



Common Connections

The Importance of Public Transportation for College Students and Seniors in Massachusetts

MASSPIRG
Education Fund

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Executive Summary

College students and senior citizens account for more than one out of every five Massachusetts residents and share a need for high-quality alternatives to driving—particularly public transportation.

Public transportation benefits students, seniors, their families, and the Commonwealth as a whole. With the Bay State projected to house 600,000 more seniors (age 65 or older) in 2030 than in 2000—and with today's young people increasingly seeking new transportation alternatives—the time has come for Massachusetts to reinvest in its public transportation systems.

Public transportation benefits college students, seniors, and the Commonwealth.

- Public transportation can *save money* for students and seniors by reducing or eliminating the cost of owning and maintaining a car. Transportation accounts for a greater share of household expenditures for people 25 and under than for any other age group, while the costs of owning a car can be

a financial burden for seniors living on a fixed income.

- Public transportation links students and seniors to *jobs, health care and community activities*. An informal survey of 1,373 Massachusetts college students by MASSPIRG Student Chapters found that, of students with jobs, 48 percent use public transportation to get to their jobs very often or sometimes. Meanwhile, transit can provide seniors with a means to remain engaged in their communities, countering the isolation that often comes with aging.
- Public transportation helps students and seniors *stay independent*, reducing the burden on parents, children or other caregivers to provide rides to classes, jobs or medical appointments.
- Public transportation promotes *safety and better health*. Drivers under 20 years of age and those over 80 years of age are statistically the most likely to be involved in accidents, imposing

costs on other drivers and the Commonwealth. Public transportation is safer than driving and research shows that the simple act of walking to a transit stop can help people meet minimum daily guidelines for physical activity.

- Public transportation also *eases congestion and reduces demand for parking*, particularly near college campuses. Transit service can eliminate the need to build costly new campus parking structures, reduce traffic congestion in and around campuses, and alleviate tensions that often arise between colleges and surrounding communities around issues such as “overflow” parking in residential areas.
- These benefits are in addition to the many other benefits transit delivers to the entire Commonwealth, including:

- *Saving oil and reducing global warming pollution.* In 2006, Massachusetts transit services saved 153 million gallons of oil and reduced carbon dioxide emissions by approximately 1.2 million metric tons.

- *Curbing traffic congestion.* According to the Texas Transportation Institute, public transportation in the Boston, Worcester and Springfield areas saved more than 33 million hours of time wasted in traffic—worth \$751 million—in 2009.

- *Improved quality of life.* Public transportation is woven into the fabric of life in Massachusetts, providing Bay State residents with transportation choices and supporting healthy and economically vibrant communities.

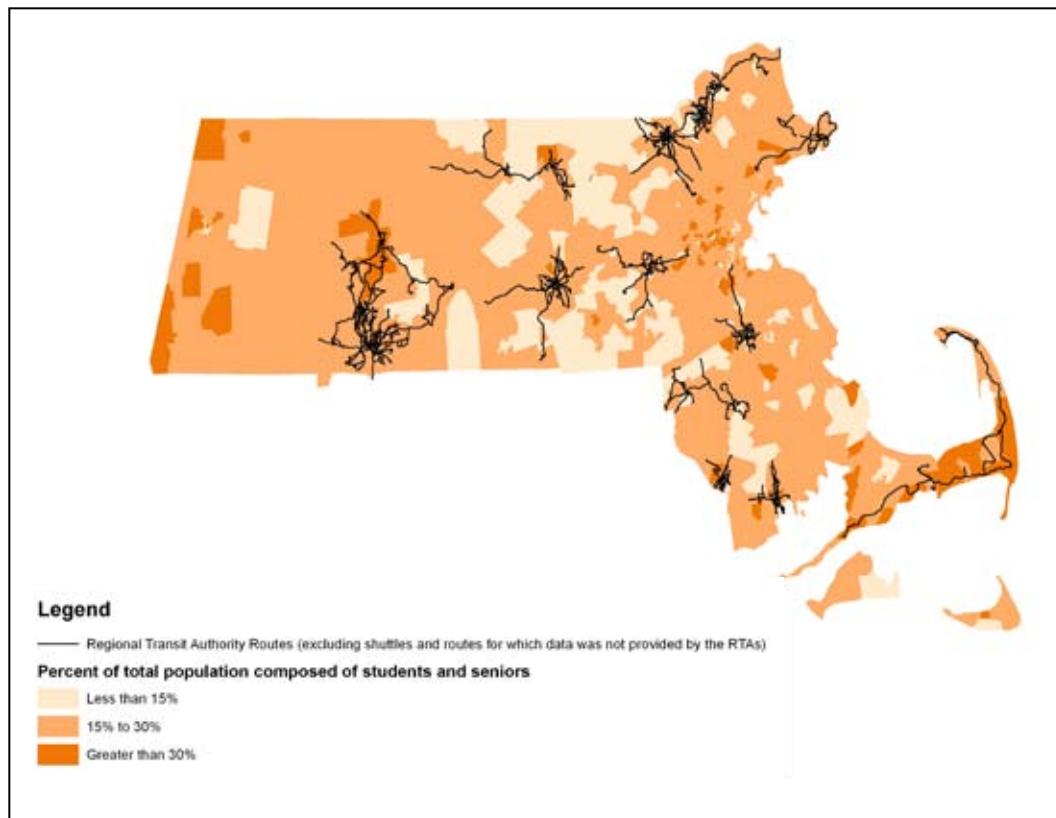
Table ES-1. Population of Census Block Groups Within a Quarter-Mile of RTA Bus Routes

	Total Population within 1/4 Mile	Students	% Students	Seniors	% Seniors	Students + Seniors	% Combined
Pioneer Valley	533,917	63,566	12%	74,399	14%	137,965	26%
Worcester Regional	296,643	26,820	9%	39,645	13%	66,465	22%
Merrimack Valley	306,043	19,497	6%	38,088	12%	57,585	19%
Southeastern Regional	239,221	14,968	6%	37,962	16%	52,930	22%
Lowell Regional	265,229	18,559	7%	33,078	12%	51,637	19%
Cape Cod Regional	132,307	6,466	5%	33,848	26%	40,314	30%
Brockton Area Transit	196,923	12,190	6%	26,342	13%	38,532	20%
MetroWest	177,525	13,475	8%	23,874	13%	37,349	21%
Greater Attleboro-Taunton	165,704	12,218	7%	20,399	12%	32,617	20%
Montachusett Regional	143,037	9,999	7%	19,208	13%	29,207	20%
Cape Ann	90,927	7,158	8%	16,376	18%	23,534	26%
Total (11 RTAs)	2,482,241	200,772	8%	355,759	14%	556,531	22.4%

Massachusetts' regional transit authorities (RTAs) provide an important service for students and seniors, who make up a sizeable share of their customer base. Funding constraints, however, are preventing the RTAs from achieving their full potential.

- At least 550,000 college students and seniors live in Census block groups within one-quarter mile of bus routes served by 11 of the Commonwealth's RTAs—a rough measure of the accessibility of transit stops. (See Table ES-1.) These figures do not count students and seniors served by greater Boston's Massachusetts Bay Transportation Authority.
- The service areas of several Massachusetts RTAs are more densely populated with students and seniors than the Commonwealth at large. (See Figure ES-1.) Students account for 12 percent of those living in block groups within a quarter-mile of a Pioneer Valley Transit Authority bus route (compared to their 8 percent share of the Massachusetts population), while seniors account for 26 percent of those living a similar distance away from Cape Cod Transit Authority routes (compared with 13 percent of the overall population).
- Students and seniors represent a large share of some RTAs' ridership. A rider survey in the northern part of the Pioneer Valley Transportation Authority's service area found that students made up 76 percent of all riders when school is in session, while a survey

Figure ES-1. Population of Students and Seniors by Census Tract



by the Southeastern Regional Transit Authority in the Fall River-New Bedford area found that 25 percent of riders were seniors or disabled.

- Lack of sufficient operating funding has kept RTAs from fully serving the needs of students and seniors. Many RTAs cut service and/or raised fares in the late 2000s in the face of stagnant state financial support.
- College students have identified many shortcomings with transit service in their areas. The MASSPIRG Student Chapters survey found that, of students who drive or get a ride to school, 31 percent do not take transit because there is no service available near their home, while 22 percent said that the transit trips take too long.

The demand for quality public transportation service in the Commonwealth is growing and will continue to grow among both the old and the young.

- The number of passenger trips taken via RTA transit services increased by 16 percent between 2005 and 2009. Transit ridership has continued to increase in 2010 and early 2011—despite sluggish economic growth.
- The number of seniors in the Commonwealth is poised to increase dramatically in the next two decades as the Baby Boom generation retires. Massachusetts is projected to see a net gain of 600,000 seniors (age 65 or older) between 2000 and 2030, including an increase of 260,000 residents older than 75 years of age. These older residents will increasingly demand transportation alternatives, including public transportation.
- Evidence is mounting of a long-term

change in consumer preferences in housing and transportation nationwide. Demand for multi-family housing, particularly in areas with shorter commutes, walkable neighborhoods and proximity to urban centers, is on the rise. Today's young people are more likely to see transit and other transportation alternatives as necessary parts of a livable community than previous generations.

Public transportation is a lifeline for Massachusetts' students and seniors, providing access to jobs and economic opportunity, saving money, and making the Commonwealth a safer and more attractive place to live. To maximize the benefits of public transportation, Massachusetts should:

- **Increase revenue for public transportation operations over the long-term** – The Commonwealth should identify additional sources of revenue that can enable the state's transit agencies to function appropriately today and expand to meet the needs of tomorrow, while also ensuring that transportation spending is distributed equitably across the Commonwealth.
- **Enlist public and private institutions in supporting transit** – The Commonwealth should explore ways to have public and private institutions contribute to the financial support of transit—including through universities' purchase of transit passes for their students and staff and the use of value capture or other mechanisms to generate revenue from private businesses that benefit from transit investments.
- **Explore new ways to provide transit service to college students and seniors** – Transit agencies around

the country have experimented with new ways to provide transit service to targeted populations, including students and seniors. As the number of seniors “aging in place” increases in coming years—with many of those

seniors aging in suburban areas that are difficult for conventional transit services to reach—transit agencies must identify ways to serve those individuals in an efficient and cost-effective manner.

Introduction

Massachusetts' future is with the young and the old.

Economically, the future of Massachusetts is with the young. Massachusetts is home to dozens of institutions of higher education—from large research universities to community colleges that serve as a critical first rung on the ladder of economic mobility. The strength of the state's knowledge-based economy depends on the constant stream of innovations that emerge from those universities—and on the willingness of the highly trained people who created those innovations to build their future in Massachusetts.

Demographically, the future of the Bay State is with the old. Massachusetts is poised to add 600,000 seniors to its population between 2000 and 2030—a figure roughly equivalent to the population of Boston—as the Baby Boom generation ages. The media and decision-makers often portray the aging of the population as a problem, but it is also potentially a tremendous opportunity for Massachusetts—particularly if those older Baby Boomers are given the tools to continue to participate in and give back to their communities as they get older.

To thrive in the 21st century, Massachu-

setts needs to invest in our economic future. Among other things, Massachusetts must foster the development of new knowledge-based industries while taking advantage of the opportunities for enhanced community engagement and involvement that are presented by the aging of the Baby Boom generation.

Investing in public transportation is important for Massachusetts' future.

Transit service plays an unusually important role in the lives of college students and seniors—providing both with independence, access to economic, social and educational opportunities, and, in some cases, freedom from the financial burden of owning and maintaining a personal vehicle. Investing in transit also delivers returns to everyone in the Commonwealth in the form of safer roads, reduced congestion, reduced dependence on oil, and fewer emissions of pollutants that contribute to global warming.

In difficult budgetary times, finding the money to maintain and expand the Commonwealth's transit services is challenging. But as this report details, investing in public transportation is a smart move with big returns—for our students, for our seniors, and for Massachusetts' future.

Transit Benefits Students, Seniors and the Commonwealth

College students and seniors may seem to have different needs, but one thing they often share is a need for alternative means of transportation besides driving an automobile.

Public transportation provides new opportunities for students and seniors to live better lives, while benefiting the entire Commonwealth. Transit enables students and seniors to avoid the high costs associated with buying and owning a car. It empowers seniors to live more independently and provides students and seniors with access to jobs and cultural opportunities. Families and friends benefit from transit by being relieved of the need to “chauffeur” students and seniors to jobs or medical appointments. And the Commonwealth as a whole benefits from reduced traffic congestion, improved safety on the roads, reduced expenditures for parking and public services, and the creation of communities that attract educated young people to build Massachusetts’ economy for the future.

Saving Money

The cost of owning, operating and maintaining a vehicle is a major financial burden for many Massachusetts residents, but especially for young people and seniors.

The American Automobile Association estimates that the average American pays \$9,520 per year to own and operate a car.¹ These costs include fuel (\$2.603 per gallon at the time of this calculation in 2009), maintenance, licensing, registration, taxes, depreciation costs, finance charges, and insurance costs. For young drivers, the tab may be higher still, since their insurance rates and financing costs are generally much higher.²

As a result, transportation consumes a significant share of the limited incomes of younger and older Bay State residents. According to the U.S. Bureau of Labor Statistics, transportation accounts for 19 percent of household expenditures for consumers 25 years old or younger—a greater share than for any other age bracket.³ Seniors aged 65 to 74 dedicated 16 percent of their expenditures to transportation.

Both students and seniors face economic limitations that make the costs of

vehicle ownership particularly difficult to sustain.

For students and recent graduates, high unemployment, combined with high tuition, often makes owning a vehicle difficult or impossible. Most students (85 percent) attend college full time, and therefore have low participation in the labor force (51 percent). Even those who are in the workforce are having difficulty finding jobs, with the unemployment rate for college students reaching 12.8 percent in 2010, according to the U.S. Bureau of Labor Statistics.⁴

At the same time, students face increased tuition costs that continue to affect their lives after school is over in the form of student loan payments. Nationwide, out-of-pocket expenses for youth ages 19-23 to attend college were almost \$10,000.⁵ Among Massachusetts students graduating with student loan debt in 2009, the average was \$24,484.⁶

Massachusetts college students are very concerned about the costs of owning and maintaining a vehicle. A MASSPIRG Student Chapters survey of 1,373 students at 20 college campuses found that 83 percent of those responding believed it was “very important” or “somewhat important” to avoid or reduce the costs associated with having a car, such as maintenance,

repair, gas, insurance and parking. (For more details on the survey, see the text box below.)

For seniors, living on a fixed income can make the costs of owning a vehicle a financial burden. Nationally, 56 percent of income received by people 65 years or older is in the form of Social Security or pension payments, with an additional 13 percent in the form of income from assets such as interest or stock dividends.⁷ Unexpected expenses—such as the need to repair or replace a vehicle or a sudden increase in gasoline prices—can therefore put a big dent in seniors’ budgets.

Public transportation can provide students and seniors with an alternative to the expense of owning and maintaining their own vehicle.

Providing Access to Jobs, Health Care and Community Activities

Public transportation keeps students and seniors connected to their communities—providing access to jobs, recreation, and cultural opportunities.

The MASSPIRG Student Chapters Survey

During the spring semester 2011, MASSPIRG Student Chapters staff and student volunteers conducted an informal survey of 1,374 college students on 20 Massachusetts college campuses regarding students’ use of and attitudes toward public transportation. The survey was not intended to be scientific, but rather to quickly take the pulse of students on these important issues. The results of the survey are inevitably shaped by the campuses on which it was carried out and by the portions of the campus community reached, and should be interpreted accordingly. More details on the survey, including the full list of questions and a detailed breakdown of responses, are available in Appendix A.

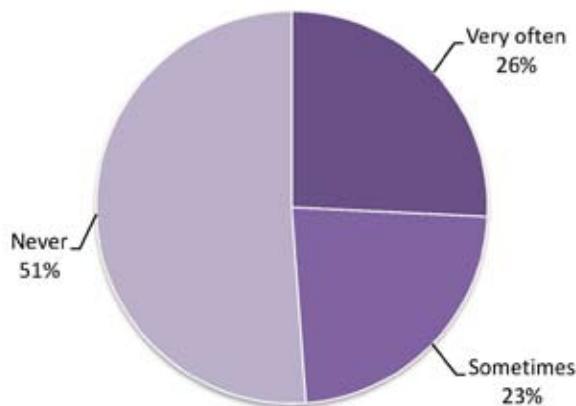
For students, public transportation often plays an important role in helping them reach jobs off campus. Among students with jobs, 25 percent of those responding to the MASSPIRG Student Chapters survey stated that they take public transportation to their jobs “very often,” while another 23 percent responded that they take public transportation “sometimes.” Statewide, 12.7 percent of workers aged 20 to 24 take public transportation to work, compared with 8.6 percent of workers in other age groups.⁸

Transit helps seniors reach employment, and also provides them with critical access to medical care and other services that are central to day-to-day life, as well as to cultural activities that help combat the isolation that often comes with aging.

Seniors who do not drive are more likely to remain isolated. Older non-drivers in the United States make 15 percent fewer trips to the doctor, 59 percent fewer shopping trips, and 65 percent fewer trips for social, family and religious activities, according to research by the Surface Transportation Policy Project.⁹

Public transportation—whether in the form of fixed-route (scheduled) service or demand-response “paratransit” service for the elderly and disabled—helps ensure that seniors have access to critical services and opportunities for community engagement. Nationwide, nearly half of area agencies on aging surveyed by the National Center for Senior Transportation reported that it is “easy” or “pretty easy” for seniors in their communities to access transportation to medical appointments.¹⁰ But, largely as a result of limited public transportation offerings, access to social or cultural opportunities—the ability to visit a loved one in a nursing home or attend the church of one’s choice—can be much harder to come by, with less than one in 10 agencies on aging reporting that it is “easy” or “pretty easy” for seniors to obtain rides to these destinations.

Figure 1. MASSPIRG Student Chapters Survey: “How often do you use public transportation to get to work?” (among students with jobs)



Even for seniors who retain the ability to drive, public transportation can be an important supplementary mobility option. Many seniors who continue to drive adjust their driving behavior to compensate for their limitations—avoiding driving at night, in bad weather, or on busy streets.¹¹ Transit can provide an alternative way for these seniors to reach their destinations at times when they prefer not to drive.

Preserving Independence

Students and seniors value their independence. Young people enjoying their first taste of adulthood typically cherish the ability to set their own agendas. Seniors, too, want to live, work, worship and play according to their own desires and needs, while many worry about becoming an imposition on family and friends as they get older.

Often, however, students and seniors find themselves with no other option but to rely on family and friends for transportation.

In the MASSPIRG Student Chapters

survey, 13 percent of students who responded reported that they were driven to school by family or friends, while 45 percent reported driving to class themselves. Yet students are willing to take

Figure 2. MASSPIRG Student Chapters Survey: “How do you get to school?” (some gave multiple responses)

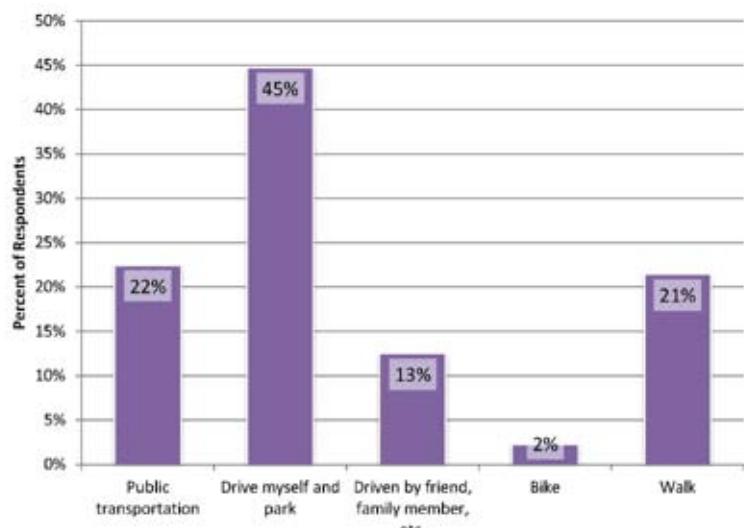
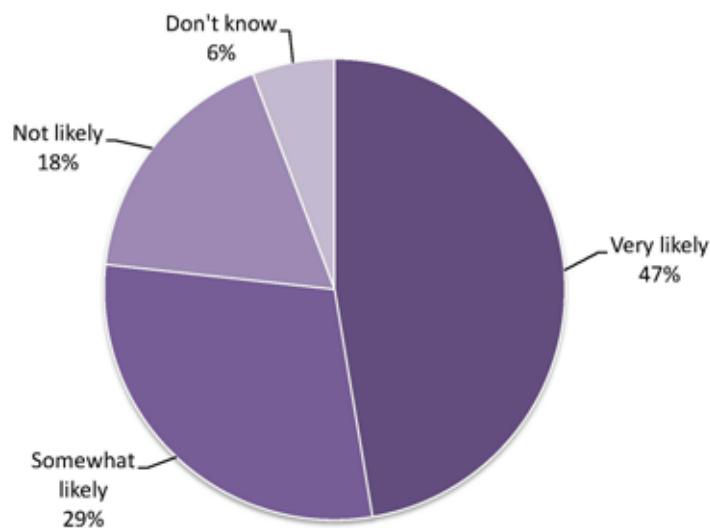


Figure 3. MASSPIRG Student Chapters Survey: “If public transportation were more convenient, how likely would you be to use public transportation to get to school?”



public transportation. In fact, 78 percent of students responding to the survey said that they would be “very likely” or “somewhat likely” to take public transportation to school if service were more convenient.

The need to “chauffeur” seniors to medical appointments, shopping, and recreational activities, meanwhile, often falls on family members. Transportation is the most common supportive activity reported by caregivers nationwide, with 83 percent reporting that they have either provided or arranged for transportation.¹²

The need to constantly arrange rides for aging relatives can impose emotional stress and strain on caregivers and seniors alike. It also imposes a financial toll, as caregivers are forced to rearrange their own schedules, take time off from work, or put off the needs of their own families—never mind pay for gasoline and depreciation on their vehicles. The Victoria Transport Policy Institute, a Canadian transportation think tank, estimates that shifting a chauffeured trip to transit saves the driver approximately \$5.25 in time, fuel and vehicle costs.¹³ If caregivers provide even two chauffeured trips per week, the savings from shifting those trips to transit would amount to more than \$500 per year.

Public transportation can provide welcome relief for parents and caregivers by providing students and seniors with an alternative means for getting where they need to go.

Promoting Health and Saving Lives

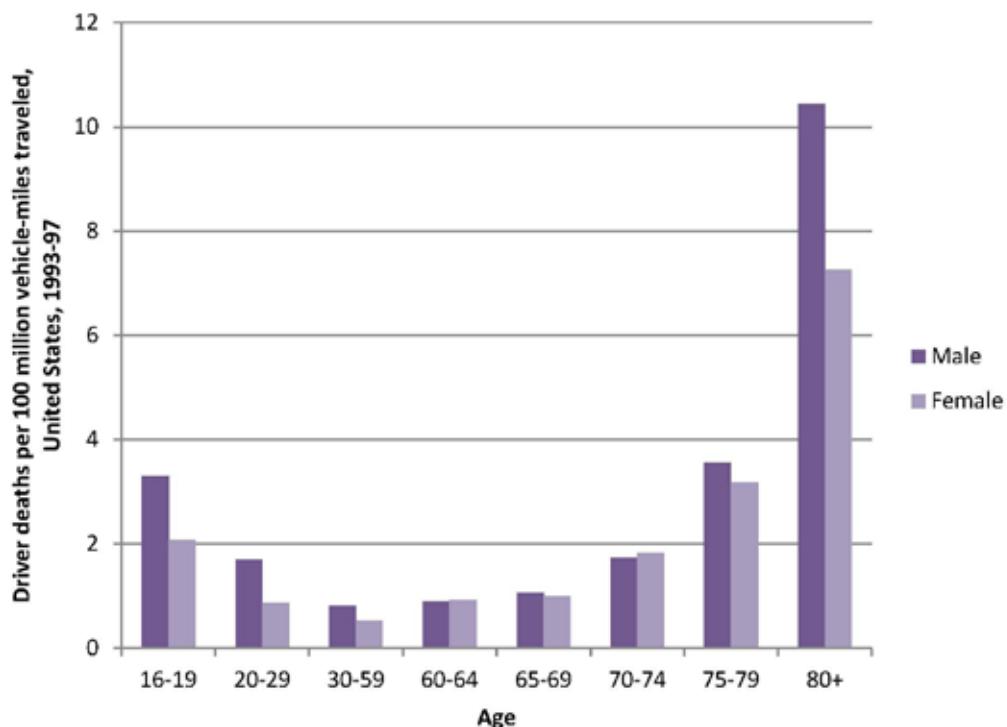
Increasing transit options for students and seniors could reduce the number of accidents on our roadways and the costs those accidents impose on other drivers and the Commonwealth as a whole.

Young and old drivers tend to be involved

in more crashes—and more severe crashes—than drivers in other age groups. Drivers aged 16 to 19 have the highest rate of accident involvement nationally, followed by drivers aged 80 and up.¹⁴ The oldest

drivers, however, are far more likely to die in traffic accidents than drivers in any other age group, as a result both of their propensity to be involved in accidents and their often frail health.¹⁵ (See Figure 4.)

Figure 4. Driver Deaths per 100 Million Vehicle-Miles Traveled by Age, United States, 1993-97¹⁶



In Their Own Words: Karla Barrientos, Salem State University Class of 2011

I use the commuter rail and the MBTA bus to get to school every day. I've been using public transportation for 4 years; my trip to and from school takes three hours. Sometimes I am frustrated because there are many things that make using public transportation challenging. The buses hardly ever arrive on time and there are no benches or places to sit at the bus stops. But the bottom line is I could not get to school without it. The commuter rail is fast and the bus stops are close to my campus. Unlike most of my friends, I never have to worry about parking or getting a ticket. I even save money when I buy the student T pass through Salem State.



In Their Own Words: Doris Carlson, 83, Acton, Mass.

There is no mass transit in Acton. If you don't drive, you have to rely on curb-to-curb paratransit services that take you to Acton, Concord, and Maynard. I have to see a doctor every three months but I can't get there because the appointment



is too far away. I have to try to get family members to take me. That is the case for many people. Unless you have friends and family in the area, it can be very hard.

It has now been a year and a half of not being able to drive and I am feeling more frustrated than before. I've come to the realization that I've lost so many freedoms and I can't do what I want to do when I want to do it. But then again, I am very grateful that I am able to leave my home at all. Years ago they didn't have the van services they do now.

Traffic accidents are costly, and they have impacts beyond those on victims and their families. These costs include medical expenses, wage and productivity losses, administrative expenses, motor vehicle damage, and uninsured costs. For instance, the average cost per property damage crash in 2009—including non-disabling injuries—was \$8,200, according to the National Safety Council.¹⁷ For each disabling injury, the cost went up to \$68,100; for each death, costs increased to nearly \$1.3 million.¹⁸

Riding transit is significantly safer on a per-passenger mile basis than riding in a car. In 2009, according to the federal Bureau of Transportation Statistics, transit riders were 43 percent less likely to die and 13 percent less likely to be injured per passenger-mile when riding transit compared with riding in a car.¹⁹ Given the greater propensity of young and old drivers to get into accidents, the safety benefit is likely

even greater for those populations.

Public transportation has other health benefits. A study by researchers from the University of British Columbia found that transit users are more likely than drivers to meet minimum daily guidelines for physical activity, likely due to the need to walk to and from transit stops.²⁰

For seniors who stay in their homes, transportation is among a series of community supports that can enhance health, possibly leading to a reduction in health care costs. A literature review published by the Jewish Federations of North America identified ways in which the provision of community supports such as transportation might reduce health care costs: by reducing the risk of heart disease, falls, Alzheimer's disease and post-hospitalization decline, and by enabling older adults to take better advantage of community services, engage in volunteerism, and have a better outlook on aging, which has been shown to promote

health.²¹ There is little evidence as yet that these improved health outcomes actually reduce health care costs in the long run, but the argument is sufficiently compelling that it invites further study.

Easing Congestion and Demand for Parking

Public transportation reduces the headaches and the expense of accommodating students who drive to classes.

The availability of public transportation can reduce the need for universities to acquire land and develop it for expensive parking lots—enabling them to dedicate more resources to education and/or to reduce the costs of college education to students and the Commonwealth. Parking spaces can cost from as little as \$1,500 per space (for surface lots) to as much as \$50,000 per space (for parking structures) to build.²² These figures do not include the cost of land acquisition or the opportunity cost of devoting land that could be used for other campus facilities to car storage. Depending on the size of the university, there may be hundreds or thousands of students demanding parking spaces each day, which can impose a considerable financial burden on an institution.

Automobile traffic also creates additional headaches for colleges and neighboring communities. Streets within and around campuses can become congested, noisy, and dangerous for pedestrians. “Overflow” student parking in residential areas near campuses is a perennial source of conflict, reducing quality of life for community members and students alike. For students and college staff who do have access to on-campus parking, annual parking passes can cost up to several hundred dollars per year.

Colleges around the country—including

many in Massachusetts—have come to see the wisdom in encouraging students to use public transportation, bicycling or walking for their trips to, from and around campus. Universities that have implemented programs to improve public transit for students have reduced automobile trips to and from campus by up to 30 percent.²³ Students at the Pioneer Valley’s Five Colleges, for example, are able to ride Pioneer Valley Transportation Authority buses for free, with the cost offset through a small fee that all students pay. Faculty and staff also ride for free, with the costs paid by their college or university.

Benefits to the Entire Commonwealth

Of course, college students and seniors aren’t the only people in Massachusetts who use transit, or who benefit from it. Indeed, all Massachusetts residents benefit from public transportation, whether they take the bus or not.

- **Reduced congestion.** Massachusetts’ transit services keep cars off the roads, saving time and money for those who choose to drive. According to the Texas Transportation Institute’s annual Urban Mobility Report, transit services in the Boston metropolitan area saved drivers 33 million hours of time stuck in traffic with an economic value of \$745 million. Transit in the Springfield (238,000 hours of time in traffic worth \$5 million saved) and Worcester (58,000 hours worth \$1 million) metropolitan areas also delivered significant congestion reductions.²⁴
- **Reduced dependence on oil.** Public transportation also reduces

Can Transit Help Keep Young Professionals in the Commonwealth?

Massachusetts faces an emerging challenge of retaining educated young workers to continue to build the region's economy for the future. Between 1990 and 2006, the number of recent college graduates in Massachusetts declined by 9 percent—a decline driven largely by a reduction in birth rates in the region during the 1970s.²⁷

New England attracts tens of thousands of students from across the country and around the world to our colleges and universities. Many of these students understandably leave the region after completing college. But encouraging talented young people to stay in Massachusetts and build their future here would enable the region to continue to fill the demand for high-skilled workers and create the potential for the emergence of new businesses and industries.

Job and educational opportunities are by far the leading reasons why college graduates move into and out of New England.²⁸ But creating the types of communities that will attract young people to stay in Massachusetts—and enable them to do so affordably—can play a supporting role.

The availability of public transportation—and the vibrant, walkable communities that it often accompanies—is increasingly important to a growing number of young Americans. Real estate observers have detected a strong trend toward urban living and walkability as key factors in younger Americans' housing choices.²⁹ A 2009 survey by the U.S. Department of Transportation found that 81 percent of people aged 18 to 34 believe the availability of local transit is an important part of a livable community, compared with 76 percent of 35 to 49 year olds, and 75 percent of 50 to 64 year olds.³⁰

(Cont'd on page 15)

Massachusetts' dependence on oil. Transit service is often more energy efficient than car travel and transit makes possible the development of walkable communities where people drive less. In 2006, public transportation in Massachusetts saved approximately 153 million gallons of oil—the equivalent of taking approximately 265,000 cars off the road for a year.²⁵

- **Reduced emissions of global warming pollution.** Public transportation

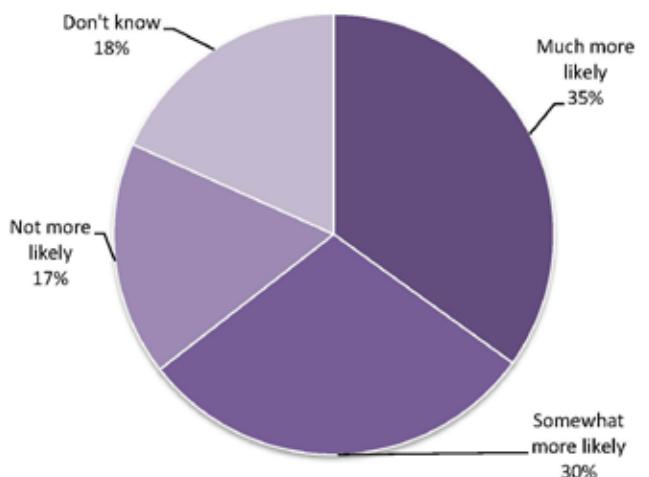
also curbs emissions of carbon dioxide, the leading contributor to global warming. In 2006, public transportation in Massachusetts averted the release of about 1.2 million metric tons of carbon dioxide.²⁶

- **Improved quality of life.** Public transportation is woven into the fabric of life in Massachusetts, providing Bay State residents with transportation choices and supporting healthy and economically vibrant communities.

(Cont'd from page 15)

The MASSPIRG Student Chapters survey reinforces the idea that the availability of public transportation can play a role in students' location decisions after college. More than one-third of respondents (35 percent) said that they would be much more likely to stay in Massachusetts following graduation if they could live in a place where trips for work, recreation and errands did not require a car, while an additional 30 percent reported that the availability of good transportation alternatives would make them somewhat more likely to stay in-state.

Figure 5. MASSPIRG Student Chapters Survey: "How likely would you be to stay in Massachusetts after graduation if you could live in a place where trips for work, recreation, and errands didn't require a car?"



- **Basic mobility for those who cannot drive.** Transit provides a key source of mobility for those who cannot afford a vehicle or are physically

unable to drive—especially the poor and disabled—enabling them to access jobs, medical care and other opportunities in their communities.

In Their Own Words: Kate Fahey, UMass Amherst Class of 2012

At UMass I try to use the bus a lot, especially when living on campus. Obviously it's better for the environment not to bring your car every day, but parking is also really expensive and I really want to avoid getting a parking ticket. If you're going to take the bus you need to get to the stop at least 30 minutes early to wait, because a lot of the buses get really full and will just drive right by you. Even if you do get there early, you still won't be guaranteed a spot on the bus, which might only be able to take about half the people waiting for it, even with people crammed into every available space.

There are so many people who want to take the bus because parking is so expensive and getting a parking ticket isn't ideal. We need good alternatives to driving, and we need the bus system to meet these demands.



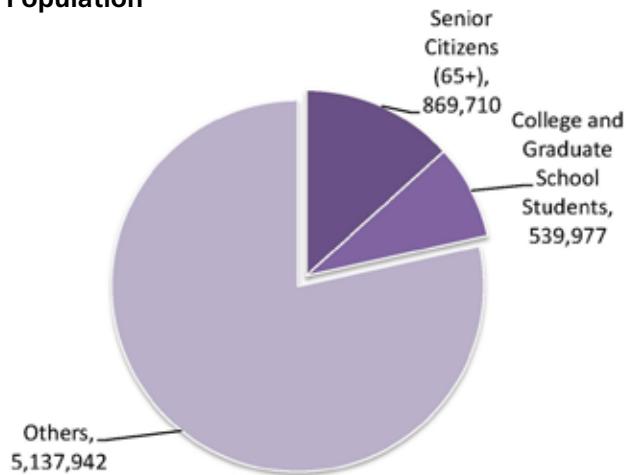
The Commonwealth's Transit Authorities Are a Transportation Lifeline to Students and Seniors

There are more than 530,000 college students in the Commonwealth, along with more than 860,000 seniors 65 years of age and older.³¹ Together, they represent more than one in five Bay State residents.

The Commonwealth's 15 Regional Transit Authorities (RTAs), along with the Boston-area Massachusetts Bay Transportation Authority (MBTA), provide critical transportation services to the Bay State's

students and seniors. However, transit agencies' ability to continue to serve those needs is eroding. In recent years, transit funding has failed to keep up with inflation, escalating maintenance needs, and growing public demand for transit. By investing in public transportation, the Commonwealth can provide young and old residents with safe and affordable alternatives to driving.

Figure 6. College Students and Seniors Make Up More than 20 Percent of Massachusetts' Population³²



In Their Own Words: Audrey Wellington, 92, Wayland, Mass.

I grew up in Waltham. My father was the only one that drove and he always needed the car on Saturdays. In the summertime, my mom and I used to ride the trolley to Norumbega Park. I remember the trolley was completely open; there were no sides or anything. When we go to the end, the driver would take a hook and move all the seats around so the trolley could go back the other way.

When I was at Framingham State, I commuted from Waltham. I took the bus every day for four years. If the bus was delayed, I wouldn't make my connection and then I'd have to wait for the next bus to come along, or just walk. I usually walked because I enjoyed that more than standing and waiting.

Once I was out of college, I drove everywhere. And I still do. I dread the day I won't be able to drive, but I know it's coming. I'm fortunate enough to live in a retirement home where there is a van service to take me where I need to go, if it's close by. If I were going somewhere where I could get the bus easily, I would use it just like I did at Framingham State.



Public Transportation: Reaching Students and Seniors Where they Live

The Commonwealth's existing public transportation services have the potential to serve a large share of Massachusetts' students and seniors.

An analysis of geographic data supplied by 11 of Massachusetts' 15 RTAs reveals that at least 550,000 college students and seniors live in Census block groups within a quarter-mile of existing bus routes.³³ The quarter-mile radius is considered a rough measure of the ability of residents to access transit on foot.

To estimate the number of college students and seniors within a quarter-mile of transit routes, we used data from the 2010 U.S. Census and GIS maps of bus routes for 11 of the Commonwealth's RTAs supplied by the Central Transportation Planning

Staff of the Boston Region Metropolitan Planning Organization.

While the analysis described here excludes the thousands of college students and seniors served by the MBTA and the RTAs whose geographic information was not available, it also likely overstates the ability of those living near the studied bus routes to actually access transit services. First, some of the Census block groups identified straddle the quarter-mile boundary, meaning that some residents of those areas actually live beyond the quarter-mile radius. Second, the geographic information provided includes only the location of bus routes, not bus stops, meaning that some residents within the quarter-mile radius of a bus route may live a further distance away from a bus stop. Finally, the distance between a person's home and a transit route is only one measure of its accessibility—a quarter-mile walk along a well-maintained

sidewalk, for example, is far easier than a walk on the uneven shoulder of a busy highway.

The Pioneer Valley Transit Authority has the potential to serve the greatest number of students and seniors of the 11 RTAs evaluated, with transit routes that pass within a quarter-mile of block groups housing nearly 64,000 college students and more than 74,000 seniors. (See Table 1.) The bus networks of the Worcester Regional Transit Authority, the Merrimack Valley Regional Transit Authority, the Southeastern Regional Transit Authority and the Lowell Regional Transit Authority each serve areas with more than 50,000 student and senior residents.

The areas near RTA bus routes are also somewhat more densely populated with college students and seniors than the Commonwealth as a whole. Students account for 12 percent of those living in block groups within a quarter-mile of a Pioneer Valley

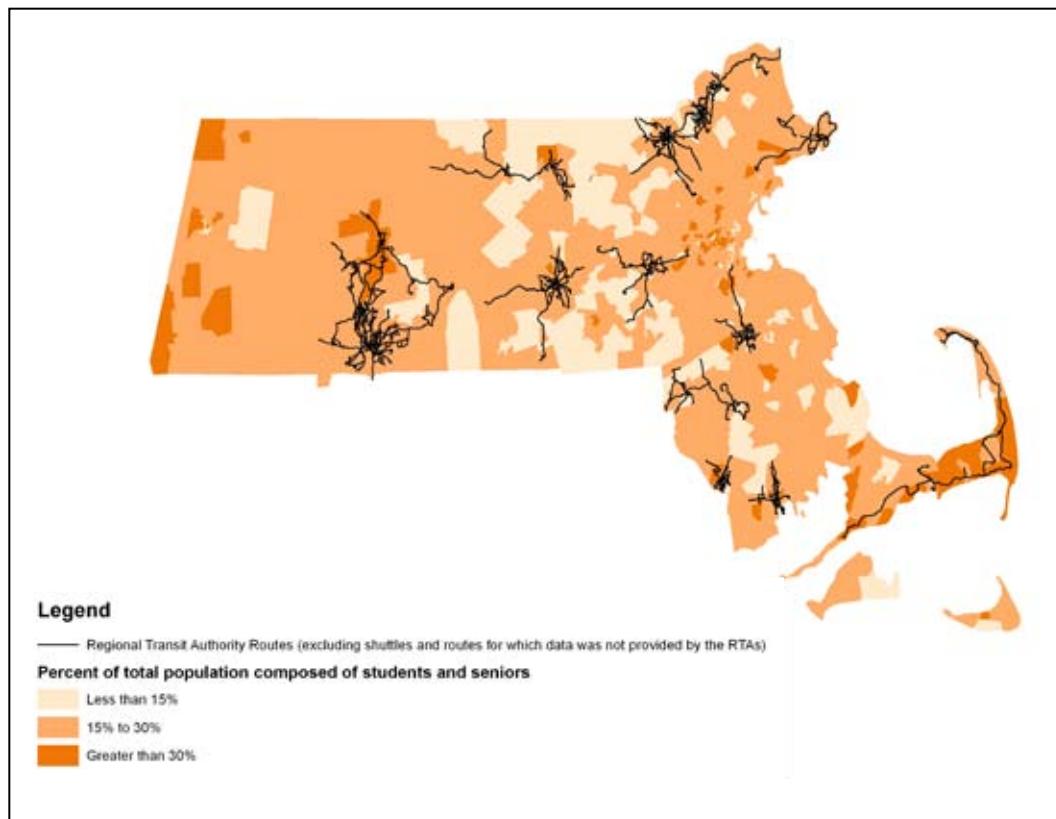
Transit Authority bus route (compared to their 8 percent share of the Massachusetts population), while seniors account for 26 percent of those living a similar distance away from Cape Cod Transit Authority routes (compared with 13 percent of the overall population).

To act as an effective transportation option, however, transit service must also be available near important destinations, as well as potential riders' homes. Some regional planning organizations have taken a more detailed look at the proximity of transit facilities to destinations that are important to students and seniors—a critical step in determining whether transit service is meeting the needs of those residents. The Montachusett Valley Regional Planning Commission (which serves the Fitchburg area) found that 55 percent of region's elderly facilities are within $\frac{1}{4}$ mile of transit, as are four of six hospitals.³⁵

Table 1. Population of Census Block Groups Within a Quarter-Mile of RTA Bus Routes³⁴

	Total Population within 1/4 Mile	Students	% Students	Seniors	% Seniors	Students + Seniors	% Combined
Pioneer Valley	533,917	63,566	12%	74,399	14%	137,965	26%
Worcester Regional	296,643	26,820	9%	39,645	13%	66,465	22%
Merrimack Valley	306,043	19,497	6%	38,088	12%	57,585	19%
Southeastern Regional	239,221	14,968	6%	37,962	16%	52,930	22%
Lowell Regional	265,229	18,559	7%	33,078	12%	51,637	19%
Cape Cod Regional	132,307	6,466	5%	33,848	26%	40,314	30%
Brockton Area Transit	196,923	12,190	6%	26,342	13%	38,532	20%
MetroWest	177,525	13,475	8%	23,874	13%	37,349	21%
Greater Attleboro-Taunton	165,704	12,218	7%	20,399	12%	32,617	20%
Montachusett Regional	143,037	9,999	7%	19,208	13%	29,207	20%
Cape Ann	90,927	7,158	8%	16,376	18%	23,534	26%
Total (11 RTAs)	2,482,241	200,772	8%	355,759	14%	556,531	22.4%

Figure 7. Population of Students and Seniors by Census Tract



What About the T?

Just as the Commonwealth’s Regional Transit Authorities are a key resource for students and seniors across Massachusetts, so too is the Massachusetts Bay Transportation Authority (MBTA) a critical resource to people in Greater Boston. The MBTA provides more than 1 million rides per day and is a key source of mobility for the Boston metropolitan area’s roughly 360,000 college students and its many seniors.³⁶

The MBTA faces many of the same challenges in providing effective transit service as the Commonwealth’s RTAs, including financial instability, which has made it difficult for the “T” to move forward with long-overdue expansion projects and to sustain services such as the short-lived “Night Owl” weekend buses that were targeted toward college students.

In this report, we focus on Regional Transit Authorities because they are often overshadowed by issues related to the MBTA. But investing in the MBTA is also critical if Massachusetts is to reap the benefits of transit service for students, seniors and all residents of the Commonwealth.

In Their Own Words: Rona Thompson, 75, Amherst, Mass.

I love the Pioneer Valley Transit Authority (PVTA). A lot of people complain about it, but we need the PVTA. Anybody that calls for a ride depends on these services. If I decided I wanted to get a car again and drive, I would drive. I don't, because I feel good taking the PVTA. I can take the 43, the 37, the 33, and the 44. I take everything! And nobody loves their car more than I do. I used to have my chauffeur license!



In the wintertime, I rely more on the Council on Aging van because it is door-to-door service. When it's nice out I walk to the bus stop. I take the PVTA just about every day I have something to do.

Students and Seniors Use Transit

College students and seniors represent an important market for transit in Massachusetts.

Several Massachusetts RTAs have conducted surveys to identify their riders. These agencies have found that students and seniors make up a significant share of total ridership.

- A 2008 survey by the Southeastern Regional Transit Authority found that 4 percent of riders in the cities of Fall River and New Bedford were students, while 25 percent of riders were seniors or disabled.³⁷
- A survey taken by the Pioneer Valley Transit Authority while school was in session found that, in the northern end of its service territory, which includes the college towns of Amherst and Northampton, 76 percent of riders were college students, while

2 percent were retired.³⁸ In the southern end of the service territory, which includes Springfield and Chicopee, 9 percent of riders were retired, while 7 percent were college students. It is noteworthy that the second survey was conducted during the summer, meaning that students may have been underrepresented.³⁹

- A 2009 survey of riders on Greater Attleboro-Taunton RTA (GATRA) buses found that 25 percent of riders were 65 years of age or older.⁴⁰

Massachusetts' regional transit authorities provide a critical service to thousands of students and seniors, and their bus routes pass near the doorways of thousands more. But with transit demand on the rise—and with students and seniors having unique transit needs that are not always well served by the current system—the Commonwealth will need to develop new strategies and back them with new investments in order to maximize the potential benefits of transit.

Reaping the Benefits of Transit: Challenges and Opportunities

Massachusetts is experiencing a surge in demand for public transportation—a surge that is likely only to grow in coming years. To accommodate that surge, and to provide for the unique transportation needs of college students and seniors, Massachusetts must both increase its investment in public transportation and make smart choices for how best to deliver transit services to Bay State residents.

Demand for Transit Is on the Rise

Demand for transit service has been on the rise in recent years across the Commonwealth, in spite of service cuts and fare hikes at several transit agencies.

The demand for transit service is typically estimated in terms of trips, while the supply can be measured either by the number of miles traveled by transit vehicles or the number of hours they are in service. Figure 8 shows the annual number of passenger trips taken, and hours and

miles of vehicle service provided, by the 12 Massachusetts RTAs that report to the National Transit Database.⁴¹ It shows that while transit ridership declined in concert with a reduction of service in the early part of the last decade, ridership increased at a rate faster than the increase in service in 2008 and 2009.

Transit continues to be in high demand across the Commonwealth. Monthly data suggest that transit demand has continued to rise since the beginning of 2008 across Massachusetts. (Figure 9 shows the average transit ridership for the preceding 12 months for the 12 RTAs that report to the Federal Transit Database, while Figure 10 on page 24 shows the 12-month total for each RTA.)

Data from the National Household Travel Survey suggest that transit is becoming increasingly important to seniors. Between 2001 and 2009, the number of transit trips taken by people over 65 increased by 55 percent nationally.⁴⁵

Meanwhile, transit remained a more important mode of travel for young people than for any other demographic group. Transit accounted for 3 percent of all trips taken nationally by people aged 16 to 24,

Figure 8. Supply and Demand for Transit Service at Massachusetts RTAs (excluding demand response paratransit service)⁴²

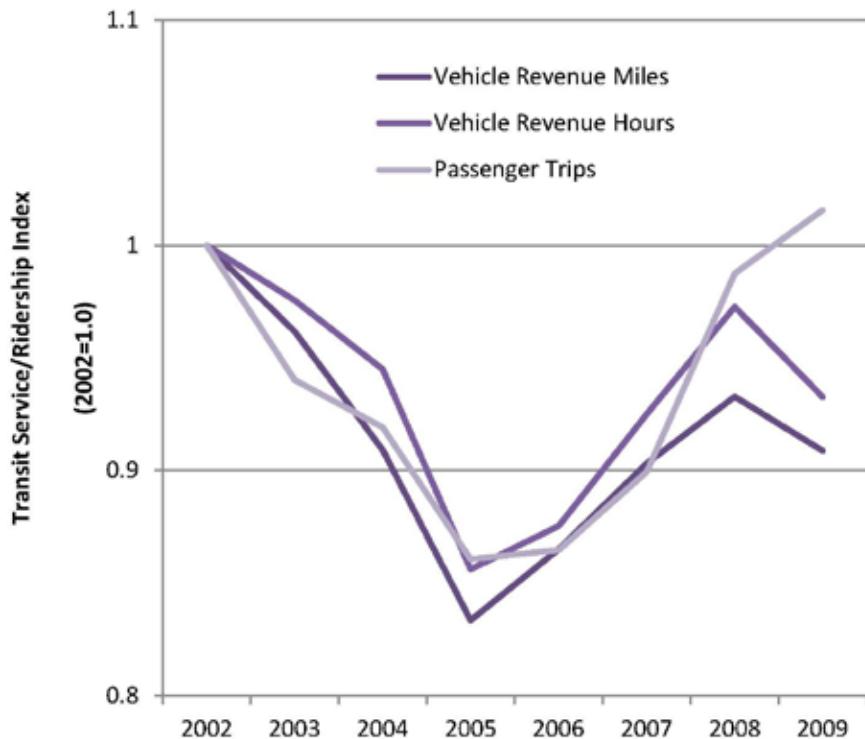


Figure 9. Rolling 12-Month Average of Monthly Transit Ridership for Massachusetts RTAs⁴³

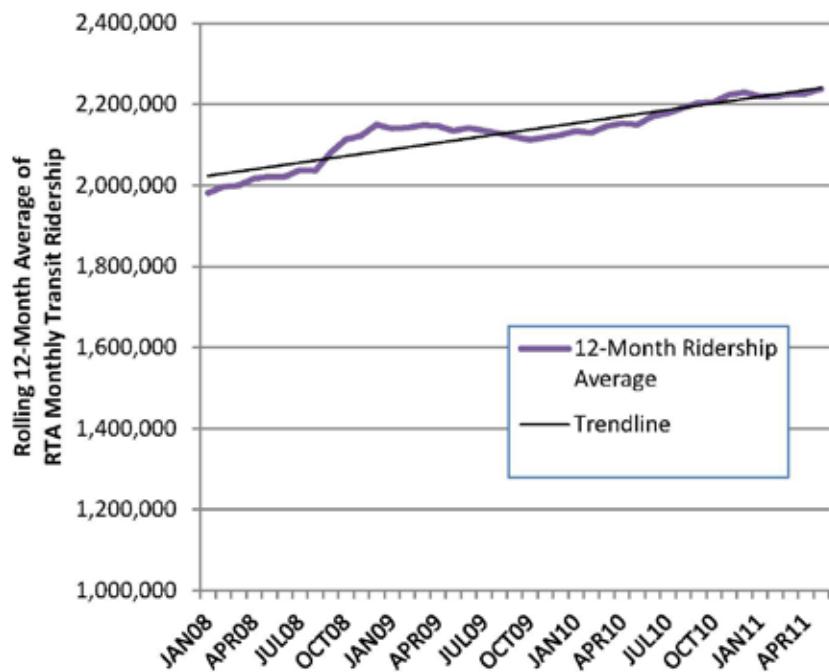
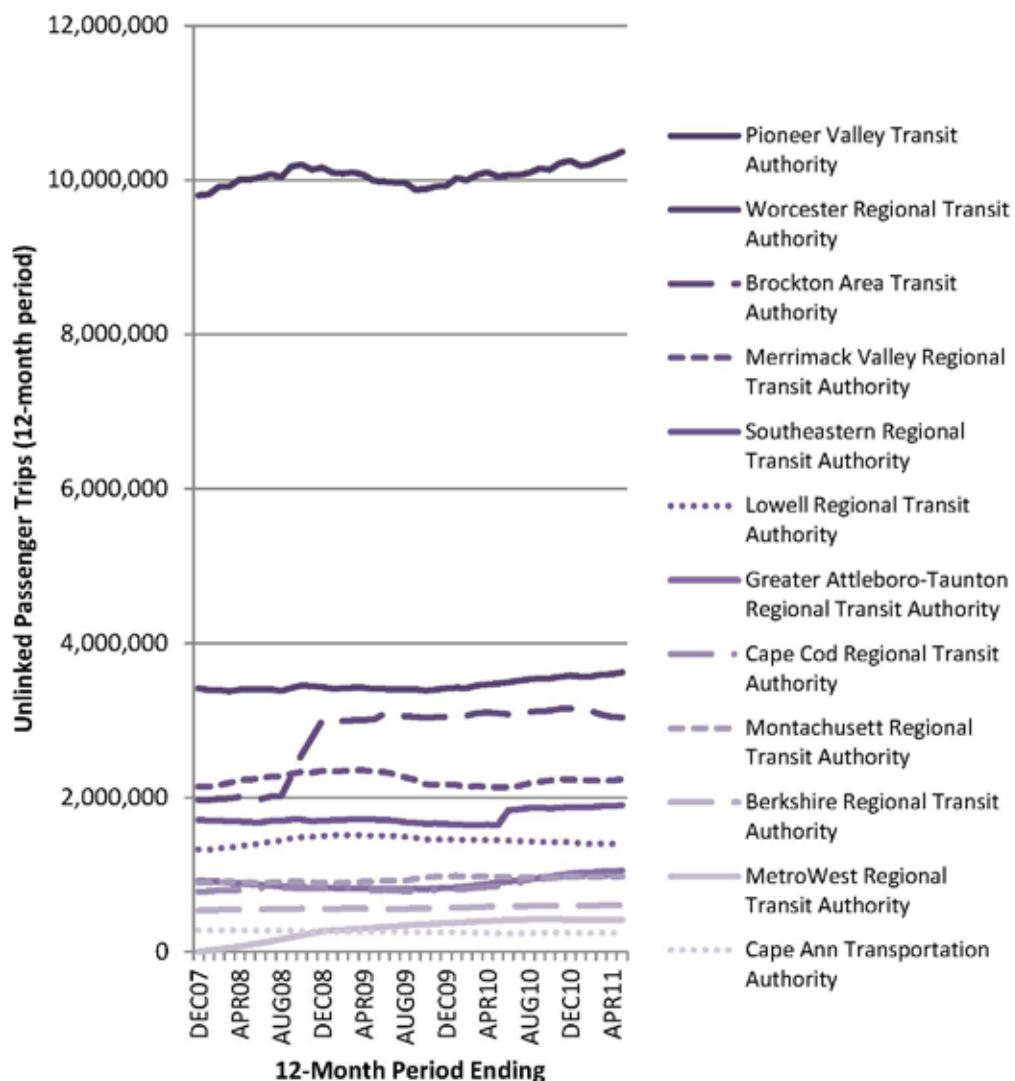


Figure 10. Rolling 12-Month Total Ridership by RTA⁴⁴



compared to 1.9 percent for all age groups, according to the National Household Travel Survey, representing a 15 percent increase in the share of trips taken via transit by that age group since 2001.⁴⁶

Demand for Transit Is Likely to Continue to Grow

Transit is already becoming a more important transportation option for young

people and seniors nationwide. A variety of trends suggest that demand for transit services is only likely to grow in the years to come.

Citizens nationwide are increasingly opting for housing with shorter commutes, walkable neighborhoods, and proximity to urban amenities.⁴⁷ Recent surveys have shown that today's young people place a greater value on the availability of sidewalks, bike lanes, and transit than older Americans, and fewer of them are getting drivers' licenses or buying cars.⁴⁸

Demographic changes—together with the impact of the housing market crash—are also spiking demand for multi-family housing nationwide, which is often more easily served by public transportation.⁴⁹ Despite the recession, the cost of renting an apartment in the Boston area hit a record high in the summer of 2011.⁵⁰ Eventually, new housing construction will likely shift toward multi-family developments that are better served by transit.

Environmental concerns are also a major motivating factor leading young people to consider transportation alternatives. The MASSPIRG Student Chapters survey found that 84 percent of respondents were “very concerned” or “somewhat concerned” about the environmental impacts of driving. Three-quarters of all respondents said that if public transportation were more convenient, their environmental concerns would greatly influence or somewhat influence their decision to take public transportation.

Investing in transit is not only critical for serving the needs of today’s students and seniors, but it is also a wise investment for the Commonwealth’s future.

Challenges in Meeting the Commonwealth’s Transit Needs

The recent surge in demand for transit, coupled with long-term trends that point toward increased demand for housing in areas that are easily served by transit, suggests that Massachusetts has a tremendous opportunity to improve our transportation system in ways that can curb congestion, save money for Massachusetts residents, and better meet the needs of students and seniors.

However, the Commonwealth faces a series of challenges in meeting that promise—the largest of which is the need for revenue.

Recent Fare Hikes and Service Reductions

In recent years, transit ridership has increased even as many RTAs have cut back on service or raised fares. However, recent reductions in service and increases in fares make it less likely that transit services in Massachusetts are meeting the needs of students, seniors and other riders. For example:

- The Berkshire RTA planned service cuts in summer 2011 that eliminated service early or late in the day on many routes, including on the popular route that serves Berkshire Community College.⁵¹
- In 2008, the Cape Cod RTA imposed fare hikes and reductions in service hours on the Cape’s Flex bus service.⁵²
- In 2008, the Greater Attleboro-Taunton RTA cut Sunday service in Plymouth and pared back service on other routes.⁵³
- In 2008, the Worcester RTA eliminated service on several routes, combined several other routes, and eliminated service on national holidays.⁵⁴
- Several RTAs imposed fare hikes.⁵⁵

These service cutbacks and fare hikes reduce the transportation options available to students and seniors.

Routes and Schedules that Don’t Meet the Needs of Students and Seniors

Another way in which transit services often fail to serve the needs of students and seniors is through routing and scheduling that does not provide service when students and seniors need it most.

The schedules of many transit systems

are built around the needs of commuters. Service during the mid-day hours may be infrequent, while service during the evening and late night hours may be non-existent. Concerns about ridership and cost often make these “off-peak” routes the first to be cut when transit agencies are under financial stress.

The transit needs of students and seniors, however, are often greatest during these off-peak hours. Older drivers nationwide make most of their trips between 9 a.m. and 1 p.m.⁵⁶ College classes can take place at any time of the day or night, while students working part-time jobs often do so on schedules other than the 9-to-5 schedule served by transit agencies.

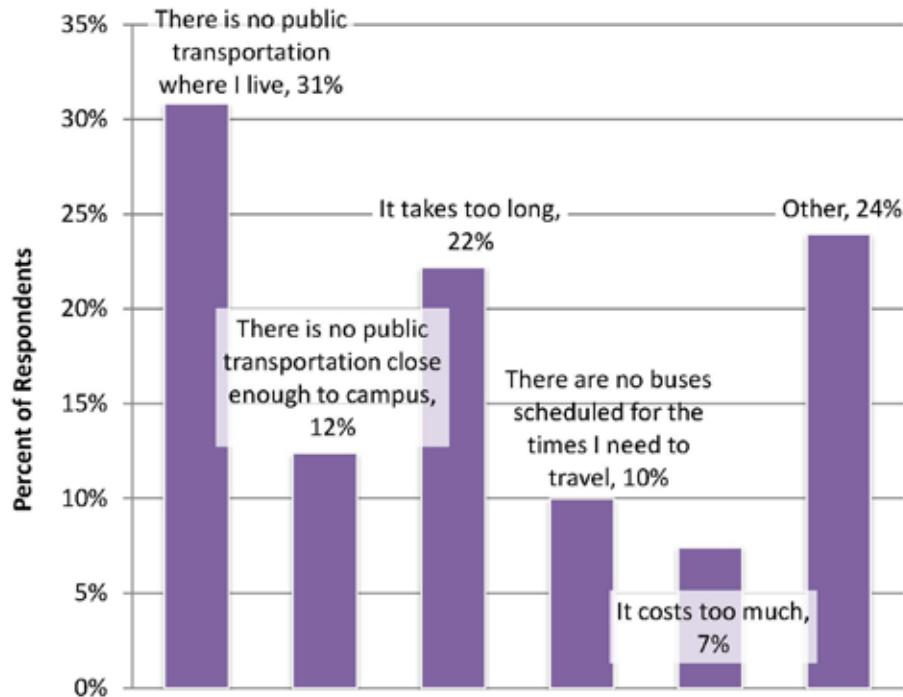
Outreach to residents in southeastern Massachusetts, for example, identified the lack of evening service as a hindrance to UMass Dartmouth students who work or participate in extracurricular activities

and to adults seeking to take advantage of educational opportunities at the university. The study also identified the lack of night service as an obstacle to seniors who may be comfortable driving during the day, but not at night.⁵⁷

The Pioneer Valley Transit Authority demonstrates the potential of transit to meet the needs of students. The authority’s bus routes are closely aligned with the needs of students and staff of the Five Colleges, with close coordination between route schedules and class schedules and the availability of late night service on weekends.

Inconvenient scheduling is just one of several hurdles that prevent many students from using transit. The MASSPIRG Student Chapters survey found that, of students who drive or get a ride to school, 31 percent reported that they do not take transit to school because there is no transit

Figure 11. MASSPIRG Student Chapters Survey:
“If you drive or get a ride to school, what is the reason you don’t use public transportation?” (some gave multiple responses)



service available near their home, while 22 percent said that transit trips take too long, 12 percent said there is no transit convenient to their campus, and 10 percent reported that the transit schedule was not convenient.

Seniors “Aging in Place”

By 2030, the Commonwealth will be home to 600,000 more seniors than in 2000—a 70 percent increase.⁵⁸ (See Figure 12.) That figure includes an additional 260,000 residents older than 75 years of age.

Many of these seniors are expected to “age in place”—that is, to spend a substantial share of their mature years in the homes they occupied when they were younger. Aging in place has many benefits for seniors. More than 80 percent of seniors prefer to live out their remaining years at home, even if they would require home health care services, according to the AARP.⁶⁰ For many seniors, staying at home contributes to a sense of comfort, familiarity and control over their surroundings, “which leads to positive psychological actions and a positive outlook as well as a sense of being able to cope with stress,” according to a study by the Joint Center for Housing Studies at Harvard University.⁶¹ Seniors who live in their homes remain socially engaged and

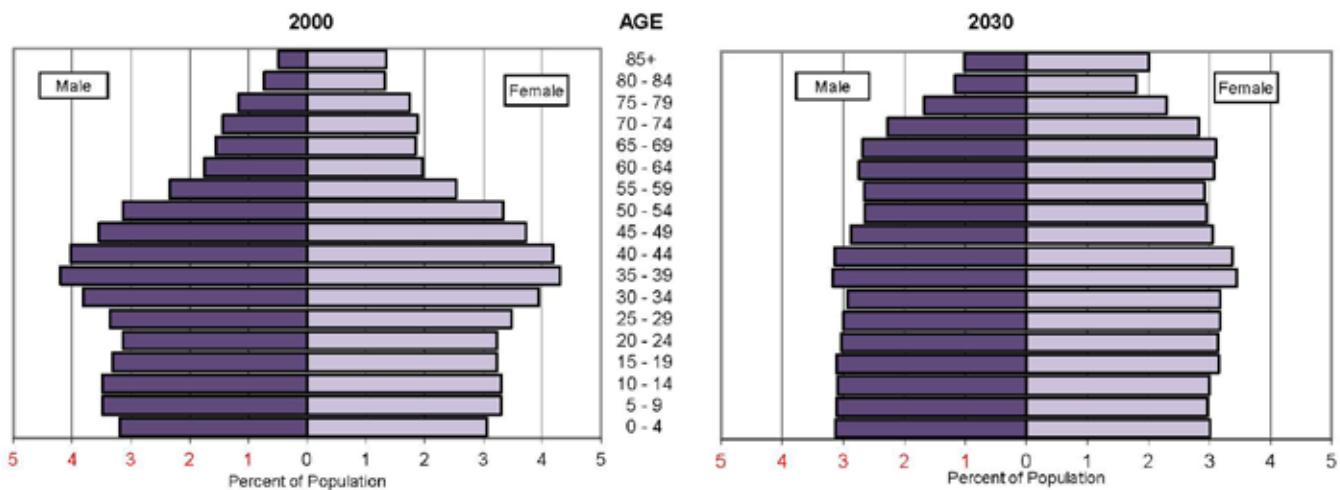
physically active longer, which, according to a study in the Canadian Journal of Aging, helps stave off the accelerated effects of aging caused by the sedentary lifestyle common to retirement homes.⁶²

But the Baby Boom generation’s desire to age in place creates some challenges for providing access to transportation. As children, Baby Boomers were among the first to be raised in post-war automobile oriented suburbs, and they tended to settle in suburbs as adults. With lower population density and a frequent lack of basic pedestrian amenities such as sidewalks, suburbs are often more difficult and costly for transit agencies to serve than cities.

Another challenge arises from the need to provide demand response or “paratransit” service to the elderly and disabled. All Massachusetts transit agencies are required by federal law to provide transit service to disabled residents whose disabilities prevent them from using conventional transit services and who live within a designated distance of a regular transit line. Typically, this service is provided using special vans that may carry one or a few disabled riders.

Paratransit service is a critical service. It is also very expensive. In 2009, Massachusetts transit agencies spent a minimum of \$109 million in operating costs to provide

Figure 12 a-b. Massachusetts’ Changing Demographics⁵⁹



In Their Own Words: Leonard Curcio, 82, Gardner, Mass.

When I was a boy there was train service from Gardner to everywhere. I used to take the train everyday to Boston to get to a doctor's appointment. Without the train, I would have missed the appointments and I wouldn't have gotten there. It was a milk run—that's what they used to call it when the train stopped at every neighborhood. It took about an hour and a half and I played with toy cars the whole way to pass the time. I probably would use it if it still existed. Unlike how things are now, if I wanted to go somewhere else I could get there.

For sixty years I drove everywhere I went. Now I cannot see well enough to drive so I rely on the Council on Aging van and the Montachusett Regional Transit Authority buses to get around. If I didn't have this transportation, I would be in serious trouble. I would have to get out of my own business and become dependent on the state. I would lose the rest of my freedoms.

paratransit service to the disabled.⁶³ For some regional transit authorities, the cost of providing paratransit service is a sizeable share of their overall agency budget.

The dramatic expected increase in the number of seniors brings with it the potential for a significant increase in the demand for paratransit service, challenging Massachusetts to find ways to improve coordination and efficiency of these services to ensure that the Commonwealth continues to meet the needs of the disabled while providing effective transit service to everyone.

Recommendations for Action

Public transportation is a lifeline for Massachusetts' students and seniors, providing access to jobs and economic opportunity, saving money, and making the Commonwealth a safer and more attractive place to live. Massachusetts' current transit services reach most of the places where students and seniors live, yet inadequate resources result in the Commonwealth failing to fully

meet the transit needs of today, let alone prepare for the even greater demand for public transportation that is right around the corner.

Increase Massachusetts' Investment in Transit

If the Bay State is to reap the full benefits possible through public transportation, it will need to rebuild its transportation funding system on a more sustainable footing. To do this, the Commonwealth must:

- **Increase revenue for public transportation over the long-term** – The Commonwealth's transit systems depend on inadequate sources of revenue to fund their operations, with RTAs dependent on state funding that has failed to keep up with inflation and the MBTA dependent on state sales tax revenues that have failed to meet expectations and have left the agency saddled with an unsustainable debt load. The Commonwealth should identify additional sources of revenue that can enable the

state's transit agencies to function appropriately today and expand to meet the needs of tomorrow, while also ensuring that transportation spending is distributed equitably across the Commonwealth.

- **Enlist public and private institutions in supporting transit** – Public and private institutions—including universities and private businesses—obtain great financial benefits from public transportation. Transit helps universities avoid the expense of parking garage and transportation projects, while businesses benefit from increased land values near transit stations and from transit's role in delivering commuters to work. The Commonwealth should explore ways to have public and institutions contribute to the financial support of transit—including through universities' purchase of transit passes for their students and the use of value capture or other mechanisms to generate revenue from private businesses that benefit from transit investments. The Pioneer Valley Transit Authority's free service for students and staff of the Five Colleges, for example, began as a cooperative effort among the colleges in the 1970s. Encouraging institutions to take a more active role in developing and supporting transit service could result in new financial resources for transit agencies, as well as better coordination of services.

Improve Transit Service for Students and Seniors

With a renewed commitment to investing in public transportation should come exploration of new ways to provide transit services that meet the needs of college students and seniors. Among the areas that should be explored are:

- **Expansion of off-peak service:** Students and seniors share the need for off-peak transit service. Unfortunately, such service tends to be the first to be cut when transit agencies run into budget trouble. Service during mid-day hours, at nights, and on weekends is particularly important for providing students with access to job opportunities and seniors with access to services and recreation. Agencies should consider tools to provide effective off-peak service and to maximize ridership on the service that does exist. Conducting studies of current and would-be transit riders to determine unmet needs, and providing discounted fares for off-peak travel, are among the steps agencies can take to expand transit ridership among students and seniors.
- **Making transit friendlier to seniors:** Seniors face several barriers in accessing transit services. Those with a history of driving, including seniors who have driven all or most of their lives, may be unfamiliar with the basic skills of how to ride a bus, from how to read a schedule to how to pay the fare. Seniors also face physical challenges in walking to bus stops and may require assistance in boarding. Massachusetts transit agencies have already taken numerous steps to improve the transit experience for seniors but more can be done. The purchase of low-floor buses, improved bus stops, better information (including, where possible, real-time travel information provided via cell phone or computer), the creation of rider training programs that help seniors navigate transit, simplified fare systems (including a transition to smart cards), and adoption of free or discounted fares for seniors' traveling companions can all help improve the transit experience for seniors.

- **Meeting the challenge of serving “aging in place” seniors:** Traditional transit services often have a difficult time reaching residents of suburban and rural areas, with seniors facing even greater barriers for accessing transit. The dramatic increase in the number of seniors in Massachusetts—many of whom will continue to live in their suburban homes—heightens the urgency of finding ways to provide transportation choices in these areas. Transit agencies in Massachusetts and elsewhere have experimented with ways to improve access to transit in suburban neighborhoods, including:
 - Flexible route services that allow riders to request deviations from a fixed bus route if they call in advance.
- Neighborhood circulators, which are smaller vehicles with frequent service and numerous local stops that are intended to connect residential neighborhoods with transit hubs and often with community institutions such as libraries, government offices and schools.
- Community shuttles, which are vans owned and operated by municipalities that provide regularly scheduled transit services for part of the day (such as during peak commuting periods) and are available to serve other community needs during the remainder of the day.

Agencies can also devise services targeted specifically to the needs of seniors, such as “senior circulators” that link senior

In Their Own Words: Laurie Roberts, UMass Amherst Class of 2013

I'm from Yarmouth, Maine, where public transportation doesn't really exist. At first it was confusing to live in Amherst because I didn't really understand how to read a bus schedule, but once I figured that out, it was very convenient because it meant that I didn't have to drive everywhere or find someone to drive me. I can go to the mall for an hour, come back and go to the grocery store to get food, and get to my class when it's pouring rain because there are bus stops everywhere! I can even take my bike and put it on the front of the bus.



I just moved into a house whose main appeal was its close proximity to the bus stop. I was really excited because I thought that it would be really easy to get to school. Unfortunately I've found that the bus actually only runs about three times a day, seemingly at random times. My only choice as far as public transportation now is riding my bike down a very busy road to another bus stop. It's very frustrating, because there's a bus stop right outside my house, but the bus never comes.

apartments, senior centers, and shopping opportunities.

- **Improving the efficiency of paratransit service:** Paratransit service is a critical lifeline that links disabled people—including the elderly disabled—with critical services. The high and rising cost of paratransit, however, will have a significant impact on the effectiveness of transit service overall. In 2011, Governor Patrick issued an

executive order creating a commission to study paratransit service in the Commonwealth. Its recommendations are due in the fall. While limiting eligibility for paratransit service may be one of the options considered, the Commonwealth should first explore ways to deliver the service more efficiently, including by taking steps to encourage paratransit riders, where appropriate, to transition to regular transit service.

Appendix A: MASSPIRG Student Chapters Transit Survey

During the spring semester 2011, MASSPIRG Student Chapters staff and volunteers conducted a survey of college students on 19 Massachusetts college campuses (see Table A-1, page 34). Respondents were approached to fill out the survey in public places on college campuses, via e-mail requests to the MASSPIRG Student Chapters' e-mail list, and through the distribution of surveys at meetings of campus groups.

The survey represents an informal effort to take the pulse of students on issues related to public transportation and is not statistically valid. The results of the survey are inevitably shaped by the campuses on which it was carried out and by the portions of the campus community reached by the outreach methods used.

The survey instrument and detailed responses to the survey questions follow:

Student Transportation Survey (total number of respondents: 1,374)

1) Do you go to school full-time or part-time? (n=1,338)	
a. Full-time	1198 (90%)
b. Part-time	140 (10%)
2) What type of student are you? (n=1,317)	
a. Commuter	781 (59%)
b. Resident	536 (41%)
3) How do you get to school? (n=1,366, some gave multiple responses)	
a. Public Transportation	307 (22%)
b. Drive myself and park	611 (45%)
c. Driven by friend, family member, etc.	171 (13%)
d. Bike	31 (2%)
e. Walk	293 (21%)
<i>Other/invalid:</i>	5 (0%)

- 4) If you drive or get a ride to school, what is the reason you don't use public transportation? (n=1,203, some gave multiple responses)
- | | |
|--|-----------|
| a. There is no public transportation where I live | 371 (31%) |
| b. There is no public transportation close enough to campus | 149 (12%) |
| c. It takes too long | 267 (22%) |
| d. There are no buses scheduled for the times I need to travel | 120 (10%) |
| e. It costs too much | 89 (7%) |
| f. Other | 288 (24%) |
- 5) How important is it to you to avoid or reduce costs associated with having a car, such as maintenance, repair, gas, insurance and parking? (n=1,368)
- | | |
|-----------------------|-----------|
| a. Very important | 775 (57%) |
| b. Somewhat important | 361 (26%) |
| c. Not important | 141 (10%) |
| d. Don't know | 91 (7%) |
- 6) If public transportation were more convenient, how likely would you be to use public transportation to get to school? (n=1,366)
- | | |
|--------------------|-----------|
| a. Very likely | 647 (47%) |
| b. Somewhat likely | 401 (29%) |
| c. Not likely | 239 (17%) |
| d. Don't know | 79 (6%) |
- 7) How important is it for you to have transportation options *other than an automobile* to get around? (n=1,371)
- | | |
|-----------------------|-----------|
| a. Very important | 514 (38%) |
| b. Somewhat important | 399 (29%) |
| c. Not important | 302 (22%) |
| d. Don't know | 155 (11%) |
| <i>Other/invalid</i> | 1 (0%) |
- 8) How often do you use public transportation to get to work? (n=1,366)
- | | |
|------------------------|-----------|
| a. Very often | 292 (21%) |
| b. Sometimes | 262 (19%) |
| c. Never | 580 (42%) |
| d. I don't have a job. | 231 (17%) |
| <i>Other/invalid</i> | 1 (0%) |
- 9) How likely would you be to stay in Massachusetts after graduation if you could live in a place where trips for work, recreation, and errands didn't require a car? (n=1,361)
- | | |
|-------------------------|-----------|
| a. Much more likely | 475 (35%) |
| b. Somewhat more likely | 402 (30%) |
| c. Not more likely | 234 (17%) |
| d. Don't know | 249 (18%) |
| <i>Other/invalid</i> | 1 (0%) |

10) How concerned are you about the environmental impacts of driving, such as oil dependence, global warming pollution, smog, and water run-off? (n=1,364)

- | | |
|-----------------------|-----------|
| a. Very concerned | 537 (39%) |
| b. Somewhat concerned | 612 (45%) |
| c. Not concerned | 157 (12%) |
| d. Don't know | 58 (4%) |

11) If public transportation were more convenient to you, how would the environmental impacts of driving influence your decision to take public transportation? (n=1,361)

- | | |
|--|-----------|
| a. It would greatly influence my decision | 467 (34%) |
| b. It would somewhat influence my decision | 555 (41%) |
| c. It would not influence my decision | 202 (15%) |
| d. I don't know | 137 (10%) |

12) If you do take public transportation to get to school, how do you think it could be improved? (n= 349)

Open response. Responses were coded into the following categories:

- | | |
|-------------------------|-----------|
| • More frequent service | 152 (44%) |
| • More/different routes | 44 (13%) |
| • Lower cost | 40 (11%) |
| • Fewer delays | 38 (11%) |
| • Extended hours | 27 (8%) |
| • Better experience | 22 (6%) |
| • Posted schedules | 18 (5%) |
| • Other/unclassifiable | 8 (2%) |

Table A-1. Number of Respondents by Campus

Campus	Respondents
Berkshire Comm. Coll.	15
Boston Univ.	4
Bristol Comm. Coll.	2
Clark Univ.	3
Fitchburg State Univ.	3
Greenfield Comm. Coll.	167
Holyoke Comm. Coll.	3
Mass Bay Comm. Coll.	59
Mass. College of Art and Design	4
Mass. College of the Liberal Arts.	7
Middlesex Comm. Coll.	84
North Shore Comm. Coll.	71
Salem State Univ.	41
Smith Coll.	2
UMass Amherst	98
UMass Boston	223
UMass Dartmouth	353
UMass Lowell	186
Westfield State Univ.	46
Worcester State Univ.	3

Appendix B: Methodology for Analysis of Census Data on Proximity to Transit

The maps of the student and senior population in Massachusetts, and data about how many students and seniors live near transit, were generated using data from the U.S. Census Bureau's 5-year American Community Survey, 2005-2009. At the time of this writing, this is the most recent census-published dataset with details about both student and senior populations.

The American Community Survey publishes data about the population of students and seniors down to the block group level (block groups are the second-smallest geography used in tallying census results; they are comprised of smaller blocks, and in turn make up larger census tracts). With the exception of the maps in this report (which are color coded at the census tract level), block groups are used to calculate the proximity of students and seniors to transit.

To calculate the number of students and seniors living in proximity to transit service, we used ArcGIS mapping software to identify block groups within one-quarter mile of transit routes, based on shapefiles delineating the paths of bus routes for nine regional transit authorities as supplied

by the Central Transportation Planning Staff of the Boston Region Metropolitan Planning Organization in spring 2011. Geographic information about the location of bus stops was not available and the bus routes used may have undergone changes in their routing since the shapefiles were originally created. A small number of Middlesex and Essex county residents are within a quarter-mile distance of routes serving the Lowell Regional Transit Authority and the Merrimack Valley Regional Transit Authority. As a result, the total estimates of the number of people served by the RTAs do not equal the sum of the figures for the individual RTAs.

This report does not include the MBTA, the large urban transit system serving Boston and its suburbs. It excludes the Nantucket Regional Transit Authority, the Martha's Vineyard Transit Authority, the Berkshire Regional Transit Authority, and the Franklin Regional Transit Authority, since we were unable to obtain geographic data about their routes in a readily accessible format. It may also exclude routes for which geographic information was not provided by the RTAs.

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