



TRIP REDUCTION PROGRAM

Annual Report

2014

Maricopa County Air Quality Department

**CLEAN AIR
MAKE
MORE**



Trip Reduction Program

July 1, 2013 – June 30, 2014

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Maricopa County

Air Quality Department

SUBJECT: Travel Reduction Program – Fiscal Year 2014 Annual Report

DATES: July 1, 2013 – June 30, 2014
ADEQ Contract No. - EV11-00065, Amendment 6

EXECUTIVE SUMMARY

During the Fiscal Year 2013-2014 (FY14) grant year, Maricopa County continued the Travel Reduction Program (TRP) and outreach efforts in support of the voluntary “Clean Air Campaign”. Results were gathered from detailed statistical summary reports from each employee and student site participating in the program. During FY14, there were 2,937 sites in the TRP representing 1,167 companies. This year, the survey was administered to over 769,000 commuters. In addition, the TRP Task Force, along with the TRP staff, reviewed and approved 1,119 trip reduction plans. The following report tracks and analyzes the commuting habits of employees and students in Maricopa County.

The TRP is continually identifying new sites required to participate in the program. This on-going effort has resulted in 97 new employee and student sites incorporated into the TRP and completing their baseline year during FY14. While companies phased in and out of the TRP, the number of active sites remained approximately 2,950 throughout the year.

An aggregate analysis of the sites processed during FY14, for both employee and student participants, produced the following statistical results: 1) commuters in the TRP saved 10,832 tons of pollution by using an alternative mode of transportation; and 2) the TRP’s e-survey was used by more companies than ever before, an increase of 18.4% year-over-year.

The TRP has two forms of its online e-survey. Employers can choose either the intranet or internet version. Overall, 386 companies had their employees/students use the e-survey this year. Seventeen companies programmed the intranet version onto their systems for their employees to use and 369 companies had their employees access the Maricopa County web-site for the internet form. Some of the larger companies used the intranet version, accounting for nearly one-sixth of all employees.

Companies that used the e-survey saved the TRP from providing over 427,000 paper forms; this was an increase of 34% more electronic surveys compared to last year. When the TRP first started administering the e-survey, its goal was to have a 35% usage by all employees. This year, 55% of TRP employees/students used the e-survey to complete their survey. This was the third year that the e-survey was made available to students; which resulted in 233% increase from last year.

MARICOPA COUNTY REGIONAL TRAVEL REDUCTION PROGRAM 2014 Annual Report

INTRODUCTION

During Fiscal Year 2014, 2,937 employment sites were processed by the Travel Reduction Program (TRP). Of all the sites, 97 were baseline (first year sites). The TRP produces a detailed statistical summary report for each employment and student site. This year, the program administered the survey to over 769,000 employees and students. In addition, the TRP Task Force, along with the TRP staff, reviewed and approved 1,119 Trip Reduction plans. The following report tracks and analyzes the commuting habits of employees and students in Maricopa County.

The 1988 Omnibus Clean Air Legislation laid the foundation for the Maricopa County TRP. Employers with 100 or more employees were required to (1) reduce the single occupancy vehicle rate (SOV) by 5% annually, (2) name a transportation coordinator, (3) provide trip reduction information to all employees and/or students, (4) conduct an annual trip reduction survey and (5) submit an annual trip reduction plan.

The Trip Reduction Ordinance (TRO) adopted by the Board of Supervisors in September 1992 became effective January 1, 1993. This ordinance expanded the TRP by requiring employers with 75 to 99 employees to participate. The 1993 ordinance also established a SOV floor of 60%, and it improved SOV rate and SOV target calculations.

The TRO was amended May 26, 1994 with the following changes effective July 1, 1994; (1) employer SOV reduction goals were increased from 5% for the first five target years to 10% (employers in their sixth and subsequent target years have a SOV target of 5% annually), (2) employers with 50 to 74 employees were incorporated into the program and (3) employers were given credit towards SOV reduction goals for using Reduced Emission Vehicles (REV).

In May 1996, the TRO was amended and ten Equivalent Emission Reduction (EER) measures were implemented. The ordinance became effective in July 1997. The EER ordinance measures allow for credit to be given to companies toward meeting their trip reduction goals by implementing alternative air pollution reduction strategies. These strategies are listed on a separate form and submitted with their trip reduction surveys on an annual basis.

In the first program year of the TRP, approximately 500 employers and 800 employment sites were affected by the TRP. The implementation of the 1993 TRO added 300 employers and 700 sites to the program. With the implementation of the 1994 TRO, there are currently over 1,100 employers and 2,900 sites participating in the TRP.

PROGRAM OVERVIEW

The TRP's operational functions are divided into two sections: Operations/Research Data Analysis and Plan Review/Monitoring.

Operations / Research Data Analysis

Operations section's primary responsibilities are: 1) coordinating survey delivery and processing data; 2) monitoring new employers for incorporation into the TRP; 3) tracking effected employers to ensure that questionnaires and other requirements are submitted on schedule; and 4) developing policies and procedures.

The Research Data Analysis section is responsible for analyzing survey data and generating summary analysis reports for each employment site; analyzing and measuring the overall impact of the TRP on reducing single occupant commutes; and producing quarterly, annual and special reports for internal and external requests. In FY14, the Research/Data Analysis section sent out 2,954 summary analyses for employers and schools. In addition, they completed reports and supplied statistical data results for employers, researchers, city planners, news affiliates and individuals.

Plan Review/Monitoring

The Plan Review/Monitoring section reviews and evaluates all submitted TRP plans to determine if proposed strategies and/or incentives are adequate to achieve targeted SOV reductions. There were 1,119 TRP plans that were reviewed and approved by the Task Force and staff during FY14.

The Plan Review staff also monitors employers to ensure that trip reduction plans are implemented accordingly. Monitoring activities include on-site visits and phone calls to employers. This year there were 467 monitoring phone calls and 757 site visits completed. Employers not in compliance with TRP's policies and procedures can receive a Notice of Violation (NOV). During FY14, 81 NOV's were issued to employers who did not meet the statutory requirements. Of those referred to the TRP Task Force for enforcement, all were withdrawn following compliance by the respective employer.

Valley Metro/ RPTA

Both the Maricopa County TRP and the Valley Metro/Regional Public Transportation Authority (RPTA) provide staff to coordinate the benefits of both the TRP and the Clean Air Campaign. The RPTA is a sub-contracted organization that provides training, technical assistance and promotional material to all affected organizations. During the past year, seven Introduction to the Trip Reduction Program training classes were conducted with a total of 131 attendees. In addition, 22 in-person Transportation Coordinator Association (TCA) meetings were held across the Valley; 203 people attended. Twelve TCA webinars were held with a total of 926 in attendance. Over 10,000 technical assistance and consultative service contacts were made to Valley organizations. This year, RPTA facilitated 45 presentations and events for TRP employees, with approximately 5,577 employees in attendance. Now in its twenty-seventh year, awareness of the Clean Air Campaign continues to grow with the public.

ANNUAL REPORT METHODOLOGY

The Maricopa County Regional Travel Reduction Program's method for measuring employers' compliance with the program is based on an employer's current site year. This methodology allows for the aggregation of data by the current TRP program year. New employment sites are added on a continual basis. The total number of employees/students commuting patterns is measured to determine TRP's overall effectiveness on reducing single occupant vehicle trips and miles.

This year, aggregate data is only shown for the first program year (FY 1991) and the last five fiscal years. This is done to show how the TRP compares to the inaugural year and reflect the most recent trend of data. For purposes of maintaining consistency and tracking a company's historical data from one year to the next, data gathered for a company are based upon the company's anniversary date.

The regional calculation for the number of miles needed to generate one-pound of pollution, for an average vehicle, was 49.6 for the first and second quarters and 70.5 miles for third and fourth quarters of the fiscal year. This factor was used to calculate the amount of pollution saved annually in the program. The Maricopa Association of Governments (MAG) has provided the data, citing EPA's Mobile 6.2 for the first and second quarters and MOVE2010b for the third and fourth quarters as its source.

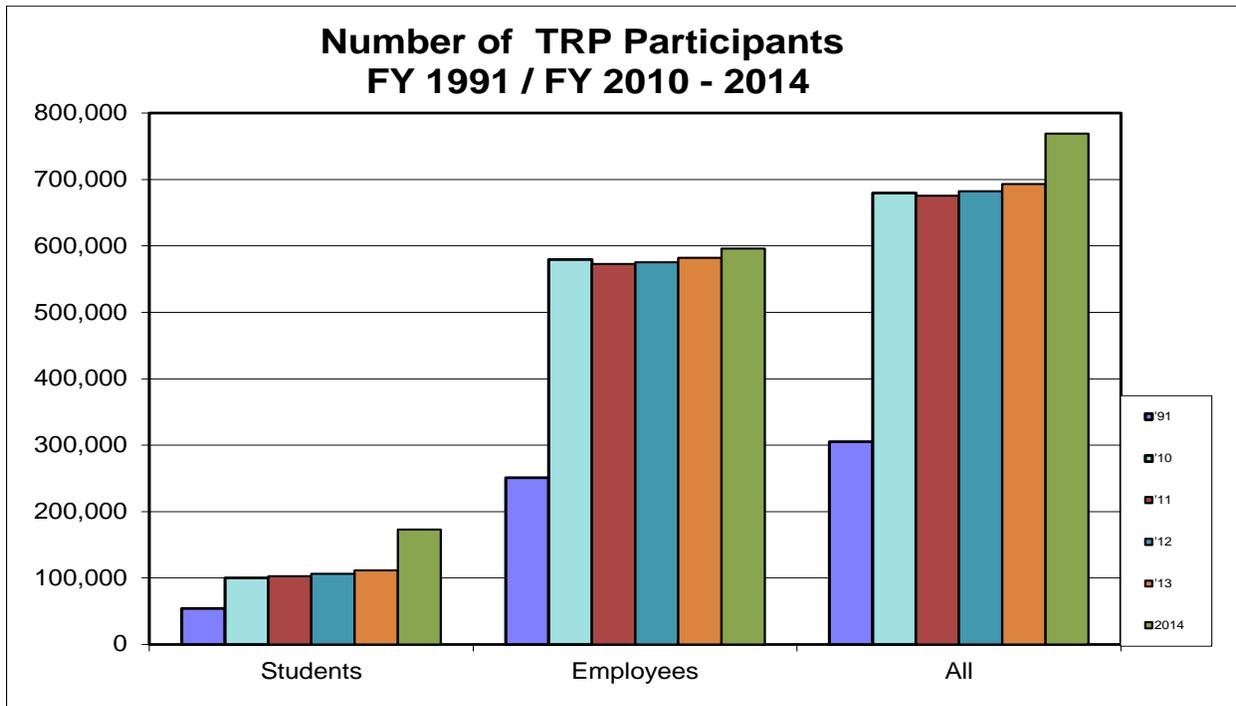
The staff members of the Maricopa County Travel Reduction Program and the Regional Public Transportation Authority (RPTA) work closely to the benefit of both the TRP and the Clean Air Campaign.

The FY14 Travel Reduction Program Final Report is highlighted with samples of program material, aggregate results of the annual survey, and the calculation methodology. Questions or comments should be addressed to the Maricopa County Air Quality Department, Travel Reduction Program, 1001 N. Central Ave. #125, Phoenix, AZ 85004.

NUMBER OF TRP PARTICIPANTS

The Maricopa County region affected by the Travel Reduction Program (TRP) has recorded continual growth since the inception of the program in 1989. TRP's overall participation has increased 152% since the first program year.

Based on current DES estimates for the Greater Phoenix-Glendale-Mesa metropolitan Area non-farm workforce, there are approximately 1,819,800 employees. TRP employees account for over 32.8% of those Maricopa County residents. In addition, 'Student' sites contribute another 172,889 participants to the overall population tracked by the TRP.



The number of all TRP participants has steadily increased each year of the program. When compared to DES estimates for non-farm workforce, TRP employees increased by 2.4%, while the DES workforce showed an increase of 2.6% from the previous year. The student count increased by 72% over the last four years, with a 55% this year alone. The number of student participants substantially increased because the total student population for Arizona State University was counted beginning this year. Also, this has resulted in dramatic changes in the response rates for the year when compared to last year.

Number of Participants

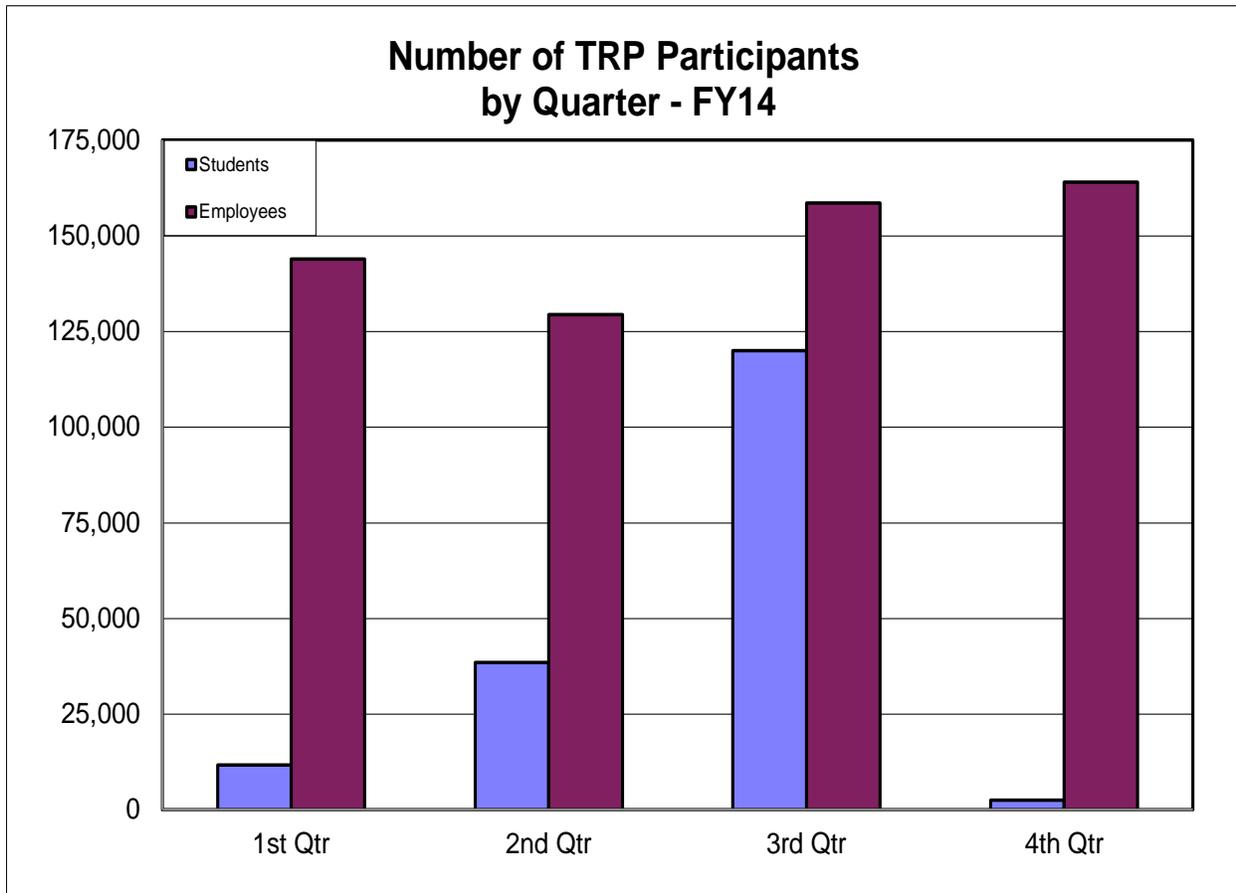
Site Type	FY 91	FY 10	FY 11	FY 12	FY 13	FY 2014
Students*	53,943	100,172	102,478	106,081	111,224	172,889
Employees	251,112	579,576	573,002	577,432	582,172	596,153
All	305,055	679,748	675,480	683,513	693,396	769,042

*Student population includes high school juniors and seniors, colleges, universities and vocational institutions.

TRP Participation by Quarter for FY 2014

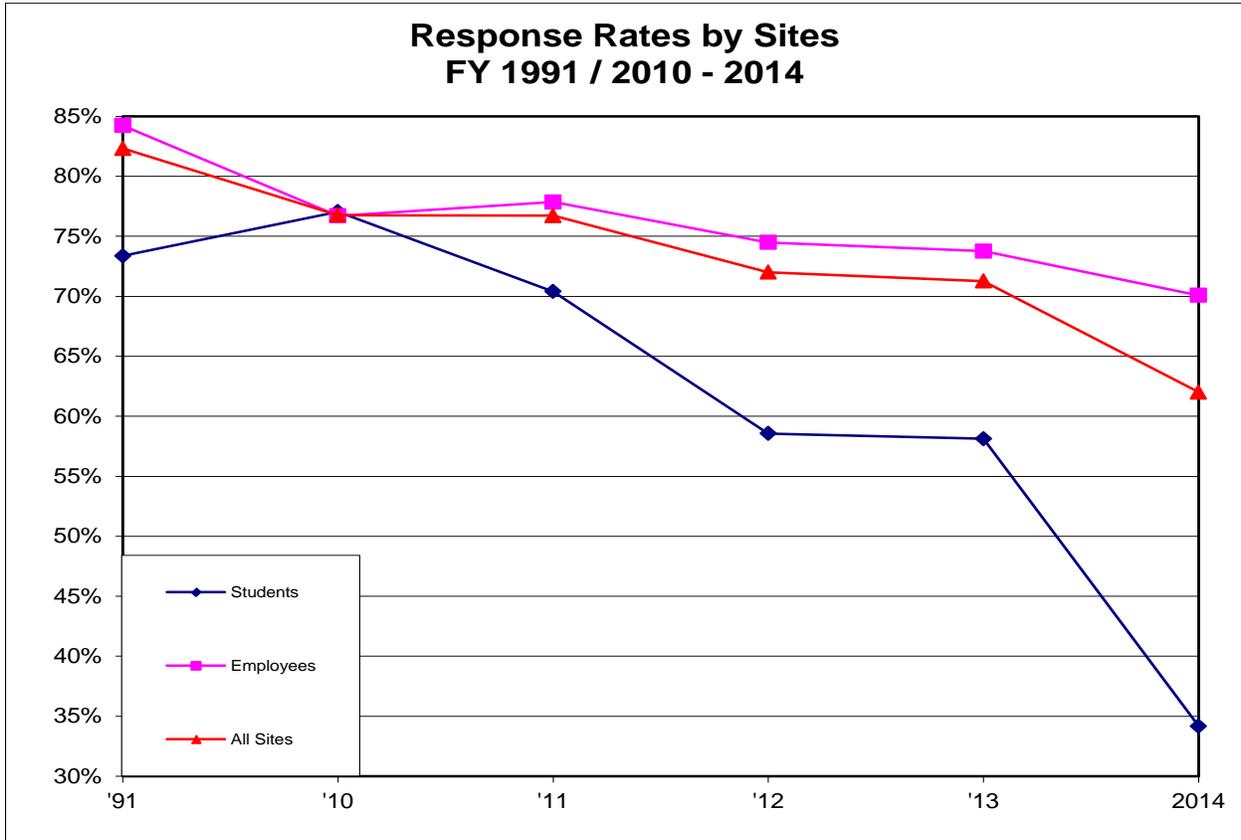
During the third quarter, the TRP surveyed many of the larger companies and high schools. Most secondary schools, which make up 45% of the student population, surveyed in the second and third quarters. This ensures that high schools, universities and colleges will receive their survey results before the end of the school year and have time to implement their TRP plan before the end of its current school year. For employees, the least amount of surveys administered was during the second quarter, which is traditionally lower because employees are taking time off during the holiday seasons.

Site Type	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Year
Students	11,753	38,580	119,975	2,581	172,889
Employees	143,997	129,474	158,596	164,086	596,153
All	155,750	168,054	278,571	166,667	769,042



TRP RESPONSE RATES

During FY14, 2,937 sites were analyzed. This included 2,809 'Employee' sites and 128 'Student' sites. The TRP questionnaire was administered to 769,042 employees and students this year with an overall response rate of 62.01%.



The response rate is calculated by dividing the number of questionnaires completed by the number of the employees at the site. If the response rate for an employer is less than the required 60%, a company is directed to resurvey that site. The data collected by the TRP is very comprehensive, and is requested by numerous outside agencies and organizations for detailed analysis and reports.

The response rate for 'All' site types decreased for this year. The student response rate was lower than the employee response rate, 34.17% and 70.08% respectively.

Response Rates

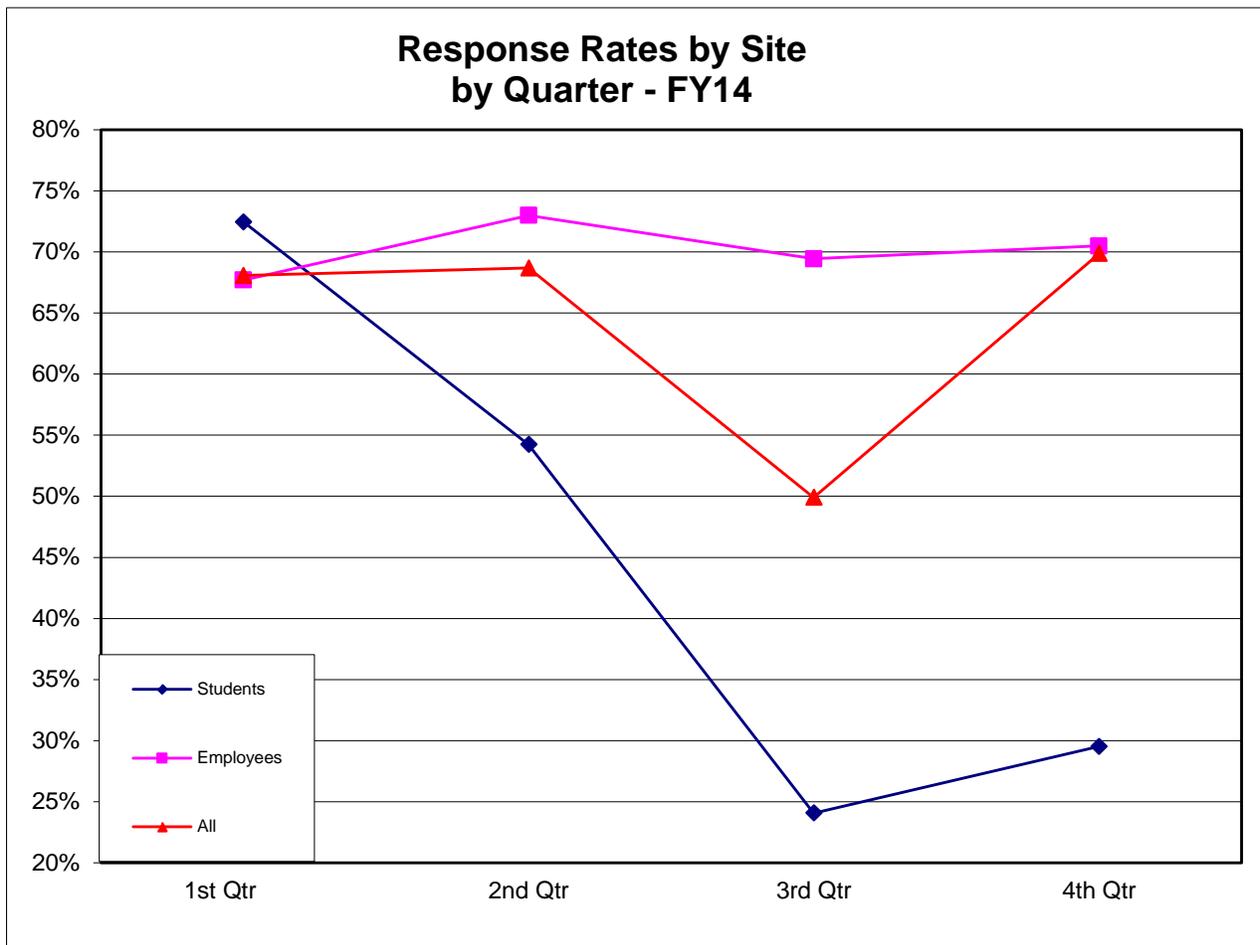
Site Type	FY 91	FY 10	FY 11	FY 12	FY 13	FY 2014
Students*	73.36%	77.05%	70.39%	58.56%	58.13%	34.17%
Employees	84.24%	76.71%	77.85%	74.53%	73.77%	70.08%
All	82.32%	76.76%	76.72%	72.05%	71.26%	62.01%

*Student population includes high school juniors and seniors, colleges, universities and vocational institutions.

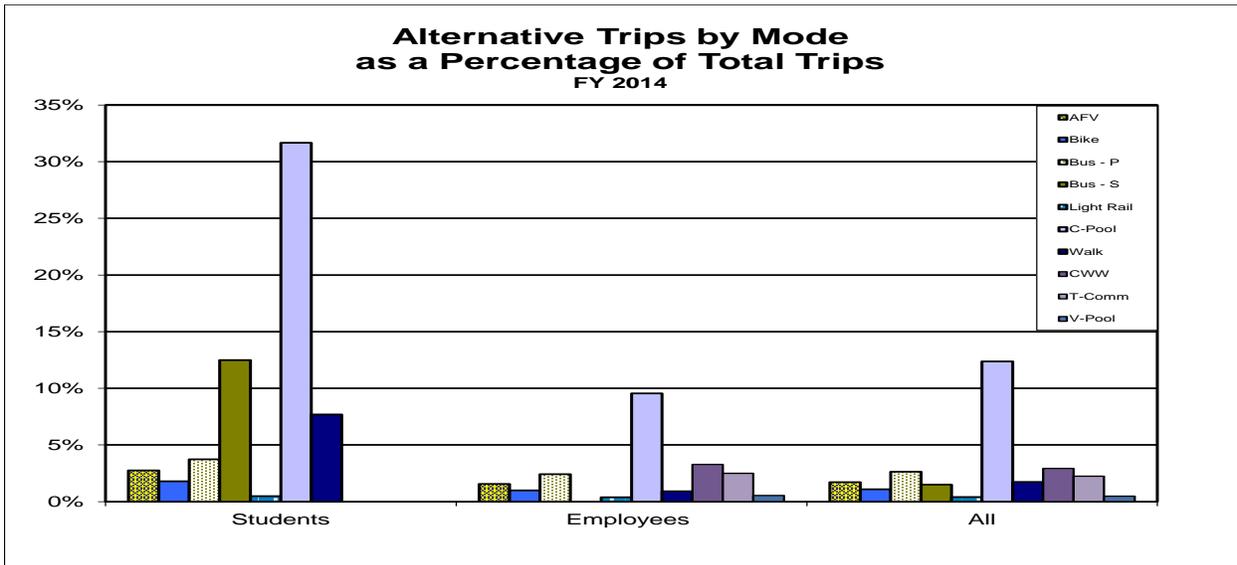
TRP Response Rates by Quarter for FY 2014

In FY14, the response rates fluctuated each quarter. Although there is no distinguishable pattern throughout the year, the fourth quarter had the highest response rates for 'All' sites. For 'Employee' sites, the second quarter had the highest response rates. 'Student' responses were their lowest during the third quarter, Arizona State University surveyed during this period and the overall numbers for students were recalculated this year.

Site Type	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Current Year Average
Students	72.44%	54.22%	24.07%	29.52%	34.17%
Employees	67.70%	72.98%	69.44%	70.49%	70.08%
All	68.06%	68.68%	49.90%	69.86%	62.01%

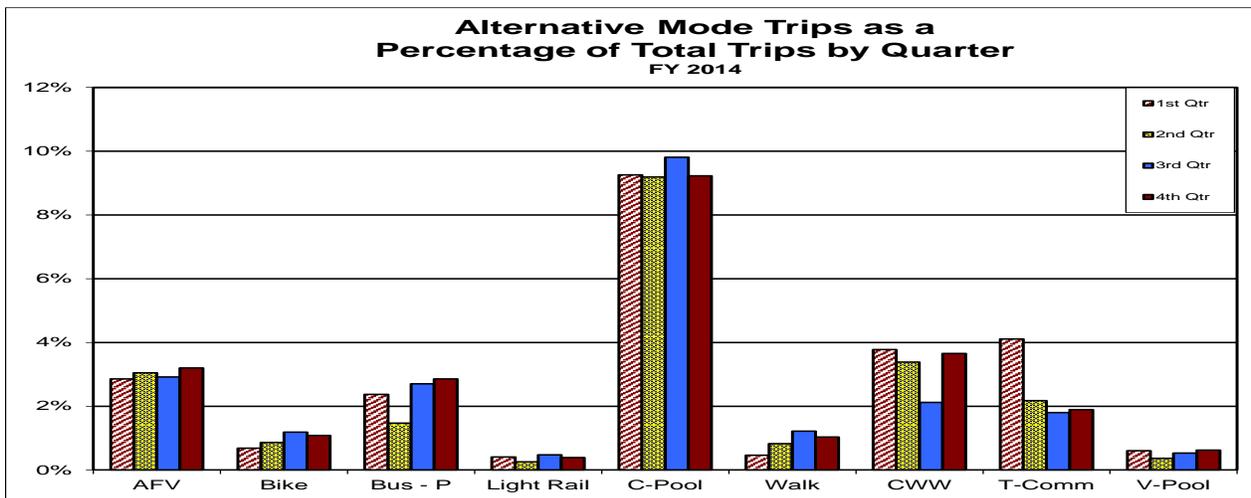


ALTERNATIVE MODE TRIPS



TRP participants continue to use alternative modes with more frequency each year. During this year, carpool usage continued to be the highest type of alternative mode used for ‘All’ site types. ‘Student’ and ‘Employee’ sites used carpooling as their primary alternative mode.

Students used carpooling for 31.7% of all their commuting trips. Other alternative modes used mainly by students were taking the bus (16.7%) and walking (7.7%). These three modes account for over 55% of commuting habits by students. Employees carpoled 9.6% of the time, while CWW accounted for 3.3% of alternative trips and taking the bus resulted in 2.4%.



Carpooling continues to be the highest percentage of trips taken by alternative mode users. The first and third quarters showed the largest use of carpooling. The two other alternative modes mostly used by commuters (compressed work week and tele-commuting) were used in the first quarter.

POUNDS OF POLLUTION

TRP participants continue to use alternative modes of transportation for 32.9% of their commuting miles. In FY14, for 'All' sites, pounds of pollution saved daily totaled 83,322 pounds per day.

There were multiple circumstances that affected the results of the amount of pollution saved by the program: 1) because of newer and environmentally cleaner vehicles on the road, the pounds of pollution factor was recalculated mid-way through the year from 49.6 to 70.5 miles per one-pound of pollution, thus causing a decrease in pounds of pollution saved; and 2) the number of completed surveys returned by employers cause fluctuations in the aggregated results year over year.

Pounds of Pollution Saved by Mode

MODE	STUDENT SITES		EMPLOYEE SITES		ALL SITES	
	Miles Daily (Both - Ways)	Pounds of Pollution Saved Daily ¹	Miles Daily (Both - Ways)	Pounds of Pollution Saved Daily ¹	Miles Daily (Both - Ways)	Pounds of Pollution Saved Daily ¹
Generated SOV	384,230		9,613,365		9,997,595	
Saved						
AFV	24,633	432	385,146	6,529	409,779	6,961
Bike	5,150	85	42,033	697	47,183	782
Bus (Public)	27,874	506	305,027	4,990	332,901	5,496
Bus (School)	83,479	1,514			83,479	1,514
Carpool	326,881	5,582	1,691,380	28,666	2,018,261	34,248
Light Rail	4,305	70	39,666	659	43,971	729
CWW*			462,488	8,007	462,488	8,007
TeleComm*			450,982	7,955	450,982	7,955
Vanpool			1,025,644	17,201	1,025,644	17,201
Walk	13,101	223	12,876	206	25,977	429
Alternative Mode Total	485,423	8,412	4,415,242	74,910	4,900,665	83,322
Total Miles	869,653		14,028,607		14,898,260	

* Miles not driven

¹ To calculate the pounds of pollution saved daily, the "Miles Daily" was divided by 49.6 for the first and second quarters and 70.5 for the third and fourth quarters. Using the third and fourth quarters as an example, 70.5 is the number of miles driven needed to generate one pound of pollution using the most recent standards.

POLLUTION SAVED

TRP participants continue to save more pounds of pollution each year. This year alone, the amount of pollution potentially saved by the 769,042 employees/students responding to the survey was estimated at 17,097 tons.

Total Pounds of Pollution Saved

Site Type	Pounds of Pollution Saved Daily	Tons of Pollution Saved Weekly ²	Tons of Pollution Saved Annually ³	Potential Tons of Pollution Saved by TRP Annually ⁴
Students	8,412	21.0	1,094	3,201
Employees	74,910	187.3	9,738	13,896
All ⁵	83,322	208.3	10,832	17,097

Pounds of pollution saved are calculated by dividing the miles that were not driven by commuters using an alternative mode of travel by 70.5. Seventy and five-tenths is the number of miles that is calculated to be driven in order to produce one pound of pollution.

Below is the equation to calculate one pound of pollution:

$$\begin{array}{ccccccc} \text{VOC} & + & \text{NO}_x & + & \text{CO} & + & \text{PM} & = & 1 \text{ lb. of pollution} * \\ 6.92\% & & 10.38\% & & 82.54\% & & 0.16\% & & \end{array}$$

The on-road emissions model used to calculate miles per pound for Light Duty Gasoline Vehicles (LDGV) was updated this reporting period by the EPA. It officially replaced the previous emissions model, MOBILE6.2, with the Motor Vehicle Emission Simulator (MOVES2010b) model. The new model continues to calculate how many miles driven it takes to generate one-pound of pollution for a standard on-road vehicle.

For this reporting period the TRP conversion rate for Natural Gas vehicles is derived from the MOBILE6.2 model. Currently, the EPA is still making adjustments to their model to calculate emission rates for Light Duty CNG Vehicles (LD NGV) and plan to release the final version of MOVES2014 in the near future. The LD NGV calculation is used to measure the credit amount given for commuters who select Alternative Fuel Vehicles (AFV) as their mode use.

² “Tons of Pollution Saved Weekly” is calculated by dividing the “Pounds of Pollution Saved Daily” by 2000, and then multiplying the result by the number of trips taken weekly by an average commuter, which is set to be five by the TRP, i.e. for students, (8,412/2000)* 5 = 21.0 tons.

³ Weekly tons are then multiplied by 52 to calculate “Tons of Pollution Saved Annually”, 21.0 * 52 = 1,094 tons.

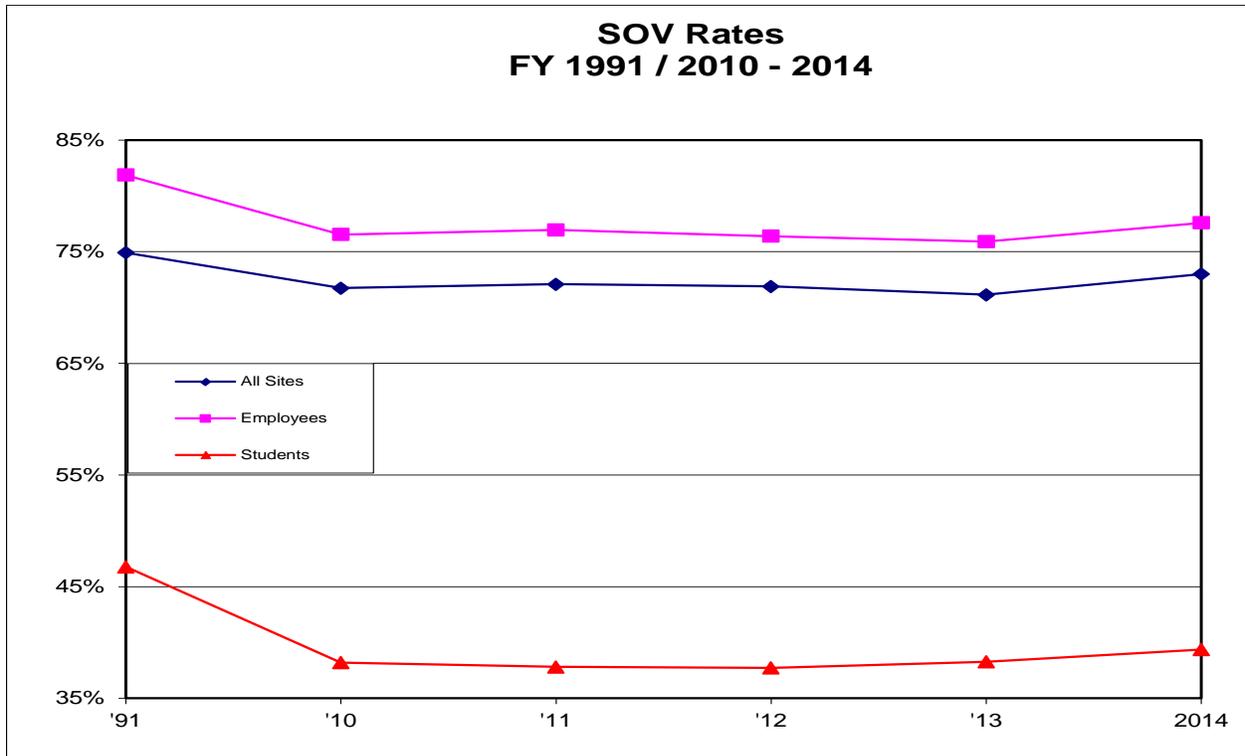
⁴ “Potential Tons of Pollution Saved by TRP Annually” is calculated by extrapolating out to the number of TRP participants who had the survey administered to them. The “Tons of Pollution Saved Annually” is divided by the response rate, i.e. 59,070 students answered the survey for a response rate of 34.17% (.3417); 1,094/.3417 = 3,201. All 172,889 TRP students could have saved 3,201 tons of pollution in FY14.

⁵ The numbers for ‘All’ site types is calculated by adding the totals from the ‘Student’ site and ‘Employee’ site rows.

SOV TRIP RATES

The Single Occupant Vehicle (SOV) trip and Single Occupant Vehicle Miles Traveled (SOVMT) rates indicate how well a company is doing at reducing employee/student trips and miles. In order for a company to achieve their reduction goal for the year it must meet or exceed either one of these target rates.

Of the 2,937 sites surveyed, 2,809 were analyzed this year for the purposes of the aggregate data. There were 97 first year sites (baseline year sites) that were processed.



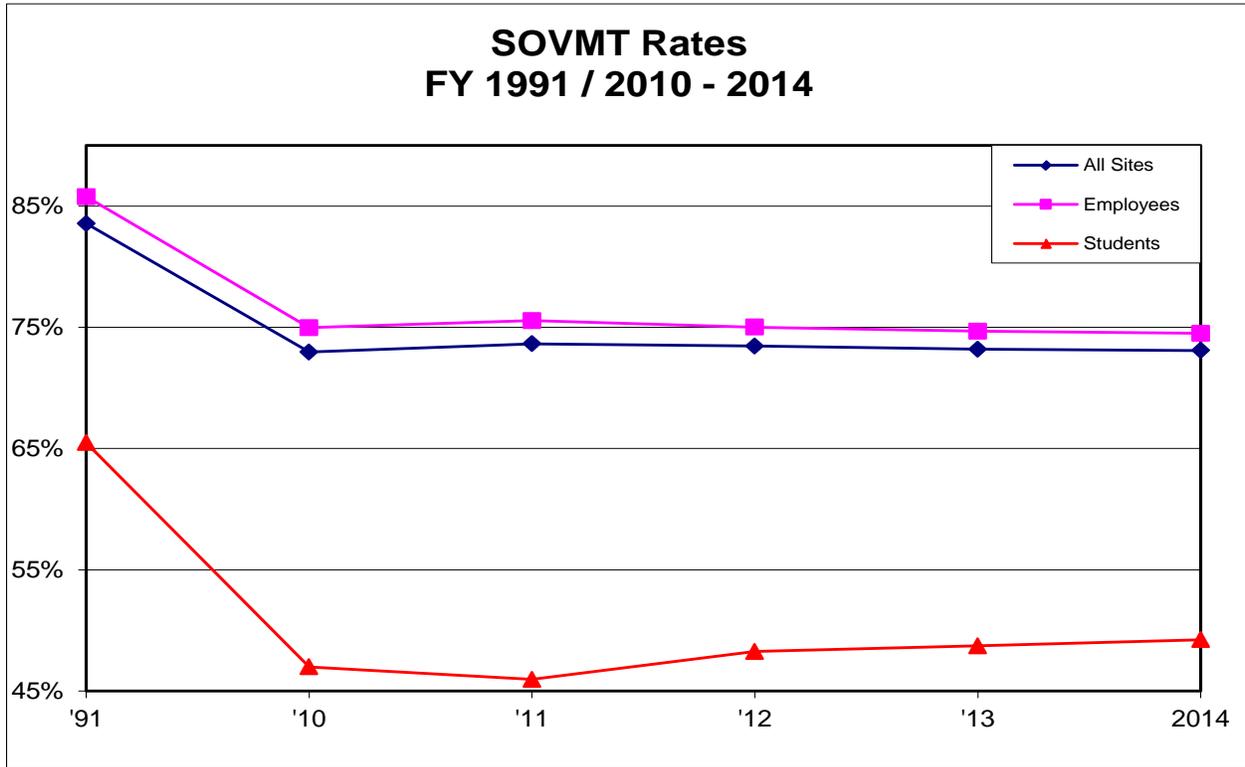
The SOV trip rate is calculated by dividing the number of SOV trips by the total trips taken for all commuters. This is also done separately for 'Employee' sites and 'Student' sites in order to compare their rate of change.

Single Occupancy Vehicle (SOV) Trip Rate

	Students		Employees		All	
		Change from Previous Year		Change from Previous Year		Change from Previous Year
FY 91	46.78%		81.86%		74.92%	
FY 11	37.82%		76.94%		72.09%	
FY 12	37.73%	-0.23%	76.38%	-0.72%	71.89%	-0.28%
FY 13	38.28%	1.45%	75.90%	-0.62%	71.15%	-1.02%
FY 14	39.37%	2.84%	77.58%	2.21%	73.00%	2.60%

SOVMT RATES

This year the SOVMT showed a decrease of 0.13% for 'All' sites when compared to last fiscal year. 'Student' and 'Employee' sites also showed the following rate changes, 1.04% and -0.24% respectively.



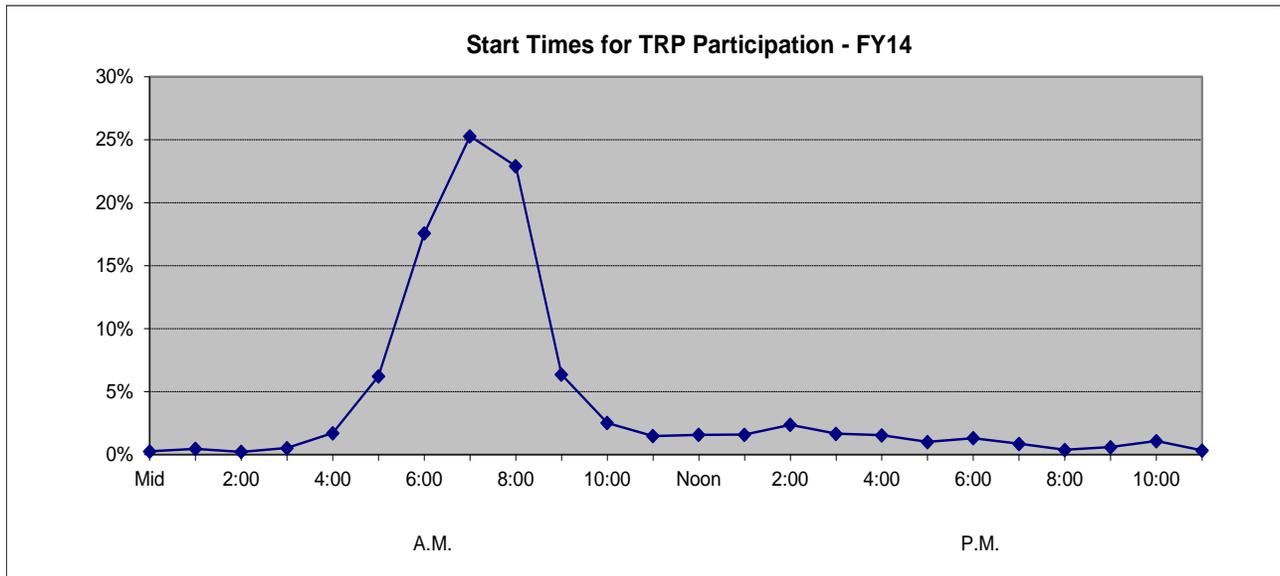
Similar to the methodology used for SOV trips, 2,809 sites were analyzed this year for the purposes of the aggregate data.

The SOVMT rate is calculated by dividing the number of SOV miles traveled by the total number of miles driven by all commuters. This is also done separately for 'Employee' sites and 'Student' sites in order to compare their rate of change.

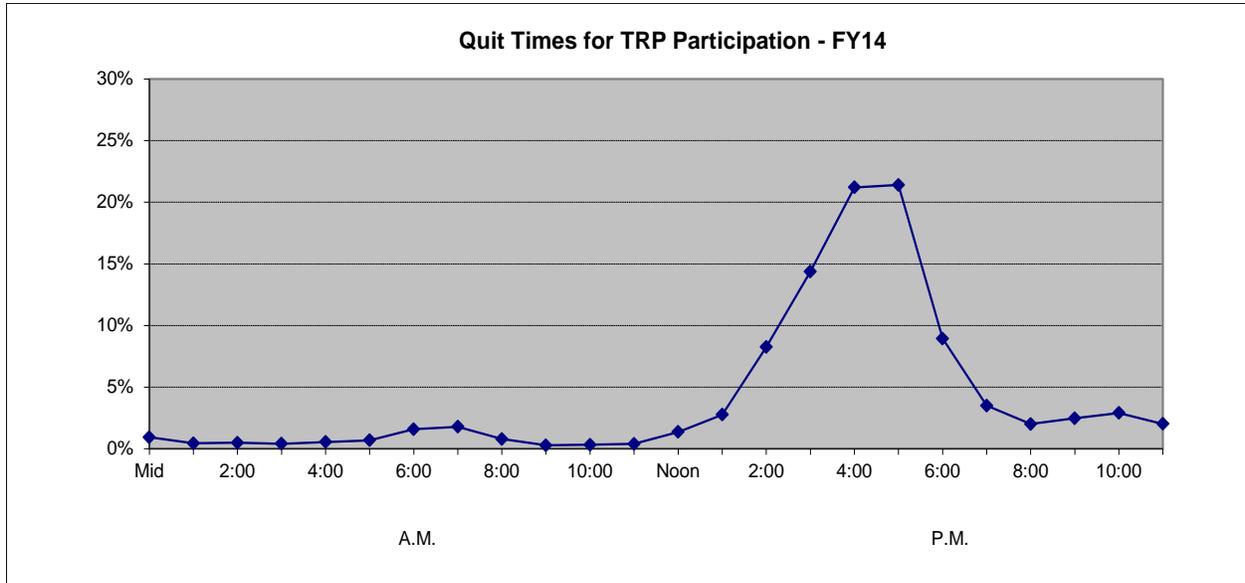
Single Occupancy Vehicle Miles Traveled (SOVMT) Rate

	Students		Employees		All	
		Change from Previous Year		Change from Previous Year		Change from Previous Year
FY 91	65.49%		85.78%		83.57%	
FY 11	45.95%		75.55%		73.64%	
FY 12	48.24%	4.98%	75.01%	-0.71%	73.46%	-0.24%
FY 13	48.72%	0.99%	74.68%	-0.43%	73.19%	-0.36%
FY 14	49.23%	1.04%	74.50%	-0.24%	73.09%	-0.13%

COMMUTING TO WORK

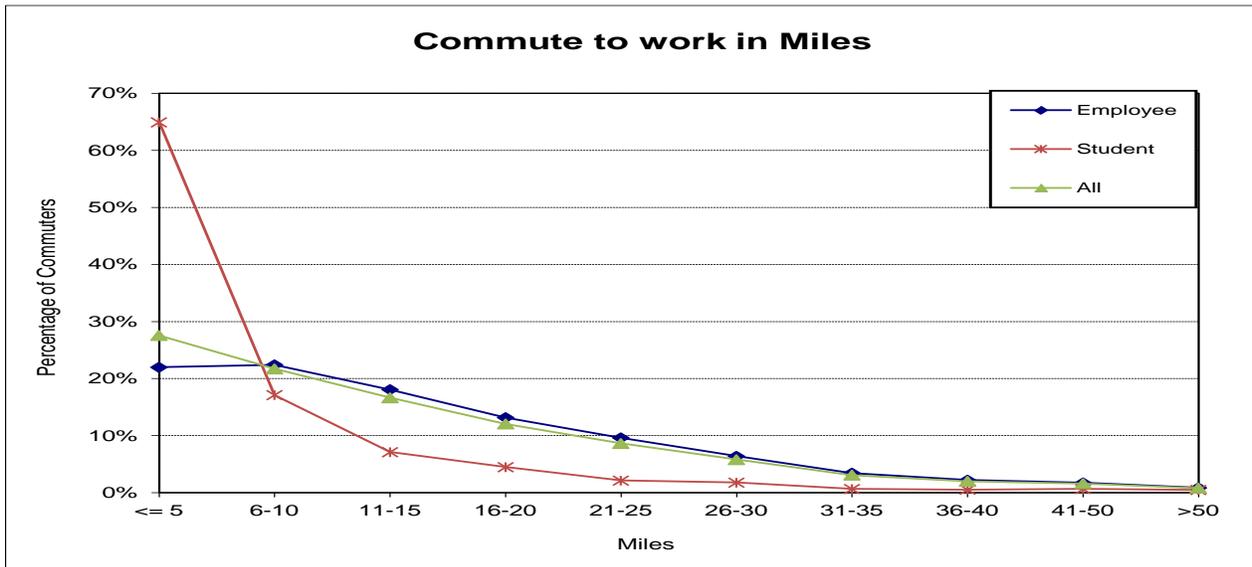


The peak hours for Maricopa County commuters traveling to work are between 5:00 a.m. and 9:00 a.m.; 72% of all commuters are on the road during this time. During the morning rush, the time between 7:00 a.m. and 8:30 a.m. is the most heavily traveled. There is also a second shift peak between 2:00 p.m. and 4:00 p.m. when commuters make their way to work.

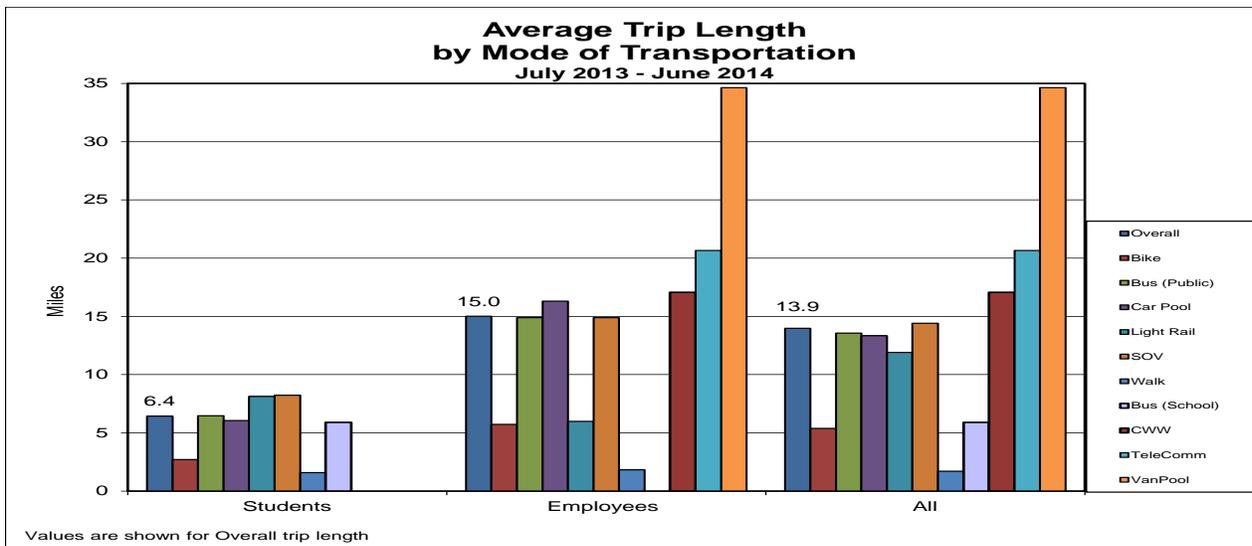


Conversely, quit times for commuters peak between 2:00 p.m. and 6:00 p.m.. Over 65% of all commuters are leaving the workplace during this time. However, the peak for departing workers is not as great as that of arrival times. This is caused by workers who complete their eight-hour shifts prior to the afternoon rush or those who put in extended hours. The time between 5:00 p.m. and 6:00 p.m. showed the largest numbers of commuters leaving from work.

HOW FAR IS THE COMMUTE?

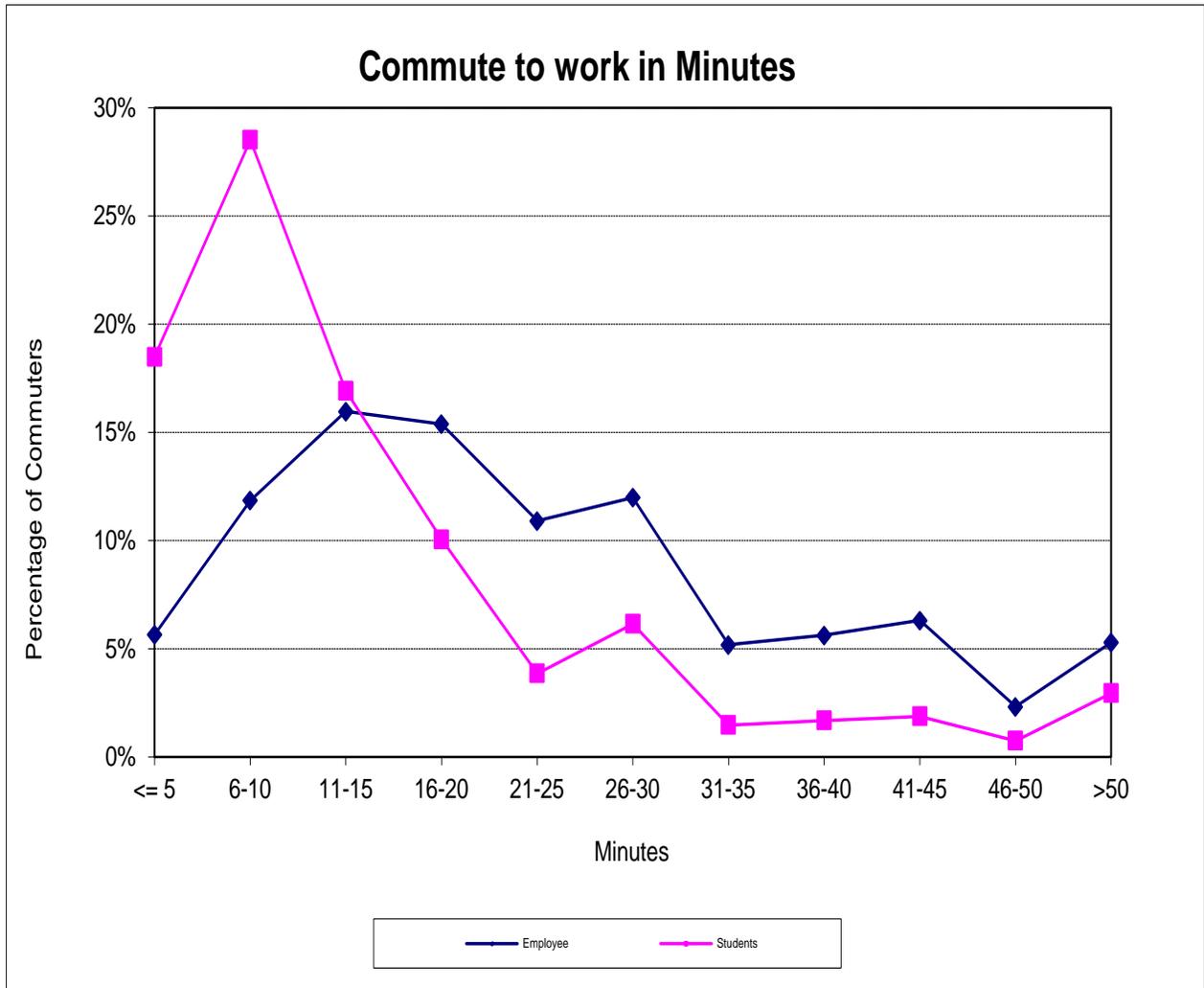


In FY14, the typical TRP commuter (employee or student) could have expected to drive, on the average, 13.9 miles one-way to work or school. While the average drive for an employee was 15.0 miles to work, students drove an average of 7.1 miles one-way to school. Overall, 27.6% of all TRP participants drive less than five miles to work/school. Another 43.2% of the commuters live between 11 and 30 miles from work. Over 7.5% of all commuters have a drive of over 30 miles.



The average trip length by mode split shows that employee trips on all accounts are longer than student trips. However, employees' longest commuting trips are taken using an alternative mode, not SOV's. The longest of these trips using alternative modes are vanpools (34.6 miles) and trips not taken (CWW's – 17.1 miles, and Telecommuting – 20.7 miles). This indicates that those commuters who live farthest from work are more likely to use these alternative mode types as their commuting method.

HOW LONG DOES THE COMMUTE TAKE?

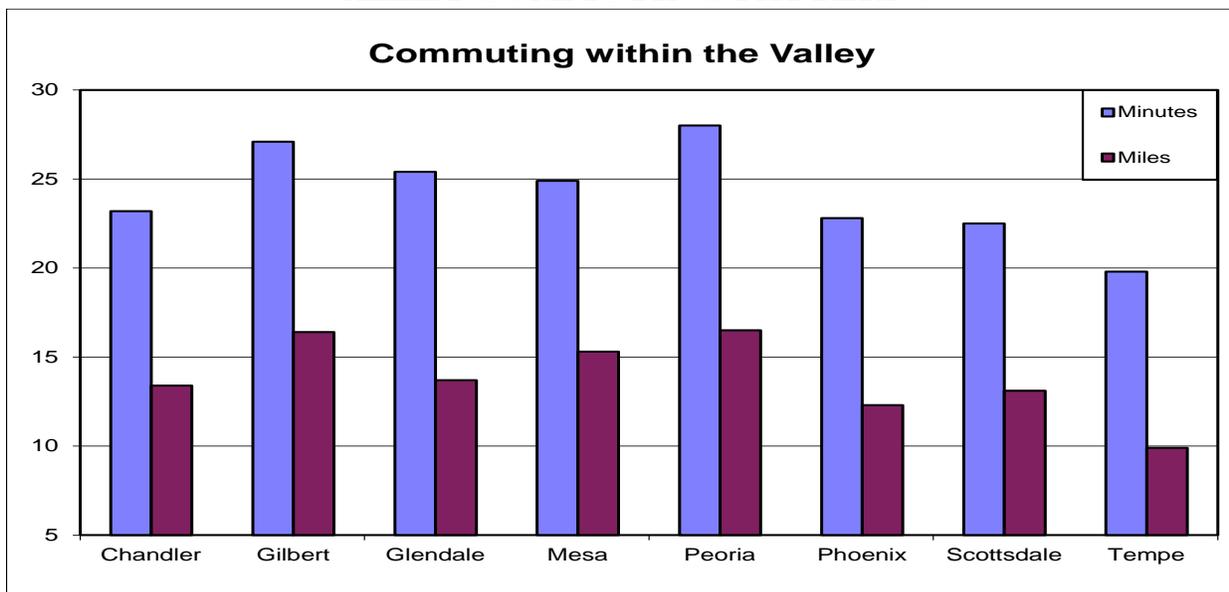


Typically, TRP participants can expect to spend an average of 24.0 minutes commuting to work or school. Students take an average of 15.9 minutes to get to school, while employees average 24.7 minutes to get to their worksite.

Approximately 52% of all commuters take less than 20 minutes to arrive at work/school. The largest group of all respondents is represented by those who take between 11 and 15 minutes to commute, while 22% of commuters take over 30 minutes or more to get to their worksite.

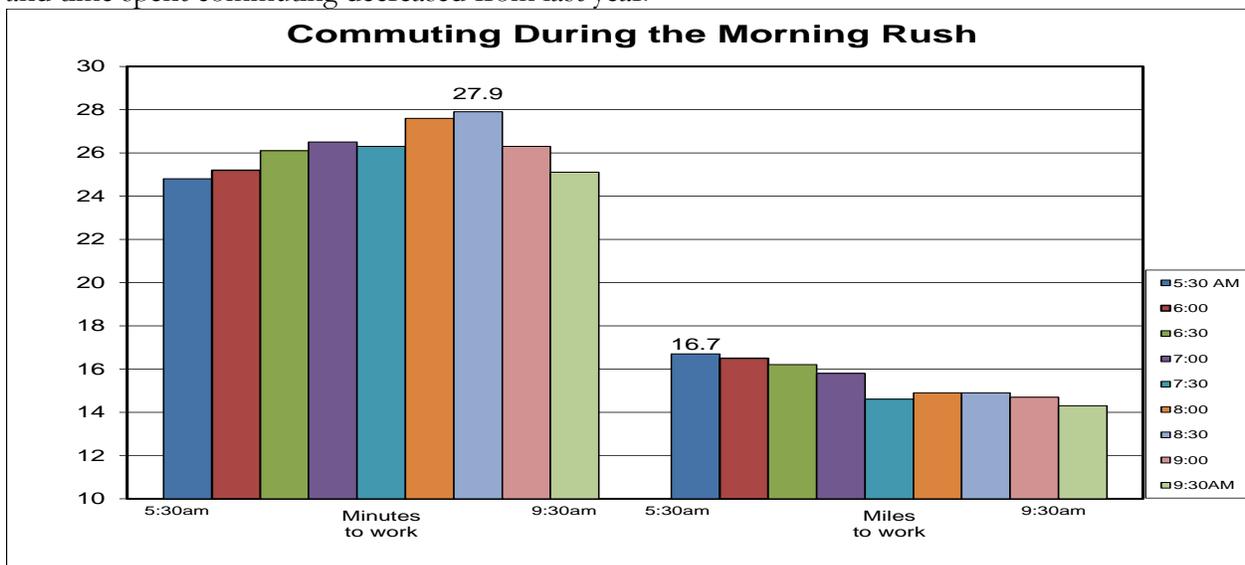
For students, 63% commute to school in 15 minutes or less. Nearly, 25% of all employees take more than 30 minutes to arrive at their workplace.

VALLEY COMMUTING PATTERNS



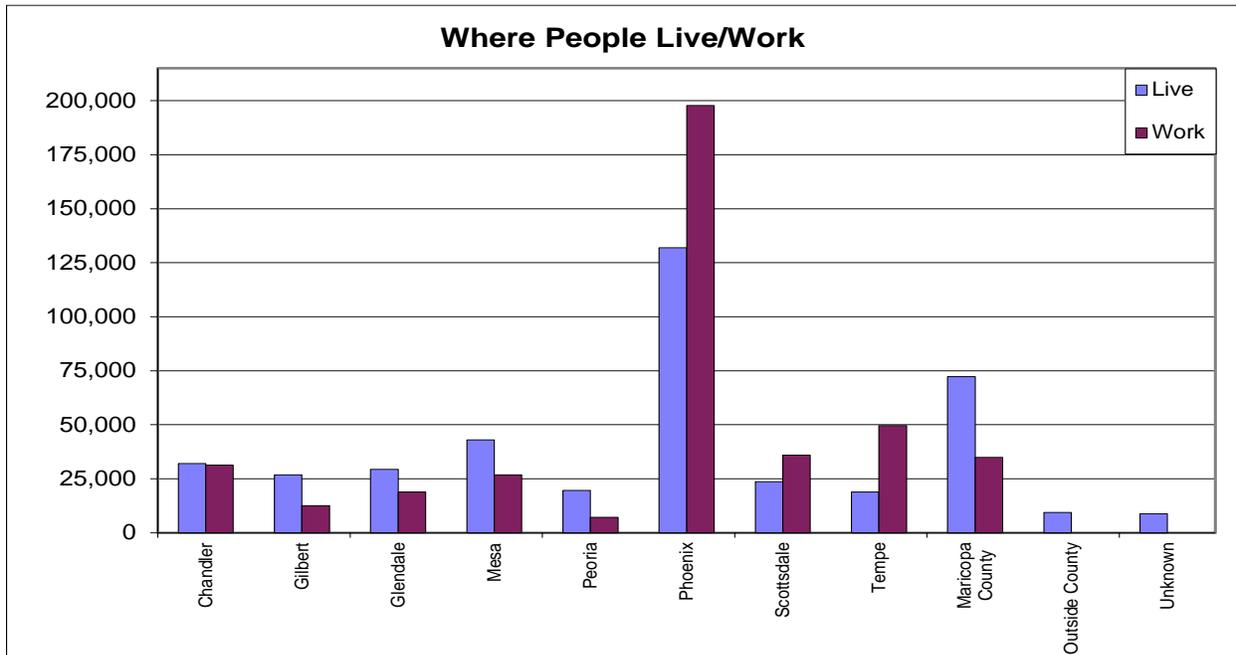
Of the eight largest municipalities in the Valley, the time and distance spent commuting to work can vary depending upon where one lives. For all communities, the time spent commuting correlates to the distance traveled to work.

The two Valley communities that have the longest commute in minutes and miles are Peoria and Gilbert. This may be that these commuters must travel outside of their area of residence to get to their worksite. For nearly all these major cities, TRP participants found that their distance traveled and time spent commuting decreased from last year.



For Valley commuters, the morning rush is worse during the later portion of the commute. The average morning commute takes about 26.5 minutes and is 15.4 miles long, both increased from last year. A TRP commuter may experience, nearly a 28-minute drive if they begin work at 8:30 a.m., even though it is one of the shorter commute trips. It is also noted that those who have a longer distance to commute, depart for work earlier in the morning.

WHERE TRP EMPLOYEES LIVE COMPARED TO WHERE THEY WORK



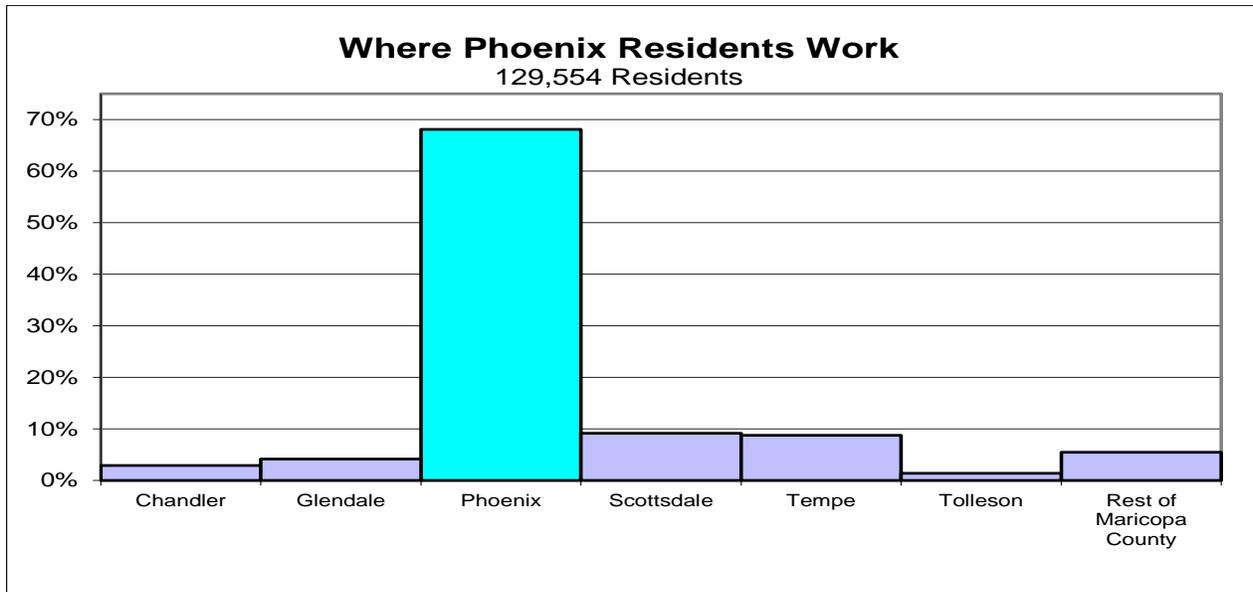
During FY14, 415,779 employees responded to the survey indicating their city of residence. For the purposes of this report, only those cities whose residents total 19,000 or more employees in the TRP for the year are listed.

As expected, the City of Phoenix is the largest contributor in both residents and number of employees in the workforce. While 131,919 residents live in Phoenix, 197,766 work within the city limits. Other cities that have a positive employee/resident ratio (more employees working in an area than live in that area) are Scottsdale and Tempe. This trend indicates that these cities have to accommodate more commuters coming into their communities during the rush hours. Additional use of alternative modes of transportation will be needed in order to reduce traffic congestion associated with commuters getting to their worksite.

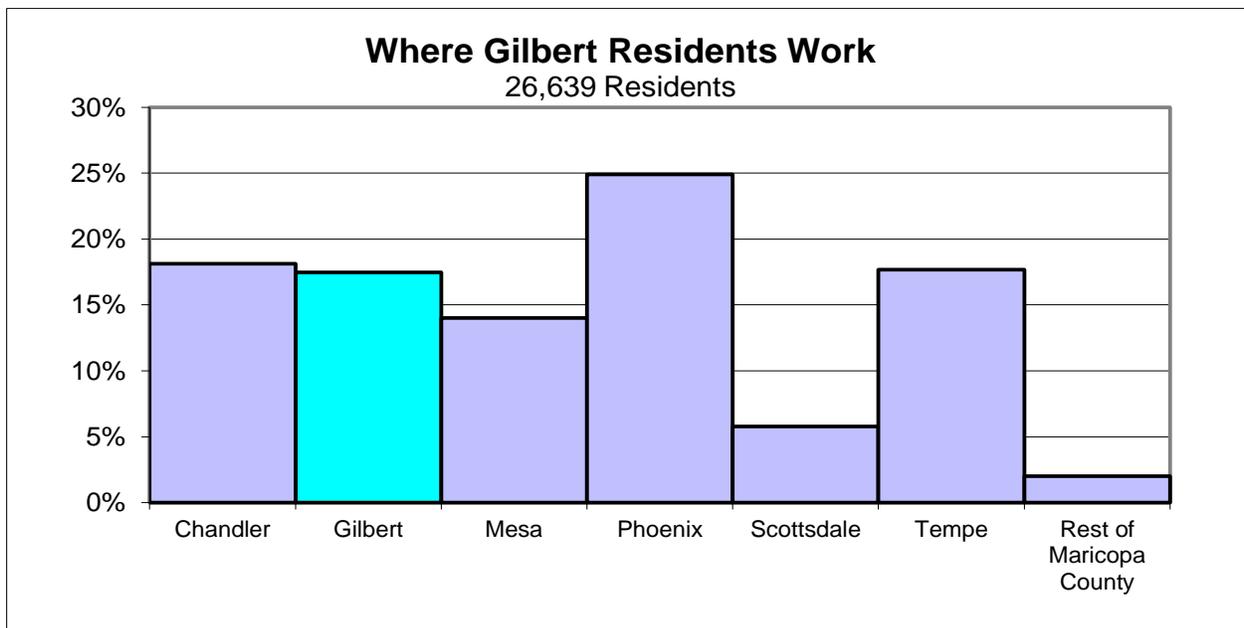
Conversely, all other major cities in the area have a negative employee/resident ratio (more resident live within the city, than work in that area). These communities also face the task of commuters returning to their residences. The Town of Gilbert shows true characteristics of a 'bedroom community'; while there are 26,800 residents in Gilbert who participate in the TRP, only 12,557 TRP participants work in Gilbert.

The following charts show two completely different examples of demographic trends here in the Valley. The city of Phoenix represents the typically large metropolitan area with major employers within the city limits, while the Town of Gilbert shows signs of being the suburban enclave where commuters live, but work in surrounding cities.

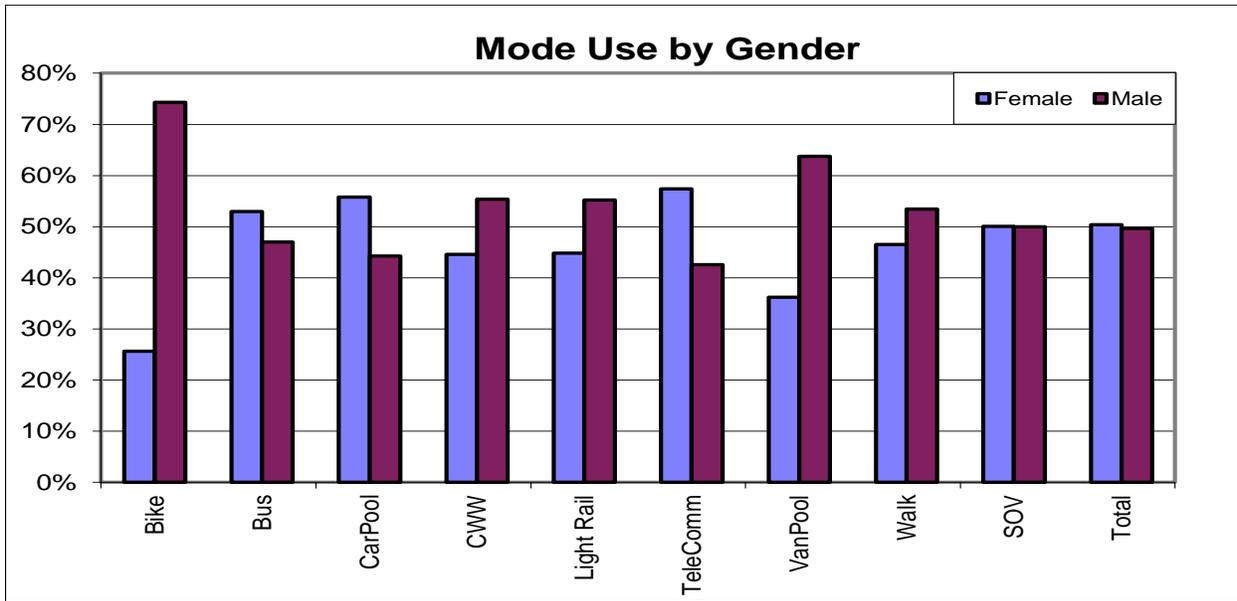
Of all Phoenix residents in the TRP, 68.1% (88,238) live and work within the city limits. Approximately 26.4% of all other Phoenicians work in adjoining major cities. While the rest of the city's residents work throughout the County, representing only 5.5% of Phoenix TRP residents.



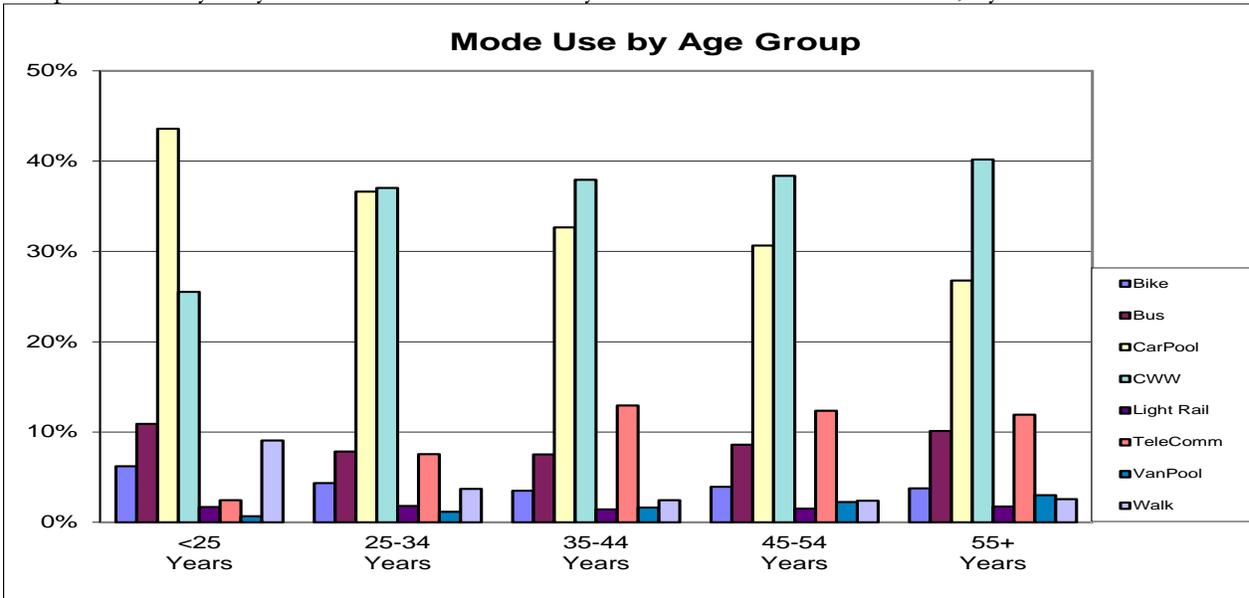
Representing the other side of commuter travel, the majority of the Town of Gilbert residents work in other cities in the Valley; over 82.5 work outside of Gilbert. Only 17.5% of the TRP participants (4,650) who live in Gilbert also work within the city limits. This indicates that Gilbert residents who participate in the TRP continue to seek work outside of the town, resulting in a true bedroom community. Comparatively, for the other major cities in Maricopa County, the average percentage of residents who live and work in the same city is approximately 34% for TRP participants. The Town of Gilbert is substantially below the average for other major cities in Maricopa County.



DEMOGRAPHIC DATA



For this year, over 309,000 TRP participants answered the optional question on gender. Females account for 50.4% of the total responses. While women show a higher percentage than men do of carpooling and tele-commuting, men are more likely to use bike and vanpool. The greatest disparity is represented by bicyclists. Men are more likely to bike to work than women, by a 3:1 ratio.



For those who responded to the optional question on age, the older the age group in TRP, the more likely the commuter will use vanpooling and compressed work week (CWW) as their alternative mode to get to their worksite. The younger age groups are more apt to use biking and walking when traveling to work. Those younger than 25 years old are more likely to use a bike, carpool, walk or bus than any other group and are the least likely to use telecommuting as an alternative mode by a greater disparity. The 35-44 year old group telecommutes more often than other groups. Those 55 years and older, typically use CWW or vanpools more than any other group.

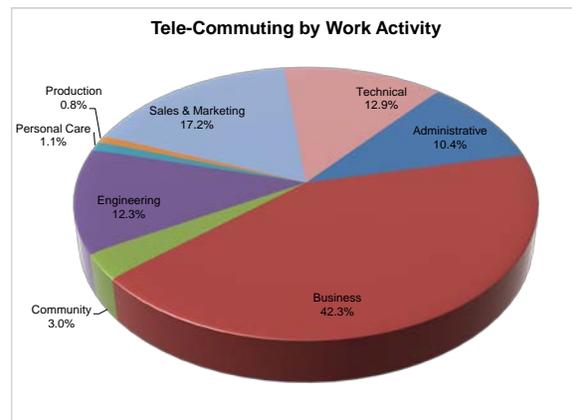
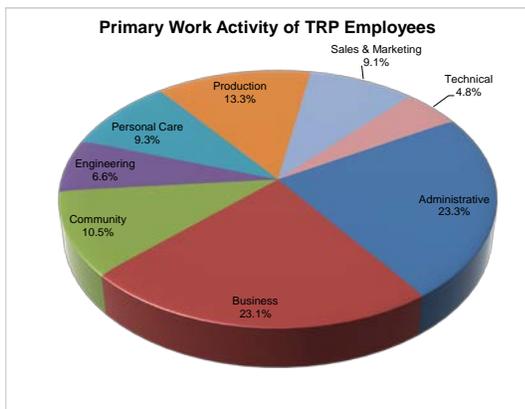
WORK ACTIVITY FOR TRP PARTICIPANTS

In recent years the TRP has monitored the work activity of employees by adding the following question. “What best describes your primary work activity on a regular basis?” The categories for work activity were chosen based upon demographic modeling tracked by the Maricopa Association of Governments (MAG). With a more detailed listing of each group described below. For brevity’s sake, all work activities are abbreviated on the pie charts.

Administrative	Administrative/Clerical/Retail
Business	Business/Financial/Professional
Community	Community Support/Teaching
Engineering	Engineering/Research/Design
Personal Care	Personal Care & Services
Production	Production/Construction/Transport
Sales & Marketing	Sales & Marketing
Technical	Technical Support

For an overall analysis of work activities by TRP employees, the chart on the left shows how commuters identify themselves in their jobs. Generally speaking, one of the largest number of respondents fall into the category of ‘Administrative’; over 23% of employees claim they perform some type of administrative function daily.

In order to give a contrast of what type of work activity an employee does and what type of alternative mode they may use, a side by side comparison is shown below. To limit charts and graphs, only one example of an alternative mode is shown, tele-commuting. Comparatively, 10.4% of all tele-commuters work an administrative job. This comparison makes perfect sense. Those in ‘Production’ and ‘Personal Care’ are less likely to have the opportunity to tele-commute, because their type of job does not allow for them to work from home.



FY 2014 Objectives

- Encourage TRP employer promotion of alternative modes of transportation, including carpooling, vanpooling, taking the bus, using the light rail, bicycling, walking, and alternative fueled vehicles, as well as alternative work schedules including telecommuting and compressed work schedules.
- Provide training and assistance to TRP employers in all aspects of the Trip Reduction Program requirements such as conducting surveys, writing, and implementing a TRP plan.
- Conduct presentations and training to promote alternative modes of transportation and work schedules to employer management, TRP organization committees, and Transportation Coordinator Associations, and facilitate and assist with the marketing and promotion of a year round RPTA campaign for Valley employees that encourages weekly use of trip reduction solutions and transportation fair events through distribution of brochures.
- Increase the number of TRP employers that implement strategies to promote the use of alternative modes of transportation and work schedules, such as subsidized public transit and vanpool fares, preferential parking, and guaranteed ride home, and who offer or expand telecommuting and compressed work schedules.
- Encourage and assist employers in establishing a “commuter choice tax benefit” program through education, workshops, and outreach.
- Increase the annual number of TRP employers and driving-aged students utilizing the electronic, e-survey version of the annual TRP survey. The e-survey is available in either the Intranet or the Internet version.

FY 2014 Outcome Measures

Outcome Measure 1: An increase of two percent in the number of alternative Vehicle Miles Traveled by Trip Reduction (TRP) participants from the level achieved in FY13.

Accomplishments: Alternative vehicle miles traveled by “All” sites decreased by 2.0% from the previous fiscal year. “Employee” sites had a decrease of 1.5%, while “Student” sites decreased by 6.3%.

Total Alternative Vehicle Miles Traveled

Site Type	FY 13	FY 14
Students	990,438	927,142
Employees	8,019,057	7,898,551
All	9,009,495	8,825,693

Methods:

Alternative vehicle miles traveled are calculated by adding miles that are used for any alternative mode miles. These modes include riding a bike, using public transit, car-pooling, riding the light rail, working a compressed work week, telecommuting, van-pooling and/or walking. Miles are shown for one-way miles per week.

Variables for program participants along with changes in methodology used to collect and calculate commuter miles, trips and modes will impact reporting. This reporting outcome was affected by a combination of the following factors: 1) The number of commuters who use an alternative mode of travel and how they answer the survey questions vary each year and can cause fluctuations in data results year over year; 2) Other external issues impact commuter driving patterns, such as: employment / school enrollment levels, fuel costs, availability of transit and other alternative mode options, etc.; 3) The calculation factors used to determine how many miles are driven to produce one-pound of pollution. The regional miles/pound factor increased from 49.6 to 70.5, this large increase is due to the EPA updating its assessment model for on-road mobile source emissions; and 4) the number of completed surveys returned by employers contributes to fluctuations in the aggregated results.

Outcome Measure 2:

An increase of two percent in the “tons of pollution saved” for those commuters using an alternative mode of travel to get to their workplace from the level achieved in FY13.

Accomplishments:

The amount of "Tons of Pollution Saved Annually" by "All" site types for this fiscal year was 10,832 tons. "Employee" sites saved 9,738 tons, while "Student" sites saved 1,094 tons. For "All" site types, this was a decrease of 18.1%, when compared to last year.

Methods:

$$\begin{matrix} \text{VOC} & + & \text{NO}_x & + & \text{CO} & + & \text{PM} & = & 1 \text{ lb. of pollution} * \\ 6.92\% & & 10.38\% & & 82.54\% & & 0.16\% & & \end{matrix}$$

The on-road emissions model used to calculate miles per pound for Light Duty Gasoline Vehicles (LDGV) was updated this reporting period by the EPA. It officially replaced the previous emissions model, MOBILE6.2, with the Motor Vehicle Emission Simulator (MOVES2010b) model. The new model continues to calculate how many miles driven it takes to generate one-pound of pollution for a standard on-road vehicle.

For this reporting period the TRP conversion rate for Natural Gas vehicles is derived from the MOBILE6.2 model. Currently, the EPA is still making adjustments to their model to calculate emission rates for Light Duty CNG Vehicles (LD NGV) and plan to release the final version of MOVES2014 once tested by Maricopa Association of Governments (MAG). The LD NGV calculation is used to measure the credit amount given for commuters who select Alternative Fuel Vehicles (AFV) as their mode use.

Outcome Measure 3: An increase to 36 percent in the annual commuter use of alternative modes – one or more days per week - from the level achieved in FY13 based on TRP survey.

Accomplishments: The commuter use of alternative modes for one or more days per week went from 34.46% to 34.86%, a change of 1.2% when compared to last fiscal year.

Methods: All commuters who use an alternative mode at least one day per week are counted and then divided by the total number of users whose trips are three days or more per week. A combination of factors has impacted this measure this year: 1) credits for AFV trips were readjusted to reflect the most current factors calculated by MAG and the EPA; and 2) program participation varies year over year.

Outcome Measure 4: An increase of five in the annual number of employers who subsidized the bus/light rail for employee commuter programs from the number achieved in FY13.

Accomplishments: The number of employers subsidizing the **Bus/ Light Rail** went from 429 to 428.

Outcome Measure 5: An increase of two in the annual number of subsidized vanpools for employee commuter programs from the number achieved in FY13.

Accomplishments: The number of employers who have a **Vanpool** program went from 50 to 48.

Outcome Measure 6: An increase of five in the annual number of employers that start telecommuting programs from the number achieved in FY13.

Accomplishments: The number of employers who have a **Telecommuting** program went from 376 to 361.

Outcome Measure 7: An increase of five in the annual number of employers that start compressed work week programs from the number achieved in FY13.

Accomplishments: The number of employers subsidizing a **CWW** program went from 455 to 422.

TRP Plan Measures 4 through 7

Measure #	Alternative Mode	FY 13	FY 14	% Change
4	Bus / Light Rail(Subsidized)	429	428	-0.2%
5	Vanpool (Subsidized)	50	48	-4.0%
6	Telecommute	376	361	-3.9%
7	CWW	455	422	-7.2%

The number of employers using alternative modes may vary from year to year, because of TRP employers entering or leaving the program and other commuting influences.

Methods: Numbers for the alternative mode uses are for employers who are/were active during this reporting period that had these measures in their TRP plan. The subsidized bus measure can either be fully or partially subsidized by employers. Vanpool is subsidized either by Valley Metro and/or by the employer.

Outcome Measure 8: An increase of five percent in the annual number of TRP employers utilizing the electronic, e-survey version of the annual TRP survey from the number achieved in FY13.

E-Surveys Used by TRP Employers

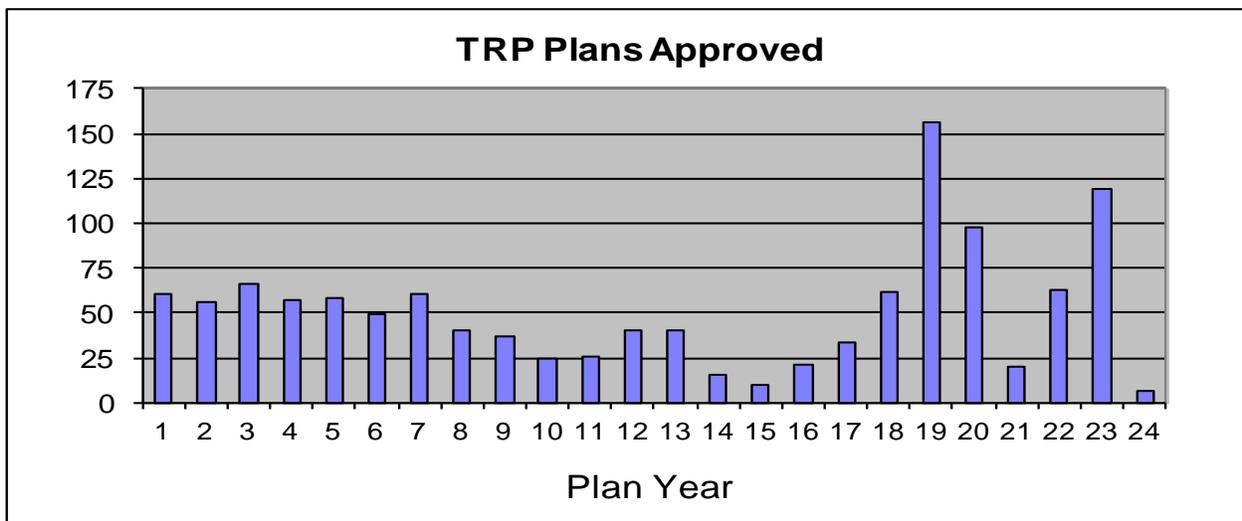
E-Surveys	FY 13	FY 14	% Change
Surveys	317,827	433,413	39.5%
Employers	326	386	18.4%

Methods: There are two types of e-surveys: Internet version – created by Maricopa County TRP that is accessible to any company from the Maricopa County government webpage and Intranet version – created by the surveying company in conjunction with Maricopa County TRP and resides on the company’s server accessible only to the company’s employees. Both versions account for the total number of e-surveys completed, thus decreasing the amount of paper surveys distributed by the TRP throughout the surveying cycle.

TRIP REDUCTION PLANS

During Fiscal Year 2013-2014, the County received 1,120 plans and presented 1,119 plans to the Task Force for review and approval. Of those approved by the Task Force 47 of them were first year plans.

- TRP staff initiated 826 requests for plan revisions. A vast majority of those requests included a prompt to enhance the plan by adding a new measure or improving an existing measure.
- Thirty-one (31) employers eventually had their plans formally rejected by the Task Force. The primary reason was the failure to provide a substantially enhanced plan when the regional targets were missed. While three of those 31 employers had their revised proposal rejected a second time by the Task Force, all 31 eventually provided an approvable plan.
- Forty-eight (48) companies had their second annual plan approved, with the average number of measures (per plan) equal to 7.64. For comparison, the average year one plan contained 6.43 measures. Measures consist of incentives, subsidies, physical amenities, promotions and scheduling that promotes reduced SOV travel.



Monitoring

The TRP staff will follow-up with employer to confirm their approved plan has been implemented/documented. A substantial amount of monitoring occurs through written and verbal channels, with the balance accomplished by staff visiting the employer sites. During this year, 467 monitoring calls were made and 757 site visits were conducted. When an employer fails to implement or document one or more approved measure(s), staff will issue a 'Request for Documentation' (RFD) to resolve the matter. During this year, staff issued 341 RFDs.

Enforcement

Enforcement is initiated when an employer fails to respond to staff's outreach regarding a pending delinquency. Enforcement activities occurring during FY14 are as follows:

- Eighty-one (81) Notices of Violation (NOV) were issued for failure to submit a plan, supply documentation or appoint a Transportation Coordinator.
- No formal legal action was taken and no civil penalties were levied in FY14.

Cost Analysis

A.R.S. §49-584 STAFF DUTIES, references the ability of the task force to consider the cost of the employer's travel reduction program compared to the average cost of such program for all major employers. Periodic cost studies of average plan costs assist staff in the plan review process and provide a benchmark for the task force when assessing whether a plan should be approved. In FY14, staff analyzed plan costs and employee counts from 1,089 annual plans approved by the Task Force from July 2013 through June 2014. The average plan covered approximately 667 employees and driving-age students. The average annual plan expense for FY14 was \$29.09 per employee and driving-age student. In FY12 the average plan cost was \$21.55 and in FY10 the average cost was \$20.45. Factors that affected the FY14 results include a rise in transit fares, steady improvements in the economy that helped organizations restore or initiate incentives and more detailed expense reporting provided by several large institutions. For more information, the current Employer Cost Study report is available on the Maricopa County Air Quality Department, Trip Reduction Program website.

CONCLUSION

In FY14, the TRP is currently in its twenty-fifth year of operations. Analysis of the TRP data show that the employees/students participating in the TRP continue to be strong supporters of using alternative modes of transportation in order to get to work or school. The TRP has shown a decrease in the number of trips saved and pounds of pollution saved this year.

A number of changes in methodology used to collect and calculate commuter miles, trips, modes and pollution saved impact this reporting period. The reporting outcome was affected by one or more of the following reasons: 1) credits for Alternative Fuel Vehicle (AFV) use were calculated for trips or miles driven. Full or partial credit was given to electric, hybrid and natural gas vehicles; 2) other external factors impacted commuter driving patterns, such as: the calculation factors used to determine how many miles are driven to produce one-pound of pollution. The regional miles/pound factor increased from 49.6 to 70.5; and 3) the number of completed surveys returned by employers cause fluctuations in the aggregated results year over year.

Alternative mode users in the TRP continue to support the program by showing a substantial amount of miles driven weekly in order to reduce Valley pollution. The total amount saved this year was 24.5 million miles weekly for alternative mode commuters. Carpool and vanpool miles accounted for 62.1% of all miles saved. The miles saved by TRP commuters resulted in 10,832 tons of pollution not being produced. Even though commuting distances and time traveled to the worksite have increased this year, TRP participants continue to make environmentally sound decisions by choosing to use an alternative mode in order to lessen their SOV trips.

The employees who participate in the program continue their support of the TRP as shown by a high survey response rate, 70.08%. Employee's contribution to the amount of pollution saved annually accounted for 89.9% in the TRP. The e-survey continued to be a successful format for TRP employers to survey their employees. The number of companies using the e-survey this year increased from 326 to 386, 55.5% of all employees used the e-survey this year.

The miles saved by alternative mode use for students was 1,094 tons of pollution annually. In addition, this was the second year where students used the e-survey. The number of students filling out the web-based survey increased to 55% of all students. Since new high school driving-age students enter the TRP annually, RPTA's efforts to educate students on the program's environmental benefits represent an ongoing training opportunity. Educating students on the use of alternative modes to commute will only increase the probability that once the students are out in the workplace they will continue with their learned environmental commuting practices.

SURVEY FORM METHODOLOGY

Maricopa County Regional Trip Reduction Program Fiscal Year 2013 - 2014

Introduction:

The Maricopa County Regional Trip Reduction Program (TRP) has completed its twenty-fifth program year. During FY14, the TRP modified its methodology to accommodate its latest version of the survey questionnaire. Each program year, new methodologies, procedures and definitions are implemented to improve the overall quality of the TRP.

Response Rate:

Employers and schools affected by the TRP conduct a trip reduction survey annually and are required to achieve a minimum response rate of 60% per site. The response rate is calculated based on the number of questionnaires returned to the TRP divided by the number of surveys requested. An employee site not achieving the minimum response rate is required to re-survey. If that site does not achieve the minimum response rate on the re-survey, the non-respondents are counted as single occupant commuters. Student sites do not have to re-survey if they do not achieve the minimum response rate, nor do they incur a statistical penalty for non-respondents.

Program Year:

The TRP's method for measuring employers' participation is based on the employer's site program year. This methodology permits the aggregation of employment sites based on program year.

For purposes of maintaining consistency and tracking a company's historical data from one year to the next, data gathered for a company is based upon the company's anniversary date. This has been changed from previous years where the inclusive date was based upon the company's summary analysis sent date. The reason for this change is that the anniversary date is less likely to fluctuate for a company than the summary analysis sent date. This allows TRP the capability to track the same companies and their results for any given time period with greater accuracy.

Valid Surveys:

Three questions from the TRP survey are necessary to constitute a valid questionnaire. A valid response to question #1 is used to verify that an employee reports to the worksite three or more days per week; question #3 validates the mode used by the commuter and calculates the SOV rate; and question #6 is needed to calculate the SOV miles traveled rate. Currently, the maximum one-way distances that exclude questionnaires from statistical analysis are:

<u>Mode of Transportation</u>	<u>Maximum One-way Distance</u>
Drive alone (SOV)	> 150 miles
Carpool	> 150 miles
Vanpool	> 150 miles
Alternative Fuel Vehicle (AFV)	> 150 miles
Bus (Public/School)	> 75 miles
Light Rail	> 50 miles
Bike	> 50 miles
Walk	> 10 miles

Establishing SOV Targets:

SOV trip and mile targets are established to give employers their SOV reduction goals for the following year and in subsequent years. Effective July 1, 1994, employer's annual SOV reduction goals increased from 5% to 10% for the first five target years. SOV targets for the sixth year and subsequent program years are 5% annually.

Site Analysis:

Two indexes, the SOV trip and SOVMT rates, are used to measure the amount of SOV reductions per employment/student site. SOV trips are calculated from question #1 and #3 on the TRP questionnaire. The formula for this calculation is:

SOV Trip Rates:

SOV Trips = Drive alone trips + Penalty trips₁

Total Trips = SOV trips + AFV trips + Carpool trips + Bus trips + Bike trips + Light Rail trips + Walk trips + Vanpool trips + Telecommuting trips + CWW trips

SOV Trip Rate = $\frac{\text{SOV trips}}{\text{Total trips}}$

Assumptions used in measuring the SOV trip rate are: 1) calculating SOV trip rate allows for changes (increase or decrease) in the work force population, 2) motorcycles are considered SOV trips since their emission standards are higher than automobiles and 3) factoring carpool and vanpool trips by the average vehicle occupancy (AVO) would adversely impact small companies.

¹ Penalty trips are non-respondents on a re-survey that are counted as single occupant commutes.

The other index, the SOVMT rate is obtained by multiplying the number of one-way miles traveled to the worksite (question #6) by the modes of transportation (question #1 and #3). The total number of carpool or vanpool miles traveled weekly per site is factored by the AVO. The AVO is calculated from question #5 on the TRP questionnaire. The formula for computing the SOVMT rate is:

SOVMT Rate:

$$\text{SOVMT} = \text{Drive alone miles} + \text{Penalty miles}_1$$

$$\text{Total VMT} = \text{SOVMT} + \text{AFV miles} + (\text{Carpool miles}/\text{AVO}) + \text{Bus miles} + \text{Bike miles} + \text{Light Rail miles} + \text{Walk miles} + (\text{Vanpool miles}/\text{AVO}) + \text{Telecommuting miles} + \text{CWW miles}$$

$$\text{SOVMT Rate} = \frac{\text{SOVMT}}{\text{Total VMT}}$$

The assumptions used in calculating the SOVMT rate are: 1) SOVMT rate allows for changes in the work force population, 2) the SOVMT rate controls for changes in the location of employment sites and/or employee residence, 3) the SOVMT rate accounts for employees/students changing from an SOV mode of transportation to one of the main alternative modes of transportation (carpool, vanpool or bus), as well as employees/students changing to bike or walk modes of transportation and 4) factoring by AVO more accurately measures the amount of miles traveled in carpools and vanpools to the worksite.

Accounting for Telecommuting and Compressed Work Week Schedules:

Telecommuting trips measure the number of days per week a respondent works at home instead of traveling to the work site. Compressed work week schedules (CWW) measure the number of respondents working a 4-day week (10-hour work days), 3-day week (12 hour work days), alternating 3-day/4-day workweeks (36 hours one week, 48 hours the next week) and 80 hours in nine (9) days (9/80).

The assumptions used in accounting for CWW and telecommuting work schedules are 1) telecommuters and CWW employees are SOV commuters; and 2) CWW work schedules and telecommute trips are considered trips not taken; and 3) a commuter cannot live greater than 150 miles from their work site to be considered one of these types of alternative mode users.

1 Penalty miles are non-respondents that are counted as single occupant commutes.

Accounting for Alternative Fuel Vehicle trips and miles:

Alternative Fuel Vehicles (AFV) are given credit for trips and miles when a respondent selects a fuel type from question #4 on the survey. Credit criteria were initially calibrated with the assistance of Maricopa Association of Governments (MAG) and the Environmental Protection Agency (EPA). Credit for AFV types will be adjusted as criteria for the fuel type will be recalibrated each year.

The assumptions used in accounting for AFV trips and miles are: 1) AFV users are SOV commuters and 2) if another alternative mode was marked on the survey, credit is given to that mode.

Below is a current list of AFVs for this year that TRP gives credit for trips and miles to employers.

<u>Alternative Mode</u>	<u>Calculated Credit</u>	
	<u>Jul-Dec 2013</u>	<u>Jan-Jun 2014</u>
Electric	1.0	1.0
Hybrid (gas/electric)	0.45	0.453
Hydrogen	1.0	1.0
Natural Gas	0.45	0.453

The on-road emissions model used to calculate miles per pound for Light Duty Gasoline Vehicles (LDGV) was updated this reporting period by the EPA. It officially replaced the previous emissions model, MOBILE6.2, with the Motor Vehicle Emission Simulator (MOVES2010b) model, beginning January 2014. The new model continues to calculate how many miles driven it takes to generate one-pound of pollution for a standard on-road vehicle.

For this reporting period the TRP conversion rate for Natural Gas vehicles is derived from the MOBILE6.2 model. The EPA is still making adjustments to their model to calculate emission rates for Light Duty CNG Vehicles (LD NGV) and plan to release the final version using the MOVES2014 model. The LD NGV calculation is used to measure the partial credit amount given for commuters who select those AFV's that qualify using those modes.

Comparing Change in SOV Rates:

The SOV trip and SOVMT rates obtained in the current year are compared with the SOV rates obtained in the previous year for each employment/student site. Each employer and site is given an employer code and a site number that make it possible to compare sites from year to year. The SOV trip and SOVMT rates are compared annually by using the following formula:

$$\frac{\text{SOV Rate Current Year} - \text{SOV Rate Previous Year}}{\text{SOV Rate Previous Year}}$$

Aggregate Analysis:

Aggregate models used to measure the overall impact of the TRP on reducing SOV trips or SOV miles are very similar to the models used to measure employment sites. Aggregate analyses are performed for quarterly reports, year-end reports and special studies. The guidelines for including employee and student sites into aggregate analyses are: 1) an employee/student site must be available for all years under investigation and 2) affected sites are analyzed separately for employee and student populations.

Aggregate Models for SOV Rates:

SOV Trip Rate:

$$\text{SOV Trips} = \text{Drive alone trips} + \text{Penalty trips}$$

$$\text{Total Trips} = \text{SOV trips} + \text{AFV trips} + \text{Carpool trips} + \text{Bus trips} + \text{Bike trips} + \text{Light Rail trips} + \text{Walk trips} + \text{Vanpool trips} + \text{Telecommute trips} + \text{CWW trips}$$

$$\text{SOV Trip Rate} = \frac{\text{SOV Trips}}{\text{Total Trips}}$$

SOVMT Rate:

$$\text{SOVMT} = \text{Drive alone miles} + \text{Penalty miles}$$

$$\text{Total VMT} = \text{SOVMT} + \text{AFV miles} + (\text{Carpool miles/AVO}) + \text{Bus miles} + \text{Bike miles} + \text{Light Rail miles} + \text{Walk miles} + (\text{Vanpool miles/AVO}) + \text{Telecommute miles} + \text{CWW miles}$$

$$\text{SOVMT Rate} = \frac{\text{SOVMT}}{\text{Total VMT}}$$

Definitions:

Alternative Fueled Vehicle (AFV) - a motor vehicle that is a hybrid, electric, uses biodiesel, hydrogen or natural gas propane instead of conventional or diesel fuel.

Carpool - Rides shared in private automobiles by two or more people, on a continual basis, regardless of their relationship to each other or cost-sharing agreements. Vehicle can include, but not limited to, sedan-like vehicle, SUV or mini-van.

Commute Alternatives - Carpooling, vanpooling, making use of the public transit system, bicycling or walking as commute modes for traveling to and from work.

Compressed Work Week (CWW) - Management reschedules the normal five-day, forty-hour week to longer hours per day but fewer days per week.

High Occupancy Vehicle (HOV) - A motor vehicle occupied by two or more people.

Single-Occupant Vehicle (SOV) - A motor vehicle occupied by one person commuting to work/school. This definition also includes commuting to work on a motorcycle.

Telecommuting - The use of telecommunications technology to transport information rather than people to the work place. Generally speaking, telecommuting is simply working at the home instead of going to the work site.

Vanpool - The prearranged membership of a group whose members are picked up by a van at specific points and are taken to common or nearby employment sites, then returned to the pick-up point(s) after the end of the workday, usually for a monthly fare.

Vehicle Miles Traveled (VMT) - The total one-way distance traveled in miles by all motor vehicles of a specified group at an employment site.