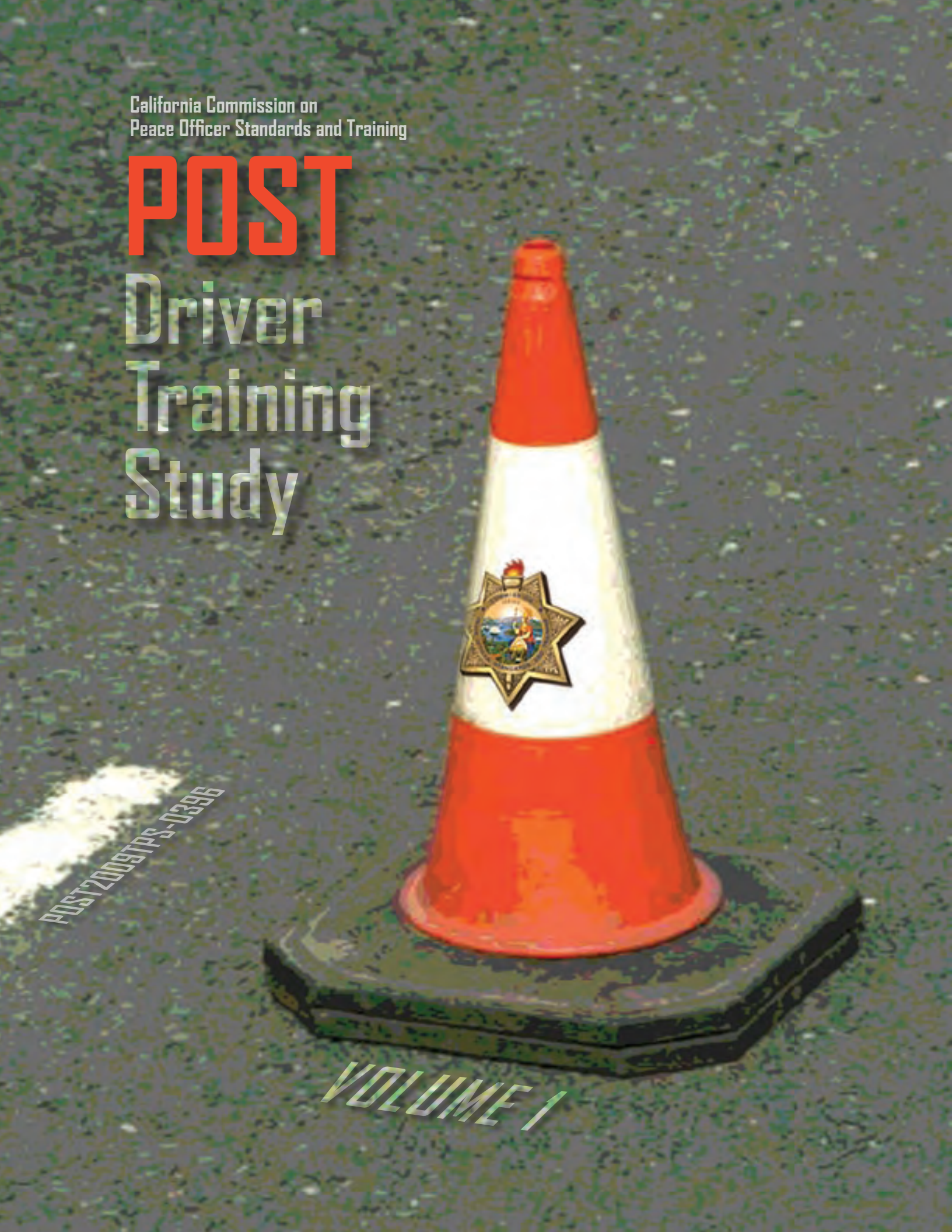
California Commission on
Peace Officer Standards and Training

POST Driver Training Study



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Foreword

In January 2008 the Commission authorized staff to undertake a comprehensive exploratory study of vehicle operations and driver training. This report comprises the first volume of the study. My hope, and that of the entire Commission, is that we will continue to learn about this essential aspect of the law enforcement profession in order to better prepare and protect officers and improve public safety.

This report addresses many of these goals. However, more remains to be done. We need to translate these findings into real world policies and procedures in order to reduce injuries and save lives. POST will continue to work with its California stakeholders, as well as academic and professional partners across the county, to this end. We will redesign and invest in our vehicle operations and driver training programs to create the best possible blend of training options. We will continue to research and study these issues in order to maintain an optimal training program for future generations of law enforcement.

This report identifies many agencies and individuals who contributed to this effort. I am grateful for the time and resources they have shared in this collective effort. Together, I am confident that we will realize better and safer vehicle operations in the years ahead.

Paul Cappitelli
Executive Director

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Introduction

At its January 2008 meeting, the Commission authorized the Executive Director to suspend a competitive bid acquisition process for replacement of Law Enforcement Driving Simulators (LEDS) until a study of the effectiveness of LEDS and all other methods of law enforcement vehicle operations training could be completed.

Data in this study show that peace officer deaths from on-duty traffic collisions have been steadily climbing. Moreover, this trend appears more prevalent in California than nationally. In recognition of these figures, this study was commissioned not as a comparison of one or another type of training, but rather as an inventory and assessment of vehicle operations training in California and elsewhere. The purpose is to identify the most effective vehicle operations training practices in order to replicate and implement them in California.

An initial survey of POST vehicle operations training courses revealed that several different training methodologies in use are designed to prepare peace officers for their various driving duties. Most common are behind-the-wheel training via the Emergency Vehicle Operations Courses (EVOC) and simulator training via the LEDS. The EVOC is primarily oriented toward motor learning skills–driving proficiently. The LEDS is primarily oriented toward decision-making–driving thoughtfully. Other training courses, such as "Driver Awareness," have focused on other factors beyond skill or decision-making. While LEDS programs appear substantially similar throughout California, EVOC programs vary widely.

Prior to this study, POST has never attempted to empirically study the effects of different driver training methodologies. Therefore, the ultimate goal of this study is to develop recommendations related to the most effective methods of driver training and to identify where the Commission might expend resources to reduce officer deaths and injuries from collisions.

It is important to note that many organizations already study most aspects of the various issues being investigated. POST does not intend to supplant or duplicate these efforts. From the California Highway Patrol (CHP) and Department of Motor Vehicles (DMV) to the National Highway Traffic Safety Administration (NHTSA), literally dozens of highly competent, technically expert institutions analyze traffic collisions, driver education, roadway design, vehicle mechanics, motor learning, and many other aspects of vehicle operations and collisions. POST intends to summarize these existing bodies of knowledge and apply the findings to California law enforcement operations and, specifically, training. This is in order to identify opportunities for training impacts and potential policy implications. In the case of policy implications, it is POST's aim to identify best practices and recommend guidelines to assist local decision-making.

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Executive Summary

This report constitutes an exploratory study. Initial inquiries into eight key areas related to vehicle operations/driver training:

1. Define the extent of the problem through review of state and national data,
2. Identify the elements that constitute an Emergency Vehicle Operations Course (EVOC),
3. Review the literature on collision causes and the training methods for impacting causal factors,
4. Review law enforcement driver training programs within California and other states and countries to identify the type and frequency of training methods used,
5. Review the costs associated with driver training programs,
6. Correlate POST training records for officers with their respective DMV collision records,
7. Examine the academy driver training program for sufficiency and consider the feasibility of pre-employment driver readiness assessment, and
8. Assess the operational status of California's existing Law Enforcement Driving Simulators (LEDS)

…have resulted in nearly as many questions as answers.

Initial information gathering and analysis in most of these eight subject areas is complete, and some definitive answers have been identified.

POST's Law Enforcement Officers Killed or Assaulted (LEOKA) studies covering the period 1990 to 2004, when compared with national studies involving peace officer vehicle-related fatalities, indicate that California officers are being killed at a rate significantly higher than the national average. Analysis of variables such as age and years of law enforcement experience also indicates that the California dynamic is different from the national trend. While many possible causes for these trend differences are known to exist, no cause or combination of causes for the noted California difference(s) is clear at this time. Additionally, data collected through the CHP Information Services Unit from the Statewide Integrated Traffic Reporting System (SWITRS) has revealed a significant rise in peace officer injury collisions since 2002.

The acronym "EVOC" is not universally defined. Many agencies use "EVOC" to refer to a driver training course: Emergency Vehicle Operations Course. Other agencies use the term to refer to a facility: Emergency Vehicle Operations Course or Center. The elements that constitute an EVOC–whether a driver training curriculum or facility–are many. A course can vary from 4 hours of awareness training to more than 80 hours of instructor training. Likewise, a facility can vary from a parking lot with traffic cone patterns to a high-speed track or serpentine course.

In both instances, relatively few agencies possess "all" variations of an EVOC. Currently, the layout and curricula for EVOC training vary widely among presenters. Survey data suggest that multiple presenters of the "same" EVOC curriculum can deliver that curriculum in significantly different ways (i.e., with different facilities and/or training components such as hours or exercises). This report uses "EVOC" to refer generically to all forms of behind-the-wheel driver training.

Professional and academic literature addressing primary collision causes and driver training methods has revealed limited "new" findings. Unsafe speed continues to be the most significant primary collision factor (PCF) in injury collisions. Right-of-way violations and improper turning are distant second and third PCFs, respectively. Collision causes relative to driver distraction and fatigue are still being researched and debated.

New training methods and technologies continue to be developed; however, California overall has kept pace with these advancements. Many collision causes fall more toward the realm of policy-making, operating procedures, and accountability than toward strict skills training. Additionally, differences in learning styles, attitudes, mindsets, and behaviors may interact to create individualized circumstances that are difficult to address through standardized training.

Review of driver training programs in California and elsewhere continues. Programs vary widely. Information gathered from other states and countries describes the type and frequency of driver training methods currently used. A survey conducted through the International Association of Directors of Law Enforcement Standards and Training (IADLEST) provided information about practices in many states. Notable differences include time dedicated to basic driver training and the speeds that are achieved during training. Many California officers never achieve freeway speeds during their emergency vehicle operations training and receive fewer hours of driver training than officers in many other states and countries.

Certain costs associated with driver training are being analyzed as part of this study. Methodology includes interviewing key POST staff; analyzing POST financial and training records for the period January 1998 through December 2006; creating a comprehensive database of the LEDS (22) and EVOC (27 temporary and permanent) sites, trainees, referring agencies, presenters, training plans, and costs (e.g., POST reimbursements) and analyzing them; and creating a report for use by the Vehicle Operations Training Advisory Council. Determination of a cost-effectiveness analysis (i.e., a measure of how investment in a given type of training tends to reduce collisions) is underway. Data collected to date point toward a return-on-investment (ROI) favoring LEDS for in-service officer training.

The correlation of POST training records with DMV collision data records has been completed. Several research findings have already been produced from a successful merge of these two sources of information. The combined dataset has a substantial amount of information on more than 140,000 individual cases. The initial findings are substantive and provide evidence for decision-making and an initial course of action. Additional research over time will continue to inform driver training curriculum. Initially, this study has found that 1) blended training (EVOC and LEDS) results in the fewest collisions; 2) that, overall, in-service driver training via LEDS provides better results than in-service training via EVOC and; 3) that LEDS training about every two years is an optimal timeframe to reinforce decision-making to prevent collisions.

The academy driver training program has undergone preliminary review. Concurrent with this review, a process was already underway to examine performance standards and measurement in academy driver training Learning Domain (LD) #19. Findings relative to sufficiency of academy driver training and the feasibility of pre-employment driver readiness assessment have yet to be fully addressed. Initial review of academy training, as well as survey results from academies and review of other driver training programs, suggests that the minimum academy driver training standard may not ideally prepare trainees for the dangers inherent in emergency driving.

The study of driver training and causes of injury collisions will continue. Conclusions based on findings to date lead to the following summary recommendations:

1. Immediately revitalize California's LEDS training program.
2. Continue to mandate the 24-month standard for the driver training component of the perishable skills program (PSP) as a minimum.
3. Encourage agencies and training presenters to:
   a) Enhance in-service driver training.
   b) Review and emphasize adherence to (and enforcement of) driving policy.
4. Enhance FTO/PTO curriculum to include a driver training component.
5. Increase emergency vehicle operations components in the field/police training program guide.
6. Enhance basic academy training components.

These recommendations may be acted upon now while other areas of research continue.

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Contents

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The Problem in Context
Vehicle Operations & Peace Officer Deaths/Injuries

Introduction & Summary

There are many variables that could be studied regarding vehicle operations and on-duty peace officer injuries and deaths. Officers have been injured or killed in vehicles as a result of design limitations or faulty installations (e.g., police radio blocking air-bag deployment or inadequately secured jack puncturing fuel tank); natural disasters (e.g., roadway collapse due to earthquake); and felonious acts of violence. It is important here to understand what "problem" is investigated (i.e., officer driving-related injuries and deaths) and, moreover, in what context it is investigated. POST can affect a training impact or recommend policy guidance. Therefore, the context is that of training and policy. This does not deny nor discount the many other factors; it acknowledges that some are beyond POST's control.

The "problem" this study investigates is that many peace officers are seriously injured or killed in traffic collisions. The number of fatal and injury collisions where at least one driver of a law enforcement vehicle was involved nearly tripled statewide from 1997 to 2007.[1] With regard to deaths, seven on-duty peace officers driving patrol vehicles (not motorcycles) were killed in collisions between the years 1990 and 1994. For the next five-year period, 1995-1999, the number killed increased to ten. For the next five-year period, 2000-2004, the number killed increased to 12.[2] The problem is increasing.

Statistical Analysis – Numbers in Context & Limitations

With regard to deaths, this inquiry focuses only on drivers of four-wheel patrol vehicles. During the time period 1990-2004, a total of 180 peace officers were killed in California. Of those, 77 involved vehicles. Of these 77, attention is focused on 29 cases where the officer was driving a four-wheel vehicle. For the other 48 officers killed: 23 were motorcycle officers; 4 officers were passengers in vehicles; 1 officer was parked issuing a citation; 7 officers were in aerial collisions; 1 officer was in a vehicle struck by an object; 11 officers were pedestrians struck by vehicles; and 1 officer was struck by a train.[3] With regard to injuries, the period 1997-2007 is examined.[4]

Many factors have changed in California since 1990 with regard to patrol vehicle operations. Most notable is California's population and its impact on roadway congestion. Additional factors to consider include the number of licensed drivers and the number of peace officers in the state. Other factors beyond the scope of this study are acknowledged, but not considered in this analysis (e.g., advances in vehicle technology such as ABS, electronic stability control, active and passive restraint systems, pursuit guidelines, and "spike strips").

1 Statistical data provided by the California Highway Patrol (CHP) Information Services Unit based on information contained in the Statewide Integrated Traffic Records System (SWITRS).

2 Reference Appendix A (abridged California Law Enforcement Officers Killed or Assaulted 1990-2004); see also http://www.post.ca.gov/About/leoka.asp.

3 For additional detail, reference the California Law Enforcement Officers Killed or Assaulted reports (1990-1994, 1995-1999, and 2000-2004, annotated in Appendix A).

4 Additionally, due to data filtering limitations, we include any reported injury even if it was not the peace officer driver who was injured (e.g., a passenger was injured or an occupant of another involved vehicle or a pedestrian).

Table 1-1, ***California Populations*** shows California populations (residents, licensed drivers, and peace officers) over time.[5]

Table 1-1 ***California Populations***

Year	Total Population	Licensed Drivers	Peace Officers
1990	29,976,000	19,877,400	72,632
1991	30,646,000	20,066,000	73,179
1992	31,300,000	20,140,700	72,517
1993	31,742,400	20,182,200	71,503
1994	32,140,000	20,118,100	72,075
1995	32,063,000	20,249,200	74,531
1996	32,383,000	20,278,100	76,228
1997	32,957,000	20,487,400	77,330
1998	33,494,000	20,735,500	78,239
1999	34,036,000	21,034,690	79,338
2000	34,480,000	21,404,100	80,807
2001	34,758,000	21,977,700	81,716
2002	35,301,000	22,605,800	83,316
2003	35,934,000	22,687,100	82,802
2004	36,590,800	22,843,200	81,502
2005	37,004,700	22,927,349	81,627

5 Population and number of licensed drivers estimates for California were taken from the National Highway Traffic Safety Administration (see http://www.nhtsa.dot.gov/PEOPLE/injury/research/TrendAnalysis/long_desc_1.htm), and the California Highway Patrol Statewide Integrated Traffic Records System (see http://www.chp.ca.gov/switrs/). These numbers were cross-referenced via spot-checking with estimates from the California Delta Vision (which based its estimates on original research from the California Department of Finance and the U.S. Census Bureau; see http://deltavision.ca.gov/docs/Status_and_Trends/Selected%20References/Population%20Growth/CA%20Historical%20Population.pdf). These datasets overlap and there are discrepancies in actual numbers reported. However, as estimates, they reflect consistent trends and are thereby reconcilable, so are hereby accepted as valid. The peace officer population numbers resulted from a query to POST's peace officer database and reflect full-time sworn personnel employed with a POST-participating agency on January 1 of the year indicated.

Table 1-2, ***California Populations*** below reflects the same populations data from Table 1-1 in a visual representation[6].

Table 1-2 ***California Populations Graph***
Note - On this scale, the number of Peace Officers is barely visible at the bottom of the graph.

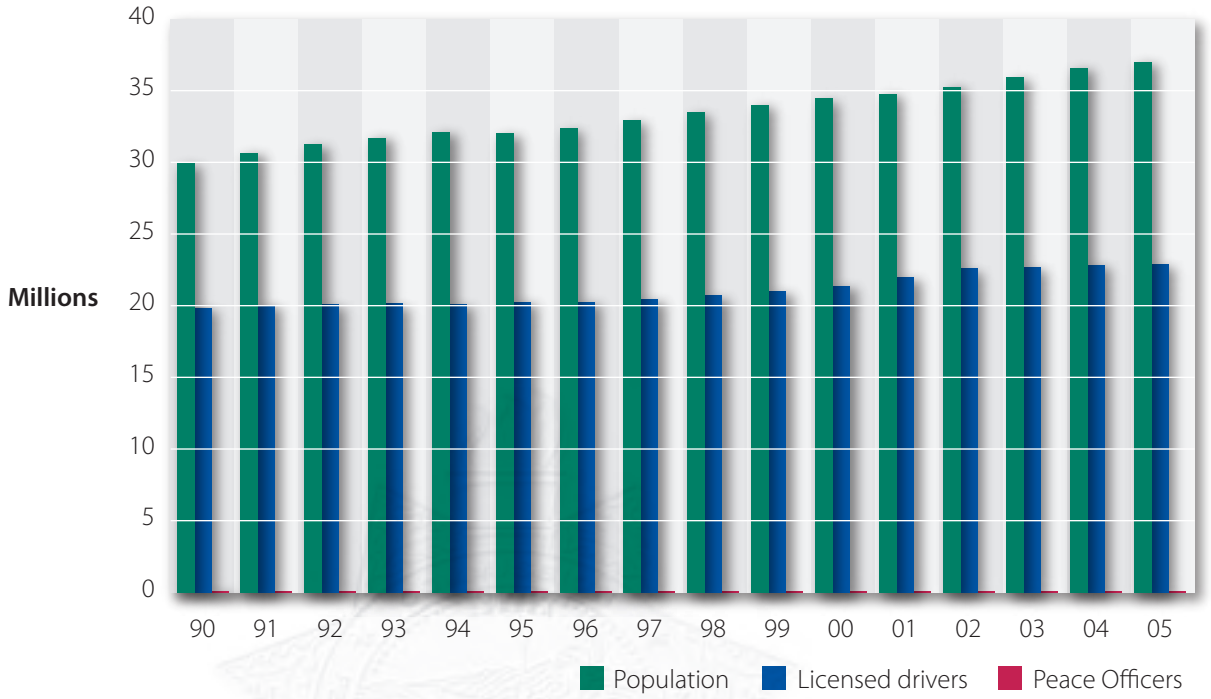

Table 1-3, ***Peace Officers Injury Collisions*** reflects the trend in peace officer injury (including fatal) collisions. If the number of peace officers increases (see Table 1-1), the number of peace officer injury collisions should also increase (at a similar rate). The number of California peace officers increased by about 18% between 1990 and 2007. The number of peace officer injury (including fatal) collisions increased by about 194%* between 1997 and 2007. **The rate of peace officer injury collisions has increased disproportionately to the growth in the peace officer population.**

This disproportionate increase in peace officer injury collisions is the key to understanding the problem in context. It is not just that the number (of injury collisions) has increased. It is that the number has increased at more than ***11 times*** the rate of any other number considered. To summarize: The population of California grew at an average annual rate of about 1.4% between 1990 and 2005. The population of California peace officers grew at an average annual rate of about 1% between 1990 and 2007. The number of California peace officer injury collisions grew at an average annual rate of more than 11%* between 1997 and 2007.

*NOTE – As Table 1-3 illustrates, 2007 was an outlier for injury collisions. The increase in injury collisions in 2007 was far greater than any other year. If the 2007 data is excluded, the overall increase in collisions from 1997-2006 is 98%, with a corresponding average annual growth rate of about 8%.

6 A notable observation here is that the resident population of California has, over time, advanced on the peace officer population (i.e., there are, for the most part, increasingly more residents for every peace officer). In 1990 the ratio of residents to peace officers was 412.7:1. In 1995 the ratio of residents to peace officers was 430.2:1. In 2000, the ratio of residents to peace officers was 426.7:1 This significant, but relatively brief, trend reversal (i.e., narrowing the ratio between residents and peace officers), which began in 1995 and carried through 2002, can likely be attributed to the various hiring grants (UHP, FAST, AHEAD) offered by the U.S. Department of Justice Office of Community Oriented Policing Services which began funding in 1994 and diminished notably after 2003 (see http://www.cops.usdoj.gov/default.asp?Item=44). In 2005, the ratio of residents to peace officers was 453.3:1.

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Table 1-3 ***Peace Officer Injury Collisions***

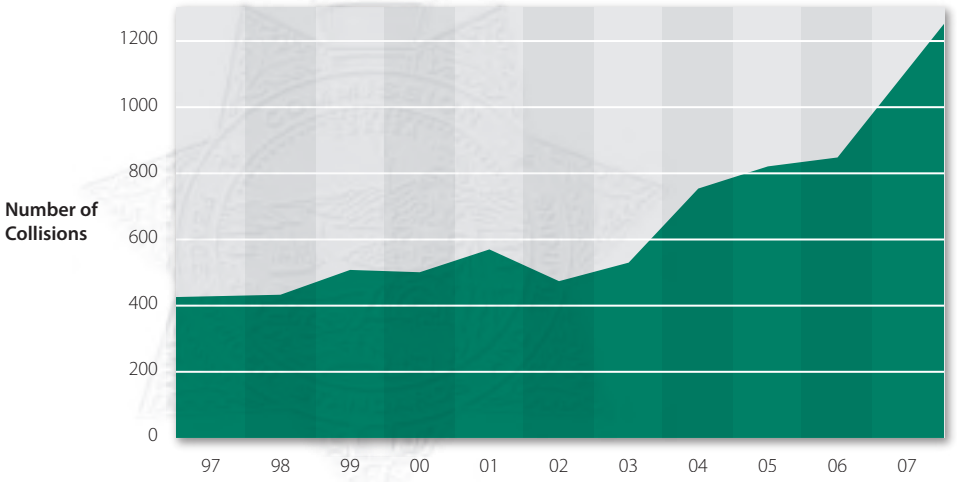


Table 1-4, ***Peace Officer Deaths*** depicts the trend in driver deaths as compared to all other peace officer deaths. This graph illustrates the trend difference. Deaths as the result of driving are on the rise; the sum of all other causes of peace officer deaths is on the decline.[8]

Table 1-4 ***Peace Officer Deaths***

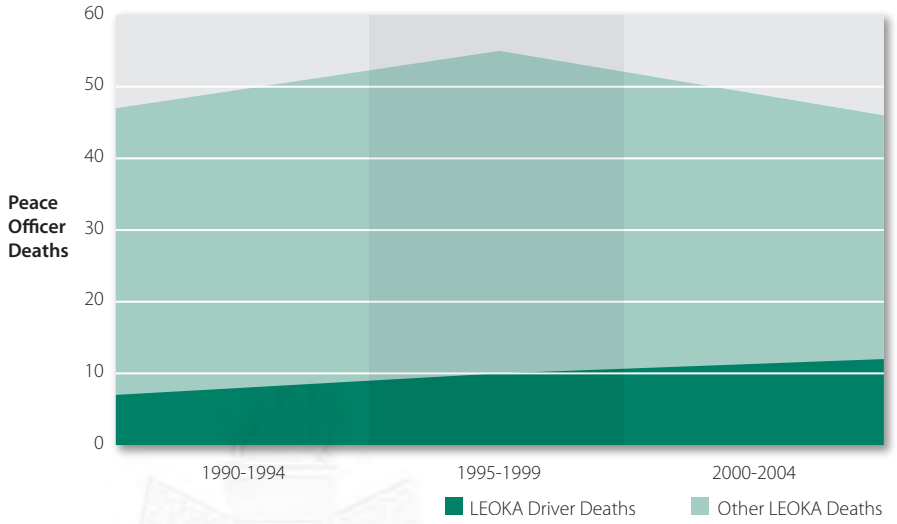
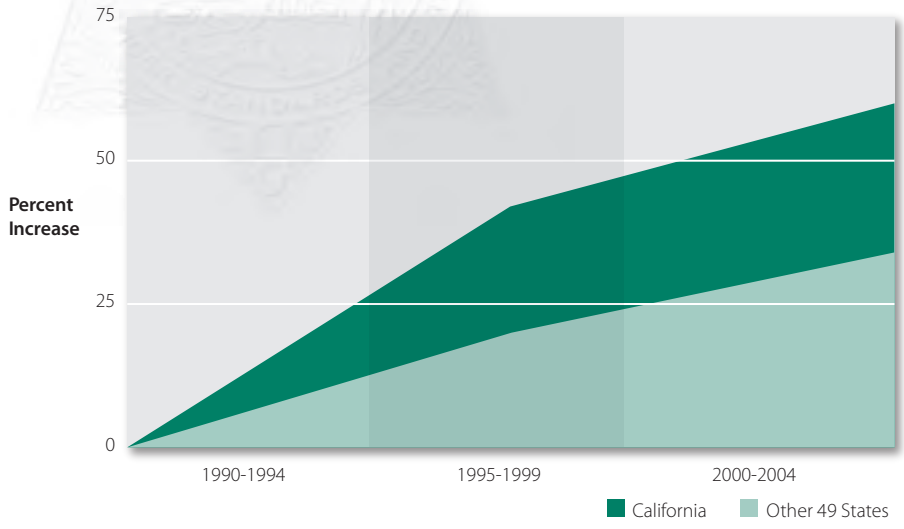


Table 1-5, ***California Peace Officer Driver Deaths vs. 49 Other States*** provides a visual representation of the increase in peace officer driver deaths in California and in the other 49 states (combined). Peace officer driver deaths are increasing in both cases. The trend increase in California is greater compared with the other 49 states.[9]

Table 1-5 *California Peace Officer Driver Deaths vs. 49 Other States*



Conclusions

The rate of peace officer driver injuries and deaths is on the rise nationally. Statistics aside, the demonstrated rise in peace officer driver deaths is practically significant. Finally, the trend is more pronounced in California than it is compared to the sum of the other 49 states.[10]

8 Preliminary data for the reporting period 2005-2009 suggest that this trend will persist.

9 This is trend data; not per capita comparison. Variations in definition and types of "peace officers" preclude (simple) numerical comparison.

10 Data supporting this conclusion and the accompanying graph were taken from the Federal Bureau of Investigation LEOKA reports (see http://www.fbi.gov/ucr/ucr.htm#leoka).

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Peace Officer Victims – A Demographic & Situational Analysis

CHAPTER 2

Here the demographic and situational variables associated with the 29 California peace officer driver deaths from 1990-2004 are explored. Specifically, age, experience (years of law enforcement service), speed, seatbelt usage, presence of other vehicles, and response status are identified.

It is commonly assumed that "younger" officers (drivers) or those with "less experience" are most at risk of being injured or killed in a traffic collision. Occasionally, those factors are combined to state that younger officers "and" those with less experience are at greater risk. Intuitively, this makes sense and it may be true statistically. However, it may not be true for the expected reason(s) (e.g., young or inexperienced officers do not drive well). The table below details just a few potential confounds associated with age and experience:

Table 2-1 ***Potential Confounds***

Variable	Confounding Factors
Age	▶ Officers self-select into the law enforcement profession at various ages. ▶ Skill is usually developed over time; complacency can counteract this. ▶ Age often builds confidence; however, confidence may exceed actual skill.
Experience	▶ Officers with more years of experience may spend less time driving a patrol car. Therefore, more experience may result in less competent drivers. ▶ Officers who are "better" at something might be assigned to "do it" more. Therefore, statistically, you might see more collisions from "better" drivers.

Significance of Confounds

A confound is something that confuses a set of facts, usually by suggesting a relationship (correlation) that does not actually exist. Keeping the possibility of confounds in mind can be useful in order to avoid inaccurate conclusions,[1] which can lead to inappropriate interventions. One might accurately recognize a problem (e.g., younger officers are dying in collisions more frequently than older officers), but inaccurately determine the cause (e.g., younger officers drive poorly). This could lead to the implementation of the wrong intervention (e.g., provide younger officers with additional driver training).

In the example above, the cause of younger drivers dying more frequently could be that they drive more often or more miles and not that they drive poorly. It could also be that they are less mature and drive beyond their abilities (i.e., a judgment problem). In this case, more driver training might not solve the problem (putting these officers through more driver training might boost their confidence, which could compound the problem). The cause could be another issue which will not be solved through training, but another intervention.

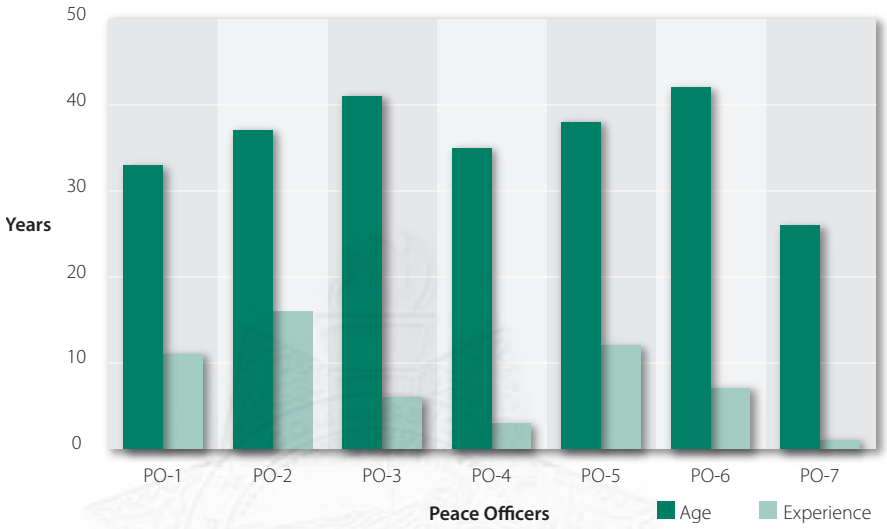
1 Here the concern is a Type 1 Error or False Positive. This would be a situation where a claim states there is a difference between two things when, in fact, there is not a difference (e.g., a difference in the driving skill of younger and older officers).

Demographic Facts – California LEOKA Driver Death Summary

The tables and graphs that follow illustrate the comparative age and experience demographics of the 29 peace officer driver deaths in California from 1990 to 2004.[2] Averages (means) for each time period (1990-1994, 1995-1999, and 2000-2004) are indicated at the top of each graph.

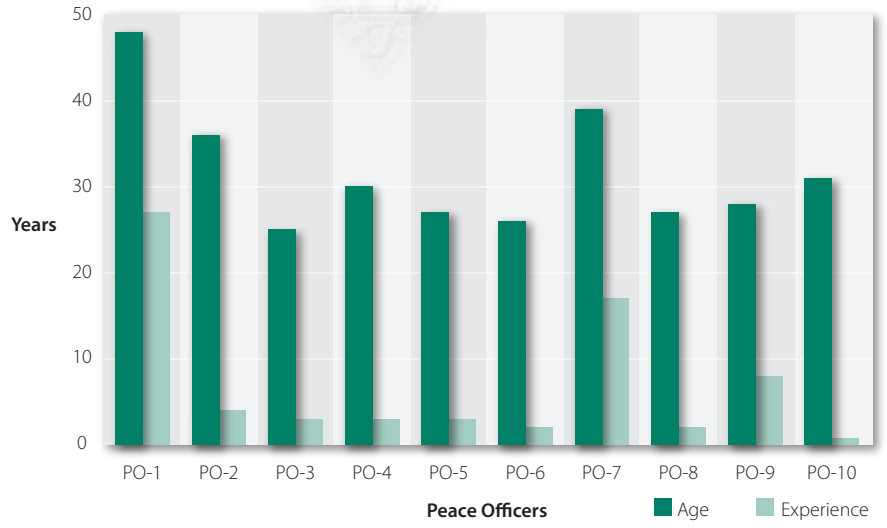
For the period 1990-1994, Table 2-1 illustrates a significant age range (26-42) and an equally broad experience range (1-16 years) for the peace officer victims. Popular industry literature today discusses trends where officer victims of fatal collisions (drivers) most often (58%) have less than 5 years of experience and many (32%) less than 2 years of experience (Yates, 2008, para. 6).[3] This was not the case in California during this five-year period.

Table 2-2 ***CA LEOKA Driver Deaths 1990-1994*** ***Average age = 36 years*** *Average experience = 8 years*



For the period 1995-1999, Table 2-2 details significant ranges (age: 25-48 and experience: <1-27 years) again; however, the experience trend (noted by Yates, 2008) does prove true. While the mean experience is just under 7 years, 70% of the peace officer victims had less than 5 years of experience and 10% had less than 2 years.[4]

Table 2-3 ***CA LEOKA Driver Deaths 1995-1999*** ***Average age = 32 years*** *Average experience = <7 years*



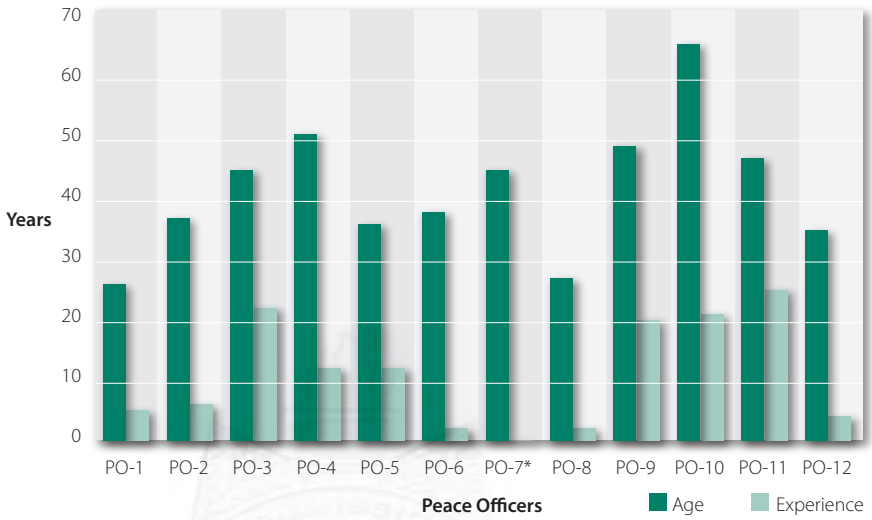
2 The source data for these graphs can be found in Appendix A (abridged California Law Enforcement Officers Killed or Assaulted 1990-2004); see also http://www.post.ca.gov/About/leoka.asp.

3 See http://www.policeone.com/training/articles/1658585/.

4 Yates (2008) used a statistic of "23 months" or less (para. 6); CA had 30% with "2 years" or less–comparable.

Finally, for the period 2000-2004, Table 2-3 illustrates a near counter-trend. Ages range from 26 to 66 and experience ranges from 2 to 25 years.[5] While 25% of officers have less than 5 years of experience, over 33% have more than 20 years of experience. The median age is 41.5 years and the median experience is 12 years.[6] Again, California is not tracking with the national trend (reported by Yates, 2008) in this time period.

Table 2-4 ***CA LEOKA Driver Deaths 2000-2004*** ***Average age = 42 years*** *Average experience = 6.5 years*



*Officer #7 – Actual years of experience unknown (reflected here as "0" – "average" calculated w/o this figure/denominator).

Situational and Associated Factors in California

Many questions are relevant in a collision analysis. Four are prominent with regard to peace officer traffic collisions:

1. Was s/he responding to a call?
2. Was another vehicle involved in the collision? (as opposed to a solo or hitting an object)
3. How fast was s/he going?
4. Was s/he wearing a seatbelt?

The following tables (Tables 2.4, 2.5, and 2.6) again cover the 5-year intervals 1990-1994, 1995-1999, and 2000-2004.[7] They reflect the overall percentage(s) for all driver officers in each period that were:

1. Responding to a call at the time of fatal collision[7]
2. Involved with another motor vehicle in the collision[8]
3. Potentially driving too fast (i.e., speed was a factor)
4. Wearing a seatbelt

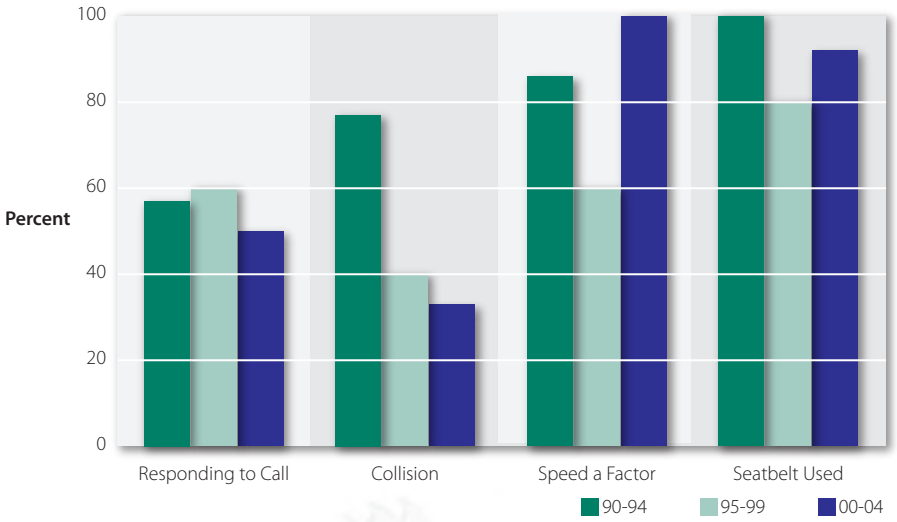
5 The CA LEOKA report contained incomplete data for Officer #7. Years of experience for this officer are unknown (although the table reflects "0"). "Average" years of experience were calculated without this case (although age was counted in that average).

6 This statistic ignores the previously mentioned "unknown" experience of Officer #7.

7 The source data for these graphs can be found in Appendix A (abridged California Law Enforcement Officers Killed or Assaulted 1990-2004); see also http://www.post.ca.gov/About/leoka.asp.

8 There is insufficient data to determine if the call was assigned or self-initiated or if emergency response was authorized.

Table 2-5 ***1990-2004 Driver Deaths***



Summary

Overall, between 1990 and 2004, more than half (55%) of officers killed while driving were responding to a call for service. Less than half (41%) collided with another motor vehicle. Speed was a factor in the majority of cases (83%). And, finally, seatbelts were worn by the majority of officers (83%).[9]

9 Reference Appendix A for individual situational summaries for each officer.

Primary & Secondary Causes of Law Enforcement Vehicle Collisions

Primary Causes

The same primary collision factors (PCF) that impact citizens (non-emergency drivers) also impact law enforcement drivers. Common PCFs, such as excessive speed, continue to be prevalent. Several factors common to law enforcement vehicle operations provide secondary collision causes and associated factors that may not be common for the non-emergency driving population.

Primary Collision Factors Historically

The following tables detail the most common PCFs for injury (including fatal) collisions for both the California driving population (including peace officers) and peace officers specifically (including motorcyclists).[1] To begin, Table 3-1 illustrates that unsafe speed is consistently the most prevalent PCF in injury collisions where at least one party was a peace officer driver of a law enforcement vehicle. Subsequently, Table 3-2 shows that the trend in the general driving population is much the same as in the peace officer specific sample.

Table 3-1 **Hierarchy of PCFs for Peace Officer Involved Injury Collisions 1997-2007**

Primary Collision Factor (PCF)*	97	98	99	00	01	02	03	04	05	06	07
Unsafe Speed	1	1	1	1	1	1	1	1	1	1	1
Automobile Right-of-Way	2	3	3	3	2	3		2	2	2	2
Improper Turning	3	2	2	2	2	2	2	3	3	3	3
Other Improper Driving				3							
Unsafe Lane Change					3						
Driving Under the Influence (DUI)							3				

Note - Fault is not reported here.

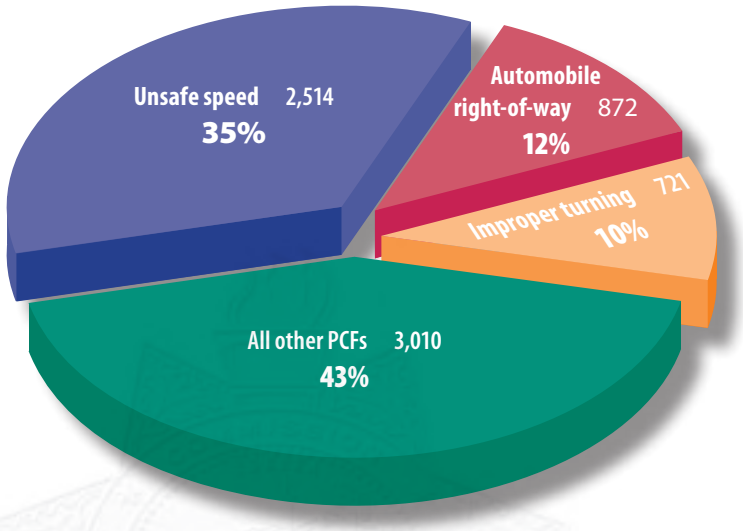
Table 3-2 **Hierarchy of PCFs for All California Drivers in Injury Collisions 2002-2006**

Primary Collision Factor (PCF)	2002	2003	2004	2005	2006
Unsafe Speed	1	1	1	1	1
Automobile Right-of-Way	2	2	2	2	2
Improper Turning	3	3	3	3	3

1 General information on the California driving population at large is available via the CHP Statewide Integrated Traffic Reporting System (SWITRS) at http://www.chp.ca.gov/switrs/. Peace officer specific data was obtained from the CHP Information Services Unit, which ran special request inquiries against SWITRS data specifically for this report. See Appendix A.

Over 7,100 injury collisions occurred from 1997-2007 in which at least one party was a peace officer driver of a law enforcement vehicle. Table 3-3 shows the top three PCFs ("Unsafe Speed," "Automobile Right-of-Way," and "Improper Turning") and "All Other PCFs" (grouped together). "Unsafe Speed" is the leading cause of injury collisions in which at least one party was a peace officer driver of a law enforcement vehicle. This is the case nearly three times as often as the next leading cause ("Automobile Right-of-Way" violations); and, in fact, "Unsafe Speed" is the cause of more than one in three injury and fatal collisions.

Table 3-3 ***1997-2007 Peace Officer Involved Injury and Fatal Collision PCFs 7,117 Total***



Discussion of Predominant PCFs

Unsafe Speed

All sources agree that unsafe speed is the most predominant PCF in all injury and fatal collisions. This is consistent with California's LEOKA studies (83% of fatal peace officer driver collisions from 1990-2004 identified speed as a factor). Peace officers frequently need to drive fast and often tend to drive fast. Here it is notable that the LEOKA studies revealed that just 55% of fatal peace officer driver collisions were while responding to a call for service. This indicates that officers are driving fast when it may not be required. The implications are that there may be policy and agency culture issues. It is most likely the case that driving fast (i.e., above the speed limit) increases the likelihood of a collision. It is probably understood that the law enforcement profession intrinsically has higher risk potential for its members than many other professions (e.g., accountancy, education, or law). However, driving fast when unnecessary increases these risk factors. This practice may cause officers to jeopardize themselves and the driving public.

Automobile Right-of-Way & Unsafe Turning

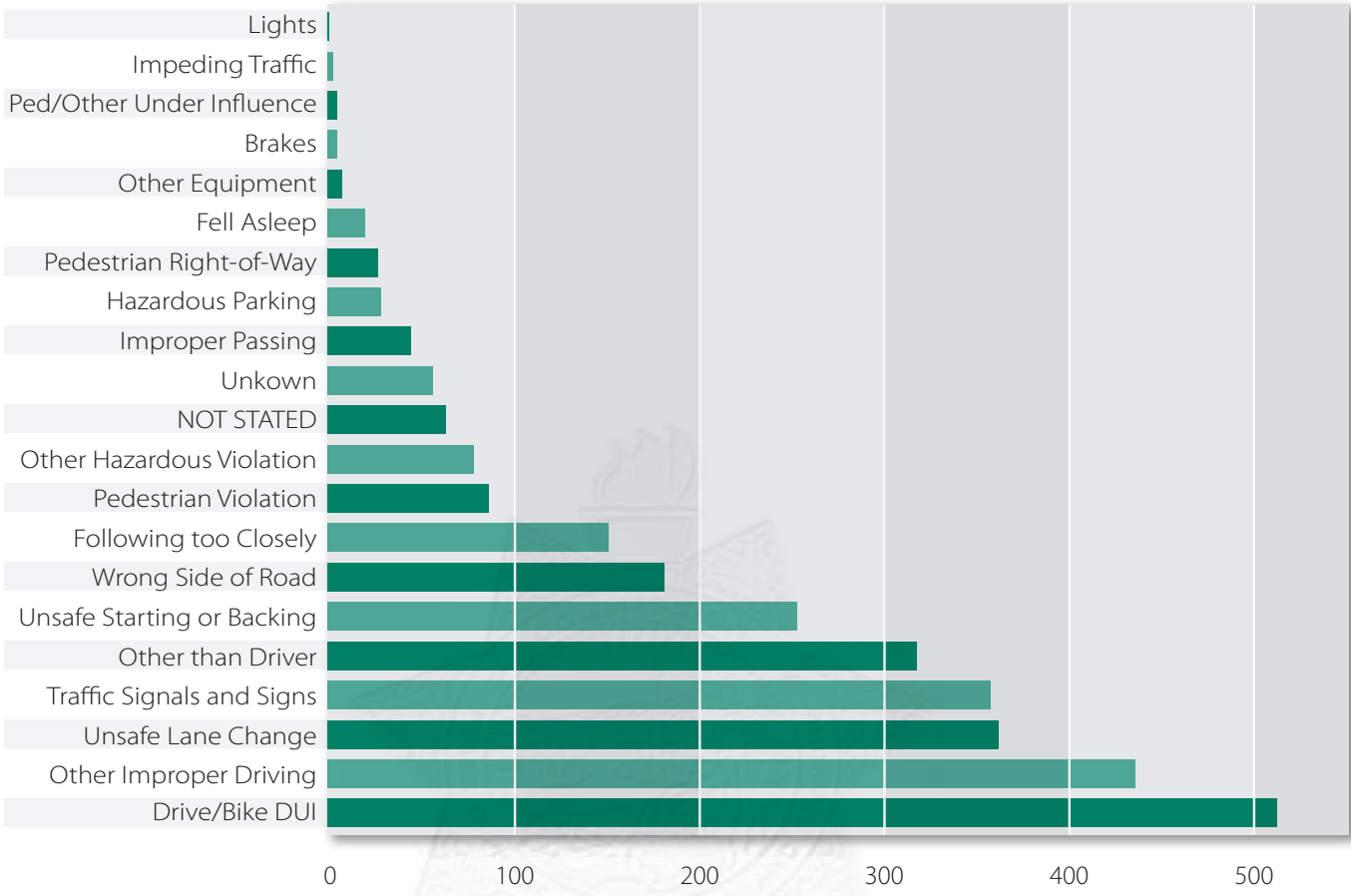
Right-of-way issues and turns typically occur at intersections. Intersections have consistently been identified as danger points for traffic collisions. Officers routinely have to negotiate intersections under emergency conditions, which increases the collision potential.

Secondary Causes and Associated Factors

"Secondary Causes and Associated Factors" might imply that the issues that follow are lesser than those above. This may not be the case. If the PCF is the "cause" of a collision, the secondary cause/associated factor might be the "manner" in which the collision took place. For example, the PCF might be "Automobile Right-of-Way" (e.g., running a red light), but the Secondary Cause/Associated Factor might be "Distraction" (e.g., looking at the Mobile Data Terminal and missing the red light).

Table 3-4 **Breakdown of All Other PCFs** *3,010 Total*

Table 3-4 shows the breakdown of the 3,010 "All Other PCFs" which were grouped together in Table 3-3 above.



Distraction/Inattention

Some research indicates that as many as 80% of collisions are caused by distracted drivers (Weiss, 2007). Distraction can be divided into many categories. The most basic are "internal" (e.g., thinking about what's happening at the scene you are responding to) and "external" (e.g., manipulating the radio or MDT). Combining internal and external distractions compounds the likelihood of a collision. The amount of multi-tasking a peace officer driving an emergency vehicle undertakes is significant (consider radios, scanners, computers, lights, sirens). More research is needed to know if there are practical means available to address this issue.[2]

Fatigue

Shift work frequently leads to fatigue. A recent presentation by Steven W. Lockley, PhD,[3] at the National Institute of Justice (NIJ) Conference (July 21, 2008) suggested that fatigue may be a significant factor in many law enforcement collisions. Several studies are underway which may be informative for future training and policy considerations.

2 NHTSA has a large body of information on this topic available at http://www.nhtsa.dot.gov/portal/site/nhtsa/template.MAXIMIZE/menuitem.346aef7b3d1b54c5cb6aab30343c44cc/?javax.portlet.tpst=4670b93a0b088a006bc1d6b760008a0c_ws_MX&javax.portlet.prp_4670b93a0b088a006bc1d6b760008a0c_viewID=detail_view&itemID=97b964d168516110VgnVCM1000002fd17898RCRD&overrideViewName=Article.

3 Assistant Professor of Medicine, Harvard Medical School; Associate Neuroscientist, Division of Sleep Medicine, Department of Medicine, Brigham and Women's Hospital – http://sleep.med.harvard.edu/people/faculty/163/Steven+W+Lockley+PhD

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California Law Enforcement Vehicle Operations Training Inventory

CHAPTER 4

Vehicle operations training in California varies significantly–from four-hour update and awareness courses to instructor courses lasting weeks. In an effort to quantify what exists, a survey was developed and sent to all 80 certified presenters of vehicle operations/driver training (this includes academy and in-service training). Appendix C is the list of presenters and courses.

The survey posed 82 questions.[1] Over 60% of presenters responded to the survey providing detailed quantitative and qualitative data. Analysis of these survey results continues in conjunction with the analysis of the collision/training correlation data. Survey data suggest that multiple presenters of the "same" driver training can teach the same curriculum in very different ways. For example, one presenter might use a skid-pan while another uses a SkidCar. Distinctions between courses may provide insight into trends in the correlation study. The tables on the following pages provide an inventory of the facilities and techniques each presenter uses. Using the following tables and Appendix C, it is possible to compare facilities and practices of presenters of the "same" certified course.

Table 4-1 ***Facility Resources***

Agency	Closed-course track	High-speed (banked/oval)	Serpentine course	Grid course (intersections)	Elevation changes	Dedicated tarmac	Parking lot with cones	Skid-pan	Off-road (4x4) course	Borrow/rent facility	City-scape	Visual obstructions	Closed/abandoned streets	Asphalt surface	Concrete surface
Alameda County Sheriff's Department	•		•		•			•						•	•
Allan Hancock College	•		•	•		•	•	•						•	
Butte College Public Safety Training Center	•		•	•	•	•		•				•		•	•
CA State Parks - William Penn Mott						•	•		•	•		•			
California Highway Patrol	•	•	•	•	•			•				•		•	•
College of Redwoods					•	•				•		•		•	
Concord Police Department						•	•	•		•				•	•
Contra Costa County Sheriff's Department†	•		•	•		•	•	•		•				•	
El Monte Police Department															
Folsom Police Department							•						•	•	
Fresno Police Department			•				•			•			•	•	
Gilroy Police Department			•	•		•				•					•
Irvine Police Department							•				•	•	•	•	•

Continues...

1 Not all presenters answered all questions. Some questions were specific to academies, LEDS presenters, etc.

Table 4-1 ***Facility Resources (cont)***

Agency	Closed-course track	High-speed (banked/oval)	Serpentine course	Grid course (intersections)	Elevation changes	Dedicated tarmac	Parking lot with cones	Skid-pan	Off-road (4x4) course	Borrow/rent facility	City-scape	Visual obstructions	Closed/abandoned streets	Asphalt surface	Concrete surface
Kern County Sheriff's Department							•		•					•	
Long Beach Police Department†*															
Los Angeles County Sheriff's Department	•		•	•	•	•	•	•				•		•	
Los Angeles Police Department	•	•	•	•	•			•							
Merced Police Department	•	•	•	•		•	•			•				•	•
Monterey County Sheriff's Department															
Napa Valley College Criminal Justice Training Center							•							•	
Oakland Police Department	•		•	•		•	•	•		•				•	•
Orange County Sheriff's Department															
Pasadena Police Department															
Pleasanton Police Department							•								•
Rio Hondo Regional Training Center			•	•	•		•	•			•	•		•	
Riverside County Sheriff's Department*															
Sacramento County Sheriff's Department†	•			•		•	•	•		•				•	•
Sacramento Police Department Regional Driver Training Facility	•			•		•		•		•				•	•
San Bernardino County Sheriff's Department	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
San Diego Regional PST Institute†							•							•	
San Francisco Police Department†				•			•				•			•	•
San Jose Police Department†			•	•		•	•			•					•
Santa Ana Police Department	•		•				•								•
Santa Clara Police Department			•		•		•			•				•	
Santa Rosa Junior College Public Safety Training Center	•	•	•	•			•	•		•		•		•	
Santa Rosa Police Department							•							•	
South Bay Regional Training Center	•		•			•	•	•		•				•	•
Stanislaus County Sheriff's Office Regional Training Center			•	•		•									•
State Center Regional Training Facility Fresno City College			•				•	•		•				•	
Ventura County Criminal Justice Training Center				•		•	•	•						•	•
Walnut Creek Police Department†	•		•				•	•		•				•	
West Covina Police Department							•			•				•	
West Sacramento Police Department	•						•	•		•			•	•	

* Agency contracts with/utilizes San Bernardino County Sheriff's Department facility

† Clarification needed; multiple (different) responses from same agency ("best" data provided)

Table 4-2 ***Facility Techniques***

Agency	LE Driving Simulator (LEDS) Presenter/User	Regulator Basic Course (RBC) Academy	LEDS used in RBC (LD #19)	SkidCar used in RBC (LD #19)	Training conducted during hours of darkness	Maximum speed achieved during RBC (LD #19)	Minutes at maximum speed in RBC (LD #19)	Interference vehicle used during RBC (LD #19)
Alameda County Sheriff's Department	Y	Y	Y	N	Y	55	<1	Y
Allan Hancock College	Y	Y	Y	Y	N	<50	30	Y
Butte College Public Safety Training Center	Y	Y	Y	Y	Y	60	30	Y
CA State Parks - William Penn Mott	N	Y						
California Highway Patrol	N	Y	N	N	Y	>100	70	Y
College of Redwoods	N	Y	N	Y	N	55	2	N
Concord Police Department	Y	N						
Contra Costa County Sheriff's Department†	Y	Y	N	Y	N	60	25	Y
El Monte Police Department								
Folsom Police Department	N	N						
Fresno Police Department	Y	N						
Gilroy Police Department	N	N						
Irvine Police Department	N	N						
Kern County Sheriff's Department	Y	N						
Long Beach Police Department†*								
Los Angeles County Sheriff's Department	Y	Y	N	N	N	80	15	Y
Los Angeles Police Department	Y	Y	Y	Y	N	75	30	N
Merced Police Department	Y	N						
Monterey County Sheriff's Department								
Napa Valley College Criminal Justice Training Center	N	Y	N	Y	N	<50	20	N
Oakland Police Department	N	Y	N	N	Y	<50	25	Y
Orange County Sheriff's Department	Y	N						
Pasadena Police Department	N	N						
Pleasanton Police Department	N	N						
Rio Hondo Regional Training Center	Y	Y	Y	N	N	<50	>100	Y
Riverside County Sheriff's Department*	Y	Y	N	Y	N	<50	<1	Y
Sacramento County Sheriff's Department†	N	Y	N	N	Y	60	3	Y
Sacramento Police Department Regional Driver Training Facility	Y	Y	Y	N	Y	60	5	Y
San Bernardino County Sheriff's Department	N	Y	N	N	Y	60	5	Y
San Diego Regional PST Institute†	Y	Y	Y	Y	Y	<50	2	N
San Francisco Police Department†	Y	Y	Y	Y	N	<50	5	Y
San Jose Police Department†	Y	Y	N	Y	N	55	20	Y
Santa Ana Police Department	Y	N						
Santa Clara Police Department	N	N						
Santa Rosa Junior College Public Safety Training Center	Y	Y	Y	Y	N	55	15	N

Continues...

Table 4-2 ***Facility Techniques (cont)***

Agency	LE Driving Simulator (LEDS) Presenter/User	Regulator Basic Course (RBC) Academy	LEDS used in RBC (LD #19)	SkidCar used in RBC (LD #19)	Training conducted during hours of darkness	Maximum speed achieved during RBC (LD #19)	Minutes at maximum speed in RBC (LD #19)	Interference vehicle used during RBC (LD #19)
Santa Rosa Police Department	N	N						
South Bay Regional Training Center	Y	Y	N	Y	N	60	20	Y
Stanislaus County Sheriff's Office Regional Training Center	N	Y	N	Y	N	<50	40	Y
State Center Regional Training Facility Fresno City College	N	Y	N	Y	N	<50	>100	N
Ventura County Criminal Justice Training Center	Y	Y	N	Y	N	55	5	N
Walnut Creek Police Department†	Y	N						
West Covina Police Department	Y	N						
West Sacramento Police Department	N	N						

* Agency contracts with/utilizes San Bernardino County Sheriff's Department facility

† Clarification needed; multiple (different) responses from same agency ("best" data provided)

Inventory Notes

The SkidCar[2] system has been noted as a hybrid as it blends the "real" aspects of driving a car with the "simulated" (or artificially created) aspects of different roadway conditions.

While there is a great deal of differentiation in models and capabilities of LEDS, those currently used in POST training are generally of equal capability.[3] Also notable is that most LEDS courses are four hours in length, so there is generally overall consistency in LEDS training.

The elements that constitute an EVOC are many and are generally acknowledged as the various forms of behind-the-wheel driver training. Relatively few agencies possess "all" components of an EVOC. Currently, the layout and standards for EVOC training vary widely among presenters.

Inventory Highlights

Twenty-three basic academies responded to the survey question (#55) that asked, "What is the maximum SPEED (in MPH) you routinely have trainees achieve (operate a vehicle at) as part of LD #19 training?" Nine academies responded that their maximum training speed was less than 50 MPH. Equally significant is that nearly 40% of academies responding indicated that trainees spend five minutes or less at their maximum training speed. This is a potential area of concern. If speed is the primary cause of collisions and a factor in nearly all driving related deaths (and most injuries), but a large percentage of basic academy driving programs dedicate just 5 minutes (or less) to driving at speed, then the training in this area may need to be revised.

Another notable issue is that a significant percentage of academies responding to the survey do not utilize interference cars in basic training.[4] This means that officers are essentially being taught to "drive in a vacuum." California has some of the busiest, most congested highways in America. Yet, "emergency" driving is taught with no other vehicles in the training environment. Clearly, there are safety issues and concerns that must be addressed when incorporating the presence of another vehicle into driver training.

2 The SkidCar® system incorporates an external chassis with wheels onto an EVOC vehicle. A sophisticated computer/hydraulic control system operated by a driving instructor allows this external chassis to manipulate the contact environment for the EVOC vehicle. This allows the student driver to experience driving conditions (such as a slippery road surface).

3 See "LEDS Operational Status" for more information on the specifics of LEDS.

4 An interference car is another vehicle on the course that interacts with the student driver.

Entry-Level Driver Training

Basic Academy Training

Academy training related to vehicle operations is covered in the curriculum and evaluation of student performance through LD #19. A minimum total of 24 hours are required to be presented in POST-certified Basic Academies. A written test consisting of 30 items must be passed at a cut score of 80%, and 5 additional exercise tests must be completed successfully in order to "pass" the Vehicle Operations LD. Some observable issues related to the presentation and testing process for this LD are discussed below.

A review of the learning objectives, the importance rating scale, and number of items for the written test for LD #19 reveal a lack of test items related to the development of the trainee's "mindset" (see Appendix B for LD #19 specifications). Objectives related to physiological and psychological factors that may affect an officer's driving, the effect of speed on a driver's peripheral vision, and the objectives of emergency driving are not tested at all. The focus of the test appears to be on, for example, objectives related to statutes governing peace officers when operating law enforcement vehicles in the line of duty and recognizing guidelines for entering a controlled intersection when driving under emergency response conditions. The emphasis on cognitive recall (the lower end of Bloom's taxonomy) versus application and evaluation (the higher end of Bloom's taxonomy–commonly known as judgment and decision-making), is the foundation of academy training. In other words, the fundamental focus of the written test is on memorizing/knowing specific laws and guidelines at the time of the test. The mandated field training program and supporting POST Field Training Program Guide are designed to focus on the higher end of Bloom's (more practical application) using the trainee's agency-specific policies and guidelines. Field training is addressed below.

The other aspect of academy training and testing is the required exercise tests. There are five exercise tests that each trainee must successfully complete:

1. The collision avoidance test
2. The slow speed precision driving test
3. The skid control test
4. The emergency response driving test
5. The pursuit operations test

The Training and Testing Specifications (TTS) for LD #19 require comprehensive skills testing but only provide general guidelines for constructing those tests. The various academies have interpreted the guidelines and developed tests based on the facilities and equipment available to them. This delivery of curriculum and testing appears to allow a high degree of autonomy and inconsistency among presenters and may, therefore, provide for varying degrees of competency development. Because of preferences, vehicle and parts costs, availability of equipment,

facility development and maintenance costs, and other factors, there has been resistance from a number of academies to increase the number of hours of this LD or to move to a more standardized, blended learning approach in the delivery of this particular training. However, due to the concern for the academies' abilities to defend themselves, if challenged, the California Academy Directors Association (CADA) requested, and the Commission established, Strategic Plan objective A.4 to standardize skills testing for Basic Course Firearms, Arrest Methods/ Defensive Tactics, and Vehicle Operations. In the case of vehicle operations, as opposed to standardizing the training method(s), a standardized competency-based evaluation form and procedure have been developed.

A vehicle operations subject matter expert (SME) committee identified the core competencies, performance dimensions, and observable behaviors required for successful vehicle operations and drafted preliminary evaluation forms. The evaluation procedure and forms are being pilot tested at two academies: Alameda County Sheriff's Department and San Bernardino County Sheriff's Department. The results of these pilot tests reveal that these are highly reliable instruments. A "train-the-trainer" course was presented for academy evaluators in July 2008. Staff is preparing a recommendation to revise the TTS for LD #19 for Commission approval. Although the standardized forms are a positive step, training inconsistencies remain to be addressed.

A review of expanded course outlines of presenters of LD #19 training revealed that not all presenters clearly document delivery of required course components and exercises. While it is clear from survey data that the required curriculum is being delivered very differently from presenter to presenter, this latest finding raises additional concerns about the sufficiency of the courses among presenters. Additional research in this area is currently underway.

Field Training

POST-approved field training programs are required to cover patrol vehicle operations. While the POST-developed field training program guide covers many aspects related to patrol vehicle maintenance and operations, there is a relatively small portion dedicated to emergency vehicle operations/pursuits. The only task related to actual emergency operation of a patrol vehicle is Objective 1.5.15, which states, "Given a simulated or an actual emergency response or pursuit, the trainee shall demonstrate safe and effective driving practices." The issues here are that a trainee does not actually have to participate in an emergency response or pursuit (it can be simulated); the trainee's rating is subject to the evaluation of the Field Training Officer (FTO) based on agency-specific guidelines; and there is nothing addressing the speed of the emergency driving or response (should one actually occur). POST-participating agencies, however, are not required to use the POST-developed field training guide; they may use their own guide covering the same topics as the POST-developed guide. In field training then, as in academy training, there are no standardized requirements, and agencies themselves determine the extent to which vehicle operations and emergency responses/pursuits are accorded training emphasis.

National/International Vehicle Operations Training Inventory

CHAPTER 6

U.S. Programs Outside of California

In reviewing driver training programs outside of California, specific attention was given to studies of training effectiveness and use of driving simulators. Overall, most states (generally) are struggling as much or more than California with regard to studies of training effectiveness and data collection. Still, a few excellent examples surfaced and are discussed below. These notable programs provide indications of best practices noted in the next section. While there could be confounding factors in each of these examples, it appears that their success (with collision reductions) has been realized as a result of changes in their training programs. A comprehensive survey of members of the IADLEST is planned for continued study in this area.

Federal Training

The Federal Law Enforcement Training Center (FLETC) provides law enforcement training (including basic academy training) for more than 80 federal agencies. Its academy driver training program is 27 hours and roughly comparable to the 24-hour California program. A breakdown of FLETC's basic course appears in Table 6-1:

FLETC

Table 6-1 ***Uniformed Police Training Program (2005/2006)*** *Driver and Marine Division Hours of Instruction*

Course	Component			Course Subtotals
	Lecture	Laboratory	Practical Exercise	
Driver Training Course Orientation	:30			:30
L.E. Combined Driving Skills	1:00	6:00	2:00	9:00
Non-Emergency Vehicle Operations	2:00	3:30	:30	6:00
Risk and High Risk Vehicle Stops	2:00	4:00		6:00
Skid Control	1:30	3:30	:30	5:30
Component Subtotals	7:00	17:00	3:00	27:00
			Total Hours	**27:00**

In 2007 FLETC acquired a fleet of new LEDS. They subsequently modified their academy driver training program to include an additional six hours of LEDS training at the beginning of recruit driver training. FLETC has not been able to statistically track the impact of this training on field operations due to the fact that they train many different federal agencies involved in a wide variety of vehicle operations. FLETC did, however, commission a study conducted on 300 of their trainees by the University of Central Florida. They had significant findings that verified that the LEDS impact is greatest at the "front end" of the driver training program. Also notable is

that FLETC has realized a very low incidence – 3.1% – of SAS (Simulator Adaptation Syndrome)[1] since utilizing the new LEDS. Additional research on the benefits of the new FLETC driver training program is expected in the future.

Utah

The basic academy driver training program in Utah is 46 hours and includes a "high speed pursuit course" (60+ MPH). Utah provided considerable information, specifically on its use of LEDS during basic training. The following excerpts are from a 2007 report provided by the Utah Department of Public Safety:

> The Utah Department of Public Safety (UDPS) introduced the application of a new training program called EVOC-101™ in 2005. That development derived from prior analyses of different driving simulator applications in the law enforcement community. The two primary objectives of the new EVOC-101™ program included (1) recording and correcting trainee performance throughout the process, and (2) summarizing the performance of all trainees to create a totally objective valuation of the training itself. UDPS trained 355 drivers in 2005 using the new EVOC-101 program, and collected extensive driver performance data in that process. In 2006 UDPS trained 430 new drivers, resulting in a new total collection of data for 785 drivers.
>
> Objective analyses of the data in 2005 led to compelling conclusions about the value of the training, and those results were published in leading trade journals for review by the training industry. At the same time, UDPS expanded its EVOC-101 application in 2006 by doubling the number of lesson plans and scenario options to be used during the training, and by increasing the total number of trainees being taught during the year. This report summarizes the new data collected by UDPS while applying the combination of two EVOC-101™ lesson plans in 2006. (see EVOC-101™, page iii)[2]

Findings from the study included the following (relative to assessment during LEDS training):

- The average trainee's EVOC driving performance scores improved by more than 25% during the course of the training.
- The training reduced the number of critical errors committed at intersections–errors that lead to loss of control and consequent accidents–by more than 67%.
- The average driver demonstrated more than a 10 fold improvement in awareness and execution of their department's EVOC policies and procedures.
- The training process controlled the rate of incidence for simulator adaptation syndrome (SAS, or "simulator sickness") to less than 1% of the drivers.
- These test data establish a statistical basis to specify normal acceptable standards of performance, and an objective means to cull unacceptable behaviors.
- Those who completed EVOC-101 training subsequently demonstrated 75% fewer mistakes in real vehicles on the test track than those without EVOC-101 training. (see EVOC-101™, page i)[3]*

*Staff from the Utah Department of Public Safety attribute the "75% fewer mistakes in real vehicles" to a number of program changes in addition to the EVOC-101™ (LEDS) training.

1 A general feeling of nausea/sea-sickness during simulations.

2 Applied Simulation Technologies. (2006). Statistical analysis of effectiveness in the second year of EVOC-101 training courses using UDPS driver training simulators in 2006. Salt Lake City, UT: Author. See www.appliedsimtech.com.

3 Applied Simulation Technologies, 2006.

Fire Department of New York (FDNY)

The FDNY implemented LEDS training (in addition to EVOC) for its ambulance drivers in 2004. The three graphs below reflect the statistics for collisions, number of units deployed, and call volume. A quick reference of Table 6-2 indicates that FDNY experienced more collisions. However, when number of units (Table 6-3) and call volume (Table 6-4) are factored in, the rise in overall number of collisions becomes less significant. Most notable is the significant reduction in intersection collisions from 2005-2007.

Table 6-2 ***2004-2007 Collisions***

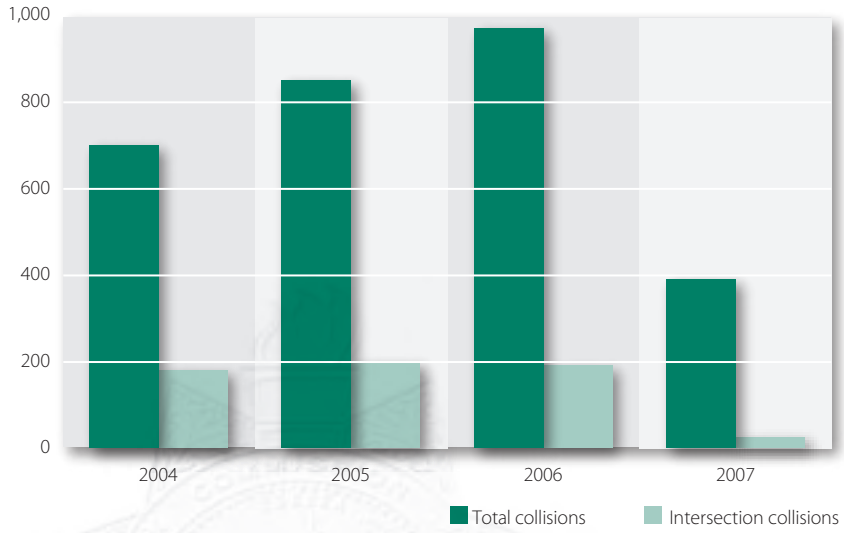


Table 6-3 ***Total Number of Units on Street***

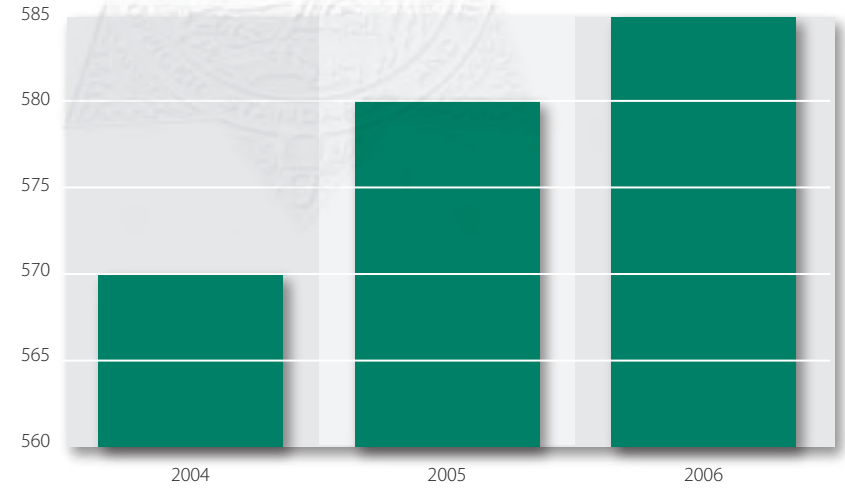
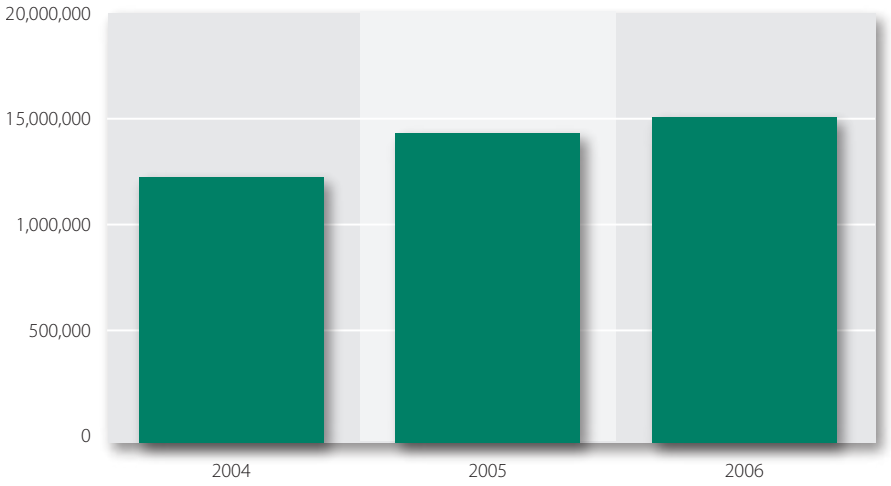


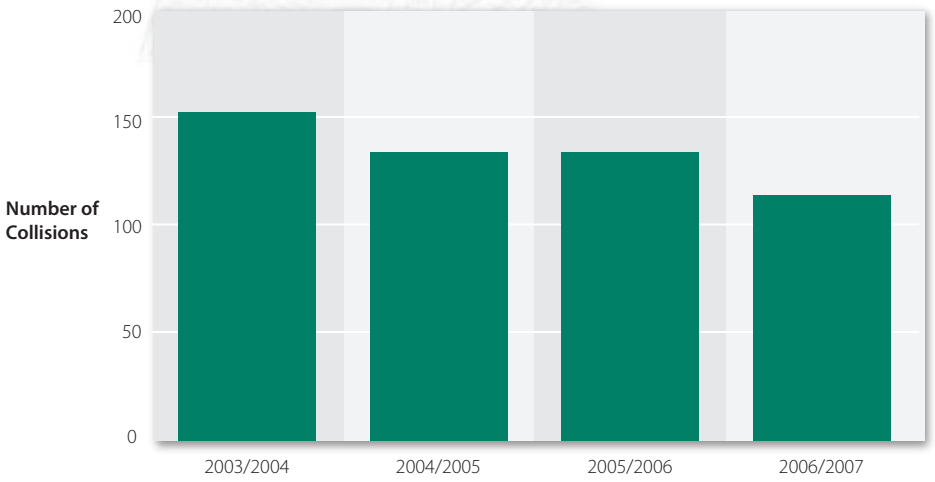
Table 6-4 **Call Volume**



Sacramento Police Department

The City of Sacramento has a long history of progressive risk management relative to driver training (across all city departments operating vehicles). For the police department, this has resulted in a consistently low accident rate for many years (and less than 10 "chargeable" collisions per million miles driven since 2005). Table 6-5 details the police department's low number of traffic collisions over the last several fiscal years. This has been attributed to a comprehensive basic academy program (including driving at speed, interference vehicles, night driving, and weighted vehicles) and, more importantly, an aggressive two-day in-service program that utilizes LEDS and EVOC training. The Sacramento PD program is a notable program because it has achieved significant results without an increased budget or staffing. Extra training costs are offset by savings from reduced civil liability losses. This program also illustrates the benefits of blended refresher training (20 hours every 2 years).

Table 6-5 **Sacramento Police Department Collision History** *Fiscal Years 2003/2004 through 2006/2007*



United Kingdom

United Kingdom (England, Scotland, Wales) – Driver training for police in the United Kingdom (UK) involves hundreds of hours of training. By many accounts, UK police driver training is among the best standardized law enforcement driver training programs in the world. Potential students are screened (i.e., there is a selection process) before driver training. The current driver training program is detailed in Table 6-6. A proposed[4] alternative driver training program is detailed in Table 6-7.

Table 6-6 **UK Police "Current" Driver Training Program**

Level	Hours	Description
Basic	80	Basic Driver training allows officers to drive police vehicles but not exceed the speed limits or use blue lights other than to stop vehicles.
Standard	200	The Standard Car Course (area car) allows officers to respond to incidents with sirens and blue lights and to take part in pursuits.
Advanced	160	This course builds on the knowledge and skills already gained by successful completion of the Standard Driving course for those officers required to drive vehicles to their maximum potential and perform high speed pursuit management driving.

Table 6-7 **UK Police "Proposed" Driver Training Program**

Level	Hours	Description
Initial	40	All student officers will complete this course at week 18/19 of their initial training. It covers basic driving skills, stopping of vehicles, and coning of accidents. There is no provision for exceeding the speed limit or the use of blue lights (other than to stop vehicles).
Response	80	This course will deliver training to equip officers to drive at excess speed, overtake safely, and urban and rural driving. Upon completion officers will not be permitted to drive high performance vehicles but they will be authorized to exceed the speed limit. Officers will not be permitted to undertake pursuit. All operational vehicles will be fitted with In-car Data Recorders (IDR).
Response Plus	120	The course will enhance officers driving at speed, allow participation in the initial stages of pursuit and provide back up for motorway. Stinger[5] and Tracker[6] training will be covered in this course.
Advanced	160	The Advanced Course will remain in its current format. The content and length of this course is nationally prescribed. This course will be targeted at all RPU[7] officers, dog handlers, ARV[8] officers, and a small number of FSU[9] and surveillance officers.

Additionally, in-service driver training requirements appear to be required annually for UK officers.

4 This program is not universal, but is a proposal by the Hampshire Police Authority and appears to be a new initiative (in response to legislation) as of 2008. *Table 6-7 UK Police "Proposed" Driver Training Program*

5 Spike-strip tire deflation device

6 Radio frequency vehicle locator device

7 Road Police Unit – UK equivalent of "highway patrol"

8 Armed Response Vehicle – UK equivalent of SWAT tactical vehicle officers

9 Force Support Unit – UK variant of SWAT officers

Canada

The Royal Canadian Mounted Police (RCMP) basic (academy) driver training section is 52 hours. This is notable since it is over twice the California standard; although, the overall basic academy (RCMP Cadet Training Program at the "Depot") is 24 weeks. Beginning in May 2008, the RCMP integrated LEDS (as well as Force Options Simulators – FOS) as part of their basic driver training.

Australia

Nationally, Australia takes a scientific approach to emergency vehicle operations and training. A number of innovative interventions and assessment programs are mentioned in various publications (see Appendix F). Australia's basic academy driver training is two weeks.

Germany

Use of an advanced LEDS is in place in Germany. The unit is a "drive-in style" simulator where the student drives an actual patrol vehicle into a unit that prevents the patrol car from traveling, but allows it to "respond" in place. This simulator appears to be a cross between the National Advanced Driving Simulator (NADS – the most advanced in the world that allows a full spectrum of movement and body dynamics)[10] and the "standard" LEDS in use in California (and elsewhere in the U.S.).

Conclusions

This overview is provided simply for contrast information. A comprehensive inventory of international driver training programs may be useful in assessing California's needs and standards. Initial scanning indicates that international standards are generally more stringent.

10 NADS is designed for assessing vehicles, as opposed to training drivers.NADS is designed for assessing vehicles, as opposed to training drivers.

Training/Collision Correlation Study

Initial analysis of the correlation of POST training records with DMV collision data has been completed. The combined dataset has a significant amount of information on more than 140,000 individual cases. The initial findings are substantive. One significant finding is that LEDS training consistently shows positive effects (i.e., reduction in collisions); whereas, EVOC training does not exhibit the same degree of consistency with regard to collision reduction. However, a combination of these two training methodologies does appear to be more beneficial in terms of collision reduction than either (EVOC or LEDS) independently. Additional research will continue to inform driver training curriculum. Findings to date are presented below.

Study 1: Comparison of LEDS, EVOC, Blended, and No Training

The goal is to determine the individual effectiveness of various POST-certified driver training programs in the prevention/reduction of peace officer-involved collisions. Included here are four separate (post-basic academy) training conditions:

1. LEDS-only trained
2. EVOC-only trained
3. Blended (LEDS and EVOC trained)
4. No training

The data in these analyses reflect a combination of POST peace officer training information and DMV collision information for peace officers, both on and off duty. The POST dataset contained a total of 144,647 officers who began their law enforcement career sometime between 1948 and 2008. DMV data for officers captured collisions that occurred between 1998 and 2006, and contained a total of 81,808 collisions. For the present study, the POST and DMV datasets were combined (based on common personal identifiers) to create the following two comparison groups:

- "No Collision Group" consisting of all officers having no collisions recorded by the DMV from the years 1998 to 2006. This group was created by screening out all officers from the POST dataset that were not included in the DMV collision data.

- "Collision Group" consisting of all officers having one or more collisions recorded by the DMV from the years 1998 to 2006. This group was created by matching officers from the POST dataset with those contained in the DMV collision data.

Several sampling methods were built into this study to address methodological problems unique to the study problem. First, the study sample was restricted to all officers who began their law enforcement career in 1998 and had completed at least one in-service driver training course beyond their basic academy training. This was done to capture a cohort of officers who had been "on the job" long enough to have completed an in-service driver training course (LEDS or EVOC or both). Second, the sample contains only those officers who had either "no collisions" or "one collision" only; officers having multiple collisions were excluded and post-collision training was excluded. This was done to control for the common practice of providing driver training after, rather than before, the occurrence of a collision. The above procedures resulted in a final sample which included 7,431 officers, 51.5% (N= 3,827) of whom had collisions and 48.5% (N=3,604) of whom did not.

Analysis 1: ***The Effect of EVOC Training on Collisions***

Table 7-1 represents collision analysis results for officers who completed one or more EVOC courses (either Course #21115 "Driver Training Update," Course #21155 "Driver Training (EVOC) Update," or Course #21165 "Driver Training (EVOC) Update (PIT)") during the study period. These officers received no LEDS training. Results indicate approximately 52% of the officers without EVOC (or LEDS) training had a collision during the study period; whereas, about 48% of EVOC trained officers were involved in a collision. This 4% reduction was statistically significant ($p<.001$), suggesting that completing some form of in-service EVOC training is likely to reduce the chances of officer-involved collisions.

Table 7-1 ***The Effect of EVOC Training on Collisions***

EVOC Training	Collision		Total
	No	Yes	
No	47.54% (2,805)	52.47% (3,096)	**100% (5,901)**
Yes	52.22% (799)	47.78% (731)	**100% (1,530)**
Total	48.50% (3,604)	51.50% (3,827)	100% (7,431)

Note: Chi-Square = 10.690, 1df, prob = <.001

Analysis 2: ***The Effect of LEDS Training on Collisions***

Table 7-2 represents collision analysis results for officers who completed one or more LEDS courses (either Course #20985 "Driver Training Simulator" or Course #20005 "LEDS/Force Options Combo"). Results indicate approximately 55% of the officers without LEDS (or EVOC) training had a collision during the study period; whereas, about 47% of LEDS trained officers were involved in a collision. This 8% reduction was statistically significant (p<.001), suggesting that completing some form of in-service LEDS training is likely to reduce the chances of officer-involved collisions.

Table 7-2 ***The Effect of LEDS Training on Collisions***

LEDS Training	Collision		Total
	No	Yes	
No	45.47% (2,012)	54.53% (2,413)	**100%** **(4,425)**
Yes	52.96% (1,592)	47.04% (1,414)	**100%** **(3,006)**
Total	48.50% (3,604)	51.50% (3,827)	100% (7,431)

Note: Chi-Square = 40.2236, 1df, prob = <.001

Analysis 3: ***The Effect of Blended Training on Collisions***

Table 7-3 represents collision analysis results for officers who completed "blended training"–one or more EVOC courses (either Course #21115 "Driver Training Update," Course #21155 "Driver Training (EVOC) Update," or Course #21165 "Driver Training (EVOC) Update (PIT)") and one or more LEDS courses (either Course #20985 "Driver Training Simulator" or Course #20005 "LEDS/Force Options Combo") during the study period. Results indicate approximately 52% of the officers without blended training had a collision during the study period; whereas, about 43% of EVOC/LEDS trained officers were involved in a collision. This nearly 10% reduction was statistically significant (p<.001), suggesting that completing some form of in-service blended training (EVOC/LEDS) is likely to reduce the chances of officer-involved collisions.

Table 7-3 ***The Effect of Blended Training on Collisions***

Blended Training	Collision		Total
	No	Yes	
No	47.83% (3,301)	52.17% (3,601)	**100%** **(6,902)**
Yes	57.28% (303)	42.72% (226)	**100%** **(529)**
Total	48.50% (3,604)	51.50% (3,827)	100% (7,431)

Note: Chi-Square = 17.5714, 1df, prob = <.001

Analysis 4: ***Overall Test for Significant Differences Between Training Groups***

It is possible to statistically compare the percentage of reduction in accidents for each of the driver training programs and determine the probability that a particular program has a greater reduction effect on collisions than another. Table 7-4 contains a summary of the above data for each of the three driver training programs (and the "no training" baseline):

Table 7- 4 ***Overall Test for Significant Differences Between Training Groups***

Training:	Improvement
EVOC	4 %* Better
LEDS	8 %* Better
Blended	10 %* Better

*Estimates are accurate within ±1% percentage point

A series of tests run on the above data suggested statistically significant differences between all of the above training program comparisons. This suggests that the higher reduction effect on collisions discovered for LEDS training compared to EVOC training (8% vs. 4%) is likely to exist in the population of California peace officers trained by these two methods. Furthermore, the largest reduction effect discovered for the blended approach (10% reduction) suggests that LEDS and EVOC training operate jointly among California peace officers to produce a combined reduction effect in collisions which is superior to that of each method when used alone.

Study 2: Comparison of the Preventative Effect of EVOC and LEDS Training

This study looks at the effect EVOC training and LEDS training have on collision prevention (delaying the occurrence). All of the officers in this study had a collision. The study looks at how long it was after in-service driver training (EVOC or LEDS) before the collision occurred.

Analysis 1: ***The Effect of EVOC Training on Collision Prevention***

The cohort of 1998-employed officers who completed one in-service EVOC course exhibited an inverse correlation (opposite effect) in terms of collision incidence with regard to elapsed time since EVOC training. There are 652 officers in this analysis. 101 officers (15.49%) had a collision within the first year following EVOC training. 122 officers (18.71%) had a collision within the second year following EVOC training. 123 (18.87%) had a collision within the third year following EVOC training. When looking at the timeline for accidents (see Table 7-5), the majority occurred closer in time to EVOC training completion–53.07% of officers had a collision within three years after completing EVOC training.

Table 7- 5 ***Time of First Collision (TFC)***
For Officers Hired in 1998 Having Completed (at least) 1 EVOC Course Prior to Their First Collision

TFC	Frequency	Percent	Frequency	Percent
2000*	101	15.49	101	15.49
2001	122	18.71	223	34.20
2002	123	18.87	346	53.07
2003	80	12.27	426	65.34
2004	72	11.04	498	76.38
2005	78	11.96	576	88.34
2006	76	11.66	652	100.00

*Note: Series begins in 2000 because first officers completed training in that year.

The same pattern was exhibited for officers who completed two or three EVOC courses prior to their first collision (see Table 7-6). 92 officers are included in this analysis; 61.96% of them had a collision within 3 years after completing 2 or 3 EVOC training courses.

Table 7-6 ***Time of First Collision (TFC)***
For Officers Hired in 1998 Having Completed 2 or 3 EVOC Courses Prior to Their First Collision

TFC	Frequency	Percent	Frequency	Percent
2000*	15	16.30	15	16.30
2001	23	25.00	38	41.30
2002	19	20.65	57	61.96
2003	6	6.52	63	68.48
2004	8	8.70	71	77.17
2005	5	5.43	76	82.61
2006	16	17.39	92	100.00

*Note: Series begins in 2000 because first officers completed training in that year.

Analysis 2: The Effect of LEDS Training on Collision Prevention

The cohort of 1998-employed officers who completed one in-service LEDS course correlated with a relatively low incidence of collisions following training (see Table 7-7). There are 441 officers in this analysis. Four officers (0.91%) had a collision within the first year following LEDS training. Eighteen officers (4.08%) had a collision within the second year following LEDS training. Forty-eight (10.88%) had a collision within the third years following LEDS training. The majority of collisions occurred at the latter end of the time spectrum–84.13% of officers had a collision in the fourth or subsequent years after completing LEDS training.

Table 7-7 ***Time of First Collision (TFC)***
For Officers Hired in 1998 Having Completed (at least) 1 LEDS Course Prior to Their First Collision

TFC	Frequency	Percent	Frequency	Percent
2000*	4	0.91	4	0.91
2001	18	4.08	22	4.99
2002	48	10.88	70	15.87
2003	81	18.37	151	34.24
2004	76	17.23	227	51.47
2005	114	25.85	341	77.32
2006	100	22.68	441	100.00

*Note: Series begins in 2000 because first officers completed training in that year.

This same pattern was exhibited for officers who completed two or three LEDS courses prior to their first collision (see Table 7-8). One hundred officers are included in this analysis; 98% of them had a collision in the fourth or subsequent years after completing LEDS training.

Table 7-8 ***Time of First Collision (TFC)***
For Officers Hired in 1998 Having Completed 2 or 3 LEDS Courses Prior to Their First Collision

TFC	Frequency	Percent	Frequency	Percent
2000*	0	0.00	0	0.00
2001	1	1.00	1	1.00
2002	1	1.00	2	2.00
2003	12	12.00	14	14.00
2004	11	11.00	25	25.00
2005	30	30.00	55	55.00
2006	45	45.00	100	100.00

*Note: Series begins in 2000 because first officers completed training in that year.

Findings

There is a sharp contrast between the LEDS-trained officers' collision experiences and the EVOC-trained officers' collision experiences. Exposure to EVOC training, alone, correlated with a comparatively high incidence of collisions relatively soon after training. The opposite was true with LEDS training. LEDS-trained persons exhibited a comparatively low incidence of collisions in the years immediately following training. This effect was pronounced for those who underwent two or three LEDS courses. This tends to suggest that advanced driving (beyond basic training) is a perishable skill and in-service training via LEDS every 2 years significantly reduces the likelihood of collisions.

Further research will be done to identify the reason(s) for the significant difference between the effects of LEDS and EVOC training when it comes to the length of time following training before a collision occurs. This research may include looking for correlations between training presenter, type of training, and the employing agency. Case study analysis may also be used to identify relevant differences in the type(s) and cause(s) of these collisions.

LEDS Operational Status

CHAPTER 8

Background

In the early 1990s, in an effort to meet the periodic refresher training needs of California's peace officers in driving skills, POST explored, piloted, and evaluated a Regional Skills Training Center (RSTC) network utilizing driving simulators. Traditional behind the wheel driver training EVOC was included in the overall POST evaluation. However, EVOCs were not pursued as they were cost-prohibitive due to the high capital outlay costs in land, improvement, and fleet acquisition and maintenance.

Instead, POST oversaw the development of LEDS scenarios targeting critical decision making and psychomotor skills identified as "perishable" skills, which diminish with the passage of time and require follow up training. Scenarios depicting law enforcement driving situations were developed so that an officer in the simulator could be trained and tested in a completely safe environment that resembled "real life" activities.

The success of the pilot program led to the creation of POST RSTCs, including POST-purchased LEDS in 21 RSTCs located in 10 regions throughout the state. These LEDS are one element of the Perishable Skills Program (PSP) training required every 2 years, which also includes arrest and control, use of force (firearms proficiency utilizing Force Options Simulators), and communications (tactical and interpersonal).

Survey Summary

The RSTC program currently has LEDS from three different manufacturers: Doron Precision Systems, Inc. of Binghamton, New York; FAAC, Incorporated of Ann Arbor, Michigan; and MPRI, Inc. of Alexandria, Virginia. The traditional life expectancy of LEDS in full-time use is listed as five years. LEDS life expectancy includes degradation from constant use involving mechanical wear-and-tear of the cockpit area (i.e., seats, steering wheel, shift levers, radios, brake and accelerator pedals, etc.); but more importantly hardware and software capabilities. All LEDS within the RSTC program are two to four years over the estimated life expectancy and are experiencing varying degrees of reduced functionality.

POST has been closely monitoring LEDS within the RSTC network. The most recent survey revealed an overall operational readiness of 67% for LEDS within the RSTC program. This represents five inoperative units, one unit at ±50%, four units at ±75% and the remainder at ±80% (or above). The RSTC program was designed to accommodate one four-hour training block in LEDS and one four-hour Force Options Simulator (FOS) training block for one (eight-hour) training day. RSTC coordinators report ±35% of their law enforcement agency student base left their program as a direct result of the diminished ability for LEDS and FOS training to be accomplished in one eight-hour training day.

Operational readiness, for the purpose of this evaluation, examined the capability for each RSTC LEDS to complete one four-hour training session regardless of hardware or software failure. RSTC LEDS units utilize five computer "pods," i.e., four student pods and one instructor pod in the training course. The survey identified that all but two units within the RSTC program currently experience intermittent mechanical or software failures within one or more pods. The most common problem leading to pod failure was identified as overheating components; usually after the first hour of operation. Training classes are often completed with only one or two pods as pods fail, requiring instructors to do complete system resets, discontinue training, or attempt completion with students sharing the remaining operational pods. RSTC LEDS units correctly initiate and start training ±74% of the time; however, ±66% of the units overheat and are not capable of completing the course with all pods operational. Again, RSTC coordinators have lost ±35% of their law enforcement agency student base from their inability to perform both the LEDS and FOS training in one eight-hour training day.

The survey also identified maintenance and repair warranties are not available for over ±75% of the units. In one case a manufacturer was paid $30,000 for a two-year warranty and immediately advised the RSTC that parts were not available and the unit could not be repaired. The five RSTC LEDS listed as inoperative have been identified by the manufacturer as irreparable as parts are no longer available. The RSTCs able to purchase viable warranties report repairs are being requested more frequently, with increasing training downtime from delays in the service provider's capability to acquire parts.

The advanced age of the LEDS units limits the capability for upgrades in hardware and software. RSTC LEDS report their hardware (e.g., computer processing units, graphic cards, memory capacity, monitors, etc.) limit their software to first-generation scenario development versions. The survey identified ±95% of RSTC LEDS units are incapable of being upgraded to utilize several years of software/graphics improvements by the manufacturers.

Summary

- 100% of RSTC LEDS are beyond their life expectancy
- 50% of RSTC LEDS are nearly double in years beyond life expectancy
- ±66% of RSTC LEDS cannot complete a course with all pods operational
- ±75% of RSTC LEDS cannot purchase maintenance and repair warranties
- ±95% of RSTC LEDS units are incapable of being upgraded

Cost Analysis of POST Driver Training Expenditures

CHAPTER 9

Background

The in-service driver training program consists of LEDS and EVOC training courses provided by multiple presenters across the state. During the 2006-2007 fiscal years, a budget change proposal (BCP) was authorized and funded to replace 100% of the LEDS within the RSTC program. The majority of LEDS within the RSTC program were experiencing functionality problems from heavy use. All were beyond their manufacturer life expectancy; all were out of warranty; and 95% were incapable of being upgraded.

At its January 2008 meeting the Commission approved a cost analysis of POST expenditures in driver training, including both the LEDS and EVOC programs, prior to final commitment of the BCP funds to the RSTC program. This was done because no follow-up study has been undertaken since the 1998 implementation designed to assess the costs and effectiveness of LEDS on law enforcement officer driving skills and decision-making.

This portion of the report identifies and analyzes relevant cost elements and determines the average trainee cost paid by POST from 1998 through 2006 for both LEDS and EVOC in-service training programs.

LEDS

In the effort to meet the needs of California's peace officers to receive periodic refresher training in driving skills, POST in the early 1990s explored, piloted, and evaluated a RSTC network utilizing LEDS. POST oversaw the development of LEDS scenarios depicting law enforcement driving situations so an officer could be trained and tested in a safe simulator environment replicating "real life" activities. POST purchased LEDS and placed them in 21 RSTCs located in 10 regions throughout the state. These simulators are one element of the Perishable Skills Program (PSP) training required every two years in arrest and control, use of force (firearms proficiency utilizing Force Options Simulators), and communications (tactical and interpersonal).

EVOC

The objective of an EVOC driver training course is to enhance physical driving skills used in emergency situations. Currently, there are 60 presenters for the 18 EVOC courses listed in the POST Course Catalog. Many EVOC courses have the same name but vary in content, length, and reimbursement plan. EVOC courses include PSP awareness, judgment and decision making; low speed defensive driving skills and common accident causes; proper and effective use of the Pursuit Immobilization/Intervention Technique (PIT) to stop a vehicle pursuit; proper use and maintenance of the SkidCar system; off-road emergency driving skills; vehicle dynamics, emergency procedures and motorcade procedures related to dignitary protection; pursuit driving and techniques for pursuit intervention; riding and survival techniques in situations where officers are fired upon; supervision skills of law enforcement managers/supervisors responsible for monitoring emergency responses and pursuits; and instructor skills and techniques necessary to effectively provide instruction in all aspects of driver training.

Student Attendance from 1998 through 2006

- LEDS: 51,654 students attended LEDS courses
- EVOC: 37,661 students attended EVOC courses

Student Reimbursement Cost

- LEDS: $96.01 per student. (38% of the 19,639 students trained)
  - Approximately 62% of LEDS attendees were not reimbursed.
- EVOC: $377.08 per student. (49.1% of the 18,489 students trained)
  - Approximately 51% of EVOC attendees were not reimbursed.

    POST did not incur costs for a significant number of attendees ineligible for POST reimbursement. Examples are presenter staff or staff from other state and local government entities, i.e., State of California peace officers under Penal Code §830.2 and §830.3. Analysis revealed over 50% of law enforcement agency presenters trained their own staff; while 62% of RSTCs and colleges trained students from state and local government entities who were ineligible for POST reimbursement.

Non-Capital Cost (tuition/reimbursement)

- LEDS.....: POST paid non-capital costs = $1,885,566
- EVOC.....: POST paid non-capital costs = $6,971,743

These figures are the only comparison that directly compares identical POST expenditures for each of the LEDS and EVOC programs. This analysis shows that LEDS student reimbursement costs POST substantially less than EVOC student reimbursement.

Total POST Driver Training Program Costs

This section is provided solely for informational purposes for the Commission and is not intended to demonstrate a direct program cost comparison of POST expenditures between the LEDS and EVOC programs.

- POST has paid over a 14-year period for the LEDS pilot project, capital expenditures for LEDS simulators (fixed and mobile), warranty and maintenance agreements, and non-capital expenditures in student tuition and reimbursement.
- POST has no capital expenditures for EVOC courses, only non-capital expenditures in student tuition and reimbursement.
  - EVOC program startup and capital costs would typically include, but are not limited to, real estate acquisition and development including planning, permitting, environmental impact studies, consultants, and vehicle purchase and maintenance.

LEDS 14-year total program costs

- LEDS startup and capital costs (pilot project, equipment, consultants):.....$15,778,245
- LEDS non-capital costs (student reimbursement) : $1,885,566

LEDS Total $17,663,811

EVOC 8-year Total Program Costs

- EVOC startup and capital costs: $0
- EVOC non-capital costs only (student reimbursement): $6,971,743

EVOC Total $6,971,743

Total Program POST Costs

- LEDS startup and capital costs (pilot project, equipment, consultants): $15,778,245
- EVOC startup and capital costs: $0
  - Typical startup and capital costs for this program that POST did not pay for include, but are not limited to, real estate acquisition and development including planning, permitting, environmental impact studies, and other consultants, and vehicle purchases. As a result, a direct cost comparison analysis would not provide an accurate measure of equal costs; i.e., comparing what was expended against what was not expended.

The following is a summary of what POST has spent on LEDS and EVOC, comparatively:

LEDS: $341 average student cost over 14 years (1992 through 2006), including **both** capital and non-capital expenditures (totaling $17,663.811)

EVOC: $377.08 average student cost over 8 years (1998 through 2006), including **only** non-capital expenditures (totaling $6,971,743)

In summary, based on the best information available, POST has expended less per student for LEDS training than for EVOC training–despite the fact that LEDS expenditures included six additional years and capital expenditures whereas EVOC did not. An extensive cost analysis is expected by year's end.

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Findings & Recommendations

CHAPTER 10

A large amount of detailed information has been analyzed by POST; more is still expected and additional analysis is needed. This information will assist in "fine tuning" driver training programs in the future. For now, the following findings and recommendations provide support for decision-making by the Commission relative to driver training.

	Findings	Recommendations
A.	Advanced driving skills are perishable and need to be reinforced/retrained at intervals.	▶ *Continue to mandate the 24-month standard for the driver training component of the perishable skills program (PSP) as a minimum.*
B.	In-service EVOC training reduces collisions; LEDS training reduces collisions significantly more; and blended (EVOC/ LEDS training) has the greatest reduction effect on collisions. LEDS training is highly cost-effective.	▶ *Immediately revitalize California's LEDS training program.*
C.	California driver training standards are well below those of many other states and countries.	▶ *Enhance driver training curriculum, which may require additional hours.*
D.	California basic academy driver training is delivered with widely varying (minimum) components, which leads to varying performance outcomes.	▶ *Increase minimum standards for academy driver training to improve specific performance outcomes for driving competency.*
E.	California peace officer fatal and injury traffic collision rates are significantly greater than the national averages (and are increasing). There are multiple factors involved in this increase.	▶ *Encourage agencies to enhance in-service driver training.* ▶ *Review and emphasize adherence to (and enforcement of) department driving policy.* ▶ *Study departments with significantly lower rates in order to assess agency training and standards by which department policy adherence is reinforced*

Continues...

	Findings	Recommendations
F.	Unsafe speed is the primary collision factor in nearly one-third of all injury collisions.	▶ *Reduce "unnecessary" speeding by officers. This could include safety incentives, stricter policy enforcement, automated vehicle locator (AVL) tracking/monitoring (GPS), or implementation of a "how's my driving" program.*
G.	Most California basic academies do not provide training in critical areas of driving experienced by officers following academy graduation. These include: 1 Use of LEDS in addition to EVOC 2 Speeds that officers are expected to encounter 3 Night driving 4 Interference vehicle(s) to approximate actual roadway conditions	▶ *Incorporate LEDS training, a speed component, night driving, and interference vehicle(s) as components of LD #19.* ▶ *Work with agencies, risk managers, and academy presenters to address the means to safely implement these recommended components.*
H.	Field training is an essential extension and continuation of peace officer training following the basic academy. Field/police training officer (FTO/PTO) courses do not typically include curricula on driving instruction. The POST field/police training program guide does not include many important aspects of emergency vehicle operations.	▶ *Enhance FTO/PTO curriculum to include a driver training component.* ▶ *Increase emergency vehicle operations components in the field training program guide.*

Best Practices of Vehicle Operations Training

CHAPTER 11

Notable best practices are identifiable based on the research. They are listed below along with a notation about the source(s) of the determination.

1. "Blended training"–use of both behind-the-wheel and simulators–produces the best training outcomes (performance in the field).

   Based on inventory data and the POST/DMV correlation study

2. Driver training technologies such as the SkidCar and LEDS allow for situational training that cannot (safely) be undertaken in a "real" setting.

   Based on survey data, manufacturer materials, popular literature, and input from the VOTAC at its March and June 2008 meetings

3. Training at speeds equivalent to emergency operating speeds is an effective way to prepare officers for the demands of high-speed driving.

   Based on survey data, industry literature, and input from the VOTAC at its June 2008 meeting

4. Use of interference vehicles is an effective way to prepare officers for the challenges of emergency operations in traffic.

   Based on survey data and input from the VOTAC at its June 2008 meeting

5. Use of training vehicles that are similar in make and model, equipment, and weight distribution is an effective way to achieve realistic behind-the-wheel training.

   Based on survey data and input from the VOTAC at its March and June 2008 meetings

6. Driver training during hours of darkness is an effective way to achieve realistic training.

   Based on survey data and input from the VOTAC at its March and June 2008 meetings

NOTE – POST acknowledges that these best practices do not (all) consider the constraints of staffing, equipment, facilities, and financial resources.

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Next Steps – Future Research

CHAPTER 12

In order to implement recommendations and find additional areas of opportunity relative to vehicle operations and driver training, more analysis should be completed. Following is a list of immediate and potential future steps.

Immediate Next Steps

1. Partner with risk managers (who manage losses due to collisions) to build support for driver training and for potential funding partners.
2. Review basic training outcomes in light of correlation study findings to determine what additional curricula are needed to provide the desired outcomes.
3. Research other causes of preventable collisions (other than inadequate driver skill) to identity other interventions (e.g., equipment, "mindset" training/attitude shift).
4. Research the potential costs of expanding driver training delivery systems (e.g., regional EVOCs) to assess feasibility.
5. Compare peace officer driver death rates state-by-state with state-by-state comparisons of driver training (hours and type of training).
6. Research/explore FTO/PTO program redesign/enhancement.

Potential Future Research

1. Complete additional analysis of the circumstances (causal factors) of injury and fatal on-duty peace officer driver collisions including state/national data.
2. Complete a survey of seatbelt usage statewide (i.e., department policy: required versus optional).
3. Research length of shifts and overtime (fatigue) to assess impacts on collision rates.
4. Research the effects/outcomes of solo versus two-officer patrol cars.
5. Complete research on vehicle equipment installation and use to assess any safety/collision-related issues.
6. Assess existing driver/vehicle operations training curriculum for "gaps."
7. Identify and develop "best practices" for driver training, policy, supervision, and peer (or other) intervention.
8. Research agencies having statistically lower collision rates. Undertake case studies of these agencies to identify replicable training/policy practices.
9. Conduct case studies on agencies with lower collision rates to determine training/policy/culture differences.

10 Create a template for agencies to assist in tracking and analyzing collisions over time.

11 Begin a longitudinal study of basic academy driver training (going forward).

12 Create a pilot program(s) with volunteer academies to test best practices over time.

13 Develop guidelines for agencies relative to equipment installation and vehicle maintenance best practices.

California Law Enforcement Officers Killed and Assaulted 1990-2004 (Abridged)

LEOKA Driver Statistics

Table A1 ***1990-2004 Summary***

Time Periods	Total Officer Deaths	Felonious Officer Deaths	Accidental Officer Deaths			
			Accidental	% of Total Deaths	Total Driver-Related	% of Accidental Deaths
1990-1994	54	31	23	42.6%	7	30.4%
1995-1999	66	33	33	50.0%	10	30.3%
2000-2004	60	23	37	61.7%	12	32.4%
Totals	180	87	93		29	

Table A2 ***Accidental Officer Deaths by Category & Time Period***

Category	1990-1994	1995-1999	2000-2004
Patrol Vehicle Collisions (Driver)	7	10	12
Patrol Vehicle Collisions (Officer Passenger Death)	1	3	0
Patrol Vehicle Collisions – Struck from Behind While Issuing Citation	0	0	1
Pedestrian Officer Struck by Traffic	0	7	4
Motorcycle Patrol Collisions	8	4	11
Aerial Collisions	3	2	2
Accidental Shooting	2	2	3
Heart Attack	1	2	0
Rescue Drowning	0	1	0
Pedestrian Officer Struck by Train	0	1	0
Patrol Vehicle Struck by Object	0	1	0
Fire	1	0	0
Friendly Fire	0	0	2
Industrial	0	0	1
Training	0	0	1
Time Period Totals	23	33	37

Table A3 **1990-1994 Vehicle Driver Summary**

Officer	Age	Experience (Years)	Time of Incident	Responding to Call?	Collision	Speed	Seat belt?	Additional Incident Detail
1	33	11	?	Y	N	Y	Y	Was not able to negotiate corner, slid off road & struck tree broadside
2	37	16	?	N	N	Y	Y	Pursuing drunk driver, lost control & struck bridge barrier sideways
3	41	6	?	Y	Y	Y	Y	Drove through four-way stop, struck another vehicle broadside
4	35	3	?	Y	N	Y	Y	Lost control at corner and railroad crossing, slid off road into concrete power pole
5	38	12	?	Y	Y	Y	Y	Oncoming car drove across lane, officer overcorrected & was struck by another car
6	42	7	?	N	Y	N	Y	Rear-ended flat bed truck at windshield level; possible officer fatigue
7	26	1	?	N	Y	Y	Y	Vehicle was struck broadside by speeding, drunk driver who ran red light

Table A4 **1995-1999 Vehicle Driver Summary**

Officer	Age	Experience (Years)	Time of Incident	Responding to Call?	Collision	Speed	Seat belt?	Additional Incident Detail
1	48	27	0740	N	Y	N	Y	Vehicle was struck head-on by oncoming car that crossed over traffic lines
2	36	4	1940	Y	N	Y	Y	Failed to negotiate a curve, lost control & drove off cliff
3	25	3	0500	Y	Y	Y	N	Made lane change, struck vehicle, hit divider
4	30	3	1106	N	Y	N	Y	Vehicle was struck head-on by car attempting to pass traffic in opposite direction
5	27	3	0102	N	N	N	Y	At end of shift, officer drifted off road and struck bridge abutment
6	26	2	2156	Y	Y	Y	N	Struck DUI driver broadside leaving business parking lot
7	39	17	0310	Y	N	N	Y	Drove off washed-out, unlighted road into a rushing river
8	27	2	?	Y	N	Y	N	Lost control of car, passenger officer survived wearing seatbelt
9	28	8	1850	N	Y	Y	Y	Vehicle struck at intersection with broken traffic controls by driver on drugs
10	31	.75	0705	Y	N	Y	N	Failed to negotiate turn on dirt road & hit canal embankment

Table A5 ***2000-2004 Vehicle Driver Summary –***

Officer	Age	Experience (Years)	Time of Incident	Responding to Call?	Collision	Speed	Seat belt?	Additional Incident Detail
1	26	5	0230	Y	N	Y	Y	Failed to negotiate turn, ran off road and struck fixed object
2	37	6	2335	Y	N	Y	Y	Lost control of vehicle and collided with tree
3	45	22	0230	N	N	Y	Y	Engaged in enforcement action, lost control, collided with guardrail and flipped over
4	51	12	2254	Y	Y	Y	Y	Initiated u-turn on highway and was struck by commercial vehicle
5	36	12	0659	N	N	Y	Y	Attempting to overtake speeding car, lost control at off-ramp, struck tree & overturned
6	38	2	2230	Y	Y	Y	Y	At intersection, struck another patrol vehicle responding to same call
7	45	?	0430	N	N	Y	Y	Drifted off road for unknown reason and struck tree
8	27	2	?	N	Y	Y	Y	During unknown pursuit of outside agency, struck by pursued vehicle at intersection
9	49	20	1930	N	Y	Y	Y	Vehicle was struck head-on by car attempting to pass traffic in opposite direction
10	66	21	2140	N	N	Y	N	Attempting to stop speeding car, lost control at turn, struck large rock & rolled car
11	47	25	1115	Y	Y	Y	Y	At intersection, other vehicle failed to yield, cars collided and hit tree
12	35	4	1635	Y	N	Y	N	Lost control of vehicle, left roadway, overturned car and was ejected

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Training and Testing Specifications
Learning Domain #19 – Vehicle Operations

APPENDIX B

January 1, 2006

Table B1 ***Learning Need***

Peace officers need to know the importance of defensive driving principles and techniques in order to develop safe driving habits

Learning Objectives	RBC	Other Basic Courses				Requal
		832	III	II	I	SIBC	
A. Determine a safe distance when following another vehicle	•		•		•	•	
B. Identify the effect of speed on a driver's peripheral vision	•		•		•	•	
C. Discuss how reaction time lapse affects vehicle stopping distance	•		•		•	•	
D. Recognize potential hazards when entering intersections and appropriate actions to prevent collisions when driving a law enforcement vehicle	•		•		•	•	
E. Recognize potential hazards of freeway driving and appropriate actions to prevent collisions	•		•		•	•	
F. Identify potential hazards of operating a vehicle in reverse and appropriate actions to prevent collisions	•		•		•	•	
G Identify the importance and proper use of safety belts and other occupant restraint devices in a law enforcement vehicle	•		•		•	•	
H. Identify physiological and psychological factors that may have an effect on an officer's driving	•		•		•	•	
I. Identify hazards of varied road conditions	•		•		•	•	
J. Discuss the requirements for a vehicle inspection	•		•		•	•	

Table B2 ***Learning Need***

Peace officers must recognize that emergency response (Code 3) driving demands a high level of concentration and instant reactions.

Learning Objectives	RBC	Other Basic Courses					Requal
		832	III	II	I	SIBC	
A. Identify the objectives of emergency response driving	•		•		•		
B. Recognize the statute governing peace officers when operating law enforcement vehicles in the line of duty	•		•		•		●
1. Rules of the road	•		•		•		●
2. Liability							●
C. Explain the importance of agency-specific policies and guidelines regarding emergency response driving	•		•		•		
D. Identify the statutory responsibilities of non-law enforcement vehicle drivers when driving in the presence of emergency vehicles operated under emergency response conditions	•		•		•		
E. Demonstrate the use of emergency warning devices available on law enforcement vehicles	•		•		•		
F. Identify factors that can limit the effectiveness of a vehicle's emergency warning devices	•		•		•		
G. Demonstrate the use of communication equipment	•		•		•		
H. Identify the effects of siren syndrome	•		•		•		
I. Recognize guidelines for entering a controlled intersection when driving under emergency response conditions	•		•		•		

Table B3 ***Learning Need***

All officers who operate law enforcement emergency vehicles must recognize that even though the purpose of pursuit driving is the apprehension of a suspect who is using a vehicle to flee, the vehicle pursuit is never more important than the safety of officers and the public.

Learning Objectives	RBC	Other Basic Courses					Requal
		832	III	II	I	SIBC	
A. Identify the requirements of Penal Code §13519.8	•		•		•		•
B. Recognize the risk to officer/public safety versus the need to apprehend	•		•		•		•
C. Discuss common offensive intervention tactics	•				•		•
D. Recognize conditions that could lead to the decision to terminate a vehicle pursuit	•		•		•		•

Table B4 ***Learning Need***

Peace officers must be proficient in the operation of the vehicle and know the dynamic forces at work. Proper steering control, throttle control, speed judgment, and brake use enhance driving expertise.

Learning Objectives	RBC	Other Basic Courses				Requal
		832	III	II	I	SIBC	
A. Distinguish between longitudinal and lateral weight transfer	•		•		•	•	
B. Describe spring loading	•		•		•	•	
C. Demonstrate proper techniques for two-handed shuffle steering	•				•	•	
D. Demonstrate proper throttle control	•		•		•	•	
E. Demonstrate proper roadway position and the three essential reference points of a turning maneuver	•		•		•	•	
F. Explain the primary effects speed has on a vehicle in a turning maneuver	•		•		•	•	
G. Demonstrate proper braking methods	•		•		•	•	
H. Distinguish between and describe the causes of the following types of vehicle skids:	•		•		•	•	
1. Understeer skid	•		•		•	•	
2. Oversteer skid	•		•		•	•	
3. Locked-wheel skid	•		•		•	•	
4. Acceleration skid	•		•		•	•	
I. Identify the causes and contributing factors of vehicle hydroplaning	•		•		•	•	

Table B5 ***Required Tests***

	RBC	Other Basic Courses				Requal
		832	III	II	I	SIBC	
A. The POST-Constructed Knowledge Test on the learning objectives in Domain #19.	•				•		
B. The POST-Constructed Comprehensive End-of-Course Proficiency Test will include learning objectives in Domain #19.	•				•	•	
C. The POST-constructed comprehensive test for the Requalification Course will include learning objectives in Domain #19.							•

Table B5 ***Required Tests (cont)***

	RBC	Other Basic Courses					Requal
		832	III	II	I	SIBC	
D. Given an exercise test that requires the student to drive a law enforcement vehicle, the student will demonstrate the ability to maintain control of the vehicle that is skidding including:	•				•		
1. Steering control	•				•	•	
2. Proper use of throttle	•				•	•	
3. Smoothness and coordination	•				•	•	
4. Speed judgment	•				•	•	
5. Brake application	•				•	•	
6. Weight transfer	•				•	•	
E. Given an exercise test that requires the student to drive a law enforcement vehicle, the student will demonstrate the ability to safely drive and control the vehicle while operating under emergency conditions including proper:	•				•		
1. Brake application	•				•		
2. Steering control	•				•		
3. Use of throttle	•				•		
4. Roadway position	•				•		
5. Speed judgment	•				•		
6. Use of radio	•				•		
7. Use of lights and siren	•				•		
8. Performance under stress	•				•		
9. Hazard awareness	•				•		
10. Space cushion	•				•		
F. Given an exercise test that requires the student to drive a law enforcement vehicle, the student will demonstrate the ability to safely drive and control the vehicle while operating under pursuit conditions including proper:	•				•		
1. Brake application	•				•		
2. Steering control	•				•		
3. Use of throttle	•				•		
4. Roadway position	•				•		
5. Speed judgment	•				•		

Table B5 ***Required Tests (cont)***

	RBC	Other Basic Courses					Requal
		832	III	II	I	SIBC	
6. Use of radio	•				•		
7. Use of lights and siren	•				•		
8. Performance under stress	•				•		
9. Hazard awareness	•				•		
10. Space cushion	•				•		
G. Given an exercise test that requires the student to drive a law enforcement vehicle, the student will demonstrate a collision avoidance technique including:	•				•		
1. Identifying the hazard	•				•		
2. Selecting avoidance options	•				•		
3. Making speed judgments (target speed)	•				•		
4. Executing a maneuver to avoid a collision	•				•		
5. Maintaining control of the vehicle	•				•		
H. Given an exercise test that requires the student to drive a law enforcement vehicle, the student will demonstrate a series of slow speed precision driving exercises including but not limited to:	•		•		•	•	
1. Roadway position	•		•		•	•	
2. Rear wheel cheat	•		•		•	•	
3. Front end swing	•		•		•	•	
4. Vehicle placement	•		•		•	•	
5. Hazard awareness	•		•		•	•	
6. Speed control	•		•		•	•	
7. Backing	•		•		•	•	
8. Visually locating obstacles to the rear	•		•		•	•	

Table B6 **Required Learning Activities**

	RBC	Other Basic Courses 832	III	II	I	SIBC	Requal
A. The student will participate in a learning activity that requires braking suddenly and engaging the Anti-lock Braking System (ABS).	•				•		
B. The student will participate in one or more learning activities from the POST-developed Instructor's Guide to Learning Activities for Leadership, Ethics and Community Policing (December 2005) or other comparable sources regarding vehicle operations. At a minimum, each activity, or combination of activities must address the following topics:	•				•	•	
1. Use of critical thinking and decision making to balance the apprehension of violators against the obligation to drive safely, tactically, and responsibly	•				•	•	
2. Effects of personal attitudes on emergency or pursuit driving and the interests of public safety	•				•		
3. Community expectations that officers should be exemplary drivers	•				•	•	
4. Accountability as it relates to officer actions during vehicle operation	•				•	•	

Table B7 **Hourly Requirements**

	RBC	Other Basic Courses 832	III	II	I	SIBC	Requal
Students shall be provided with a minimum number of instructional hours on vehicle operations. This instruction is designed to satisfy the requirements for law enforcement high-speed vehicle pursuit training as required in Penal Code §13519.8.	24		8		24	12	2

VIII. ***Origination Date***

January 1, 2001

IX. ***Revision Dates***

January 1, 2002
January 1, 2004
September 15, 2004
July 1, 2005
January 1, 2006

POST-Certified Driver Training Presenters and Courses

APPENDIX C

Table C1 ***POST-Certified Driver Training Presenters and Courses***

Agency	Driver Awareness Instructoructor	Driver Awareness Update	Driver Training (EVOC) Update (Skid Car)	Driver Training (EVOC) Update	Driver Training Instructor	Driver Training PIT Instructor	Driver Training Update	Driver Training_Refresher	Driver Training_Off Road EVOC	Driver Training (EVOC) Update (PIT)	Driver Training Instructor Update Skid Car	Driver Training_Tactical Update	Driver Training EVOC Instructor Update	Driver Training_Off Road EVOC_T-T	Driving_Executive Protection	Driving (PSP)	Emergency Veh Res Cont Sup	Vehicle_Special Ops - 4 Wheel	Driver Training_Simulator	Driver Training_Simulator Instructor	Driving/Force Opt Sim. Combo
Alameda Co Sheriff's Dept	•			•	•		•				•			•				•		•	
Allan Hancock College	•			•														•			
Auburn PD							•								•						
Bakersfield PD																					
Burbank PD															•						
Butte College PSTC				•											•			•			
CA State Parks - W.P. Mott															•						
Cabrillo College								•					•		•						
California Highway Patrol						•			•						•						
Carlsbad PD															•						
College of Redwoods															•						
Concord PD									•												
Contra Costa Co Sheriff's Dept	•				•										•			•	•	•	
Cypress PD															•						
East Bay Reg. Park Dist PD				•											•						
El Cerrito PD								•													
El Monte PD							•														
Folsom PD															•						
Fresno PD		•							•												
Gardena PD															•			•		•	
Gilroy PD									•												
Golden West College RCJTC															•						
Inglewood PD															•						

Continues...

Table C1 **POST-Certified Driver Training Presenters and Courses (cont)**

Agency	Driver Awareness Instructoructor	Driver Awareness Update	Driver Training (EVOC) Update (Skid Car)	Driver Training (EVOC) Update	Driver Training Instructor	Driver Training PIT Instructor	Driver Training Update	Driver Training, Refresher	Driver Training - Off Road EVOC	Driver Training (EVOC) Update (PIT)	Driver Training Instructor Update Skid Car	Driver Training - Tactical Update	Driver Training EVOC Instructor Update	Driver Training - Off Road EVOC T-T	Driving - Executive Protection	Driving (PSP)	Emergency Veh Res Cont Sup	Vehicle, Special Ops - 4 Wheel	Driver Training - Simulator	Driver Training - Simulator Instructor	Driving/Force Opt Sim. Combo
Irvine PD															•						
Kern Co Sheriff's Dept															•						
Lincoln PD															•			•			
Los Angeles Co Sheriff's Dept					•																
Los Angeles PD	•								•												
Los Angeles World Airports PD															•						
Madera Co Sheriff's Dept															•						
Marin Co Sheriff's Dept															•						
Mariposa Co Sheriff's Dept				•											•						
Merced Co Sheriff's Dept															•						
Merced PD															•						
Monterey Co Sheriff's Dept							•														
Napa Valley College CJTC															•						
Oakland PD															•						
Orange Co Sheriff's Dept			•															•			
Pasadena PD															•						
Pleasanton PD															•						
Rio Hondo RTC					•										•			•			
Riverside Co Sheriff's Dept		•																			•
Sacramento Regional DTF					•		•										•	•			
San Bernardino Co Sheriff's	•	•		•	•	•	•			•					•			•			•
San Diego Co Sheriff's Dept															•						
San Diego Reg. PST Institute																		•			•
San Francisco PD				•													•				
San Jose PD	•				•				•					•							
San Mateo Co Sheriff's Off							•								•						
Santa Ana PD		•																•			
Santa Clara PD				•																	
Santa Monica PD		•																			
Santa Rosa Jr College PSTC				•														•			
Santa Rosa PD															•						
Shasta Co Sheriff's Dept															•						
Sonoma Co Sheriff's Dept				•																	
South Bay Regional TC							•			•	•				•			•			

Agency	Driver Awareness Instructoructor	Driver Awareness Update	Driver Training (EVOC) Update (Skid Car)	Driver Training (EVOC) Update	Driver Training Instructor	Driver Training PIT Instructor	Driver Training Update	Driver Training, Refresher	Driver Training - Off Road EVOC	Driver Training (EVOC) Update (PIT)	Driver Training Instructor Update Skid Car	Driver Training - Tactical Update	Driver Training EVOC Instructor Update	Driver Training - Off Road EVOC I-T	Driving - Executive Protection	Driving (PSP)	Emergency Veh Res Cont Sup	Vehicle, Special Ops - 4 Wheel	Driver Training – Simulator	Driver Training - Simulator Instructor	Driving/Force Opt Sim. Combo
South Lake Tahoe PD																•					
Stanislaus Co Sheriff's RTC				•						•						•		•			
Sunnyvale Dept Public Safety																•					
Tulare Co Sheriff's Dept																•					
Tulare-Kings Co PO Trn Acd																					•
Twin Cities PD																•					
Ventura Co CJTC		•					•											•			
Walnut Creek PD							•									•					
West Covina PD							•											•	•		
West Sacramento PD		•														•					

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Cooperative Personnel Services (CPS) Cost Analysis

The full driver training cost analysis prepared by Cooperative Personnel Service (CPS) appears on the next 19 pages. Download complete document.

Final Report

May, 2008

California Commission on Peace Officer Standards and Training

In-Service Driver Training Cost Analysis

Submitted by:

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TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

The California Commission on Peace Officer Standards and Training (POST) was established by the Legislature to set minimum selection and training standards for California law enforcement. POST reimburses law enforcement agencies that send officers to Driver Training courses after basic training to maintain behind-the-wheel perishable skills. The in-service Driver Training Program consists of three Law Enforcement Driving Simulators (LEDS) and 14 Emergency Vehicle Operations Center (EVOC) training courses provided by multiple presenters across the state.

POST engaged CPS Human Resource Services (CPS) to conduct a cost analysis of POST expenditures only from 1998 through 2006 for the In-Service Driver Training Program before POST considers investing additional funds. The study objective was to identify the relevant cost elements and determine the average trainee cost paid by POST for each type of in-service training program. CPS found the following:

Student Attendance

- LEDS: from 1998 through 2006, **51,654** students attended LEDS courses.
- EVOC: from 1998 through 2006, **37,661** students attended EVOC courses.

Student Reimbursement Cost

- LEDS: 38% of the students (19,639) were reimbursed for an average of **$96.01** per student.
- EVOC: 49.1% of the students (18,489) were reimbursed for an average of **$377.08** per student.

Total POST Program Costs to Date

- LEDS startup and capital costs (pilot project, equipment, consultants): $ 15,778,245
- LEDS non-capital costs (student reimbursement): 1,885,566

  LEDS Total $ 17,663,811

- EVOC startup and capital costs. POST did not pay typical startup and capital costs for this program, which would include, but are not limited to, real estate acquisition and development including planning, permitting, environmental impact studies, consultants, construction, etc.) and vehicle purchases.
- EVOC non-capital costs only (student reimbursement): **EVOC Total $ 6,971,743**

  The only cost comparison that can be made between this programs concerns student reimbursement. This analysis shows that LEDS student reimbursement cost POST substantially less than EVOC student reimbursement.

II. INTRODUCTION

Background

The California Commission on Peace Officer Standards and Training (POST) was established by the Legislature to set minimum selection and training standards for California law enforcement. POST reimburses agencies when their peace officer students attend in-service Driver Training courses after basic training to maintain behind-the-wheel perishable skills. The program consists of Law Enforcement Driving Simulators (LEDS) and Emergency Vehicle Operations Centers (EVOC) behind-the-wheel training.

At the January 24, 2008 POST Commission meeting the Executive Director requested an evaluation of the impact of the estimated $17.7 million investment in Law Enforcement Driving Simulators, including a historical cost analysis of POST expenditures in the LEDS and EVOC programs, before investing additional funds into the program. According to POST, LEDS equipment located at the Regional Skills Training Centers is heavily used, experiences intermittent operations and breakdowns, and there is limited funding for replacement, maintenance and warranties. Moreover, since the 1998 implementation there has not been a follow-up study to assess the effect of the simulators on law enforcement driving and decision-making. The Commission requested a final report for its April 2008 meeting. This report contains a cost analysis only of the LEDS and EVOC programs.

Study Approach

The study approach summarizes the scope, objective, methodology, constraints and limitations.

The study scope is to perform a cost analysis of POST expenditures only for the LEDS and EVOC behind-the-wheel, in-service driver training programs. The scope does not include conducting a cost-benefit analysis of the two programs.

The study objective is to identify the relevant cost elements and determine the average trainee cost paid by POST from 1998 through 2006 for each type of in-service training program.

The CPS methodology included:

- Hold interviews with key POST staff to develop an understanding of program structure and content (plans and hours), startup and recurring costs, and trainee data availability.
- Develop a database of in-service driver training programs and presenters.
- Request and receive relevant data in an electronic file format and conduct the data analysis.
- Prepare a draft report for an internal subject matter expert review, and prepare a final report incorporating appropriate changes.

The cost analysis is limited to the most current, unaudited cost information available for the LEDS and EVOC programs.

Acknowledgement

CPS wishes to thank everyone at POST for their important and timely contribution and perspective.

III. STUDY RESULTS

This section of the report describes the POST reimbursement plan types and the reimbursement process, course presenters, program courses, and the methodology and results of the cost analysis.

POST Reimbursement Plan Types and Reimbursement Process

POST records indicate there are currently 623 active referring agencies on a statewide basis and 565 are authorized to receive training reimbursement.

With the approval of a Training Reimbursement Request (TRR), POST reimburses referring agencies based on the following five plan types. Reimbursement ranges from comprehensive to none.

- Plan I: reimburses for officer travel, per diem, tuition and backfill expenses
- Plan II: reimburses for officer travel, per diem, and backfill expenses
- Plan III: reimburses for officer travel, per diem, and tuition
- Plan IV: reimburses for officer travel and per diem
- Plan N/A: no reimbursement

The Training Coordinator from the referring agency prepares and forwards the TRR to the officer who will receive training. The officer gives the TRR to the course Instructor who prepares a course roster that certifies attendance and completion. At course completion, the Instructor submits the course roster and TRRs to POST Administrative Services Bureau (ASB). POST verifies the roster against their system and sends the roster to the POST Information Services Bureau (ISB) for data entry. Upon return, POST ASB enters the TRRs into the system. At month end, POST prepares and submits a claims schedule to the State Controller's Office for payment, who issues payment to the referring agency.

Course Presenters

The current POST course catalog displays 22 LEDS presenters and 60 other EVOC presenters that provide in-service driver training to more than 60,000 sworn officers. The LEDS presenters are Regional Skills Training Centers (RSTCs) and all but one also provide EVOC training.

Attachment 1 contains a list of current LEDS presenters, course name and code, instructional hours, and plan type. Attachment 2 contains a similar list for EVOC presenters.

Program Courses

The following briefly describes each type of in-service driver training course by type of course, the number of presenters, course length in hours, and reimbursement plan type.

Law Enforcement Driving Simulator Courses

The objective of the LEDS program is to improve decision-making during vehicle operations. The POST catalog includes the following three LEDS courses:

- **Driver Training-Simulator** (catalog 3247, course 20985): In general, this course provides classroom and driving simulator sessions designed to update and/or reinforce judgment and decision-making in a variety of emergency and non-emergency driving situations, including "code 3" responses and pursuits. The course is offered by 22 presenters. Most of the courses are four hours long and pay Plan II reimbursement with backfill costs approved.

- **Driver/Force Option Simulator Combination** (catalog 3286, course 20005): In general, this course provides four hours of driving simulator training and four hours of force option simulator training to increase awareness of legal, moral and policy-related issues for driving and use of force. The course is offered by eight presenters, is eight hours long, and pays Plan II reimbursement with backfill costs approved.

- **Driver Training Simulator Instructor** (catalog 3262, course 20785): In general, this course is designed to teach instructors how to present the POST driving simulator course. The course is offered by three presenters, is 24 hours long and pays Plan II reimbursement with backfill costs approved.

POST reimburses $79 per student for onsite LEDS training with a contract presenter. POST reimburses $133 per student for mobile driving simulator training.

Emergency Vehicle Operations Courses

The objective of the EVOC program is to enhance physical driving skills used in emergency situations. The POST catalog includes the following 18 EVOC courses. In many cases, courses with the same name vary in content, length and reimbursement plan:

- **Driving (PSP)** (catalog 3280, course 29502): In general, this course is designed to refresh officers in basic driving skills, awareness and judgment, including slow speed, non-emergency vehicle operations. The course may involve use of a driving simulator and practical exercises in a skid car. The course is offered by 58 presenters and ranges from 4 to 16 hours long. Most of the courses pay Plan II reimbursement, with backfill costs approved, but some are paid on Plans I and IV. There is no reimbursement for courses presented by the California Highway Patrol and Clovis Police Department.

- **Driver Training EVOC Update** (catalog 3226, course 21155): This course is designed to train students in the operation of emergency vehicles and includes use of the classroom, EVOC track and skid car. The course is offered by 15 presenters and ranges from 4 to 18 hours long. Most of the courses pay Plan II reimbursement, with some reimbursed on Plan I and Plan IV and backfill costs approved.

- **Driver Training Update** (catalog 3238, course 21115): This course is designed to provide refresher training but depending on the presenter, the content and time varies extensively. The course is offered by 14 presenters and ranges from 4 to 40 hours long. Most of the courses pay Plan I or Plan II reimbursement, but several pay Plan IV reimbursement with backfill costs approved.

- **Driver Awareness Update** (catalog 3217, course 21135): Depending on the presenter, this course is designed to reinforce basic driver safety rules and principles but may focus on low speed defensive driving skills and common accident causes. The course is offered by nine presenters and ranges from 4 to 16 hours long. All the courses pay Plan II reimbursement with backfill costs approved.

- **Driver Training EVOC Update (PIT)** (catalog 3256, course 21165): In general, this course is designed to teach students how to properly and effectively use the Pursuit Immobilization Technique (PIT) to stop a vehicle pursuit. The course is offered by nine presenters, ranges from 4 to 9 hours long, and offers several reimbursement plans including no reimbursement and backfill costs approved.

- **Driver Training Instructor** (catalog 3229, course 21675): In general, this course is designed to teach instructors the skills and techniques necessary to effectively provide instruction in all aspects of driver training. The course is offered by seven presenters, is 40 hours long and pays Plan I and II reimbursement with backfill costs approved.

- **Driver Awareness Instructor** (catalog 3214, course 21815): In general, this course is designed to train instructors to present the POST certified driver awareness course. The course is offered by six presenters. The course is 24 hours long, pays Plan I or II reimbursement with backfill costs approved.

- **Driver Training Instructor UPD Skid Car** (catalog 3259, course 21671): In general, this course is designed to teach instructors how to properly use and maintain the Skid Car system. The course is offered by three presenters, ranges from 16 to 24 hours long and pays Plan IV reimbursement with backfill costs approved.

- **Driver Training Off-Road EVOC** (catalog 3244, course 21141): In general, this course is designed to teach off-road emergency driving skills in four-wheel drive vehicles. The course is offered by three presenters. The course ranges from 18 to 24 hours long and pays Plan IV reimbursement with backfill costs approved.

- **Driving – Executive Protection** (catalog 3283, course 21160): This course is designed to provide basic to advanced skills of vehicle dynamics, emergency procedures and motorcade procedures related to dignitary protection. The course is offered by three presenters, ranges from 16 to 32 hours long, and pays Plan IV reimbursement.

- **Driver Training PIT Instructor** (catalog 3235, course 21167): This course is designed to teach instructors current instructional methods relating to pursuit driving and techniques for pursuit intervention. The course is offered by two presenters, is eight hours long and pays Plan IV reimbursement.

- **Vehicle, Special Operations – 4 Wheel** (catalog 5275, course 21140): This course is designed to provide specialized training in the operation of 4-wheel drive vehicles. The course is offered by two presenters, is 16 hours long and pays Plan III reimbursement.

- **Driver Training EVOC Instructor UPD** (catalog 3265, course 21161): This course is designed to update current EVOC instructors on the latest teaching and driving techniques. The course is offered by one presenter, is eight hours long and pays Plan IV reimbursement.

- **Driver Training Off-Road EVOC T-T-T** (catalog 3268, course 21144): This course provides train-the-trainer off-road emergency driving skills. The course is offered by one presenter, is 32 hours long and pays Plan IV reimbursement.

- **Driver Training – Tactical Update** (catalog 3250, course 21156): This course is designed to teach control riding and survival techniques in situations where officers are fired upon. The course is offered by one presenter, is eight hours long and pays Plan IV reimbursement.

- **Driving Training Refresher** (catalog 3241, course 21120): This course is designed to minimum topics of driver training and awareness. The course is offered by one presenter, is four hours long and pays Plan II reimbursement.

- **Driver Training EVOC UPD (Skid Car)** (catalog 3223, course 21169): This course provides an update on Skid Car techniques. The course is offered by one presenter, is four hours long and pays Plan II reimbursement.

- **Emergency Vehicle Response Continuing Supervision** (catalog 1615, course 12053): This course is designed to improve the supervision skills of law enforcement managers/supervisors responsible for monitoring emergency responses and pursuits. The course is offered by one presenter, is eight hours long and pays Plan IV reimbursement.

POST reimburses tuition at varying rates for many courses, but may not reimburse for various course-specific fees.

Cost Analysis Methodology and Results

The following the methodology used to analyze historical capital and reimbursement costs paid by POST for the LEDS and EVOC program, and the results of the analysis for each program type.

Cost Analysis Methodology

Staff from the POST Training Program Services Bureau, Training Delivery & Compliance Bureau and the Computer Services Bureau provided CPS with background information on LEDS and EVOC course content, reimbursement plans, LEDS capital equipment costs and training reimbursement costs for both programs. CPS disaggregated over 113,903 records into LEDS

and EVOC course files by presenter and student. While many courses share the same title, course content and length varies to some degree among the presenters.

The LEDS program costs paid by POST include the pilot project equipment expenses, capital equipment**,** and training reimbursement expenses from FY 1992/93 through November 2006. The EVOC program costs paid by POST cover training reimbursement expenses only from FY 1997/98 through November 2006. POST did not pay for EVOC capital real estate acquisition or development (i.e., planning, permitting, environmental impact studies, consultants, construction, etc.) and vehicle purchases. As a result, a direct cost comparison cannot be made.

Cost Analysis Results

The following describes the results of the cost analysis for the LEDS program from 1992 through November 2006 and for the EVOC program from 1998 through November 2006.

Law Enforcement Driving Simulators

The LEDS program began as the Driver Training Simulator Project in FY 1992/93. The pilot project ended in FY 1996/97 at a total cost of $1,752,955. In FY 1992/93, a Los Angeles School District consultant was paid $113,211 to study the need for Regional Skills Training Centers. From FY 1992/93 through FY 1996/97, the pilot project was implemented in Los Angeles and San Bernardino Counties and the San Jose Police Department at a cost of $1,638,744.

As the following table 1 illustrates, from FY 1997/98 through FY 2002/03, POST spent over $14 million on 23 driving simulators, trucks, trailers and training equipment and project management services.

Table 1
LEDS Capital & Other Costs
FY 1997/98 – FY 2002/03

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	Totals
Driving Simulators	$ 0	$4,052,000	$400,000	$3,150,000	$1,355,000	$ 0	**$8,957,000**
Trucks/Equipment	2,004,000	185,000	334,800	2,196,201	17,200	0	**4,737,201**
Project Mgmt	0	0	0	130,000	100,565	100,524	**331,089**
Totals	**$2,004,000**	**$4,237,000**	**$734,800**	**$5,476,201**	**$1,472,765**	**$ 100,524**	**$14,025,290**

Source: POST

The driving simulator manufacturers/vendors are:

- Doron Precision Systems, Inc. of Binghamton, New York
- FAAC, Incorporated of Ann Arbor, Michigan, and
- MPRI, Inc. of Alexandria, Virginia.

The simulators ranged in cost from $362,000 to $505,000. The average driving simulator cost is $389,435.

The following table 2 reveals that for the period reviewed, 51,654 students attended the three LEDS courses and POST reimbursed a total of $1,885,566. About 38% of the attendees received reimbursement, for an average of $96.01 per student. Approximately 62% of the attendees were not reimbursed. Attendees are not eligible for POST reimbursement if they are presenter staff or staff from other state and local government entities. The table indicates that law enforcement agency presenters trained many of their own staff and that regional training centers and colleges trained students from state and local government entities that were ineligible for POST reimbursement.

Table 2
LEDS Presenter Attendee Volumes and Reimbursement
1998 - 2006

#	Agency	% Total Volume	#Reimb	#Nonreimb	Total	Amount
2060	Orange County SD	11.5%	4,169	1,796	5,965	$ 240,444
2560	San Jose PD	8.9%	1,774	2,807	4,581	382,713
2200	Riverside County SD	8.0%	2,575	1,532	4,107	85,392
2330	San Bernardino SD	7.3%	2,188	1,604	3,792	124,248
2420	San Francisco PD	6.0%	127	2,977	3,104	12,403
1068	LA South Bay Regional Skills Training Center	5.9%	800	2,242	3,042	172,496
2940	Ventura County Criminal Justice Training Center	5.1%	948	1,671	2,619	186,669
5590	Contra Costa County SD	4.8%	1,102	1,360	2,462	136,751
1520	Fresno PD	4.6%	168	2,191	2,359	26,698
1010	Alameda County SD	4.4%	447	1,847	2,294	64,236
6440	West Covina PD	3.7%	818	1,079	1,897	101,847
1990	Kern County SD	3.6%	96	1,749	1,845	9,605
3010	Allen Hancock College	3.5%	445	1,377	1,822	39,277
4620	Tulare-Kings County Peace Officer Training Academy	3.5%	805	1,016	1,821	58,444
1039	Sacramento Regional Driver Training Center	3.4%	14	1,750	1,764	1,583
4000	Contra Costa County Justice Training Center	2.6%	688	641	1,329	61,331
2980	Santa Rosa JC Public Safety Training Center	2.1%	295	773	1,068	23,394
2490	Santa Ana PD	2.0%	755	265	1,020	69,460
2950	Butte College Public Safety Training Center	1.7%	145	750	895	5,563
4410	Rio Hondo Regional Training Center	1.6%	55	769	824	1,545
2540	South Bay Regional Training Consortium	1.4%	231	475	706	25,261
1920	Ray Simon Criminal Justice Training Center	1.2%	215	426	641	4,847
2410	San Diego Regional Public Safety Training Center	0.9%	303	154	457	4,985
2740	Stanislaus County Sheriff Regional Training Center	0.8%	194	212	406	3,085
2320	Sacramento PD	0.8%	13	375	388	53
1820	Los Angeles County SD	0.5%	193	60	253	37,772
4650	College of the Siskiyous	0.3%	76	72	148	5,464
1850	Los Angeles PD	0.1%	0	45	45	0
Totals		**100.0%**	**19,639**	**32,015**	**51,654**	**$1,885,566**

Emergency Vehicle Operations Courses

The following table 3 reveals that for the period reviewed, 37,661 students attended the 14 EVOC courses and POST reimbursed a total of $6,971,743. About 49% of the attendees received reimbursement, for an average of $377.08 per student. Approximately 51% of the attendees were not reimbursed. Attendees are not eligible for POST reimbursement if they are presenter staff or staff from other state and local government entities. Similar to the LEDS table 2, this table indicates that law enforcement agency presenters trained many of their own staff and that regional training centers and colleges trained students from state and local government entities that were ineligible for POST reimbursement.

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Table 3
EVOC Presenter Attendee Volumes and Reimbursement
1998 - 2006

#	Agency	% Total Volume	# Reimb	#Nonreim	Total	Amount
2330	San Bernardino County SD	22.7%	4,855	3,680	8,535	$ 1,541,458
1010	Alameda County SD	19.2%	5,573	1,628	7,201	1,931,387
1039	Sacramento Regional Driver TC	12.1%	2,559	1,997	4,556	1,336,511
1820	Los Angeles County SD	10.6%	563	3,404	3,967	245,748
1850	Los Angeles PD	5.7%	107	2,032	2,139	36,171
2310	Sacramento County SD	3.9%	786	687	1,473	382,764
1520	Fresno PD	3.6%	104	1,259	1,363	36,326
2420	San Francisco PD	2.8%	144	904	1,048	68,325
3010	Alan Hancock College	2.2%	125	719	844	18,842
2460	San Mateo County SD	2.2%	639	174	813	414,648
6440	West Covina PD	2.0%	287	474	761	32,101
5590	Contra Costa County SD	1.8%	248	443	691	78,464
5380	Sonoma County SD	1.6%	519	74	593	295,885
2950	Butte College Public Safety TC	1.2%	235	198	433	88,682
4000	Contra Costa County JTC - LMC	1.0%	318	65	383	176,264
3360	Santa Clara PD	0.7%	123	150	273	18,308
1990	Kern County SD	0.6%	74	161	235	49,449
1180	Redwood City PD	0.6%	202	27	229	4,328
2520	San Joaquin County SD	0.6%	40	167	207	5,600
2540	South Bay Regional Training Consortium	0.5%	14	183	197	267
6220	Beverly Hills PD	0.5%	148	21	169	29,531
2410	San Diego Regional PSTI	0.4%	59	99	158	491
2980	Santa Rosa JC Public Safety TC	0.4%	130	27	157	31,018
2140	El Monte PD	0.4%	121	16	137	629
2560	San Jose PD	0.4%	30	103	133	3,943
6730	Monterey County SD	0.3%	25	96	121	7,366
1270	CA Highway Patrol	0.3%	67	40	107	10,569
2110	Palo Alto PD	0.3%	90	7	97	22,752
3240	Chabot College - AJ Dept	0.2%	93	-	93	218
1920	Ray Simon CJTC	0.2%	82	11	93	63,525
3040	Concord PD	0.2%	-	68	68	-
4410	Rio Hondo Regional TC	0.2%	52	11	63	11,485
2200	Riverside County SD	0.2%	11	50	61	4,117
2320	Sacramento PD	0.1%	33	22	55	24,307
1500	Fresno County SD	0.1%	33	-	33	264
7370	Burlington-Santa Fe Railroad PD	0.1%	-	26	26	-
6990	Placer County SD	0.0%	-	9	9	-
3810	Gilroy PD	0.0%	-	6	6	-
Totals		**100.0%**	**18,489**	**19,038**	**37,527**	**$ 6,971,743**

Total POST Program Costs

The following summarizes the POST in-service training costs through 2006.

- LEDS startup and capital costs (pilot project, equipment, consultants): $ 15,778,245
- LEDS non-capital costs (student reimbursement): 1,885,566

  LEDS Total $ 17,663,811

- EVOC startup and capital costs. POST did not pay typical startup and capital costs for this program, which would include, but are not limited to, real estate acquisition and development including planning, permitting, environmental impact studies, consultants, construction, etc.) and vehicle purchases.
- EVOC non-capital costs only (student reimbursement): **EVOC Total $ 6,971,743**

  The only cost comparison that can be made between this programs concerns student reimbursement. This analysis shows that LEDS student reimbursement cost POST substantially less than EVOC student reimbursement.

Attachment 1

LEDS Presenters and Courses

Cat #	Presenter	#	Course Name	Code	Hours	Plan
3247	Alameda Co. Sheriff's Academy Training Center	1010	Driver Trng-Sim	20985	4	2
3286	Alameda Co. Sheriff's Academy Training Center	1010	Driver/Force Sim Combo	20005	8	2
3247	Alan Hancock College	3010	Driver Trng-Sim	20985	4	2
3247	Butte College Public Safety Center	2950	Driver Trng-Sim	20985	8	2
3262	Contra Costa County Sheriff's Dept	5590	Driver Trng Sim Instr	20785	24	2
3247	Contra Costa County Sheriff's Dept	5590	Driver Trng-Sim	20985	4	2
3286	Contra Costa County Sheriff's Dept	5590	Driver/Force Sim Combo	20005	8	2
3247	Fresno Police Dept	1520	Driver Trng-Sim	20985	4	2
3286	Fresno Police Dept	1520	Driver/Force Sim Combo	20005	8	2
3247	Kern County Sheriff's Dept	1990	Driver Trng-Sim	20985	4	2
3247	Los Angeles County Sheriff's Dept	1820	Driver Trng-Sim	20985	8	1
3247	Orange County Sheriff's Dept	2060	Driver Trng-Sim	20985	4	2
3247	Rio Hondo Regional Training Center	4410	Driver Trng-Sim	20985	4	2
3247	Riverside County Sheriff's Dept	2200	Driver Trng-Sim	20985	4	2
3286	Riverside County Sheriff's Dept	2200	Driver/Force Sim Combo	20005	8	2
3247	Sacramento Regional Driver Training Facility	1039	Driver Trng-Sim	20985	4	2
3247	San Bernardino County Sheriff's Dept	2330	Driver Trng-Sim	20985	4	2
3286	San Bernardino County Sheriff's Dept	2330	Driver/Force Sim Combo	20005	8	2
3247	San Diego Regional Public Safety Training Institute	2410	Driver Trng-Sim	20985	4	2
3286	San Diego Regional Public Safety Training Institute	2410	Driver/Force Sim Combo	20005	8	2
3247	San Francisco Police Dept	2420	Driver Trng-Sim	20985	4	2
3262	San Jose Police Dept	2560	Driver Trng Sim Instr	20785	24	2
3247	San Jose Police Dept	2560	Driver Trng-Sim	20985	4	2
3247	Santa Ana Police Dept	2490	Driver Trng-Sim	20985	4	1
3247	Santa Rosa Junior College Public Safety Training Center	2980	Driver Trng-Sim	20985	4	2
3247	South Bay Regional Training Consortium	2540	Driver Trng-Sim	20985	4	2
3286	South Bay Regional Training Consortium	2540	Driver/Force Sim Combo	20005	8	2
3247	Stanislaus County Sheriff's Office Regional Training Center	2740	Driver Trng-Sim	20985	4	2
3247	Tulare-Kings Peace Officer Training Academy	4620	Driver Trng-Sim	20985	4	2
3286	Tulare-Kings Peace Officer Training Academy	4620	Driver/Force Sim Combo	20005	8	2
3247	Ventura County Criminal Justice Training Center	2940	Driver Trng-Sim	20985	4	2
3262	West Covina Police Dept	6440	Driver Trng Sim Instr	20785	24	2
3247	West Covina Police Dept	6440	Driver Trng-Sim	20985	4	2

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Attachment 2

EVOC Presenters and Courses

Cat #	Presenter	#	Course Name	Code	Hours	Plan
3214	Alameda Co. Sheriff's Academy Training Center	1010	Driver Awareness Instr	21815	24	2
3226	Alameda Co. Sheriff's Academy Training Center	1010	Driver Trng EVOC Update	21155	8	1
3229	Alameda Co. Sheriff's Academy Training Center	1010	Driver Trng Instr (3229)	21675	40	2
3238	Alameda Co. Sheriff's Academy Training Center	1010	Driver Trng Update	21115	24	1
3250	Alameda Co. Sheriff's Academy Training Center	1010	Driver Trng-Tactical Update	21156	8	4
3283	Alameda Co. Sheriff's Academy Training Center	1010	Driving-Exec Protection	21160	24	4
3226	Alan Hancock College	3010	Driver Trng EVOC Update	21155	8	2
3280	Auburn Police Dept	3310	Driving (PSP)	29502	4	2
3238	Bakersfield Police Dept	1080	Driver Trng Update	21105	4	4
3280	Burbank Police Dept	1150	Driving (PSP)	29502	4	2
3226	Butte College Public Safety Center	2950	Driver Trng EVOC Update	21155	16	2
3280	Butte College Public Safety Center	2950	Driving (PSP)	29502	8	2
3244	CA State Parks - Wm Penn Mott, Jr. Training Center	9440	Driver Trng-Off Road EVOC	21141	18	4
3280	CA State Parks - Wm Penn Mott, Jr. Training Center	9440	Driving (PSP)	29502	8	2
3268	Cabrillo College	3200	Driver Trng Off-Road EVOC T	21144	32	4
3244	Cabrillo College	3200	Driver Trng-Off Road EVOC	21141	18	4
3280	Cabrillo College	3200	Driving (PSP)	29502	5	2
3256	California Highway Patrol	1270	Driver Trng (EVOC) UPD (PIT)	21165	4	2
3235	California Highway Patrol	1270	Driver Trng PIT Instr	21167	8	4
3280	California Highway Patrol	1270	Driving (PSP)	29502	4	NA
3280	Carlsbad Police Dept	2620	Driving (PSP)	29502	4	2
3226	Chabot College - Administration of Justice Dept	3240	Driver Trng EVOC Update	21155	8	4
3280	Clovis Police Dept	1320	Driving (PSP)	29502	4	NA
3280	College of the Redwoods - Redwoods Center	2960	Driving (PSP)	29502	8	1
3280	College of the Siskiyous	4650	Driving (PSP)	29502	8	2
3256	Concord Police Dept	3040	Driver Trng (EVOC) UPD (PIT)	21165	4	NA
3214	Contra Costa County Sheriff's Dept	5590	Driver Awareness Instr	21815	24	2
3226	Contra Costa County Sheriff's Dept	5590	Driver Trng EVOC Update	21155	8	2
3229	Contra Costa County Sheriff's Dept	5590	Driver Trng Instr (3229)	21675	40	2
3280	Contra Costa County Sheriff's Dept	5590	Driving (PSP)	29502	4	2
3280	Corona Police Dept	1410	Driving (PSP)	29502	4	2
3280	Cypress Police Dept	4930	Driving (PSP)	29502	6	4
3226	East Bay Regional Park District Police Dept	2530	Driver Trng EVOC Update	21155	9	2
3280	East Bay Regional Park District Police Dept	2530	Driving (PSP)	29502	8	4
3241	El Cerrito Police Dept	1310	Driver Trng Refresher	21120	4	2
3238	El Monte Police Dept	2140	Driver Trng Update	21115	4	2
3280	Folsom Police Dept	5990	Driving (PSP)	29502	4	2
3280	Foster City Police Dept	1760	Driving (PSP)	29502	4	2
3217	Fresno County Sheriff's Dept	1500	Driver Awareness Update	21135	8	2
3217	Fresno Police Dept	1520	Driver Awareness Update	21135	10	2
3256	Fresno Police Dept	1520	Driver Trng (EVOC) UPD (PIT)	21165	8	2

3280	Gardena Police Dept	6540	Driving (PSP)	29502	5	2
3256	Gilroy Police Dept	3810	Driver Trng (EVOC) UPD (PIT)	21165	8	2
3280	Glendale Police Dept	1600	Driving (PSP)	29502	8	2
3280	Golden West College - Regional CJTC	3670	Driving (PSP)	29502	4	4
3280	Huntington Beach Police Dept	4170	Driving (PSP)	29502	10	2
3280	Imperial County Sheriff's Dept	3340	Driving (PSP)	29502	4	4
3280	Inglewood Police Dept	1650	Driving (PSP)	29502	8	2
3280	Irvine Police Dept	1700	Driving (PSP)	29502	4	2
3280	Kern County Sheriff's Dept	1990	Driving (PSP)	29502	10	2
3280	Lincoln Police Dept	6580	Driving (PSP)	29502	8	4
3280	Long Beach Police Dept	1780	Driving (PSP)	29502	5	2
3229	Los Angeles County Sheriff's Dept	1820	Driver Trng Instr (3229)	21675	40	1
3283	Los Angeles County Sheriff's Dept	1820	Driving-Exec Protection	21160	16	4
5275	Los Angeles County Sheriff's Dept	1820	Veh, Spec Ops - 4 Wheel	21140	16	3
3214	Los Angeles Police Dept	1850	Driver Awareness Instr	21815	24	1
3256	Los Angeles Police Dept	1850	Driver Trng (EVOC) UPD (PIT)	21165	4	4
3238	Los Angeles Police Dept	1850	Driver Trng Update	21115	8	4
3280	Los Angeles World Airports Police Dept	9800	Driving (PSP)	29502	4	2
3280	Madera County Sheriff's Dept	1980	Driving (PSP)	29502	4	2
3280	Marin County Sheriff's Dept	4270	Driving (PSP)	29502	8	2
3280	Mariposa County Sheriff's Dept	2780	Driving (PSP)	29502	8	2
3226	Merced County Sheriff's Dept	2260	Driver Trng EVOC Update	21155	16	2
3280	Merced County Sheriff's Dept	2260	Driving (PSP)	29502	4	2
3280	Merced Police Dept	3130	Driving (PSP)	29502	8	2
3280	Modesto Police Dept	5080	Driving (PSP)	29502	8	4
3238	Monterey County Sheriff's Dept	6730	Driver Trng Update	21115	16	1
3280	Napa Valley College - Criminal Justice Training Center	4200	Driving (PSP)	29502	8	2
3280	Oakland Police Dept	2010	Driving (PSP)	29502	8	2
3223	Orange County Sheriff's Dept	2060	Driver Trng EVOC UPD(Skid Car)	21169	4	2
3226	Palo Alto Police Dept	2110	Driver Trng EVOC Update	21155	9	2
3280	Palo Alto Police Dept	2110	Driving (PSP)	29502	9	2
3280	Pasadena Police Dept	5680	Driving (PSP)	29502	7	2
3217	Placer County Sheriff's Dept	6990	Driver Awareness Update	21135	16	2
3280	Placer County Sheriff's Dept	6990	Driving (PSP)	29502	4	2
3280	Pleasanton Police Dept	6000	Driving (PSP)	29502	4	2
3214	Rio Hondo Regional Training Center	4410	Driver Awareness Instr	21815	24	1
3229	Rio Hondo Regional Training Center	4410	Driver Trng Instr (3229)	21675	40	1
3238	Rio Hondo Regional Training Center	4410	Driver Trng Update	21115	24	1
3280	Rio Hondo Regional Training Center	4410	Driving (PSP)	29502	8	2
3217	Riverside County Sheriff's Dept	2200	Driver Awareness Update	21135	4	2
3280	Riverside County Sheriff's Dept	2200	Driving (PSP)	29502	8	2
3280	Roseville Police Dept	4440	Driving (PSP)	29502	6	2
3256	Sacramento Regional Driver Training Facility	1039	Driver Trng (EVOC) UPD (PIT)	21165	8	1
3229	Sacramento Regional Driver Training Facility	1039	Driver Trng Instr (3229)	21675	40	2
3238	Sacramento Regional Driver Training Facility	1039	Driver Trng Update	21115	20	1

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1615	Sacramento Regional Driver Training Facility	1039	Emergency Veh. Res. Cont. Sup	12053	8	4
3214	San Bernardino County Sheriff's Dept	2330	Driver Awareness Instr	21815	24	1
3217	San Bernardino County Sheriff's Dept	2330	Driver Awareness Update	21135	8	2
3256	San Bernardino County Sheriff's Dept	2330	Driver Trng (EVOC) UPD (PIT)	21165	8	1
3226	San Bernardino County Sheriff's Dept	2330	Driver Trng EVOC Update	21155	8	2
3229	San Bernardino County Sheriff's Dept	2330	Driver Trng Instr (3229)	21675	40	1
3235	San Bernardino County Sheriff's Dept	2330	Driver Trng PIT Instr	21167	8	4
3238	San Bernardino County Sheriff's Dept	2330	Driver Trng Update	21115	24	2
3280	San Bernardino County Sheriff's Dept	2330	Driving (PSP)	29502	4	2
3217	San Diego Regional Public Safety Training Institute	2410	Driver Awareness Update	21135	8	2
3226	San Diego Regional Public Safety Training Institute	2410	Driver Trng EVOC Update	21155	8	2
3280	San Diego Regional Public Safety Training Institute	2410	Driving (PSP)	29502	4	4
3226	San Francisco Police Dept	2420	Driver Trng EVOC Update	21155	18	2
3238	San Francisco Police Dept	2420	Driver Trng Update	21115	40	2
3283	San Francisco Police Dept	2420	Driving-Exec Protection	21160	32	4
5275	San Francisco Police Dept	2420	Veh, Spec Ops - 4 Wheel	21140	10	3
3214	San Jose Police Dept	2560	Driver Awareness Instr	21815	24	2
3265	San Jose Police Dept	2560	Driver Trng EVOC Instr UPD	21161	8	4
3229	San Jose Police Dept	2560	Driver Trng Instr (3232)	21675	40	2
3259	San Jose Police Dept	2560	Driver Trng Instr UPD Skid Car	21671	16	4
3244	San Jose Police Dept	2560	Driver Trng-Off Road EVOC	21141	24	4
3238	San Mateo County Sheriff's Dept	2460	Driver Trng Update	21115	16	1
3280	San Mateo County Sheriff's Dept	2460	Driving (PSP)	29502	16	2
3217	Santa Ana Police Dept	2490	Driver Awareness Update	21135	8	2
3226	Santa Clara Police Dept	3360	Driver Trng EVOC Update	21155	9	2
3217	Santa Monica Police Dept	2510	Driver Awareness Update	21135	4	2
3226	Santa Rosa Junior College Public Safety Training Center	2980	Driver Trng EVOC Update	21155	8	1
3256	Santa Rosa Police Dept	3330	Driver Trng (EVOC) UPD (PIT)	21165	4	4
3280	Santa Rosa Police Dept	3330	Driving (PSP)	29502	8	4
3280	Shasta County Sheriff's Dept	2180	Driving (PSP)	29502	4	2
3226	Sonoma County Sheriff's Dept	5380	Driver Trng EVOC Update	21155	18	1
3256	South Bay Regional Training Consortium	2540	Driver Trng (EVOC) UPD (PIT)	21165	9	1
3259	South Bay Regional Training Consortium	2540	Driver Trng Instr UPD Skid Car	21671	16	4
3238	South Bay Regional Training Consortium	2540	Driver Trng Update	21115	24	1
3280	South Bay Regional Training Consortium	2540	Driving (PSP)	29502	9	2
3280	South Lake Tahoe Police Dept	3830	Driving (PSP)	29502	4	2
3226	Stanislaus County Sheriff's Office Regional Training Center	2740	Driver Trng EVOC Update	21155	4	2
3259	Stanislaus County Sheriff's Office Regional Training Center	2740	Driver Trng Instr UPD Skid Car	21671	24	4
3280	Stanislaus County Sheriff's Office Regional Training Center	2740	Driving (PSP)	29502	8	2
3280	Stockton Police Dept	2730	Driving (PSP)	29502	9	2
3280	Sunnyvale Dept of Public Safety	2750	Driving (PSP)	29502	8	2
3280	Tulare County Sheriff's Dept	2850	Driving (PSP)	29502	8	2
3280	Tuolumne County Sheriff's Dept	2860	Driving (PSP)	29502	8	4
3280	Twin Cities Police Dept	3820	Driving (PSP)	29502	4	2
3280	Ukiah Police Dept	5220	Driving (PSP)	29502	4	4
3217	Ventura County Criminal Justice Training Center	2940	Driver Awareness Update	21135	8	2

3238	Ventura County Criminal Justice Training Center	2940	Driver Trng Update	21105	8	2
3280	W. Sacramento Police Dept	6260	Driving (PSP)	29502	4	2
3238	Walnut Creek Police Dept	5200	Driver Trng Update	21105	4	4
3280	Walnut Creek Police Dept	5200	Driving (PSP)	29502	4	2
3238	West Covina Police Dept	6440	Driver Trng Update	21115	4	2

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Web Resources

Table E1 ***Document Web Resources***

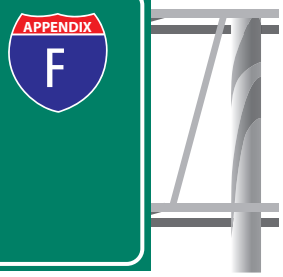
Page	Resource	Web Address
1	California Law Enforcement Officers Killed or Assaulted 1990-2004	http://www.post.ca.gov/About/leoka.asp.
2	National Highway Traffic Safety Administration - statistics	http://www.nhtsa.dot.gov/PEOPLE/injury/research/TrendAnalysis/long_desc_1.htm
2	California Highway Patrol Statewide Integrated Traffic Records System	http://www.chp.ca.gov/switrs/
2	California Department of Finance and the U.S. Census Bureau	http://deltavision.ca.gov/docs/Status_and_Trends/Selected%20References/Population%20Growth/CA%20Historical%20Population.pdf
3	U.S. Department of Justice Office of Community Oriented Policing Services	http://www.cops.usdoj.gov/default.asp?Item=44
5	Federal Bureau of Investigation LEOKA reports	http://www.fbi.gov/ucr/ucr.htm#leoka
8	PoliceOne Exclusive: How we die — the untold story	http://www.policeone.com/training/articles/1658585
11	2006 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions	http://www.chp.ca.gov/switrs/
13	National Highway Traffic Safety Administration - Vehicle Safety Research	http://www.nhtsa.dot.gov/portal/site/nhtsa/template.MAXIMIZE/menuitem.346aef7b3d1b54c5cb6aab30343c44cc/?javax.portlet.tpst=4670b93a0b088a006bc1d6b760008a0c_ws_MX&javax.portlet.prp_4670b93a0b088a006bc1d6b760008a0c_viewID=detail_view&itemID=97b964d168516110VgnVCM1000002fd17898RCRD&overrideViewName=Article
13	Assistant Professor of Medicine, Harvard Medical School; Associate Neuroscientist, Division of Sleep Medicine, Department of Medicine, Brigham and Women's Hospital	http://sleep.med.harvard.edu/people/faculty/163/Steven+W+Lockley+PhD

Table E2 ***Other Web Resources***

The following resources may be useful for researching driver training, reviewing fatal collisions and overall traffic safety. Not all content has been reviewed. Sources listed here are recognized for their subject matter, but are not specifically endorsed by POST.

Resource	Web Address
A.L.E.R.T. International	http://www.alertinternational.com/
Australasian Road Safety Research, Policing and Education Conference Proceedings	http://www.rsconference.com/index.html
California Highway Patrol (CHP) – Statewide Integrated Traffic Records System (SWITRS)	http://www.chp.ca.gov/switrs/
California Office of Traffic Safety	http://www.ots.ca.gov/
Driving Simulation Conference – North America	http://www.dsc-na.org/
Emergency Responder Safety Institute	http://www.respondersafety.com/
Fatality Analysis Reporting System (FARS)	http://www-fars.nhtsa.dot.gov/Main/index.aspx
Institute for Transportation Research and Education	http://itre.ncsu.edu/
National Advanced Driving Simulator	http://www.nads-sc.uiowa.edu/
National Highway Traffic Safety Administration	http://www.nhtsa.dot.gov/
National Law Enforcement Officers Memorial Fund	http://www.nleomf.com/
National Transportation Safety Board	http://www.ntsb.gov/
Police Driving.com	http://www.policedriving.com/
Roadway Safety Foundation	http://www.roadwaysafety.org/
U.C. Davis – Institute of Transportation Studies	http://www.its.ucdavis.edu/index.php

Annotated Bibliography & Resources



The following list of publications provides insight into a broad range of vehicle operations aspects. These publications were culled from a review of hundreds. They are representative of academic and professional literature. This bibliography is not intended as an exhaustive listing.

Beach, R. W., Morris, E. R. & Smith, W. C. (2003). *Emergency vehicle operations: a line officer's guide* (2nd ed.). Tulsa, OK: K&M Publishers.

This book is an excellent reference for new officers. It covers issues ranging from vehicle maintenance to pursuit policy. It is well written and an easy read.

Bener, A., Lajunen, T., Özkan, T., & Haigney, D. (2006). The effect of mobile phone use on driving style and driving skills. International Journal of Crashworthiness, 11(5), 459-465.

This study (of drivers in Qatar) correlates mobile phone use with traffic collisions. The summary finding is that mobile phone use while driving does result in higher incidence of collisions.

Brown, A. S. (2007). Intelligent safety. Mechanical Engineering, 129(12), 35-38.

This study finds that ESC (electronic stability control) has helped to reduce traffic fatalities.

Christie, R. (2001). The effectiveness of driver training as a road safety measure: A review of the literature. Report no: 01/03. Report prepared for the Royal Automobile Club of Victoria (RACV) Ltd. Noble Park, Victoria.

This frequently referenced article undertakes a comprehensive literature review relative to driver training and finds that training, in and of itself, is not an effective collision countermeasure. This is an important finding that supports arguments that collisions may often result from attitudinal problems as opposed to a lack of driving skill.

Dorn, L. & Barker, D. (2005). The effects of driver training on simulated driving performance. Accident Analysis and Prevention 37, 63–69.

This article provides useful information about the UK police driver training program. The authors note that driver training may not be a good criterion to assess crash risk. With regard to driver simulation training, they note that professional drivers do better in a simulator than non-professionals.

Hasselberg, M., Vaez, M., & Laflamme, L. (2005). Socioeconomic aspects of the circumstances and consequences of car crashes among young adults. Social Science & Medicine, 60(2), 287-295.

This study (of Swedish drivers) finds correlations between socio-economic status (SES) and traffic collision severity and likelihood.

Hutchinson, H. (2005). Fighting fire, saving cops. Mechanical Engineering, 127(9), 10.

A $2,500 option on Ford Crown Victorias extinguishes fires automatically after a collision.

Langham, M., Hole, G., Edwards, J., & O'Neil, C. (2002). An analysis of 'looked but failed to see' accidents involving parked police vehicles. *Ergonomics, 45*(3), 167.

This study explores roadside collisions wherein a parked police vehicle was struck. It has implications for lighting (light bars) and positioning of the police vehicle.

Lin, C. J. & Chen, H. J. (2006). Verbal and cognitive distractors in driving performance while using hands-free phones. Perceptual and Motor Skills, 103(3), 803-810.

This study reflects the impacts of different levels of distracters on driving performance.

Lindsey, J. T. (2004). The effects of computer simulation and learning styles on emergency vehicle drivers' competency in training course. Ph.D. dissertation. University of South Florida. United States.

This dissertation, studies the effects of driving simulation in conjunction with behind the wheel training (with ambulance drivers) and finds that subjects perform better on the course driving test when they have had the benefit of simulation training (in addition to the other training components).

Masten, S. V. & Peck, R. C. (2004). Problem driver remediation: A meta-analysis of the driver improvement literature. Journal of Safety Research, 35(4), 403-425.

Identification and remediation of problem drivers has a positive impact on later driving behavior.

Merrill, S. A. (1986). Professional and issue conceptualization: behavioral versus environmental control of automobile accident losses. Ph.D. dissertation. Yale University. United States.

Framing is a factor in addressing "problems."

Moser, P. (2006). 10 steps to improving employee driver safety. Professional Safety, 51(11), 40-42.

This article provides insight on establishing a driver safety program and the requisite components thereof.

Redelmeier, D. A., Tibshirani, R. J., & Evans, L. (2003). Traffic-law enforcement and risk of death from motor-vehicle crashes: case-crossover study. The Lancet, 361(9376), 2177-82.

This (Canadian) study finds that enforcement (citations) reduces the likelihood for a fatal traffic collision.

Schmidt-Cotta, R., Ciano, F. J., & Rae, C. D. (2005). Accident and event data recording: an international review of legal and political implications. FDCC Quarterly, 55(3), 363-387.

This article (conference paper) explores issues associated with crash data collection available in new cars, its use, and implications.

Strahilevitz, L. J. (2006). "How's my driving?" for everyone (and everything?). New York University Law Review, 81(5), 1699.

This article reports that "how's my driving" placard programs reduce collisions by 20-53% in a study of commercial applications.

Tay, R. (2005). General and specific deterrent effects of traffic enforcement: do we have to catch offenders to reduce crashes? Journal of Transport Economics and Policy, 39, 209-223.

This study finds that increased enforcement reduces unwanted incidents.

Thackaberry, J. A. (2004). "Discursive opening" and closing in organizational self-study: culture as trap and tool in wildland firefighting safety. Management Communication Quarterly, 17(3), 319-359.

This article suggests that organizational self-study and the methods involved might adversely impact the desired outcome or create a false outcome potential. Additionally, it suggests that training on making the right decision may not be a large factor, as emergency workers often already "know" what they should do.

Tseng, W., Nguyen, H., Liebowitz, J., & Agresti, W. (2005). Distractions and motor vehicle accidents: data mining application on fatality analysis reporting system (FARS) data files. Industrial Management + Data Systems, 105(9), 1188-1205.

This study utilizes heavy statistical analysis to identify correlations among various conditions/ circumstances in fatal traffic collisions.

Weiss, M. (2007). Confronting driver distraction. The Futurist, 41(1), 16-17.

This article quotes research stating that 80% of collisions are caused by distraction.

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