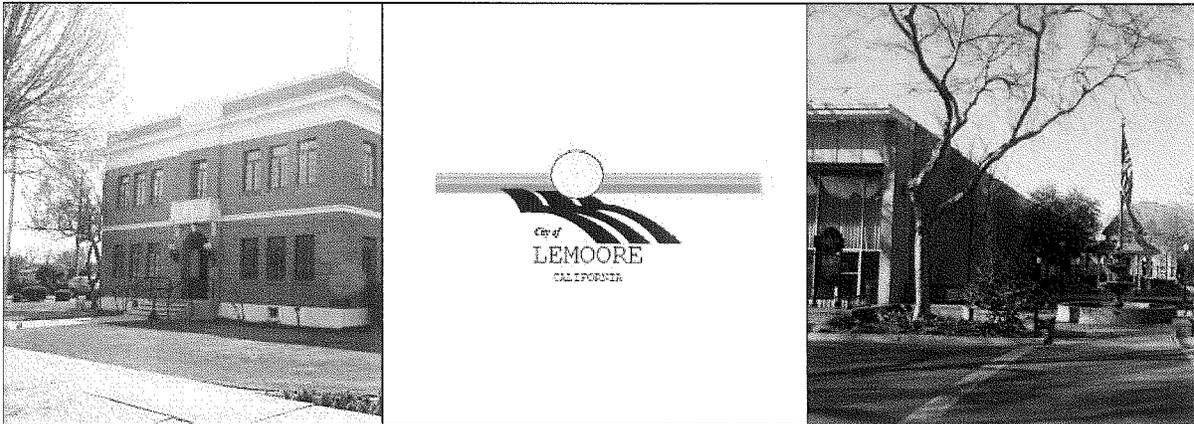


CITY OF LEMOORE TRAFFIC SAFETY EVALUATION



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August 2012

This report was produced in cooperation with the City of Lemoore. Funding for this program was provided by a grant from the California Office of Traffic Safety, through the National Highway Traffic Safety Administration. Opinions, findings, and conclusions are those of the authors and not necessarily those of the University of California and/or the agencies supporting or contributing to this report.

**CITY OF LEMOORE
TRAFFIC SAFETY EVALUATION**

AUGUST 2012

FINAL REPORT

EVALUATION TEAM

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LIST OF ABBREVIATIONS

BAC: Blood Alcohol Concentration
CAMUTCD: California Manual on Uniform Traffic Control Devices
CAD: Computer Aided Drafting
CAMUTD: California Manual on Uniform Traffic Control Devices
CLEC: California Law Enforcement Challenge
CHP: California Highway Patrol
CTC: California Transportation Commission
DAR: Drug alcohol recognition
DRE: Drug recognition expert
DUI: Driving Under the Influence
DVMT: Daily Vehicle Miles Traveled
FHWA: Federal Highway Administration
GIS: Geographic Information System
LTAP: Local Technical Assistance Program
MPO: Metropolitan Planning Organization
OTS: Office of Traffic Safety
PCF: Primary Collision Factor
PD: Police Department
PDO: Property Damage Only
PIO: Public Information Officer
POST: Peace Officer and Training
RMS: Record Management System
RTPA: Regional Transportation Authority
SFST: Standard Field Sobriety Test
SWITRS: Statewide Integrated Traffic Records System
TOF: Traffic Officer Fund
TSE: Traffic Safety Evaluation
VC: Vehicle Code

EXECUTIVE SUMMARY

The City of Lemoore Public Works Department requested that the Technology Transfer Program of the Institute of Transportation Studies at University of California, Berkeley conduct a Traffic Safety Evaluation (TSE) study for the City. A team of two traffic safety experts consisting of a licensed traffic engineer and a traffic enforcement expert conducted the TSE for the City of Lemoore on February, 23rd, 2012 and prepared this report. There was a phone interview conducted on December 19th, 2011 to discuss the scope of the TSE and to identify the primary participants. The primary objective of this TSE is to improve traffic safety in the City of Lemoore by reducing collisions at the highest incident intersections and corridors segments.

Based on information provided through the California Highway Patrol's Statewide Integrated Traffic Reporting System (SWITRS), data recorded from 2006 - 2010, there were a total of 1,097 collisions in the City of Lemoore. 29.1% of Lemoore's collisions occurred within intersections, 70.2% occurred mid-block with 0.7% unstated. Based on the same SWITRS data, the most common Primary Collision Factor (PCF) in collisions within Lemoore's intersections was failing to yield from stop signs, unsafe speed (rear ends), unsafe turning movements and failure to yield during left turns. Mid-block or segment collisions were most commonly caused by unsafe speed (rear ends), unsafe turning movements and starts and failure to yield from driveways.

The Office of Traffic Safety (OTS) rankings by population group allow cities to compare themselves to cities with similar population and Daily Vehicle Miles Traveled DVMT in the State (i.e. of 100 cities, rank #1 being the worst, and 100 being the best). Lemoore ranked in the top ten percent in 2010 marginally in the hit and run category only. It may be noted that OTS rankings are only indicators of potential problems; there are many factors including size of population and average daily traffic that may either understate or overstate a City's ranking.

Chapter 1 provides an introduction to the traffic safety evaluation teams report, the objectives of the report, the approach taken by the team, the information reviewed prior to and during the teams visit to Lemoore, how the report is organized and acknowledgement of the City staff that participated in the evaluation.

Chapter 2 provides an overview of collision data for the City of Lemoore, including a general road map of the City of Lemoore, and pertinent charts and graphs illustrating the locations and the historical data of vehicular collisions in the City of Lemoore.

Chapter 3 presents an engineering perspective of the locations that were included in the TSE using the latest High Incident Intersections and Road Segment lists based on 2006-2010 data from SWITRS. The list of intersections was also based on locations identified by the City of special concern and where the evaluators felt that they could identify mitigation measures that would reduce the frequency of collisions based on correctable patterns.

Intersections with the Highest number of Collisions

- Hanford Armona Road and Lemoore Avenue
- SR 198 and Vine Street
- Lemoore Avenue and D Street
- SR 198 and SR 41
- Hanford Armona Road and Antelope Drive
- Follett Street and B Street
- Cinnamon Drive and Fox Street
- Lemoore Avenue and Bush Street

Road Segments with the Highest Number of Collisions

- Lemoore Avenue north Cinnamon Drive
- SR 198 East and West of Vine Street
- C Street East and West of Follett Street

Chapter 4 focuses on law enforcement's perspective on enforceability issues city-wide and also on those areas surrounding specific locations studied in this TSE report. Analysis and suggestions for the mitigation of traffic safety issues are presented.

The suggestions presented in this report are based on limited field observations and time spent in the City by the TSE evaluators. These suggestions, which are also based on general

knowledge of best practices in traffic engineering operations and traffic enforcement, are intended to guide City staff in making decisions for future safety improvement projects in the City, and they may not incorporate all factors which may be relevant to the traffic safety issues in the City.

As this report is conceptual in nature, conditions may exist in the study areas that were not observed and may not be compatible with suggestions in this report. Before finalizing and implementing any physical changes, City staff may choose to conduct more detailed studies or further analysis to refine or discard the suggestions in this report, if they are found to be contextually inappropriate or appear not to improve traffic safety or traffic operations due to conditions including, but not limited to, high vehicular traffic volume or speeds, physical limitations on space or sight distance, or other potential safety concerns.

1. INTRODUCTION

The City of Lemoore Public Works Department requested that the Technology Transfer Program of the Institute of Transportation Studies at the University of California, Berkeley conduct a traffic safety evaluation (TSE) for the City. A team of two traffic safety experts consisting of a traffic engineer and a traffic enforcement expert conducted the TSE and prepared this report.

1.1 Evaluation Objective

The primary objective of this TSE is to improve traffic safety in the City of Lemoore. The City representatives were concerned about the City's intersections with high number of collisions. The final list of locations was based on locations for which collision diagrams were available from the City's RIMS collision data base and where the evaluators felt that they could identify mitigation measures that would reduce the frequency of collisions based on correctable patterns.

1.2 Evaluation Approach

Prior to their visit of the City of Lemoore, the TSE team reviewed various traffic records and other City-related information. This report presents the findings and suggestions of the TSE team to improve traffic safety and traffic operations in the City. The suggestions presented in this report are based on the limited time spent in the City by the TSE evaluators, and they may not incorporate all factors which may be relevant to the traffic safety issues in the City. These suggestions are intended to guide City staff in making decisions for future safety improvement projects in the City.

The suggestions in this report are also based on limited field observations and general knowledge of best practices in traffic engineering operations and traffic enforcement. As this report is conceptual in nature, the City may choose to conduct more detailed studies before finalizing and implementing any physical changes. Conditions may exist in the focus areas that were not observed and may not be compatible with suggestions in this report. City staff may choose to conduct further analysis to refine or discard the suggestions in this report, if they are found to be contextually inappropriate or appear not to improve traffic safety or traffic operations due to conditions including, but not limited to, high vehicular traffic volume or speeds, physical limitations on space or sight distance, or other potential safety concerns.

1.3 Information Used in the Evaluation

The following information was used in preparation of the study:

Table 1: Information Used in Evaluation

Item	Period	Source
City Ranking By Population	2006 - 2010	Office of Traffic Safety
Statewide Integrated Traffic Records System (SWITRS) Collision Data	2006 - 2010	SWITRS, and CA Highway Patrol (CHP)
RIMS collision data	2010-2011	Lemoore PD
RIMS citation data	2010	Lemoore PD

1.4 Organization of This Report

Chapter 2 provides the City's historical background, a vicinity map of the City, the population, and the highway and street systems within the incorporated areas. The traffic collision data obtained from Statewide Integrated Traffic Records System (SWITRS) and the Office of Traffic Safety (OTS) and the analysis of the data are discussed in this chapter.

Chapter 3 presents traffic engineering evaluation and findings on existing traffic and safety concerns at the intersections requested for evaluation by the City or identified as High Incident Intersections and Road Segments using 2006-2010 SWITRS data, as well as suggestions on potential engineering safety improvement measures using the information provided in Table 1.

Chapter 4 describes the law enforcement efforts for reducing traffic problems and analysis of the collision data obtained from the sources listed in Table 1, and suggested strategies to improve traffic safety.

1.5 Acknowledgements

The following members of City staff and the Lemoore Police Department (PD) are acknowledged for their cooperation in providing the needed data and their input on local conditions:

- Jeff Briltz, City Manager
- Jeff Laws, Chief, Police Department
- Pat Mundy, Sergeant, Police Department
- Ray Greenlee, Fleet and Maintenance Supervisor

1.6 Disclosures

The suggestions presented in this report are based on limited field observations and time spent in the City by the TSE team. These suggestions, which are also based on general knowledge of best practices in traffic engineering operations and traffic enforcement, are intended to guide City staff in making decisions for future safety improvement projects in the City, and they may not incorporate all factors which may be relevant to the traffic safety issues in the City.

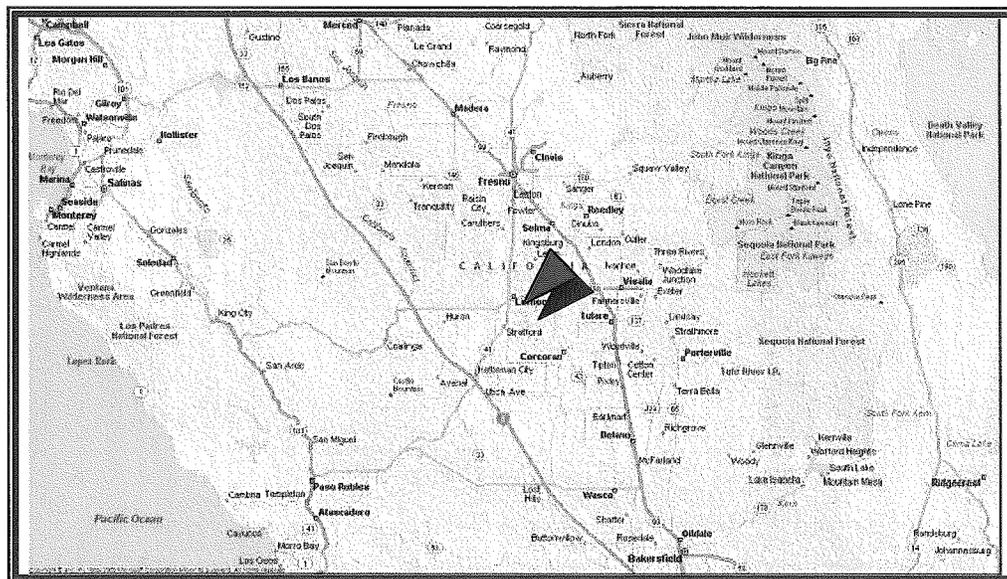
As this report is conceptual in nature, the City may choose to conduct more detailed studies before finalizing and implementing any physical changes. Conditions may exist in the focus areas that were not observed and may not be compatible with suggestions in this report. City staff may choose to conduct further analysis to refine or discard the suggestions in this report, if they are found to be contextually inappropriate or appear not to improve traffic safety or traffic operations due to conditions including, but not limited to, high vehicular traffic volume or speeds, physical limitations on space or sight distance, or other potential safety concerns.

2. BACKGROUND AND COLLISION HISTORY

Introduction

Lemoore, California, located in Kings County, is 27 miles west of Visalia, California (center to center) and 30 miles south of Fresno, California. The city is home to an estimated 19,712 residents. Lemoore (formerly, La Tache and Lee Moore's) is also at an elevation of 230 feet. It is part of the Hanford–Corcoran Metropolitan Statistical Area. The population was 24,531 at the 2010 Census. Lemoore is incorporated as a general law city under the California Constitution. The City has a council-manager government with a City Manager appointed by the City Council. The City Council is made up of five members. The Mayor and Mayor pro tem are elected by the City Council from among its members. The earliest modern inhabitant of this area was Dr. Lovern Lee Moore, a man of great vision who brought together the scattered farm families of the area to function as a group. He helped to develop community and business in this area and he was also instrumental in establishing the area's first post office in 1873. The area was incorporated as a city in 1900.

Figure 2.1: City of Lemoore Vicinity Map



2.1 Traffic Collision Investigating and Reporting

Traffic collision reports are prepared in compliance with the California Highway Patrol (CHP) Collision Investigation Manual (CIM). The traffic collision reports submitted by Lemoore officers are reviewed by the traffic Sergeant and ultimately are submitted to the Statewide Integrated

Traffic Records System (SWITRS). A practice of having one trained person reviewing traffic reports results in greater accuracy and completeness. However, even departments the size and collision activity level of Lemoore, patrol supervisors need to play an active role in reviewing collision reports given the rank and file officers produce them. To avoid conflicts in chain of command, the traffic Sergeant may communicate collision documentation deficiencies with the patrol supervisors, who in turn carry the message and monitoring of compliance to the rank and file officers. The participation of patrol supervisors in the review process not only ensures a greater degree of compliance and shift level accountability, but also frees significant time for the traffic sergeant so he/she is not spending inordinate amounts of time reviewing collision reports. Entering the collision reports into RIMS may resolve address and street name verification issues we located in the SWITRS data.

2.2 Statewide Integrated Traffic Records System Statistical Data

SWITRS processes all reported fatal and injury collisions which occurred on California's state highways and all other roadways, excluding private property. Lemoore is slightly above the statewide expected ratio of Property Damage Only (PDO) to Fatal and Injury Collisions of 2 to 1. Table 2 portrays the collision data in Lemoore, from 2006 to 2010.

Table 2: Collision Data for Lemoore

<i>Collision Type</i>	<i>Number of Collisions</i>				
	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
Fatal	2	0	2	2	1
Injury	65	72	57	61	55
Property Damage	148	166	155	148	163
<i>Total</i>	<i>215</i>	<i>238</i>	<i>214</i>	<i>211</i>	<i>219</i>
<i>Ratio PDO:Injury/Fatal</i>	<i>2.2:1</i>	<i>2.3:1</i>	<i>2.6:1</i>	<i>2.3:1</i>	<i>2.9:1</i>

The reasons for the slightly higher ratio can be a number of factors likely known to the Department, and could be the result of seat belt enforcement reducing the frequency of injuries, or it can also occur if calls for service where a PDO is involved is handled by facilitating an exchange of information rather than a collision report. While Lemoore's trend is quite mild, we suggest that traffic supervision consider these and other factors that might be responsible and monitor this ratio. Should it continue to rise, we suggest collision documentation policies undergo review to assure it reflects the department's desired mission or goal, and then that the line officers comply accordingly.

Table 3: Comparative Collision Data for other Cities in Kings County (2009)

		Total	Total	Total	Alcohol	Alcohol	Pedestrian	Pedestrian	Bicycle	Bicycle	Motorcycle	Motorcycle
		Fatal	Injury	Property	Involved	Involved	Involved	Involved	Involved	Involved	Involved	Involved
		Fatal	Injury	Damage	Fatal	Injury	Fatal	Injury	Fatal	Injury	Fatal	Injury
Kings		26	487	928	7	67	1	26	0	23	4	22
	Avenal	0	11	17	0	2	0	2	0	2	0	1
	Corcoran	0	13	82	0	4	0	0	0	0	0	1
	Hanford	1	167	257	0	16	1	17	0	10	0	7
	Lemoore	2	62	148	1	8	0	5	0	4	0	4
	Unincorporated	23	234	424	6	37	0	2	0	7	4	9
	Uninc. State Highways	9	107	193	2	14	0	0	0	0	0	4
	County Roadways	14	127	231	4	23	0	2	0	7	4	5

An analysis of five years of SWITRS data reveals that the highest number of traffic collisions occurs on Fridays, with the least on Saturdays and Sundays, as shown on Chart 1.

Chart 1: Average Collisions by Day of Week SWITRS (2006 – 2010)

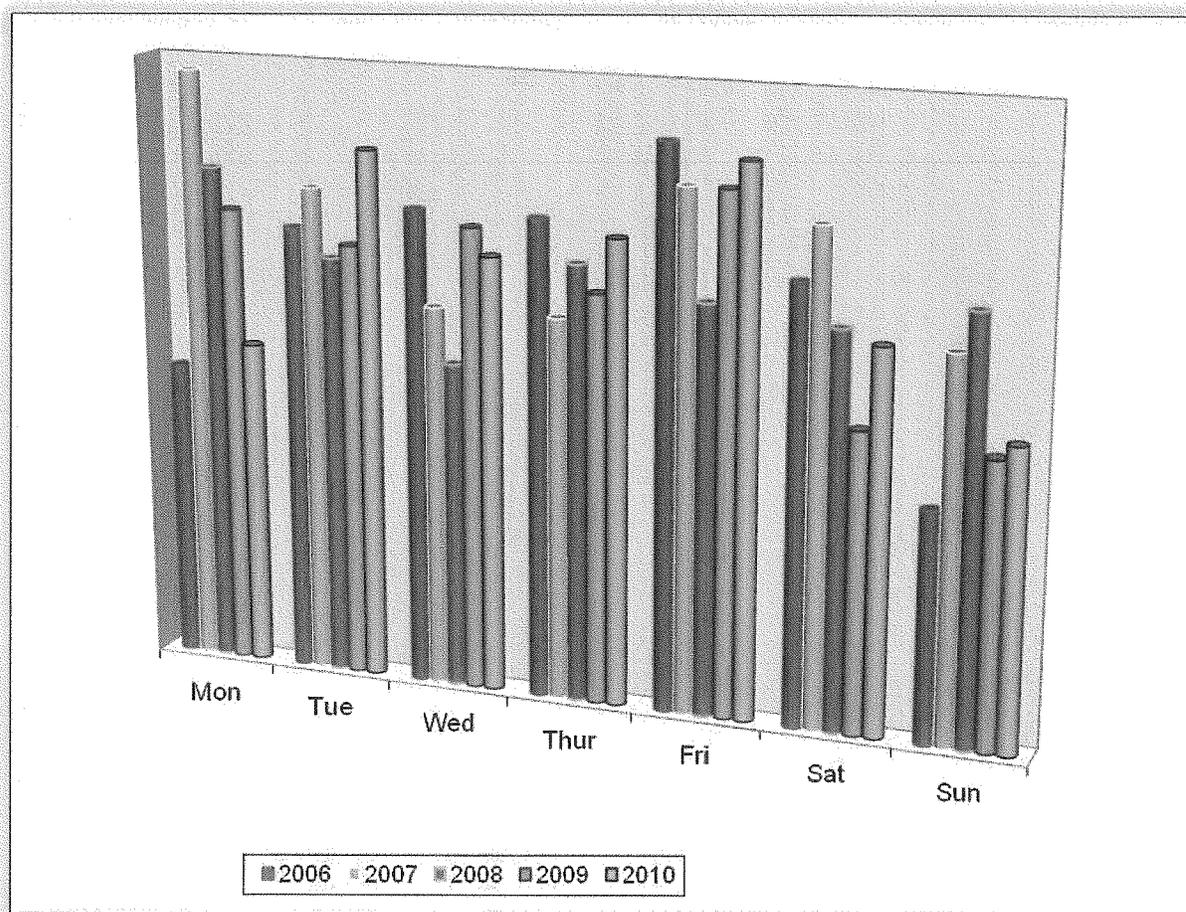
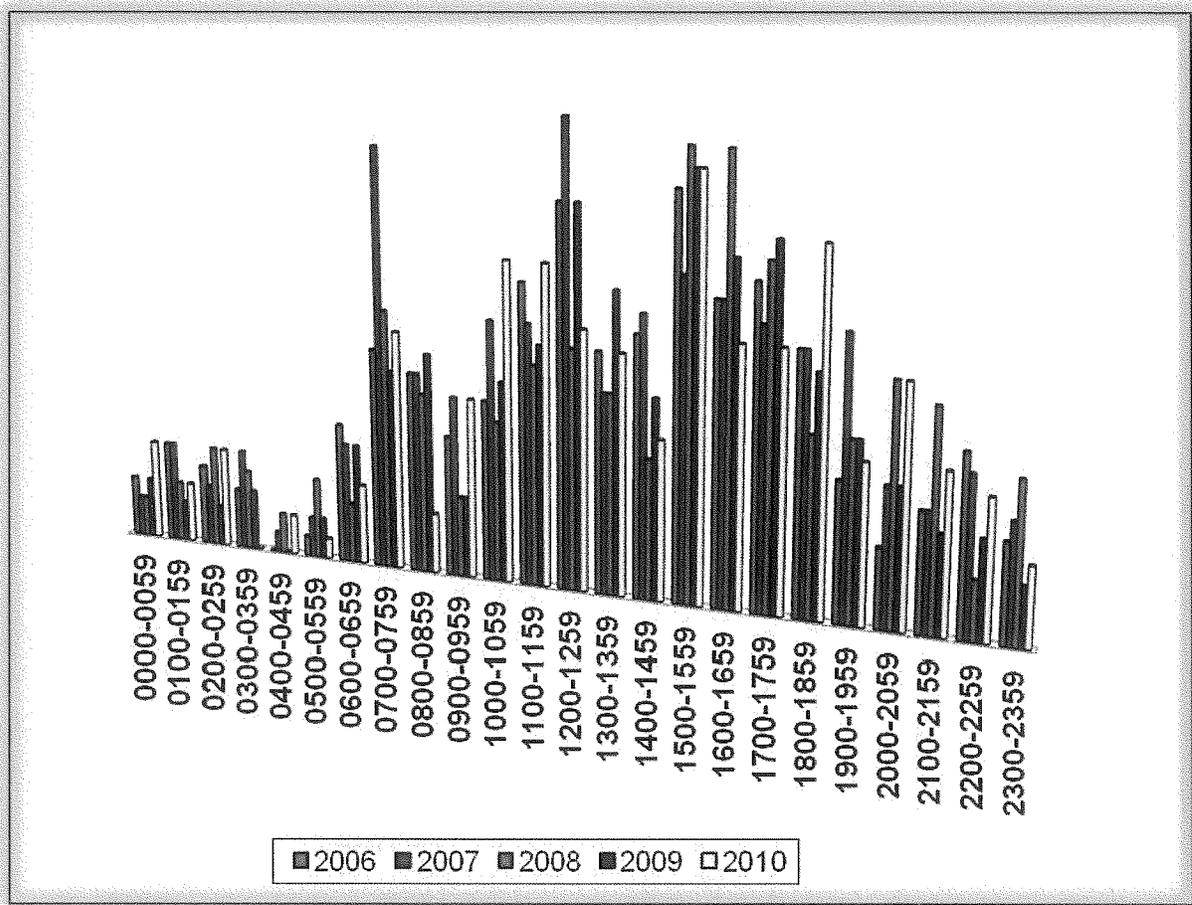


Chart 2 represents an analysis of SWITRS data focusing on hours of the day. The period from 7:00 am through 5:00 p.m. has the highest number of collisions, with peaks at typical commuter rush hours.

Chart 2: Collisions by Hours of the Day (2006 – 2010)



The type of charts above can assist with scheduling traffic enforcement personnel deployment by day of week, and developing shift times to have maximum impact on traffic collisions.

2.3 Office of Traffic Safety Ranking

The Office of Traffic Safety (OTS) selected rankings by population for Lemoore is shown below in Table 4. The OTS rankings facilitate funding decisions and identify emerging traffic safety problem areas. The rankings allow cities to compare themselves with all the other cities in the state of similar population (i.e. rank 1/97 being the worst and 97/97 being the best). It may be noted that OTS rankings are only indicators of potential problems; there are many factors including size of population and average daily traffic that may either understate or overstate a city’s ranking.

The OTS rankings are based on one of the following:

- Number of victims killed/injured per “1,000 average population”
- Number of fatal/injury collisions per “1,000 average population”

Victim and collision data for the rankings are taken from the latest published California Highway Patrol (CHP) Statewide Integrated Traffic Records System (SWITRS) report. Cities are assigned population group rankings. However, pedestrian, bicyclist and motorcycle victim rankings do not take into account the size or demographics of a city's pedestrian/bicyclist/motorcyclist population.

Table 4: Selected Office of Traffic Safety Rankings for Lemoore (Year 2004 – 2010)

Year	Alcohol_Vic_Pop_Rank	DUI_Under_21_Vic_Pop_Rank	DUI_21_34_Vic_Pop_Rank	Hit_Run_Col_Pop_Rank	K_I_Vic_Pop_Rank	Nighttime_Col_Pop_Rank	Speed_Col_Pop_Rank	Speed_Col_DVMT_Rank
2004	74/106	94/106	63/106	89/106	48/106	76/106	42/106	20/106
2005	19/104	96/104	28/104	44/104	33/104	21/104	31/104	10/104
2006	18/105	23/105	4/105	35/105	33/105	16/105	38/105	9/105
2007	80/101	101/101	60/101	61/101	30/101	60/101	24/101	7/101
2008	32/101	101/101	5/101	47/101	37/101	25/101	40/101	12/101
2009	24/98	15/98	1/98	88/98	35/98	36/98	37/98	12/98
2010	27/108	107/108	48/108	12/108	38/108	41/108	45/108	25/108

From Table 4, City of Lemoore demonstrated a general trend history of alcohol related problems unilaterally affecting all categories, with the by-products of high ranking in nighttime and hit and run collisions as both typically involve a DUI driver. To Lemoore PD’s credit, their DUI arrest ranking is consistently near the top ten percent of similar populated cities. This problem is a discussion point later in this evaluation.

2.4 Primary Collision Factors

When a driver commits a traffic violation (e.g., speeding, running red light, running stop sign, turning, lane-changing, etc.) that is deemed the cause of the collision, the violation is coded as the Primary Collision Factor (PCF). If it is determined that such a driver is also driving under the influence, the PCF is coded as DUI instead, and the traffic violation is then coded as a secondary cause of collision.

An analysis of hazardous citations issued as reflected in Lemoore PD's RMS database, revealed the percentages of citations issued for the same Primary Collision Factors as shown in Table 5.

Table 5: PCF% and % Citations Issued City of Lemoore (2010)

Rank	Description	Count	% caused by	Cited	% of all cited
1	Unsafe Movement	46	21.0%	0	0.00%
2	Unsafe Speed	37	16.9%	312	38.24%
3	Unsafe Start or Backing	25	11.4%	1	0.12%
4	DUI	19	8.7%	64	7.84%
5	Yield from Stop Sign	16	7.3%	7	0.86%
6	Red Light	8	3.7%	21	2.57%
7	Yield from Driveway	8	3.7%	1	0.12%
8	Left Turn Yield	7	3.2%	0	0.00%
9	Unsafe Lane Change	6	2.7%	8	0.98%
10	Yield to Ped in Crosswalk	4	1.8%	3	0.37%
Total		176	80.4%	417	51.10%

This comparison discipline is a suggested best practice for a traffic supervisor to use as a tool to focus his limited traffic enforcement resources to try and match that focus to the percentage and type of violations responsible for collisions in Lemoore.

An analysis of hazardous citations issued as reflected in Lemoore PD's RMS database, revealed the percentages of citations most commonly by Lemoore PD.

Table 6: Top Ten Hazardous Citations Issued, Lemoore PD 2010

Violation Cited	# issued 2010	% of all issued 2010
Unsafe Speed	312	31.8%
Unlicensed Driver	106	10.8%
Unlawful Cell Phone Use	99	10.1%
Stop Sign	83	8.5%
Suspended License	36	3.7%
Red Light	21	2.1%
Disobey Regulatory Sign	19	1.9%
Double Yellow Lines	13	1.3%
Gridlock	10	1.0%
Total	699	71.3%

The data in Table 6 are quite unusual because they illustrate the true story of what the traffic issues are in Lemoore, from an enforcement perspective. Lemoore is plagued with an inordinate amount of unlicensed and suspended drivers, who are frequently distracted by unlawful cell phone use, speeding, don't wear seatbelts, and as seen in prior data examples, drive under the influence at an unacceptable rate, and who are most often between 21-34 years of age.

2.5 Intersections and Road Segments with the Highest Number of Collisions

Based on information provided through the California Highway Patrol's Statewide Integrated Traffic Reporting System (SWITRS), data recorded from 2006 - 2010, there were a total of 1,097 collisions in the City of Lemoore. 29.1% of Lemoore's collisions occurred within intersections, 70.2% occurred mid-block with 0.7% unstated. Table 7 lists the intersections included in this TSE and the number of collisions at each:

Table 7: Intersections with the Highest Number of Collisions
(Based on SWITRS 2006-2010)

Intersections	Total number of Collisions
1. Hanford Armona Road and Lemoore Avenue	21
2. SR 198 and Vine Street	21
3. Lemoore Avenue and D Street	15
4. SR 198 and SR 41	11
5. Hanford Armona Road and Antelope Drive	8
6. Follett Street and B Street	8
7. Cinnamon Drive and Fox Street	8
8. Lemoore Avenue and Bush Street	5

Table 8: Road Segments with the Highest Number of Collisions
(Based on SWITRS 2006-2010)

Intersections	Total number of Collisions
1. Lemoore Avenue north Cinnamon Drive	28
2. SR 198 East and West of Vine Street	25
3. C Street East and West of Follett Street	12

3. TRAFFIC ENGINEERING EVALUATION AND IMPROVEMENT MEASURES

The frequency of collisions at some of the intersections and road segments in the City provided the motivation for generating the list of intersections to be studied in this TSE. This chapter presents the findings and suggestions of the TSE team to improve traffic safety and operations at each of these locations.

The City of Lemoore has already implemented the following safety enhancements to reduce the frequency of collisions along its most heavily traveled segments:

- Wheelchair ramps with tactile guidance
- Wider sidewalks on major streets and in the downtown area
- Traffic signals with mast arms, twelve-inch signal heads and protected left-turn phases
- Digital speed limit displays in school zones
- Left-turn restriction signs with posted fines in the downtown angle parking area
- Clearly posted speed limits
- Well maintained pavements and pavement markings
- Close working relationship between members of the law enforcement and engineering staff
- Construction of a transit center close to the railroad tracks



The following sections of this report present an engineering perspective of the locations that were included in the TSE using the latest High Incident Intersections and Road Segment lists based on 2006-2010 data from SWITRS. The list of intersections was also based on locations identified by the City of special concern and where the evaluators felt that they could identify mitigation measures that would reduce the frequency of collisions based on correctable patterns.

Intersections with the Highest Number of Collisions

- Hanford Armona Road and Lemoore Avenue
- SR 198 and Vine Street
- Lemoore Avenue and D Street
- SR 198 and SR 41
- Hanford Armona Road and Antelope Drive
- Follett Street and B Street
- Cinnamon Drive and Fox Street
- Lemoore Avenue and Bush Street

Road Segments with the Highest Number of Collisions

- Lemoore Avenue north Cinnamon Drive
- SR 198 east and west of Vine Street
- C Street east and west of Follett Street

3.1 Study Intersections with the Highest Number of Collisions

This section of the report presents the findings and suggestions of the TSE team to improve traffic safety and operations at High Incident Intersections.

3.1.1 Intersection 1: Hanford Armona Road and Lemoore Avenue

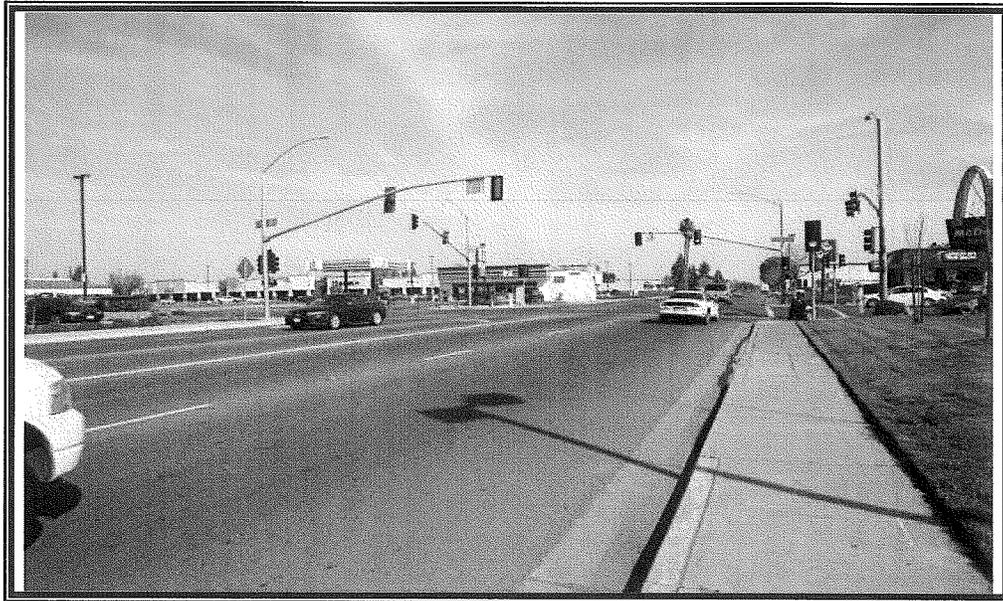
Existing Conditions

The intersection of Hanford Armona Road and Lemoore Avenue is controlled by a full eight-phase traffic signal. Protected left turn signals are provided for all approaches. The collisions are of the broadside type. Observations indicated that there is minimal use of all-red clearance intervals at this intersection. The approaches to the Hanford Armona and Lemoore Avenue intersection were also identified on the high incident SWITRS list for road segments. The sections of Hanford Armona Road and Lemoore Avenue are bordered by driveways serving commercial uses. The high volume full movement traffic entering and exiting these driveways has generated a broadside and rear-end collision pattern.

Possible Safety Improvements

- Consider providing a two-second all-red clearance interval after all through movements and one-second all-red clearance interval after all left-turn phases.
- Consider implementing RAT boxes or red light cameras to allow more efficient enforcement of red light signal indication violations.
- Consider implementing raised medians on Hanford Armona Road and Lemoore Avenue, where they currently do not exist, to provide better access control along these corridors to reduce the frequency of rear-end and broadside collision.

Figure 3.1: Hanford Armona Road and Lemoore Avenue



3.1.2 Intersection 2: SR 198 and Vine Street

SR 198 at Vine Street is a state highway with two travel lanes in each direction and unpaved median. Left-turns are permitted at the intersection from SR 198 onto Vine Street but no left-turn or through movements are allowed from the Vine Street approaches across or onto SR 198. There is a dog leg type of median at the intersection that restricts these movements. The predominant pattern of collisions involves vehicles hitting fixed objects, especially at night at the intersection. This pattern indicates that these areas are very dark and the fixed objects being struck are not clearly visible to drivers. The City indicated at the exit meeting that there will be additional improvements constructed at this intersection to make the Vine Street approaches into dead end cul-de-sacs.

Possible Safety Improvements

- Consider sending a request to District 6 of the California Department of Transportation to increase the amount of street lighting at the SR 198 and Vine Street intersection.
- Consider sending a request to District 6 of the California Department of Transportation to review the collision reports and better delineate the dog leg shaped island until such time as the new intersection design is constructed.

Figure 3.2: SR 198 and Vine Street



3.1.3 Intersection 3: Lemoore Avenue and D Street

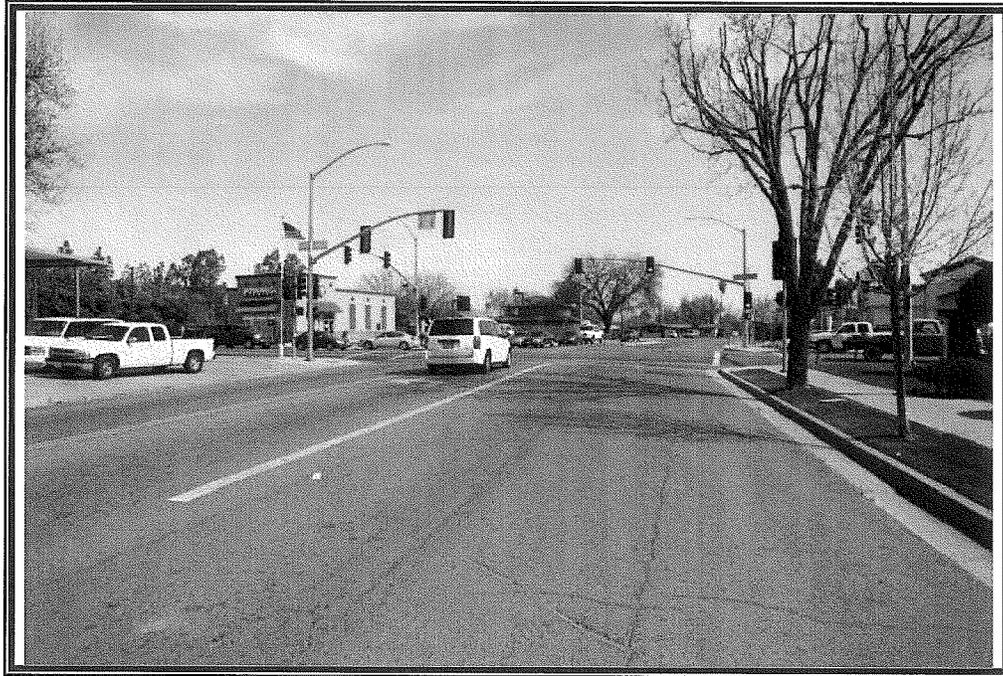
Existing Conditions

The intersection of Lemoore Avenue and D Street is controlled by an eight phase traffic signal. The pattern of collisions is mostly of the broadside type. Medians have been retrofitted on the approaches to the intersection to control turning movements at driveways closest to the intersection to right-turn movements. Observations indicated that there is minimal use of all-red clearance intervals at this intersection. There was a pedestrian-vehicle collision at this intersection towards the end of 2010.

Possible Safety Improvements

- Consider providing a two-second all-red clearance interval after all through movements and one-second all-red clearance interval after all left-turn phases.
- Consider implementing RAT boxes or red light cameras to allow more efficient enforcement of red light signal indication violations.
- Consider implementing countdown pedestrian signal indications.

Figure 3.3: Lemoore Avenue and D Street



3.1.4 Intersection 4: SR 198 and SR 41

Existing Conditions

The interchange of SR 198 and SR 41 has a predominant pattern of broadside collisions. It is unclear where these broadside collisions are occurring because the design of the interchange is of the type that does not involve right-angle intersections.

Possible Safety Improvements

- Consider sending a request to District 6 of the California Department of Transportation to review the collision reports for broadside collisions occurring at the SR 198 and SR 41 interchange and make appropriate change to correct the broadside collision pattern.

Figure 3.4: SR 198 and SR 41



3.1.5 Intersection 5: Hanford Armona Road and Antelope Drive

Existing Conditions

The four-way intersection of Hanford Armona Road and Antelope Drive is controlled by a traffic signal which was recently constructed. The frequency of collisions has been significantly reduced since the installation of the traffic signal.

Possible Safety Improvements

- No additional improvements are suggested.

Figure 3.5: Hanford Armona Road and Antelope Drive



3.1.6 Intersection 6: Follett Street and B Street

Existing Conditions

The intersection of B Street and Follett Street is controlled by Yield signs on the B Street approaches. The collisions that have been occurring at this intersection are mostly of the broadside type. Yield signs have proven to be ineffective at controlling right-of-way at four-way intersections, especially when they are of the smaller size and on wider local street approaches. They are also not effective when the corner sight distance for Yield controlled intersection is obscured by fencing and trees. Crosswalks across Follett Street are with just two white lines. There are similarly marked crosswalks at other intersections in Lemoore. Studies published by FHWA in 2005 suggest that if crosswalks are marked, they could include other treatments to improve their safety performance.

Possible Safety Improvements

- Consider replacing the existing Yield signs controlling the B Street approaches with 36-inch or larger stop signs. This change may be considered at other intersections in Lemoore that are controlled in a similar manner.

- Consider installing signs in advance of the marked crosswalk across Follett Street in conformance with the CAMUTCD.
- Consider installing high visibility ladder style markings to increase the visibility of the marked crosswalk as shown in Section 3 of the CAMUTCD.

Figure 3.6: Follett Street and B Street



3.1.7 Intersection 7: Cinnamon Drive and Fox Street

Existing conditions

The intersection of Cinnamon Drive and Fox Street is controlled by an all-way stop. Two stop signs are posted for the southbound approach of Fox Street because it has stop sign in the median. The other three wider approaches are controlled by a single stop sign. The occurrence of only broadside collisions at an all-way stop controlled intersection is unusual and indicates that drivers are not seeing the stop signs and entering the intersection when another vehicle is present.

Possible Safety Improvements

- Consider increasing the size of the stop signs controlling the traffic on the northbound approach of Fox Street as well as the eastbound and westbound approaches on Cinnamon Drive to 48 inches to increase their visibility on these wider approaches.

Figure 3.7: Cinnamon Drive and Fox Street



3.1.8 Intersection 8: Lemoore Avenue and Bush Street

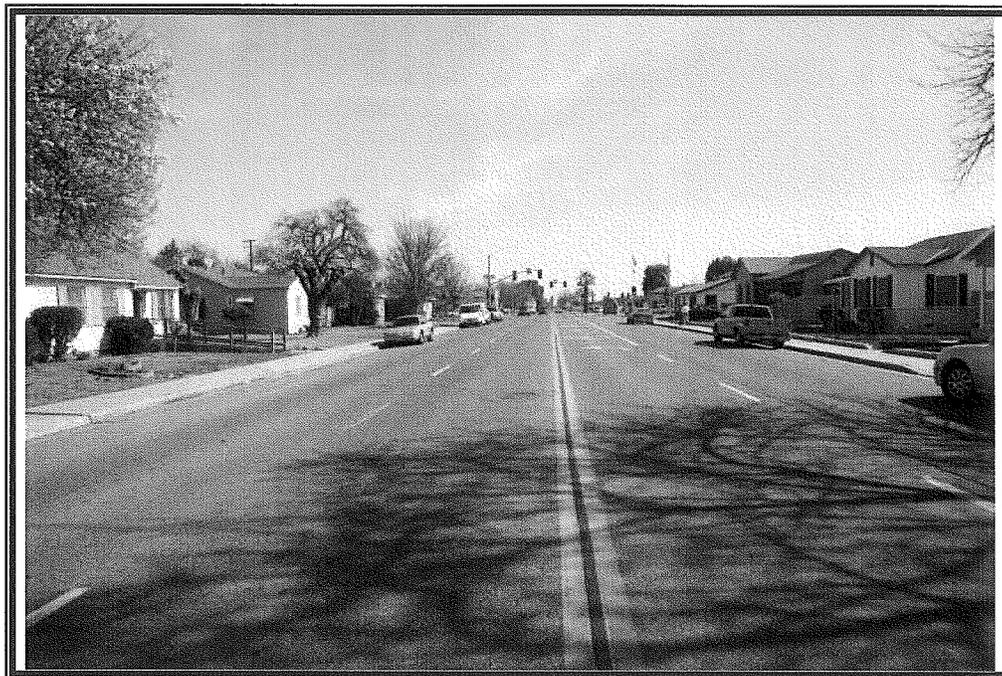
Existing Conditions

The intersection of Lemoore Avenue and Bush Street is controlled by a full eight-phase traffic signal. There were five collisions during the 2006-2010 time period, but there is no clearly correctible pattern. There were eight collisions during the same five years on the west leg of the intersection on Bush Street within 300 feet of the intersection mostly of the rear-end type.

Possible Safety Improvements

- Consider implementing “road diet” striping on Bush Street west of Lemoore Avenue. This would involve reducing the number of travel lanes to one lane in each direction and providing a continuous two-way left turn lane beginning 150 feet west of the intersection. This would provide wider parking lanes and space for on-street bike lanes. The new striping would also provide a lane for drivers making left-turns at driveways and intersections along Bush Street west of Lemoore Avenue.

Figure 3.8: Lemoore Avenue and Bush Street



3.2 Study Roadway Segments with the Highest Number of Collisions

This section of the report presents the findings and suggestions of the TSE team to improve traffic safety and operations on three specific roadway segments.

3.2.1 Segment 1: Lemoore Avenue north of Cinnamon Drive

Existing Conditions

Lemoore Avenue north of Cinnamon Drive has commercial land uses along both sides of Lemoore Avenue generating significant turning movements mostly within 500 feet of the intersection of Lemoore Avenue and Cinnamon Drive. The predominant collision pattern involves rear-end and broadside types. A concrete median has been installed on Lemoore Avenue for a distance of about 500 feet north of Cinnamon Drive. The median appears to have reduced the frequency of collisions. SWITRS data indicates no significant pattern of collisions after mid-July, 2010.

Possible Safety Improvements

No additional improvements appear to be needed.

Figure 3.9: Lemoore Avenue north Cinnamon Drive



3.2.2 Segment 2: SR 198 East and West of Vine Street

Existing Conditions

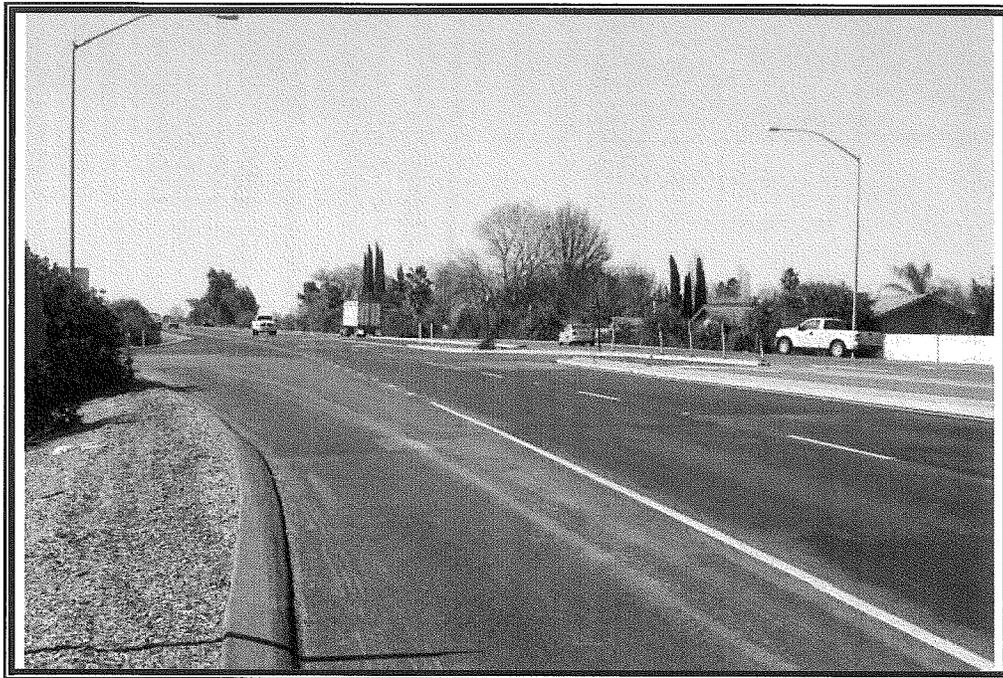
SR 198 east and west of Vine Street is a state highway with two travel lanes in each direction and unpaved median. Left-turns are permitted at the intersection from SR 198 onto Vine Street but no left-turn or through movements are allowed from the Vine Street approaches across or onto SR 198. The City indicated at the exit meeting that additional improvements will be constructed at this intersection to make the Vine Street approaches into dead end cul-de-sacs.

The predominant pattern of collisions involves vehicles hitting fixed objects, especially at night. This pattern indicates that these areas are very dark and the fixed objects being struck are not clearly visible to drivers.

Possible Safety Improvements

- Consider sending a request to District 6 of the California Department of Transportation to increase the amount of street lighting provided along SR 198 for up to 1,000 feet east and west of Vine Street.
- Consider sending a request to District 6 of the California Department of Transportation to review the collision reports and install object markers adjacent to the objects that drivers are running into. The markers need to be in compliance with the 2012 edition of the CAMUTCD.

Figure 3.10: SR 198 East and West of Vine Street



3.2.3 Segment 3: C Street East and West of Follett Street

Existing Conditions

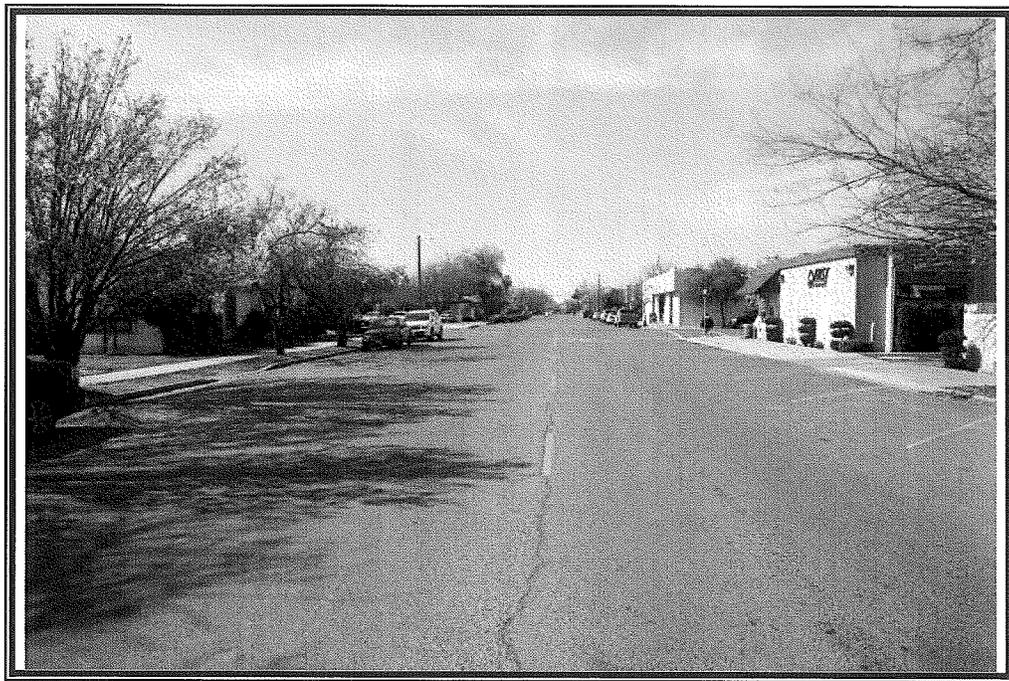
The intersection of C Street and Follett Street is controlled by Yield signs on the C Street approaches. There is angle parking on C Street east and west of Follett Street. The predominant collision pattern is of the broadside type but there are also rear-end and sideswipe collisions. The collisions are all within 200 feet of the intersection. The angle parking may be restricting sight distance at the C Street and Follett Street intersection as well as for drivers exiting the driveways within 200 feet of this intersection. The rear end and sideswipe collisions

are most likely related to the angle parking maneuvers. Crosswalks across Follett Street are with just two white lines. There are similarly marked crosswalks at other intersections in Lemoore. Studies published by FHWA in 2005 suggest that if crosswalks are marked, they may include other treatments to improve their safety performance.

Possible Safety Improvements

- Consider removing parking spaces closest to the C Street and Follett Street intersection to improve sight distance.
- Consider installing signs in advance of the marked crosswalk across Follett Street in conformance with the CAMUTCD.
- Consider installing high visibility ladder style markings to increase the visibility of the marked crosswalk as shown in Section 3 of the CAMUTCD.

Figure 3.11: C Street East and West of Follett Street



4. ENFORCEMENT MEASURES

4.1 Traffic Enforcement Capabilities



The Lemoore Police Department is managed by Chief Jeff R. Laws, and has primary traffic enforcement responsibilities in Lemoore. Lemoore PD has a total of 36 assigned personnel. There are 29 sworn positions, all of which are currently filled, and 15 non-sworn positions. There are 19 officers assigned to patrol which work 3/12 shifts.

The supervision of the Traffic Enforcement is a collateral assignment of Sgt. Pat Mundy who supervises two motor officers who work 4/10 shifts split, Mondays through Fridays.

The Lemoore Police Department maintains a website at:

<http://www.lemoore.com/lpd/>

Lemoore PD's motor unit has a website at:

<http://www.lemoore.com/lpd/motoruni.htm>

The Lemoore PD website contains a number of touch points for traffic safety. Aside from the motor unit link, there is a link to the department's latest annual report. The annual report contains pertinent traffic collision and citation trends demonstrating the department's commitment to traffic safety through collision reduction.

We suggest several improvements to Lemoore's traffic unit website. Lemoore may consider or model the Oxnard Police Department's website. With Oxnard PD's Traffic Unit website, one can navigate to useful topics such as red light cameras, parking enforcement, vehicle impounds, traffic complaints (where citizens can email traffic complaints and enforcement requests), child safety seats, DUI checkpoints and saturation patrols, seat belt enforcement and press releases. We found their site to be highly informative and current as to the unit's focused enforcement efforts.

Enforcement

While several of Lemoore's sworn officers have attended DAR and/or DRE schools, we suggest sending either one of the motor officers or the Traffic Enforcement Supervisor to the necessary schools to attain the ability to train Lemoore's rank and file officers and ultimately certify them as DAR or DRE experts.

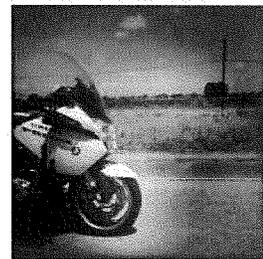


Considering the total sworn strength in the Lemoore Station and the DVMT, and traffic congestion in the City, we suggest maintaining the current motor staffing of two. The current traffic deployment levels were adequate for the vehicular volumes and subsequent collision rates in 2011.

The first suggestion is to permit the collaterally assigned supervisor the option of riding a motor him/herself. This would not only augment the unit's productivity, but also supplement special event activity deployment, saturation patrols and special traffic enforcement efforts such as sting operations for speed and pedestrian compliance.

The second suggestion is to deploy the motor officers during the days and hours when collisions are actually occurring. Since the historical and current trends reflect that Saturdays and Sundays are the lowest days for collisions, motor officers may remain deployed Mondays through Fridays, on the basis of 4/10 shifts, unless for special events.

To demonstrate the effectiveness of motor officers, we examined data at a number of departments. Without exception we found that despite the fact that motor officers comprise a very small percentage of the sworn officers in the field, they were still responsible for writing the majority of the moving violations. This percentage ranged between 65%-90% of moving violations written typically by the motor officers, which represent only between 6-10% of all officers in the field.



While officers are never to be viewed as revenue generating personnel, it does bear noting that moving violations are responsible for 95% of traffic fine revenue due to issuing cities. Each

effective motor officer represents to the city primarily the tool for specific, measurable traffic collision reduction, but also the ability to fund traffic safety programs as well.

We suggest the motor and traffic officers to attend minimally basic and intermediate school within the second year of being assigned to traffic, and then be advanced to collision investigation by the fourth year. Traffic investigators may complete reconstruction training by the sixth year at the latest. Training alone in 40600 CVC is insufficient for anything beyond the simplest collision investigations. Complete and competent collision investigations not only serve the community at the highest level, but also reduce the exposure of liability of expensive, unnecessary and unwarranted litigation involving the City.

The California Law Enforcement Challenge (CLEC)

CLEC is a competition between similar sizes and types of law enforcement agencies. It recognizes and rewards the best overall traffic safety programs in California. The areas of concentration include efforts to enforce laws and educate the public about occupant protection, impaired driving, and speeding. Agencies submit an application (usually in a three ring or presentation binder) which documents their efforts and effectiveness in these areas. The winning safety programs are those that combine officer training, public information and enforcement to reduce collisions and injuries within their jurisdictions. The Lemoore Police Department is a participant in CLEC.



Record Management System (RMS)

Lemoore has a primary Records Management System (RMS) with the vendor RIMS. As such, their Record Management System (RMS) does not easily provide the ability to mine collision data to produce a listing of worst intersections or segments, let alone the most common PCF. Searching and sorting capabilities of collision data is critical and necessary to deploy Lemoore's limited resources for the greatest impact. Without a robust GIS-based collision database, the Police Department would be inhibited in its ability to establish collision reduction goals and monitor progress in achieving them. We suggest that Lemoore PD's traffic unit to meet monthly to discuss strategies for collision reduction and setting goals, and to report to staff on their progress. We also suggest that Lemoore PD traffic unit members, preferably the traffic Sergeant, meet with Traffic Engineering on a quarterly basis.

During our visit the TSE team demonstrated how to access the ISWITRS database in order to download raw data and the previously created reports. We suggest that the traffic sergeant utilize ISWITRS to compile collision data as a discipline to mold their expectations of future RIMS reporting capabilities. ISWITRS can be accessed by Lemoore PD members at their website:

<http://iswitrs.chp.ca.gov/Reports/jsp/CollisionReports.jsp>

Enforcement Index

The Enforcement Index (number of citations issued / number of fatal & injury collisions), which was developed by Northwestern University and is utilized by OTS, is another measure of effectiveness in traffic safety programs. Northwestern University suggests a minimum of 25 citations per fatal/ injury collision as a guide to measure the success of traffic safety programs for an effective traffic safety effort, which is endorsed by OTS. The suggested traffic enforcement index is a guide and not necessarily a rule. The Enforcement Index for Lemoore PD on 2010 collision data is shown in Table 9:

Table 9: Enforcement Index Calculation (2010)

	Hazardous Citations issued	Fatal and Injury Collisions	Enforcement Index
2010	806	56	14.4

The flip side of this calculation is that fewer hazardous citations can be written if the quantity of injury and fatal collisions are reduced through other efforts such as seat belt enforcement, specialized “stings”, public service messages, community outreach or other focused enforcement or education.

4.1.1 PCF Enforcement

In reviewing the collision data for the entire City for 2010 by SWITRS, Table 5 demonstrated a discipline to identify and address the most dominant PCF type in causing collisions in the

community of Lemoore. The TSE team feels a typical discipline or best practice consists of these components:

- 1) Identify collision trends by PCF, either specific violations or group type, times and location.
- 2) Identify department resources suitable for deployment or possible collateral assistance.
- 3) Disseminate appropriate information and training if required.
- 4) Establish reasonable goals that can be quantified and monitored.
- 5) Report progress to staff and participants on a monthly or quarterly basis.

Unsafe Speed

Specific to Lemoore, The TSE team noted that a common specific PCF was 22350 VC, Unsafe Speed. Again, the key to reducing this frequency is to recognize a reporting conflict. The CIM indicates that a typical rear end collision may be assigned the PCF of 22350 VC, based on the concept of a safe speed to approach a vehicle ahead is either the same speed of that vehicle or less. The result of following this doctrine is an overrepresentation of speed, when in fact most rear ends do not involve a high speed, but most often tailgating. Proper training is to recognize that the CIM permits the assignment of PCF to occur by the officer's consideration of statements, preferably disinterested statements from witnesses, demonstrative physical evidence or admissions. A suggestion would be to train Lemoore officers to solicit a response in a rear end collision scenario from the rear ending driver. Simply commenting to him/her that the collision might have been avoided if that driver had "just a little more room", then the stop might have been accomplished prior to impact. Typically the driver agrees, which constitutes an admission. Then, the correct assignment of "21703 VC Following Too Closely" would be entered as the PCF.

Most traffic supervisors are very familiar with the heated complaints from the same party at fault when unsafe speed was assigned at a low speed impact in congested traffic. The connotation that they were speeding is exploited by the subrogation process and litigation. Enforcing 21703 is accomplished by training officers in simple time/distance low level math. Traffic officers who have attended basic collision investigation are qualified enough to share this through role call training or traffic "tips" in a monthly bulletin. Lemoore's unsafe speed collisions in 2010 SWITRS database consisted of 16.8% unsafe speed assigned as PCF, of those, 54% were rear end scenarios, and 55% of those were not severe enough to even require a tow. This indicates congestion and/or inattention rather than high speed circumstances. Further bearing out this

issue is that despite 55% of Lemoore's rear end collisions being arguably a tailgating incident, not a single collision in 2010 was actually assigned 21703 CVC, tailgating as PCF.

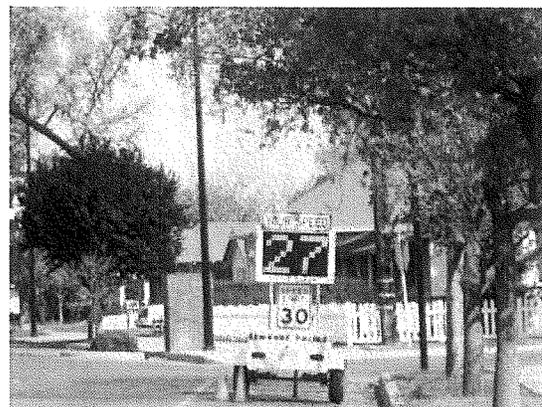
Actual speed enforcement is accomplished in Lemoore by their use of Lidar and radar; however we suggest that radar certification and radar units be made available throughout the patrol ranks. Lemoore PD indicates they already have radar units available for certified patrol officers. Utilizing a radar trailer and deploying it based on school zones, citizen complaints and collision trends are optimum. We suggest Lemoore PD deploy their radar trailer utilizing this suggested discipline, including input from their traffic engineer. Traffic Engineering can also use the trailer to gather speed and volume data.

Unsafe Turning Movements

One common PCF was unsafe turning movements. Typically this is used when a vehicle fails to maintain a proper lane position and strikes parked vehicles or objects, or impacts another adjacent vehicle within an intersection where lane lines are not present. Officers may target vehicles that are not tracking near the lane's center, now common due to cell phone use but in evening hours a frequent trait of a DUI driver. We do suspect that 22107 VC is being used as a catch all in Lemoore when a more specific violation could have been assigned as a PCF. We suggest the traffic supervisor watch for collision reports where 22107 VC was used, and review those for a more appropriate PCF.

Unsafe Backing or Starting

Another common PCF specific section in SWITRS 2010 was 22106 CVC, unsafe backing or starting, another indicator of congestion or often sight distance restrictions at intersections where a right turning vehicle would begin its turn then observe an approaching vehicle and make a sudden stop. Following vehicles also intending a right turn have their attention to their left, and fail to see the forwarding vehicle have stopped. The section is



very difficult to enforce, however we suggest watching for clusters of such scenarios by traffic supervisors or their designees. Noting this cluster to the traffic engineering staff can expedite a solution to address the sight obstruction.

Unsafe Lane Changes

Another common PCF was unsafe lane changes, 21658a CVC, which is the next most common PCF in the SWITRS database for Lemoore. This PCF violation is again a difficult violation to enforce, and one that in congestion rich environments as Lemoore are usually only cited by motor officers as they alone can see above vehicle roofs and have the ability to get to the violators. We suggest that clusters of such PCF be watched for, mapped and noted to engineering as well as targeted for focused enforcement.

Right of Way Violations

Right of Way violations was also common and is most effectively enforced through training. The TSE team suggests training closely following California Jury Instructions. Once an officer testifies following this discipline, a traffic commissioner or judge will quickly recognize the phrasing which adds to the officer's credibility. A four point short list for right of way consists of:

- 1) State which vehicle had the right of way by statute.
- 2) Explain that approaching vehicle retained right of way by lawful approach.
- 3) Testify as to witnessing the right of way vehicle having to speed up, swerve, stop or slow down (the four "S" rule) as a result of the defendant's movement.
- 4) Testify that had not the right of way vehicle performed one of the 4 "S" maneuvers; there would have been "dual occupation" of the same space at the same time, hence a collision.

DUI is discussed later in this evaluation, but for a community the size of Lemoore, the frequency of DUI is an issue to address as this is the 4th most common PCF.

The enforcement of stop signs and signals is a basic enforcement strategy, but focusing efforts at high collision locations is a key to collision reduction involving this PCF. Where and when the collisions are occurring could be a point of discussion during briefing on a monthly basis.

Lastly, the frequency in which the SWITRS 2010 database had unstated (unknown) listed (blank PCF) by the officer was 6.8% of all collisions, which exceeds the State average of 3.8% once the hit and run collisions were removed from the calculation. Many hit and runs investigations have demonstrative evidence more than sufficient to assign a PCF, which assists victims in their compensation efforts. This indicates that officers investigating collisions in Lemoore could follow more closely the CIM standards for the use of "unknown" as PCF. We suggests quoting the CIM when assigning "unknown" as doing so reduces complaint calls once involved drivers

review their collision investigation. Simply mentioning that there were no unbiased witnesses or demonstrative evidence to support either driver would explain this determination and is our suggestion.

We suggest that CIM training be held quarterly for patrol ranks. Quality enforcement of hazardous violations is a byproduct of actually investigating the collisions caused by the same violations. The practice of having motor officers investigate all injury collisions or worse, PDOs, not only reduces the motor officer's enforcement effectiveness, but this policy reduces the patrol officer's expertise in collision investigation through reduced exposure and practice.

To reduce the time spent documenting PDO collisions and/or the inclination for personnel to facilitate the exchange of information only; the TSE team suggests the use of the CHP Form 555-03. Officers can fill in the face sheet information, assign a report number, then give the bottom two copies to the involved parties. Their copy already has specific instructions on what they need to do, step by step and all required information for their respective insurance companies. The officer then can simply sketch the vehicle movements in the sketch box of his copy and submit. This minimal action gives the public what they require, and at the same time gives Lemoore traffic engineering the essential information to make informed decisions on where to allocate their resources. Since the submission of the 555-03 to SWITRS is at the department's discretion, any additional action on a PDO is Lemoore's choice up to and including a report format. Utilizing the 555-03 is preferred over facilitating an exchange of information for the reasons stated.

4.1.2 DUI Enforcement

Lemoore officers received the Peace Officer and Training (POST) course for Standardized Field Sobriety Test (SFST) while in the academy, plus a few of Lemoore's sworn officers have attended DAR instruction.

Table 9 shows the total number of DUI arrests in Lemoore and percentage of arrests resulting from DUI collisions up to 2010, the last completed year of collision data available in SWITRS.

Table 10: DUI Arrests in Lemoore SWITRS (2007 – 2010)

Year	Total DUI Arrests	DUI Collisions	% of DUI arrests from collisions
2007	63	8	12.7%
2008	84	17	20.2%
2009	81	13	16.0%
2010	64	19	29.7%

Law enforcement agencies may not exceed 20% of their DUI arrests from collisions per OTS; otherwise this is considered a reactive rather than proactive position. Based on SWITRS data, Lemoore PD's trend has moved commendably to the proactive mode rather than reactive response to the collision where DUI is the cause.

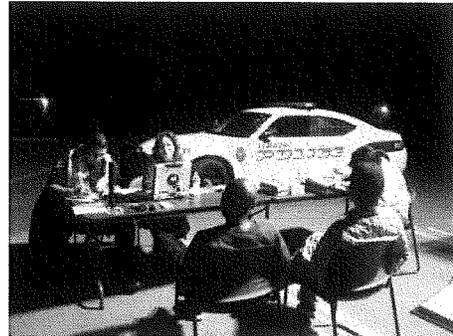
Lemoore maintains a BAC log as that recorded in their E-Pass units and what is available through their Crime Lab reports. The TSE team suggests and stresses the importance of maintaining a log of all DUI BAC results to identify individual officer training needs. Typically arrests made at 0.15 BAC or higher are from collisions, indicating a need to have additional training or supervision participation. Tracking those officers with higher BAC arrest only is essential to identifying these training needs.



The TSE recognizes that there is a significant DUI problem in Lemoore which has been addressed successfully. We suggest conducting a quick SWITRS query to identify the demographics of DUI arrestees, which in turn would guide public outreach efforts for media and community venues. Adopting the disciplines of an ABC grant, if not already in place, will identify "hotspots" of alcohol related calls for service, which in turn would identify targets for focused enforcement and relationship needs with alcohol vendors.

4.1.3 Vehicle Impound Program

Lemoore Station has a vehicle impound program, averaging 38 impounds and 12 stored per month. Impound (Stypmann) hearings are held by the Traffic Sergeant. Basic vehicle release fees are set at \$125.00, which on its face indicates Lemoore PD has identified recoverable resource use involved in the impound and storage services.



The TSE team suggests a fee study to be conducted every other year, preferably by someone who is intimately familiar with each act involved with a police impound. The TSE Team also discovered that Lemoore Station recovers DUI EMS costs, and does so in the most effective manner available to law enforcement agencies at this point in time.

The TSE Team also suggests a Traffic Offender Fund (TOF). The most effective TOF that the TSE Team has been exposed to date is operated by Claremont PD and Upland PD. The TSE Team suggests Lemoore to contact them for the TOF details if they are interested.

4.1.4 Seat Belt Enforcement and Use Rate

RIMS can quantify how many seat belt citations were written in any specific date range. Lemoore Station may complete a seat belt use rate survey annually to compare the City's use rate with the current State-wide use rate (95.7% in 2008). An easy format and directions for the survey form can be downloaded from: <http://ots.ca.gov/Grants/files/pdf/seatbelt/belt.pdf>.

Increasing seat belt use has a proven history of reducing injury and death. Click-It or Ticket mini grants can be a useful tool in gaining compliance, and Lemoore has conducted such a mini-grant. Lemoore PD has a seat belt policy in their Department Manual, and compliance is monitored by the field supervisors.

4.1.5 Safety Enforcement Grants

A search for Traffic Grants yielded several current grants specific to Lemoore. Lemoore was the host agency of an OTS grant for a Serious Traffic Offender (STOP) Program. An

informative and detailed explanation of this program can be found on their website:
<http://www.lemoore.com/lpd/stop.htm>

Here is an excerpt from the website explaining the focus of the STOP program:

“Since 1990, traffic collisions in the City of Lemoore have more than doubled. As a result of these collisions, the Lemoore Police Department responded to 183 traffic collisions where 53 people have been injured. Statistics show that a significant number of the collisions were caused by unlicensed drivers and drivers who were driving under the influence of alcohol or drugs.

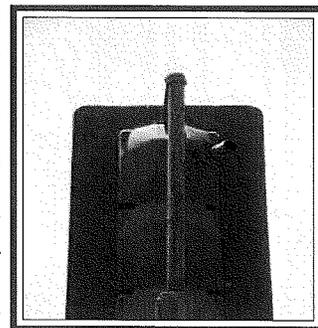
In an effort to combat this traffic safety problem, the Lemoore Police Department applied for and received a \$100,000 grant from the California Office of Traffic Safety.

The grant funding has enabled the Lemoore Police Department to create the Traffic Offender Program. The program will use an aggressive multi-disciplinary approach, balancing education with enforcement to increase the public's awareness of the hazards and consequences of driving under the influence or driving without a license.”

Lemoore PD also indicated they have conducted 3 DUI checkpoints per year, and participate in a local AVOID grant.

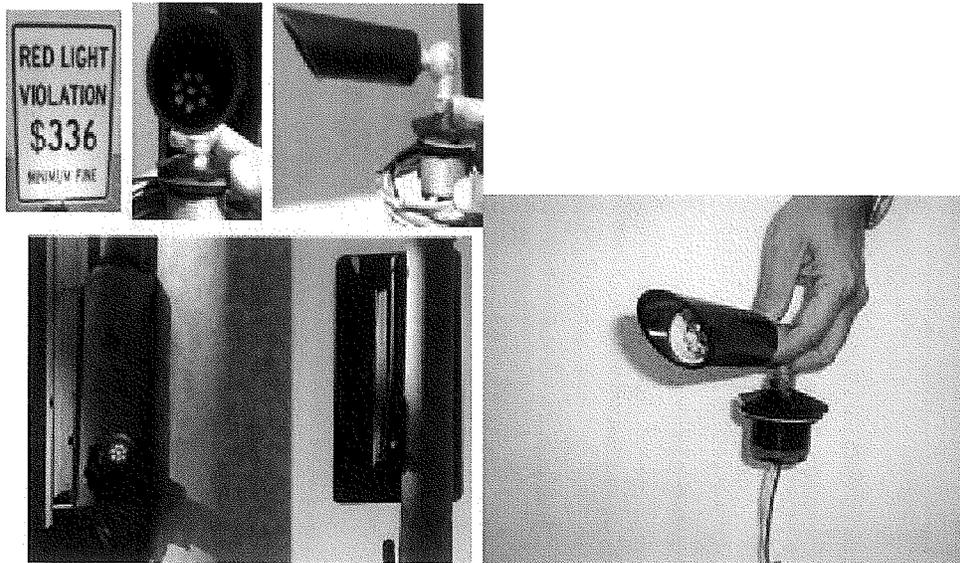
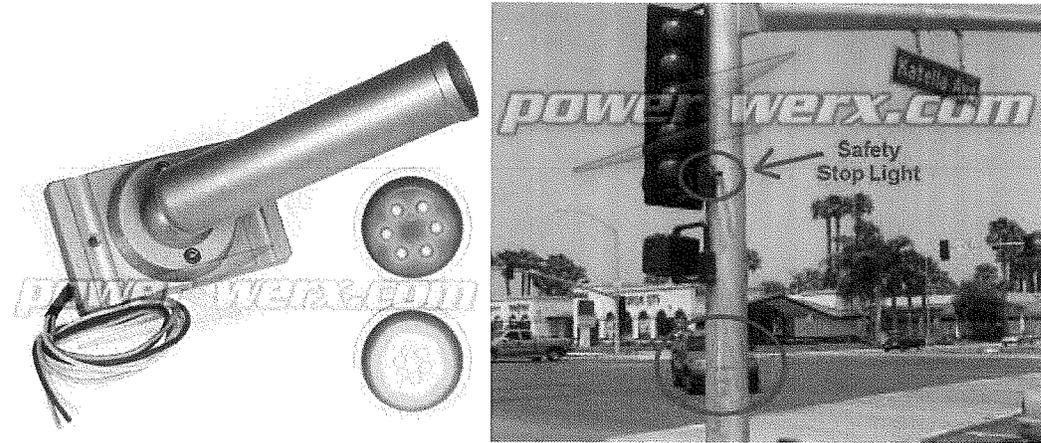
4.1.6 Traffic Signal Enforcement

If automated enforcement is not warranted at a particular location or the metrics of the desired location does not permit camera installations, the team suggests the installation of “Ratboxes” as a joint project of Lemoore Police and Engineering Departments. By educating the motor or traffic officers as to the signal phasing, they can identify where the “Ratboxes” need to be installed, and which direction to face. The 2-3” red LED array is hardwired to the back of a signal head, and is then pointed to a position of advantage for the officer. These inexpensive traffic signal accessories (\$200-\$600) enable a traffic enforcement officer to observe the condition of the signal from downstream or side-street position and to pursue red-light violators without



endangering themselves or other road users. Officers can keep track of the signal from a distance, usually on the downstream side of the intersection. This allows officers to safely stop the red light runner without the risk of crossing the intersection against the red light. They can improve the effectiveness of a traffic enforcement unit continuing to use conventional methods. Further information can be obtained from this site:

<http://www.techtransfer.berkeley.edu/newsletter/00-4/ratbox.php>



4.2 Traffic Safety Public Information

Lemoore Police Station Public Information Officer (PIO) and unit members issue media press releases on a need basis to the local newspaper and Department website, including serious traffic collisions and important information. The Lemoore PD's Traffic Unit website, <http://www.lemoore.com/lpd/motoruni.htm> is a well prepared web page, one of the best constructed and in content this TSE team has been exposed to.

4.3 Coordination among Enforcement Agencies

There are several adjacent allied agencies with dedicated traffic units such as CHP. We suggest that Lemoore PD consider coordinating traffic resources, such as motor officers with other agencies as needed. This could be done for special enforcement details such as crosswalk compliance stings and speed enforcement saturation patrols, if that is not already a common practice.

The TSE team also suggests interdepartmental cooperation such as traffic engineering sharing their as-built diagrams with the PD so that patrol officer would have a larger library of pre-drawn diagrams. This would include sharing any CAD drawings so that the traffic officers could import them into their preferred diagramming software to create pre-drawn intersection diagrams for quick use by patrol and traffic alike.

4.4 “Zero Tolerance Policy”

Focused traffic enforcement for common PCFs identified in this evaluation and likely already known to traffic supervisors is a best practice through goal setting and progress monitoring. One tool Lemoore could consider adopting is a “Zero Tolerance Policy” campaign for traffic enforcement. Such coordinated campaign could involve public and community representatives and law enforcement officers.

For many years motorists have identified cities with zero tolerance enforcement of speed laws as “speed traps.” This description usually implies a negative connotation with the purpose of generating revenue for the city. However, it also results in drivers being very careful to obey the speed laws when traveling through the area and a reduction in the number and severity of traffic collisions.

“Zero Tolerance Policy” is a more positive spin on the “speed trap” concept. The goal would be to convene all available law enforcement officers, public information agencies, governmental and judicial representatives, community representatives, and media support professionals for discussion of a City-wide traffic enforcement program. A “Zero Tolerance Policy” project could be implemented through a general meeting for this purpose by forming a committee of interested parties, including all law enforcement agencies, city and/or City governmental representatives, business associations, and community groups. A “Zero Tolerance Policy”

project could establish a defined period of time for the campaign and the goals and objectives for reducing collisions.

Depending on available funds, road signs could be posted at the City line declaring the “Zero Tolerance Policy” and the violation fine schedule for targeted violations. It is important to keep the public informed through media of all aspects of the “Zero Tolerance Policy” program, including the purpose and goals, and to warn the public where the focused traffic enforcement would take place, and that a “zero tolerance policy” would be in effect. To keep the public’s attention, continually update information throughout the “Zero Tolerance Policy” project’s life cycle, especially about any progress on reducing the number and severity of traffic collisions. A “Zero Tolerance Policy” approach would allow traffic enforcement to focus their limited resources in achieving the objective of the safe and efficient movement of highway traffic. While most “zero Tolerance Policy” related to speed, the basic foundation of such a policy can be applied to any specific traffic safety enforcement area, such as cell phone enforcement or DUI.

4.5 Possible Safety Improvements for Enforcement

In summary, the TSE evaluation team suggests the following possible safety improvements to the City of Lemoore and Police Department’s enforcement program:

Training

- Consider sending either one of the motor officers or supervisor to the necessary schools to attain the ability to train Lemoore’s rank and file officers to certify them as DAR or DRE experts.
- Consider requiring the motor and traffic officers to attend minimally basic and intermediate school within the second year of being assigned to traffic, and then advanced collision investigation by the fourth year.
- Require the traffic investigators to complete reconstruction training by the sixth year at the latest.
- Train Lemoore officers to solicit a response in a rear end collision scenario from the rear ending driver, this to more accurately assign Following too Closely 21703 CVC rather than Unsafe Speed, 22350 CVC.
- Consider Right of Way violations training closely following California Jury Instructions.

- Review the CIM and conduct training on the proper use of unknown in assigning PCF
- Hold the CIM training on a quarterly basis for patrol ranks and increase patrol's involvement in documenting collisions.
- Stress the importance of maintaining a local log of all DUI BAC results to identify individual officer training needs.

Enforcement

- Track collision trends to assist with scheduling traffic enforcement personnel deployment by day of week, and develop shift times to have maximum impact on traffic collisions
- Target over-represented violations in Lemoore, specifically unlicensed and suspended drivers, unlawful cell phone use as well as the highest frequency of PCF violations

Funding

- Conduct a traffic fee study every other year, preferably by someone who is intimately familiar with each act involved with a police impound.
- Establish a Traffic Offender Fund (TOF). The most effective to date that the TSE team has been exposed to is operated by Claremont PD and Upland PD.

Procedures

- Require the Traffic Sergeant to communicate collision documentation deficiencies with the patrol supervisors, who in turn may carry the message and monitoring of compliance to the rank and file officers.
- Maintain the current traffic motor staffing of two, considering the total sworn strength in the Lemoore Station, the DVMT, and traffic congestion in the City.
- Consider the PD's traffic unit to meet monthly to discuss strategies for collision reduction, to set goals and report to staff on their progress.

- Reconsider the practice of using traffic officers to fill patrol vacancies
- Identify department resources suitable for deployment or possible collateral assistance.
- Disseminate appropriate information and training if required.
- Report progress to staff and participants on a monthly or quarterly basis.
- Use the CHP Form 555-03 to reduce the time spent documenting PDO collisions and/or the inclination for personnel to facilitate the exchange of information only.
- Conduct a quick SWITRS query which would identify the demographics of DUI arrestees, which in turn would guide public outreach efforts for media and community venues.
- Install “Ratboxes” or automated cameras as a joint project of Lemoore PD and Engineering, to address red light running with minimal officer risks.

Policies

- Require the traffic supervisor to monitor the PDO to Injury/fatal ratio. Should it continue to rise, we suggest collision documentation policies undergo review to assure it reflects the Department's desired mission or goal.
- Perform quarterly analysis of hazardous citations issued and compare to the percentages of citations issued for the same Primary Collision Factors.
- Consider permitting the collaterally assigned supervisor the option of riding a motor him/herself.
- Consider the PD traffic unit members, preferably the Traffic Sergeant, to meet with Traffic Engineering on a quarterly basis.
 1. Require the Traffic Sergeant to utilize ISWITRS to compile collision data as a discipline to mold their expectations of future RIMS reporting capabilities.
 2. Identify collision trends by PCF, either specific violations or group type, times and location.

- Establish reasonable goals that can be quantified and monitored.
- Utilize the radar trailer and deploy it based on school zones, citizen complaints, input from the traffic engineer and collision trends, as optimum practice.
- Adopt the disciplines of an ABC grant.
- Consider coordinating traffic resources, such as motor officers with other agencies as needed. This could be done for special enforcement details such as crosswalk compliance stings and speed enforcement saturation patrols.
- Consider interdepartmental cooperation such as traffic engineering sharing their as-built diagrams with the PD. This would include sharing any CAD drawings.
- Consider adopting a “Zero Tolerance Policy” campaign for traffic enforcement.

Public Education and Information

- Consider improving Lemoore’s website to include their traffic unit. One such site Lemoore may consider or model would be that of Oxnard Police Department

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