17.35%	21.64%
TYRINGHAM	27.22%	39.90%	62.78%	54.40%	10.00%	5.70%
UPTON	19.60%	15.42%	62.02%	58.55%	18.38%	26.03%
UXBRIDGE	25.70%	24.84%	57.79%	49.30%	16.51%	25.86%
WAKEFIELD	33.26%	25.89%	54.40%	54.65%	12.35%	19.46%
WALES	14.10%	13.08%	52.89%	52.64%	33.00%	34.29%
WALPOLE	31.72%	25.00%	49.05%	48.76%	19.23%	26.24%
WALTHAM	40.91%	30.70%	51.33%	56.75%	7.76%	12.55%
WARE	32.02%	34.97%	52.79%	47.30%	15.19%	17.73%
WAREHAM	33.38%	29.46%	46.54%	47.30%	20.08%	23.24%
WARREN	34.43%	25.47%	48.65%	46.02%	16.92%	28.51%
WARWICK	13.47%	11.67%	71.38%	73.19%	15.15%	15.14%



CITY/TOWN	1990 SHARE SHORT	2000 SHARE SHORT	1990 SHARE MEDIUM	2000 SHARE MEDIUM	1990 SHARE LONG	2000 SHARE LONG
WASHINGTON	12.36%	11.83%	82.40%	78.24%	5.24%	9.92%
WATERTOWN	26.92%	23.67%	61.63%	61.86%	11.45%	14.47%
WAYLAND	22.46%	16.26%	65.74%	60.71%	11.80%	23.04%
WEBSTER	42.88%	31.23%	47.41%	54.31%	9.71%	14.46%
WELLESLEY	32.72%	31.10%	54.25%	55.24%	13.03%	13.66%
WELLFLEET	54.17%	45.77%	41.87%	43.60%	3.97%	10.63%
WENDELL	15.52%	17.66%	66.74%	63.15%	17.74%	19.19%
WENHAM	43.01%	39.92%	39.80%	33.74%	17.19%	26.34%
WEST BOYLSTON	29.33%	31.35%	61.36%	56.52%	9.31%	12.12%
WEST BRIDGEWATER	38.96%	31.79%	49.77%	48.02%	11.27%	20.18%
WEST BROOKFIELD	33.38%	24.97%	44.22%	38.72%	22.40%	36.31%
WEST NEWBURY	27.76%	18.65%	52.22%	53.26%	20.02%	28.09%
WEST SPRINGFIELD	39.02%	35.46%	54.69%	55.39%	6.28%	9.14%
WEST STOCKBRIDGE	27.77%	27.23%	65.99%	61.76%	6.24%	11.01%
WEST TISBURY	42.95%	45.30%	56.18%	49.83%	0.87%	4.87%
WESTBOROUGH	35.35%	28.78%	50.11%	51.80%	14.54%	19.42%
WESTFIELD	39.32%	34.65%	52.78%	55.02%	7.90%	10.33%
WESTFORD	24.69%	19.89%	61.39%	58.57%	13.92%	21.54%
WESTHAMPTON	18.90%	13.84%	71.23%	75.28%	9.86%	10.88%
WESTMINSTER	28.91%	29.91%	52.85%	50.18%	18.24%	19.91%
WESTON	24.19%	17.34%	65.26%	68.76%	10.55%	13.90%
WESTPORT	25.74%	22.75%	64.05%	61.95%	10.21%	15.30%
WESTWOOD	28.71%	21.20%	55.08%	56.40%	16.21%	22.40%
WEYMOUTH	27.67%	21.98%	53.24%	51.99%	19.08%	26.03%
WHATELY	25.57%	27.25%	66.53%	62.12%	7.90%	10.62%
WHITMAN	27.26%	23.19%	52.24%	52.87%	20.50%	23.94%
WILBRAHAM	23.00%	23.30%	69.34%	67.18%	7.66%	9.53%
WILLIAMSBURG	32.46%	25.89%	54.80%	65.01%	12.74%	9.10%
WILLIAMSTOWN	67.94%	70.57%	28.43%	23.39%	3.63%	6.04%
WILMINGTON	28.48%	21.95%	60.38%	60.15%	11.14%	17.90%
WINCHENDON	33.98%	25.89%	54.21%	54.46%	11.81%	19.65%
WINCHESTER	25.11%	18.51%	64.03%	63.65%	10.86%	17.84%
WINDSOR	13.51%	13.56%	77.92%	77.00%	8.57%	9.44%
WINTHROP	24.75%	22.14%	60.06%	53.69%	15.20%	24.17%
WOBURN	37.37%	32.53%	54.74%	55.11%	7.90%	12.36%
WORCESTER	42.73%	37.17%	49.18%	51.38%	8.09%	11.44%
WORTHINGTON	20.08%	14.71%	46.32%	42.04%	33.60%	43.25%
WRENTHAM	26.73%	23.91%	54.40%	51.33%	18.87%	24.76%
YARMOUTH	53.55%	44.22%	39.48%	44.79%	6.98%	10.99%
<b>Statewide</b>	<b>32.10%</b>	<b>27.19%</b>	<b>54.57%</b>	<b>54.45%</b>	<b>13.32%</b>	<b>18.36%</b>

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