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**California's Freeway Service Patrol
Program
Management Information System Annual Report
Fiscal Year 2006-07**

**Michael Mauch and
Alex Skabardonis**

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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 2007, there were thirteen participating FSP Programs operating in California, deploying over 350 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 2006-2007. 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 2006/07*

*Prepared for the California Department of Transportation
Traffic Operations Division*



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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 2006/07:

- (1) In fiscal year 2006/07, the roving tow trucks of the FSP program provided approximately 667,000 assists on California's highway system. This is about a half percent decrease over the previous year. Over 45 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 19 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-1.¹
- (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 2006/07 was about 12 ²/₃ minutes.

¹ The FSP benefit-cost ratios reported were estimated using FY: 2004/05 data.

- (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 2006/07 the State's thirteen FSP programs operated 149 Beats with 351 trucks (during the PM peak period) over 1,650 centerline freeway miles. Together they provided roughly 786,000 total truck hours of service. On average, California's FSP trucks in FY 2006/07 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 67 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 2006/07, the state allocated \$25.5 million to the thirteen locally run FSP programs and another \$4.0 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 2006/07, the local partner transportation agencies provided \$xx.x million in matching funds—a xxx percent match. The bulk of this match is supplied by the Los Angeles program, which provided \$19.2 million—a 241 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 Beats	# of Trucks	Center - line Miles ₄	Annual Truck Hours	Annual Total Assists ₁	Avg. Assist Duration (min.)	Assist Rate ₂	B/C Ratio ₂	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	27,195	30,540	12.72	1.12	5.8	\$1,123,880	4.4%	\$712,525	2.7%	\$296,345	7.4%
3P	Placer County	2	2	13	3,716	2,238	12.82	0.60	NA	\$188,940	0.7%	\$47,563	0.2%	\$0	0.0%
4	Bay Area	35	75	479	151,332	127,424	10.74	0.84	3.6	\$5,999,389	23.5%			\$951,618	23.8%
5SC	Santa Cruz	2	2	16	3,312	2,439	11.52	0.74	16.1	\$191,294	0.8%	\$82,000	0.3%	\$0	0.0%
5M	Monterey	2	2	26	3,146	5,299	10.18	1.68	2.2	\$219,080	0.9%	\$54,770	0.2%	\$0	0.0%
5SB	Santa Barbara	3	2	20	2,964	1,651	NA	0.56	NA	\$277,468	1.1%	\$69,397	0.3%	\$0	0.0%
6	Fresno	3	3	21	3,375	2,556	18.92	0.76	1.6	\$491,994	1.9%	\$59,400	0.2%	\$114,785	2.9%
7	Los Angeles	43	149	451	393,520	302,454	15.42	0.77	6.3	\$7,957,024	31.2%	\$19,160,570	71.8%	\$1,258,019	31.5%
8R	Riverside	8	16	43	28,336	35,753	9.41	1.26	17.1	\$1,416,343	5.6%	\$354,086	1.3%	\$446,273	11.2%
8SB	San Bernardino ³	8	16	34	29,955	29,301	8.26	0.98	NA	\$1,272,539	5.0%	\$371,474	1.4%	\$0	0.0%
10	San Joaquin	1	3	16	6,802	5,321	10.45	0.78	4.6	\$428,093	1.7%	\$107,023	0.4%	\$0	0.0%
11	San Diego	13	32	225	64,000	50,701	10.36	0.79	6.4	\$2,841,505	11.2%	\$710,376	2.7%	\$452,337	11.3%
12	Orange	12	32	168	68,665	70,935	9.80	1.03	8.7	\$3,071,452	12.1%	\$4,975,000	18.6%	\$480,623	12.0%
State-wide		149	351	1,661	786,318	666,612	12.68	0.85	6.3	\$25,479,000	100.0%	\$26,704,184	100.0%	\$4,000,000	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) San Bernardino started service on four new beats in January 2007.
- (4) Center-line Miles were calculated for the 2005-2006 Truck Routes.



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 – preferably providing the tow-truck operators with laptop computers or handheld computerized data entry devices. 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)
 - Towed To (location)
 - 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) 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.

- 9)** 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.
- 10)** 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).

There are no new recommendations at this time regarding the data collection, data format, or data content. The migration toward providing tow truck operators with PDA's (or laptop computers) is resolving many of the previously experienced data problems.

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 2006/07, the FSP program provided approximately 667,000 assists in nine Caltrans districts (which includes thirteen 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 2006/07 Management Information System (MIS) databases
- 2) Produce FSP 2006/07 California Local Program Report
- 3) Produce FSP 2006/07 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 2006/07 MIS Databases

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

- 1) Solicit and Collect the 2006/07 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 2006/07 California Local Program Report

The development of the FSP 2006/07 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 2006/07 California Statewide MIS Program Report

The development of the FSP 2006/07 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 2005/06 MIS annual report as a template for the FSP 2006/07 report, creating the shell (or template) for the FSP 2006/07 report.
- 4) Add all relevant text and tables from the FSP 2005/06 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 2006/07 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 667,000 records for the fiscal year 2006/07. 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 decreased by approximately 0.5% (from 669,895 to 666,612) from FY 2005/06 to 2006/07. 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%
06/07	666,612	-0.5%

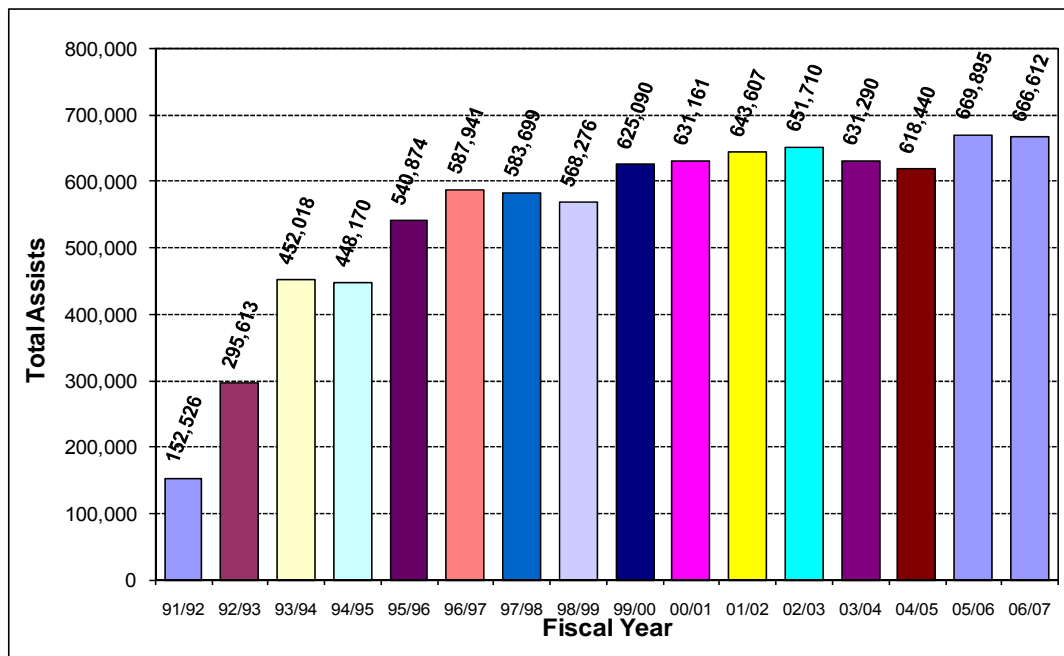


Figure 2: Bar Chart – Total Assists by Fiscal Year

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.

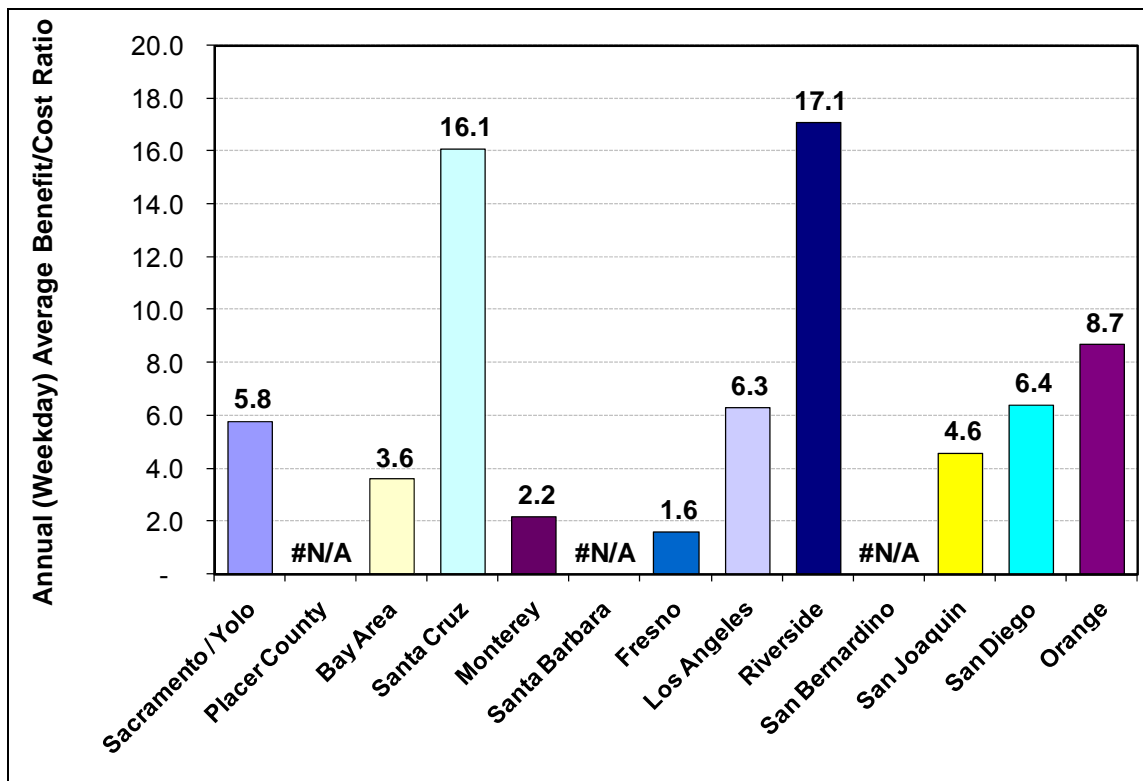


Figure 3: Bar Chart of FSP Benefit/Cost Ratios By District

4.3 Statewide FSP Total Assists by Quarter & District

Table 4: Total Assists by Quarter & District

District	Name	Jul 06 - Sep 06 Qtr 3	Oct 06 - Dec 06 Qtr 4	Jan 07 - Mar 07 Qtr 1	Apr 07 - Jun 07 Qtr 2	Total Assists	%
3	Sacramento/ Yolo	8,778	6,920	7,033	7,809	30,540	4.6%
3P	Placer	444	626	536	633	2,238	0.3%
4	Bay Area	34,632	29,534	29,722	33,536	127,424	19.1%
5M	Monterey	1,316	1,377	1,254	1,352	5,299	0.8%
5SB	Santa Barbara	503	354	412	383	1,651	0.2%
5SC	Santa Cruz	612	504	583	740	2,439	0.4%
6	Fresno	429	484	731	912	2,556	0.4%
7	Los Angeles	82,907	68,621	71,468	79,458	302,454	45.4%
8R	Riverside	10,026	7,339	8,153	10,235	35,753	5.4%
8SB	San Bernadino	5,790	4,732	7,673	11,106	29,301	4.4%
10	San Joaquin	1,296	1,296	1,264	1,465	5,321	0.8%
11	San Diego	13,522	11,244	12,281	13,654	50,701	7.6%
12	Orange	18,183	15,385	18,014	19,353	70,935	10.6%
Total Assists		178,438	148,415	159,124	180,635	666,612	100.0%
% of Total Assists		26.8%	22.3%	23.9%	27.1%	100.0%	

Note: Quarterly assists are the sum of the FSP assists in the 2006/07 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.

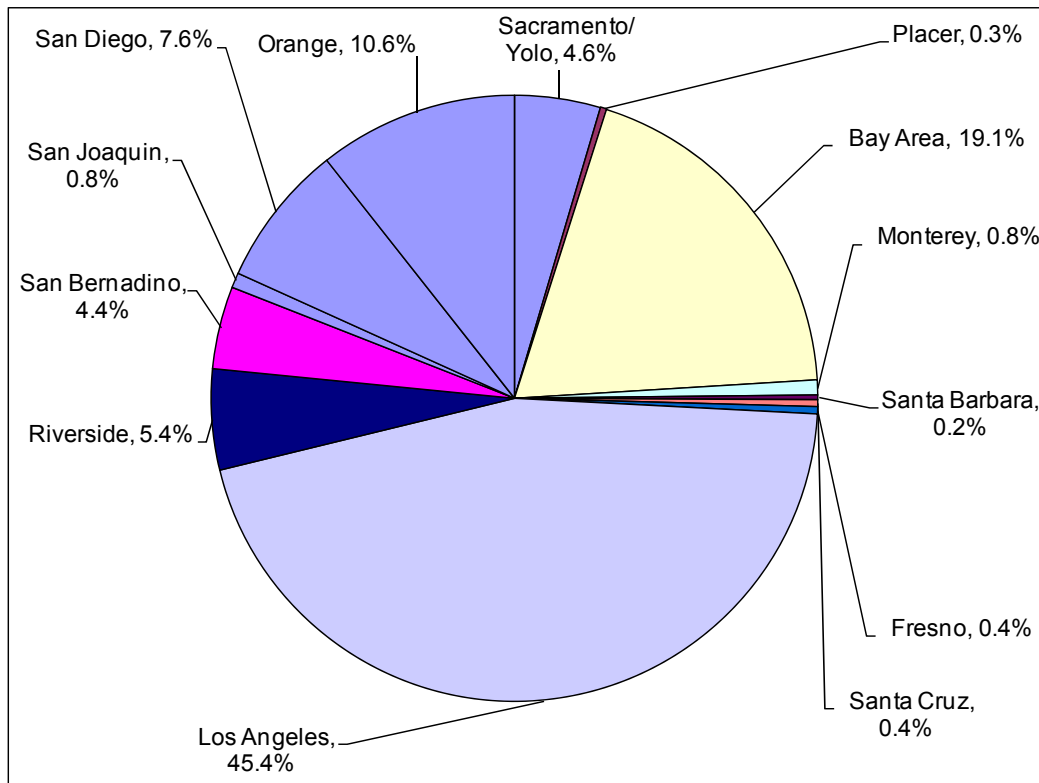


Figure 4: Pie Chart of Total Assists by District

4.4 Statewide FSP Total Assists by Problem Type

Table 5: Total Assists by Problem Type

Problem Type	Total Assists	%
Abandoned	46,843	7.0%
Accident	83,275	12.5%
Debris Removal	22,416	3.4%
Electrical Problem	15,620	2.3%
Flat Tire	115,905	17.4%
Mechanical Problem	97,746	14.7%
Other/Unknown/ Blank	179,990	27.0%
Out of Gas	69,203	10.4%
Over Heated	35,615	5.3%
Total Assists	666,612	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.

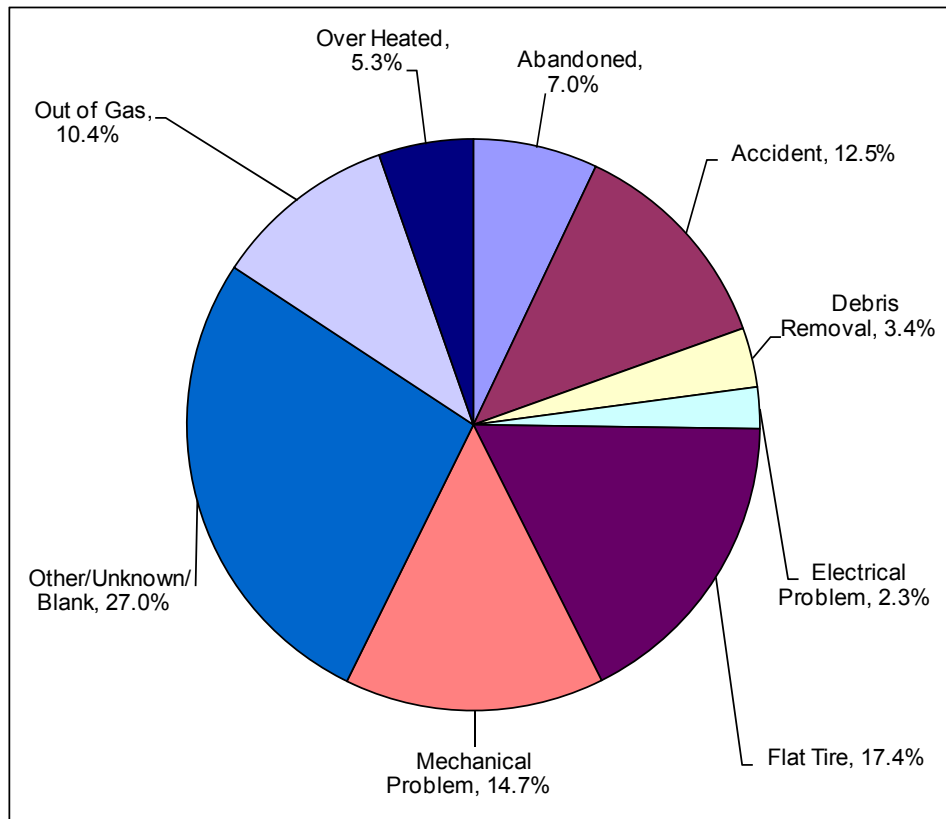


Figure 5: Pie Chart of Total Assists by Problem Type

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	3,472	6,927	637	716	4,949	5,170	4,306	3,259	1,103	30,540
3P	Placer	331	346	61	26	353	409	342	293	77	2,238
4	Bay Area	15,138	11,873	6,995	2,111	22,438	18,059	32,565	12,968	5,278	127,424
5M	Monterey	0	19	0	52	835	758	1,659	591	1,386	5,299
5SB	Santa Barbara	100	342	130	7	282	384	108	242	55	1,651
5SC	Santa Cruz	204	328	286	25	214	347	694	171	170	2,439
6	Fresno	368	445	89	14	323	822	119	340	36	2,556
7	Los Angeles	12,320	46,544	7,202	7,981	57,256	48,427	72,985	31,228	18,511	302,454
8R	Riverside	2,492	2,748	1,335	1,131	4,493	5,217	13,415	2,890	2,032	35,753
8SC	San Bernadino	2,311	2,121	1,152	1,164	4,567	4,020	9,813	2,497	1,656	29,301
10	San Joaquin	329	751	233	69	929	998	1,287	420	305	5,321
11	San Diego	7,060	3,996	685	1,382	9,248	11,554	7,240	6,565	2,971	50,701
12	Orange	2,718	6,835	3,609	943	10,017	1,582	35,457	7,741	2,034	70,935
Total Assists		46,843	83,275	22,416	15,620	115,905	97,746	179,990	69,203	35,615	666,612
Avg %		7.0%	12.5%	3.4%	2.3%	17.4%	14.7%	27.0%	10.4%	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	11.4%	22.7%	2.1%	2.3%	16.2%	16.9%	14.1%	10.7%	3.6%	4.6%
3P	Placer	14.8%	15.5%	2.7%	1.2%	15.8%	18.3%	15.3%	13.1%	3.4%	0.3%
4	Bay Area	11.9%	9.3%	5.5%	1.7%	17.6%	14.2%	25.6%	10.2%	4.1%	19.1%
5M	Monterey	0.0%	0.4%	0.0%	1.0%	15.8%	14.3%	31.3%	11.2%	26.2%	0.8%
5SB	Santa Barbara	8.4%	13.5%	11.7%	1.0%	8.8%	14.2%	28.5%	7.0%	7.0%	0.2%
5SC	Santa Cruz	6.1%	20.7%	7.9%	0.4%	17.1%	23.2%	6.6%	14.7%	3.3%	0.4%
6	Fresno	14.4%	17.4%	3.5%	0.5%	12.6%	32.2%	4.7%	13.3%	1.4%	0.4%
7	Los Angeles	4.1%	15.4%	2.4%	2.6%	18.9%	16.0%	24.1%	10.3%	6.1%	45.4%
8	Riverside	7.0%	7.7%	3.7%	3.2%	12.6%	14.6%	37.5%	8.1%	5.7%	5.4%
8SB	San Bernadino	7.9%	7.2%	3.9%	4.0%	15.6%	13.7%	33.5%	8.5%	5.7%	4.4%
10	San Joaquin	6.2%	14.1%	4.4%	1.3%	17.5%	18.8%	24.2%	7.9%	5.7%	0.8%
11	San Diego	13.9%	7.9%	1.4%	2.7%	18.2%	22.8%	14.3%	12.9%	5.9%	7.6%
12	Orange	3.8%	9.6%	5.1%	1.3%	14.1%	2.2%	50.0%	10.9%	2.9%	10.6%
Avg %		7.0%	12.5%	3.4%	2.3%	17.4%	14.7%	27.0%	10.4%	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	449,216	67.4%
Big Rig	21,160	3.2%
Other / Unknown	99,953	15.0%
Pickup	50,370	7.6%
Trucks < 1 Ton	22,998	3.4%
Trucks > 1 Ton	22,915	3.4%
Total Assists	666,612	100.0%

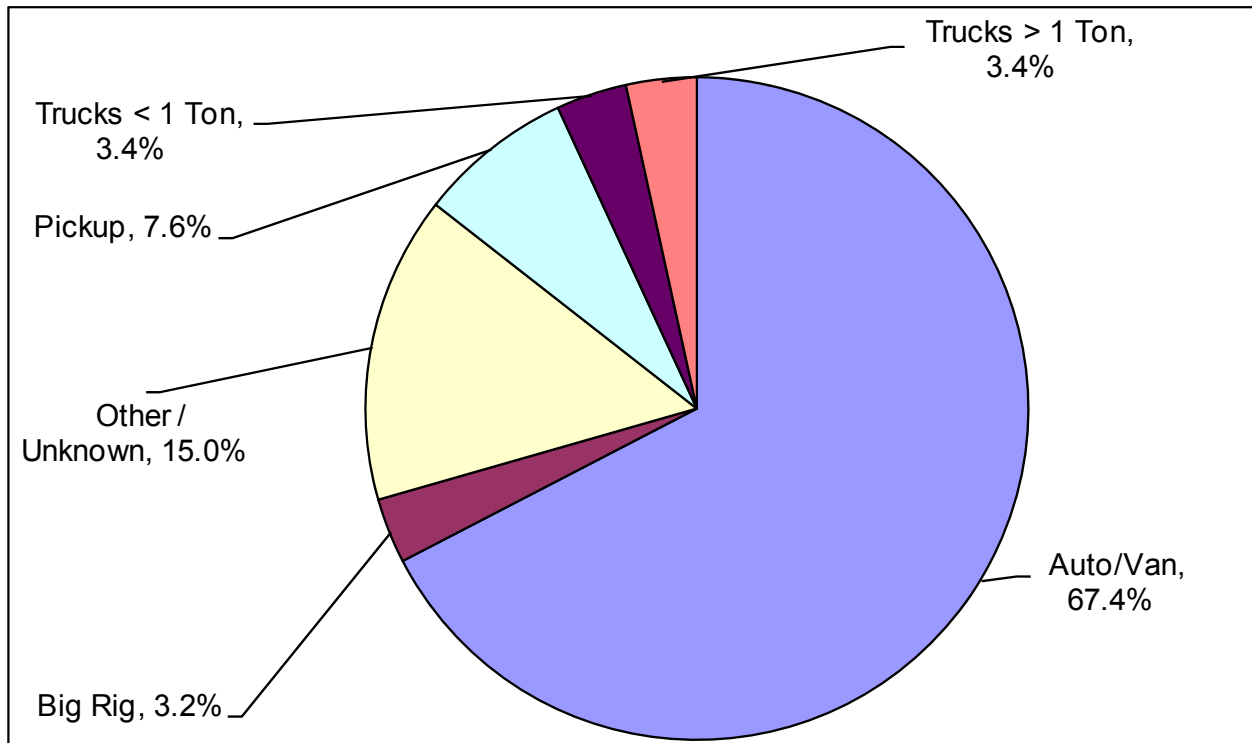


Figure 6: Pie Chart of Total Assists by Vehicle Type

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	22,559	205	36	5,826	1,198	716	30,540
3P	Placer	1,381	20	142	575	91	29	2,238
4	Bay Area	116,488	0	5,883	2,322	1,371	1,358	127,424
5M	Monterey	3,300	157	614	1,099	7	121	5,299
5SB	Santa Barbara	1,076	13	201	338	4	19	1,651
5SC	Santa Cruz	2,026	0	319	67	1	26	2,439
6	Fresno	2,191	21	105	236	3	0	2,556
7	Los Angeles	226,897	7,891	14,444	17,741	17,741	17,741	302,454
8	Riverside	17,600	6,928	1,941	7,184	614	1,486	35,753
8SB	San Bernadino	16,128	5,479	1,517	5,112	483	582	29,301
10	San Joaquin	3,728	106	382	1,034	29	41	5,321
11	San Diego	35,841	340	3,433	8,836	1,455	796	50,701
12	Orange	no data	no data	70,935	no data	no data	no data	70,935
Total Assists		449,216	21,160	99,953	50,370	22,998	22,915	666,612
Avg %		67.4%	3.2%	15.0%	7.6%	3.4%	3.4%	100.0%

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	73.9%	0.7%	0.1%	19.1%	3.9%	2.3%	4.6%
3P	Placer	61.7%	0.9%	6.3%	25.7%	4.1%	1.3%	0.3%
4	Bay Area	91.4%	0.0%	4.6%	1.8%	1.1%	1.1%	19.1%
5M	Monterey	62.3%	3.0%	11.6%	20.7%	0.1%	2.3%	0.8%
5SB	Santa Barbara	65.2%	0.8%	12.2%	20.5%	0.3%	1.1%	0.2%
5SC	Santa Cruz	83.1%	0.0%	13.1%	2.7%	0.0%	1.1%	0.4%
6	Fresno	85.7%	0.8%	4.1%	9.2%	0.1%	0.0%	0.4%
7	Los Angeles	75.0%	2.6%	4.8%	5.9%	5.9%	5.9%	45.4%
8	Riverside	49.2%	19.4%	5.4%	20.1%	1.7%	4.2%	5.4%
8SB	San Bernadino	55.0%	18.7%	5.2%	17.4%	1.6%	2.0%	4.4%
10	San Joaquin	70.1%	2.0%	7.2%	19.4%	0.5%	0.8%	0.8%
11	San Diego	70.7%	0.7%	6.8%	17.4%	2.9%	1.6%	7.6%
12	Orange	N/A	N/A	100.0%	N/A	N/A	N/A	10.6%
Avg %		67.4%	3.2%	15.0%	7.6%	3.4%	3.4%	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	54,140	8.1%
Left Shoulder	29,760	4.5%
Other / Blank	7,603	1.1%
Ramp / Connector	47,688	7.2%
Right Shoulder	449,267	67.4%
Unable to Locate	78,155	11.7%
Total Assists	666,612	100.0%

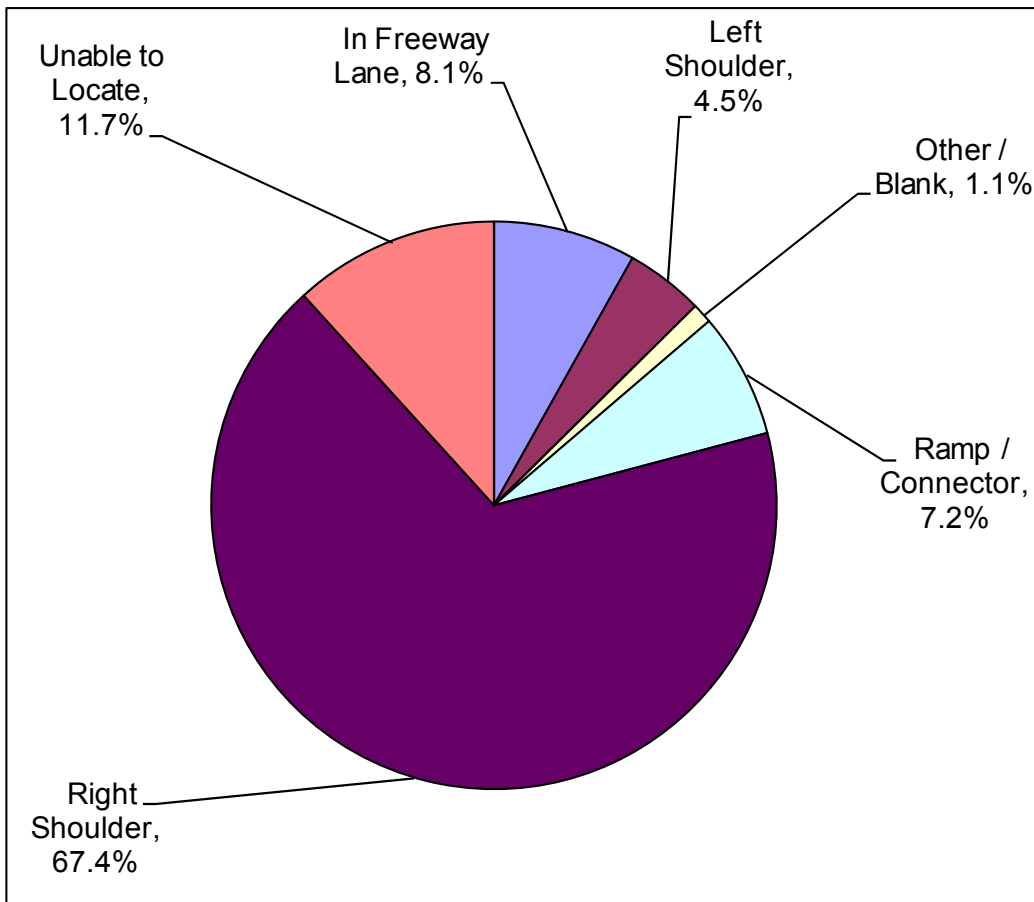


Figure 7: Pie Chart of Total Assists by Vehicle Location

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	Ramp/ Connector	Right Shoulder	Unable to Locate	Total Assists
3	Sacramento / Yolo	3,415	3,074	739	1,645	21,023	643	30,540
3P	Placer	120	190	36	88	1,775	28	2,238
4	Bay Area	11,389	6,593	92	12,859	96,399	92	127,424
5M	Monterey	1,827	251	58	335	2,769	58	5,299
5SB	Santa Barbara	140	214	0	241	965	92	1,651
5SC	Santa Cruz	137	1,498	0	195	519	91	2,439
6	Fresno	291	146	0	330	1,789	0	2,556
7	Los Angeles	30,232	9,881	5,113	18,837	234,060	4,331	302,454
8	Riverside	2,442	1,313	466	4,405	26,548	579	35,753
8SB	San Bernadino	1,682	1,469	217	2,860	22,932	141	29,301
10	San Joaquin	189	509	202	559	3,857	5	5,321
11	San Diego	2,277	4,622	679	5,333	36,631	1,159	50,701
12	Orange	N/A	N/A	N/A	N/A	N/A	70,935	70,935
Total Assists		54,140	29,760	7,603	47,688	449,267	78,155	666,612
Avg %		8.1%	4.5%	1.1%	7.2%	67.4%	11.7%	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	Unable to Locate	Total
3	Sacramento / Yolo	11.2%	10.1%	2.4%	5.4%	68.8%	2.1%	4.6%
3P	Placer	5.4%	8.5%	1.6%	3.9%	79.3%	1.3%	0.3%
4	Bay Area	8.9%	5.2%	0.1%	10.1%	75.7%	0.1%	19.1%
5M	Monterey	34.5%	4.7%	1.1%	6.3%	52.3%	1.1%	0.8%
5SB	Santa Barbara	8.5%	13.0%	0.0%	14.6%	58.4%	5.6%	0.2%
5SC	Santa Cruz	5.6%	61.4%	0.0%	8.0%	21.3%	3.7%	0.4%
6	Fresno	11.4%	5.7%	0.0%	12.9%	70.0%	0.0%	0.4%
7	Los Angeles	10.0%	3.3%	1.7%	6.2%	77.4%	1.4%	45.4%
8	Riverside	6.8%	3.7%	1.3%	12.3%	74.3%	1.6%	5.4%
8SB	San Bernadino	5.7%	5.0%	0.7%	9.8%	78.3%	0.5%	4.4%
10	San Joaquin	3.5%	9.6%	3.8%	10.5%	72.5%	0.1%	0.8%
11	San Diego	4.5%	9.1%	1.3%	10.5%	72.2%	2.3%	7.6%
12	Orange	N/A	N/A	100.0%	N/A	N/A	100.0%	10.6%
Avg %		8.1%	4.5%	1.1%	7.2%	67.4%	11.7%	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	12.7
3P	Placer	12.8
4	Bay Area	10.7
5M	Monterey	10.2
5SC	Santa Cruz	11.5
6	Fresno	18.9
7	Los Angeles	15.4
8	Riverside	9.4
8SB	San Bernadino	8.3
10	San Joaquin	10.4
11	San Diego	10.4
12	Orange	9.8
Weighted Avg. Duration		12.7

*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.

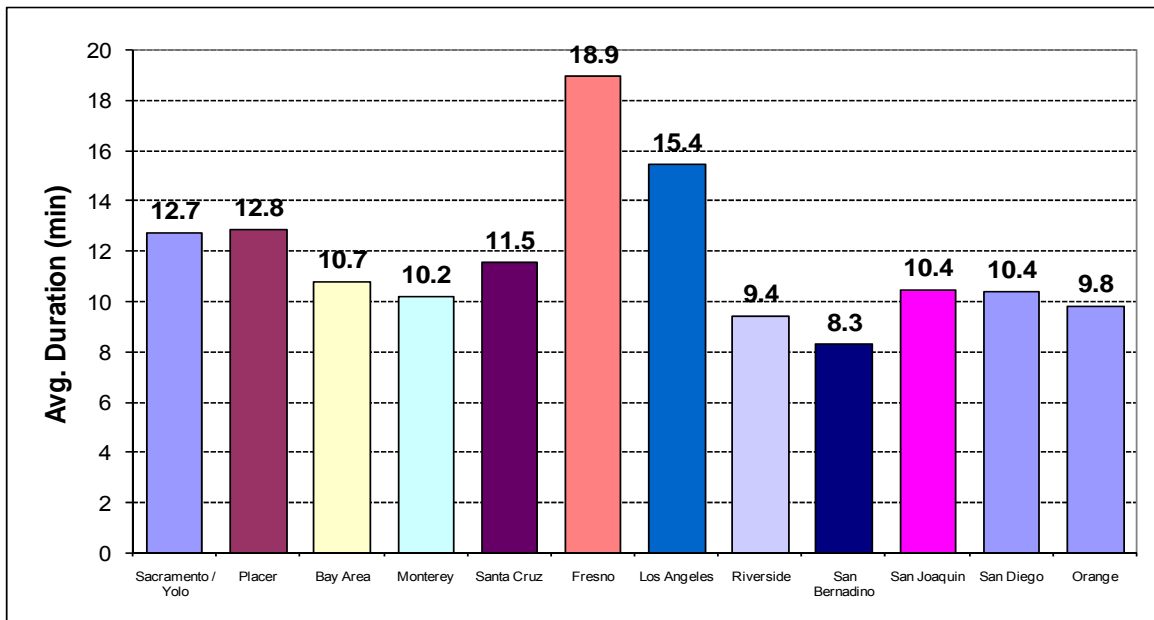


Figure 8: Bar Chart of Average Assist Duration by District

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	5.5	19.8	6.3	14.8	13.7	14.3	8.0	8.3	12.4	12.7
3P	Placer	5.3	23.6	6.0	13.8	14.8	17.1	7.1	8.5	10.7	12.8
4	Bay Area	14.3	17.0	8.0	19.0	4.3	5.3	11.5	12.5	13.1	10.7
5M	Monterey	9.1	18.4	0.0	11.7	11.9	17.5	9.1	10.0	9.7	10.2
5SC	Santa Cruz	5.3	19.5	13.5	12.4	14.3	15.3	6.3	8.3	13.1	11.5
6	Fresno	7.0	29.0	15.0	22.4	22.8	21.1	6.2	14.3	27.9	18.9
7	Los Angeles	8.4	21.5	9.7	18.3	17.6	20.0	9.2	12.0	17.0	15.4
8	Riverside	5.5	13.0	6.1	16.1	13.8	16.2	4.5	9.2	13.1	9.4
8SB	San Bernadino	4.8	10.2	4.7	14.3	12.4	13.5	3.8	7.7	12.1	8.3
10	San Joaquin	5.1	11.8	3.1	9.0	14.1	17.8	4.1	7.2	15.0	10.4
11	San Diego	5.8	15.5	9.1	12.2	12.7	12.9	6.5	8.2	11.4	10.4
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		8.4	17.9	8.5	16.4	13.5	14.6	8.9	10.6	14.3	12.7

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.

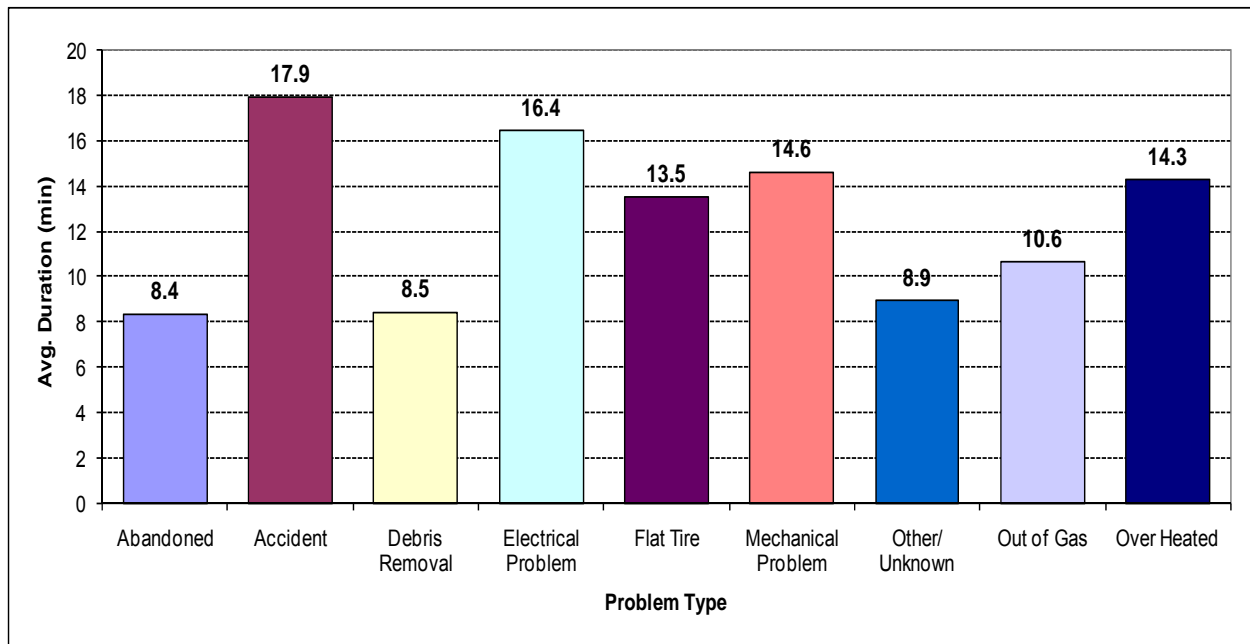


Figure 9: Bar Chart of Average Assist Duration by Problem Type and District

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	13.1	12.8	9.4	12.1	13.1	13.0	12.7
3P	Placer	13.3	11.9	7.7	12.0	16.5	13.3	12.8
4	Bay Area	10.9	0.0	7.0	10.5	9.8	11.5	10.7
5M	Monterey	9.7	9.0	10.5	11.7	9.5	13.0	10.2
5SC	Santa Cruz	11.8	0.0	7.4	17.2	5.0	14.3	11.5
6	Fresno	18.7	22.4	14.8	22.0	26.3	14.8	19.3
7	Los Angeles	15.9	15.1	11.1	14.7	14.7	14.7	15.4
8	Riverside	11.1	6.2	6.4	9.5	9.2	7.2	9.4
8SB	San Bernadino	9.7	5.1	6.6	8.3	7.2	6.2	8.3
10	San Joaquin	10.8	11.3	6.3	10.5	13.3	11.5	10.4
11	San Diego	10.5	11.9	10.3	9.7	10.2	9.7	10.4
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		12.0	11.5	8.5	11.2	11.1	11.2	12.7

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.

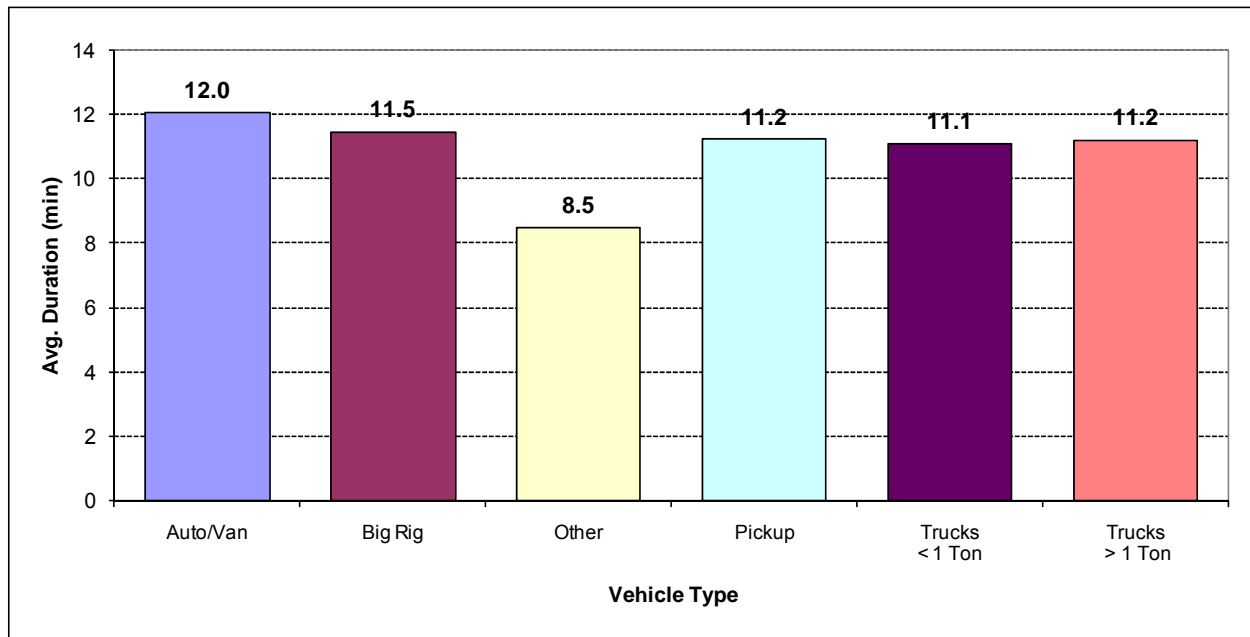


Figure 10: Bar Chart of Average Assist Duration by Vehicle Type

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	30,540	27,195	1.1
3P	Placer County	2,238	3,716	0.6
4	Bay Area	127,424	151,332	0.8
5SC	Santa Cruz	2,439	3,312	0.7
5M	Monterey	5,299	3,146	1.7
5SB	Santa Barbara	1,651	2,964	0.6
6	Fresno	2,556	3,375	0.8
7	Los Angeles	302,454	393,520	0.8
8R	Riverside	35,753	28,336	1.3
8SB	San Bernardino	29,301	29,955	1.0
10	San Joaquin	5,321	6,802	0.8
11	San Diego	50,701	64,000	0.8
12	Orange	70,935	68,665	1.0
State-wide		666,612	786,318	0.8

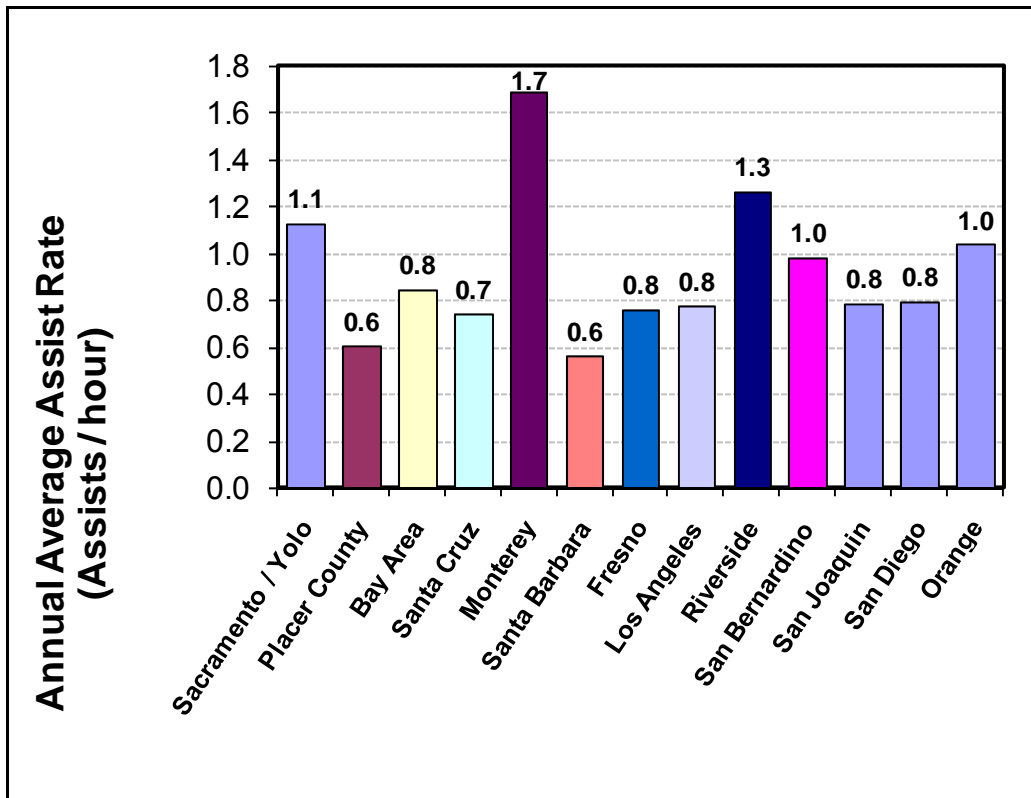


Figure 11: Bar Chart of Average Assist Rate by District

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

In some of the FSP Districts not all of the requested assist data fields were recorded and reported, and 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 2006/07 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.