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California's Freeway Service Patrol Program Management Information System Annual Report Fiscal Year 2005-06

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INSTITUTE OF TRANSPORTATION STUDIES
UNIVERSITY OF CALIFORNIA, BERKELEY



**California's Freeway Service Patrol
Program
Management Information System Annual Report
Fiscal Year 2005-06**

**Michael Mauch and
Alex Skabardonis**

**Report Series
UCB-ITS-RR-2007-05**

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<p>16. Abstract</p> <p>The Freeway Service Patrol (FSP) is an incident management program implemented by Caltrans, the California Highway Patrol and local partner agencies to quickly detect and assist disabled vehicles and reduce non-recurring congestion along the freeway during peak commute hours. The first FSP program was piloted in Los Angeles, and was later expanded to other regions by state legislation in 1991. As of June 2006, there were ten participating FSP Programs operating in California, deploying over 325 tow trucks and covering over 1,650 (center-line) miles of congested California freeways.</p> <p>The purpose of this research project was to evaluate the effectiveness of the Caltrans FSP program in reducing incident durations and removal of other obstructions that directly contribute to freeway congestion for Caltrans fiscal year 2005-2006. The project provides valuable information to agencies managing the FSP program so that resources are distributed within the various statewide FSP operations in the most efficient and cost-effective manner possible. The tools used and the operational performance measures provided by this research effort will significantly contribute on the ongoing agencies' efforts to improve the efficiency and effectiveness of the FSP program.</p>			
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CALIFORNIA'S FREEWAY SERVICE PATROL PROGRAM

*Management Information System Annual Report
Fiscal Year 2005/06*

*Prepared for the California Department of Transportation
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Section 1: Executive Summary

1.1 Introduction

The Freeway Service Patrol (FSP) is a program run jointly by Caltrans, the California Highway Patrol (CHP) and local transportation agencies. Whether fixing a flat tire, towing a disabled vehicle to a safe location, clearing debris from a lane of traffic, or providing a gallon of gasoline to a motorist that has run out of fuel, California's fleet of FSP roving tow trucks have two primary benefits. First, the patrolling trucks of the FSP find congestion-causing incidents and clear them quickly. Second, tow drivers provide direct assistance to stranded motorists, increasing safety and security for them in a moment of need. This service reduces delay for other motorists by maintaining the capacity of our highway system and increases safety for motorists by clearing hazards that may cause secondary incidents. The operational performance measures contained in this report were developed for program managers at Caltrans and partner agencies as tools for improving the efficiency and effectiveness of the FSP program.

This report seeks to increase the information available to state and local agencies running the FSP programs so that resources are distributed within the various statewide FSP operations in the most cost-effective manner possible.

1.2 FSP Database Summary

The bulk of the data used to develop the measures contained in this report were obtained directly from each FSP program. Each dataset was standardized to the greatest extent possible to allow data comparability between FSP programs. Unfortunately, the majority of the FSP programs collect and records their operational data in substantially different formats.

The following points summarize the primary outputs of the FSP programs into the statewide Management Information System (MIS) databases for fiscal year 2005/06:

- (1) In fiscal year 2005/06, the roving tow trucks of the FSP program provided approximately 670,000 assists on California's highway system. This is about an 8% percent increase over the previous year. Over 47 percent of total statewide assists were provided by the Los Angeles FSP program in that county, while the next largest program, covering the nine counties of the San Francisco Bay Area, provided roughly 21 percent of total statewide assists.
- (2) The estimated benefit/cost ratios for FSP programs ranged from 1.6-to-1 for Fresno to 17.1-to-1 for Riverside. The statewide average B/C ratio was 6.3-to-1.
- (3) Once a driver spots an incident, they are instructed to work for up to 10 to 15 minutes to get the stranded vehicle moving or provide a tow to a safe location. The average assist duration for the state FSP in 2005/06 was about 12 ½ minutes.
- (4) The speed at which FSP locates and clears incidents is determined in part by the number of FSP trucks patrolling a stretch of road and the amount and type of traffic on that road. In FY 2005/06 the State's thirteen FSP programs operated 151 Beats with 329 trucks

(during the PM peak period) over 1,650 centerline freeway miles. Together they provided roughly 747,000 total truck hours of service. On average, California's FSP trucks in FY 2005/06 supplied almost one assist for every hour of service an FSP truck provided (0.9 assists per truck-hour). These assists were primarily given to automobiles and vans, which constituted 64 percent of all assists. The two most common types of assists given were for other/unknown (26%) and flat tires (18%).

- (5) The number of FSP trucks and truck hours the state and its partner agencies can deploy is determined by funding availability. In FY 2005/06, the state allocated \$20.3 million to the thirteen locally run FSP programs and another \$3.2 million to the CHP for field supervisors and training activities. The local transportation agency partners that run each program are required to provide 25 percent matching funds. In FY 2005/06, the local partner transportation agencies provided \$21.4 million in matching funds—a 106 percent match. The bulk of this match is supplied by the Los Angeles program, which provided \$13.1 million—a 202 percent match. All matching funds are used by the contributing local transportation agencies for their own FSP operations.

Table 1 provides a more detailed summary of the data and performance measures contained within this report. Figure 1 is a map showing the location of the FSP program districts.

Table 1: Statewide FSP Program Summary (Combined Weekday and Weekend Service)

District	Area	# of Weekday Beats	# of Weekday PM Trucks	Center - line Miles	Annual Truck Hours	Annual Total Assists ₁	Avg. Assist Duration (min.)	Assist Rate ₂	B/C Ratio ₃	State FSP Funds (\$)	% of State FSP Funds	Local Match Funds (\$)	% of Local Match Funds	CHP Allocation (\$)	% of CHP Allocation
3S/Y	Sacramento / Yolo	17	17	149	27,073	30,399	12.06	1.12	5.8	\$1,175,933	5.8%	\$635,000	3.0%	\$148,237	4.6%
3P	Placer County ³	2	2	13	1,219	1,328	12.37	1.09	#N/A	\$139,299	0.7%	\$34,825	0.2%	\$0	0.0%
4	Bay Area	36	76	479	153,303	140,255	10.59	0.91	3.6	\$4,742,695	23.4%	\$4,468,408	20.9%	\$810,517	25.3%
5SC	Santa Cruz	2	2	16	3,444	2,439	11.27	0.71	16.1	\$154,017	0.8%	\$158,000	0.7%	\$1,865	0.1%
5M	Monterey	2	2	26	3,812	4,083	12.03	1.07	2.2	\$172,757	0.9%	\$65,100	0.3%	\$0	0.0%
5SB	Santa Barbara ⁴	3	2	20	1,014	596	#N/A	0.59	#N/A	\$210,913	1.0%	\$52,729	0.2%	\$0	0.0%
6	Fresno	3	3	21	3,375	1,807	19.26	0.54	1.6	\$237,600	1.2%	\$59,400	0.3%	\$0	0.0%
7	Los Angeles	41	144	451	390,019	316,450	14.83	0.81	6.3	\$6,507,907	32.1%	\$13,120,195	61.2%	\$1,114,704	34.8%
8R	Riverside	15	13	43	23,529	35,125	9.67	1.49	17.1	\$1,175,933	5.8%	\$293,983	1.4%	\$201,548	6.3%
8SB	San Bernardino ⁵	4	8	34	6,854	12,193	8.30	1.78	#N/A	\$980,348	4.8%	\$245,087	1.1%	\$167,842	5.2%
10	San Joaquin	1	3	16	6,610	4,599	12.10	0.70	4.6	\$343,805	1.7%	\$85,951	0.4%	\$0	0.0%
11	San Diego	13	25	225	56,250	49,972	10.24	0.89	6.4	\$2,258,856	11.2%	\$564,715	2.6%	\$386,931	12.1%
12	Orange	12	32	168	70,168	70,649	9.80	1.01	8.7	\$2,151,235	10.6%	\$1,644,752	7.7%	\$368,358	11.5%
State-wide		151	329	1,661	746,670	669,895	#N/A	0.90	6.3	\$20,251,298	100.0%	\$21,428,145	100.0%	\$3,200,001	100.0%

Notes: (1) Assist Rate = Total Assists divided by Total Truck Hours.

(2) B/C Ratios were calculated for the Fiscal Year 2004-2005 Weekday Beats.

(3) Placer County Service started on January 3, 2006. Truck hours and Assists statistics are for 6 months (Jan-Jun 2006).

(4) San Barbara Service started on March, 2006. Truck hours and Assist statistics are for 4 months (Mar-Jun 2006).

(5) San Bernardino Service started on January 3, 2006. Truck hours and Assists statistics are for 6 months (Jan-Jun 2006).

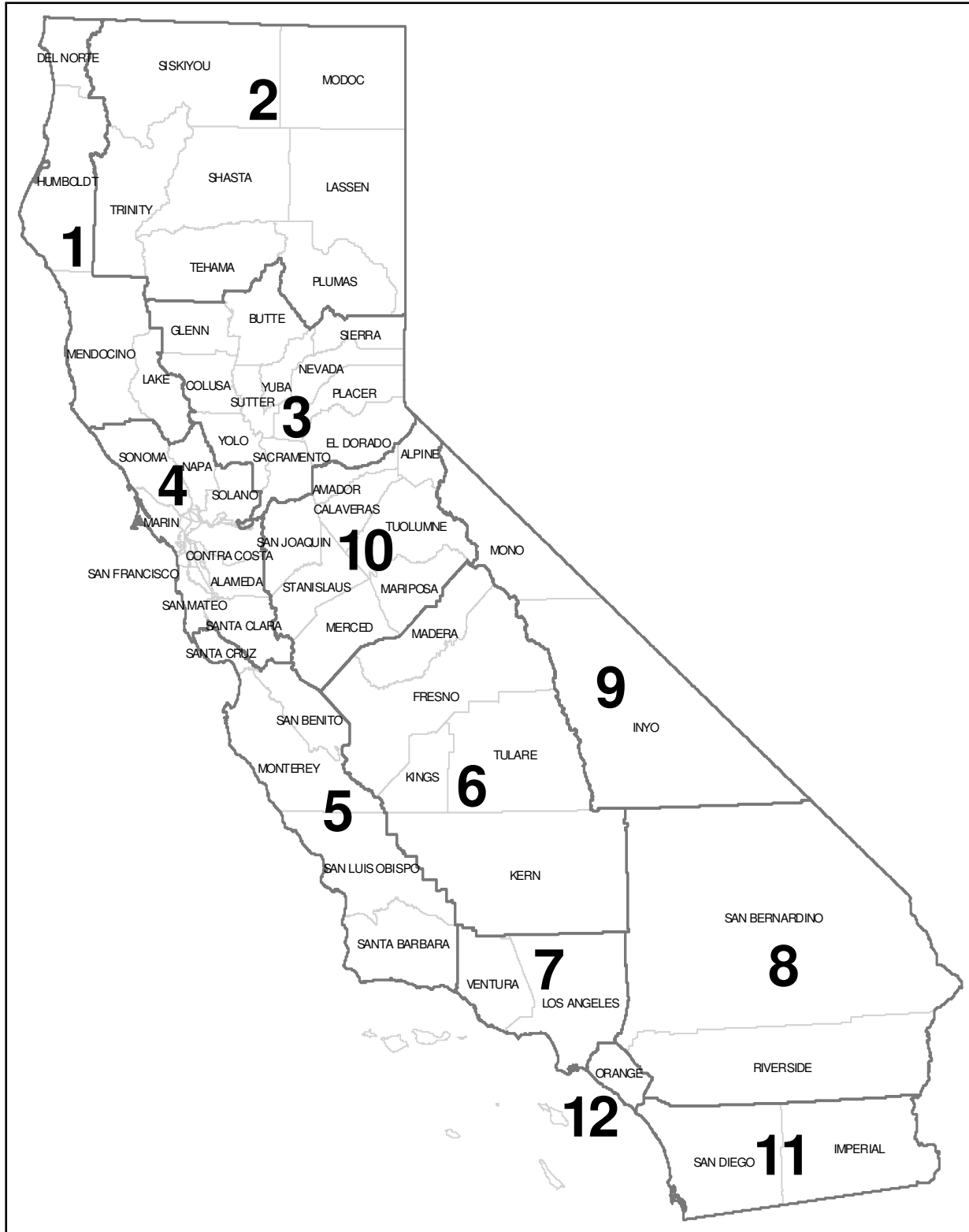


Figure 1: California Department of Transportation District Map

1.3 Recommendation Summary

As a result of the experience gained from developing the MIS databases and the associated Annual Report, the following recommendations have been made to improve the data collection and reporting practices of California's FSP programs. Some of these recommendations are already being practiced by some of the FSP districts. However standardization across all FSP districts would substantially reduce the costs, complexity, and time requirements of FSP reporting.

Reiterated Recommendations from previous reports (which still apply):

- 1) Develop a consistent set of statewide data coding categories for each of the 5 categories reported; Problem Types, Vehicle Types, Locations of Obstructions, Who Found Obstruction and Tow To Locations
- 2) Store all FSP assist data and program records across all districts in a common electronic form. (e.g. Microsoft Excel or Microsoft Access)
- 3) Migrate to a more reliable data coding media and reader technology for the collection of assist data. If this is not possible, use another data entry verification technique to ensure the entered data is both accurate and error free.
- 4) Develop a consistent, statewide policy for recording non-vehicle assists.
- 5) Record, at a minimum, the following fields for each and every FSP Assist Record:
 - District
 - Beat
 - Assist Date
 - Arrival Time
 - Departure Time
 - Problem Type
 - Vehicle Type
 - Vehicle Location on Roadway (e.g. in-traffic-lane, shoulder, on-ramp)
 - Tow To
 - How vehicle was found
- 6) Split the "Other/Unknown/Blank" Problem Type category into two categories. The categories would be "Other" and "Unknown/Blank".
- 7) Insert into every blank assist description field a value that indicates that the field was intentionally left blank versus a data entry omission.
- 8) For District 12, request that their assist be recorded in one (1) assist record instead of spread over 2-3 records. Currently each complete assist is recorded by the district in an arrival record, a departure record and sometimes an "ENRT" record. These records needed to be programmatically combined to make a single assist record.

New recommendations:

- 1) More thorough data validation procedures should be developed and employed: The assist data collected and compiled in the MIS database should be validated to insure that unreported assists (and/or over-reported) are not biasing the reported totals and summary statistics. The quarterly and annual assists should be compared to District supplied quarterly and annual totals as part of this validation process. Graphs and tables showing daily, weekly, and/or monthly assists summed by Beat and by District should be visually inspected to reduce the likelihood that there are missing periods in the data (e.g. days). Furthermore, statistical out-of-bound range checks should be developed and employed to flag beats/days that have unusually low (or high) number of assists.
- 2) Caltrans (Headquarters and Districts) should continue to research and aggressively migrate toward using GPS-enabled PDA's to automate the FSP assist data collection procedures or an equivalent computer based method of automated data collection – i.e. data that is directly entered by the tow-truck operator at the time of the assist via a laptop computer or hand-held PDA type device.
- 3) Districts should all use the same PDA's (hardware and software) to insure data compatibility and consistency, and to reduce implementation costs (e.g. reduce the costs and the need for custom software for each District).

Section 2: Introduction

2.1 Background

The FSP program is a free motorist assistance service using contracted tow trucks that patrol designated routes on congested urban California freeways. Typically the FSP operates Monday through Friday during peak commute hours. In some cases, the FSP operates during the midday and on weekends/holidays in areas where significant off-peak congestion is anticipated.

The goal of the FSP is to maximize the efficiency of the freeway transportation system. The FSP is a traffic congestion management tool that strategically addresses non-recurring traffic problems by quickly finding and removing disabled/stranded vehicles or roadway obstructions from the freeway system. Deployment of FSP trucks is driven by congestion windows and traffic patterns in major metropolitan areas.

The rapid removal of freeway obstructions has a positive effect on traffic conditions by reducing incident durations and removal of other obstructions that directly contribute to non-recurrent congestion. In fiscal year 2005/06, the FSP program provided approximately 670,000 assists in nine Caltrans districts (which includes ten FSP programs).

Because the traffic conditions of the state's freeway system and the demand for its services are constantly changing, it is necessary for the FSP program to respond to these changing and increasing needs for traffic mitigation. This report seeks to centralize and summarize the information available to state and local agencies managing the FSP programs so that resources are distributed within the various statewide FSP operations in the most efficient and cost-effective manner possible. The database constructed for this project was used to generate a series of indicators that measured and compared the performance of each FSP program. The following provides an overview of the scope of work for this project:

2.2 Project Scope

The project scope included FSP assist data collection, database design and programming, calculate summary statistics for reporting purposes using the FSP assist database and report generation. The project objectives were accomplished in four phases:

- 1) Develop FSP 2005/06 Management Information System (MIS) databases
- 2) Produce FSP 2005/06 California Local Program Report
- 3) Produce FSP 2005/06 California Statewide MIS Program Report
- 4) Make Recommendations for Future Data Collection Policies, Procedures and Report Content.

Each phase is described in more detail in the following sections.

2.2.1 Develop FSP 2005/06 MIS Databases

The development of the FSP MIS databases consisted of the following sub-tasks:

- 1) Solicit and Collect the 2005/06 FSP program Data from each of the FSP Program Districts.

- 2) Analyze the Data for consistency and accuracy. Clean the data as necessary to correct any inconsistencies and/or inaccuracies.
- 3) Compile the cleaned data into a set of sub-databases, with each database containing the data for an individual FSP district program.

2.2.2 Produce FSP 2005/06 California Local Program Report

The development of the FSP 2005/06 California Local Program Report consisted of the following sub-tasks:

- 1) Generate database queries to compile each district's program data into summary tables that will identify how each program is performing in the customer defined set of performance areas.
- 2) Format the resulting set of tables and graphs so they are consistent in format and easily understandable.
- 3) Load the formatted tables and graphs into the report with the content of each table or graph identified by the section heading. This report will not contain any text or State summary data. It will only contain summarized district FSP program data.

2.2.3 Produce FSP 2005/06 California Statewide MIS Program Report

The development of the FSP 2005/06 California Statewide MIS Program Report consisted of the following sub-tasks:

- 1) Generate database queries for the statewide database to compile FSP Program data into summary tables that will identify how FSP State program is performing in the customer defined set of performance areas.
- 2) Format the resulting set of tables and graphs so they are consistent in format and easily understandable.
- 3) Use the format of the FSP 2003/04 MIS annual report as a template for the FSP 2005/06 report. Create the shell of the FSP 2005/06 report.
- 4) Add all relevant text and tables from the FSP 2003/04 report. There is no need to recreate information that has already been created and will stay the same from yearly report to yearly report.
- 5) Load the formatted state summary tables and graphs into the report with the content of each table or graph identified by the caption heading.
- 6) Fill in all the report information that is unique to the FSP 2005/06 Fiscal Year.

2.2.4 Make Recommendations for Improving FSP Program Reporting

The development of recommendations to improve the California FSP Program's data collection, storage and reporting consisted of the following sub-tasks:

- 1) Take notes when collecting and compiling the received FSP data. The notes should contain references to problems and inconsistencies with the received FSP data.
- 2) Compile those notes into a complete set of meaningful recommendations that will help the state and local FSP Program representatives collect process and report FSP data that is both accurate and consistent across all programs.

Section 3: FSP Data Compilation Methodology

3.1 *FSP MIS Development Methodology*

The integrated Statewide MIS database was created to combine the FSP assist data from each of the California FSP programs into one single database. The data was provided by the ten local FSP programs and their associated, partner agencies. Since each program independently collects and stores their FSP assist data, the format of each of the program's datasets varies tremendously in data completeness, data coding consistency, data recording accuracy and in consistent compatible formats. The Recommendations section in this report provides a description of some of the more serious problems with the collected data and recommendations on how to improve the quality of the data.

Each local program's raw data was cleaned, standardized and combined into a single, unified database. In the final databases there are almost 670,000 records for the fiscal year 2005/06. They are stored in and manipulated using Microsoft Access. Each FSP program's dataset is stored in its own database file. The local program queries and reports can be run from the associated program's database file. The following sections provide the statewide summary tables and graphs based on this final database. The Trucks and Centerline Miles Excel file includes information such as the Total Number of Trucks, Total Truck Hours, Centerline Miles of each beat, and the number of beats in each district's program.

3.2 *FSP Evaluation Methodology*

The effectiveness of the FSP Program is assessed by calculating the annual benefit/cost (B/C) ratio of each FSP beat. First the annual savings in incident delay, fuel consumption and air pollutant emissions due to FSP service are calculated based on the number of assists, beat geometries and traffic volumes. The savings are then translated into benefits using monetary values for delay (\$10/hr) and fuel consumption (\$2/gal). The costs include the annual capital, operating and administrative costs for providing FSP service. The FSP evaluation methodology has been incorporated into an Excel spreadsheet. Input data requirements consist of beat geometries (number of lanes, presence of shoulders), traffic volumes, and the number and characteristics of FSP assists.

Section 4: FSP Performance Summary

4.1 Statewide Total Assists by Fiscal Year

Table 2 shows that the annual statewide total assists increased by approximately 8.3% (618,440 to 669,895) from FY 2004/05 to 2005/06. This is shown graphically in Figure 2.

Table 2: Total Assists and Annual Change by FY

Fiscal Year	Total Assists	Annual Change (%)
91/92	152,526	-
92/93	295,613	93.8%
93/94	452,018	52.9%
94/95	448,170	-0.9%
95/96	540,874	20.7%
96/97	587,941	8.7%
97/98	583,699	-0.7%
98/99	568,276	-2.6%
99/00	625,090	10.0%
00/01	631,161	1.0%
01/02	643,607	2.0%
02/03	651,710	1.3%
03/04	631,290	-3.1%
04/05	618,440	-2.0%
05/06	669,895	8.3%

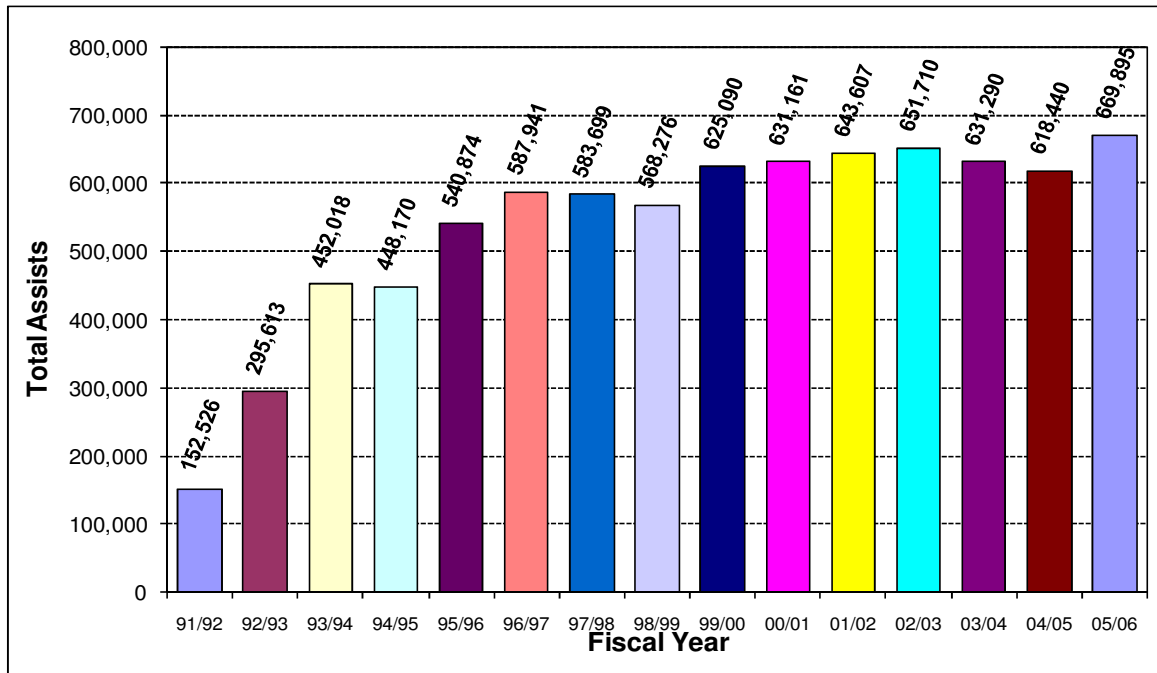


Figure 2: Bar Chart – Total Assists by Fiscal Year

4.2 Benefit/Cost Ratios for District FSP Programs

Table 3: B/C Ratio for Each FSP Program

District	Name	B/C Ratio
3	Sacramento / Yolo	5.8
4	Bay Area	3.6
5M	Monterey	2.2
5SC	Santa Cruz	16.1
6	Fresno	1.6
7	Los Angeles	6.3
8	Riverside	17.1
10	San Joaquin	4.6
11	San Diego	6.4
12	Orange	8.7
Average		6.3

Note: Benefit-Cost Ratios were estimated using FY: 2004/05 data.

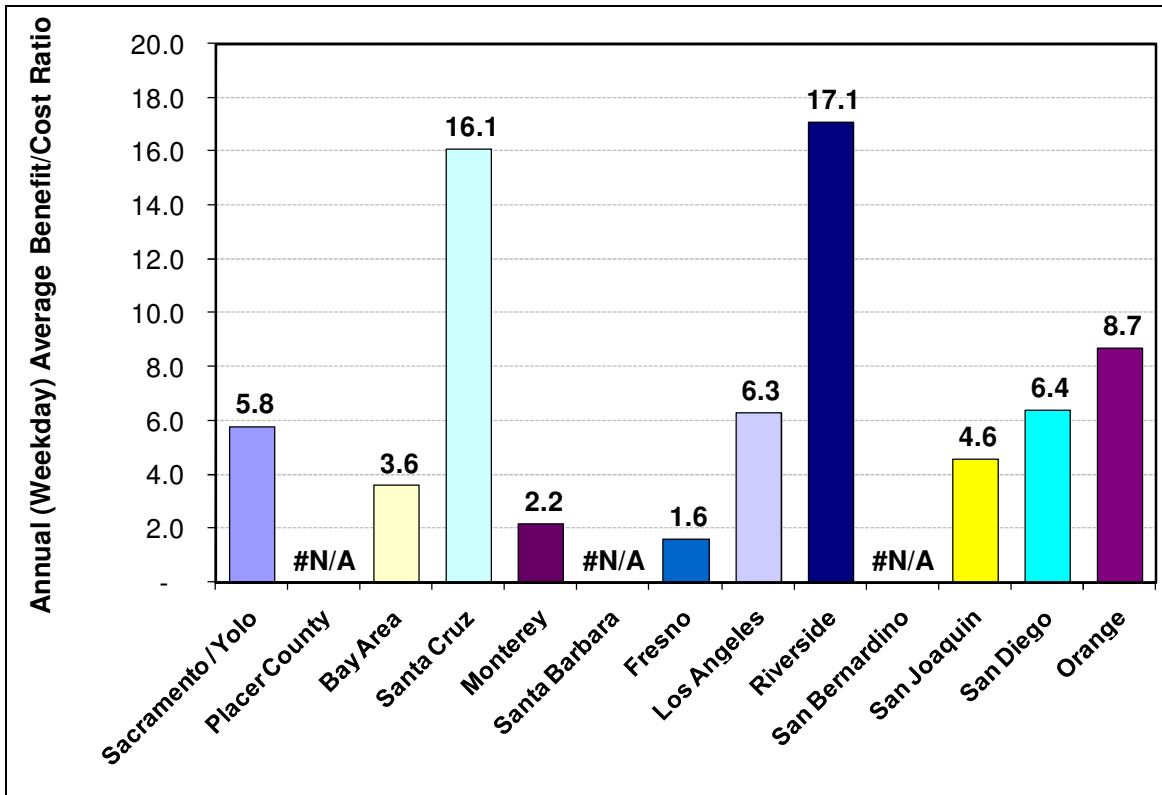


Figure 3: Bar Chart of FSP Benefit/Cost Ratios By District

4.3 Statewide FSP Total Assists by Quarter & District

Table 4: Total Assists by Quarter & District

		Jul 05 - Sep 05	Oct 05 - Dec 05	Jan 06 - Mar 06	Apr 06 - Jun 06		
District	Name	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Total Assists	%
3	Sacramento/ Yolo	7,023	6,554	7,937	8,885	30,399	4.5%
3P	Placer	190	151	493	494	1,328	0.2%
4	Bay Area	55,911	46,090	1,539	36,715	140,255	20.9%
5M	Monterey	965	778	1,029	1,311	4,083	0.6%
5SB	Santa Barbara	0	0	140	456	596	0.1%
5SC	Santa Cruz	1,019	737	67	615	2,439	0.4%
6	Fresno	513	449	421	424	1,807	0.3%
7	Los Angeles	83,337	75,278	76,867	80,968	316,450	47.2%
8R	Riverside	9,404	7,501	8,244	9,976	35,125	5.2%
8SB	San Bernadino	0	0	5,951	6,242	12,193	1.8%
10	San Joaquin	1,246	994	1,127	1,232	4,599	0.7%
11	San Diego	11,782	12,596	14,226	11,367	49,972	7.5%
12	Orange	18,109	15,323	17,942	19,275	70,649	10.5%
Total Assists		189,500	166,452	135,983	177,960	669,895	100.0%
% of Total Assists		28.3%	24.8%	20.3%	26.6%	100.0%	

Note: Quarterly assists are the sum of the FSP assists in the 2005/06 MIS database weighted to match District supplied totals. Thus, the reported quarterly total assists might be biased if a higher than average proportions of missing data appear in any given quarter.

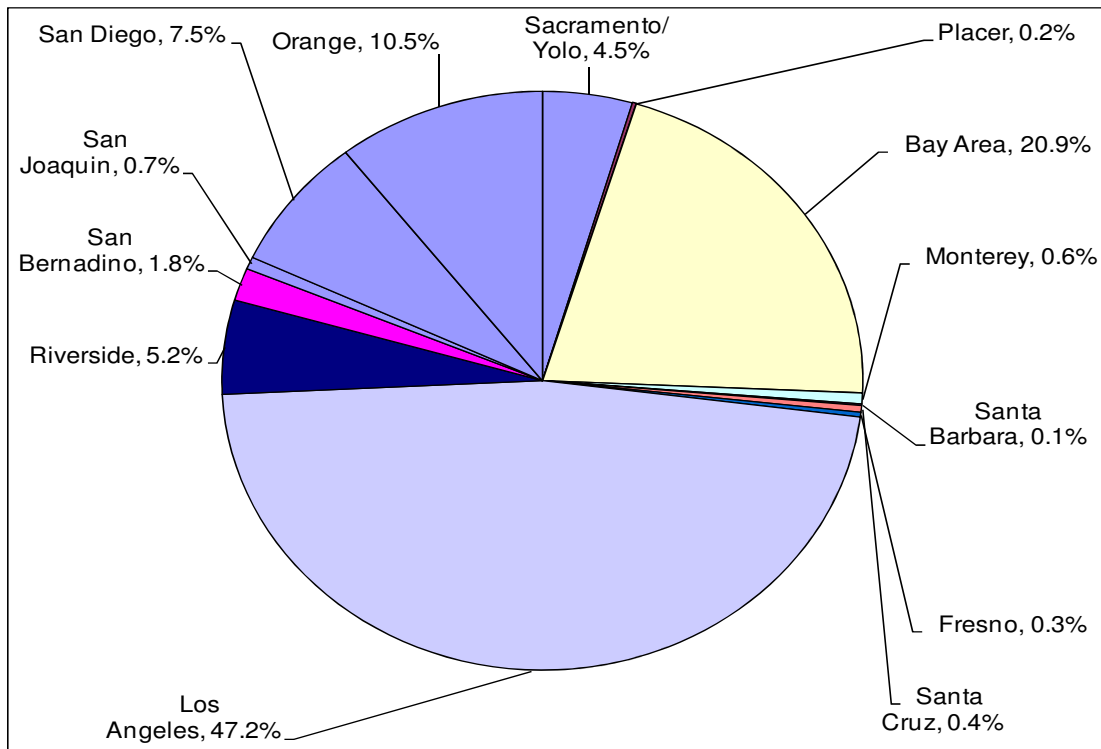


Figure 4: Pie Chart of Total Assists by District

4.4 Statewide FSP Total Assists by Problem Type

Table 5: Total Assists by Problem Type

Problem Type	Total Assists	%
Abandoned	52,550	7.8%
Accident	79,267	11.8%
Debris Removal	21,221	3.2%
Electrical Problem	17,081	2.5%
Flat Tire	118,099	17.6%
Mechanical Problem	102,462	15.3%
Other/Unknown/ Blank	173,083	25.8%
Out of Gas	70,380	10.5%
Over Heated	35,751	5.3%
Total Assists	669,895	100.0%

Note: The “Other/Unknown/Blank” category includes the count of assist records with the problem type field left blank as well as records with problem types that do not match any of the standardized problem type categories listed in the table above.

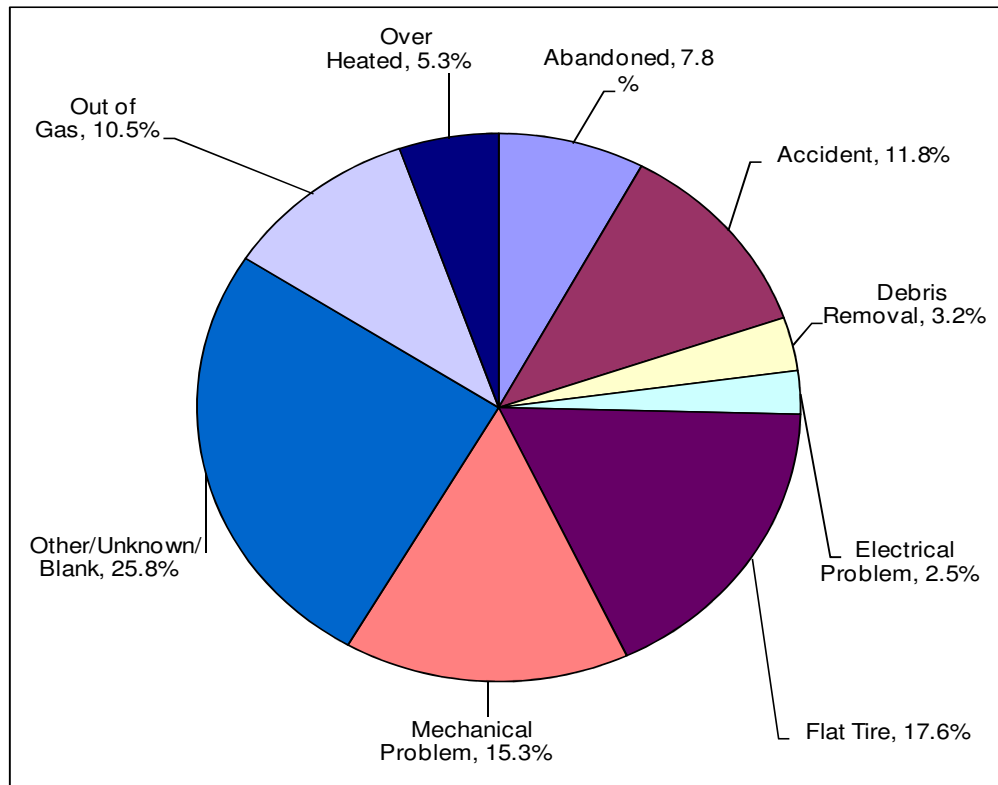


Figure 5: Pie Chart of Total Assists by Problem Type

4.5 Statewide FSP Total Assists by Problem Type & District

Table 6: Total Assists by Problem Type & District

District	Name	Abandoned	Accident	Debris Removal	Electrical Problem	Flat Tire	Mechanical Problem	Other/Unknown/Blank	Out of Gas	Over Heated	Total Assists
3	Sacramento / Yolo	3,761	4,945	631	572	5,313	6,186	4,297	3,516	1,178	30,399
3P	Placer	213	152	26	18	219	270	196	182	52	1,328
4	Bay Area	17,497	11,980	7,054	2,440	24,678	20,922	35,610	14,166	5,908	140,255
5M	Monterey	1,472	228	0	329	517	573	362	258	345	4,083
5SC	Santa Cruz	295	235	286	17	249	388	644	162	164	2,439
5SB	Santa Barbara	43	83	55	3	70	162	60	87	33	596
6	Fresno	314	285	46	24	230	478	172	237	21	1,807
7	Los Angeles	14,419	46,651	6,818	9,601	60,331	53,078	72,447	33,067	20,040	316,450
8R	Riverside	2,535	3,043	1,449	960	4,364	5,557	12,574	2,695	1,948	35,125
8SC	San Bernadino	939	736	384	590	1,929	1,725	4,186	1,001	703	12,193
10	San Joaquin	407	333	179	98	796	912	1,108	386	381	4,599
11	San Diego	7,949	3,790	700	1,490	9,428	10,635	6,113	6,914	2,953	49,972
12	Orange	2,707	6,807	3,595	939	9,976	1,576	35,314	7,710	2,026	70,649
Total Assists		52,550	79,267	21,221	17,081	118,099	102,462	173,083	70,380	35,751	669,895
Avg %		7.8%	11.8%	3.2%	2.5%	17.6%	15.3%	25.8%	10.5%	5.3%	100.0%

Table 7: Total Assists by Problem Type & District (in Percent)

District	Name	Abandoned	Accident	Debris Removal	Electrical Problem	Flat Tire	Mechanical Problem	Other/Unknown/Blank	Out of Gas	Over Heated	Total
3	Sacramento / Yolo	12.4%	16.3%	2.1%	1.9%	17.5%	20.4%	14.1%	11.6%	3.9%	100.0%
3P	Placer	16.0%	11.4%	2.0%	1.4%	16.5%	20.4%	14.8%	13.7%	3.9%	100.0%
4	Bay Area	12.5%	8.5%	5.0%	1.7%	17.6%	14.9%	25.4%	10.1%	4.2%	100.0%
5M	Monterey	36.1%	5.6%	0.0%	8.0%	12.7%	14.0%	8.9%	6.3%	8.4%	100.0%
5SB	Santa Barbara	7.2%	13.9%	9.2%	0.5%	11.7%	27.2%	10.1%	14.6%	5.5%	100.0%
5SC	Santa Cruz	12.1%	9.6%	11.7%	0.7%	10.2%	15.9%	26.4%	6.7%	6.7%	100.0%
6	Fresno	17.4%	15.8%	2.5%	1.3%	12.7%	26.5%	9.5%	13.1%	1.2%	100.0%
7	Los Angeles	4.6%	14.7%	2.2%	3.0%	19.1%	16.8%	22.9%	10.4%	6.3%	100.0%
8	Riverside	7.2%	8.7%	4.1%	2.7%	12.4%	15.8%	35.8%	7.7%	5.5%	100.0%
8SB	San Bernadino	7.7%	6.0%	3.1%	4.8%	15.8%	14.1%	34.3%	8.2%	5.8%	100.0%
10	San Joaquin	8.9%	7.2%	3.9%	2.1%	17.3%	19.8%	24.1%	8.4%	8.3%	100.0%
11	San Diego	15.9%	7.6%	1.4%	3.0%	18.9%	21.3%	12.2%	13.8%	5.9%	100.0%
12	Orange	3.8%	9.6%	5.1%	1.3%	14.1%	2.2%	50.0%	10.9%	2.9%	100.0%
Avg %		7.8%	11.8%	3.2%	2.5%	17.6%	15.3%	25.8%	10.5%	5.3%	100.0%

4.6 Statewide FSP Total Assists by Vehicle Type

Table 8: Total Assists by Vehicle Type

Vehicle Type	Total Assists	%
Auto/Van	426,018	63.6%
Big Rig	11,596	1.7%
Other / Unknown	99,738	14.9%
Pickup	54,989	8.2%
Trucks < 1 Ton	61,109	9.1%
Trucks > 1 Ton	16,445	2.5%
Total Assists	669,895	100.0%

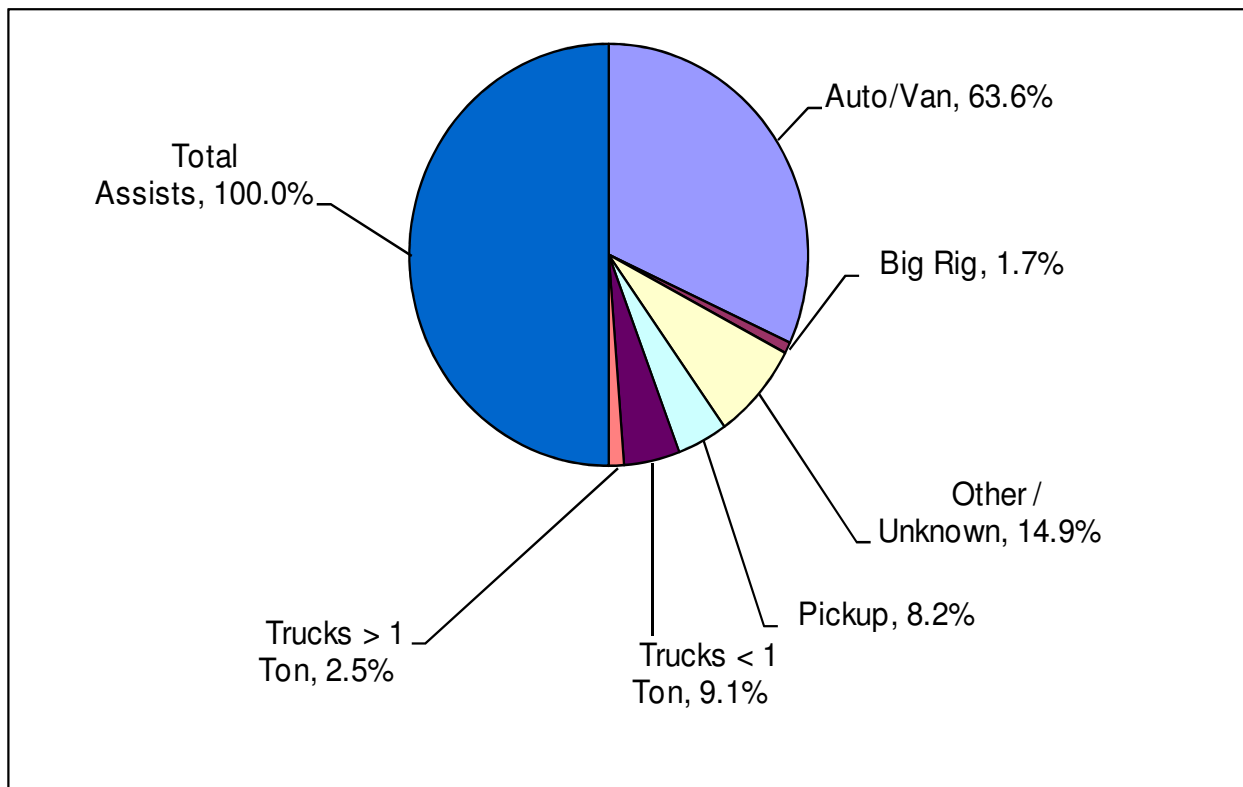


Figure 6: Pie Chart of Total Assists by Vehicle Type

4.7 Statewide FSP Total Assists by Vehicle Type & District

Table 9: Total Assists by Vehicle Type & District

District	Name	Auto/Van	Big Rig	Other/ Unknown	Pickup	Trucks < 1 Ton	Trucks > 1 Ton	Total Assists
3	Sacramento / Yolo	20,743	257	1,443	6,097	1,067	792	30,399
3P	Placer	875	1	59	275	107	11	1,328
4	Bay Area	100,843	2,962	5,240	26,236	1,501	3,473	140,255
5M	Monterey	2,959	51	271	728	7	68	4,083
5SB	Santa Barbara	387	4	90	105	2	8	596
5SC	Santa Cruz	1,549	247	244	330	1	68	2,439
6	Fresno	1,643	2	47	114	1	0	1,807
7	Los Angeles	237,145	0	12,625	2,021	55,674	8,985	316,450
8	Riverside	15,177	5,533	4,710	7,341	669	1,695	35,125
8SB	San Bernadino	6,747	2,202	555	2,025	354	310	12,193
10	San Joaquin	2,852	22	701	902	47	76	4,599
11	San Diego	35,098	315	3,105	8,815	1,679	960	49,972
12	Orange	no data	no data	70,649	no data	no data	no data	70,649
Total Assists		426,018	11,596	99,738	54,989	61,109	16,445	669,895
Avg %		63.6%	1.7%	14.9%	8.2%	9.1%	2.5%	100.0%

*Fresno's data contained no assists for Trucks > 1 ton

*Los Angeles's data contained no assists for Big Rigs

Table 10: The % of Total Assists by Vehicle Type & District

District	Name	Auto/Van	Big Rig	Other/ Unknown	Pickup	Trucks < 1 Ton	Trucks > 1 Ton	Total
3	Sacramento / Yolo	68.2%	0.8%	4.7%	20.1%	3.5%	2.6%	100.0%
3P	Placer	65.9%	0.1%	4.4%	20.7%	8.1%	0.8%	100.0%
4	Bay Area	71.9%	2.1%	3.7%	18.7%	1.1%	2.5%	100.0%
5M	Monterey	72.5%	1.2%	6.6%	17.8%	0.2%	1.7%	100.0%
5SB	Santa Barbara	64.9%	0.7%	15.1%	17.6%	0.3%	1.3%	100.0%
5SC	Santa Cruz	63.5%	10.1%	10.0%	13.5%	0.1%	2.8%	100.0%
6	Fresno	90.9%	0.1%	2.6%	6.3%	0.1%	0.0%	100.0%
7	Los Angeles	74.9%	0.0%	4.0%	0.6%	17.6%	2.8%	100.0%
8	Riverside	43.2%	15.8%	13.4%	20.9%	1.9%	4.8%	100.0%
8SB	San Bernadino	55.3%	18.1%	4.6%	16.6%	2.9%	2.5%	100.0%
10	San Joaquin	62.0%	0.5%	15.2%	19.6%	1.0%	1.6%	100.0%
11	San Diego	70.2%	0.6%	6.2%	17.6%	3.4%	1.9%	100.0%
12	Orange	N/A	N/A	100.0%	N/A	N/A	N/A	100.0%
Avg %		63.2%	1.7%	14.7%	9.3%	7.9%	2.6%	100.0%

4.8 Statewide FSP Total Assists by Vehicle Location

Table 11: Total Assists by Vehicle Location

Vehicle Location	Total Assists	%
In Freeway Lane	53,903	8.0%
Left Shoulder	27,444	4.1%
Other / Blank	86,532	12.9%
Ramp / Connector	45,631	6.8%
Right Shoulder	456,385	68.1%
Total Assists	669,895	100.0%

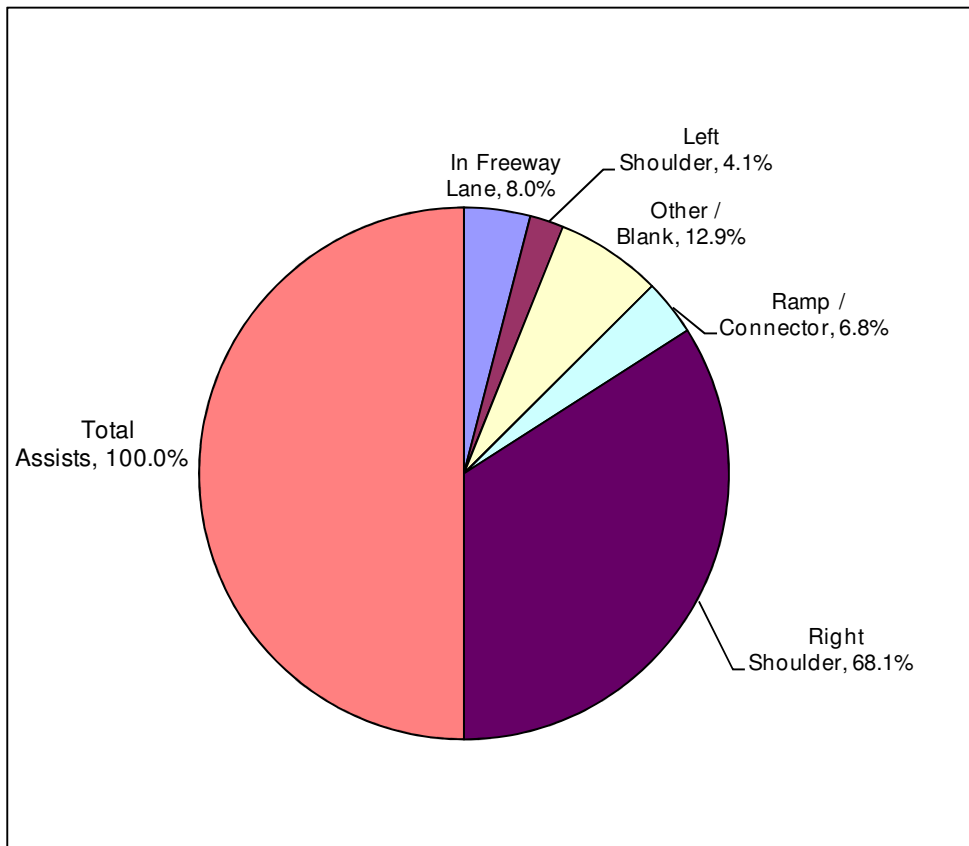


Figure 7: Pie Chart of Total Assists by Vehicle Location

4.9 Statewide FSP Total Assists by Vehicle Location & District

Table 12: Total Assists by Vehicle Location & District

District	Name	In Freeway Lane	Left Shoulder	Other/Unknown/Blank	Ramp/Connector	Right Shoulder	Total Assists
3	Sacramento / Yolo	3,170	2,482	1,496	1,578	21,673	30,399
3P	Placer	83	75	150	1,003	17	1,328
4	Bay Area	11,824	7,347	76	13,213	107,795	140,255
5M	Monterey	433	244	173	267	2,966	4,083
5SB	Santa Barbara	48	77	37	81	353	596
5SC	Santa Cruz	479	107	0	205	1,648	2,439
6	Fresno	221	98	0	225	1,263	1,807
7	Los Angeles	31,303	10,020	10,267	20,223	244,637	316,450
8	Riverside	2,810	1,321	1,419	3,692	25,883	35,125
8SB	San Bernadino	592	602	197	1,204	9,598	12,193
10	San Joaquin	147	441	210	574	3,226	4,599
11	San Diego	2,793	4,630	1,858	3,365	37,326	49,972
12	Orange	N/A	N/A	70,649	N/A	N/A	70,649
Total Assists		53,903	27,444	86,532	45,631	456,385	669,895
Avg %		8.0%	4.1%	12.9%	6.8%	68.1%	100.0%

Note: District 12 did not provide any Vehicle Location data. Therefore, the Vehicle Locations for all the assists were categorized as "Blank".

Table 13: The % of Total Assists by Vehicle Location & District

District	Name	In Freeway Lane	Left Shoulder	Other/Unknown/Blank	Ramp/Connector	Right Shoulder	Total
3	Sacramento / Yolo	10.4%	8.2%	4.9%	5.2%	71.3%	100.0%
3P	Placer	6.3%	5.6%	11.3%	75.5%	1.3%	100.0%
4	Bay Area	8.4%	5.2%	0.1%	9.4%	76.9%	100.0%
5M	Monterey	10.6%	6.0%	4.2%	6.6%	72.6%	100.0%
5SB	Santa Barbara	8.1%	12.9%	6.2%	13.6%	59.2%	100.0%
5SC	Santa Cruz	19.6%	4.4%	0.0%	8.4%	67.6%	100.0%
6	Fresno	12.2%	5.4%	0.0%	12.5%	69.9%	100.0%
7	Los Angeles	9.9%	3.2%	3.2%	6.4%	77.3%	100.0%
8	Riverside	8.0%	3.8%	4.0%	10.5%	73.7%	100.0%
8SB	San Bernadino	4.9%	4.9%	1.6%	9.9%	78.7%	100.0%
10	San Joaquin	3.2%	9.6%	4.6%	12.5%	70.2%	100.0%
11	San Diego	5.6%	9.3%	3.7%	6.7%	74.7%	100.0%
12	Orange	N/A	N/A	100.0%	N/A	N/A	N/A
Avg %		8.3%	4.2%	12.0%	6.7%	68.0%	100.0%

4.10 Statewide FSP Average Assist Duration by District

Table 14: The Average Assist Duration by District

District	Name	Average Duration (minutes)
3	Sacramento / Yolo	12.1
3P	Placer	12.4
4	Bay Area	10.6
5M	Monterey	12.0
5SC	Santa Cruz	11.3
6	Fresno	19.3
7	Los Angeles	14.8
8	Riverside	9.7
8SB	San Bernadino	8.3
10	San Joaquin	12.1
11	San Diego	10.2
12	Orange	9.8
Weighted Avg. Duration		12.5

*Duration data for district 5SB was not available.

Note: Only records with assist durations that were greater than zero minutes (not negative) and less than 120 minutes were included in the average duration calculations. The reason for this range restriction was that assist durations outside of this range were considered erroneous, resulting from start/end time data entry errors.

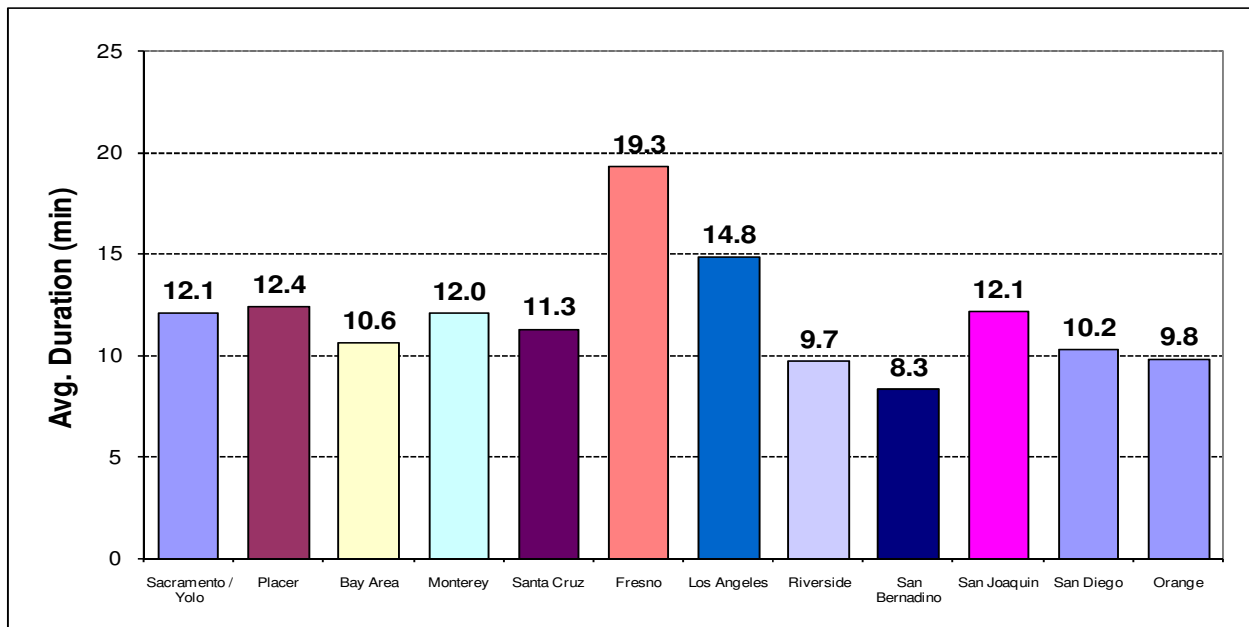


Figure 8: Bar Chart of Average Assist Duration by District

4.11 Statewide FSP Average Assist Duration by Problem Type & District

Table 15: The Average Assist Duration by Problem Type & District

District	Name	Abandoned	Accident	Debris Removal	Electrical Problem	Flat Tire	Mechanical Problem	Other/Unknown	Out of Gas	Over Heated	Average Duration
3	Sacramento / Yolo	5.7	19.6	5.9	8.5	13.2	14.8	7.0	8.3	13.3	12.1
3P	Placer	4.0	23.6	10.9	15.2	13.3	17.3	7.3	8.9	15.8	12.4
4	Bay Area	14.2	17.4	7.8	18.7	4.0	5.2	11.1	12.4	12.4	10.6
5M	Monterey	6.7	19.4	0.0	9.0	14.4	17.5	9.6	7.1	13.4	12.0
5SC	Santa Cruz	4.6	19.9	12.9	16.0	16.1	15.7	6.4	7.5	12.5	11.3
6	Fresno	4.3	28.0	11.5	18.0	29.4	25.5	9.9	14.1	27.3	19.3
7	Los Angeles	8.0	20.2	9.3	18.1	17.1	19.4	8.5	11.7	16.6	14.8
8	Riverside	5.4	13.9	5.8	15.8	13.4	15.8	5.1	8.8	13.4	9.7
8SB	San Bernadino	5.0	9.5	4.2	14.0	12.4	12.8	3.5	8.0	12.6	8.3
10	San Joaquin	5.4	18.0	3.8	18.5	14.0	19.1	5.7	8.1	15.8	12.1
11	San Diego	5.8	16.6	8.8	12.4	12.4	12.4	6.7	8.3	10.9	10.2
12	Orange	4.1	10.8	7.0	9.6	13.0	8.6	10.3	6.3	8.9	9.8
Weighted Avg. Duration		8.3	17.8	8.3	16.2	13.1	14.2	8.7	10.6	14.1	12.5

Note: Only records with assist durations that were greater than zero minutes (not negative) and less than 120 minutes were included in the average duration calculations. The reason for this range restriction was that assist durations outside of this range were considered erroneous, resulting from start/end time data entry errors.

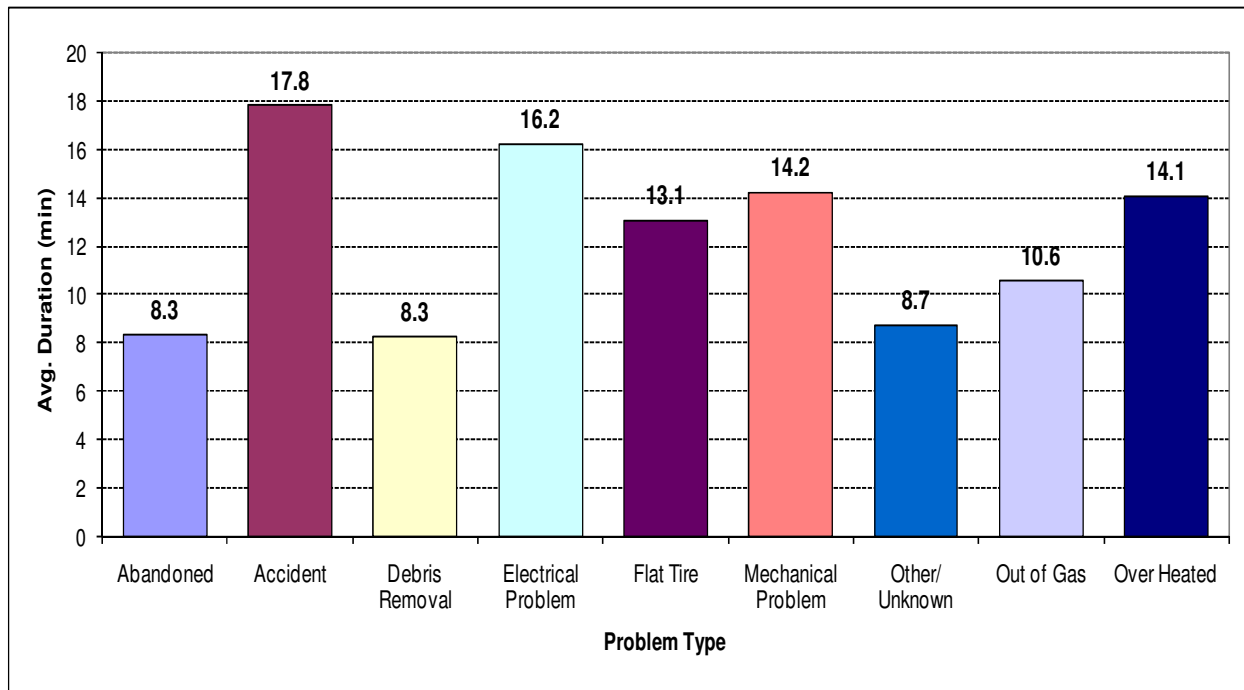


Figure 9: Bar Chart of Average Assist Duration by Problem Type and District

4.12 Statewide FSP Average Assist Duration by Vehicle Type & District

Table 16: The Average Assist Duration by Vehicle Type & District

District	Name	Auto/Van	Big Rig	Other	Pickup	Trucks < 1 Ton	Trucks > 1 Ton	Average Duration
3	Sacramento / Yolo	8.2	11.9	12.2	12.5	15.0	12.4	12.2
3P	Placer	12.3	16.0	13.8	11.6	14.2	9.9	12.4
4	Bay Area	10.9	9.3	12.3	10.1	11.3	9.2	10.6
5M	Monterey	12.5	13.8	8.1	11.1	35.0	14.2	12.0
5SC	Santa Cruz	12.1	6.6	12.0	11.5	65.0	12.0	11.3
6	Fresno	19.4	8.0	10.9	20.6	2.0		19.3
7	Los Angeles	15.3	0.0	10.7	12.8	14.1	13.6	14.8
8	Riverside	11.0	6.9	9.1	9.7	9.9	8.0	9.7
8SB	San Bernadino	9.7	5.0	5.0	8.4	6.4	6.3	8.3
10	San Joaquin	12.8	16.0	11.8	11.8	9.0	12.5	12.1
11	San Diego	10.4	13.1	10.8	9.6	9.7	9.1	10.2
12	Orange	No Data Available	No Data Available	No Data Available	No Data Available	No Data Available	No Data Available	9.8
Weighted Avg. Duration		11.7	7.9	9.8	10.4	11.6	10.4	12.5

Notes:

- Only records with assist durations that were greater than zero minutes (not negative) and less than 120 minutes were included in the average duration calculations. The reason for this range restriction was that assist durations outside of this range were considered erroneous, resulting from start/end time data entry errors.
- District 12 did not provide any Vehicle Type data.

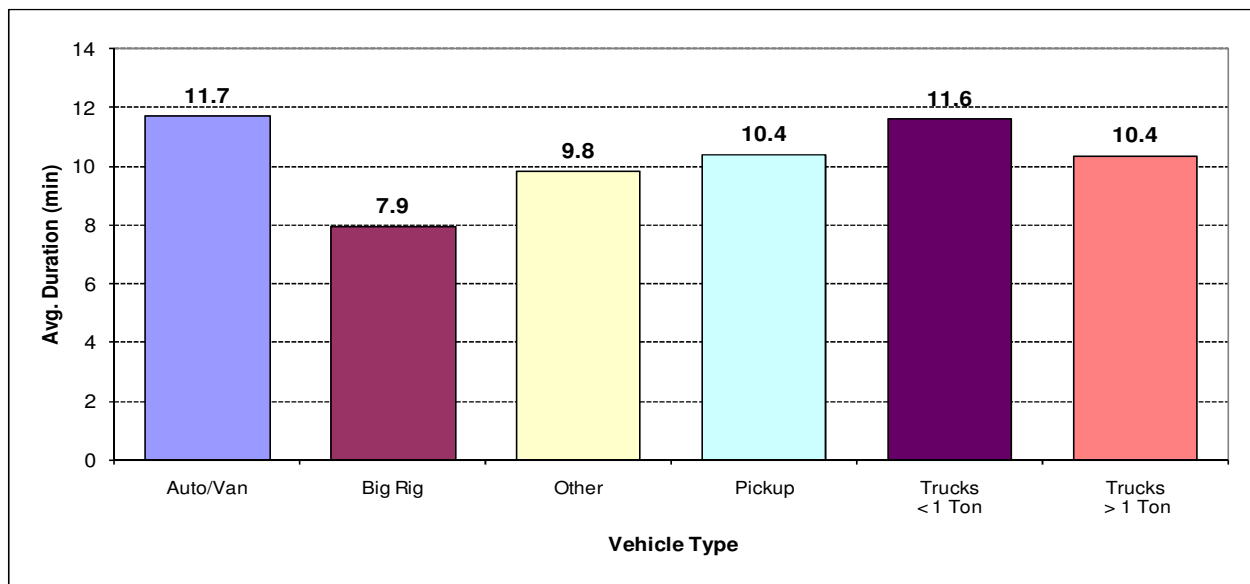


Figure 10: Bar Chart of Average Assist Duration by Vehicle Type

4.13 Statewide FSP Average Assist Rate by District

Table 17: The Average Assist Rate by District

District	Name	Annual Assists	Annual Truck-Hours	District Assist Rate
3S/Y	Sacramento / Yolo	30,399	27,073	1.1
3P	Placer County	1,328	1,219	1.1
4	Bay Area	140,255	153,303	0.9
5SC	Santa Cruz	2,439	3,444	0.7
5M	Monterey	4,083	3,812	1.1
5SB	Santa Barbara	596	1,014	0.6
6	Fresno	1,807	3,375	0.5
7	Los Angeles	316,450	390,019	0.8
8R	Riverside	35,125	23,529	1.5
8SB	San Bernardino	12,193	6,854	1.8
10	San Joaquin	4,599	6,610	0.7
11	San Diego	49,972	56,250	0.9
12	Orange	70,649	70,168	1.0
State-wide		669,895	746,670	0.9

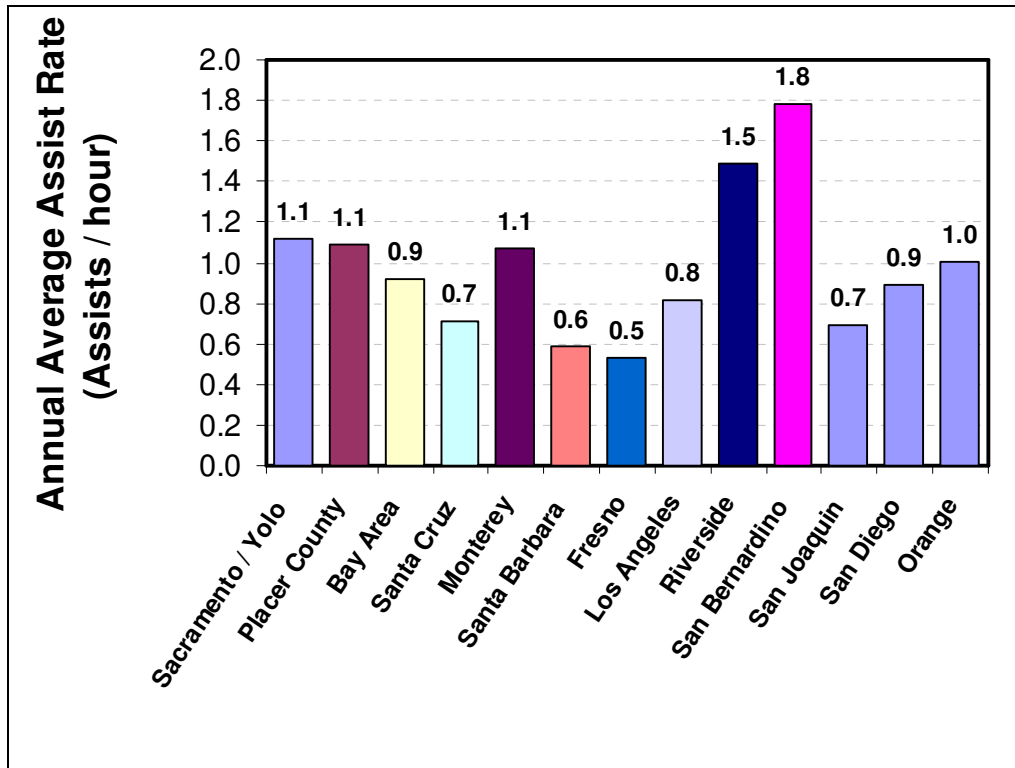


Figure 11: Bar Chart of Average Assist Rate by District

Section 5: Statewide FSP Data Categories

5.1 FSP Data Reporting Categories

The following tables and notes show the reported FSP assist descriptive coding categories and how they were combined into one set of standardized categories for local and statewide statistical analysis and reporting purposes.

5.1.1 Problem Type Category

Table 18: Problem Type Category Summary

Problem Type	D3	D4 & D5SC	D5M	D5SB	D6	D7	D8R	D8SB	D10	D11	D12
Out of Gas	√	√	√	√	√	√	√	√	√	√	√
Electrical Problem	√	√ ⁽⁵⁾	√ ⁽⁵⁾	√	√	√	√	√	√	√	√
Debris Removal	√	√ ⁽⁶⁾	√	√	√	√	√	√	√	√	√
Over Heated	√	√	√	√	√	√	√	√	√	√	√
Mechanical Problem	√	√	√	√	√	√	√	√	√	√	√
Flat Tire	√	√	√	√	√	√	√	√	√	√	√
Accident	√	√ ⁽³⁾	√ ⁽⁴⁾	√	√	√ ⁽²⁾	√	√	√	√	√ ⁽⁸⁾
Abandoned	√	√	√ ⁽⁷⁾	√	√	√	√	√	√	√	√
Other/Unknown ⁽¹⁾	√	√	√	√	√	√	√	√	√	√	√

Notes:

√ = Data available

N/A = Data not available

- (1) Across all districts, besides the standardized Problem Types, subsets of the following non-standardized Problem Types were used. For the purposes of compiling statistics for this report these Problem Types were counted in the "Other" Problem Type category: "Vehicle Fire", "Locked Out", "INFOM", "Unable to Locate", "Refused FSP Service", "Cancelled Assignment", "Drive-Off", "Help Enroute", "Provided Transportation", "Direct Traffic - 1184", "Disabled Vehicle - 1126", "dispatched by CHP", "Tow Truck Req. - 1185", "A", "Q", "Assisted Another Driver", "Service Refused", "Info/Assist", "Private Assistance" and "Removed per CHP/Motorist".
- (2) Include "Rollover" in "Accident".
- (3) Include "Traffic Collision" in "Accident".
- (4) Include "Ambulance - 1141, 79" in "Accident".
- (5) Include "Battery" and "Dead Battery" in "Electrical".
- (6) Include "In-lane Hazard" in "Debris Removal".
- (7) Include "Tagged Vehicle - 1124" in "Abandoned".
- (8) The problem code of "H" is where the FSP driver assisted the CHP with an Accident. Assists with this code were counted in the Problem Type category of "Accident".

5.1.2 Vehicle Type Category

Table 19: Vehicle Type Category Summary

Vehicle Type	D3	D4 & D5SC	D5M	D5SB	D6	D7	D8R	D8SB	D10	D11	D12 ⁽⁶⁾
Auto/Van ⁽¹⁾	√	√	√	√	√	√	√	√	√	√	N/A
Pickup	√	√	√	√	√	√	√	√	√	√	N/A
Truck < 1 ton	√	√	√	√	√	√	√ ⁽⁵⁾	√	√	√	N/A
Truck > 1 ton	√	√	√	√	√	√	√ ⁽⁸⁾	√	√	√	N/A
Big Rig	√ ⁽³⁾	√	√	√	√	√ ⁽³⁾	√	√	√	√ ^(3,7)	N/A
Other	√ ⁽²⁾	√ ⁽²⁾	√ ⁽²⁾	√ ⁽²⁾	√ ^(2,4)	√ ⁽²⁾	√ ⁽⁹⁾	√ ⁽³⁾	√	√ ⁽²⁾	N/A

Notes:

√ = Data available

N/A = Data not available

(1) Combine "Auto" and "Van" types together.

(2) Include "Motorcycle" and "MCYCLE" in "Other".

(3) Include "No Assist" and "No Assist Due to Oversize" in "Big Rig" or "Other"

(4) Include "Bus" and "MTFHME" in "Other"

(5) Include "L" in "Trucks < 1 Ton"

(6) There was no vehicle classification data available for District 12

(7) "Semi" = "Big Rig"

(8) Include "T" in "Trucks > 1 Ton"

(9) Include "M", "O" and "N" in "Other"

5.1.3 Vehicle Location Category

Table 20: Condensed Disabled Vehicle Location Category Summary

Disabled Vehicle Location	D3	D4 & D5SC	D5M	D5SB	D6	D7	D8R	D8SB	D10	D11	D12 ⁽⁴⁾
In Freeway Lane	√	√	√	√	√	√ ⁽³⁾	√	√	√	√	N/A
Ramp/Connector	√	√	√	√	√	√	√	√	√	√	N/A
Other ⁽¹⁾	√	√ ⁽⁶⁾	√ ⁽⁶⁾	√ ⁽⁶⁾	√	√	√	√	√	√	N/A
Right Shoulder	√	√	√	√	√	√	√	√	√	√	N/A
Left Shoulder	√	√	√	√	√ ⁽⁵⁾	√ ⁽⁵⁾	√	√	√	√	N/A
Unable to Locate	√					√ ⁽²⁾	√	√	√		N/A

Notes:

√ = Data available

N/A = Data not available

(1) Assist records with the Vehicle Location field left blank were included in "Other"

(2) Include "Check Call Box" in "Unable to Locate"

(3) Include "In HOV Lane" in "In Freeway Lane"

(4) Disabled Vehicle Location data was not collected by District 12.

(5) Include "Center Median" and "CNT DIV" in "Left Shoulder"

(6) Include "In Gore Area" in "Other"

(7) Blank values in this table indicate no assist records reported this value

5.1.4 Towed To Location Category

Table 21: Towed To Location Category Summary

Towed to Location	D3	D4 & D5SC	D5M	D5SB	D6	D7	D8R	D8SB	D10	D11	D12 ⁽³⁾
Shoulder	√ ⁽⁷⁾	√	√ ⁽⁷⁾	√	√	√	√ ⁽⁸⁾	√	√ ⁽⁷⁾	√ ⁽⁷⁾	N/A
Off Freeway	√ ⁽⁶⁾	√ ^(1,6)	√	√	√	√	√	√	√	√	N/A
No Tow	√	√		√	√	√	√	√	√	√	N/A
Other ⁽⁴⁾	√	√		√	√			√			N/A

Notes:

√ = Data Available

N/A = Data not available

- (1) Include "Towed" in "Off Freeway".
- (2) District 10 only provided monthly summary tables.
- (3) Towed To Location data was not collected by District 12.
- (4) Assist records with the Towed To field left blank were included in "Other"
- (5) Include "Right Shoulder" in "Shoulder".
- (6) Include "Drop Zone" and "Drop Location" in "Off Freeway".
- (7) Include "Pushed" in "Shoulder"
- (8) Include "S" and "P" in "Shoulder"
- (9) Blank values in this table indicate no assist records reported this value

5.1.5 Vehicle Found Category

Table 22: Vehicle Found Category Summary

Found Category	D3	D4 & D5SC	D5M	D5SB	D6	D7	D8R	D8SB	D10	D11	D12 ⁽²⁾
Dispatched by CHP or Caltrans	√	√	√	√	√	√	√	√	√	√	N/A
Found by You (the Driver)	√	√	√ ⁽¹⁾	√	√	√	√	√	√	√ ⁽⁴⁾	N/A
Other	√ ⁽³⁾					√			√		

Notes:

√ = Data available

N/A = Data not available

(1) Include "Driver" in "Found by You/Driver"

(2) Vehicle Found data was not collected by District 12.

(3) Include "Partner Assist" in "Other"

(4) Include "FSP" in "Found by You/Driver"

(5) Blank values in this table indicate no assist records reported this value

Section 6: Statewide Reporting Recommendations

This section reports on the challenges encountered during the process of cleaning, processing and formatting the assist data for the FSP MIS databases and report. The following sections contain several recommendations based on these challenges.

6.1 *All Districts – Consistent Assist Record set of Description Fields*

Across the majority of FSP districts not all of the requested assist data fields were recorded and reported. Too often only a subset of what was required was provided. At a minimum, the following fields for each and every FSP Assist Record are required.

- District
- Beat
- Assist Date
- Arrival Time
- Departure Time
- Problem Type
- Vehicle Type
- Vehicle Location on Road
- Tow To
- How vehicle was found

Recommendation: Require each of the FSP Program representatives to verify values for ALL the fields listed above are included in each individual assist record. The possible formats and values for the fields are either apparent or listed in the next recommendation.

6.2 *All Districts - Data Coding and Categories*

The FSP Programs essentially have been implemented this suggestion from the FSP 0102 MIS report and are using codes from a standardized set of assist description codes. However, some FSP programs are reporting assist information using the entire set of codes, while others are only using a subset of the codes. The California FSP assist statistical analysis would be much more informative if all FSP programs used the granularity of the whole list of assist description codes as shown in the following tables.

Recommendation: Have each of the FSP Programs make all the assist description codes available to the FSP staff when filling out the assist Scantron forms, logs and/or entering the assist data into the electronic recording media.

Based on an agreement of the FSP technical committee, the standardized motorist assist description codes used to process the FSP program assist data is shown in the tables in the following sections. These codes should be used by each FSP program.

6.2.1 Problem Type

Table 23: Standardized Problem Type Category

Code	Problem Type
1	Abandoned
2	Accident
3	Debris Removal
4	Drive Off
5	Electrical Problem
6	Flat Tire
7	Help Enroute
8	Locked Out
9	Mechanical Problem
10	Other
11	Out of Gas
12	Over Heated
13	Refuse Service
14	Rollover
15	Unable to Locate
16	Vehicle Fire

6.2.2 Vehicle Type

Table 24: Standardized Vehicle Type Category

Code	Vehicle Type
1	Auto
2	Motorcycle
3	Van / SUV
4	Pickup / Truck
5	Big Rig
6	Other

6.2.3 Vehicle Location Category

Table 25: Standardized Disabled Vehicle Location Category

Code	Disabled Vehicle Location
1	In Freeway Lane
2	Left Shoulder
3	Other
4	Ramp/Connector
5	Right Shoulder
6	Unable to Locate

6.2.4 Towed To Location

Table 26: Standardized Towed to Location Category

Code	Towed to Location
1	Shoulder
2	Off Freeway
3	No Tow

6.2.5 Vehicle Found Category

Table 27: Standardized Found Category

Code	Found Category
1	Dispatched
2	Found by FSP Driver
3	Other

6.3 All Districts - Data Entry Errors

During the processing of the FSP 2005/06 assist data, data errors were encountered. The errors were in the beat IDs, dates, times and some descriptive code categories. The errors consisted of data entries that were not within the range of valid pre-defined values. For example, assist records had invalid assist dates and start times that were after the end times. Some of the errors resulted in negative durations that could not be used in the calculation of the average assist durations. Upon review of these errors, it appears these problems are most likely the result of data entry errors. The data entry and validation process for all districts needs to be refined to find and correct these and other date, time and code entry errors.

Recommendation: Migration to a more reliable data coding media and reader technology. For manually entered assist data, the entry fields should be preformatted and/or masked with the format of the intended entry values. The last method of data accuracy validation would be a manual scan the data for any errors. This can be done either with data sorting and/or a visual review of the data. Regardless of the method chosen, the goal is to record and report the most accurate and error free data as possible.

6.4 All Districts – Reporting of “Other/Unknown/Blank” Problem Type

The assist count in the Problem Type category of “Other/Unknown/Blank” is large. The category contains the count of not only the empty and unknown problem types but also the count of the problem types that do not easily fall in the condensed set of reported problem type categories. Combining these two different groupings of problem types takes information away from the data shown on the Problem Type statistical tables and graphs.

Recommendation: This recommendation comes in two (2) parts. First, each district needs to verify that every assist record has a Problem Type recorded. There seemed to be quite a few left blank either by mistake or uncertainty. Second, for future MIS reports this category should be separated into “Other” and “Blank/Unknown” categories. The “Other” category should contain a count of all assists that do not fall into one of the standardized Problem Categories, while the “Blank/Unknown” should contain a count of all assists for which there is no indication of what the assist’s problem type was.

6.5 All Districts – Blank Assist Description Code Fields

Every set of assist data received had code description fields that were left blank. Most of the time, this was intentional because the field did not apply to the assist (i.e. “Vehicle Type” with a “Problem Type” of “Debris Removal”), however, it is unknown how many were unintentionally left blank.

Recommendation: Mark the fields with a code that indicates that this field is intentionally being left blank because it does not apply to this problem type. A code of “99” or “ZZ” could be used as the indicator.