A SURVEY
OF RIDERS USING *THE RIDE,*
A SERVICE OF THE
ANN ARBOR TRANSPORTATION AUTHORITY
December, 2009

A study conducted by:

CJI Research CORPORATION

In cooperation with

TRANSIT marketing LLC

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Introduction

Survey Data Collection

A survey was conducted onboard AATA buses from October 1 through 10, 2009. Survey data collection occurred onboard the buses. Temporary workers were used for this purpose under the supervision of CJI Research Corporation staff. Surveyors wore both ID badges and smocks identifying them in large print as "Transit Survey" workers. This uniform helps riders visually understand the purpose of the interviewers approaching them.

Survey personnel accompanied drivers at the beginning of the shifts and rode the buses for an entire run. They approached all riders rather than a sample of riders. Thus, the bus was in effect a sample cluster point within which all were surveyed. Survey personnel handed surveys to riders and asked them to complete the survey. They also provided pencils to the potential respondents.

At the end of the run, the survey personnel placed the completed surveys in an envelope marked with the route and the run and reported to the survey supervisors who completed a log form detailing the run.

Questionnaire

The questionnaire was self-administered. It is reproduced in Appendix A.

The questionnaires were serial numbered so that records could be kept for the route and day of the week on which the questionnaire was completed. This is a more accurate method than asking riders which route they are riding when completing the survey.

Sample

A random sample of runs was drawn from a list of all AATA runs. This initial sample was examined to determine whether the randomization process in the relatively small universe of all runs had omitted any significant portion of the AATA System's overall route structure. The sample was adjusted slightly to take any such omissions into account.

The resulting total sample size is 3,036 useable responses. When all respondents were included, this sample had a sample error level of ±1.4%. If a sub-sample were used, sample error would increase somewhat, though with such a large overall sample, this would affect the findings only in very rare circumstances in which only very small sub-segments of the ridership were being examined separately. This does not occur in the report presented here.

Participation Rates

A total of 4,687 AATA riders were approached and asked to participate in the survey. Of these, 516 said they had already completed a survey. Another 611 were unwilling to participate. Thus, the total "effective distribution," defined as a rider accepting the survey materials and agreeing to complete a survey form, was 4,171 persons. Of these, 3,028 returned a useable survey form, for an effective participation rate of 73%.

Figure 1 Response rates

Response rates				
A total of…	4,687	riders were approached and asked to complate the survey		
Of these…		516	said they had already completed the survey	11.0%
	…and…	4,171	were first time approaches	89.0%
Of the	4,171	first time approaches		
	… of which…	611	refused outright	14.6%
		2,940	completed the survey and returned it to the surveyor	70.5%
		88	completed the survey and returned it to an AATA operator on another trip	2.1%
		532	accepted but did not complete the survey	12.8%
		3,028	returned useable survey questionnaires	72.6%

Analysis

Analysis consists primarily of cross tabulations and frequency distributions. Tables were prepared in SPSS, ver 16 and charts in Excel 2007.

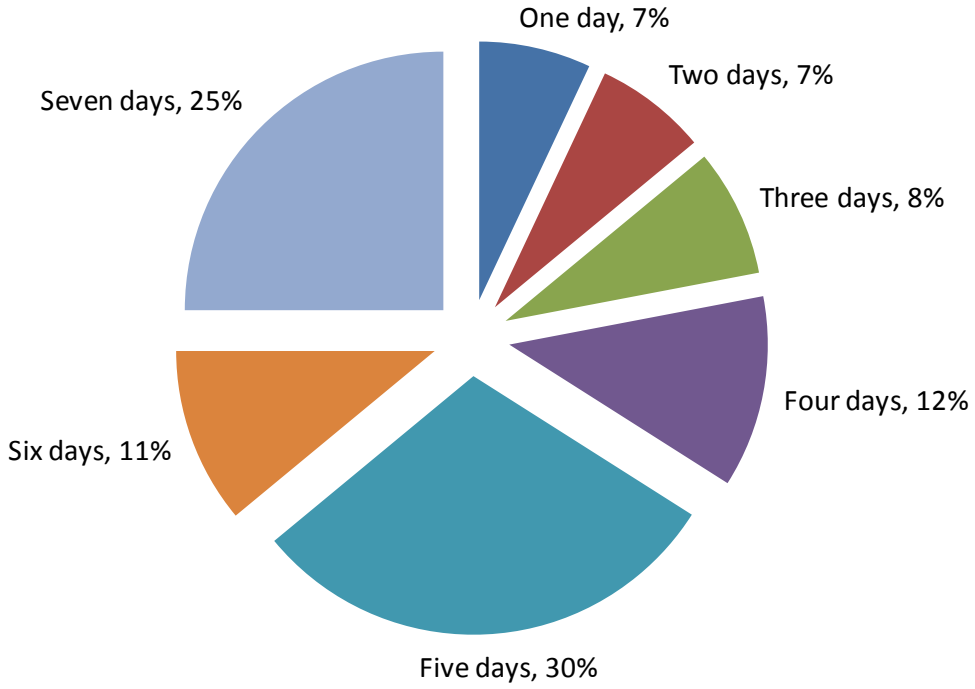
With a few exceptions, all percentages are rounded to the nearest whole number. In a few cases, when this could have caused important categories to round to zero, percentages are carried to tenths. Round causes some percentage columns to total 99% or 101%. This Is not an error and should be ignored.

Rider profile

Figure 2 Frequency of using The Ride

Q10 In the past 7 days, how many days have you ridden on an AATA bus?

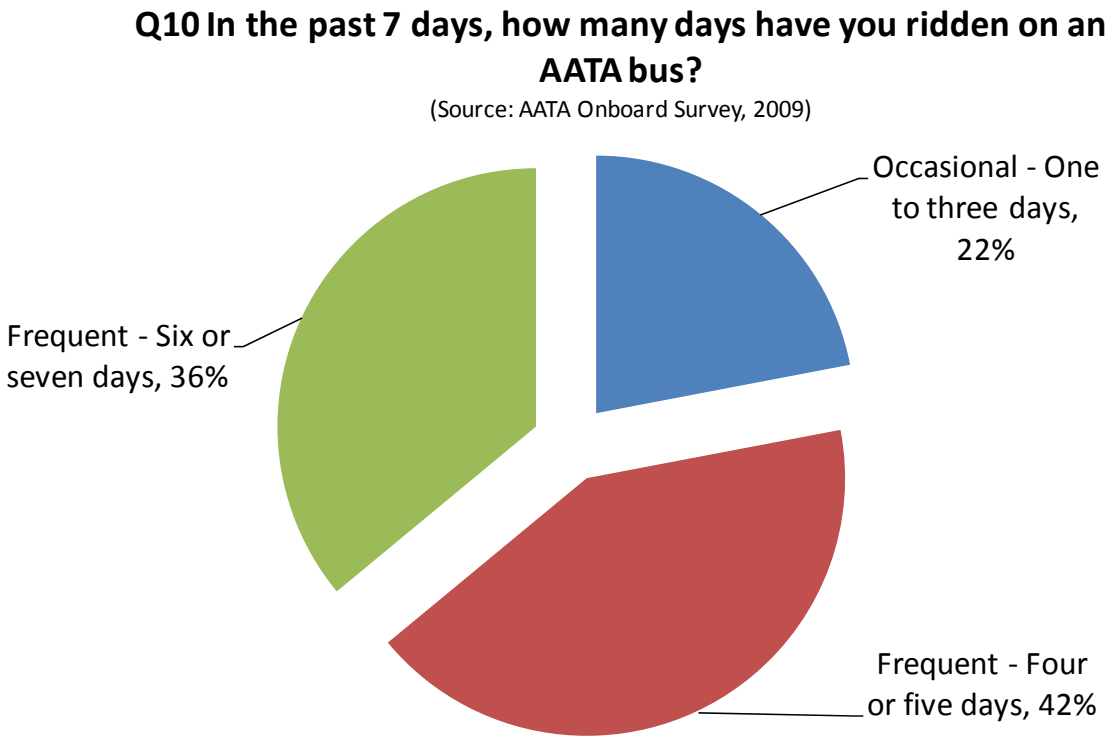
(Source: AATA Onboard Survey, 2009)



Frequency of using The Ride

Most riders (a total of 66%) use AATA five or more days a week. One-fourth (25%) use it every day, while another 11% use it six days a week.

Figure 3 Compressed measure of frequency of using The Ride

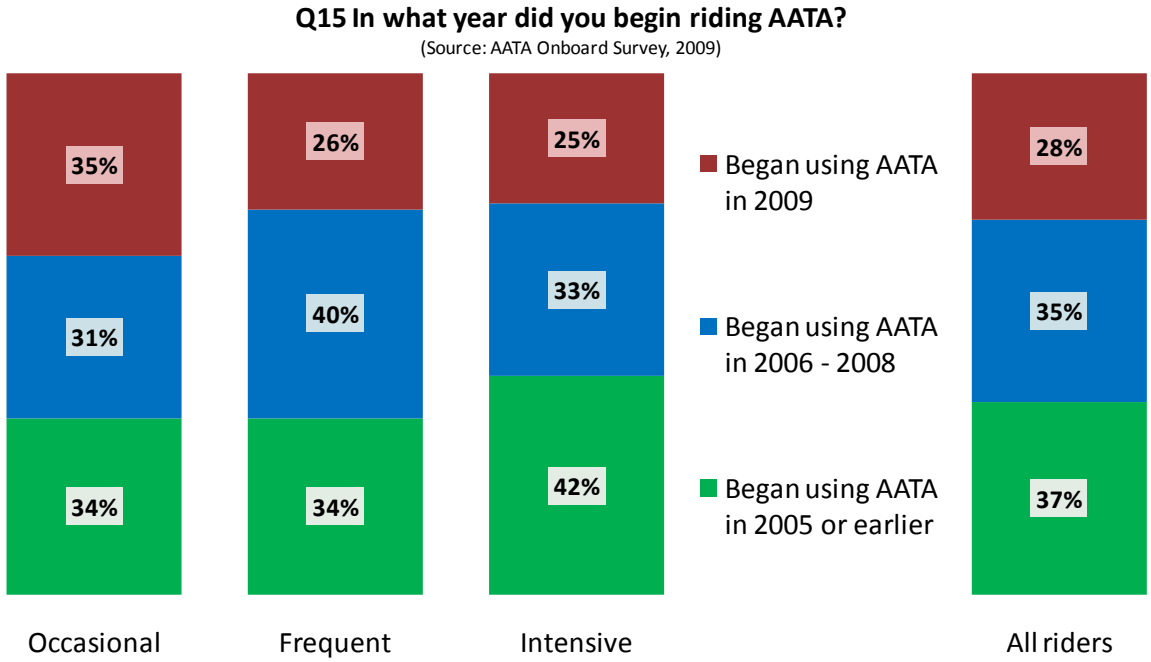


Rider segments

For purposes of further analysis the riders are grouped into three sets, depending upon how frequently the riders use The Ride. We refer to them as:

- "Occasional riders," who use The Ride one to three days a week
- "Frequent riders," who use The Ride four or five days a week
- "Intensive riders," who use The Ride six or seven days a week

Figure 4 When riders began using The Ride



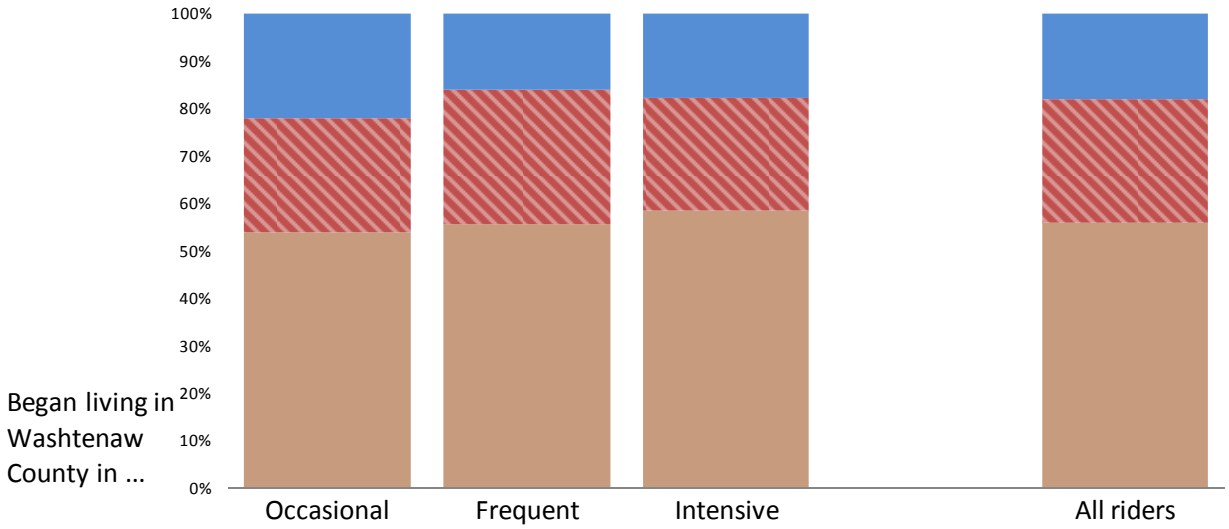
When riders began using The Ride

Twenty-eight percent (28%) began using AATA only in 2009. The survey was conducted in October, meaning that these people had begun using AATA only during the previous nine or ten months. This is a fairly typical rate of turnover and clientele for all bus transit systems. Approximately another third (35%) had begun using AATA between 2006 and 2008 and the balance, prior to that time.

Occasional riders had the most frequent incidence of recent ridership, with 35% of occasional riders saying that they had begun riding only in 2009.

Figure 5 When riders began living in Washtenaw County

Q16 In what year did you begin living in Washtenaw County?
(Source: AATA Onboard Survey, 2009)



Began living in Washtenaw County in …	Occasional	Frequent	Intensive	All riders
2009	22%	16%	18%	18%
2006 - 2008	24%	28%	24%	26%
2005 or earlier	54%	55%	59%	56%

When riders took up residence in Washtenaw County

Most of AATA's riders had begun living in Washtenaw County in 2005 or earlier. Another 26% had begun living there between 2006 and 2008, while 18% had begun living there only in 2009. The fact that 18% had begun living in Washtenaw County in 2009, but that 28% of all riders had begun using AATA in 2009, means that it was not only an influx of new population that led to new ridership. Many long-term residents as well as new residents also began riding in 2009.

Occasional riders are more likely (22%) than either frequent (16%) or intensive riders (18%) to be new residents in 2009.

Figure 6 Relationship between years living in Washtenaw County and years using The Ride

Year riders became residents of Washtenaw County and years using The Ride

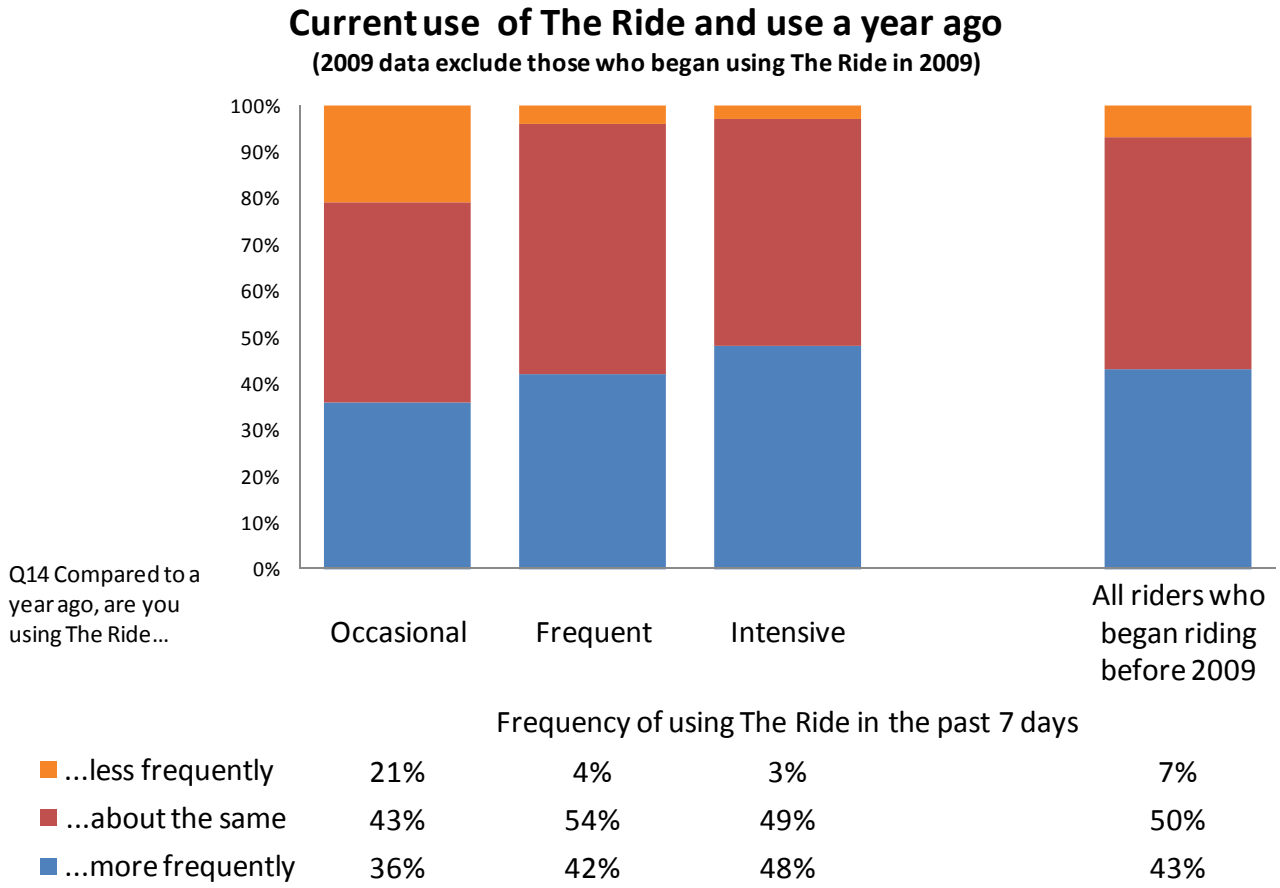
	Q16 In what year did you begin living in Washtenaw County?										
Table N %	Before 2000	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Before 2000	19.4%										
2000	1.3%	1.1%									
2001	1.3%	0.1%	0.7%								
2002	0.6%	0.1%	0.2%	0.8%							
2003	1.3%	0.2%	0.0%	0.2%	1.3%						
2004	1.6%	0.3%	0.3%	0.3%	0.0%	1.8%					
2005	1.7%	0.2%	0.2%	0.2%	0.4%	0.5%	3.0%				
2006	2.4%	0.2%	0.1%	0.1%	0.1%	0.3%	0.7%	4.2%			
2007	3.0%	0.1%	0.1%	0.2%	0.2%	0.5%	0.7%	0.6%	5.9%		
2008	3.2%	0.3%	0.2%	0.2%	0.2%	0.4%	0.5%	0.7%	1.2%	10.0%	
2009	2.7%	0.1%	0.1%	0.2%	0.4%	0.2%	0.4%	0.6%	0.6%	1.6%	17.8%

How long riders have both lived in Washtenaw County and used The Ride

In the table above, the percentages in each cell reflect the percent that each cell represents the entire AATA ridership. Thus, the percentages in the shaded diagonal represent the percent of all AATA riders who had begun using AATA in the same year they became residents of Washtenaw County. A total of 66% have used AATA since they took up residence in Washtenaw County.

A total of 17.8% of riders had lived in the county prior to 2006 but began using transit only since 2006.

Figure 7 Current use of The Ride and use one year ago



Current use of The Ride and use one year ago

Figure 7 above includes all AATA riders *except* those who began riding only in 2009. Since the chart involves change in the use of AATA from one year ago, obviously anyone who began using it in 2009 would now be riding more often, and is thus irrelevant to the point.

Half (50%) of the riders included here say they are riding about as often as they did a year ago. This is especially true of the frequent riders (54%) and least true of the occasional riders (43%). However, many riders (43%) say they are now riding more often than in the past year. This is especially true of the intensive riders (48) and least true of the occasional riders (36%).

These results are interesting for two reasons:

- First, the great peak in gasoline prices occurred in 2008, not 2009. In fact prices fell in 2009. Thus, the fact that so many are saying they ride more often in 2009 than in 2008 suggests that other factors are at work or that there is a lingering impact of high fuel prices (or both).
- Second, ridership in FY 2009 was almost flat from FY 2008 to FY 2009, growing by only 1.1% from the previous year, whereas from 2007 to 2008, the growth was 8.8%. Also, we have been told that since October, 2009 ridership has declined. Thus, it seems paradoxical that so many riders would say they have begun riding only in 2009, a response that implies growth. However, ridership fluctuates throughout the year. It happens that the survey was conducted in October, a month when ridership grew by 40% over the previous month. This

probably explains the paradox.

We know from Figure 4 (page 11) that 28% of the riders say they began using AATA only in 2009, a percentage of recent riders fairly typical for all-bus transit systems. What we do not know is what attrition rates were previously. Did the 28% who began using AATA in 2009 simply offset an equal number who ceased using it in the same year? With ridership fairly flat from 2008 to 2009, we would expect that that was probably the case. However, we lack data from 2008 to verify this.

We may be able to provide better information on this from a comparison to the previous onboard survey in 2006. However, there are limits to that comparison. The previous onboard survey was conducted in March and April, whereas the 2009 survey was conducted in October (the 10th month of the year). In the 2006 survey, riders were asked if they were riding more or less often than they had seven months ago. In response, 28.6% said they had begun riding in the previous seven months. Thus, the current level of turnover appears generally similar, though the questions were different. This is odd since there was a 13.5% increase in ridership from 2005 to 2006, but only 1.1% from 2008 to 2009. That would lead us to expect a higher rate of new ridership in 2006 than in 2009, contrary to what occurred. Other factors must be at work here that the survey cannot measure.

Figure 8 Use of AATA and when riders began riding

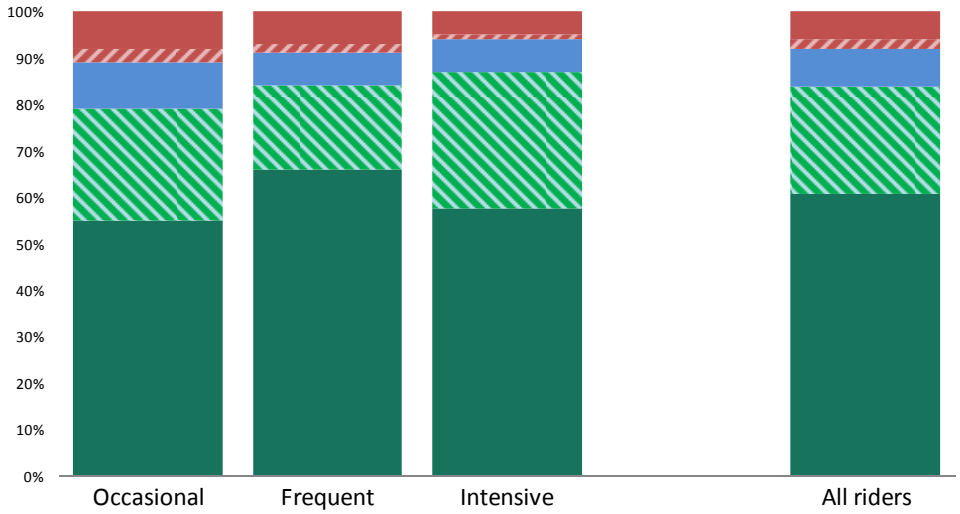
Level of use of AATA, by when riders began using The Ride

		Year began using AATA			
		2005 or earlier	2006 - 2008	2009	Total
Frequency of using The Ride in the past 7 days	Occasional rider	**21%**	**21%**	**29%**	**23%**
	Frequent rider	**39%**	**47%**	**39%**	**42%**
	Intensive rider	**40%**	**33%**	**32%**	**35%**
	Total	**100%**	**100%**	**100%**	**100%**

The report on the 2006 study also indicates that 59.5% said they rode more frequently than in the previous year. Of course those who had begun riding only since the previous year would, by definition, be riding more. Thus, they are excluded from Figure 7 on the previous page describing the 2009 survey. However, the 2006 study does not indicate whether the analogous group was included or excluded. This omission strongly suggests they were included. Assuming that they were included, then about 60% were riding *more* in March 2006 than they were six or seven months prior to that time. That is interesting because in 2009, if we include for the best analogue all riders (including the new riders as of 2009), we find that only 50% said they were riding more. Perhaps part of the ridership growth AATA experienced from 2005 to 2006 was a greater intensity of use at that time by existing riders.

We emphasize, however, that given the vagaries of respondent memory and the substantial month-to-month fluctuation of AATA fixed route ridership, this is speculative.

Figure 9 Intention of using transit one year from now



	Occasional	Frequent	Intensive	All riders
get a car and stop using AATA	8%	7%	5%	6%
stop using AATA for other reason	3%	2%	1%	2%
move away from this area	10%	7%	7%	8%
get a car but keep using AATA also	24%	18%	29%	23%
keep using AATA	55%	66%	57%	60%

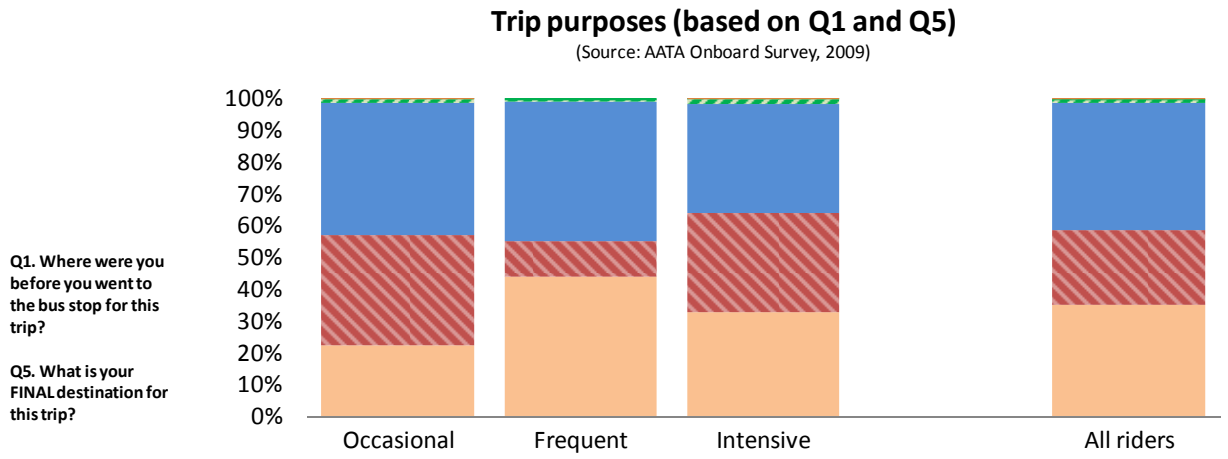
Intention of using transit one year from now

As it is with any business, customer retention is important in the marketing of public transit. AATA riders were asked whether in one-year they expected to continue to be using AATA buses, or whether for various reasons they would reduce their use or discontinue use of the bus service.

Sixty percent (60%) indicated that they would keep using AATA, while 23% indicated that they planned to obtain a car, but also planned to continue using AATA. The balance, 16%, indicated that for several different reasons they planned to cease using AATA.

The frequent riders, who tend to be commuters going to or from work or school (or both), comprise the segment most likely to say (66%) that they would keep using AATA. Perhaps the most interesting finding in the chart is that the intensive users are the ones most likely (29%) to say they intend to "get a car but keep using AATA." Experience suggests that this may be a reflection of their dependency on AATA coupled with their need to travel throughout the day and week, having no alternative during off-peak hours when service levels are low.

Figure 10 Trip purposes



	Occasional	Frequent	Intensive	All riders
Church	0.1%	0.0%	0.1%	0.1%
Doctor / Medical	0.1%	0.5%	0.2%	0.3%
Social visit or recreation	1.2%	0.6%	1.5%	1.0%
School / College	41.6%	44.1%	34.4%	40.3%
Shopping	34.8%	11.2%	31.1%	23.2%
Work	22.1%	43.6%	32.7%	35.0%

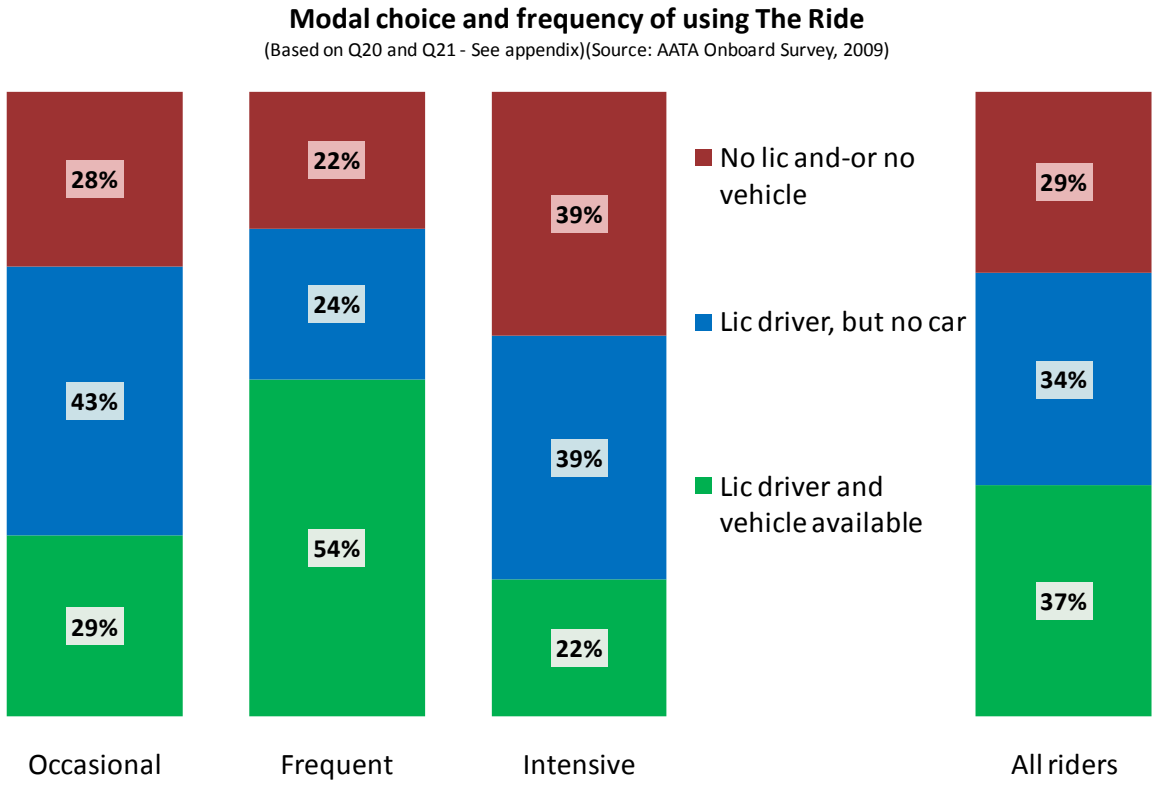
Trip purposes

We shall see in a later chart (Figure 25) that 34% of AATA riders are students, and another 18% are both students and employed. Thus, it is not surprising that the most common trip purpose is getting to or from school or college (40.3%). This is especially true of occasional (41.6%) and frequent (44.1%) riders, and somewhat less true of intensive riders (34.4%).

Notice that frequent riders are divided almost equally between trips for school (44.1%) and trips for work (43.6%), while occasional riders, on the other hand, tend to divide primarily between trips for school (41.6%) and trips for shopping (34.8%). For occasional riders, work trips were less frequent (22.1%).

Intensive riders split almost equally among the three primary trip purposes of school (34.4%), shopping (31.1%), and work (32.7%).

Figure 11 Modal choice



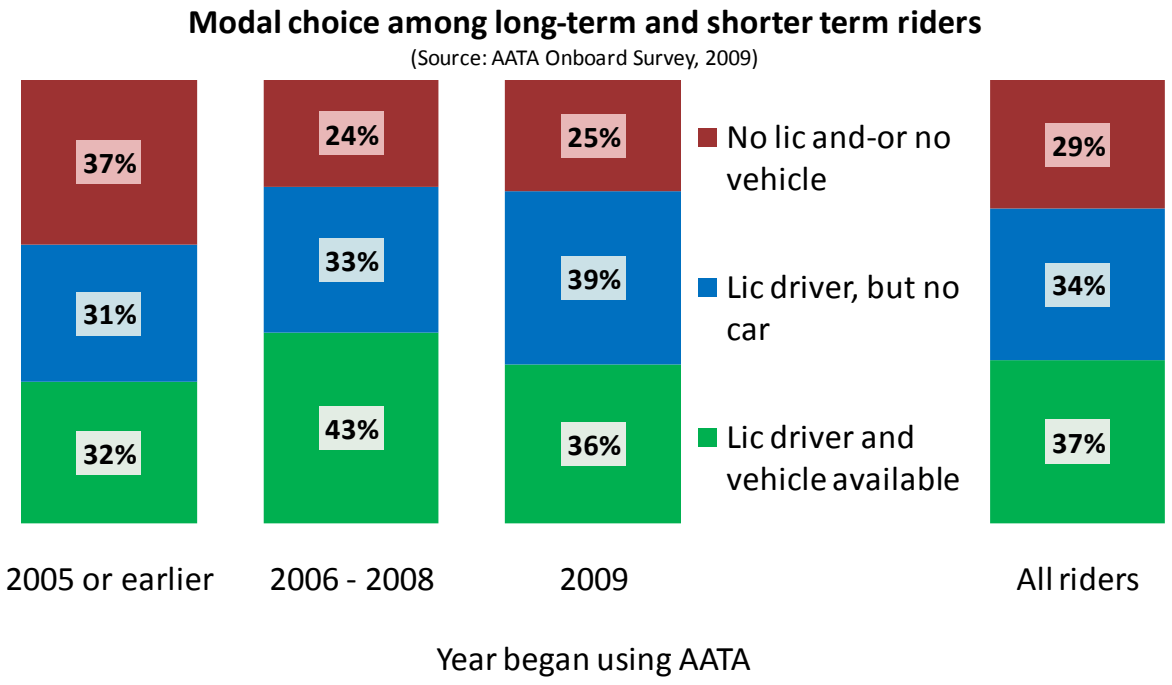
Modal choice

Among all riders, slightly more than one third (37%) are licensed drivers and had a vehicle available for their trip on the day they were surveyed, while another third (34%) are licensed drivers but had no vehicle available. The balance, 29%, have no license or had no vehicle available for the trip on which they were surveyed.

Modal choice varies considerably among the three rider segments. Frequent riders have the greatest level of choice. They are more likely than the other rider segments to be licensed to drive and have a vehicle available (54%). Among intensive riders, only 22% fall in this category, while 39% are licensed but had no vehicle available for the trip, and another 39% either have no license or lacked an available vehicle.

One might assume that riders with no license and/or no vehicle available are environmentally conscious persons who elect to eschew private vehicles and use transit. However, that is not the case for most. It is the intensive riders who have the lowest household incomes (as we will show in Figure 32) and the more reasonable interpretation is that they are unable to afford an alternative.

Figure 12 Modal choice and duration of using The Ride



Modal choice and duration of using The Ride

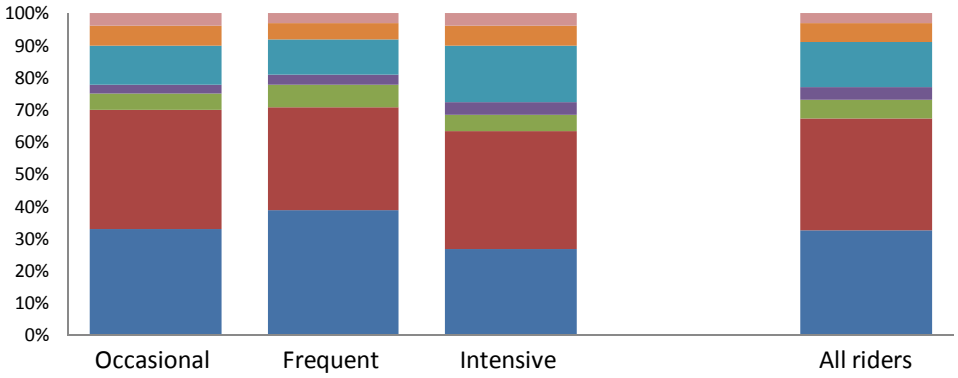
Those who began using AATA in 2005 or prior to that time are more likely to be transit dependent (37%) than those who began later. Those who are most likely to have modal choice are those who began using AATA between 2006 and 2008 (43%).

Upward social mobility tends to shift the transportation behavior of people in the United States from transit to private vehicles (with certain exceptions in high density cities of which New York is the primary example). In good economic times, upward social mobility is related to age for most of the population, especially for those young persons starting out in middle income families. As the young person ages, gains education and experience, job prospects and compensation tend to rise, and this makes non-transit alternatives available and, under contemporary land-use patterns, also makes turnover in the public transit market inevitable.

All of this also means that some will tend to be "left behind." Thus, it is those who have used AATA since 2005 or before who are most transit dependent (37%). To repeat a point, it may be that a few of these riders are determined environmentalists or have other reasons to be committed to using public transit, but in most cases the cause is sociological.

Figure 13 Alternative if AATA service had not been available

Q19. If AATA bus service were not available for this trip, what would you have done instead? You would have…
(Source: AATA Onboard Survey, 2009)



	Occasional	Frequent	Intensive	All riders
…gone somewhere else	4%	3%	4%	3%
…not taken this trip at all	0%	0%	0%	0%
…bicycled	6%	5%	6%	6%
…walked	12%	11%	18%	14%
…taken a carpool or vanpool	3%	3%	4%	4%
…taken a U of M bus	5%	7%	5%	6%
…gotten a ride	37%	32%	37%	35%
…driven alone	33%	39%	27%	33%

Alternative if AATA service had not been available

Of all AATA riders, approximately one third (35%) said they would have gotten a ride in the absence of AATA service, while another third said they would have driven alone (33%). Interestingly, 14% indicated they would have walked, a fact that suggests that a significant proportion of the trips being made via AATA are within walking distance.

Modal choice and how trip would be made in the absence of AATA service

		Availability of non-transit alternative		
		Lic driver and vehicle available	Lic driver, but no car	No lic and-or no vehicle
If AATA bus service were not available for this trip, what would you have done instead? You would have…	…driven alone	61%	24%	21%
	…gotten a ride	13%	33%	41%
	…taken a U of M bus	7%	6%	7%
	…taken a carpool or vanpool	4%	4%	5%
	…walked	7%	21%	16%
	…bicycled	6%	8%	5%
	…not taken this trip at all	0%	0%	0%
	…gone somewhere else	2%	4%	5%

Being more likely to have modal choice, the frequent (39%) and the occasional riders (33%) are more likely than the intensive riders (27%) to say that they would have driven alone had AATA not been available.

As one would expect, when we cross tabulate modal choice with the question regarding the mode riders would use if AATA service were unavailable, we find those who are licensed to drive and had a vehicle available were most likely to say they would have driven alone (61%).

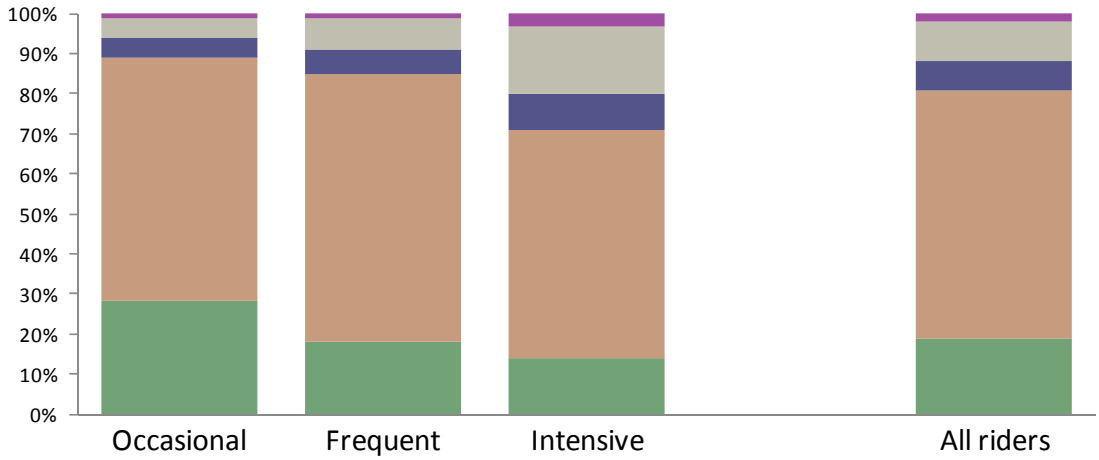
Oddly, 21% of those who said they either have no license or had no vehicle available also said they would have driven alone. Presumably this would be those without a vehicle available at the time of the trip who assumed they could borrow or otherwise obtain one if they needed it. Another 41% of that same group said they would get a ride, and 16% said they would have walked, and 5% said they would have bicycled.

Among those who are licensed but said they had had no car available for the trip, 24% indicated they would have driven alone, presumably by finding a vehicle they could use, while 33% indicated they would gotten a ride, and 21% would have walked.

Figure 14 Number of transit trips today

Q8 How many separate one-way trips will you make today?

(Source: AATA Onboard Survey, 2009)



	Occasional	Frequent	Intensive	All riders
More than 4	1%	1%	3%	2%
4 trips	5%	8%	17%	10%
3 trips	5%	6%	9%	7%
2 trips	60%	67%	57%	62%
1 trip	28%	18%	14%	19%

Number of transit trips today

Riders were asked how many separate one-way trips they would make on the day they were surveyed. Almost two thirds, 62%, indicated they would make two trips, while 19% indicated they would make only one, and the balance, also 19%, indicated they would be making three or more trips. Among the intensive riders, a total of 29% make three or more trips a day, while only 9% of frequent riders and 6% of occasional riders make so many trips. In other words, the intensity of using transit as measured in the charts in this report based on the number of days per week transit is used, is magnified by the tendency of those who use AATA on more days to use it for more trips on those days.

The mean number of trips for all riders is 2.14[1]. The mean number of trips varies among the rider segments, with the occasional riders making slightly fewer than two trips (1.90 trips) and intensive riders making substantially more than two trips (2.38 trips).

Figure 15 Trips per day

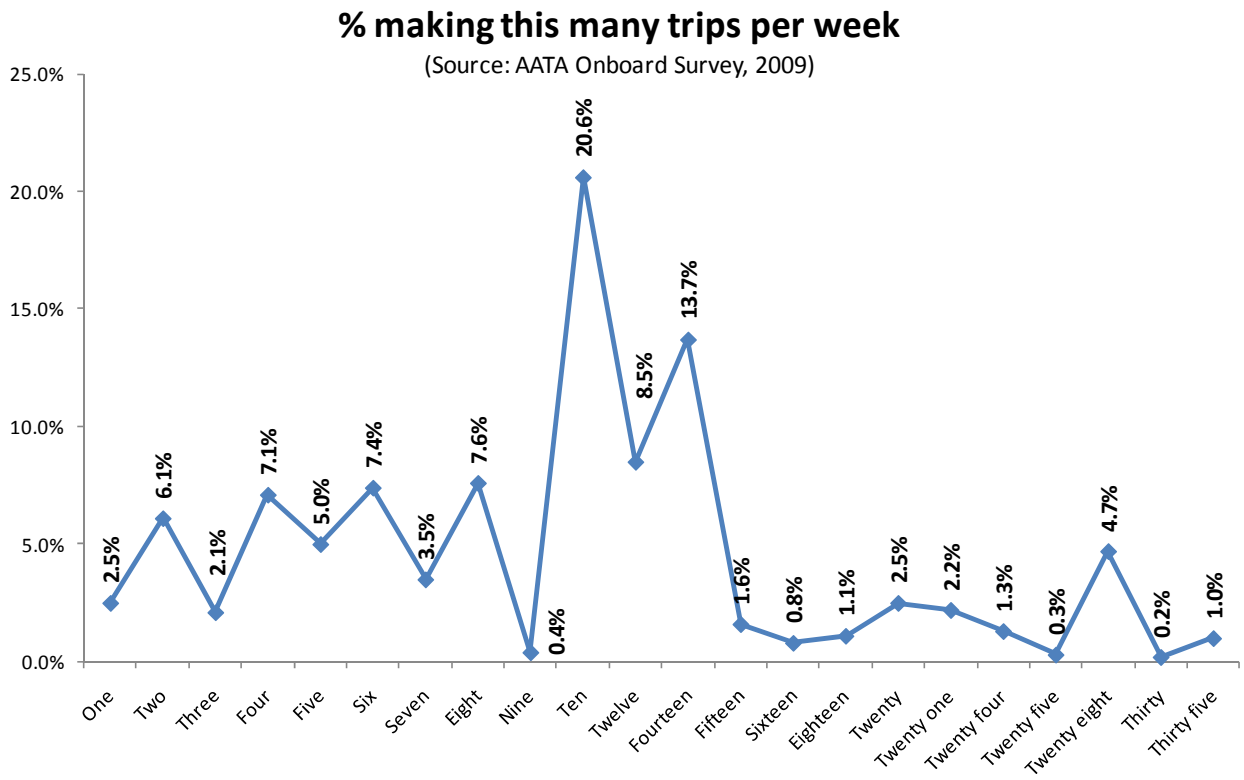
Report

Mean

Frequency of using The Ride in the past 7 days	Q8 How many separate one-way trips will you make today?
Occasional rider	**1.90**
Frequent rider	**2.06**
Intensive rider	**2.38**
Total	**2.14**

[1] For those making more than four trips our assumption is that they made five trips. Therefore the mean is somewhat conservative, though only slightly so.

Figure 16 Percent of all riders making certain numbers of trips per week



Trips per week

By simply multiplying the number of days per week riders use AATA by the number of trips per day we can estimate the number of trips per week.

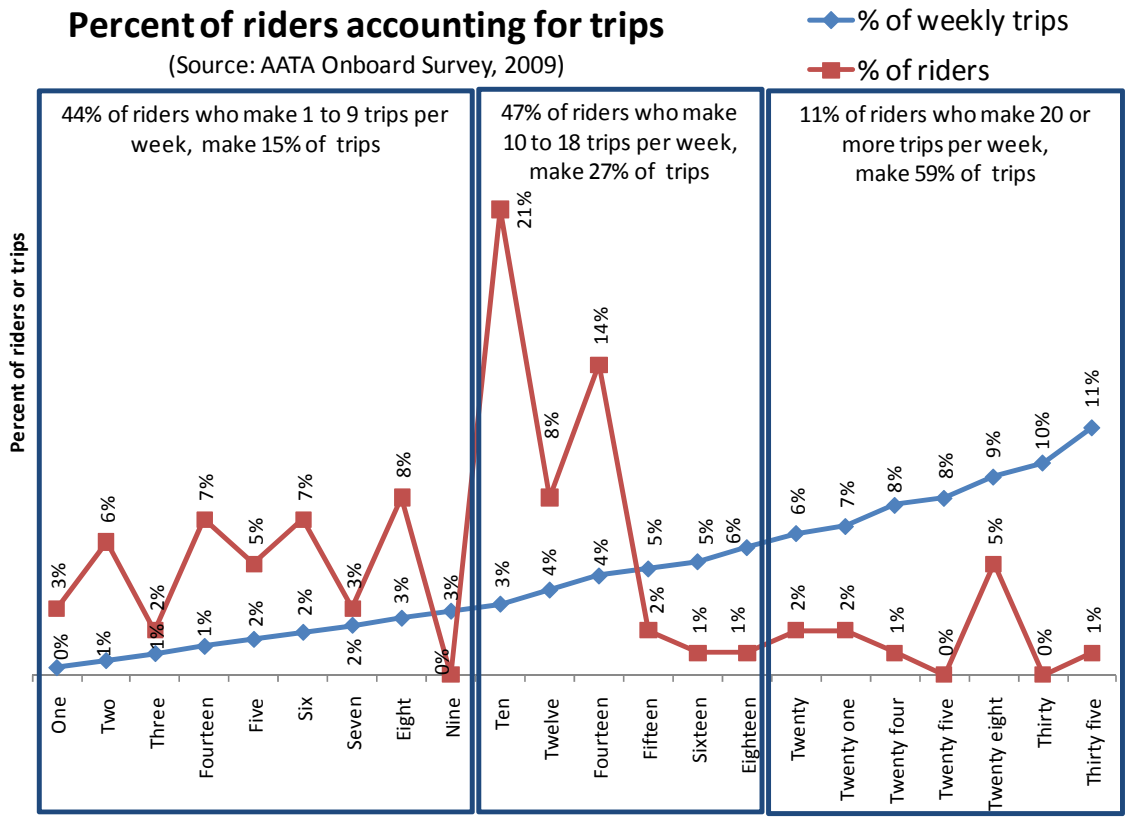
Of all riders, 23.6% make ten trips per week (see Figure 16). The next most common pattern is to make from twelve (8.5%) to fourteen (13.7%) trips per week. The inset table (Figure 17) shows this statistically. The average (mean) number of trips per week is 10.7, while the median is 10 trips. The standard deviation is 6.8 trips.

Figure 17 Trip made each week by rider segments

	Trips per week		
	Mean	Std. Deviation	Median
Frequency of using The Ride in the past 7 days			
Occasional rider	4.0	2.5	4
Frequent rider	9.7	3.9	10
Intensive rider	16.0	7.1	14
All riders	10.7	6.8	10

Because it is part of the computation of the trips per week, it is self-evident that the number of weekly trips will vary positively with the number of days on which AATA is used. However, it is instructive to see the differences among the segments. Notice, for example, that the intensive riders make four times the mean numbers of trips (16) that are made by occasional riders. Thus, to take just one example, retaining one intensive rider is the same, in terms of ridership, as attracting four new occasional riders.

Figure 18 Disproportions between percentages of riders and percentages of all trips they make



A small percentage of riders make a large percentage of AATA trips

The chart above displays two elements:

- The percentage of riders making the number of trips shown in a week.
- The number of trips riders say they make in a week.

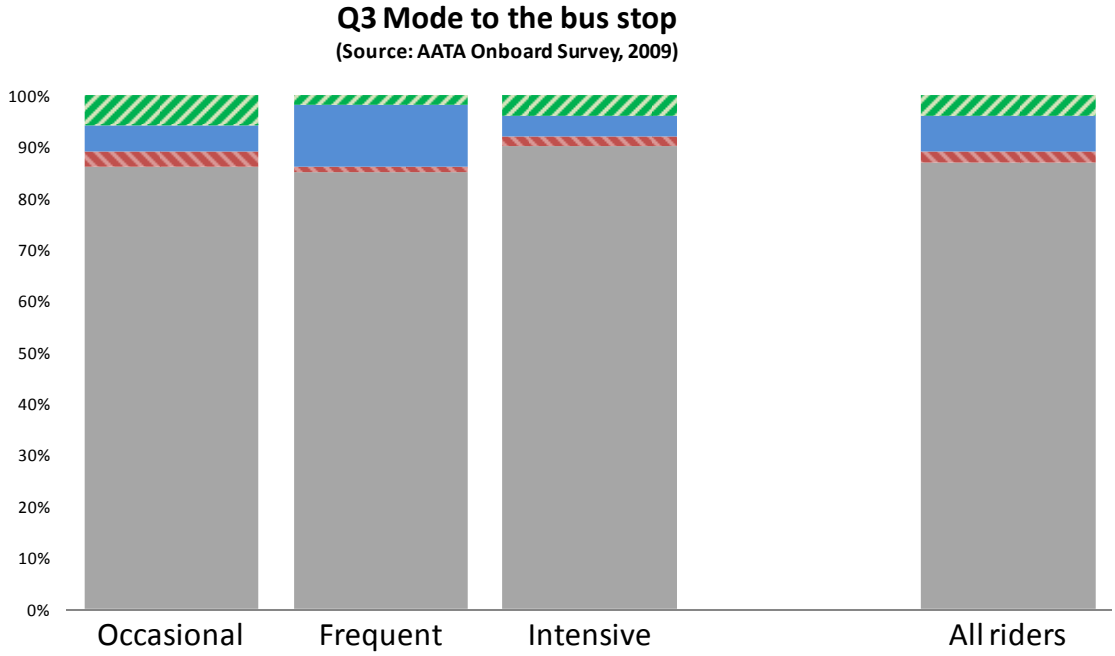
Thus, for example, those making thirty-five trips in a week comprise 1% of all AATA riders, but the trips made by those making thirty-five trips in a week represent 11% of all AATA trips.

As shown in the chart:

- Only 11% of all riders account for 59% of all trips because they make twenty or more trips per week.
- Almost half of all riders (47%) account for only slightly more than one fourth (27%) of all trips, most of which are round trips on five to seven days a week.
- And 44% of all riders making only nine or fewer trips per week account for only 15% of all trips.

These proportions are not unusual. They are presented to provide perspective.

Figure 19 Mode to bus stop

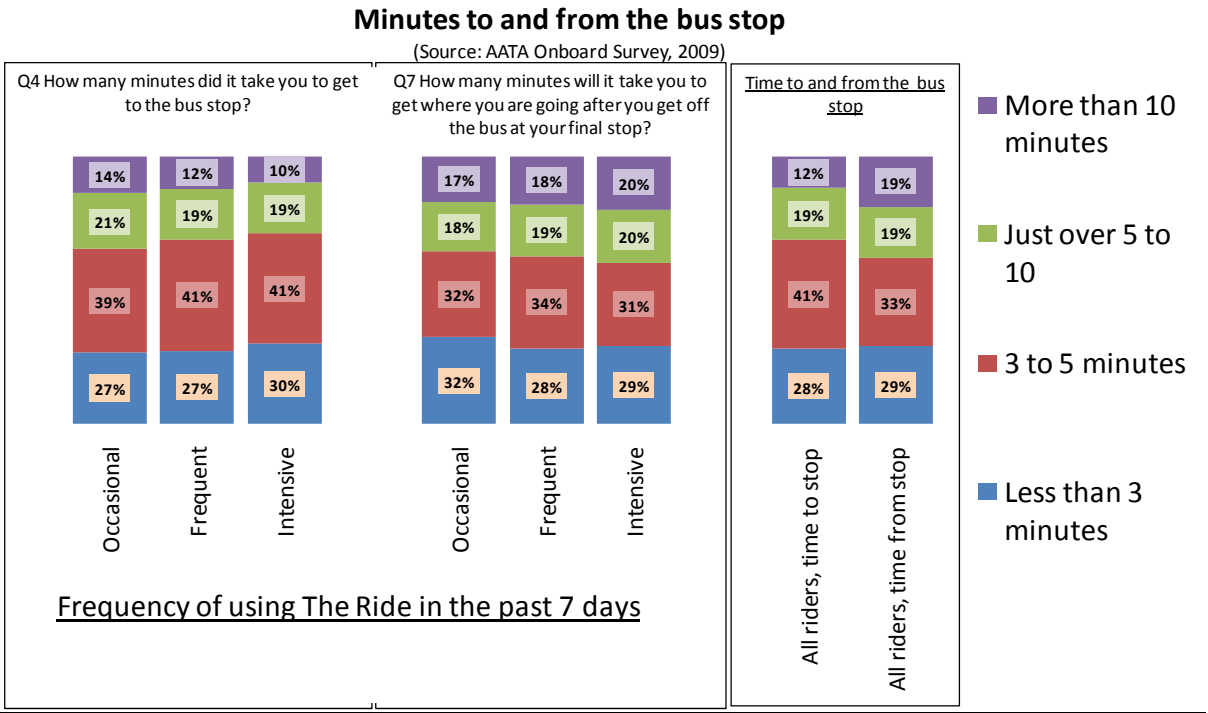


	Occasional	Frequent	Intensive	All riders
Got a ride	6%	2%	4%	4%
Drove	5%	12%	4%	7%
Bike	3%	1%	2%	2%
Walked	86%	85%	91%	87%

Mode to bus stop

As is typical in almost all transit systems, most people (87% in the case of AATA) walk to the bus stop. This tendency varies somewhat among the rider segments, with 12% of frequent riders indicating that they had driven to the bus stop, apparently utilizing a park and ride opportunity.

Figure 20 Minutes to and from the bus stop



Minutes to and from the bus stop

Riders were asked how long it takes them to get to the bus stop and from the bus stop to their destinations. In general, they say it takes five minutes or less in both directions. For example, of all riders, 28% said it takes them less than three minutes to get to the bus stop, and 29% said it takes them less than three minutes to get from the bus stop to their final destination. In addition, 41% said it takes them 3 to 5 minutes to get to the bus stop, while 33% said it takes them 3 to 5 minutes to get to their final destinations from their destination bus stops.

These tendencies vary only slightly among the rider segments.

Figure 21 Time to and from stop

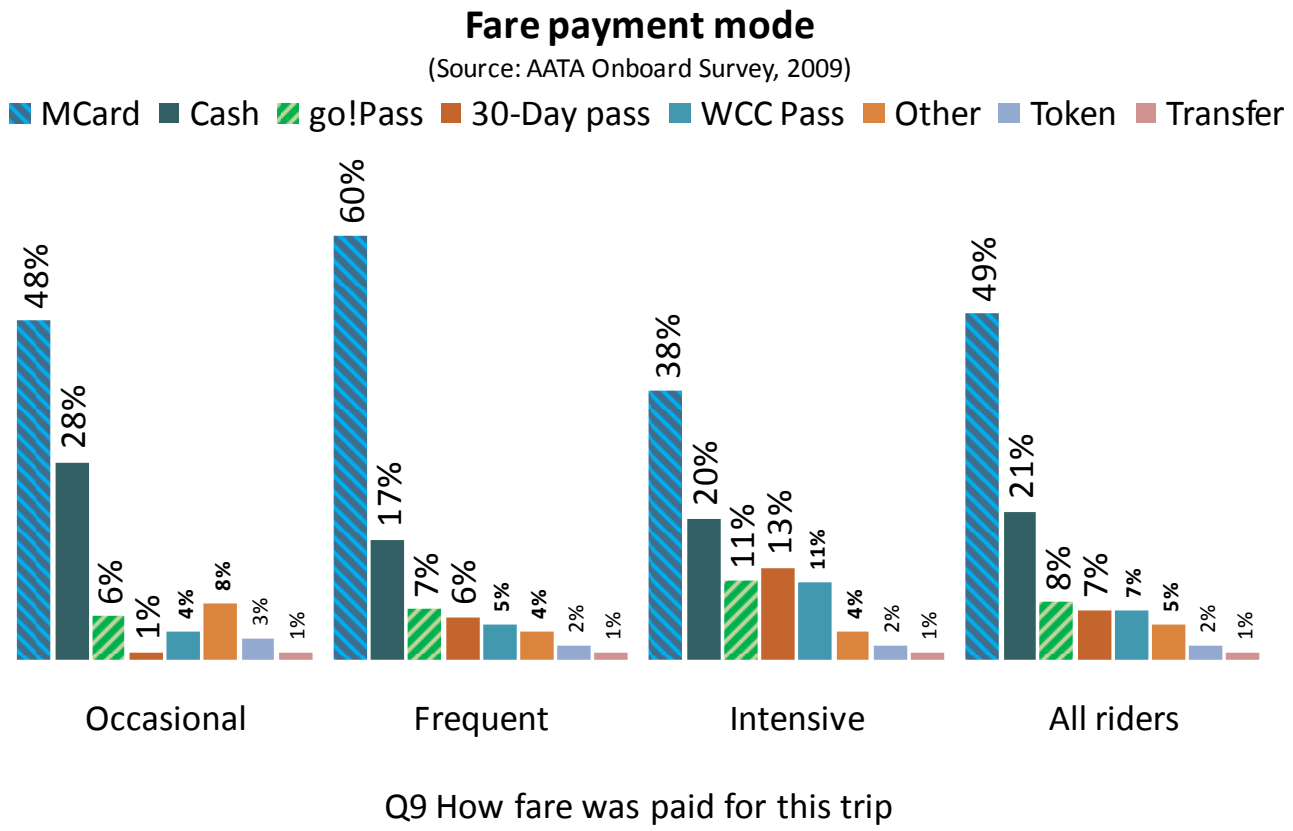
Minutes to and from bus stop

	Q4 How many minutes did it take you to get to the bus stop?	Q7 Minutes to get where you are going after you get off the bus at your final stop?
Mean	6.6	8.8
Median	5	5
Std. Deviation	7.8	12.7

The inset table provides summary statistics in minutes it takes to get to and from bus stops.

- For all AATA riders, the average time to the bus stop is 6.6 minutes, and the average time from the destination bus stop to the final destination is 8.8 minutes.
- The median time indicates that one-half of AATA riders spend five minutes or less getting to the bus stop or from the final bus stop the destination, while half take more time than that.
- The standard deviation of 7.8 minutes and 12.7 minutes to and from bus stops, respectively, indicate that roughly two-thirds (actually 68%) of AATA riders spend within 0 to 14.4 minutes to get to the stop and from 0 to 21.5 minutes to get from their final stop to their destinations.

Figure 22 How riders pay their fares

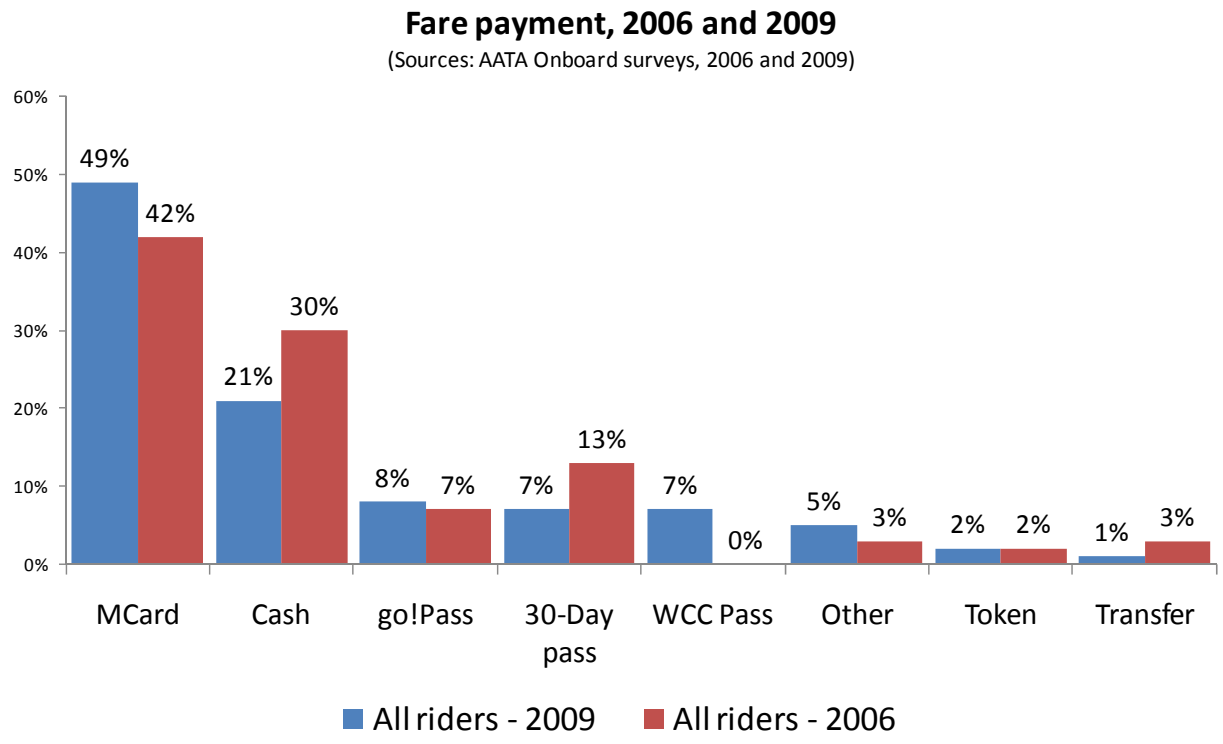


How riders pay their fares

Among all AATA riders, almost half (49%) pay their fare with an MCard, while another 24% use another type of pass (go!Pass, 30-Day pass, WCC pass, or a token), and a small number use a transfer (1%). Of all riders, 21% pay their fare with cash.

As one would expect, the use of cash is greatest among the occasional transit users, among whom 28% pay their fare in cash. However, almost half of that rider segment, 48%, use an MCard.

Figure 23 Comparing fare payment in 2006 and 2009

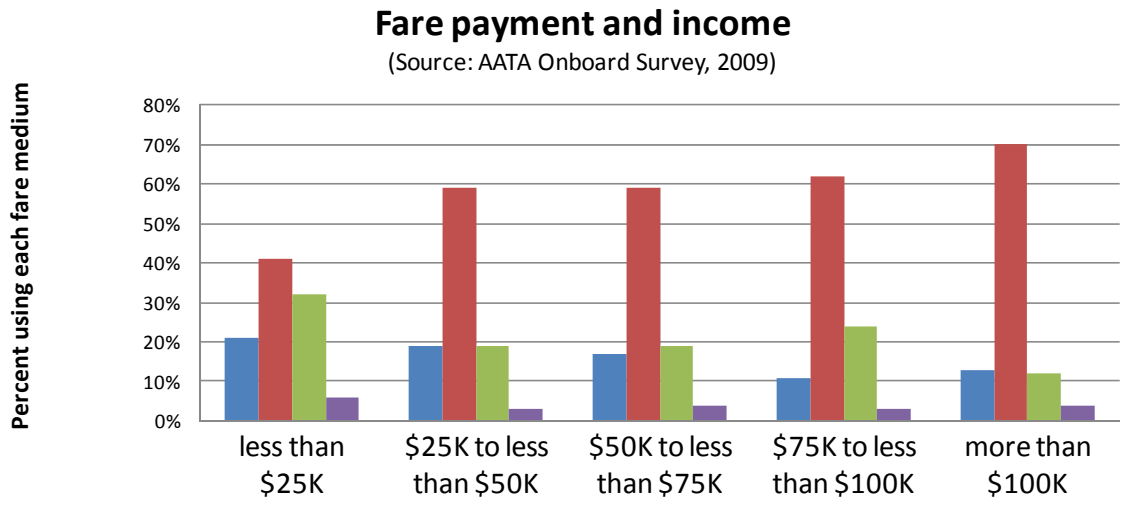


Comparing fare payment in 2006 and 2009

In 2009, compared to 2006,

- 7% more people were using the MCard to pay their fares
- 9% fewer people were using cash
- 6% fewer were using the 30 day pass
- A WCC pass was being used by 7%

Figure 24 Fare medium and income



	less than $25K	$25K to less than $50K	$50K to less than $75K	$75K to less than $100K	more than $100K
Cash	21%	19%	17%	11%	13%
MCard	41%	59%	59%	62%	70%
Other prepayment	32%	19%	19%	24%	12%
Transfer or other	6%	3%	4%	3%	4%

Fare medium and income

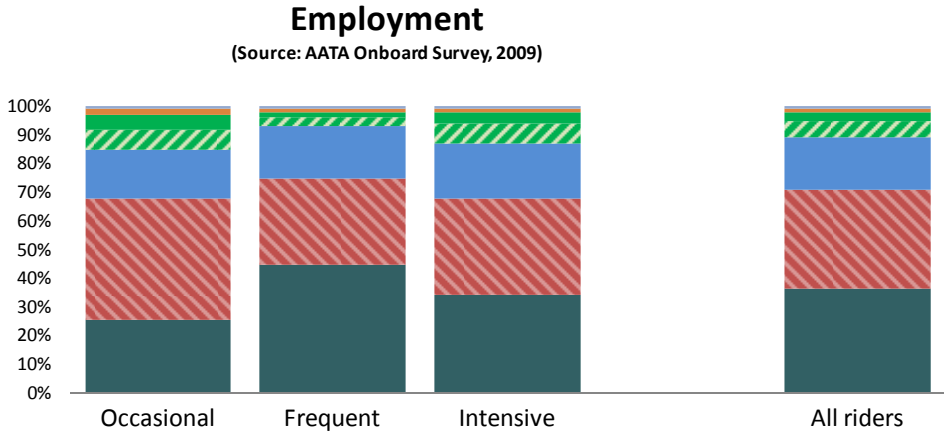
It is generally the case in public transit markets that people from lower income households are more likely than those from households with higher incomes to use cash rather than discounted passes. The reason is for them, to take advantage of the discounted fares would mean having cash in advance to buy the pass, and to place that cash at risk since their short-term future travel needs are often uncertain.

That relationship of income level and use of cash fares holds true for AATA as well, though less so than in systems in some other cities. One reason for this is that the lowest income group among the riders are *more* likely than others to use the other forms of prepayment available to them (go!Pass, 30 day, token).

In the case of AATA, the presence of so many riders holding an MCard makes a large difference. Use of the MCard is clearly income-related: the higher the income, the more likely one is to use an MCard.

Demographic Profile

Figure 25 Employment of riders



	Occasional	Frequent	Intensive	All riders
homemaker	1%	1%	1%	1%
employed for pay in your home	2%	1%	1%	1%
retired	5%	2%	4%	3%
unemployed	7%	3%	7%	6%
student AND employed	17%	18%	19%	18%
student	42%	30%	33%	34%
employed for pay outside your home	25%	44%	34%	36%

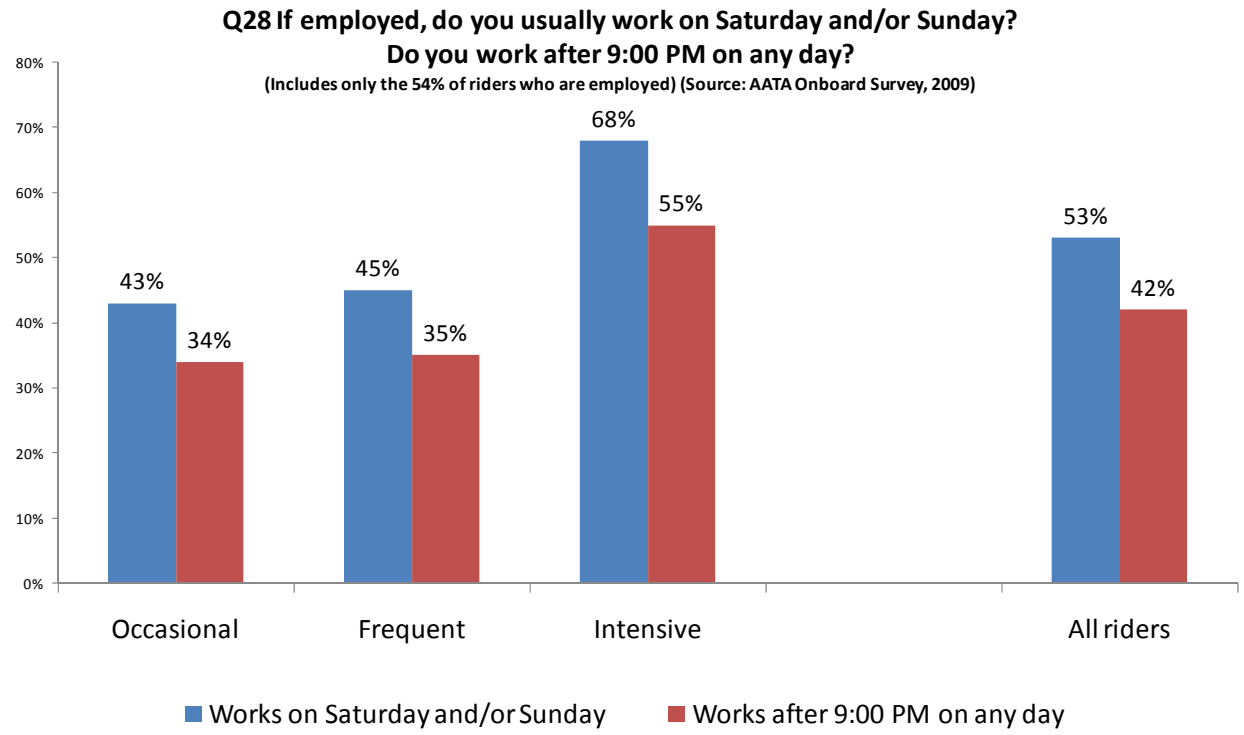
Employment of riders

Most riders are students. While 34% of riders indicated they are students only, another 18% indicated they are both students and employed, for a total of 52% indicating student status. The next largest group consists of only persons who are employed for pay outside their home (36%).

Of all riders, including both students who are also employed and persons who are only employed and not students, 54% of AATA riders are employed.

More of the occasional riders than of the other rider segments are students only. Thus, while 42% of occasional riders are students only, 30% of frequent riders and 33% of the intensive riders are students only.

Figure 26 Working on non-peak days and hours



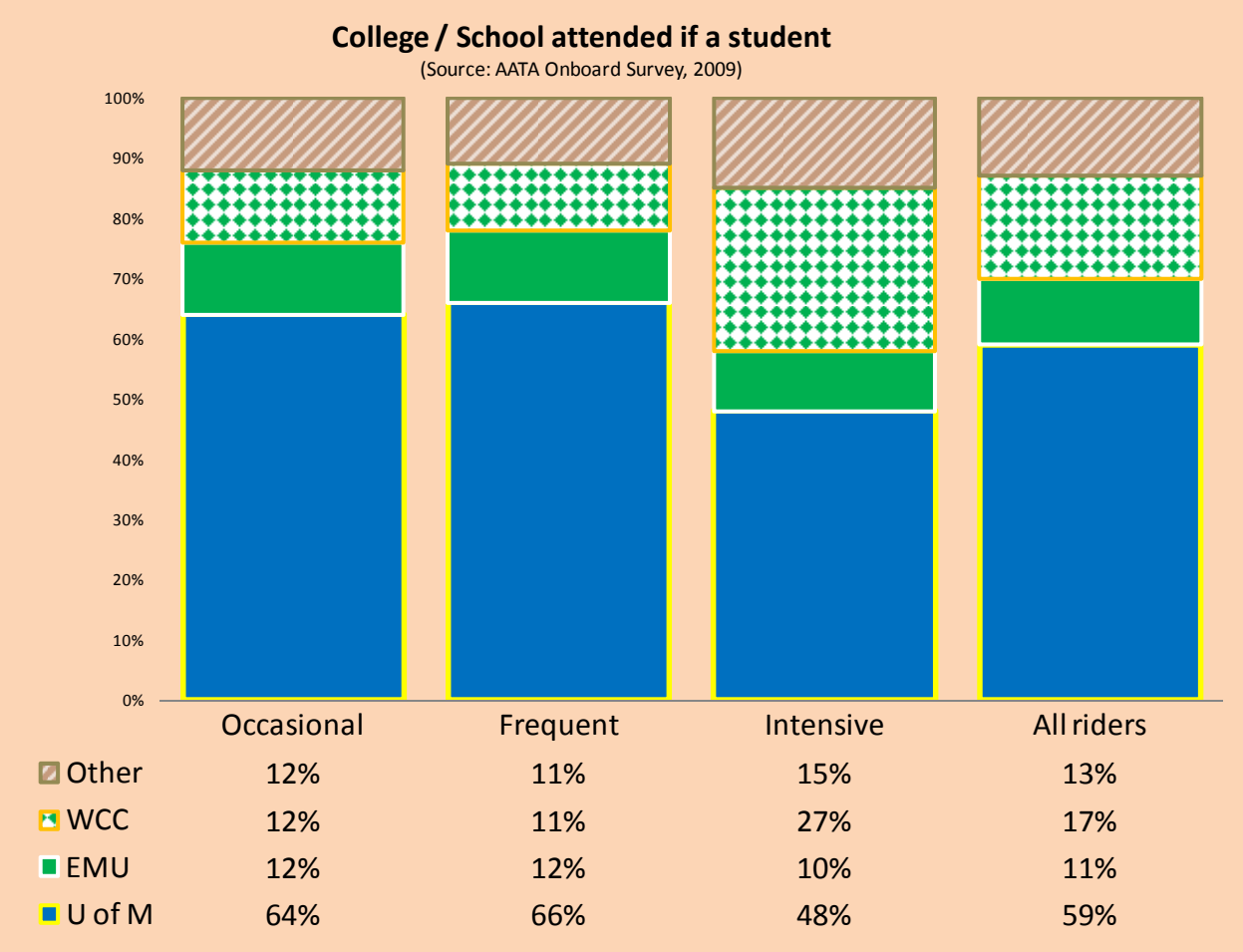
Working on non-peak days and hours

Those riders who are employed were asked whether they work during off-peak times, specifically weekend days and/or after 9 PM on any day of the week. Included among the employed riders are both those who are only employed and those who are both students and employed. Of employed riders, 53% indicated that they must work on Saturday and/or Sunday, and 42% indicated they must work on one or more days a week after 9 PM.

As one would anticipate, these tendencies hold especially true for the intensive riders. They are lower in income than the other segments, and would probably be more likely to have service jobs that require weekend and evening work.

This is an important issue for transit planning and marketing and is discussed further in the section titled "Importance of service improvements" that begins on page 66.

Figure 27 School/college attended



School/college attended

Those riders who indicated that they are students were asked which school they attend. Of all student riders (a category which includes both employed students and students-only) 59% said they attend the University of Michigan, while 17% attend Washtenaw Community College, 11% Eastern Michigan University, and 13% other schools.

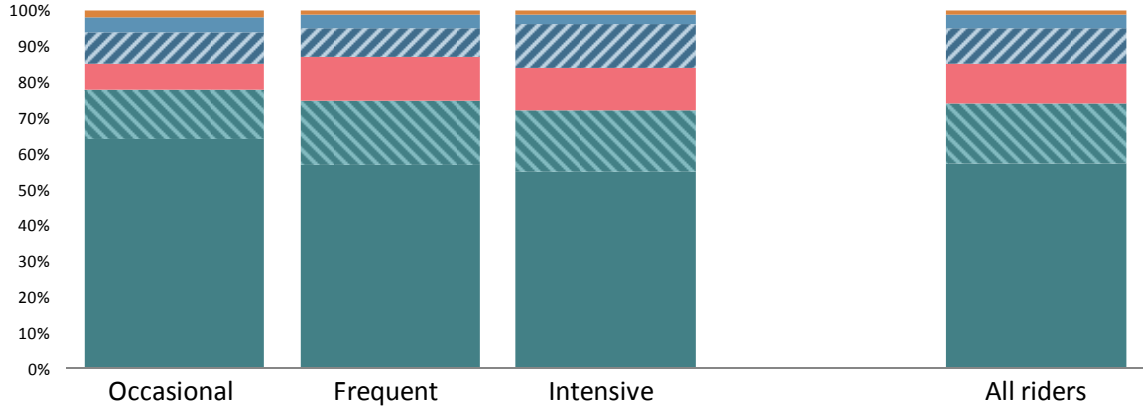
Among the intensive riders, proportions attending the several schools differed considerably from the other rider segments. In the case of the intensive riders, 48% attend the University of Michigan, but 27% attend Washtenaw Community College, considerably more than the average of 17% for all riders.

Conversely, among the occasional and frequent riders, approximately two-thirds attend the University of Michigan while others are fairly equally divided among the other three schools.

Figure 28 Age

Age

(Source: AATA Onboard Survey, 2009)



	Occasional	Frequent	Intensive	All riders
70+	2%	1%	1%	1%
60 - 69	4%	4%	3%	4%
50 - 59	9%	8%	12%	10%
40 - 49	7%	12%	12%	11%
30 - 39	14%	18%	17%	17%
<= 29	64%	57%	55%	58%

Age of riders

In the United States, transit riders tend to be young. This is certainly true in the case of AATA. Of all AATA riders, 58% are under the age of thirty. Of course, as we have seen, students make up a very substantial portion of the total ridership, so this is not surprising.

Age varies somewhat among the three rider segments. Overall, the youngest group is the occasional riders, among whom 64% are twenty-nine or younger, while 14% are between thirty and thirty-nine, for a total of 78% in the age range forty or younger.[2] This compares to a total of 72% of the intensive riders and 75% of frequent riders in this same age range -- still very young, but not quite as young as the occasional ridership.

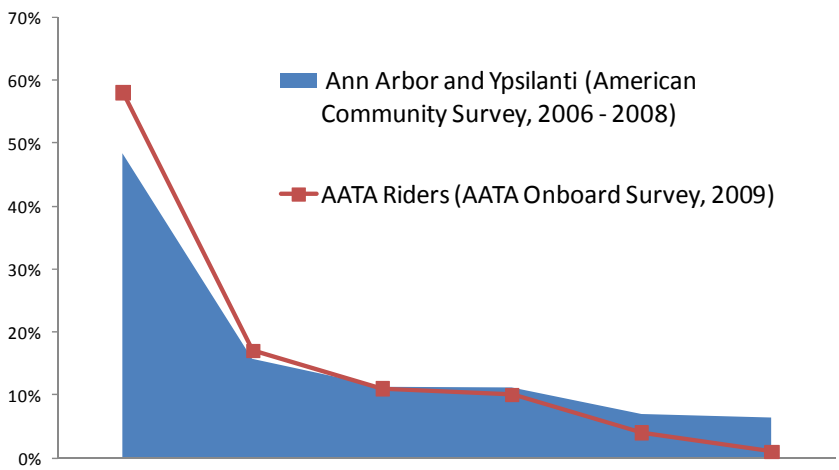
Age in 2006 and 2009 onboard surveys		
	- 2009 -	- 2006 -
<=29	57%	55%
30-39	16%	17%
40-49	11%	14%
50-59	10%	10%
60-69	4%	2%
70+	2%	2%

The age of the ridership has not changed significantly since 2006. The inset table at the left displays the age distributions for the 2006 and 2009 surveys. The maximum differences between the two surveys in any age group is 3%. Given the fact that the surveys were done in somewhat different ways and at different times of the year (spring in 2006, fall in 2009) the age distributions are highly similar and we do not attribute any significance to these minor differences.

[2] Surveyors are instructed not to approach those who appear to be 14 years old or younger. Therefore the very youthful ridership is undoubtedly underestimated in these numbers. The data should be treated as indicative of the age distribution of those in their midteens or older.

Figure 29 Contrast - general public age (ACS results) and AATA riders

Comparing age of the general public with age of riders (Sources: American Community Survey and AATA Onboard Survey, 2009)



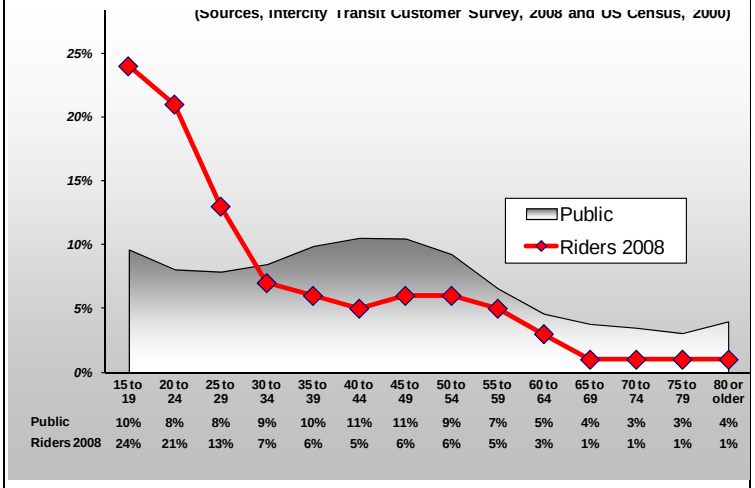
	<= 29	30 - 39	40 - 49	50 - 59	60 - 69	70+
Ann Arbor and Ypsilanti (American Community Survey, 2006 - 2008)	48%	16%	11%	11%	7%	6%
AATA Riders (AATA Onboard Survey, 2009)	58%	17%	11%	10%	4%	1%

Age of the general public and age of AATA riders

The Census Bureau conducts an ongoing survey between the decennial census periods. It is called the *American Community Survey.* Age data for the population fifteen and older have been drawn from that survey and compared in the chart above to the age distribution among AATA riders from the AATA 2009 Onboard Survey.

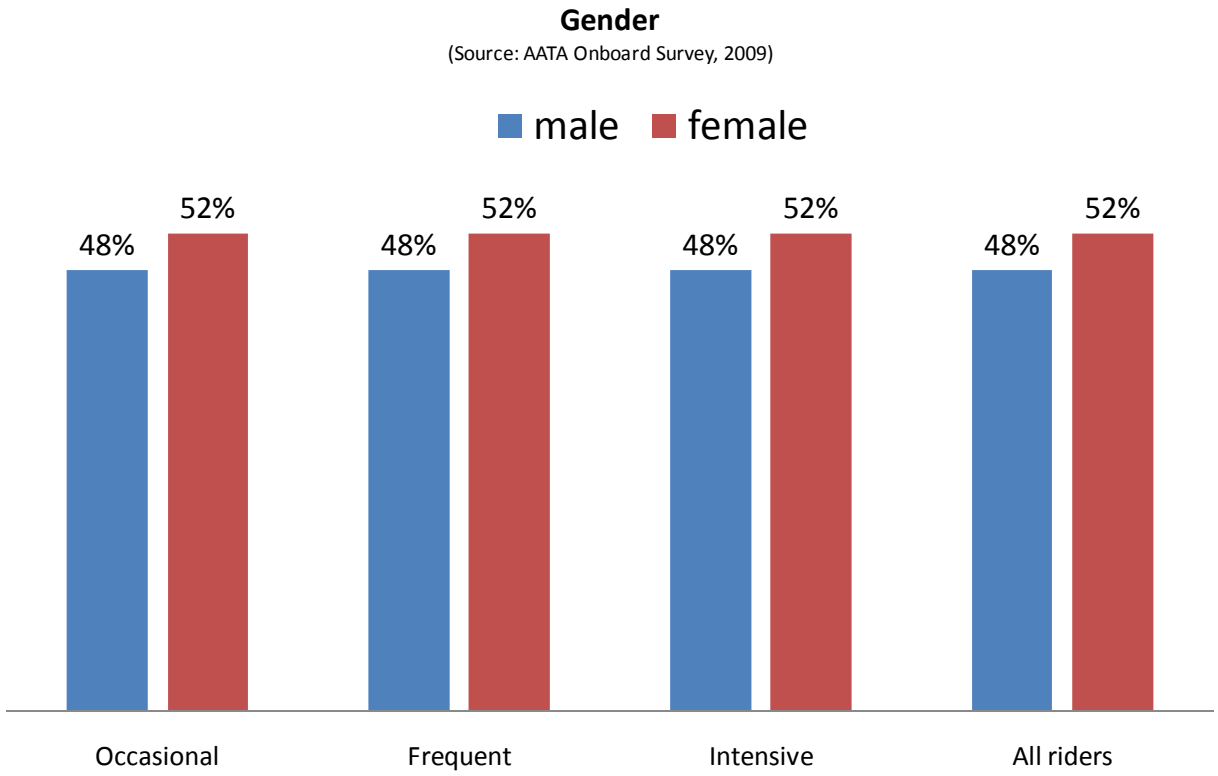
Figure 30 Thurston County, Washington State – Riders and general population

(Sources, Intercity Transit Customer Survey, 2008 and US Census, 2000)



The population of the Ann-Arbor and Ypsilanti areas is extraordinarily youthful. In most transit systems we observe an immense gap between the ages of the population and the ridership, with the ridership being far younger than the general public. In this case, the differences do exist in the usual direction, but they are far smaller than we usually observe. An example of a contrasting ridership is shown in the inset chart drawn from a 2008 CJI survey of bus riders in Olympia, Washington. The ridership is similar in the age distribution, but the population is much more evenly distributed across the age continuum.

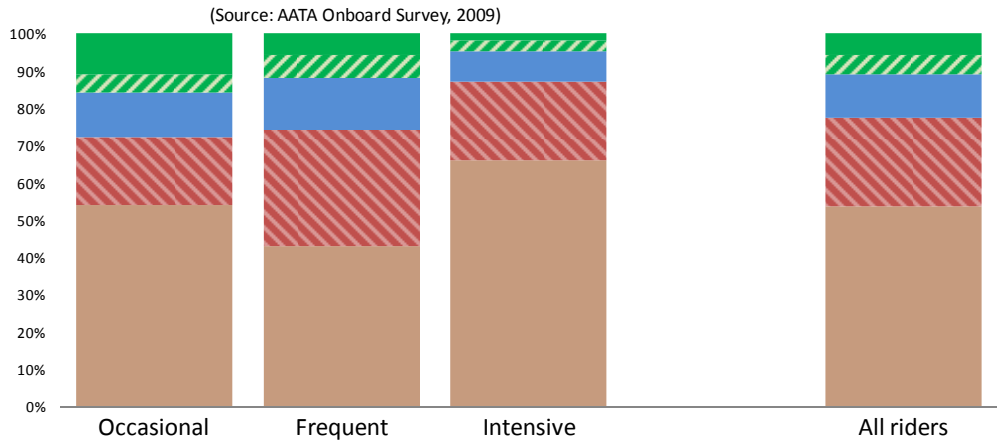
Figure 31 Gender



Gender of riders

The gender distribution of riders in general and of each rider segment mimics the total population, with 52% female and 48% male. In 2006, the distribution was essentially the same, with 53% female, 57% male.

Figure 32 Income



	Occasional	Frequent	Intensive	All riders
$100,000 or more	11%	6%	2%	6%
$75K to less than $100K	5%	6%	3%	5%
$50K to less than $75K	12%	14%	8%	12%
$25K to less than $50K	18%	31%	21%	24%
Less than $25K	54%	43%	66%	54%

Income of rider households

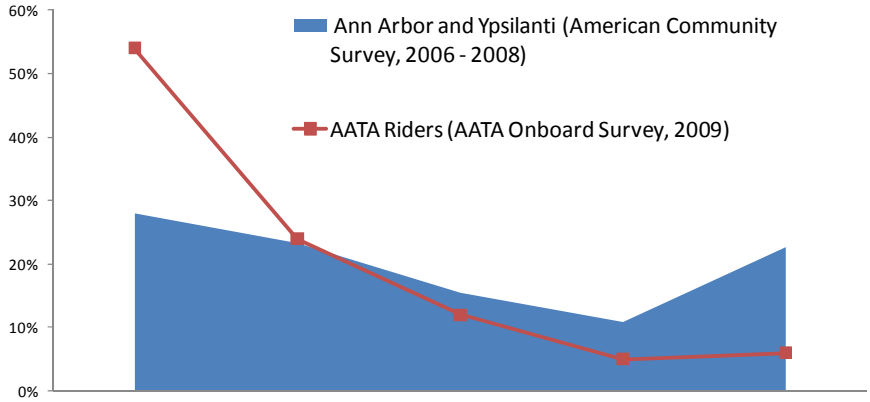
More than half of all AATA riders (54%) report household incomes of less than $25,000 annually. As is true of virtually all transit systems in the United States, the incomes of most frequent riders ("Intensive") are more likely to be lower than those of the less frequent riders. For example, 66% of the households in the intensive rider category report income of less than $25,000 annually, but "only" 43% of the frequent riders report incomes this low.

In 2009, the response categories for household income were changed from the 2006 survey categories to make them closely reflect the categories used by the Census in its reports. This has advantages, but limits our ability to compare to the 2006 data. However, some income categories are comparable. In 2006, 7% reported household incomes of $75,000 or more. By 2009, this had increased to 11%. This is fairly typical of what we are finding nationwide, as middle and upper middle level income earners turn to transit more frequently due to a combination of economic uncertainty, higher fuel prices, and environmental concerns.

Figure 33 Contrast - general public income (ACS results) and AATA riders

Comparing income of the general public with income of rider households

(Sources: American Community Survey and AATA Onboard Survey, 2009)



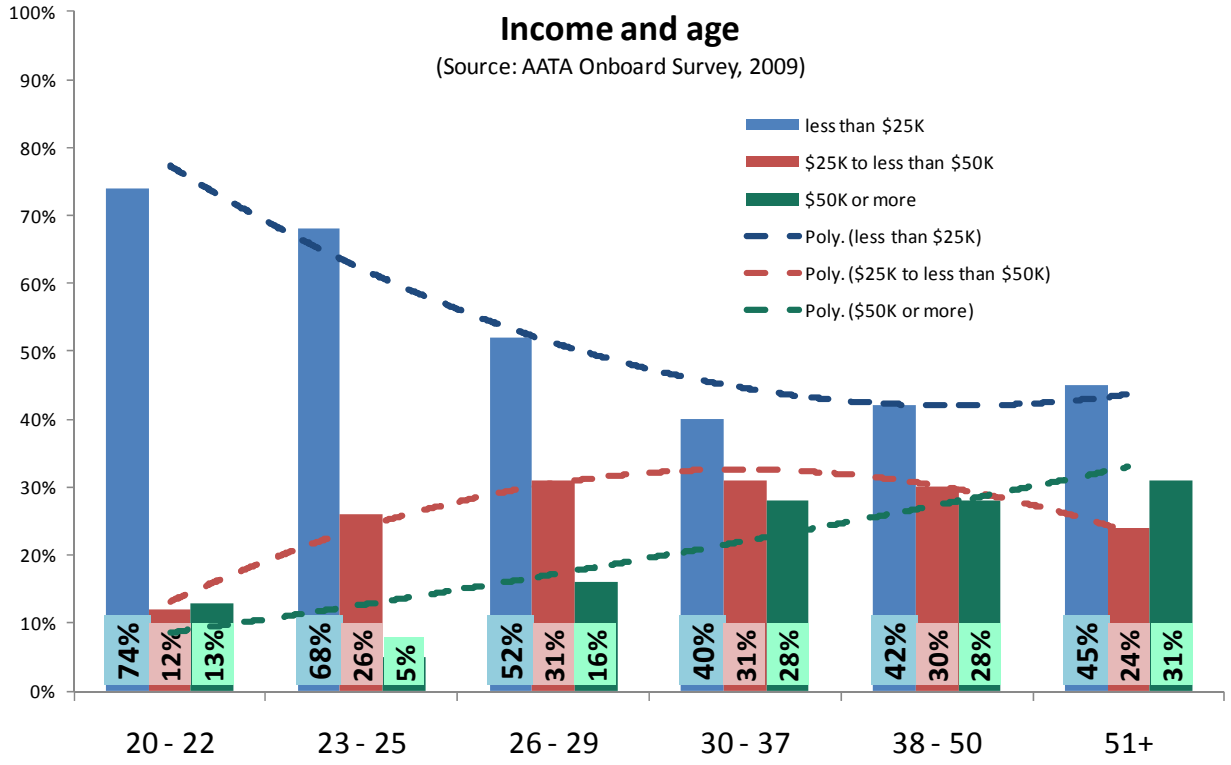
	Less than $25,000	$25k - $49,999	$50k - $74,999	$75k - $99,999	$100k or more
Ann Arbor and Ypsilanti (American Community Survey, 2006 - 2008)	28%	23%	15%	11%	23%
AATA Riders (AATA Onboard Survey, 2009)	54%	24%	12%	5%	6%

Comparing the incomes of households in Ann Arbor and Ypsilanti with those of AATA riders

The Census Bureau conducts an ongoing survey between the decennial census periods. It is called the *American Community Survey.* Household income data have been drawn from that survey and compared in the chart above to the income distribution among AATA rider households from the AATA 2009 Onboard Survey.

The contrasting income levels of rider households and all households in the primary cities served by AATA is made clear in the chart above. Compared to all households in the two cities, riders are almost two times more likely (54% to 28%) to fall into the lowest income category (<$25,000), and are roughly one-fourth as likely (6% to 23%) to fall into the highest income category.

Figure 34 Relationship between household income and rider age



Relationship between household income and rider age

Income tends to be age-related. Income tends to rise with age until retirement. The youth of the ridership is, therefore, reflected in the income levels of rider households. The chart above shows how household income varies with rider age. It shows this both in the income bars for each age grouping, but also in the "trendlines" that show the statistical relationship (polynomial regression line) between age and income. Notice the bars and line depicting the highest income level shown here ($50,000 or more). The tendency is for income to rise with age.

For the middle income and lower income sets, the relationship is more complex. Middle income rises through the age of 50, then declines as more incomes rise to above $50,000, and some decline below $25,000. The lowest income levels are found among the youngest riders, and the percent of riders in that low income category declines with age through the age of 37, at which point the percent in that low income category again begins to rise.

The low income percentage is highest among riders 51 years old or older, probably because of the increased proportion of retired persons. In addition, we suspect that, given the rapid turnover of ridership, the dynamic that is occurring is that riders who cease riding are financially more successful and cease using transit.

Customer satisfaction

Figure 35 How source-satisfaction questions were asked

How satisfied or dissatisfied are you with each way of obtaining information on AATA routes & schedules?	Did not use	Dissatisfied ☹			Neutral 😐			Satisfied ☺	Past 30 days – any problem getting info this way?	
a. Schedule book (Ride Guide)	¨	1	2	3	4	5	6	7	Y	N
b. Schedules at bus stops	¨	1	2	3	4	5	6	7	Y	N
c. Customer service line (996-0400)	¨	1	2	3	4	5	6	7	Y	N
d. Website ("www.theride.org")	¨	1	2	3	4	5	6	7	Y	N
e. RideTrak (track bus on cellphone)	¨	1	2	3	4	5	6	7	Y	N
f. Customer information specialists at transit centers	¨	1	2	3	4	5	6	7	Y	N

Satisfaction items in the onboard questionnaire

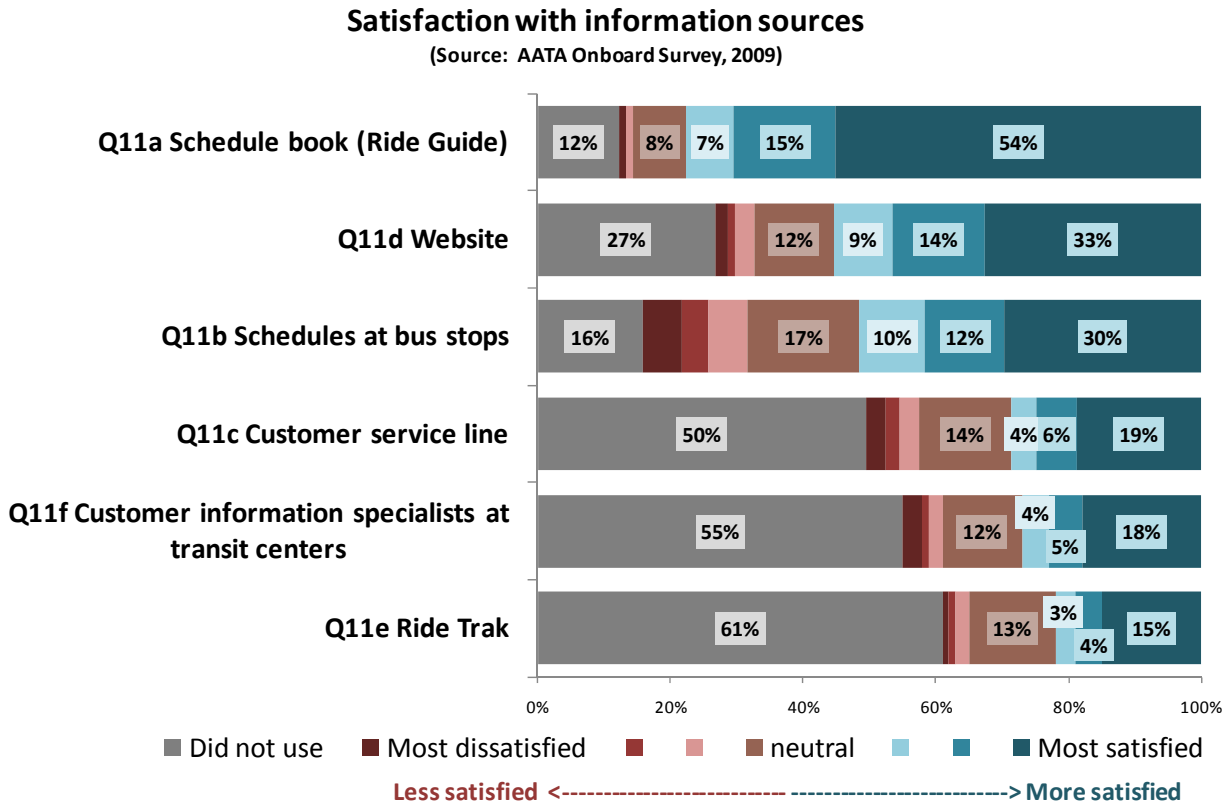
Before we describe the results of the customer satisfaction measurements in the survey, it is important to discuss the elements involved. This excerpt from the survey questionnaire in the figure above applies to two different sections of the survey: (1) satisfaction with sources of information about services provided by AATA, and (2) satisfaction with AATA services themselves.

The questionnaire measures satisfaction in two ways:

(1) Using a scale from 1 to 7. The results of these ratings are presented in full detail for the entire sample of riders. They are also broken down into the rider market segments, but only the top percent (ie those ratings on "7" on the 7-point scale) is presented for simplicity of comparison.
(2) Asking if the rider had experienced a problem in the past thirty days. The time limit is used to reduce the tendency for riders to nurse old grudges and respond while thinking of problems that occurred a long while ago. The intent is also to provide a basis to measure progress in the future. The results are presented for all riders and for the rider market segments.

The two measurements are then combined into *Impact Scores.* These measure the *impact* of problems with information or service. Some problems experienced by riders may have a greater impact on their overall satisfaction than others. This method is described more fully in the text surrounding the impact score tables.

Figure 36 Satisfaction with information services



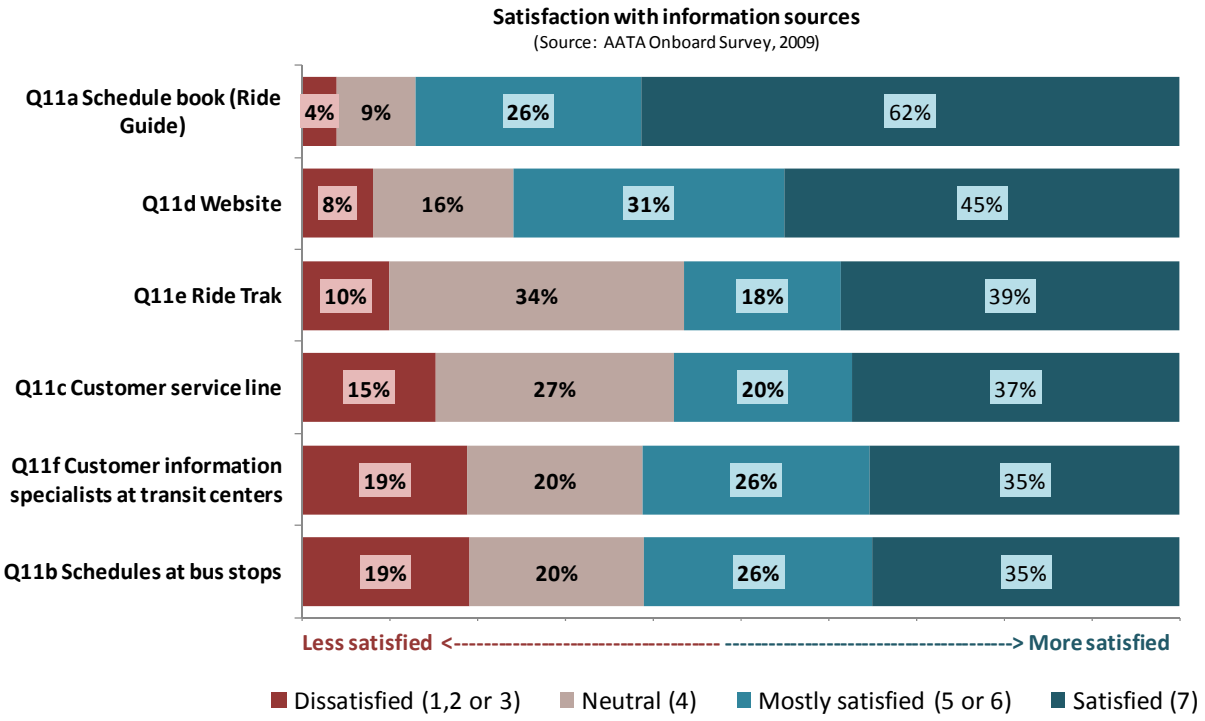
Satisfaction with information services

Riders were asked to rate their level of satisfaction with the sources of information about AATA services. Ratings were based on a numeric scale ranging from 1 through 7 unless the rider indicated that he or she had not used the specific source.

The most *utilized* source is the schedule book, the second most are schedules at the bus stops, and the third is the website. These are also the three with the highest percentages expressing satisfaction.

Only half or fewer of the riders have used the services of the customer service line, or the information specialists at the transit centers, or Ride Trak. Those who have used it tend to respond positively or to be neutral on the service.

Figure 37 Satisfaction with information services among those who have used them



Satisfaction with information source among those who have used each source

By dropping from the percentages those who have not used each information source, we can better compare satisfaction among actual users. The chart above provides those adjusted percentages. In this chart we have further simplified the results by combining categories as shown in the legend below the chart.

The Ride Guide is well regarded, receiving scores of 7 from 62%, and mostly satisfied scores from another 26%. The website, too, is positively regarded, with 45% of users rating it 7 on the 7 point scale, and 31% rating it lower, but still positively. Only 8% were not satisfied with it.

The other scores varied within a range of only 4% (from 35% to 39%) in the percent "satisfied." However, they varied substantially within the negative scores. Only 10% expressed a negative view of Ride Trak, but 19% were dissatisfied with schedules at the bus stops and with customer information specialists at the transit centers. Fifteen percent (15%) expressed dissatisfaction with the customer service line.

Figure 38 Satisfaction with and utilization of information sources, 2006 and 2009

Satisfaction with AATA information sources - 2006 - 2009

	Q11a Schedule book (Ride Guide)		Q11b Schedules at bus stops		Q11c Customer service line		Q11d Website	
	- 2009 -	- 2006 -	- 2009 -	- 2006 -	- 2009 -	- 2006 -	- 2009 -	- 2006 -
1-dissatisfied	1%	1%	7%	5%	6%	8%	3%	3%
2	0%	1%	5%	6%	4%	5%	1%	2%
3	1%	2%	7%	9%	6%	7%	4%	6%
4-neutral	9%	9%	20%	20%	27%	22%	16%	15%
5	8%	8%	12%	12%	8%	8%	12%	12%
6	17%	14%	14%	11%	12%	15%	19%	19%
7-satisfied	63%	65%	35%	37%	37%	36%	45%	43%
	100%	100%	100%	100%	100%	100%	100%	100%
never used	14%	6%	15%	9%	49%	45%	26%	30%

Change and consistency in utilization of and satisfaction with information sources

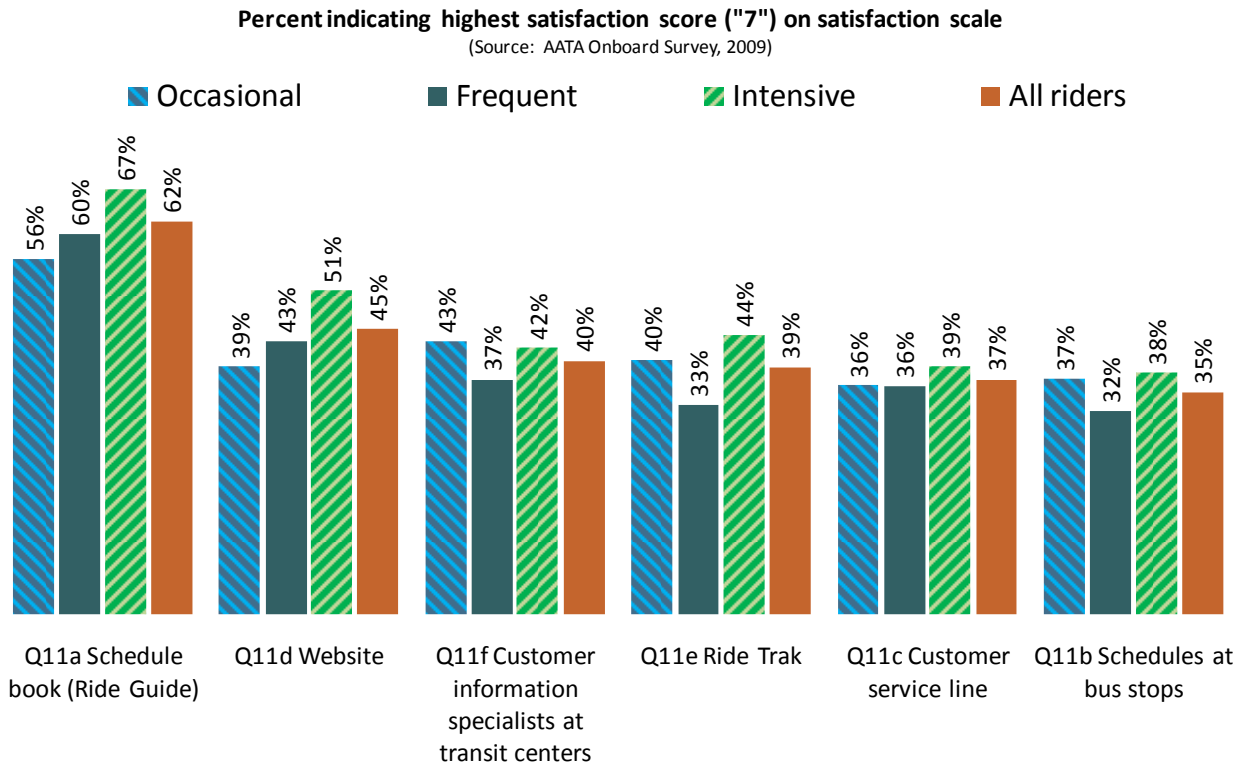
Four satisfaction items in the 2009 survey having to do with sources of information are comparable to items in the 2006 survey. The table displays two types of information. At the bottom of the table is shown the percent who said they have not used each source. Above that score are the ratings provided by those who said they have used these sources.

The non-utilization levels changed slightly since 2006, but not radically. We had expected to find a trade-off between print and electronic sources, with fewer using the Ride Guide and more using the website in 2009 compared to 2006. However, though 8% fewer in 2009 than in 2006 said they had used the Ride Guide, 4% fewer also said they had used the website.

The changes are probably due as much to the different time of year of the survey, the more extensive sampling in 2009, and perhaps to the inclusion of the thirty-day "problem report" feature in the questioning in 2009. (See Figure 35 How source-satisfaction questions were asked.)

The ratings themselves remained quite consistent. There are differences of only one or two percent in the top scores ("Satisfied") and there are no major changes in the percent expressing dissatisfaction.

Figure 39 Rider segments and satisfaction with information (top percent)



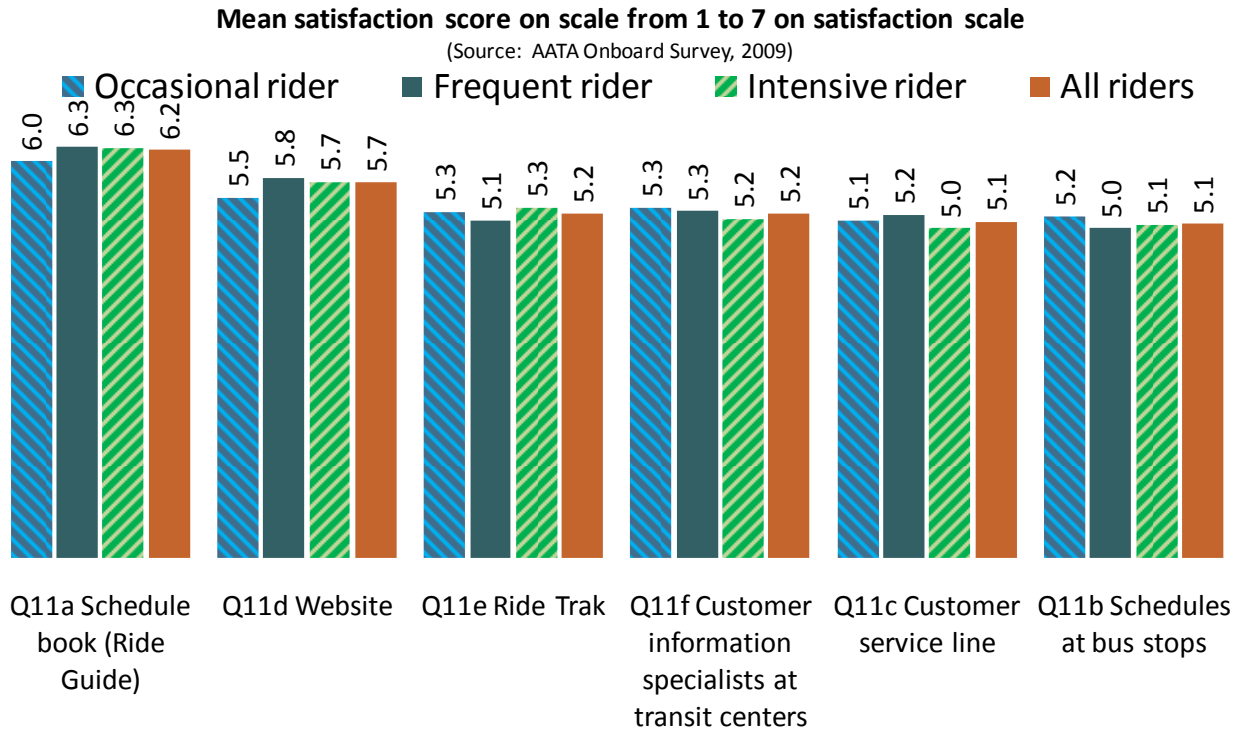
Rider segments and satisfaction with information

When we compare the three rider segments in terms of their levels of satisfaction with the six sources of information (users only), we find that the intensive riders are more likely than the other segments to express high satisfaction with all of the sources.

The occasional and frequent riders are similar in terms of their satisfaction scores. However, the frequent riders are somewhat more likely to score the Ride Guide and the website at the top end of the satisfaction scale than are the occasional riders. However, they are somewhat less likely than the occasional or intensive riders to score customer information services at the transit centers, Ride Trak, and schedules at the bus stops as leaving them "satisfied." It is not uncommon to find that frequent riders are more critical of various aspects of service. The reason appears to be that they are more likely than other riders to use transit for work or school trips – trips that are exacting in terms of timing – and thus they seem consistently to be more critical[3].

[3] It is for this reason that when a transit system wins new riders making work trips that satisfaction scores sometimes decline in spite of objectively measurable service improvements such as longer hours, more frequent service, expansion of the service area, etc. Ratings vary, in other words, not only with service improvement or decline, but with the trip purposes and mindset of the customer.

Figure 40 Rider segments and satisfaction with information (mean score)



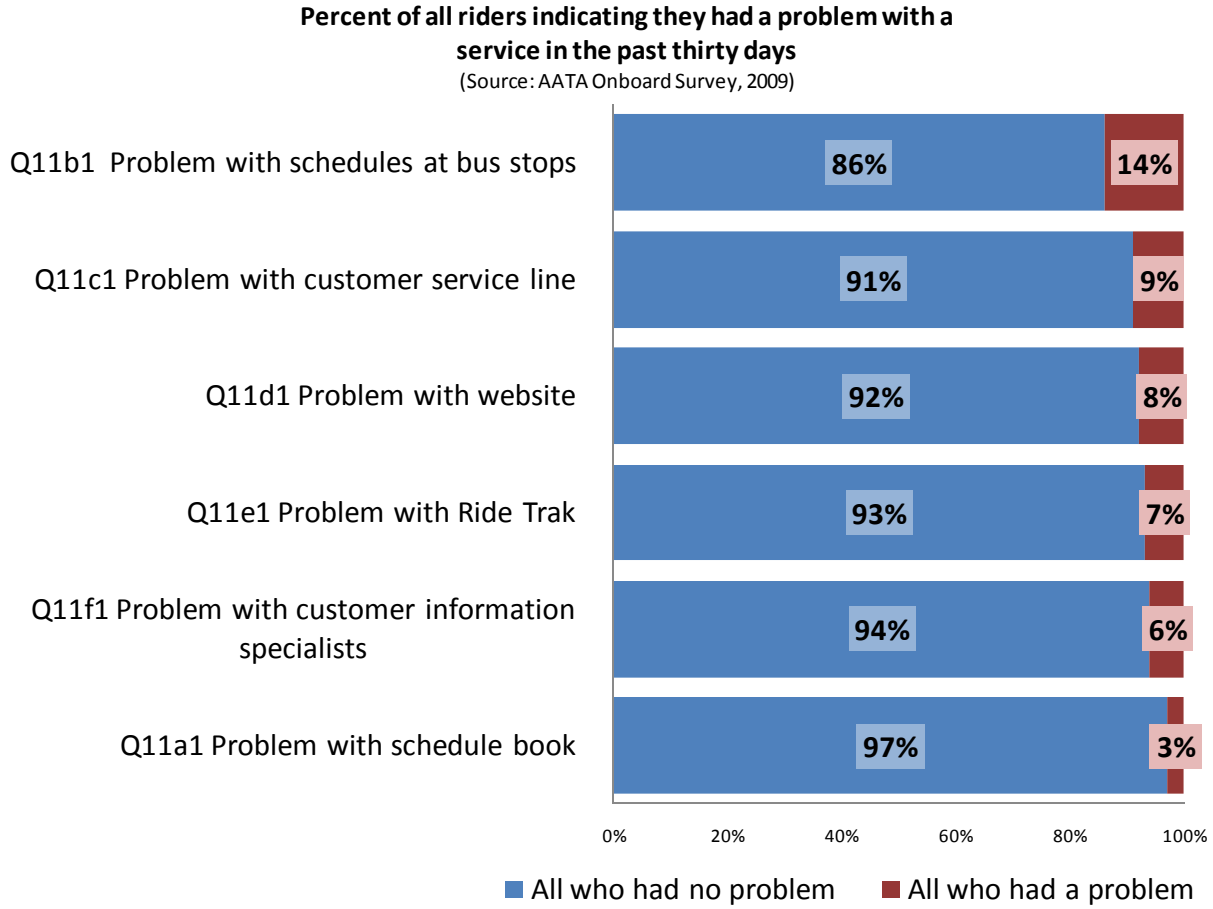
Rider segments and satisfaction with information (mean score)

Figure 40 presents the same data as the previous chart but using a different statistic, in this case the mean (simple average) score. As with the percentage chart, we have excluded respondents who indicated they had not used the information source.

The chart adds little to the analysis, but it is useful; simply to confirm that the mean, which encompasses all scores, not just the top score, garners the same results as the percentage approach. This is important because the top percent could "hide" some very low scores. This would be revealed by the means.

In fact the rank order of the scores is essentially the same with one minor exception (Ride Trak and transit center personnel switch places, but on differences so marginal that they are negligible).

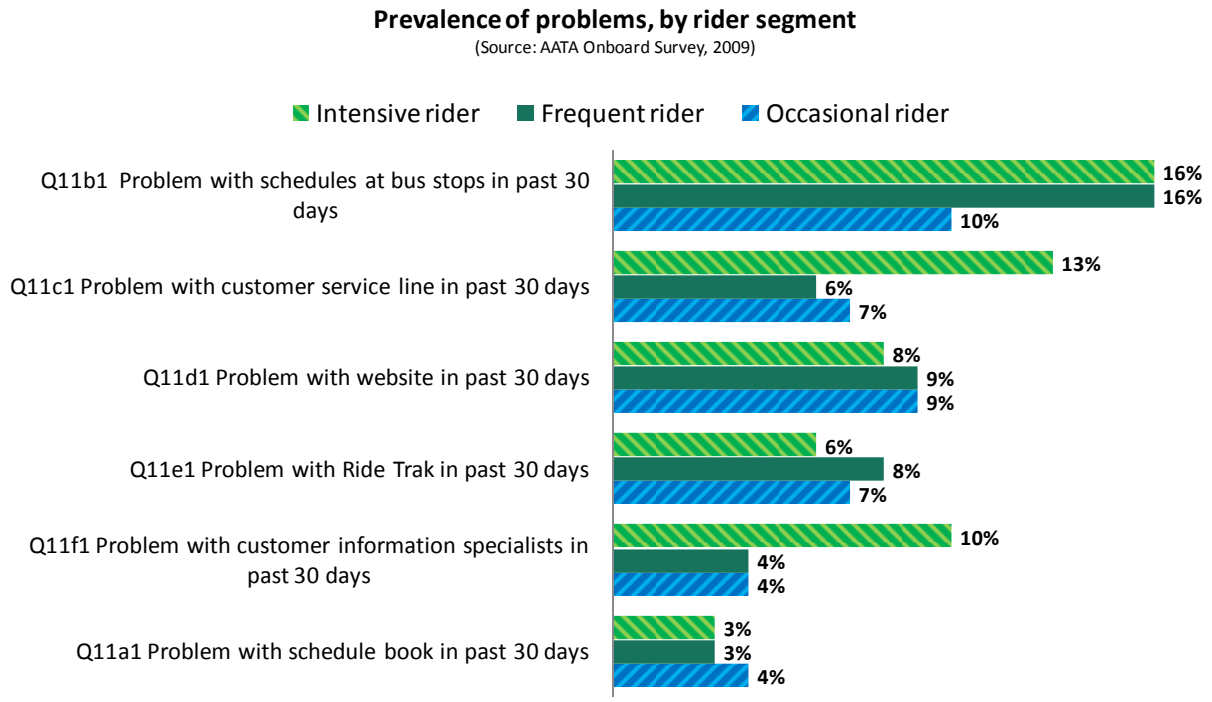
Figure 41 Reports of problems with information services



Reports of problems with information services

Respondents were asked not only to rate the various information services, but also to note whether they had had any problem with them in the past thirty days. More than 90% indicated for each source that they encountered no problem. More riders (14%) reported encountering a problem of some sort with schedules posted (or not posted) at bus stops than cited any other problem. Information at the stops is a significant information challenge which eventually Ride Trak should go far to overcome. Although 19% had given low satisfaction scores to customer information personnel at transit centers, only 6% said they had encountered a problem in the past thirty days. The contrasting percentages suggest that when a problem is perceived, it is remembered.

Figure 42 Reports of information problems, by rider segment



Reports of problems, by rider segment

Intensive users of transit were roughly twice as likely as others to report having had problems with either the customer service line or with customer information specialists at the transit centers. On the one hand this is not surprising since they travel more often by bus, making more trips per day on more days per week than others, with the resulting opportunity for things to go wrong more often. Moreover, many of them presumably use AATA for many purposes, thus necessitating the use of various information sources.

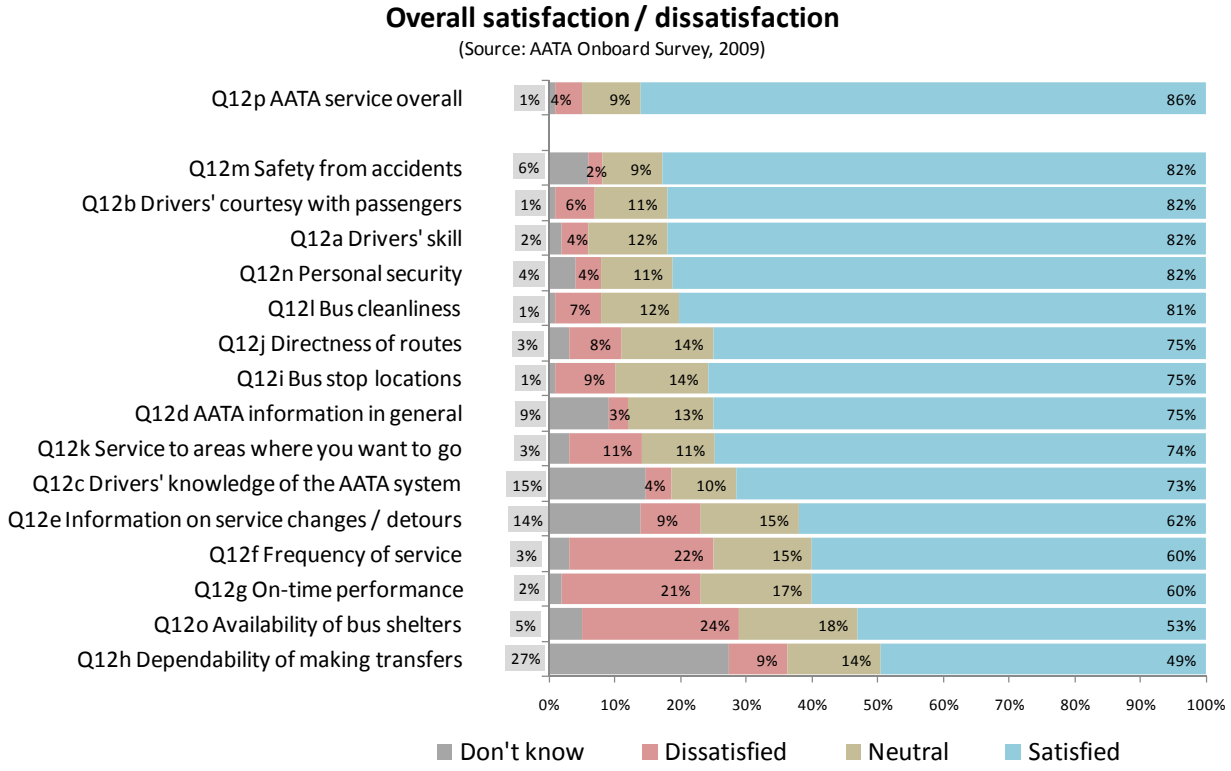
Figure 43 Percent of rider segments using information sources

	Percent using each source		
	Occasional	Frequent	Intensive
Q11a Schedule book (Ride Guide)	83%	86%	93%
Q11b Schedules at bus stops	78%	81%	90%
Q11c Customer service line	45%	44%	59%
Q11d Website	70%	77%	70%
Q11e Ride Trak	35%	37%	44%
Q11f Customer information specialists at transit centers	38%	38%	54%

However, even with those caveats, the responses of the intensive riders on two items seem a bit odd. It is a bit curious that they complain of problems with the customer information personnel at twice the rate of other riders. They are more likely to have used their services, but not at twice the level. Why would they be twice as likely as other riders to find fault with it? Is there some tendency to ask about or for more than other riders because of their relatively high level of transit dependence? Unfortunately, the data do not reveal this.

Satisfaction with Service

Figure 44 Service satisfaction - overview



Service satisfaction – overview

Riders were asked to rate their satisfaction with services in the same way they rated satisfaction with information sources. Figure 44 above combines all satisfied responses (scores 5,6,7) and dissatisfied responses (scores 1,2,3). Neutral scores (4 on the scale from 1 – 7) are also shown. The percent who were not sure how to respond, presumably because they lacked experience, are also shown because the percentages vary widely. This needs to be understood to keep results in perspective.

Three items had high "don't know" percentages. They include two aspects of information: drivers' knowledge of the AATA system (15%), and information on service changes/detours (14%). In addition, the transfer item (dependability of making transfers) had the highest "don't know" response (27%). It is because of this high "don't know" response that transferring is at the bottom of the list as rank ordered by the percent positive response in Figure 44.

Other than the item on transfers, the rank order of the service satisfaction findings is fairly typical of customer service ratings in other all-bus transit systems CJI has studied. The highest satisfaction ratings often tend to go to transit operators, information sources, and vehicle cleanliness. While this is not always true, there is a tendency for these "soft" factors to rate higher than the more difficult aspects of service such as on-time performance and the related issue of dependability of making transfers. A lack of bus shelters is also a perennial challenge to customer satisfaction scores.

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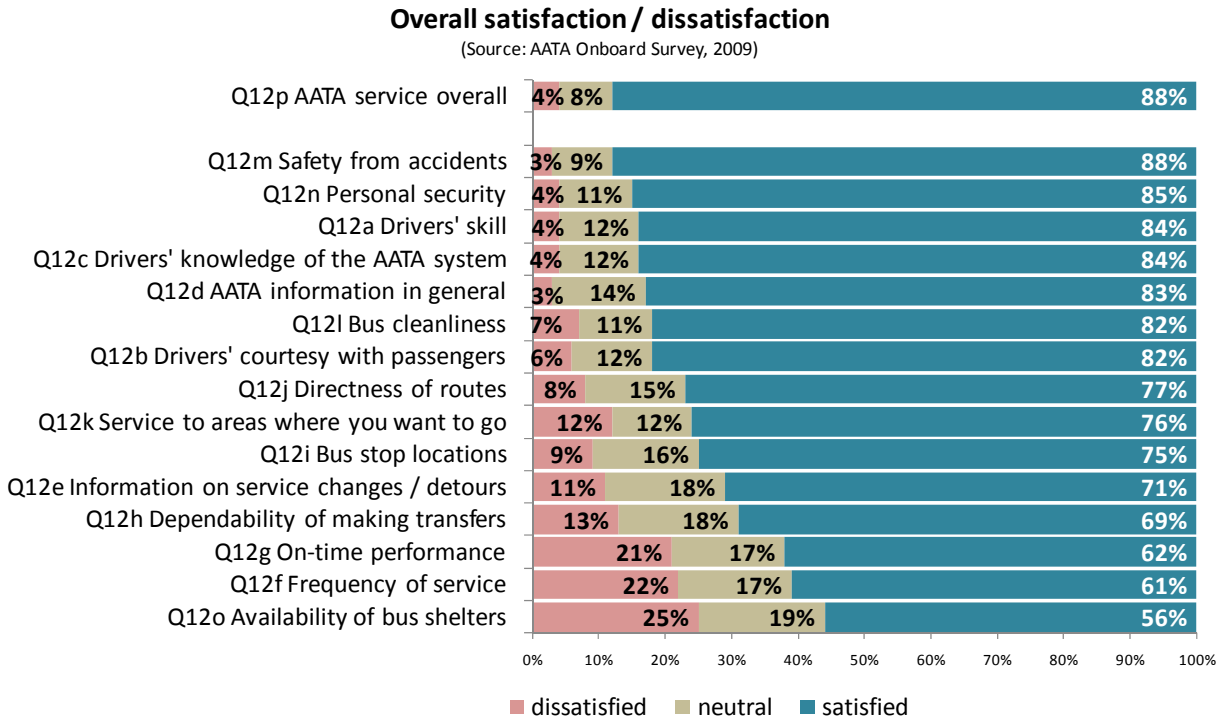
Figure 45 Satisfaction or dissatisfaction with service among those able to offer a rating



Satisfaction or dissatisfaction with service among those able to offer a rating

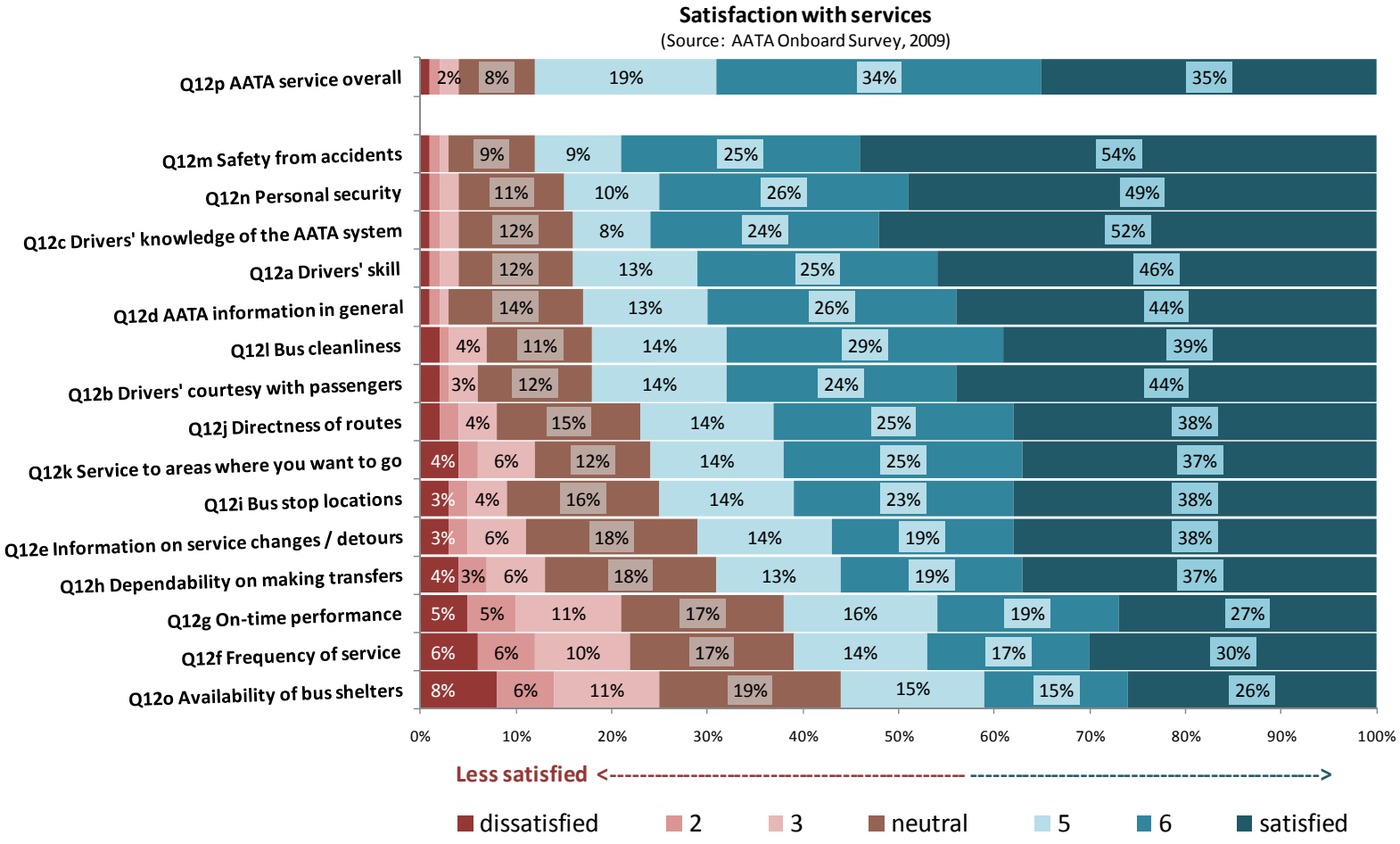
In Figure 45 only those able to provide a rating are considered. "Don't know" responses are excluded. With this recomputation of the percentages, we find that the general order of satisfaction levels remains very similar to what was shown in the previous chart. However, there are some differences.

First, when only those able to answer the question through experience are included all satisfaction ratings stand at 56% positive or higher, even for the items at the bottom of the list because of their *relatively* poorer scores. Also:

- Drivers' knowledge of the system, which had a 73% level of satisfaction jumps to 84%.
- AATA information in general, which stood at 75%, moves up to 83%.
- Dependability of transferring moves from 49% satisfaction among all riders to 69% approval among those with transfer experience that enables them to rate the process.

However, the general satisfaction profile remains very similar, with safety, security, driver skills and knowledge nearer the top and shelters, service frequency, on-time performance, and transfers at or near the bottom.

Figure 46 Service satisfaction in detail



Service satisfaction in detail

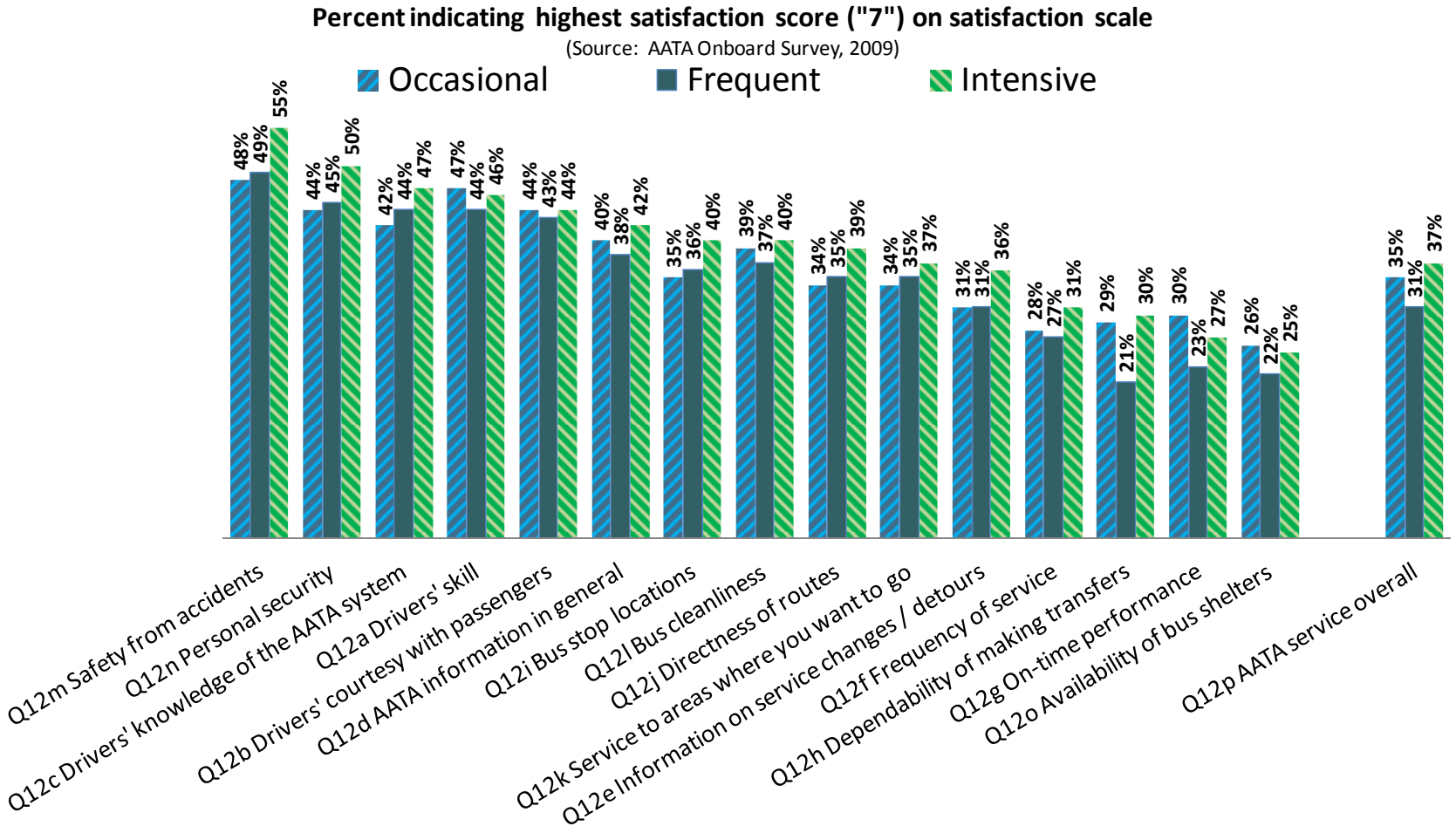
Figure 46 presents a more detailed overview of the satisfaction scores. The ratings are displayed in descending order of the percent giving positive scores of 5, 6, or 7, but now the *levels* of satisfaction and dissatisfaction are broken out. In this chart those who

indicated they were unsure how to answer are again omitted.

In all cases, the positive scores greatly outnumber the negatives. The tendency is for the rider to score services either 6 or 7 on the satisfaction scale for most aspects of service. As is true of most all-bus systems, however, availability of shelter, frequency of service, and on-time performance are at the low end of satisfaction. Dependability of transferring is closely related to all three of these, and is also in the bottom four.

Overall, all of these ratings are within a range that we would expect.

Figure 47 Top satisfaction scores of the rider segments



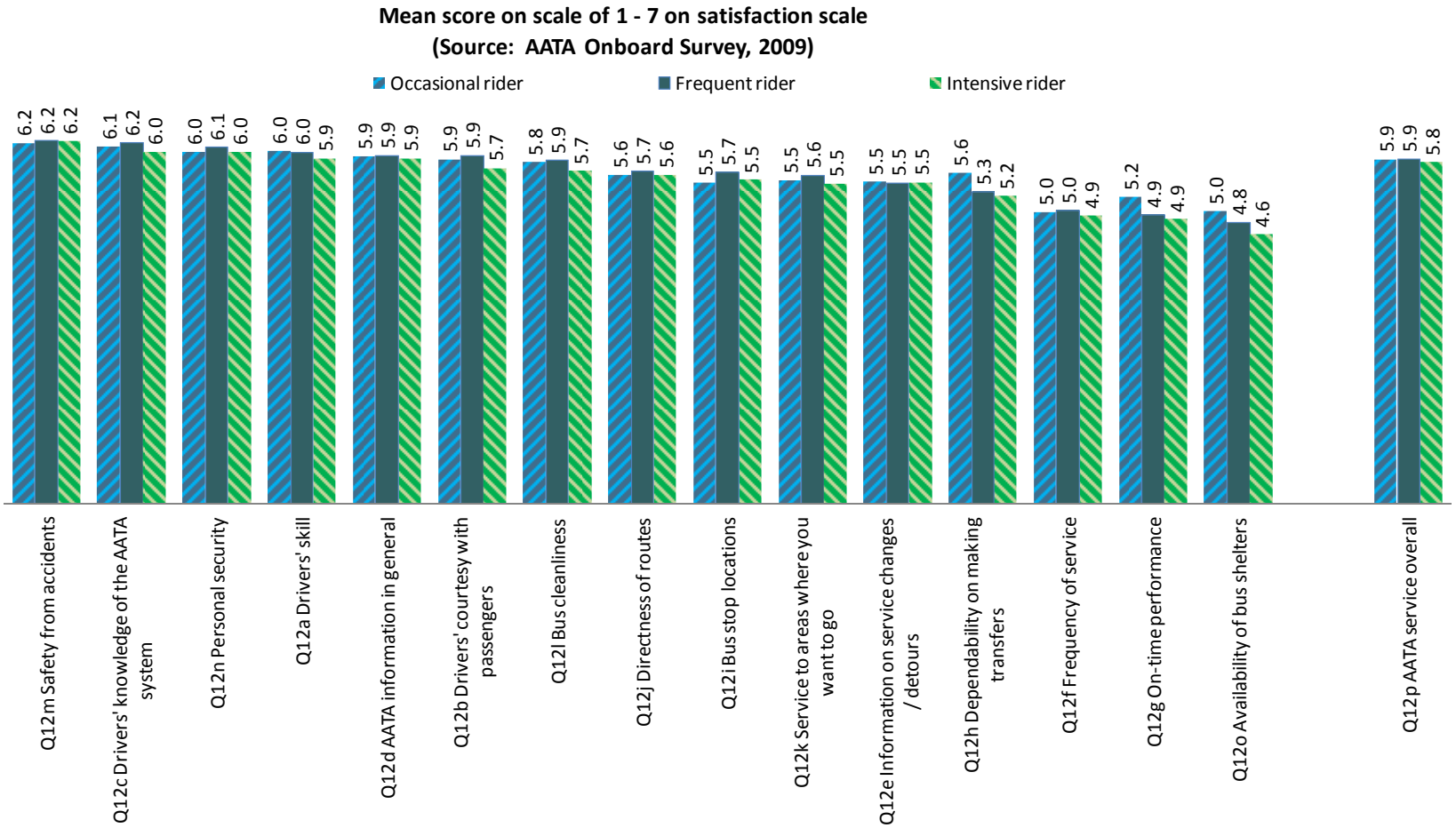
Top satisfaction scores of the rider segments

As with the satisfaction scores for information sources, we find that the intensive riders tend to score most aspects of AATA service slightly better than the other segments. This is especially true relative to the frequent riders. Frequent riders, who, as we have

argued, are primarily workers or students (or both), tend to be more critical of service quality than are the occasional or even the intensive riders. The former tend not to have urgent needs to travel, and the latter most often have no alternative to using AATA. The items on which frequent riders are least likely to express satisfaction (all below 25% satisfied) are dependability of making transfers, on-time performance, and availability of bus shelters. These are the lowest scores for the other segments as well, but the frequent riders are especially critical of these aspects of service.

On the following page, Figure 48 displays the same data, but using mean scores rather than top percentages. Notice that the results are very similar in terms of the rank order of the ratings. For instance, the top four on the percentage chart are the same as the top four on the means table, with a minor difference in order. The same is true of the bottom four items. The difference is that in the top percentage table we can see some differences among the rider segments which tend to "wash out" in the table of means.

Figure 48 Mean satisfaction scores of the rider segments



Mean satisfaction scores of the rider segments

Figure 49 Comparing satisfaction scores, 2006 and 2009

Customer satisfaction, 2006 and 2009

All riders (excluding "don't know")	Mean on scale of 1 - 7 2009	2006	Change	Rank order 2009	2006
Q12m Safety from accidents	6.17	6.02	0.15	1	1
Q12c Drivers' knowledge of the AATA system	6.07	6.00	0.07	2	2
Q12n Personal security	6.02	5.92	0.10	3	3
Q12a Drivers' skill	5.96	5.83	0.13	4	5
Q12d AATA information in general	5.91	5.82	0.09	5	6
Q12p AATA service overall	5.85	5.84	0.01	6	4
Q12b Drivers' courtesy with passengers	5.84	5.73	0.11	7	8
Q12l Bus cleanliness	5.77	5.74	0.03	8	7
Q12i Bus stop locations	5.56	5.57	-0.01	9	9
Q12e Information on service changes / detours	5.48	5.54	-0.06	10	10
Q12h Dependability on making transfers	5.35	5.51	-0.16	11	11
Q12f Frequency of service	4.98	5.05	-0.07	13	13
Q12g On-time performance	4.97	5.19	-0.22	12	12
Q12o Availability of bus shelters	4.77	4.74	0.03	14	14
Q12j Directness of routes	5.64				
Q12k Service to areas where you want to go	5.53				
10-11. Design of routes		5.49			

Comparing satisfaction scores, 2006 and 2009 (mean scores)

Most of the satisfaction items asked in 2006 were asked again in 2009. The table above shows the scores in each year, the change that occurred, and the rank order of the item ranked by the mean.

Notice that the changes are minimal, with nine moving in a positive direction and five in a negative direction --- but all to only a minor degree. The rank order of the items changed very little also. In general, what was relatively less positive then is in the same position now with only minor changes in the middle rankings.

The score for on-time performance changed most, going from 5.19 to 4.97. Internal AATA records can verify whether this reflects a real system performance change or is a customer perception that has occurred independent of system performance.

Notably on the positive side, scores improved for several aspects of operator performance, including safety from accidents, drivers' knowledge of the system, divers' skill, and their courtesy with passengers.

On the following page these data are compared again, this time using percentages rather than mean scores. The conclusions are the same.

Figure 50 Comparing satisfaction ratings between 2006 and 2009

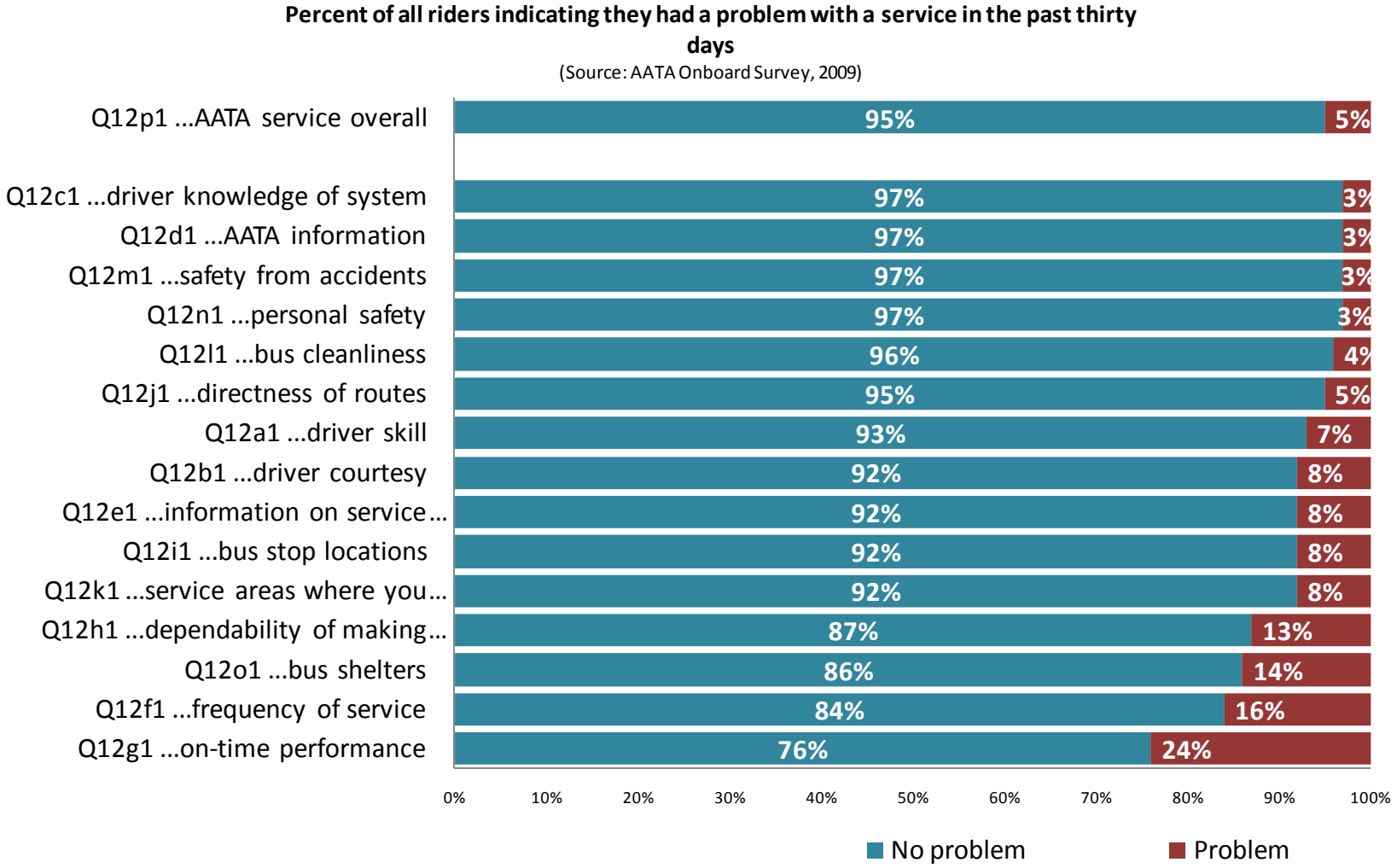
Satisfaction ratings, 2006 and 2009

	2009			2006			Change		
	dissatisfied	neutral	satisfied	dissatisfied	neutral	satisfied	dissatisfied	neutral	satisfied
Q12m Safety from accidents	3%	9%	88%	3%	13%	84%	0%	4%	4%
Q12n Personal security	4%	11%	85%	4%	12%	84%	0%	1%	1%
Q12a Drivers' skill	4%	12%	84%	4%	13%	82%	0%	1%	2%
Q12c Drivers' knowledge of the AATA system	4%	12%	84%	4%	11%	85%	0%	-1%	-1%
Q12d AATA information in general	3%	14%	83%	5%	14%	82%	2%	0%	1%
Q12b Drivers' courtesy with passengers	6%	12%	82%	7%	12%	81%	1%	0%	1%
Q12l Bus cleanliness	7%	11%	82%	6%	14%	81%	-1%	3%	1%
Q12i Bus stop locations	9%	16%	75%	10%	13%	77%	1%	-3%	-2%
Q12e Information on service changes / detours	11%	18%	71%	8%	18%	73%	-3%	0%	-2%
Q12h Dependability of making transfers	13%	18%	69%	11%	16%	73%	-2%	-2%	-4%
Q12g On-time performance	21%	17%	62%	18%	15%	67%	-3%	-2%	-5%
Q12f Frequency of service	22%	17%	61%	21%	15%	63%	-1%	-2%	-2%
Q12o Availability of bus shelters	25%	19%	56%	25%	21%	54%	0%	2%	2%
Q12p AATA service overall	4%	8%	88%	3%	9%	89%	-2%	1%	-1%

Comparing satisfaction ratings between 2006 and 2009 (percentages)

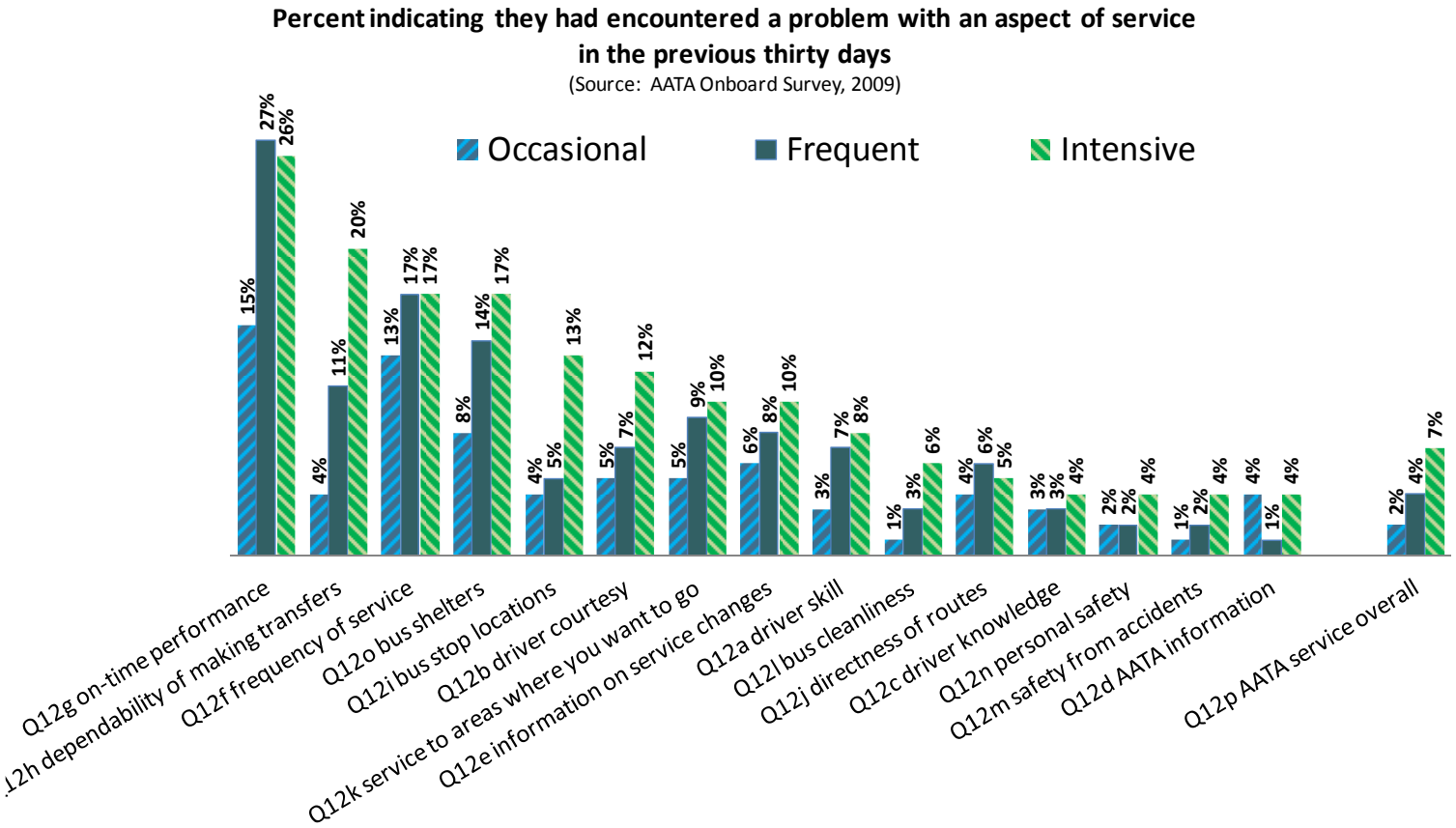
The changes in the ratings are minor. On the positive side, scores improved for several aspects of operator performance, including safety from accidents, drivers' knowledge of the system, divers' skill, and their courtesy with passengers.

Figure 51 Problem reports with service in past thirty days



For eleven of the fifteen aspects of service measured, more than 90% of riders reported having had no problems. Not surprisingly, problem reports reflect the satisfaction scores. The top four items in terms of problem frequency are the same: on-time performance (24%), frequency of service (16%), the availability of bus shelters, and dependability of making transfers.

Figure 52 Service problem reports, by rider segment



Service problem reports, by rider segment

As it is with many bus systems, on-time performance receives more problem mentions than any other aspect of service from all three rider segments but especially from frequent and intensive riders. In spite of the fact that they tend to give somewhat higher

satisfaction scores than the frequent riders, the intensive riders are more likely to report having encountered problems simply because of their more frequent use. For bus systems, problems with on-time performance are often at the top of the problem list simply because so many variables go into making a bus system run on schedule.

Impact of information and service problems

Figure 53 Impact scores for information services

Impact scores for customer satisfaction - Information only

	A	B	C	D	E
	Mean rating score by those reporting a problem	Mean of those reporting no problem	Gap score (B-A)	Percent observing a problem in the past 30 days	Impact score (C*D)
Q11b Schedules at bus stops	2.4	5.5	3.1	14%	.44
Q11c Customer service line	2.1	5.2	3.1	9%	.28
Q11d Website	3.4	5.8	2.4	8%	.19
Q11f Customer information specialists at transit centers	2.9	5.3	2.4	6%	.14
Q11e Ride Trak	3.4	5.1	1.7	7%	.12
Q11a Schedule book (Ride Guide)	4.6	6.3	1.7	3%	.05

Impact scores for information services

The concept of impact scores is based on the idea that subjective ratings of service should be a combination of ratings and the frequency of observed service problems[4]. The impact score is actually a modified form of *gap analysis.* It uses the gap between the scores of those who say they have experienced a problem and those who have not observed a problem to examine the *impact* of the observed problem on the rating score.

The table above displays the computation of these impact scores for the onboard survey of 2009. The key is to combine the ratings with the report of recent problems, then to compare the scores of those who have noticed a problem with the scores of those who have not. Computing the impact score involves taking the mean service rating score of those reporting a problem and those reporting no problem, and computing the gap between them. The gap is then multiplied times the percent who report they had experienced a problem in the past month. This results in an "impact score."

The key is this: When there is a large difference in the satisfaction scores of those encountering a problem and those not encountering a problem, this means that not only did the riders observe a problem, but it had a substantial negative impact on them. And if many riders experienced the problem, that magnifies its impact throughout the ridership.

To achieve a perfect or (more realistically) a near perfect score (a score at or near zero, which would mean that the factor had zero negative impact) the transit system would have to have almost no reported problems. It would also mean that all or almost all respondents scored the service as excellent on the rating scale.

Conversely, scoring at or near the worst possible score would require that all or almost all of those with a problem score the service "1" (the worst score on the scale of 1 - 7) and all or almost all of those with no problem score the service 7, and that all or almost all would report having had a problem. An unlikely situation at best.

[4] The concept is described in detail in *TCRP Report 47: A Handbook for Measuring Customer Satisfaction and Service Quality*.

Realistically, negative impact scores are normally very small decimal numbers less then one. Very negative scores are rare because most riders are relatively positive, and few report having encountered problems worth mentioning.

The table of impact scores is arranged in descending order of the impact score. A high numeric score is less desirable. Notice the following things in the table:

- The Ride Guide receives a satisfaction score of 4.6 from those reporting a problem with it and a score of 6.3 from those not reporting a problem, a difference of only 1.7 points on the satisfaction scale from 1 to 7[5]. A problem was experienced by only a small number of riders (3%) and thus the impact is quite minimal, meaning that AATA does not need to deal with any major customer-driven problem with respect to the Ride Guide.
- On the other hand, scores for information at the bus stops and the customer service line, while not even approaching 1, are the highest in this list. Each has a gap of 3.1 meaning that when there is a perceived deficiency it is quite annoying. A problem was encountered by 14% of riders in terms of information at the stops and by 9% on the customer service line.
- Among the information challenges AATA deals with, information at the bus stops and information through the customer service line, while adequate for most riders, are the elements most deserving of attention in the short run.

[5] Conceptually, when using a rating scale ranging from 1 to 7, the impact score computed from the scale could range from zero (perfect satisfaction with no negative impact) to six (perfect disaster – 100% ratings of 1 and 100% of riders reporting a problem (i.e., 7 minus 1), but realistically it rarely rises above 1 because problem reports tend to be few in number and satisfaction tend to be fairly high.

Figure 54 Impact scores for satisfaction with service

Impact scores for customer satisfaction - Services

	A Mean rating score by those reporting a problem	B Mean of those reporting no problem	C Gap score (B-A)	D Percent observing a problem in the past 30 days	E Impact score (C*D)
Q12g On-time performance	2.7	5.6	2.9	24%	.70
Q12f Frequency of service	2.3	5.5	3.2	16%	.52
Q12o Availability of bus shelters	2.1	5.1	3.1	14%	.43
Q12h Dependability of making transfers	2.7	5.6	2.9	13%	.38
Q12k Service to areas where you want to go	2.4	5.9	3.5	8%	.28
Q12e Information on service changes / detours	2.3	5.8	3.4	8%	.28
Q12i Bus stop locations	3.0	5.9	3.0	8%	.24
Q12b Drivers' courtesy with passengers	3.5	6.1	2.7	8%	.21
Q12j Directness of routes	2.7	5.9	3.2	5%	.16
Q12a Drivers' skill	4.0	6.2	2.2	7%	.15
Q12l Bus cleanliness	3.3	6.0	2.7	4%	.11
Q12n Personal security	3.5	6.2	2.7	3%	.08
Q12c Drivers' knowledge of the AATA system	3.5	6.2	2.7	3%	.08
Q12m Safety from accidents	3.8	6.3	2.5	3%	.08
Q12d AATA information in general	3.9	6.1	2.2	3%	.07
Q12p AATA service overall	4.5	6.1	1.7	5%	.08

Impact scores for satisfaction with service

The bottom five services in terms of having the *lowest* percentages rating them seven on the scale from one through seven were, in order:

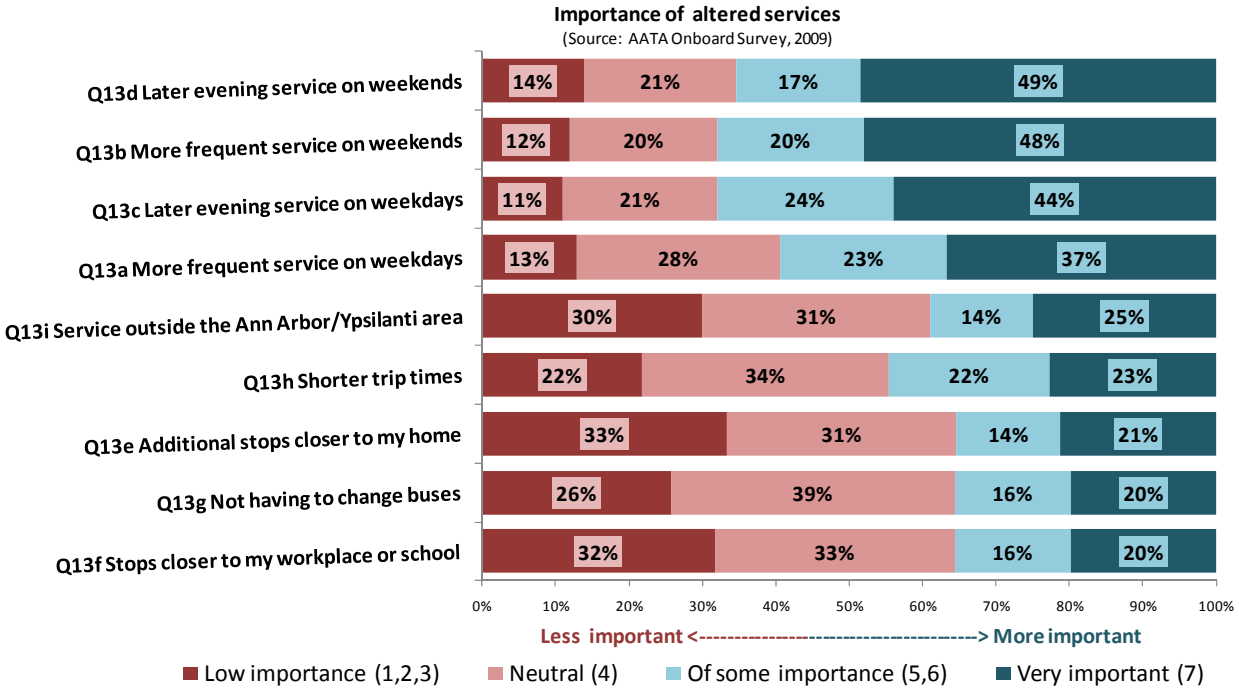
1. Q12o Availability of bus shelters
2. Q12g On-time performance
3. Q12h Dependability of making transfers
4. Q12f Frequency of service
5. Q12e Information on service changes / detours

However, when impact scores are applied, we find a difference. Now we find a substantially different rank ordering and is the priority list that should be followed:

1. Q12g On-time performance
2. Q12f Frequency of service
3. Q12o Availability of bus shelters
4. Q12h Dependability of making transfers
5. Q12k Service to areas where you want to go

Importance of service improvements

Figure 55 Perceived importance of service improvements



Perceived importance of service improvements

Besides being asked to rate services as they are, respondents were also asked to rate the importance of selected (and presumably feasible) service improvements. As is often found in such studies what appeals to riders most is extension of existing service, during nonpeak periods including weekends and evenings. Thus, the top three in terms of their importance ratings are:

1. later service on weekends (49% "very important")
2. more frequent service on weekends (48% "very important")
3. later evening service on week days (44% "very important")

There is some evidence in other studies that extending service of this type may result in better rates of rider retention because of the fact that so many riders are dependent on transit and so many riders must work during evening hours and on weekends in service jobs. Limited transportation means that they have difficulty finding a means of getting to work and particularly home from work in the evening. It may also mean that they cannot take a job that they would like to have and may need. Unfortunately, although such service may enhance rider retention, it will never carry the level of ridership routes carry at peak and may not be able to be cost justified on a short-term fare box return basis.

The fact that three off-peak services mentioned rise to the top in importance does not mean that the others are unimportant. There is also substantial interest in more frequent service on week days (37% rate very important), service outside the Ann Arbor and Ypsilanti areas (25%) and more generic services including shorter trip times (23%), additional bus stops closer to riders' homes (21%), not having to change buses (20%), and stops closer to riders' workplaces and schools (20%).

Figure 56 Relationship of off-peak work hours to perceived importance of additional off-peak services

Percent who consider off-peak service extensions as "Very important"

	Q28a Do you work Saturday and/or Sunday?	
	Yes	No
Q13b More frequent service on weekends	63%	25%
Q13d Later evening service on weekends	63%	26%

	Q28b Do you work after 9:00 p.m. on any day?	
	Yes	No
Q13c Later evening service on weekdays	59%	28%
Q13d Later evening service on weekends	64%	31%

Off-peak work hours and perceived importance of additional off-peak services

It is clear from the table above that having to work weekends and/or evenings is closely related to the priority that riders assign to extension of weekend and evening hours. For example, of those who must work Saturday and/or Sunday 63% rate having more frequent service on weekends is very important. Similarly 63% rate later evening service on weekends as very important. However, the comparable percentages for those who do not work weekends are only 25% and 26%, respectively.

Of those who say they must work after 9 PM on any day of the week (which could include either weekday or weekend), 59% consider having later service on weekends a very important priority, but only 28% of those who do not work after 9 PM consider it a priority. Similarly, 64% of those who must work after 9 PM say that later evening service on the weekends is very important to them in contrast to the only 31% of those who do not work after 9 PM.

Figure 57 How need for off-peak transportation for work affects desire to limit use of AATA

Occupational need for transportation during off-peak hours and expectation that riders may limit their use of AATA when they have the opportunity to do so

	Q28a Do you work Saturday and/or Sunday?		Q28b Do you work after 9:00 p.m. on any day?	
	Yes	No	Yes	No
Q18 A year from now, so you expect to . . .				
Keep using AATA	55%	72%	54%	69%
Get a car but also keep using AATA	31%	15%	32%	18%
Get a car and stop using AATA	6%	4%	6%	5%
Move away from this area	6%	6%	7%	6%
Stop using AATA for other reason	1%	3%	1%	3%

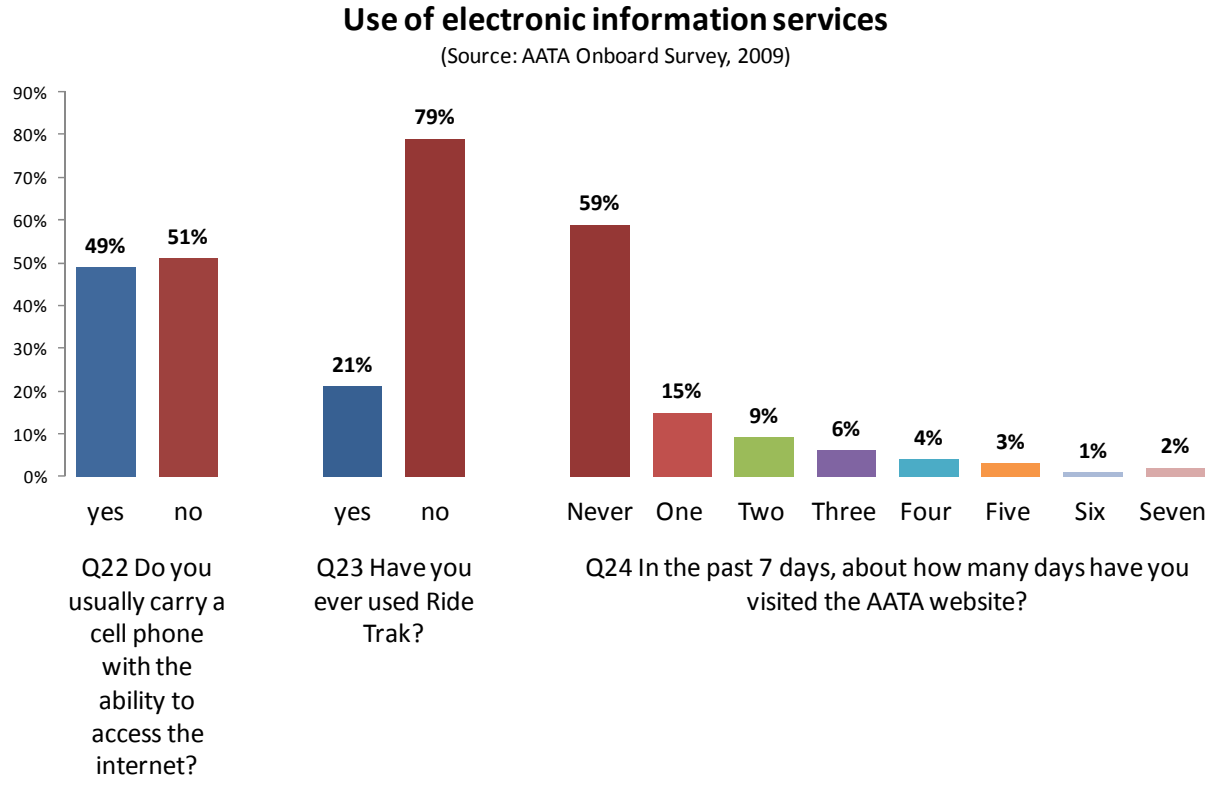
The need for off-peak service in relation to the intention to get a car

Riders were asked whether "a year from now" they expected to continue using AATA, get a car but also keep using AATA, or other alternatives. Those who say they must work on Saturday and/or Sunday and those who must work after nine o'clock on any day, are less likely to say they will keep using AATA and more likely to say they expect to get a car. Although they also expect to continue using AATA, they would clearly use it less.

This is a clear example of how off-peak service is related to rider retention.

Use of AATA electronic information services

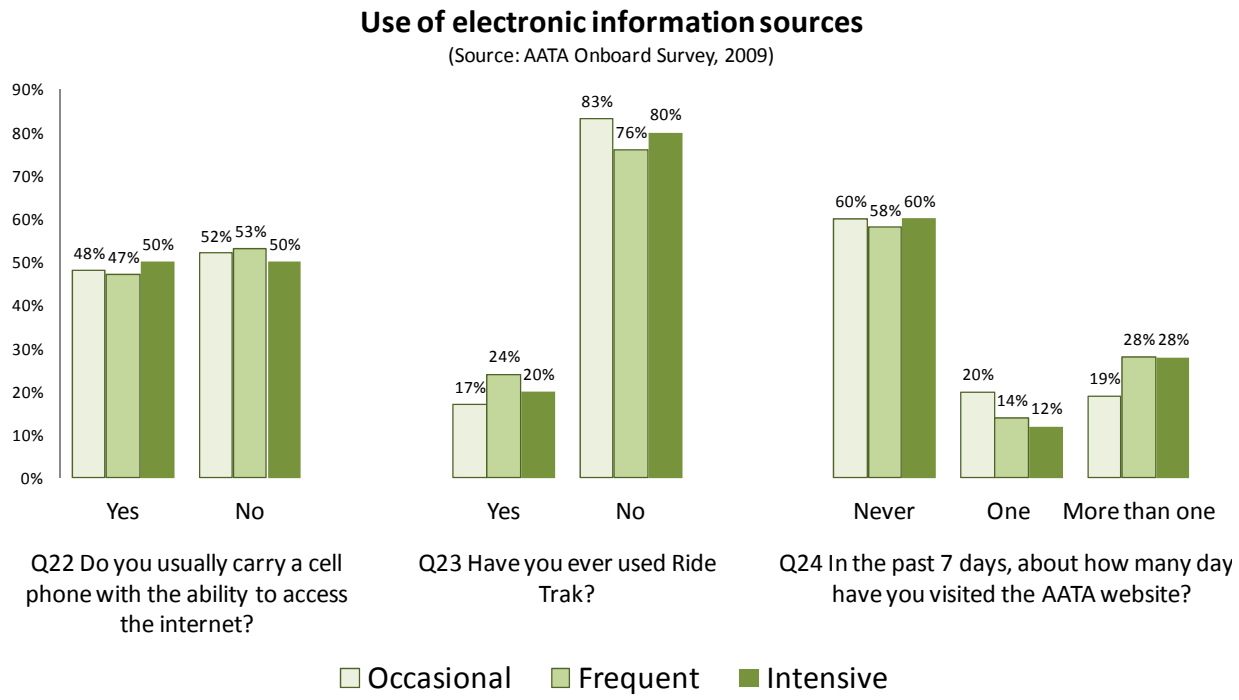
Figure 58 Use of web-based information services



Use of web-based information services

Riders were asked whether they usually carry a cell phone with the ability to access the Internet. Forty-nine percent (49%) indicated that they do carry such a device. However, only 21% said that they had ever used Ride Trak. Riders were also asked on about how many days they had visited the AATA website during the past seven days. Fifty-nine percent (59%) said that they had not accessed it at all, leaving a balance of 41% who had accessed the website on at least one day.

Figure 59 Use of electronic information sources, by rider segments



Use of electronic information sources, by rider segments

The use of electronic devices such as a cell phone with access to the Internet, the use of Ride Trak, and accessing the AATA website is fairly equal among the three rider segments. There are no major differences among them in terms of their use of the services or devices.

Figure 60 Relationship of age to use of electronic information

Age and the use of electronic informaiton services

		Age (in sets of approximately 15% in each age group)						
		<= 19	20 - 22	23 - 25	26 - 29	30 - 37	38 - 50	51+
Q22 Do you usually carry a cell phone with the ability to access the internet?	yes	54%	54%	51%	46%	49%	46%	37%
	no	46%	46%	49%	54%	51%	54%	63%
Q23 Have you ever used Ride Trak?	yes	16%	20%	28%	28%	27%	17%	12%
	no	84%	80%	72%	72%	73%	83%	88%
Q24 In the past 7 days, about how many days have you visited the AATA website?	Never	61%	59%	47%	44%	53%	73%	79%
	One	18%	16%	14%	17%	18%	11%	9%
	Two	8%	11%	13%	11%	10%	5%	5%
	Three	6%	5%	10%	11%	6%	6%	2%
	Four	3%	4%	6%	6%	5%	2%	3%
	Five	2%	2%	5%	7%	4%	1%	2%
	Six	1%	1%	2%	2%	1%	1%	1%
	Seven	2%	1%	3%	1%	4%	3%	0%

Relationship of age to use of electronic information

It is almost a truism that utilization of the technological fruits of the Internet era is heaviest among the younger population. To a certain extent that age-related tendency is present among the AATA riders. For example, while 54% of the riders 19 or younger or between 20 and 22 say they usually carry a cell phone which can access the Internet, only 37% of riders who are 51 years old or older say they do so.

However, the relationship of age to use of technology in this setting is not linear in every case. For example, use of Ride Trak is lowest among those 51 years old or over (12%) but is highest among those between the ages of 23 and 29 (28%), not among the youngest age groups. Use of Ride Trak is not especially strong (16%) among those 19 years old or younger, but there are probably reasons for this that it could do with regular use of the same route again and again to go to school.

Use of the AATA website is also age-related, but again, not in a linear manner. Use of the site is heaviest among riders of the most economically active age groups from 23 years of age through 37, and the weakest among people who are 30 years old or older. It is interesting to see that the youngest riders (under the age of 22) are not heavy users of the AATA website. Of riders 19 years old or younger only 39% said they had used it in the previous seven days, for example.

Appendix A: Questionnaire

TheRide

AATA Passenger Survey

Please let AATA know how to serve you better!

1. Where were you before you went to the bus stop for this trip?
   (1) Home (2) Work (3) Shopping (4) School / college
   (5) Social visit or recreation (6) Doctor / medical (7) Church
   (8) Other_____

2. What are the cross streets at that location?
   Street: _____
   Cross street: _____
   What city? (Circle one): Ann Arbor Ypsilanti Other _____

3. How did you get to your stop? (1) Walked (2) Bike (3) Drove (4) Got a ride

4. How many minutes did it take you to get to the bus stop? _____

5. What is your FINAL destination for this trip?
   (1) Home (2) Work (3) Shopping (4) School / college
   (5) Social visit or recreation (6) Doctor / medical (7) Church
   (8) Other_____

6. What are the cross streets at your final destination?
   Street: _____
   Cross street: _____
   What city? (Circle one): Ann Arbor Ypsilanti Other _____

7. How many minutes will it take you to get where you are going after you get off the bus at your final stop? _____

8. How many separate one-way bus trips will you make today? (for example, even if you transfer, going to work is only one trip; going from work to home is a second trip)
   1 trip 2 trips 3 trips 4 trips Other _____(how many?)

9. How did you pay for this trip?
   (1) Cash (2) Token (3) Transfer (4) 30-Day pass
   (5) goIPass (6) MCard (7) WCC Pass (8) Other _____

10. Including today, in the past seven days, how many days have you ridden on an AATA bus?
    1 2 3 4 5 6 7

11. How satisfied or dissatisfied are you with each way of obtaining information on AATA routes & schedules?

	Did not use	Dissatisfied ☹			Neutral 😐			Satisfied ☺	Past 30 days – any problem getting info this way?	
a. Schedule book (Ride Guide)	☐	1	2	3	4	5	6	7	Y	N
b. Schedules at bus stops	☐	1	2	3	4	5	6	7	Y	N
c. Customer service line (996-0400)	☐	1	2	3	4	5	6	7	Y	N
d. Website ("www.theride.org")	☐	1	2	3	4	5	6	7	Y	N
e. RideTrak (track bus on cell-phone)	☐	1	2	3	4	5	6	7	Y	N
f. Customer information specialists at transit centers	☐	1	2	3	4	5	6	7	Y	N

12. How satisfied or dissatisfied are you with AATA service in each of the following areas?

	Don't know	Dissatisfied ☹			Neutral 😐			Satisfied ☺	Past 30 days - Any problem with this service?	
a. Drivers' skill	☐	1	2	3	4	5	6	7	Y	N
b. Drivers' courtesy with passengers	☐	1	2	3	4	5	6	7	Y	N
c. Drivers' knowledge of the AATA system	☐	1	2	3	4	5	6	7	Y	N
d. AATA information in general	☐	1	2	3	4	5	6	7	Y	N
e. Information on service changes/detours	☐	1	2	3	4	5	6	7	Y	N
f. Frequency of service	☐	1	2	3	4	5	6	7	Y	N
g. On-time performance	☐	1	2	3	4	5	6	7	Y	N
h. Dependability of making transfers	☐	1	2	3	4	5	6	7	Y	N
i. Bus stop locations	☐	1	2	3	4	5	6	7	Y	N
j. Directness of routes	☐	1	2	3	4	5	6	7	Y	N
k. Service to areas where you want to go	☐	1	2	3	4	5	6	7	Y	N
l. Bus cleanliness	☐	1	2	3	4	5	6	7	Y	N
m. Safety from accidents	☐	1	2	3	4	5	6	7	Y	N
n. Personal security	☐	1	2	3	4	5	6	7	Y	N
o. Availability of bus shelters	☐	1	2	3	4	5	6	7	Y	N
p. AATA Service overall	☐	1	2	3	4	5	6	7	Y	N

Please turn the survey over and complete the questions on the back

13. How important is it to you for AATA to improve each of the following aspects of service?

	Don't know	Not important ☹			Neutral 😐			Very important ☺
a. More frequent service on WEEKDAYS	☐	1	2	3	4	5	6	7
b. More frequent service on WEEKENDS	☐	1	2	3	4	5	6	7
c. Later evening service on WEEKDAYS	☐	1	2	3	4	5	6	7
d. Later evening service on WEEKENDS	☐	1	2	3	4	5	6	7
e. Additional stops closer to my home	☐	1	2	3	4	5	6	7
f. Stops closer to my work place or school	☐	1	2	3	4	5	6	7
g. Not having to change buses (transfer)	☐	1	2	3	4	5	6	7
h. Shorter trip times	☐	1	2	3	4	5	6	7
i. Service outside the Ann Arbor/Ypsilanti area	☐	1	2	3	4	5	6	7
j. Other (Please describe)	☐	1	2	3	4	5	6	7

14. Are you riding AATA buses ...

(1) More frequently than a year ago (2) About the same as a year ago
(3) Less frequently than a year ago

15. In what year did you begin riding AATA? (Check one response only)

Before 2000 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

☐ I am riding AATA today for my first time ever

16. In what year did you begin living in Washtenaw County?

Before 2000 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

☐ I don't live in Washtenaw County

17. A year from now, do you expect to still be living in Washtenaw County?

(1) Yes (2) No (3) Not sure

18. A year from now, do you expect to: (1) Keep using AATA
(2) Get a car but keep using AATA also (3) Get a car and stop using AATA
(4) Move away from this area (5) Stop using AATA for other reason

19. If AATA bus service were not available for this trip, what would you have done instead? You would have...

(1) ...driven alone (2) ...gotten a ride (3) ..taken a U of M bus
(4) ...taken a carpool or vanpool (5) ...walked (6) ..bicycled
(7) ...not taker this trip at all (8) ...gone somewhere else

20. Was a car (or truck or motorcycle) available to you to make this trip?

(1) Yes (2) No

21. Are you a licensed driver? (1) Yes (2) No

22. Do you usually carry a cell-phone with the ability to access the Internet?

(1) Yes (2) No

23. Have you ever used RideTrak (mobile.theride.org), the AATA service that tracks your bus and provides information about arrival times on your computer, smart phone or PDA?

(1) Yes (2) No

24. In the past 7 days, about how many days have you visited the AATA website?

0 1 2 3 4 5 6 7

25. In what year were you born? 19_____

26. Which applies to you? Are you presently (circle only one):

(1) Employed for pay outside your home
(2) Employed for pay in your home
(3) Student (4) Student AND Employed
(5) Homemaker (6) Unemployed (7) Retired

27. If you are a student, where do you attend?

(1) U of M (2) EMU (3) WCC (4) Concordia (5) Cleary
(6) Other: _____

28. If employed, do you usually?:

a. Work Saturday and/or Sunday (1) Yes (2) No
b. Work After 9:00 PM on any day? (1) Yes (2) No

29. Are you? (1) Male (2) Female

30. What is your total combined annual household income?

(1) Less than $25,000 (2) $25,000 to $49,999 (3) $50,000 - $74,999
(4) $75,000 to 100,000 (5) More than $100,000

31. Any comments or suggestions for AATA? _____

_____

PLEASE RETURN SURVEY TO SURVEYOR ONBOARD THIS BUS, OR TO ANY AATA BUS DRIVER. Thanks!

Appendix B – Comments by Riders - Under Separate Cover

Comments were offered by almost 1,000 respondents. Their raw comments are presented in an Excel file provided with the electronic version of this report. The file is called: "Comments in Excel format.