

US 395
Origination and Destination Study
Year 2011



California Department of Transportation
Caltrans Improves Mobility Across California





US 395
Origination & Destination Study
Year 2011

Prepared
by
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Office of System Planning

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2011 US 395 Origination and Destination Study

EXECUTIVE SUMMARY

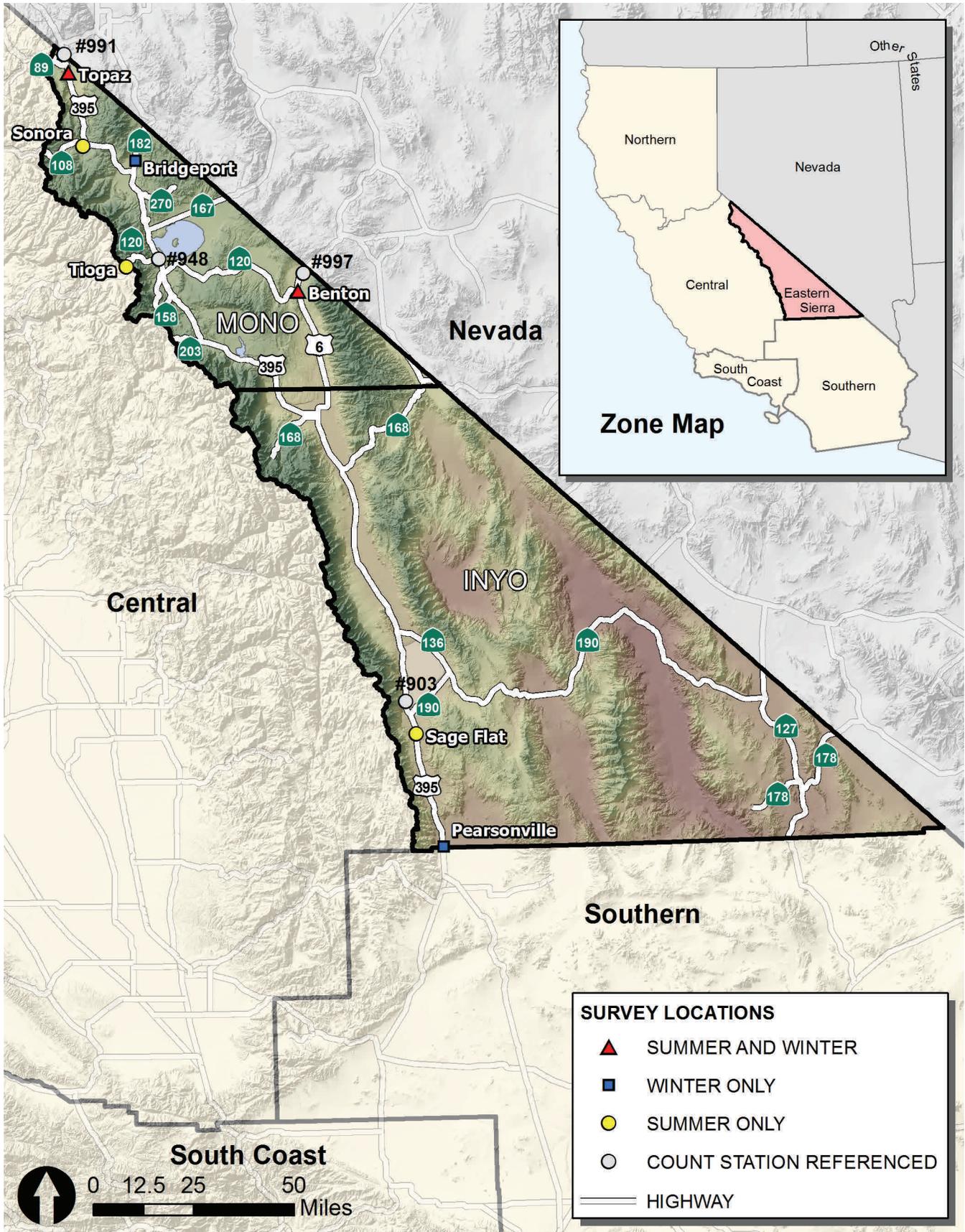
The California Department of Transportation (Caltrans) District 9 System Planning Unit conducted an Origination and Destination (O&D) Study during February, March and August of 2011. The purpose of the study was to gather detailed information about trip movements and travel patterns along the United States (US) 395 corridor in Inyo and Mono Counties. This information can be used to exhibit the corridor's functionality, evaluate current tourism and economic trends, and plan future highway projects.

Over 11,900 surveys were conducted for the 2011 O&D Study. Drivers were interviewed by Caltrans and Inyo and Mono County staff via a scripted questionnaire at four locations in the winter and five locations in the summer on Wednesdays and Fridays, generally from 8 a.m. to 5 p.m. The methods and logistics of this study follows, as was reasonably achievable, two previous O&D Studies conducted in 1989 and 2000. A 1979 O&D Study gathered some similar data; however, the methods used were significantly different.

Survey Highlights:

- Travelers from the South Coast and Southern zones (see Survey and Count Station Locations and Zone Map, page 2) of California accounted for 47% of vehicles entering the Eastern Sierra.
- Travelers from Nevada accounted for 16% of vehicles entering the Eastern Sierra.
- 61% of respondents stated Inyo or Mono County was their final destination. Of those respondents, 19% were going to Inyo County while 42% were going to Mono County (25% to Mammoth Lakes specifically).
- 54% of Inyo or Mono County overnight visitors stayed one to three nights with the majority staying two nights.
- Recreation was the main trip purpose for 61% of respondents. Of those recreation-oriented respondents, 40% indicated their final destination was Inyo or Mono County.
- 44% of respondents were traveling through the Eastern Sierra without staying overnight.
- 24% of travelers' trips originated from other states.
- 5% of travelers were visiting from foreign countries.
- Average occupancy per vehicle was 2.05 persons.
- Goods movement traffic accounted for 9% of the vehicles in the survey.
- Autos and Sport Utility Vehicles (SUVs) accounted for 63% of the vehicles in the survey.
- Recreational Vehicles (RVs) accounted for approximately 1.7% of the vehicles in the survey.
- 36% of respondents said they sometimes stop in small communities for services other than gas.

Survey and Count Station Locations and Zone Map



INTRODUCTION

Caltrans District 9 has conducted a US 395 O&D Study approximately every ten years since 1979. This study is intended to provide information about travel patterns along US 395, a principal arterial in the Eastern Sierra, and the majority of other principal and minor arterials that feed into Inyo and Mono Counties. Through comparative data analysis, the O&D Study may be used to determine changes in travel trends and traveler behavior, create travel demand models, and aid transportation planning. The basis of this report is 11,916 surveys conducted during the summer (8,350 or 70.1%) and winter (3,566 or 29.9%) seasons of 2011. Throughout the report, results are comprised of both general traffic and goods movement surveys; however, there is a separate goods movement section detailing that information.

Survey information gathered includes:

- Vehicle classification
- Vehicle occupancy
- Trip origin or driver residence (demonstrated by zip code, as applicable)
- Trip destination
- Trip purpose
- Frequency of stops in small communities (often, sometimes, or rarely)
- Location of overnight stay if in Inyo or Mono County
- Type of facility accommodating overnight stay if in Inyo or Mono County
- Number of days, weeks, or months at overnight location if in Inyo or Mono County
- Goods movement and commodities

SURVEY METHODS

For the 2011 study, methods of data collection were modeled after the 2000 and 1989 O&D Studies. The O&D Study has continued to evolve since its inception in 1979. All of the studies (1979, 1989, 2000, and present) observed the types of vehicles utilizing US 395 and other principal and minor arterial roads feeding the US 395 corridor. However, the studies vary regarding specific data collected and survey duration.

2011 Survey¹

Survey personnel interviewed vehicle occupants at six entry points comprised of seven survey locations along the US 395 corridor in Inyo and Mono Counties (not all survey locations were used for both winter and summer). Budgetary constraints changed some aspects of this survey from the previous surveys; including, survey duration and number of staff at each survey location. Other deviations from previous studies were: proportion of vehicles surveyed, addition of surveyors speaking Spanish, and some survey questions were revised to add clarity. While the selection of survey sites was based on the 2000 O&D Study, exact locations did vary slightly. The survey area's southern entry point consists of two survey locations, one at Pearsonville (winter) and the other at Sage Flat Drive (summer).

¹See Appendix D for detailed information on the 2011 data analysis methodology.

As occurred in the previous study, winter road closures prevented surveying on State Routes (SR) 120 and 108 during that season. Extremely low vehicle volumes and inclement weather resulted in one survey day, Friday, March 4th, for SR 182. The other locations had surveys conducted on one Wednesday and one Friday both in the winter and summer typically between the hours of 8 a.m. and 5 p.m.

2000 Survey

Survey personnel interviewed vehicle occupants at six entry points along the US 395 corridor in Inyo and Mono Counties. Also, personnel conducted a complete count and classification of all of the vehicles that passed the survey area. Both the interview and vehicle classification operations took place from 7 a.m. to 5 p.m. in the winter and 7 a.m. to 7 p.m. in the summer.

The total number of surveys conducted at all the stations was 15,188 in the summer and 5,128 in the winter. The dates for the winter and summer surveys avoided holidays in order to collect average weekday and weekend data. For the 2000 survey, Wednesdays or Thursdays were the weekday sampling days while Fridays, Saturdays, or Sundays were the weekend sampling days.

The first three weeks of August were used for the summer survey and the last week of February and first week of March were used for the winter survey. Survey dates were chosen to coincide with the dates of the surveys done in 1979 and 1989.

1989 Survey

Survey personnel interviewed vehicle occupants and recorded vehicle type at six survey locations on major routes entering Inyo and Mono Counties. Surveys were conducted from 8 a.m. to 5 p.m. and classification counts were done for the entire twenty-four hour period of each survey day.

The total number of surveys conducted was 16,761. The winter survey occurred on a neutral non-holiday February weekday and the following Friday and Saturday of the Presidents Day weekend. The summer survey occurred on a neutral August weekday and the following Friday and Saturday.

1979 Survey

Survey personnel recorded license plate numbers of outbound vehicles on US 395 from Inyo and Mono Counties. From the identified license plate numbers, the Department of Motor Vehicles provided the registered owners' name and address. A questionnaire was then mailed to each registered owner. A consultant helped tabulate the responses and prepare and evaluate the resulting information. A total of 4,870 questionnaires were received from the winter and summer surveys, a 34% response rate.

Field surveys for both winter and summer were conducted from 8 a.m. to 6 p.m. In addition to the outbound vehicle license plate numbers being recorded, vehicles in both directions were classified as to vehicle type for each ten hour period. Twenty-four hour counts took place during one of the same weekends the ten hour surveys were in progress.

Table 1
O&D Study Characteristics 1979-2011

Year	1979		1989		2000		2011	
Survey Season	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer
Surveys Collected	1,550	3,320	3,849	12,912	5,128	15,188	3,566	8,350
Number of Survey Locations	3	8	2	4	4	6	4	5
Survey Dates	2/16,3/3	6/15,7/2	2/2,2/12	8/19,8/22	2/23,3/3	8/2,8/18	2/23,3/18	8/3,8/19
Number of Days at Each Location	4	4 or 2*	1 or 2*	3	2	2	1 or 2	2
Interview Hours	8 a.m. to 6 p.m.	8 a.m. to 6 p.m.	8 a.m. to 5 p.m.	8 a.m. to 5 p.m.	7 a.m. to 5 p.m.	7 a.m. to 5 p.m.	7 a.m. to 5 p.m.**	8 a.m. to 5 p.m.**
Direction of Travel	Outbound		Inbound		Inbound		Inbound	
Source of Survey Data	Mailed questionnaires and mechanized counts		Roadside interviews and manual counts		Roadside interviews, manual and mechanized counts		Roadside interviews	

* In Summer 1979, and winter 1989, the number of days at each survey location varied.

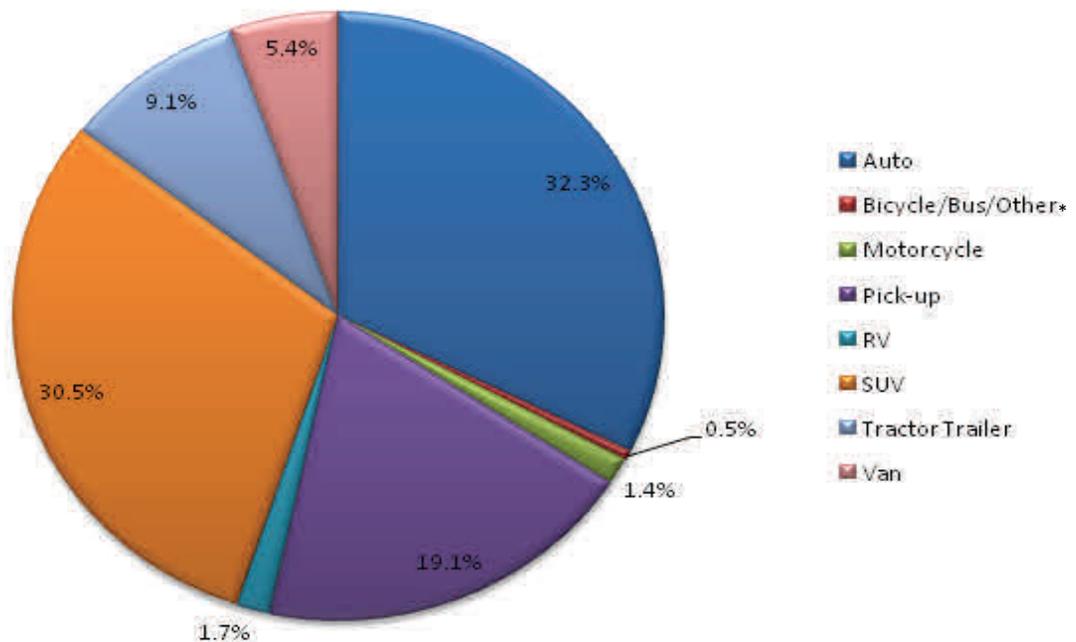
** In 2011, interview hours varied among survey locations.

SURVEY RESULTS

The following summaries were obtained by compiling and analyzing the 2011 O&D winter and summer survey data. "Vehicle Type" and "Passengers Per Vehicle" were observations noted by surveyors. All other information was gathered via the surveyor asking questions and the vehicles' driver and/or passengers providing answers. A small portion of surveys were incomplete because of the specific nature of the question and/or motorists declining to answer. When reviewing the combined results, it is pertinent to consider seasonal variations in trip patterns and purpose, winter highway closures, and winter weather events (on or near survey dates). See Appendix A for summer, winter, and combined data comparisons.

Type of Vehicle

Autos and SUVs were the most prevalent vehicle types with a combined total of 62.7% of the overall vehicle mix. This is an increase from 53.5% in 2000. The percentage of RVs continued to decline from a high of 13.4% in 1989, 3.2% in 2000, and 1.7% in 2011. A contributing factor to reduced RV use may have been the increase in average California gas prices in 2011. Tractor trailers totaled 9.1% of vehicles which is a decrease from their 11.5% total in 2000.



*"Other" types of vehicles included trucks, such as, delivery, tow, or propane and totaled 0.42%. Busses accounted for 0.11% and bicycles were 0.02% of total vehicles.

Passengers Per Vehicle

The average number of passengers per vehicle was 2.05 and 64.4% of vehicles carried two or more passengers. The average number of passengers per vehicle continued to decline from a high of 2.69 in 1979, 2.56 in 1989, and 2.18 in 2000.

Trip Origination

Of those surveyed, 47.1% began their trip in southern California (Southern and South Coast zones combined; see zone map insert on page 2). Nevada and other states generated 24.2% of the traffic with the majority of those, 16.3%, originating in Nevada. International traffic has increased from 1.0% in 2000 to 5.1% in 2011. International travelers were mainly from France and Germany.

Table 2
Trip Origination

	Summer	Winter	Combined
California	61.71%	57.47%	60.45%
Central	11.90%	5.55%	10.01%
Northern	3.40%	3.19%	3.33%
South Coast	28.12%	32.95%	29.56%
Southern	18.30%	15.78%	17.55%
Inyo	3.19%	7.14%	4.36%
Big Pine	0.20%	0.33%	0.24%
Bishop	2.04%	4.07%	2.64%
Coso	0.09%	0.00%	0.06%
Death Valley	0.06%	0.12%	0.08%
Independence	0.02%	0.40%	0.14%
Lone Pine	0.46%	1.66%	0.82%
Olancha	0.29%	0.53%	0.36%
Shoshone	0.03%	0.03%	0.03%
Mono	5.14%	7.34%	5.79%
Benton	0.12%	0.29%	0.17%
Bridgeport	1.16%	0.97%	1.10%
June Lake	0.00%	0.26%	0.08%
Lee Vining	0.08%	0.13%	0.10%
Mammoth Lakes	1.15%	2.04%	1.42%
Tom's Place	0.01%	0.00%	0.01%
Walker	2.61%	3.65%	2.92%
Nevada	14.32%	20.84%	16.26%
Other States	8.73%	6.05%	7.94%
International	6.83%	1.16%	5.14%
Unknown	0.08%	0.00%	0.05%
Grand Total	100.00%	100.00%	100.00%

Trip Destination

Respondents stating their final destination was either Inyo or Mono County was 61.0% with the majority, 42.5%, going to Mono County. Mammoth Lakes was the number one destination comprising 25.4% of survey responses.

Table 3
Trip Destination

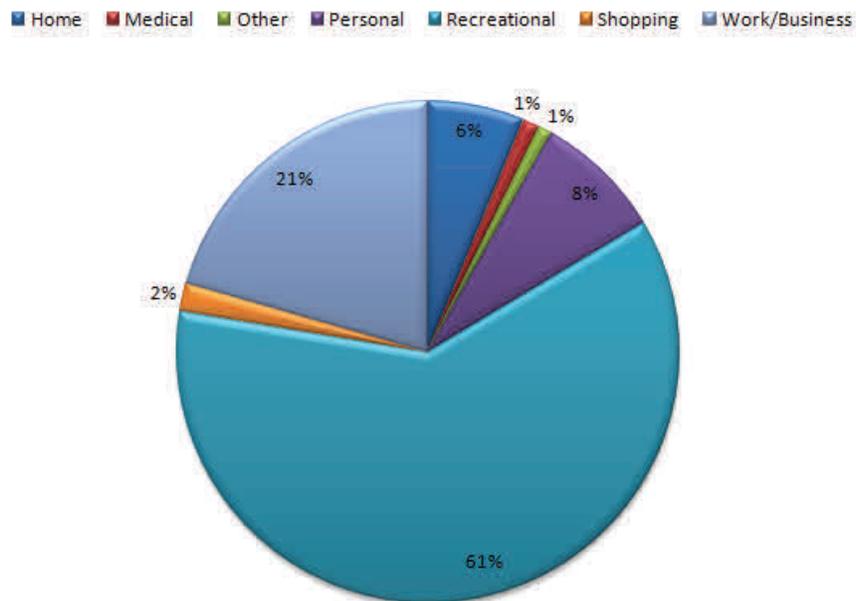
	Summer	Winter	Combined
California	24.65%	19.07%	22.99%
California	0.81%	0.00%	0.57%
Central	12.00%	1.42%	8.85%
Northern	1.17%	3.53%	1.87%
South Coast	5.48%	5.68%	5.54%
Southern	5.18%	8.43%	6.15%
Inyo	16.34%	23.82%	18.56%
Big Pine	0.73%	0.55%	0.68%
Bishop	8.39%	11.59%	9.34%
Coso	0.04%	1.40%	0.44%
Death Valley	0.88%	2.89%	1.48%
Independence	0.65%	0.76%	0.68%
Inyo County	0.13%	0.00%	0.09%
Lone Pine	3.67%	4.29%	3.86%
Olancha	1.84%	2.32%	1.98%
Shoshone	0.00%	0.02%	0.01%
Mono	41.50%	44.69%	42.45%
Benton	0.46%	0.31%	0.41%
Bodie	0.37%	0.04%	0.27%
Bridgeport	5.86%	3.29%	5.09%
June Lake	3.21%	1.56%	2.72%
Lee Vining	2.77%	0.58%	2.12%
Mammoth Lakes	22.97%	31.01%	25.36%
Mono County	0.21%	0.00%	0.15%
Tom's Place	0.88%	0.68%	0.82%
Walker	4.77%	7.20%	5.49%
Nevada	11.40%	9.82%	10.93%
Other States	4.45%	2.45%	3.86%
International	0.38%	0.16%	0.31%
Other	1.28%	0.00%	0.90%
Grand Total	100.00%	100.00%	100.00%

Stops in Small Communities

Survey participants were asked, “How often do you stop in small communities for services other than gas?” For this question, it is difficult to compare the 2011 O&D Study results to the results from the 2000 study as the response options changed. In 2000, respondents answered the question by choosing “always, sometimes, or never.” In 2011, the options changed to “often, sometimes, or rarely.” Some interview responses were unclear and classified as “unknown.” The data shows that responses to this question were almost equally divided among the three options with “often” selected the least, at 28.0%.

Purpose of Trip

Recreation was the main trip purpose for 61.2% of respondents; of those, 40.0% stated their final destination was in Inyo or Mono County. Work/business was the second most common trip purpose at 20.6%. Respondents heading home to Inyo or Mono County totaled 3.8%. At the Tioga survey site, 90.5% of travelers said recreation was their trip purpose.



Type of Overnight Facility²

Of travelers surveyed, 54.8% were going to stay in Inyo or Mono County. The “Other/Unknown” category includes travelers who had not made overnight arrangements or were unable to stay where they had planned. Of the people who stayed in the area for recreational purposes, 20.8% were staying in a hotel or motel, 18.9% at a campground, and 18.6% at a condo.

Number of Nights²

Of survey respondents staying in Inyo or Mono County, 54.2% were going to stay for one to three nights. The majority of those respondents, 21.4%, were going to stay for two nights. Respondents staying in the area one week or longer totaled 23.4% and of those, 15.5% were staying at their homes.

²This question was only asked of travelers staying in Inyo or Mono County.

Table 4

Type of Overnight Facility and Number of Nights Staying

Inyo County										
	Campground		Condo	Friends	Home	Hotel/Motel	Motorhome	Other/ Unknown		Total
1	0.95%	0.00%	0.28%	0.63%	5.42%	0.31%	0.74%	8.33%		
2	2.01%	0.04%	0.37%	0.48%	2.25%	0.16%	0.33%	5.64%		
3	1.61%	0.00%	0.23%	0.44%	0.88%	0.11%	0.10%	3.37%		
4	1.24%	0.04%	0.13%	0.16%	0.26%	0.16%	0.05%	2.03%		
5	0.55%	0.00%	0.08%	0.06%	0.17%	0.06%	0.04%	0.95%		
6	0.07%	0.00%	0.05%	0.06%	0.07%	0.00%	0.00%	0.24%		
7	0.42%	0.00%	0.01%	0.20%	0.12%	0.04%	0.01%	0.79%		
8+	0.42%	0.01%	0.03%	5.95%	0.60%	0.13%	0.06%	7.20%		
Unknown	0.01%	0.00%	0.02%	0.95%	0.02%	0.00%	0.06%	1.07%		
Grand Total	7.26%	0.08%	1.20%	8.92%	9.79%	0.98%	1.38%	29.62%		

Mono County										
	Campground		Condo	Friends	Home	Hotel/Motel	Motorhome	Other/ Unknown		Total
1	1.23%	0.22%	0.21%	1.02%	3.60%	0.13%	0.25%	6.65%		
2	3.00%	5.25%	0.79%	1.31%	4.68%	0.18%	0.54%	15.74%		
3	2.87%	5.87%	0.63%	1.30%	3.06%	0.22%	0.48%	14.42%		
4	1.90%	4.49%	0.28%	0.98%	1.84%	0.18%	0.37%	10.04%		
5	1.04%	2.10%	0.23%	0.70%	0.82%	0.20%	0.19%	5.29%		
6	0.22%	0.41%	0.04%	0.16%	0.07%	0.02%	0.04%	0.96%		
7	1.17%	0.77%	0.05%	0.59%	0.31%	0.12%	0.11%	3.12%		
8+	1.18%	0.87%	0.05%	8.78%	0.70%	0.21%	0.53%	12.31%		
Unknown	0.11%	0.00%	0.04%	1.07%	0.09%	0.00%	0.55%	1.85%		
Grand Total	12.70%	19.97%	2.32%	15.92%	15.16%	1.25%	3.06%	70.38%		

Goods Movement and Commodities

Of the vehicle sample group, 9.2% were classified as participating in goods movement. The majority of goods movement traffic, 53.8%, traveled through the Pearsonville/Sage Flat survey sites. Benton was the second most-traveled site at 25.0%. Goods movement vehicles with empty loads accounted for 24.4% of the total. Table 5 shows a specific breakdown of the commodities recorded via the survey. For the purpose of this report, the North American Industry Classification System (NAICS) was used to categorize the types of commodities being hauled by commercial trucks. NAICS is the official classification system used in the United States. Every five years the NAICS system is reviewed and updated so classifications can keep pace with the changing economy.

Table 5
Goods Movement and Commodities

Commodities (NAICS Commodity Code)	# Trucks	% of Category Total	% of Grand Total
Agriculture, Forestry, Fishing and Hunting (11)	54		3.2%
Crop Production (111)	48	88.9%	
Animal Production and Aquaculture (112)	5	9.2%	
Forestry and Logging (113)	1	1.9%	
Mining, Quarrying, and Oil and Gas Extraction (21)	57		3.4%
Oil and Gas Extraction (211)	5	9.2%	
Mining (except Oil and Gas) (212)	42	73.9%	
Support Activities for Mining (213)	10	16.9%	
Utilities (22)	3		0.2%
Utilities (221)	3	100.0%	
Construction (23)	9		0.5%
Heavy and Civil Engineering Construction (237)	9	100.0%	
Manufacturing (31-33)	26		1.6%
Beverage and Tobacco Product Manufacturing (312)	1	3.8%	
Paper Manufacturing (322)	6	22.9%	
Plastics and Rubber Products Manufacturing (326)	4	15.3%	
Nonmetallic Mineral Product Manufacturing (327)	8	30.5%	
Transportation Equipment Manufacturing (336)	7	27.5%	
Wholesale Trade (42)	113		6.7%
Merchant Wholesalers, Durable Goods (423)	40	35.4%	
Merchant Wholesalers, Nondurable Goods (424)	71	62.8%	
Wholesale Electronic Markets and Agents and Brokers (425)	2	1.8%	

Commodities (NAICS Commodity Code)	# Trucks	% of Category Total	% of Grand Total
Retail Trade (44-45)	870		51.7%
Motor Vehicle and Parts Dealers (441)	60	6.9%	
Furniture and Home Furnishings Stores (442)	26	3.0%	
Electronics and Appliance Stores (443)	7	0.8%	
Building Material and Garden Equipment and Supplies Dealers (444)	192	22.0%	
Food and Beverage Stores (445)	321	36.9%	
Health and Personal Care Stores (446)	6	0.7%	
Clothing and Clothing Accessories Stores (448)	9	1.0%	
Sporting Goods, Hobby, Musical Instrument, and Book Stores (451)	21	2.5%	
General Merchandise Stores (452)	119	13.7%	
Miscellaneous Store Retailers (453)	53	6.1%	
Nonstore Retailers (454)	56	6.4%	
Transportation and Warehousing (48-49)	75		4.5%
Truck Transportation (484)	22	28.9%	
Transit and Ground Passenger Transportation (485)	1	1.3%	
Support Activities for Transportation (488)	27	35.8%	
Couriers and Messengers (492)	25	34.0%	
Administrative and Support and Waste Management and Remediation Services (56)	14		0.8%
Waste Management and Remediation Services (562)	14	100.0%	
Health Care and Social Assistance (62)	2		0.1%
Ambulatory Health Care Services (621)	1	50.0%	
Hospitals (622)	1	50.0%	
Arts, Entertainment, and Recreation (71)	8		0.5%
Performing Arts, Spectator Sports, and Related Industries	2	24.4%	
Amusement, Gambling, and Recreation Industries (713)	6	75.6%	
Other Services (except Public Administration) (81)	2		0.1%
Personal and Laundry Services (812)	2	100.0%	
Public Administration (92)	39		2.3%
Justice, Public Order, and Safety Activities (922)	39	100.0%	
Empty	411	100.0%	24.4%
Grand Total	1683		100%

1989 vs. 2000 vs. 2011³

The focus of the chart is to summarize the changes between the 1989, 2000, and 2011 studies.

Table 6
1989-2011 Results Comparison

	1989	2000	2011
Average Vehicle Occupancy	2.56	2.18	2.05
Purpose = Recreational	80%	55%	61%
Purpose = Work	2%	13%	21%
From Other States	9%	28%	24%
From Other Countries	2%	1%	5%
Eastern Sierra Named Final Destination	40%	60%	61%
Inyo County	16%	19%	19%
Mono County	24%	41%	42%
People Staying in Inyo or Mono County in a Hotel/Motel	13%	42%	25%
Stop in Small Communities “Often”		31% ⁴	28%
Stop in Small Communities “Sometimes”		48%	36%
Goods Movement	2%	12%	9%

³Numbers in the chart have been rounded to the nearest whole number.

⁴“Always” was the comparable response option in the 2000 study.

APPENDICES

Appendix A

Summer/Winter/Combined Comparison

In previous studies, winter and summer data was displayed in detailed appendices. When comparing winter, summer, and combined survey results from 2011, there were few major variations. Among expected variations were a decline in campground use and an increase in SUV use during the winter season.

The following tables provide summer, winter, and combined results comparisons for survey questionnaire categories that were not sorted by season in the main body of the document. When reviewing the results, it is important to consider that summer surveys accounted for 70.1% and winter surveys accounted for 29.9% of the total number of surveys.

Table 7

In winter there was approximately a 5% increase in SUVs with a corresponding 5% decrease in autos when compared to summer. A summer to winter comparison also showed an increase in tractor trailers during the winter portion of the survey.

Type of Vehicle			
	Summer	Winter	Combined
Auto	33.80%	28.69%	32.28%
Bicycle	0.02%	0.02%	0.02%
Bus	0.09%	0.16%	0.11%
Motorcycle	1.90%	0.24%	1.41%
Pick-up	19.12%	19.10%	19.12%
RV	2.02%	0.93%	1.70%
SUV	28.76%	34.44%	30.45%
Tractor Trailer	7.68%	12.44%	9.10%
Van	6.22%	3.48%	5.40%
Other	0.39%	0.50%	0.42%
Grand Total	100.00%	100.00%	100.00%

Table 8

With regard to stops in small communities in winter, there was an increase in “rarely” responses with a corresponding decrease in “sometimes” responses.

Stops in Small Communities			
	Summer	Winter	Combined
Often	28.18%	27.40%	27.95%
Sometimes	38.66%	30.23%	36.15%
Rarely	31.48%	41.43%	34.44%
Unknown	1.68%	0.94%	1.46%
Grand Total	100.00%	100.00%	100.00%

Respondents citing recreation as the purpose of their trip in winter was noticeably lower than the number of summer respondents citing the same trip purpose. However, during the winter season on Friday at Pearsonville, peak traffic volumes occurred outside survey hours. Thus, a portion of recreational trips were likely unaccounted for. Also, during winter there was a 9.4% increase in respondents traveling for work.

Table 9

Purpose of Trip			
	Summer	Winter	Combined
Home	4.73%	9.52%	6.16%
Medical	0.74%	1.86%	1.08%
Work/Business	17.78%	27.20%	20.58%
Personal	7.81%	9.22%	8.23%
Recreational	66.42%	48.84%	61.19%
Shopping	1.47%	2.65%	1.82%
Other	0.94%	0.62%	0.85%
Unknown	0.11%	0.10%	0.11%
Grand Total	100.00%	100.00%	100.00%

During winter, campground usage declined significantly while condo and home facilities increased.

Table 10

Type of Overnight Facility			
	Summer	Winter	Combined
Campground	25.75%	4.94%	19.54%
Condo	17.10%	25.19%	19.51%
Friends	2.56%	5.45%	3.42%
Home	20.24%	33.73%	24.27%
Hotel/Motel	24.90%	23.12%	24.36%
Motorhome	2.74%	0.88%	2.18%
Other	4.63%	2.48%	3.99%
Unknown	2.08%	4.22%	2.72%
Grand Total	100.00%	100.00%	100.00%

When examining summer, winter, and combined results, there is little variation among stays lasting one to three nights or a week or longer.

Table 11

Number of Nights			
	Summer	Winter	Combined
1	16.61%	11.01%	14.96%
2	20.64%	23.02%	21.34%
3	18.15%	16.88%	17.78%
4	10.72%	15.32%	12.07%
5	6.71%	5.06%	6.22%
6	1.19%	1.20%	1.19%
7	5.05%	1.19%	3.92%
8+	18.23%	22.71%	19.55%
Unknown	2.71%	3.61%	2.97%
Grand Total	100.00%	100.00%	100.00%

Appendix B

Survey Questionnaire for Passenger Vehicles

LOCATION: SR 108-Sonora SR 120-Tioga SR 182-Bridgeport US 6-Benton US 395-Pearsonville US 395-Topaz

Recorder's Initial: _____ Date: _____ Survey Time: _____

A.	<input type="checkbox"/> Auto <input type="checkbox"/> SUV <input type="checkbox"/> Pick-up <input type="checkbox"/> Van <input type="checkbox"/> RV <input type="checkbox"/> Bus <input type="checkbox"/> Motorcycle <input type="checkbox"/> Bicycle <input type="checkbox"/> <u>with Trailer</u> <input type="checkbox"/> Semi Truck & NO Trailers <input type="checkbox"/> Semi Truck & 1 Trailer <input type="checkbox"/> Semi Truck & 2 Trailers <input type="checkbox"/> Other:	Determine the type of vehicle. (check one)
B.	1 2 3 4 5 6 7 8 9 10+ (circle one)	Determine how many people in the vehicle.
“Good morning/afternoon. We are conducting a study to learn more about how people are traveling through this area. We have a few short questions.”		
C.		“What is your zip code? (Where do you live?)” **If NO zip code then U.S. state or country**
D.	<input type="checkbox"/> CA or NV city: <input type="checkbox"/> State: <input type="checkbox"/> Country (not USA):	“What is the final destination of this trip?”
E(1).	<input type="checkbox"/> Recreational <input type="checkbox"/> Work/Business <input type="checkbox"/> Personal <input type="checkbox"/> Home <input type="checkbox"/> Shopping <input type="checkbox"/> Medical <input type="checkbox"/> Other:	“What is the MAIN purpose of this trip?” (check one)
F.	<input type="checkbox"/> Often (more than 85%) <input type="checkbox"/> Sometimes (10% to 85%) <input type="checkbox"/> Rarely (less than 10%)	“How often do you stop in small communities for services other than gas?” (check one)
G.		“What town will you be staying in tonight?”
If they are not staying in Inyo or Mono County STOP and say, “Thank you for your cooperation. Merge back safely and have a safe trip.”		
H.	<input type="checkbox"/> Hotel/Motel <input type="checkbox"/> Camp Ground <input type="checkbox"/> Condo <input type="checkbox"/> Home <input type="checkbox"/> Friends <input type="checkbox"/> Motorhome <input type="checkbox"/> Other:	“What type of facility will you be staying in?” (check one)
I.	1 2 3 4 5 6 7 8+ (circle one) <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months (check one)	“And how long will you be staying?”
“Thank you for your cooperation. Merge back safely and have a safe trip.”		

Generic v7

Appendix C

Survey Questionnaire for Trucks

LOCATION: SR 108-Sonora SR 120-Tioga SR 182-Bridgeport US 6-Benton US 395-Pearsonville US 395-Topaz

Recorder's Initial: _____ Date: _____ Start Time: _____

A.	<input type="checkbox"/> Semi Truck & NO Trailers <input type="checkbox"/> Semi Truck & 1 Trailer <input type="checkbox"/> Semi Truck & 2 Trailers <input type="checkbox"/> Other:	Determine the type of truck. (check one)
B.	1 2 3 4 5 6 7 8 9 10+ (circle one)	Determine how many people in the vehicle.
“Good morning/afternoon. We are conducting a study to learn more about how people are traveling through this area. We have a few short questions.”		
C.		“Where did your trip begin today?”
D.	<input type="checkbox"/> CA or NV city: <input type="checkbox"/> State: <input type="checkbox"/> Country (not USA):	“What is the final destination of this trip?”
E(2).	Commodity: Placard #:	“What type of commodity are you hauling?” If possible, include placard number like 1203 (gasoline).
F.	<input type="checkbox"/> Often (more than 85%) <input type="checkbox"/> Sometimes (10% to 85%) <input type="checkbox"/> Rarely (less than 10%)	“How often do you stop in small communities for services other than gas?” (check one)
G.		“What town will you be staying in tonight?”
If they are not staying in Inyo or Mono County STOP and say, “Thank you for your cooperation. Merge back safely and have a safe trip.”		
H.	<input type="checkbox"/> Hotel/Motel <input type="checkbox"/> Camp Ground <input type="checkbox"/> Condo <input type="checkbox"/> Home <input type="checkbox"/> Friends <input type="checkbox"/> Motorhome <input type="checkbox"/> Other:	“What type of facility will you be staying in?” (check one)
I.	1 2 3 4 5 6 7 8+ (circle one) <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months (check one)	“And how long will you be staying?”
“Thank you for your cooperation. Merge back safely and have a safe trip.”		

Truck v7

Data Analysis Methodology

Table 12

		Seasonal Traffic Counts and Stations					
		Benton	Bridgeport	Pearsonville/ Sage Flat	Sonora	Tioga	Topaz
Summer							
Count Station 903*	08/03/11			2210			
903*	08/05/11			3764			
997, 948	08/10/11	321				769	
997, 948	08/12/11	320				1231	
991	08/17/11				No data		1400
991	08/19/11				No data		1753
Summer Total		641		5974		2000	3153
Winter							
Count Station 997, 903*	02/23/11	No data		1438			
991	03/02/11						670
991	03/04/11						916
N/A	03/11/11		No data				
997, 903*	03/18/11	220		2008			
Winter Total		220		3446			1586
Grand Total		861		9420		2000	4739

* Count Station 903 is north of US 395/SR 190 junction approximately thirty miles north of the Pearsonville survey location and approximately five miles north of the Sage Flat survey location.

Table 13

Survey Schedule and Number of Surveys Collected								
	Date	Benton	Bridgeport	Pearsonville/ Sage Flat	Sonora	Tioga	Topaz	Grand Total
Winter	02/23/11	238		866				1104
	03/02/11						639	639
	03/04/11		60				785	845
	03/11/11			764				764
	03/18/11	214						214
Winter Total		452	60	1630			1424	3566
Summer	08/03/11			573				573
	08/05/11			958				958
	08/10/11	352				1045		1397
	08/12/11	342				1123		1465
	08/17/11				379		1427	1806
	08/19/11				392		1759	2151
Summer Total		694		1531	771	2168	3186	8350
Grand Total		1146	60	3161	771	2168	4610	11916

Issues and Decisions

Benton

There were 65 more vehicles surveyed than recorded by count station 997; mostly, during the summer survey period. There are four roads between count station 997, located at the California/Nevada state line, and the Benton survey location. Count station 997 did not record data on Wednesday, February 23. It is assumed 100% of traffic was surveyed at this location.

Bridgeport

There was only one survey day at this location due to extremely low traffic volumes and inclement weather; furthermore, traffic count data was unavailable at this location on the survey day. It is assumed 100% of traffic was surveyed at this location.

Sonora

Due to winter closure of the interregional portion of SR 108, surveys were not conducted during the winter season. Traffic count data was unavailable for this location for all survey dates. It is assumed 100% of the interregional traffic was surveyed and that some of the United States Marine Corps Mountain Warfare Training Center at Pickel Meadows commuter traffic was filtered out in order to avoid repeat surveys.

Tioga

Due to winter closure of the interregional portion of SR 120, surveys were not conducted during that season. There were 168 more vehicles surveyed than recorded by count station 948 which is located approximately twelve miles east of the survey location. It is assumed 100% of traffic was surveyed at this location because of the distance from the count station to the survey location and the number of attractions and lack of exiting opportunities between the two points.

Topaz

Per count station data, there was oversampling (33) in the summer season and undersampling (162) in the winter season resulting in a cumulative undersampling of 129 vehicles. Vehicles making multiple trips through the survey station may account for some of the undersampling because they were only surveyed the first time through. It is assumed 100% of traffic was surveyed at this location.

Pearsonville/Sage Flat

When the surveys were conducted at these locations, site specific traffic counts were unavailable. Therefore, data from count station 903 was used. Count station 903 is the nearest station and is located north of the US 395/SR 190 junction at approximately thirty miles north of Pearsonville and approximately five miles north of Sage Flat.

High traffic volumes caused the Pearsonville/Sage Flat locations to be undersampled in comparison to the other locations in the study. During the summer survey, 25.6% of the estimated total vehicles were surveyed and during the winter survey, 47.3% of the estimated total vehicles were surveyed. In order to compare data to locations where 100% of the vehicles were surveyed, the results from the Pearsonville/Sage Flat locations were weighted to approximate what the results may have been if 100% of the vehicles had been stopped. Due to the difference in the percentages surveyed during the summer and winter seasons, each was weighted differently.

Tractor trailer data was also weighted separately from other vehicle types. The weighting was determined by using the truck percentage of overall traffic from the 2011 Truck Annual Average Daily Traffic (AADT) report developed by the Caltrans Traffic Data Branch. Two-axle vehicles, such as RVs, were removed from the tractor trailer count because surveyors categorized these vehicle types as general traffic. The original tractor trailer percentage was 12.0%. Removing the two-axle vehicles decreased the tractor trailer percentage to 9.7% of total vehicles. Using both the truck percentages and the percent of total vehicles surveyed, weighting factors were derived at and used in final calculations and comparisons for the O&D Study.

Weight factors were calculated using the following formula:

$$\text{Weight} = \frac{1}{(\text{Survey Count} / \text{Traffic Count})}$$

Weighting equivalents are as follows:

Tractor trailers in the summer: 1 tractor trailer = 5.2 tractor trailers

Tractor trailers in the winter: 1 tractor trailer = 1.7 tractor trailers

Vehicles in the summer: 1 vehicle = 3.8 vehicles

Vehicles in the winter: 1 vehicle = 2.2 vehicles

Goods Movement versus General Traffic

In addition to tractor trailers, vehicles were classified as goods movement if they met two criterion: one, they were hauling goods or had empty cargo containers/trailers and two, the trip purpose was work/business related.

ACRONYMS

AADT	Annual Average Daily Traffic
Caltrans	California Department of Transportation
NAICS	North American Industry Classification System
O&D	Origination and Destination
RV	Recreational Vehicle
SR	State Route
SUV	Sport Utility Vehicle
US	United States

REFERENCES AND INFORMATION

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