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EL PASO, TEXAS SELECTIVE TRAFFIC ENFORCEMENT PROGRAM

Contract No. DOT-HS-110-1-156

August 1976

Final Report

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

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16. Abstract

This report presents an evaluation of the El Paso, Texas Selective Traffic Enforcement Program. The El Paso STEP involved six different experiments conducted over a thirty month period. Countermeasures tested included fixed point enforcement, patrol and radar. In addition one experiment was a special effort conducted for the holiday season in December 1973. This effort reduced accidents through the combination of newspaper publicity, TV spots, radio announcements and selective enforcement. The result was the lowest volume of accidents for the holiday season in three years. Overall the other experiments did not produce accident decreases. In one experiment line patrol was employed but was not effective. In other experiments a mixture of radar and patrol were tried but were not successful.

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INTRODUCTION

The El Paso Police Department is pleased to submit this final report to the National Highway Traffic Safety Administration (NHTSA). In late 1971 the Department received a grant from NHTSA under the national STEP program. This grant has greatly benefited the El Paso Police Department by providing a means to test and evaluate several countermeasures aimed at traffic accident reduction. The results are contained in this report.

The final report has been completed in accordance with the outline developed by NHTSA. The first chapter is the project director's report. It was prepared by the project director with assistance from the evaluators. The last two chapters contained an in-depth analysis of the STEP project. These chapters were prepared by PRC Public Management Services, Inc. This company has been under separate contract with NHTSA to evaluate the STEP projects.

The STEP project has been of great benefit to the police department and the city. The results have been significant and have changed the approach of the department in the traffic law enforcement area. It is our sincere desire that other departments will find this report useful in the allocation of their resources.

H. T. Vogel
Project Director

METRIC CONVERSION FACTORS

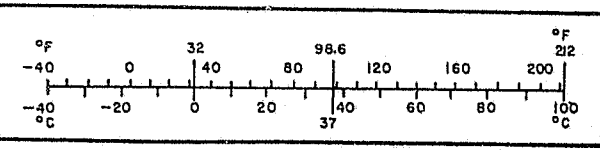
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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CHAPTER I
BACKGROUND INFORMATION PRIOR TO STEP

Description of the Community

El Paso is the fifth largest city in Texas with a 1970 population of 322,261 persons. It is the county seat of El Paso County which is bounded on the south by Mexico and on the north and west by the State of New Mexico. Ciudad Juarez is located directly across the Rio Grande from El Paso and the two cities are frequently referenced as international "twin cities."

The population growth has been surprisingly rapid in both cities and has impacted on the transportation developments in the area. In 1900, the El Paso population was a mere 15,000 but climbed to 130,000 by 1950. Between 1950 and 1960, there was considerable annexation making the city population over 314,000. Since that time, the growth has been relatively constant, and the city has consistently accounted for 85-90 percent of the county population. The 1974 population has been estimated at 359,000 in the city and 400,000 in the county.

There are several peculiarities which set El Paso apart from other cities with regard to the traffic accident picture. The first is the city of Juarez.

On an average day, about 86,000 persons from Juarez enter El Paso. The daily influx of automobiles is over 31,000. Naturally, this influx affects the traffic pattern in the city and the traffic accident picture. The differences in traffic laws and regulations between the two countries will be discussed in the next section. A second peculiarity is weather. The climate of the region is characterized by an abundance of sunlight throughout the year with high but no extreme daylight summer temperatures. The region has very low humidity, scanty rainfall and a relatively cool winter season. The average annual rainfall is 8.4 inches, and it is not unusual to have dry periods of several months duration. The most striking

geographic feature of El Paso is the Franklin Mountains which encompass most of the city and extend northward for about 16 miles. They add noticeably to the gustiness of the winds during high velocities. Dust and sandstorms occur with some regularity in the El Paso area. The effects of these weather conditions should not be overlooked in regard to the traffic accident picture. On the one hand, the lack of rainfall is a positive feature in keeping traffic accidents low. On the other hand, accidents increase significantly when rainfall does occur.

The mountains also impact the street pattern, resulting in several long stretches of arterial streets of unusually low-grade design for the volumes, speeds, highly variegated driver and vehicle mixes and generating factors and trip purposes which they accommodate. These arterials were early targets of STEP activity, but success with them was limited and less noteworthy than attained in census-tract targets characterized by shorter trips and more localized traffic.

Military presence is a substantial factor in the city's economy and sociology and its traffic. Fort Bliss and the William Beaumont Medical Center employ more than 17,000 military personnel. Typical of military operations, the level of personnel varies from year to year. It is not the same group of people each year. The number of personnel dropped, to some extent, in 1971 and 1972, but has increased since that time.

The tourist industry in El Paso is a major industry. Unfortunately, no specific information is available as to its impact. The general opinion is that it is not seasonal but stays at a relatively constant level throughout the year. This is attributed to the favorable climate in the region. Information was gathered on tourist statistics for the State of Texas. This information has been used by the evaluator and is presented at the appropriate place in his report.

Geographic peculiarities of the community presented difficulties in implementing the STEP concept. The city is "strung out" for nearly 30 miles along the Rio Grande. It varies in width from one mile to nearly 10 miles, and in one area alongside Fort Bliss, runs a salient, which varies from 1 1/2 to five miles wide, for a total distance of almost 20 miles from the river. Its 360,000 people are faced by 500,000 across the river in Ciudad Juarez, about 86,000 of whom travel into El Paso and return, in more than 31,000 vehicles, every working day; and this traffic is concentrated in only three ports of entry.

So the city consists essentially of a central business district and a number of relatively isolated clusters of housing and commercial establishments, linked by arterial movements of unusual distance, volume and speed pressures, traveling mostly on roadways seriously below the quality and capacity needed. Freeways represent less than five percent of the total street miles. The housing-commercial clusters generally are highly variegated in their makeup and people of affined interests are dispersed throughout the city, and this further increases travel pressures.

This condition undermined a concept brought by NHTSA to early STEP planning, of concentrating enforcement on intersections having 100 or more crashes a year. It was discovered that no such intersections existed in El Paso--there were too many intersections, scattered too widely; and at those intersections of high accident count, most of the crashes were "fender-benders" generated by congestion at low speeds--not the high-speed, high-kinetics collisions that caused fatalities, or even any substantial number of injuries.

Next effort turned toward the arterials; but here success was only slightly better. Apparently the variegated vehicle and driver mixes, high speeds and high volumes on low-grade roadways tended to inundate any enforcement factors which could be mustered on them. STEP then turned to census tracts, of generally compact dimensions and more nearly normal street nets, and here the greatest success was realized.

Table 1-1 shows several other socio-economic characteristics of El Paso. In general, these factors did not change signifcantly during the STEP project.

Table 1-1

El Paso Characteristics[1]

Total Civilian Labor Force	123,150
Unemployment Rate	4.4%
Number of Housing Units	92,704
City School Enrollment (1973-74)	108,000
University of Texas at El Paso Enrollment	10,980
El Paso Community College	5,937
Number of high schools	21
Number of junior high schools	5
Number of elementary schools	91
Major Highways: Interstates 10, 25, and 110. U.S. Highways 54, 62, 80, 85, and 180.	
Total Registered Passenger Vehicles	142,000
Total Registered Vehicles	182,000
Miles of Roadway	1,203
Median Income	$10,346
Daily Average Visiting Drivers from Mexico	40,000

[1]All data are for 1970 unless otherwise noted.

Traffic Conditions Prior to STEP

On a citywide basis, the traffic accident picture in El Paso before STEP was as follows:

Category	1968	1969	1970	1971
Fatal Accidents	60	69	55	65
Injury Accidents	2,810	2,859	2,943	3,047
Property Damage Accidents	7,381	7,564	7,843	8,117
Total Accidents	10,251	10,492	10,840	11,229
Persons Injured	4,130	4,258	4,411	4,697
Persons Killed	68	78	61	68

The above statistics present a small, consistent increase in traffic accidents. Over the four years traffic accidents increased 2.4 percent, 3.3 percent and 3.6 percent respectively. The individual categories of injury accidents and property damage accidents showed almost exactly the same increases. The above statistics represent all accidents reported to the police. Department policy requires that an officer complete an accident report on all accidents regardless of the amount of damage. Table 1-2 shows the breakdown by hour and by day of week. As is typical with accident data, Friday and Saturday have the greatest volume. The hourly distribution indicates that the hours from 10 a.m. to 6 p.m. have more accidents than any other eight-hour period.

There are other characteristics of traffic accidents in El Paso which influenced the planning of STEP operations. The following statistics show 1971 accident data by type of trafficway:

Trafficway	Number of Accidents	Percent
Interstate System	888	7.9%
Other US Routes (Numbered)	3,117	27.8%
Other Major Arterial	2,029	18.1%
Local Streets	5,092	45.3%
Other	103	.9%
Total	11,229	100.0%

Table 1-2

Traffic Accidents by Hour
and by Day of Week

Hour	Property Damage	Injury	Fatal	Total
Midnight - 1 a.m.	225	103	6	334
1 a.m. - 2 a.m.	199	113	2	314
2 a.m. - 3 a.m.	159	91	5	255
3 a.m. - 4 a.m.	88	27	1	116
4 a.m. - 5 a.m.	45	27		72
5 a.m. - 6 a.m.	52	28	1	81
6 a.m. - 7 a.m.	108	45		153
7 a.m. - 8 a.m.	430	147	1	578
8 a.m. - 9 a.m.	385	107	3	495
9 a.m. - 10 a.m.	283	97	2	382
10 a.m. - 11 a.m.	319	95		414
11 a.m. - Noon	378	105	3	486
Noon - 1 p.m.	437	121	3	561
1 p.m. - 2 p.m.	386	138	1	520
2 p.m. - 3 p.m.	415	149	2	565
3 p.m. - 4 p.m.	547	198	5	750
4 p.m. - 5 p.m.	706	237	1	944
5 p.m. - 6 p.m.	727	261	6	994
6 p.m. - 7 p.m.	478	219	5	702
7 p.m. - 8 p.m.	433	188	3	624
8 p.m. - 9 p.m.	316	149	7	472
9 p.m. - 10 p.m.	313	118	6	437
10 p.m. - 11 p.m.	250	114	1	365
11 p.m. - Midnight	285	142		427
During the Night	40	11		51
Time Unknown	114	22	1	137
Total	8,117	3,047	65	11,229

Table 1-2
(Continued)

Day of the Week	Property Damage	Injury	Fatal	Total
Monday	1,196	422	8	1,626
Tuesday	1,064	359	7	1,430
Wednesday	1,023	380	7	1,410
Thursday	1,066	378	4	1,448
Friday	1,425	504	8	1,937
Saturday	1,395	588	15	1,998
Sunday	947	416	16	1,380
Total	8,117	3,047	65	11,229

The category "Other US Routes" are all routes maintained partially or totally by federal agencies. These statistics are unusual because of the percentage of accidents on U.S. routes and interstates. Partially because of this feature, early El Paso STEP experiments involved line patrol rather than area patrol.

A second characteristic is summarized in the following statistics on the type of collision in multiple vehicle accidents:

Collision Category	Number of Accidents	Percent
Angle	3,513	37.4%
Rear-End	2,697	28.7%
Sideswipe Passing	1,625	17.3%
Backed Auto	672	7.2%
Sideswipe Meeting	252	2.7%
Head-On	162	1.8%
Not Stated	462	4.9%
Total	9,383	100.0%

The first section mentioned that Ciudad Juarez was immediately across the border from El Paso. The daily increase of persons from Juarez has its effect on the entire police department operations. With regard to traffic law enforcement, the following differences should be highlighted:

- Mexico has no written traffic laws. Enforcement is the responsibility (and interpretation) of the individual officers in Mexico.
- The speed limits in Mexico are posted in kilometers.
- There is no vehicle inspection system in Mexico. Thus the automobiles entering El Paso frequently have malfunctions. Texas requires an annual car inspection.
- There are no freeways in Mexico. This partially accounts for the large number of freeway accidents in El Paso.

- The older Mexican citizens did not grow up in a vehicular environment. Automobiles are relatively new in Mexico.
- There is no pedestrian law enforcement in Mexico.

These circumstances have plagued the El Paso Police Department for years. It is surprising that more accidents do not occur in El Paso.

Enforcement Activities Prior to 3TEP

In 1966 manpower shortages within the Department made it necessary to consolidate the Patrol and Traffic Divisions into one Uniform Division. The result was a loss in traffic law enforcement. The bulk of the traffic work was, therefore, conducted by the Uniform Division where it competed with other basic police duties, such as crime prevention, criminal apprehensions and regulation of the conduct of citizens. Enforcement became the ticket written between patrol calls, and accident investigation was a mechanical time-consuming chore that pulled a patrol unit away from other duties. The Traffic Division was reactivated in April 1971 with a staff of 57 persons from the Uniform Division. The Uniformed Operations Bureau thus consisted of the Traffic Division and the Uniform Division. The Traffic Division was organized as follows:

Administration--4 persons
Safety Education--4 officers
Accident Investigation Unit--20 officers
Motorcycle Officers--27 officers
Taxi Enforcement--2 officers

The Accident Investigation Unit personnel were distributed over three watches operating seven days per week. The motorcycle officers worked two shifts seven days per week. These officers provided the bulk of the traffic law enforcement. In addition, they were frequently called upon to do accident investigation.

Generally, the motorcycle officers were assigned to two or three patrol districts. The allocation procedure was indeed a "shotgun" approach to the problem. There were no management reports showing traffic accident distributions by district. The only report available was a detailed listing which gave characteristics of each accident.

The STEP project came at an opportune time for the department. Since traffic law enforcement had been essentially dormant for years, the traffic statistics being gathered were not organized for objective study. There was no efficient resource allocation of the traffic force. For example, during 1971 the department issued 68,264 citations. It was impossible to determine the effectiveness of these citations or to even relate the types of citations to the causes of accidents. In summary, the department had no idea of how well its traffic enforcement countermeasures were operating. The formation of the Traffic Division and the STEP project offered an excellent opportunity to test the activities of the motorcycle officers. The STEP project also forced the department to organize traffic accident data in a more meaningful manner for planning and analyzing enforcement activities.

El Paso STEP Objectives

The El Paso STEP project has aligned itself with the overall goal stated in the STEP Planning Guide:

> "The objective of the Selective Traffic Enforcement Program (STEP) is to reduce the number and frequency of motor vehicle traffic accidents in which traffic violations are a causative factor."

El Paso understood that this goal was to be achieved by applying selective enforcement strategies in a variety of ways. Moreover, it was the understanding of El Paso that these strategies would undergo a careful evaluation by NHTSA in order to determine which countermeasures were most effective.

The El Paso grant application did not include any specific local STEP objectives. Instead, the emphasis was on testing countermeasures in accordance with the national objectives. Countermeasures tested under the El Paso STEP project included:

- Patrol and Cite
- Radar
- Fixed Point Enforcement
- Enforcement of Suspended or Revoked Licenses.

More information on the application of these countermeasures is provided in later sections of this report.

STEP PLANNING

Planning the Program

The previous sections discussed the lack of data for planning accident reduction projects and making efficient resource allocation decisions. This problem was prevalent in the initial planning of the STEP project. The only useful report was an individual listing of traffic accidents. From this list 40 intersections were identified for action based on accident frequency. The concept was to use officers at a subset of the intersections in a fixed point environment. The officers would then be rotated on a predetermined schedule. It was about this time that NHTSA set a requirement of 100 or more accidents per year for STEP. El Paso understood this requirement to mean that the target area had to be large enough to be properly evaluated and that the figure of 100 accidents met this requirement. The individual listing revealed that no intersection in El Paso had 100 traffic accidents in a year. To comply with the NHTSA requirement, intersections were grouped according to geography and accident frequency. Five areas were then formed for STEP activities:

Area A consisted of the double intersection Gateway East, Gateway West, Giles and McCrae.

Area B consisted of the intersections at Airway and Montana, Airway and Edgemere; and Airway and Gateway.

Area C consisted of the intersections at Alameda and Delta, Alameda and Little Flower, Alameda and Clark; and Alameda and Carolina.

Area D consisted of Mesa Avenue from Missouri Street to the Interstate 10 Off-Ramp.

Area E consisted of Dyer Street from Memphis to McCombs Drive.

These "areas" are street segments having intersections with high volume of traffic accidents. This development was in line with the emphasis on fixed-point countermeasures in the STEP guideline.

Table 1-3 gives the list of police countermeasures as provided in the STEP Planning Guide. The first four countermeasures were listed in the Guide as mandatory countermeasures. The El Paso grant application described how the various fixed-point countermeasures would be used in Areas A through E. Basically, a schedule was developed showing how many officers would work in each area, the hours to be worked and the type of countermeasure to be employed. The initial effort in STEP operations was thus a line operation rather than an area operation. Soon after the STEP project was started, two other streets were developed:

Area F consisted of Alameda Street from Cadwallader to Pueblo.

Area G consisted of Interstate 10.

Table 1-3

Police Countermeasures

Countermeasure	Activity
	Mandatory
P01	Use a marked vehicle in a conspicuous or visible stationary observation environment at a high-accident location for 100 percent of the predominant time period of accidents for that location.
P02	Same as item 1, but for only 50 percent of the time period for that location.
P03	Use a marked vehicle in a moving observation environment at a high-accident location for 100 percent of the predominant time period of accidents for that location.
P04	Same as item 3, but for only 50 percent of the time period for that location.
	Optional
P05	Same as item 2, but supplemented by a marked vehicle in a moving observation environment for the other 50 percent of the time.
P06	Use two marked vehicles--one in a moving observation environment and the other in a conspicuous or visible stationary observation environment--at a high-accident location for 100 percent of the predominant time period of accidents. When the stationary observation is terminated by one of the vehicles (such as to pursue a violator), its place will be taken as expeditiously as possible by the other vehicle.
P07	At high-accident frequency locations, (1) issue citations only, (2) issue both warnings and citations, or (3) issue warnings only, except in instances of flagrant violations.
P08	Use dismounted officers at locations of accidents involving pedestrians to reduce the incidence of jaywalking, to advise and counsel pedestrians in safe traffic practices, to explain the operation of pedestrian-actuated traffic signals, and for like pedestrian-related control measures.

Table 1-3 (Continued)

Countermeasure	Activity
P10	Enforcement against drivers with suspended or revoked licenses.
P11	Patrol within assigned STEP area and/or location and cite or warn for all observed hazardous moving violations.
P12	Radar speed detection enforcement on selected streets within a STEP area and/or location.
P13	Driving While Intoxicated (DWI) patrol and arrest enforcement for selected time periods.
P14	Enforcement of pedestrian control laws relating to both motorists and pedestrians uniformly applied within a STEP area and/or location.

It is not too early to mention that one of the main benefits of the STEP project was the increased data processing capabilities. During the STEP project other reports became available which greatly improved the planning process. This was coupled with a change in general philosophy on STEP operations. The project turned into an area operation. It was possible to develop general areas because of the increased data processing capability. In the last year of operations, the El Paso STEP personnel tested countermèasures in the following areas:

Area H--Census Tracts 24 and 25
Area J--Census Tracts 30 and 31
Area K--Census Tract 22
Area M--Census Tracts 6, 8, 9 and 10
Area N--Census Tracts 23, 26, 27, 28 and 29.

Selection Process

Under the reorganization in 1971 the Traffic Division had within it a group of 27 motorcycle officers. These officers were completely devoted to traffic law enforcement and provided the majority of the department's efforts in this regard. Because of the importance of the STEP project, the department made the decision to convert this group of officers into a STEP Task Force. This was a difficult decision and represented a significant sacrifice by the department. There were, however, several advantages to this approach. All personnel had previous traffic law enforcement experience. Their average time on the department was five years, and the average time on motorcycles was two years. They had an average of 140 hours of training in the traffic area including traffic law and report preparation.

By involving this group from the beginning of STEP, the department would gain benefits in the future. That is, the group responsible for enforcement would be the same group that had gained experience from the STEP project.

For review purposes a 40-hour traffic school was conducted using department personnel and a few outside instructors. Both the STEP Task Force and the accident investigation unit attended the course. The training curriculum consisted of the following:

History of Traffic	1 hour
Background of Traffic Law Enforcement	2 hours
Police Authority--Searches and Seizures Relative to Traffic Stops	
Pursuit--Stopping the Violator	1 hour
Violator Contacts and Communications Problems Relative to Police Work	4 hours
Directing Traffic--Uniform Signals, Gestures and Traffic Control	2 hours
Assisting the Prosecutor	1 hour
Case Preparation and Officer in Court	2 hours
Laws of Evidence	2 hours
Traffic Patrol	1 hour
Traffic Law	12 hours
Traffic Records and Uses	2 hours
Safe Driving Techniques for Police Officers	2 hours
Final Inventory--Applying the Law	3 hours
Purpose and Methodology of STEP	1 hour
Traffic Division Organization and Policy	2 hours

In addition, all officers in the Uniform Division received six hours of instruction on new state traffic laws and the STEP project. Finally, STEP officers periodically received training during STEP on the progress of the project and the care and operation of police motorcycles.

Data Processing for STEP

Data processing for information on traffic accidents and citations has been a regular function within the department for many years. As originally designed, the system was basic and provided only the minimal

information required for managerial decisions. For example, one of the main reports from the system was a summary of accidents by census tract and time of day. Similar information was provided for citation data.

At the beginning of the STEP project there was considerable discussion between the STEP Project Director and NHTSA on the proposed STEP system. NHTSA was at that time developing a system for all STEP sites to collect information in five categories using a standardized format:

- Traffic Accidents
- Traffic Citations
- Court Dispositions
- Man-hour Data
- Crime Data.

El Paso personnel welcomed this system as a means of supplementing its system and providing considerably more management reports for planning and evaluating STEP operations.

The national NHTSA system was a major disappointment primarily because of the delay in getting reports back from the system. The system called for El Paso to submit a tape to NHTSA at the beginning of each month. El Paso STEP personnel were promised that the tape would be anlayzed within ten days and reports mailed back to us. In reality this schedule was never followed. Reports were usually two months late and sometimes as much as six months. From a managerial viewpoint the reports were of no value to the project.

The El Paso project found itself in a considerable dilemma in trying to achieve the nationwide STEP objectives. On the one hand, each experiment was to be carefully planned to test particular countermeasures. NHTSA reports were essential to this planning since they provided the required, detailed information. On the other hand, the reports were never used because they were so late in arrival. Fortunately, there was a marked improvement in the reports which could be produced on a local basis. For example, prior to STEP El Paso was not keypunching any traffic citation

data. This was changed during the STEP project. Local reports were used in planning STEP operations and proved adequate for the purpose.

STEP EXPERIMENTS

Before discussing the particular STEP experiments conducted in El Paso, some background is necessary on the STEP countermeasures proposed by NHTSA. Table T-3 gave the so-called police countermeasures. STEP Planning Guide described three other categories of countermeasures supported by STEP: public information, judicial and traffic engineering. Tables 1-4 1-5 and 1-6 provide the breakdown of activities under these categories.

NHTSA representatives were always insistent that the mandatory countermeasures were indeed mandatory and had to be tested during STEP project duration. The first four police countermeasures were mandatory and were essentially fixed-post assignments at high accident locations. El Paso interpreted these countermeasures as being efforts to concentrate manpower in a selective enforcement environment.

The El Paso STEP project actually started in July 1971. Between July 1971 and January 1972, the project activities were planned, personnel were selected, training was provided, and equipment was ordered. The STEP project was funded as a three-year endeavor. Actual operational activities began in January 1972 with the introduction of countermeasures in Areas A, B, C, D and E. Over the two and one-half years of STEP operations, the El Paso STEP project conducted six different "experiments." The series of experiments was actually a learning process for the El Paso project personnel. From the El Paso viewpoint, the aim was to determine countermeasures which could be successfully applied after the STEP project was completed. It is believed that this objective has been reached. More discussion on this point will be made later in this report.

Table I-4

Public Information Countermeasures

Countermeasure	Activity
	Mandatory
N01	Prepare and disseminate, at least weekly, news releases and information pieces on STEP to the local media.
N02	At least annually, prepare and disseminate short articles on STEP to regional or national periodicals or other publications in the field of highway safety.
	Optional
N03	Develop a "speakers' bureau" to explain the purpose and desirability of the STEP program and actively solicit appearances before service organizations, civic clubs, church groups, teenage clubs, and other audiences. A minimum of four such presentations per month should be conducted. A record should be maintained depicting the public information activity and, at a minimum, should contain the following information: • Date and time of presentation of speeches articles, news releases, television and radio spot announcements • Composition of audience--numbers and age group • Subject matter discussed • Title or position held by speaker.
N04	Organize a "personal correspondence program" to ensure that STEP messages reach all key community leaders and officials (doctors, lawyers, religious leaders, legislators, etc.) and mail about 25 such letter per month.
N05	Target in on special ethnic groups, certain industry employees, domestic workers, or other groups who are found to be over-represented in traffic accdients. Produce special informative materials related to accident involvement of these special groups and find way to communicate with them in relation to the STEP program.

Table 1-5

Judicial Countermeasures

Countermeasure	Activity
	Mandatory
J01	Review and streamline court precedures in relation to traffic cases, such as development and use of a uniform traffic ticket and through timely case disposition.
J02	Establish a policy requiring mandatory court appearance for accused persons in selected cases (such as DWI, second moving offense within 12 months, etc.).
J03	Review driving history of all convicted traffic offenders under item 2, above, prior to sentencing.
J04	If the capability exists, require presentence investigation of all convicted drinking drivers.
	Optional
J05	Review and if necessary adjust penalties assessed against convicted traffic offenders so as to make them consistent and in harmony with the accident violation frequency.
J06	Provide special training for all prosecutors and judges who spend at least 50 percent of their time on traffic cases.
J07	Establish and use a court-sponsored remedial course for correction of errant drivers, but only if adequate evaluation is built into the program.

Table 1-6

Traffic Engineering Countermeasures

Countermeasure	Activity
	Mandatory
T01	The traffic engineer may be expected to assist in identification of high-accident frequency locations, prepare collision/condition diagrams, and provide data. Based on such diagrams and data, he might: • Change timing of traffic signals • Establish speed limits, both maximum and minimum • Establish safety zones or crosswalks • Take other appropriate action.
	Optional
T02	At high-accident frequency locations or other locations where crashes tend to result in excessive injury due to striking roadside objects, these objects should be removed or protected. This includes removal of trees, requiring utility companies to move poles to safer locations, and the like.
T03	At accident locations, determine whether visibility is a problem and take appropriate action.

Table 1-7 gives a description of the six experiments emphasing the man-hours expended on each countermeasure. The initial experiment focused on line patrol operating along major arteries or at individual high-accident locations. It was believed that this would be more effective than concentrating in particular areas and that it was in agreement with the aims of the NHTSA/STEP objectives. Areas A, B, C, D and E have already been described so there is no need for repetition. The first experiment was aimed at spreading the officers along the streets for enforcement activities.

During Experiment 1, the STEP Task Force was divided into two groups of 13 and 14 officers respectively. One group worked from 7 a.m. to 3 p.m.; the other group worked from 3 p.m. to 11 p.m. The operational plan called for the use of countermeasure P10 in all areas. The other three countermeasures--P01, P06, and P11--were used according to the following schedule:

- P01 was used in Area A, Tuesday through Saturday, 7 a.m. to 8:30 a.m., 11:45 a.m. to 1:30 p.m. and 4:30 p.m. to 7 p.m.; and in Area C, Tuesday through Saturday, 4:30 p.m. to 7 p.m.
- P06 was used in Area B, Tuesday through Saturday, 7 a.m. to 8:30 a.m., 11:45 a.m. to 1:30 p.m., and 4:30 p.m. to 7 p.m.
- P11 was used in Area D, Tuesday through Saturday, 4:30 p.m. to 7:30 p.m.; and in Area E, Tuesday through Saturday, 4 p.m. to 7 p.m.

It was evident in the early months of Experiment 1 that the main countermeasures were not going to produce the desired results. More discussion will be given on this subject in the chapter on evaluation. Suffice it to say at this point that the decision was made to change operations in July 1972. Areas A, B and C were dropped. Areas F and G were added. Area F is approximately five miles in length, and Area G is approximately 4 miles. The STEP Task Force operated in Areas D, E, F and G from July 1972 through January 1973. The entire STEP Task Force worked Tuesday through Saturday, 10 a.m. to 6 p.m. The only countermeasure employed was P11 (Patrol and Cite) and this countermeasure was used in a "line patrol" sense.

Table 1-7
El Paso Manhours by
Experiment and Countermeasure

	P01, P04, P06 (Fixed Point Countermeasure)	P10 (Suspended or Revoked Licenses)	P11 (Patrol and Cite	P12 (Radar)	Warnings and Citations
Experiment 1. January-June 1972					
Area A	3,164	1,059	-		2,104
Area B	7,924	2,686	-		3,980
Area C	1,632	544	-		2,965
Area D	-	266	685		1,907
Area E	-	224	623		1,943
Experiment 2. July 1972-Jan. 1973					
Area D			5,446		4,578
Area E			6,448		4,792
Area F			5,495		5,017
Area G			7,568		2,932
Experiment 3. February-July 1973					
Area E			10,255		6,895
Area H			10,677		10,564
Experiment 4. August-Nov 1973					
Area J	2,372		4,999	180	8,837
Area K	2,397		5,046	172	8,605
Experiment 5. December 1973					
Citywide	320		2,943	80	3,306
Experiment 6. January-June 1974					
Area J	1,375		2,411	92	4,256
Area K	1,183		2,086	84	3,901
Area M			7,430	172	5,197
Area N			6,807	172	10,849

One unique feature of El Paso was that it included a warning system. The warning system was actually a departmentwide system instituted in January 1972. It was planned that there would be heavy emphasis on warnings in the beginning months of 1972, and the emphasis would decline as the year progressed. This scheme was executed as planned by both the STEP Task Force and the rest of the department.

The line patrol did not prove to be effective. As a result, a change was made in February 1973 by forming Area H which was a general area consisting of Census Tracts 24 and 25. Experiment 3 began in February 1973 and was in effect until August 1973. The concept in Experiment 3 was to get away from line patrol and phase into area operations. Again, the emphasis was on countermeasure P11 (Patrol and Cite).

In August 1973, the El Paso STEP Project Director expressed an interest in a new experiment which was really a combination of countermeasures and allocation plans. Areas J and K were formed. Area J was comprised of Census Tracts 30 and 31; Area K was Census Tract 22. The actual schedule was as follows:

August	Area J
September	Area K
October	Area J
November	Area K

The hypothesis being tested in this case was that the Task Force was "effective" in Area J during August and October, and that this effectiveness extended into September and November even though the Task Force was not present. A similar hypothesis was established for Area K.

It was originally anticipated that this experiment would last for several months. However, there was considerable interest in trying a citywide program during December 1973 aimed at reducing holiday accidents. A December program was developed as Experiment 5 which was completely different from the previous experiments. There were three major activities for December 1973:

- Use of a public information program
- Involvement of field operations personnel in traffic enforcement
- Use of the Task Force as a tactical unit.

The public information program was actually initiated immediately after Thanksgiving. One part of the program emphasized to the public that the department would be concentrating on traffic law enforcement during December. In essence a "crackdown" program was announced. The other part of the program attempted to persuade the public to drive more carefully during the holiday season. The public information program included newspaper, radio, and television.

The public information program was coordinated by the firm of Harris and Harris Public Relations, Inc. The major radio stations broadcasted radio spots written by the firm as public service announcements. Each spot was between 10 and 30 seconds and each of the 10 stations broadcasted five announcements daily. Arrangements were made for the STEP Project Director to be interviewed on both radio and television. Fourteen interviews were conducted during the month. In addition, one TV station was periodically given the latest monthly statistics on accidents and fatalities. The El Paso Times was also active in the December program by having almost daily articles on its editorial page or general news section. The articles emphasized safe driving and also gave complete accident statistics.

A special effort was also made to persuade field operations personnel to devote more time to traffic enforcement activities. The STEP Project Director personally appeared before each roll call to emphasize the need for traffic law enforcement during December. The officers were told that the STEP Task Force could be effective in isolated areas but citywide success could only be accomplished with their support.

Finally, the STEP Task Force operated as a mobile tactical unit during December. The Task Force changed areas each week based on an assessment of the accident picture.

As indicated in the evaluator's report, the December 1973 effort proved to be the most effective experiment in the entire El Paso STEP project. December 1973 experienced 1,055 traffic accidents as compared to 1,299 and 1,173 during the previous Decembers. This means a decrease of -18.8 percent compared to the average of the previous two Decembers. Most of the decrease was in the category of property damage accidents. In December 1973 there were 768 property damage accidents as compared to 950 and 880 during these previous two Decembers.

The last STEP experiment was from January to June 1974. The STEP Task Force operated in Areas J, K, M and N according to the following schedule:

January and February	Area M
March and April	Area N
May	Area J
June	Area K

According to the evaluator's report, this experiment was not successful. Although decreases occurred in these areas, there were also decreases in the rest of the city. As indicated in the evaluator's report, the nationwide gas shortage may have affected accidents in El Paso. The gas shortage began in late 1973 and continued to mid 1974. Because of the gas shortage, an evaluation of this last experiment is difficult.

Interface with Other Aspects of the Program

Judicial countermeasures in El Paso have been used to streamline court procedures in relation to traffic cases. During the STEP project, the number of municipal courts was expanded from two to three. It is a policy in El Paso to call police officers into court only during their regular working hours. All moving violations (except DWI, hit and run, manslaughter

and other more serious crimes resulting from the operation of motor vehicles) are tried in the Municipal Court. The new court convened in the evening thereby improving the case schedule. There was a subsequent reduction of cases that had been accumulating due to the work schedules of the issuing officers. The case load for the courts was more evenly distributed as a result of the additional court.

A statistical clerk was added to relieve court personnel of the additional work load anticipated by the STEP effort. The clerk performed several functions relative to STEP activities, particularly in developing court data for evaluation of the STEP program. The clerk coded warning tickets, prepared monthly reports and summarized warning ticket information.

A deputy court clerk was hired under the STEP program for the court arraignment section. The clerk has primary authority for the court schedule due to changes in an officer's work schedule, days off or vacation. He also checked for accuracy all case settings and subpoenas of witnesses.

Finally, an additional mechanized file unit was added to the Traffic Records Office. This unit provided a one-third increase in space available for the housing of permanent traffic records, eliminating the problem of overcrowded file drawers and expediting record checks for court hearings, for insurance companies, and for other interested parties.

CHAPTER II
EVALUATION APPROACH

INTRODUCTION

The previous chapter was jointly prepared by the El Paso STEP administration personnel and the evaluation team. In addition to providing an historical perspective to the project, the main results of the STEP activities were provided. These results were obtained by a complete and thorough analysis by the evaluation team. Evaluation has been a major component of all the national STEP projects. The evaluation team found the El Paso STEP personnel open and receptive to a thorough evaluation of their project. On numerous occasions the evaluation team requested information for analysis purposes. At no time were we denied any information required for evaluation. This cooperation has been most appreciated and has resulted in a more meaningful analysis of the El Paso STEP project.

This chapter and the remaining chapter provide the evaluation procedure and results of the El Paso STEP project as perceived by the evaluation team. In Chapter III the evaluation of the police countermeasures is presented. Considerable detail is presented since the police countermeasures represent the majority of the expenditures and effort of the project. Chapter III also discusses the judicial and public information countermeasures.

The purpose of this chapter is to give the overall evaluation approach to the police countermeasures in the project. For a variety of reasons the evaluation has not been an easy task. In this chapter we will point out the strengths and weaknesses of the evaluation procedure. Overall the evaluation team believes that the results presented in Chapter 1 are valid. The evaluation developed rather stringent conditions before stating accident reductions occurred in an area and could in fact be attributed to STEP task force activities. The reasons for these conditions will become clear in the following paragraphs.

EVALUATION APPROACH

For the purposes of the evaluation we distinguish three levels of evaluation:

- Effort--the amount and type of inputs into the activities of each experiment
- Effect--the impact of the project activities on traffic accidents
- Process--an assessment of how and why the project achieved the results it did.

This trilevel approach has become fairly common and has been recommended by a variety of authors.

Of the three levels, the measurement of effort is the easiest. As an example, Experiment 1 had general patrol as one of its major activities. The objective was to reduce accidents, and the patrol was hypothesized to be linked to the objective in the following manner:

General Patrol
↓
Improved Driver Safety
↓
Traffic Accident Reduction

The task force worked in five areas for six months with these countermeasures. Measurements of the effort of these officers included the following:

- Hours devoted to each area
- Hours devoted to each countermeasure
- Number of citations issued
- Type of citation issued.

Obviously a lack of effort means that any decrease in traffic accidents cannot be attributed to project activities. On the other hand, a high level of effort is a necessary but not sufficient requirement for overall project success. The evaluator must attempt to link any decrease to the level and

type of effort. Merely stating that such a link exists is not sufficient. In summary, the measurement of effort is an "internal" evaluation of the project. It documents the amount of resources devoted to each project.

The evaluation of effect involves the determination of whether the project activities actually achieved the desired results. It is an "external" measure of goal achievement. In the STEP project we are concerned with the change in the level of accidents in the areas of each experiment. A primary difficulty is that there are many outside influences on traffic accidents. As an example, weather clearly affects the level of accidents in an area. Because of these external factors, most evaluation designs include the use of one or more control areas and the control area. Ideally, the control area should, of course, be as similar to the target area as possible.

In the El Paso project it was originally believed that control areas could be established for analysis purposes. Control areas are important in evaluations since they can be used to gain confidence in the evaluation findings. Theoretically the influences on the target area also affect the control area to the same degree. Unfortunately control areas could not be established for El Paso. The problem is a data collection problem which affected the entire evaluation of the police countermeasure. Prior to STEP the data processing capabilities of the El Paso Police Department were minimal. Only limited management reports were produced for allocation of traffic law enforcement personnel. As seen in the previous chapter, the El Paso STEP Task Force operated in several areas during the project. Because of the limited data processing capabilities, no adequate history was available for these areas. The first two experiments were evaluated primarily by compiling manual statistics for the previous year. It was, therefore, a formidable task just to measure changes in the target areas. It was impossible to develop control areas and show comparative statistics.

Because of these problems the evaluation has not depended on control areas as a major criteria for determining change. In Chapter III we do, however,

show accident statistics for the "rest of the city." For example, Experiment 1 (January - June 1972) produced the following data:

Total Accidents

	January - June 1971	January - June (1972 Experiment 1)	Percent Change
Areas A, B, C, D, E	567	732	+29.1
Rest of City	4,403	5,121	+16.3

We realize that the use of the rest of the city is a weak comparison and have used the above analysis as a benchmark or guide for saying that a change has occurred. In this example, the increase in the target areas actually exceeded the rest of the city.

Whenever possible, we have gathered data on the history in an area. For example, in Experiment 4 we have the following data:

Total Accidents

	Area J	Area K
August - November 1972	87	101
December 1972 - March 1973	70	104
April - July 1973	62	68
Experiment 4 August - November 1973	52	99

An analysis of these statistics provides more insight into the changes in the areas. Area J has experienced a steady decrease. The experimental data fit this pattern. What this means is that the area has experienced a decrease but the decrease cannot be attributed to the El Paso STEP efforts. In Area K the average of the prior three periods is 91.0. Thus the experimental period showed a slight increase.

By having a history we can provide a more analytical procedure for analyzing changes. Many studies have established the fact that accidents generally obey a Poisson distribution. In this case the average becomes an estimate of the Poisson parameter. The number of accidents during the experimental period is an estimate of the "new" average. Tests can then be applied to determine whether the new average is significantly lower in a statistical sense from the previous average.

In summary, the target area is said to have experienced a decrease in the level of accidents if two conditions are true:

- The area percentage change is less than the change in the rest of the city
- The area change is significantly less than the history in the area.

In Chapter III this approach is followed whenever possible.

The evaluation of process may well be the most important of the three levels of evaluation. It is also the most difficult. With process evaluation we are trying to determine why a set of countermeasures did or did not achieve the desired results. In Chapter III we have approached process evaluation by comparing the causes of accidents in an area with the volume and type of citation issued in the area during an experiment. This approach achieved limited success. The primary difficulty lies with the coding system for causative factors in the national NHTSA data system. This system was the basis for the analytical portions of the evaluations.

One category of causative factors was "Motor Vehicle Accident Involvement." A high percentage of causative factors is classified in this category since it is used whenever there is involvement in an accident with no indication of fault. Essentially there is considerable information lost in this category since it has no comparative value. Even with this problem, however, some good results were obtained in Chapter III.

THREATS TO EVALUATION

Any evaluation procedure is subject to influences which may invalidate the results or weaken the overall design. Campbell[1] has categorized these threats into 15 categories. While all are not relevant to the STEP evaluation, they are listed below to complete our discussion:

1. History: events, other than the experimental treatment occurring between pretest and posttest and thus providing alternative explanations of effects.

2. Maturation: processes within the respondents or observed social units producing changes as a function of the passage of time per se, such as growth, fatigue, secular trends, etc.

3. Instability: unreliability of measures, fluctuations in sampling persons or components, autonomous instability of repeated or "equivalent" measures. (This is the only threat to which statistical tests of significance are relevant.)

4. Testing: the effect of taking a test upon the scores of a second testing; the effect of publication of a social indicator upon subsequent readings of that indicator.

5. Instrumentation: in which changes in the calibration of a measuring instrument or changes in the observers or scores used may produce changes in the observers or scores.

6. Regression Artifacts: pseudo-shifts occurring when persons or treatment units have been selected upon the basis of their extreme scores.

7. Selection: biases resulting from differential recruitment of comparison groups, producing different mean levels on the measure of effects.

8. Experimental Mortality: the differential loss of respondents from comparison groups.

9. Selection-Maturation Interaction: the differential loss of respondents from comparison groups.

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[1] See Campbell, Donald T. and Julian C. Stanley, Experimental and Quasi-Experimental Deisgns for Research. Chicago, Illinois: Rand McNally and Company, 1966.

10. Interaction Effects of Testing: the effect of a pretest in increasing or decreasing the respondent's sensitivity or responsiveness to the experimental variable, thus making the results obtained for a pretested population unrepresentative of the effects of the experimental variable for the unpretested universe from which the experimental respondents were selected.

11. Interaction of Selection and Experimental Treatment: unrepresentative responsiveness of the treated population.

12. Reactive Effects of Experimental Arrangements: "artificiality;" conditions making the experimental setting atypical of conditions of regular application of the treatment ("Hawthorne effects").

13. Multiple-Treatment Interference: where multiple treatments are jointly applied, effects atypical of the separate application of the treatments.

14. Irrelevant Responsiveness of Measures: all measures are complex, and all include irrelevant components that may produce apparent effects.

15. Irrelevant Replicability of Treatments: treatments are complex, and replications of them may fail to include those components actually responsible for the effects.

Of these there are three that must be mentioned in regard to the El Paso STEP evaluation:

- History
- Instability
- Multiple-Treatment Interference.

History refers to a specific event which may have caused the change in accident levels. During the STEP project the nation experienced a major gas shortage. More specifically, the shortage occurred from late 1973 to June 1974. The effects of the gas shortage and the 55 mile per hour limit on fatalities has been well documented. There is no way of determining the effect of the shortage on the El Paso STEP project. There is evidence that the influence was slight. However, it cannot be eliminated as a possible alternative for explaining the results of these experiments.

Instability refers to the fluctuations in measurements. This occurred with regard to the evaluation of countermeasures P01, P02, P03 and P04. The level of accidents for which these countermeasures were employed was so low that no meaningful results could be obtained. The fact that the level of accidents was low means that the countermeasures were not productive. This was realized by the STEP administrative personnel and the countermeasures were subsequently dropped from usage.

Finally, multiple-treatment interference refers to the application of several countermeasures. This occurred in the STEP project and was in fact a problem in regard to evaluation. In the first experiment there were six countermeasures operating simultaneously. In the evaluation we have attempted to separate the effects of the separate countermeasures. Only limited success was achieved in this regard.

CHAPTER III
EVALUATION OF COUNTERMEASURES

INTRODUCTION

The purpose of this chapter is to present the analysis of the police countermeasures and experiments conducted by the task force. As described in Chapter I, a total of six experiments were conducted by the El Paso STEP task force. Each experiment is discussed in turn in this chapter. A description of the experiment is given first. This is followed by an analysis of the results of the experiments and a process evaluation on why the results occurred. The evaluation approach described in Chapter II has been applied in the following sections.

In addition to the police countermeasures, the last section of this chapter gives information on judicial and public information countermeasures. Since these were not the main emphasis in the STEP project, no in-depth evaluation has been given.

Description of Experiment 1

As described in the previous chapter, the initial El Paso experiment consisted of line patrol. This approach was motivated by an analysis in 1971 which produced the top 100 intersections in the city in terms of traffic accidents. It was originally intended that some of the intersections would receive fixed-point countermeasures in accordance with the national STEP requirements on mandatory countermeasures. During the planning stage NHTSA announced that these countermeasures could be used only if the intersection has more than 100 crashes per year. In El Paso only one intersection satisfied this requirement. The El Paso project director then started developing an alternative plan in which intersections were grouped to produce a total of 100 or more crashes per year. It was in this manner that the street segments were selected for the initial experiment.

Experiment 1 occurred during the first six months of 1972. For consistency and ease of reference, the designations Area A, Area B, etc., will be used throughout this report, even though the "Areas" are specific locations or street segments. Area A, for example, covers a high-accident area only one-half block in length. It is comprised of the intersections of Gateway East and Giles; and Gateway West and Giles. Area B is about one mile in length stretching along Airway Boulevard from Montana to Gateway East. Area C is about two miles in length along Alameda from Clark to Carolina. Area D covers Mesa Avenue from Missouri Avenue to Interstate 10. This stretch of road is approximately nine miles in length and is situated in the southwest portion of the city. Finally, Area E is Dyer Street from Memphis Street to McCombs Drive which is approximately eight miles in length.

During Experiment 1 the following countermeasures were used:

- P01 was used in Area A, Tuesday through Saturday, 7 a.m. to 8:30 a.m., 11:45 a.m. to 1:30 p.m., 4:30 p.m. to 7 p.m.; and in Area C, Tuesday through Saturday, 4:30 p.m. to 7 p.m. P06 was used in Area B, Tuesday through Saturday, 7 a.m. to 8:30 a.m., 11:45 a.m. to 1:30 p.m., and 4:30 p.m. to 7 p.m.
- P11 was used in Area D, Tuesday through Saturday, 4:30 p.m. to 7:30 p.m.; and in Area E, Tuesday through Saturday, 4 p.m. to 7 p.m.
- P10 was used in every area.

During Experiment 1, the task force was divided into two groups of 13 and 14 officers respectively. One group worked from 7 a.m. to 3 p.m.; the other group worked 3 p.m. to 11 p.m. Both groups worked Tuesday through Saturday. The task force hours by area and countermeasure were:

	Countermeasure				
	P01	P06	P10	P11	Total
A	3,164	---	1,059	---	4,223
B	---	7,924	2,686	---	10,610
C	1,632	---	544	---	2,176
D	---	---	266	685	951
E	---	---	224	623	847

Experiment 1 was thus designed to test fixed-point countermeasures in three areas and general patrol in two areas.

One final point should be made which relates to this experiment and the next two experiments. In January 1972, the Department instituted a traffic warning system. It was intended that the volume of warnings would be high at the beginning of 1972 and decline as the year progressed. This aim was accomplished as will be illustrated in subsequent discussions.

Results of Experiment 1. The following gives the number of warnings and citations issued in the target area during the first experiment by Task Force personnel:

January - June 1972	Warnings	Citations
Area A (Gateway - Giles)	1,234	870
Area B (Airway Boulevard)	2,352	1,628
Area C (Alameda Street)	1,475	1,490
Area D (Mesa Avenue)	963	944
Area E (Dyer Street)	1,055	888

The grand total is 12,899 warnings/citations or .69 warnings/citations per hour worked.

Table 3-1 gives the traffic accident statistics for the target areas in Experiment 1. These statistics cover the two watches during which the

Table 3-1

Accident Statistics for Experiment 1

Accident Type 1 Location	Jan. - June 1971	Jan - June 1972	Percent Change
Total Accidents			
Area A	42	63	
Area B	66	88	
Area C	44	77	
Area D	201	217	
Area E	214	285	
Total	567	732	+29.1
Rest of City	4,403	5,121	+16.3
Property Damage Accidents			
Area A	36	49	
Area B	54	82	
Area C	32	46	
Area D	128	148	
Area E	156	200	
Total	406	525	+29.3
Rest of City	3,187	3,693	+15.9
Injury Accidents			
Area A	6	14	
Area B	12	6	
Area C	12	33	
Area D	73	69	
Area E	58	85	
Total	161	207	+28.6
Rest of City	1,216	1,428	+17.4

task force operated (7 a.m. to 3 p.m. and 3 p.m. to 11 p.m.) and are also restricted to the Tuesday - Saturday time period. The statistics in this table, therefore, accurately reflect the accident picture during the hours of operation of the task force. Because this is the first table of this nature in this report, we will go into some detail to explain the statistics for Experiment 1. Table 3-1 compares the experimental period with the previous year. For example, Area A had an increase in total accidents from 42 to 63. Overall, these areas had an increase of +29.1 percent (from 567 to 732). The rest of the city had an increase of +16.3 percent (from 4,403 to 5,121). Table 3-1 provides the main conclusion for Experiment 1:

- Accidents were not impacted during Experiment 1.

The main support for this conclusion is that every area experienced an accident increase. Property damage accidents increased in every area and injury accidents increased in three of the five areas.

In performing this analysis we have compared the first six months of 1972 with the first six months of 1971. As mentioned in Chapter II, there were data collection problems in the El Paso STEP. The information in Table 3-1 for 1971 was manually collected. We have no information on the last six months of 1971. If such data were available, more support could be obtained for the above conclusion. However, we believe that the statistics in Table 3-1 clearly give evidence of no change in these areas.

Several reasons can be given for the lack of any effect. First, Table 3-1 shows that Areas A, B and C have relatively low volumes of accidents during the experimental period. Traffic accidents are difficult to impact and a low volume of accidents compounds the problem. In Area D and E there was a substantial volume of accidents but a relatively low volume of task force activity. Area D had 685 hours of general patrol. Over a six-month period this averages five hours of patrol per day or 2.5 hours of patrol per shift since the task force worked two shifts. The previous statistics also showed that the total number of warnings/citations was lowest in these areas. In summary, Areas D and E cannot be considered a "saturated" patrol.

Countermeasure P10 is particularly interesting to study. It was directed at drivers with suspended or revoked licenses with the aim of enhancing the penalties for offenses such as DWI. In the STEP planning phase, it was believed that these drivers constituted a major problem in El Paso. The original plan called for the Texas Department of Public Safety to supply a printout of suspended or revoked driver license records. Unfortunately, conversion to a new computer system prevented the Department from supplying the lists during the operational period of the countermeasure. Instead, the task force was required to expend considerable time in developing its own lists manually. At its completion, the list contained records only for drivers in the El Paso area, and the list probably contained some inaccuracies since it was manually compiled. Approximately 250 names were on the final list.

Another complication was the Misdeameanor Probation Act, which became effective January 1972. This state law allows the convicted driver to be placed on probation but retain his drivers license. Although no supporting data are available, it is believed that this law greatly decreased the number of driver license suspensions.

During the operational period, only seven arrests were made for an average of one arrest for every 683 task force hours. It is, therefore, concluded that the countermeasurewas ineffective and had no impact on the level of accidents in these areas.

Description and Results of Experiment 2

In July 1972, the STEP task force changed its field operations. There were several reasons for the change. It was clear during the first experiment that the fixed-point countermeasures were not going to be effective. The officers believed that the countermeasure was not productive and that they were being forced to sit at an intersection and do nothing. It was also obvious that the P10 countermeasure on suspended or revoked licenses was not working.

Beginning in July 1972, Areas A, B and C were no longer patrolled. Two new areas were formed:

Area F Alameda Street from Cadwallder Street to Old Pueblo Drive

Area G Interstate 10 from Trowbridge to McRae-Giles Street.

Area F is approximately five miles in length and Area G is approximately four miles in length. For Experiment 2 from July 1972 through January 1973 the task force operated in Areas D, E, F and G. Another major change was that the task force worked only only one shift--10 a.m. to 6 p.m. The only countermeasure used was P11, Patrol and Cite. The task force hours were as follows over the seven-month period:

Location	Task Force Hours
Area D (Mesa)	5,446
Area E (Dyer)	6,448
Area F (Alameda)	5,495
Area G (Interstate 10)	7,568

One difficulty in evaluating this experiment is that the evaluation reports are available only on a quarterly basis. The evaluation has, therefore, been performed for the period of July through December 1972. Table 3-2 shows the traffic accident statistics for the four areas. Area D and F have shown decreases. Area E has had an increase and Area G had no change. As with the first experiment, these statistics are for the hours that the task force worked; i.e., Tuesday through Friday, 10 a.m to 6 p.m.

The decrease in Area F is particularly noteworthy. In the baseline period, there were 89 accidents as compared to 55 during the experiment. There was also a decrease of -16.3 percent (from 147 to 123) in Area D. The main conclusion on Experiment 2 is as follows:

- Accidents were impacted in Areas D and F but not in Areas E and G.

As support for this conclusion, we can make two observations. First, the rest of the city experienced an increase of +13.1 percent (from 2,825 to 3,195). In the category of property damage accidents the increase was +7.7 percent and

Table 3-2

Accident Statistics for Experiment 2

Accident Type 1 Location	Jan. - June 1971	Jan - June 1972	Percent Change
Total Accidents			
Area D	147	123	
Area E	170	255	
Area F	89	55	
Area G	41	41	
Total	447	474	+ 6.0
Rest of City	2,825	3,195	+13.1
Property Damage Accidents			
Area D	106	85	
Area E	131	209	
Area F	65	35	
Area G	29	34	
Total	331	363	+ 9.7
Rest of City	2,225	2,397	+ 7.7
Fatal and Injury Accidents			
Area D	41	38	
Area E	39	46	
Area F	24	20	
Area G	12	7	
Total	116	111	- 4.3
Rest of City	600	798	+33.0

with injury accidents the increase was +33.0 percent. This means that the decrease in Areas D and F do not fit the citywide pattern.

It is also possible to analyze these decreases from a more statistical viewpoint. A traffic accident series can be viewed as a Poisson process with a given frequency as its average. In the baseline period Area F had 89 accidents. If 89 accidents are used as an average, then the 55 accidents during Experiment 2 is more than two standard deviations from the average and can, therefore, be considered statistically significant at the five percent level. For Area D, the decrease is not conclusive in this regard. The baseline period had 147 accidents so that the critical point is 122.7 which can be compared to the 123 accidents during the experiment. Since the rest of the city had an increase, we lean toward the conclusion that the Area D decrease is significant.

From an evaluation viewpoint the aim is to relate these decreases to the activities of the task force. Table 3-3 gives the number of citations issued in each area for the last six months of 1972. As a starting point on analyzing the citation data, we note that Interstate 10 differs from the other streets in this experiment. Interstate 10 is a major highway in El Paso. Although more hours were devoted to this street than the others, Table 3-3 shows that fewer citations were issued. A total of 2,304 citations were written in Area G compared to over 4,000 in each of the other areas. This low volume of citations coupled with the type of street are probably the primary reasons for no change in the areas. It should also be mentioned that the 41 accidents in Area G are a low volume. We have already commented on the difficulty of reducing traffic accidents in general and the fact that a low volume is even more difficult to impact. This is particularly applicable to Area G.

In the other areas there was a decrease in Areas D and F but not in Area E. The number of citations issued in each area was roughly the same. However, the length of each street differs. Mesa Avenue (Area A) is nine miles in length, Dyer Street is eight miles and Alameda Avenue five miles. Along each street speeding is a major causative factor in accidents. Using

Table 3-3

Citations for Experiment 2

Category	Area D	Area E	Area F	Area G
Speeding	1,961	1,137	1,310	1,234
Signs and Control Devices	472	649	724	262
Restricted License Violations	482	902	425	89
Report or Document Violation	387	459	346	78
Operating with Defective Equipment	222	342	268	96
Turn Violations	100	109	70	49
Right-of-Way Violations	140	176	130	26
Improper Lane Operating	89	140	91	187
Other	373	698	760	283
Total	4,226	4,612	4,124	2,304

the citation data in Table 3-3, we note a difference in the number of citations for speeding per mile:

Mesa Avenue--217.8 citations for speeding/mile
Dyer Street--142.1 citations for speeding/mile
Alameda Avenue--262.0 citations for speeding/mile

These ratios are in direct proportion to the accident changes in the streets. Areas D and F showed significant decreases and also had the highest ratio of speeding citations per mile. Along Dyer Street there was an increase in accidents and a lower ratio. Based on this analysis we believe that it can be concluded that the decreases in Area D and F were the result of the task force efforts.

A further analysis can be made on Dyer Street. It was determined, for example, that Dyer Street was repaved during the last half of 1972 when the task force was operating along the street. This affected the actual operations during the experiment. No evidence could be found that the repaving itself caused any traffic accidents but it did make the street more hazardous. Table 3-2 indicates that the increase along Dyer Street was in the category of property damage accidents rather than injury accidents. This would be expected under a repaving program. As a further indication that this increase was abnormal, the following is the total number of accidents in six-month segments along Dyer Street.

Six-Month Period	Total Number of Accidents
January - June 1971	262
July - December 1971	332
January - June 1972	354
Experiment 2	
July - December 1972	452

As a final note there has apparently been no major change in average daily traffic along Dyer Street according to figures provided by the State Department of Transportation. Average daily traffic at intersections along Dyer were as follows in 1970 and 1972:

Intersection	Average Daily Traffic March 1970	1972
Dyer and Transmountain Road	13,430	13,965
Dyer and Hando Pass Street	29,100	22,460
Dyer and Fred Wilson Street	25,200	27,005
Dyer and Van Buren Street	23,160	25,735
Dyer and Fort Boulevard	18,000	19,405
Dyer and Trowbridge	16,170	17,785
Dyer and Copia	11,920	12,250

Description and Results of Experiment 3

The emphasis in the first two experiments was on line patrol along major arteries in the city. This approach was in complete agreement with the national objectives as understood by the project director in El Paso. Beginning in February 1973, a shift in emphasis occurred. The project director believed that more effective enforcement could be gained by changing from a line patrol operation to a general area patrol operation. The first area selected consisted of Census Tracts 24 and 25 which were designated as Area H. This is primarily a residential area with some local business establishments. Fort Bliss borders Census Tract 25 and, therefore, contributes to the traffic in the area. The total population in Area H is approximately 11,000 of which about 6,200 presons constitute the driving population. The area is a typical El Paso Community in that only about 15 percent of the working population work in the central business district while about 75 percent work elsewhere in the city.

The task force worked in Area E and H from February through July 1973. The only countermeasure was P11 (General Patrol) and the working hours of the task force were noon to 8 p.m. in Area E and 3 p.m. to 11 p.m. in Area H.

As discussed in the previous chapter, there were many problems in the data collection aspects of the El Paso STEP project. The first year of operation was used as an opportunity to develop accurate and reliable baseline data. Experiment 3 was the first experiment in which we have a more complete history of data. Data have been gathered on the level of accidents in both areas for the previous year and the months of the experiment. For Area H we have the following comparison:

	Number of Accidents	
Area H	February-July 1972	February-July 1973
Injury Accidents	24	7
Property Damage Accidents	47	23
	71	30
Rest of City		
Injury Accidents	801	864
Property Damage Accidents	1,922	2,232
	2,723	3,096

These figures are restricted to the hours of operation; i.e., Tuesday through Saturday, 3 p.m. to 11 p.m. There has been a remarkable decrease in accidents in Area H during the experiment. On a citywide basis there was a 13.3 percent increase (from 2,723 to 3,096) while in Area H there was a decrease from 71 accidents to 30 accidents. As further support for the significance of the change, we note the folloiwng statistics in Area H:

	Area H	
	Property Damage	Injury
February 1972 - July 1972	47	24
August 1972 - January 1973	43	25
Experiment 3		
February 1973 - July 1973	23	7

For the prior two six-month periods, there was an average of 45.0 property damage accidents and 24.5 injury accidents. Thus the Experiment 3 statistics are significant in view of the history in the area. Again, all the above data are restricted to the task force hours of operation.

In Area E there has been no impact on accidents as seen by the following comparison:

	Area E	
	Property Damage	Injury
February 1972 - July 1972	78	28
August 1972 - January 1973	131	29
Experiment 3		
February 1973 - July 1973	110	33

In Area E the hours of operation were noon to 8 p.m. For the two previous six-months periods, the averages are 104.5 property damage accidents and 28.5 injury accidents. In each category the statistics for Experiment 3 are slightly above these averages.

The main conclusion from this experiment is as follows:

- There was a decrease in accidents in Area H and there was essentially no change in accidents in Area E.

Table 3-4 shows the citations issued in these areas during Experiment 3. We again note the same trends as in the previous experiment. There is a difference in the volume and type of citation issued in the two areas. In Area E the emphasis was on violations for signs and control devices (25.8 percent of the citations) with speeding violations in second place (14.8 percent). In Area H there were more citations issued and speeding violations were more prevalent (35.3 percent).

Table 3-4

Citations for Experiment 3

Category	Area E	Area H
Speeding	1,029	3,088
Signs and Control Devices	1,790	1,698
Restricted Licenses Violations	816	1,315
Report or Document Violation	824	757
Operating with Defective Equipment	695	450
Turn Violations	371	246
Right-of-Way Violations	299	205
Improper Lane Operating	228	86
Other	886	906
Total	6,938	8,751

Decription and Results of Experiment 4

By mid 1973 it was obvious that the most effective countermeasure in El Paso was the general patrol by the officers. It was also believed that the most effective operation was in a general area rather than along a particular street. Experiment 4 was developed to test an allocation procedure in two areas using fixed point countermeasures, general patrol and radar. Two areas of the city were selected. Area J consisted of Census Tracts 30 and 21. Area K was Census Tract 22. Over the four months August through November 1973, the task force switched areas monthly:

August -- Area J
September -- Area K
October -- Area J
November -- Area K

It was believed that two results would occur in this process. First, traffic accidents would be reduced during the month of enforcement in an area. Second, there would be a halo effect extending into the next month. Thus in Area J accidents would be reduced during August 1973 and would remain low during September. In October the task force would return to Area J and the effect would extend through November. The logic behind this approach is straightforward. If the experiment succeeded, it would provide a practical operational tool for allocating traffic enforcement personnel. Rather than concentrating in one area for four full months, the task force could switch areas monthly with the same effectiveness. Unfortuantely, as we shall see in the analysis, this procedure failed to produce the desired results.

Area J is located between the Mexican border and Interstate 10. Its population is approximately 10,800 with a driving age population of approximately 6,180. Area J is slightly smaller with a total population of 8,900 and driving age population of 4,900 persons. The task force hours and countermeasures in these areas were as follows.

Task Force Hours

	Fixed-Point	General Patrol	Radar
Area J--August	1,203	2,533	92
Area K--September	1,182	2,494	84
Area J--October	1,169	2,466	88
Area K--November	1,215	2,552	88

As with the previous experiments, the main analysis is on the change in accidents during the hours of operation of the task force. Table 3-5 shows the accident statistics for the four months in 1973 as compared to the previous year. Although some of the changes appear to be substantial, a complete history in these areas provides a more realistic comparison.

	Total Accidents	
	Area J	Area K
August - November 1972	87	101
December 1972 - March 1973	70	104
April - July 1973	62	68
Experiment 4		
August - November 1973	52	99

In Area J there has been a steady decrease in accidents from 87 to 70 to 52. The volume of accidents during this experiment is in line with the steady decrease which has occurred. In Area K the average for the three previous periods is 91.0 so that the 99 accidents during the experiment are slightly higher than the average. On the basis of this analysis, the main conclusion is:

- There was a decrease in accidents in Area J which was in line with its history and can, therefore, not be attributed to the Task Force. Accidents were not reduced in Area K.

It was originally anticipated that Experiment 4 could be studied by analysis-of-variance (ANOVA) techniques. Input to the ANOVA would be the weekly or biweekly number of accidents in each area. The ANOVA would then give information on differences between months and enforcement. As in the above analysis, the ANOVA would be restricted to the hours of operation.

Table 3-5

Accident Statistics for Experiment 4

Accident Type 1 Location	August - Nov. 1972	August - Nov. 1973
Total Accidents		
Area J	87	52
Area K	101	99
Rest of City	2,829	2,776
Property Damage Accidents		
Area J	65	39
Area K	67	80
Rest of City	2,077	2,061
Fatal and Injury Accidents		
Area J	22	13
Area K	34	19
Rest of City	752	715

Unfortunately, the actual level of accidents per month was so low that an ANOVA was not possible. For example, in Area J the volume of accidents for August through November 1973 was 10, 20, 12 and 10. Area K statistics were somewhat higher but not enough to make an ANOVA worthwhile. The low volume of accidents was probably the primary reason for the lack of success in these areas.

Description and Results of Experiment 5

It was originally intended that Experiment 4 would continue for several months. However, the high level of accidents during previous Decembers was of great concern to the STEP project director and the police department. With the approval of NHTSA, it was decided that a special project would be developed and executed for December. The objective of the December project was obviously to reduce the level of accidents during the holiday season. As subobjectives, the following were developed:

1. A doubling to tripling of Patrol Division attention to traffic offenses. The Patrol Division had historically written only about 17 percent of citations in the Department.

2. A substantial increase in violator contracts by the Traffic Division.

3. Change of the STEP task force from intensive patrol in small restricted areas to a highly mobile tactical force ranging citywide in support of the Patrol Division's traffic action, answering daily changes in crash and violation patterns.

4. Maximum possible surveillance and apprehension of intoxicated drivers.

5. A full presentation of the program to the motoring public and the civic community, and solicitation of their support.

6. Greatly increased awareness of the hazards of the season, the presence of the police, and the likelihood of arrest in case of violation.

To attain these objectives, three main activities were identified:

- Public Information and Education Program
- Involvement of Patrol Personnel
- Allocation of the STEP Task Force.

Public Information and Education Program

This component was viewed as an opportunity to use newspaper, radio and television media in a special effort to reduce traffic accidents during the month. It represented a departure from the original intent of public information countermeasures for the STEP program. As stated in the STEP Planning Guide, public information countermeasures were merely to "advise the general public concerning the need, purpose and operational plan of the STEP. Special emphasis should be directed towards those population groups most directly involved." These countermeasures were, therefore, not originally intended to directly affect traffic accidents but were instead a support function to STEP. In this experiment, however, NHTSA gave special permission for El Paso to develop a public information component aimed at affecting traffic accidents.

A major part of the public information component was Public Service Announcements (PSA's) on radio and television. During December the number of PSA's by station were as follows:

KTSM-TV -- 57 PSA's	KSET (FM) -- 155 PSA's
KDBC-TV -- 38 PSA's	KELP -- 62 PSA's
KELP-TV -- 38 PSA's	KINT (AM) -- 310 PSA's
KTSM --124 PSA's	KINT (FM) -- 310 PSA's
KROD --124 PSA's	KHEY -- 186 PSA's
KSET(AM)--155 PSA's	KAMA -- 248 PSA's

Each PSA was between 10 and 30 seconds. The following are representative of the PSA's:

> More people have been killed on our nation's streets and highways than in all the wars of our country's history. The frightening fatality average is one death every 10 minutes--night and day--year round. This is Ted Vogel, speaking for the STEP task force. We ask you not to be the next traffic victim. Make courtesy your full time code of the road. Have a happy and accident free holiday. Stay alive. Drive with care and courtesy year round.

> More than half of all fatal accidents in the U.S. involve drinking and driving, according to the National Highway Safety Bureau. This is Ted Vogel, speaking for the STEP task force. We ask you to think twice before driving home after that holiday cocktail party. STEP wants you to keep your holiday a happy and accident-free one.

In addition, the STEP Project Director had taped interviews with four radio stations which were subsequently aired during December. Finally, KBDC-TV was provided daily information on the number of fatal, injury and property damage accidents. Each day the information was used on that evening's newscast. Weekly statistical summaries were submitted to all three television stations.

The El Paso Times and El Paso Herald Post each ran a series of articles on traffic accident safety. In addition the papers generally gave accident statistics for each day of the month.

Involvement of Patrol Personnel

One of the motivating factors for the special December program was that the Patrol Division personnel were not contributing to traffic law enforcement. There were two reasons for this problem. First, the Patrol Division was understaffed. The volume of calls for service was increasing each year and the Patrol Division strength was not significantly increased. Second, there was a general feeling that traffic enforcement was the responsibility of STEP and the Patrol Division did not have to be concerned. There was in fact support from some line commander on this viewpoint.

To overcome this problem, the STEP Project Director made a special appearance at each shift roll call. He explained the STEP activities and the special December effort. He urged the Patrol Division officers to devote some of their time to traffic law enforcement and to issue citations in appropriate circumstances.

This effort did not produce the expected results. During December, the Patrol Division issued 1,561 citations. This can be compared to the previous three months in which the Division issued 1,496 citations (September); 1,456 citations (October); and 1,331 citations (November). While there was some increase in December, the percentage increase was less than 10 percent. The strength of the Patrol Division was approximately 550 officers at this time. Thus during December, the average number of citations per officer was 2.83.

Allocation of the STEP Task Force

Rather than concentrating in one area, the task force was allowed to change areas on a predetermined basis. The task force continued to operate as a team. During December they worked in four different areas spending one week in each area. The task force issued 3,306 citations for an average of 122.4 citations per officer.

In total the Department issued 7,545 citations during December 1973. By violation type the percentages were as follows:

Speeding Violation	20.4 percent
Signs and Control Device Violations	20.0 percent
Restricted License Violations	14.7 percent
Report or Document Violations	10.8 percent
Operating with Defective Equipment	8.1 percent
Right-of-Way Violation	5.7 percent
Turn Violations	4.0 percent
Passing Violations	3.7 percent
Motor Vehicle Accident Involvement	3.6 percent
Other	9.0 percent
	100.0 percent

An analysis of accidents for December 1973 indicates that the level of accidents did in fact decrease when compared to previous Decembers. The statistics are as follows:

	Property Damage	Injury	Fatal	Total
December 1971	880	288	5	1,173
December 1972	950	345	4	1,299
Experiment 5				
December 1973	768	282	5	1,055

Compared with the previous December that was a -18.8 percent reduction. The most significant change was in property damage accidents which decreased -19.2 percent. As further support that there has been a change, we can use the average of the previous two Decembers as the parameter in a Poisson process. The average is 1,236.0 accidents. The experience in December 1973 is more than two standard deviations from this average indicating that there has been a statistically significant decrease.

It should also be noted that the decrease is primarily in the category of property damage accidents rather than injury accidents. For property damage accidents the average for the prior two Decembers was 915.0 and December 1973 had 768 property damage accidents. This is a decrease of -16.1 percent from the average. The change in injury accidents is not as great. In this category the average is -10.9 percent.

There is one major difficulty in evaluating the December 1973 experiment. The national gas shortage began in late 1973 and continued in 1974. There can be no argument on the influence of the gas shortage on the nation's highways. The dramatic decreases in highway fatilities has been well documented. On the other hand there are arguments pro and con on whether the gas shortage affected accidents in urban areas. An attempt was made to determine whether the volume of gas sales in El Paso declined during December 1973. Only limited success was attained in getting gas volume data. In general, the major gas companies do not like to release any data on the

volume of sales since they believe such data to be of a proprietary nature. The information obtained from three major companies in El Paso indicated there was a three percent increase in gas sales in December 1973 over the previous December.

The effect of the gas shortage on the December 1973 experiment is impossible to determine. Ordinarily there is about a seven percent increase in gas sales each year and the December 1973 increase is less than this. The evaluation team believes that the effect in December 1973 was minimal with respect to traffic accidents. While there was undoubtedly some effect, the main reason for the decrease was not the gas shortage. An obvious alternative is that the special effort caused the decrease. Again, such a contention is hard to prove since the program was a citywide effort involving public information. The evaluation team believes that the public information was a major effort which had not been seen in El Paso in many years. Additionally, the task force was efficiently allocated to several areas in the city. While this discussion does not prove a link between effort and effect, it does suggest strong evidence for the experimental success. No other viable alternatives for the change could be found.

Descriptions and Results of Experiment 6

During December 1973 and to some extent during the prior experiments, there was a gradual movement toward using the task force as a mobile group rather than concentrating the officers into one area. There were several reasons for this. First, the officers did not like being concentrated for an extended period of time. Boredom in an area came rapidly. Second, there was a belief that an effectiveness of the task force occurred in the first few weeks and after a few weeks the task force had accomplished everything it could. Finally the Project Director wanted the flexibility to allocate his forces to the areas that showed sudden increases in accidents. For these reasons, the last experiment involved four different areas with the following schedule:

Area M--Census Tracts 6, 8, 9, 10	January, February 1974
Area N--Census Tracts 23, 26, 27, 28, 29	March, April 1974
Area J--Census Tracts 36, 31	May 1974
Area K--Census Tracts 22	June 1974

In each area the task force was split into two groups. One group worked 7 a.m. to 3 p.m. and the other group worked 3 p.m. to 11 p.m. The task force hours and countermeasures in this experiment were as follows:

	Fixed-Post Countermeasures (P01, P04, P06)	General Patrol (P11)	Radar (P12)
Area M	--	7,430	172
Area N	--	6,807	172
Area J	1,375	2,411	92
Area K	1,183	2,086	84

This experiment, therefore consisted primarily of general patrol supplement by radar and fixed-post countermeasures. The task force issued the following level of citations in these areas:

	Citations
Area M	5,197
Area N	10,849
Area J	4,256
Area K	3,901

Table 3-6 shows the accident statistics for Experiment 6. Since this table is rather complicated in its format, we will explain some of the key statistics. Basically, this table compares the accident experiment in each area with the rest of the city. For example, the task force operated in Area M in January-February 1974. During this time period there were 64 property damage accidents in Area M. This can be compared to the 86 property damage accidents which occurred in Area M in the first two months of the previous year 1973. Statistics for the rest of the city are shown on the right side of the table. For example, during January through February there were 814 property damage

Table 3-6

Accident Statistics for Experiment 6*

Propery Damage Accidents

			Rest of City		
	1973	1974	1973	1974	Percent Change
Area M Jan. - Feb.	89	64	1,000	814	-18.6%
Area N March - April	75	56	956	793	-17.1%
Area J May	10	8	531	432	-18.6%
Area K June	11	16	479	379	-20.9%

Injury Accidents

			Rest of City		
	1973	1974	1973	1974	Percent Change
Area M Jan. - Feb.	27	25	312	226	-27.6%
Area N March - April	29	22	330	298	- 9.7%
Area J May	10	7	175	157	-10.3%
Area K June	11	5	172	147	-14.5%

*As with the other tables in this chapter, these statistics are restricted to the hours of operation of the STEP Task Force.

accidents as compared to a 1,000 property damage accidents the previous year. This is a decrease of -18.6 percent.

The main point of Table 6 is that both the target areas and the rest of the city have experienced a decrease in traffic accidents. The rest of the city consistently shows a decrease of about 18 percent for the first six months of 1974 as compared to the previous year. If the rest of the city is considered as a "control" area, this means that Areas M, N, J and K had roughly the same experience as the control area. This leads to the following conclusion on Experiment 6:

> Areas M, N, J and K experienced decreases in traffic accidents; however, the rest of the city also experienced decreases.

The evaluation team believes that the citywide decreases can be attributed to the gas shortage and its ramifications. On January 2, 1974 the President signed the Emergency Highway Energy Conservation Act. The Act imposed a national maximum speed limit of 55 miles per hour on highways. The Act probably had no direct effect on the El Paso project since it is in an urban setting. However, we mention it because of the nonmeasurable psychological effect which the Act had. There is some evidence that drivers were driving slower, in general, because of the gas shortage and the enactment of the 55 miles per hour limit.

SUMMARY OF RESULTS

At this point, we have analyzed in detail the experiments conducted by the El Paso STEP task force from January 1972 through June 1974. We can now list the results which were demonstrated by the police countermeasures. These results are as follows:

- The fixed-post countermeasures were definately not an effective utilization of traffic enforcement personnel. In addition to creating a morale problem, there were no positive results in the areas and locations where these countermeasures were utilized.

- Positive effects were obtained on some of the streets in which line patrol was utilized. In these cases the task force essentially saturated a street with officers and effected a decrease in traffic accidents.
- The December 1973 program was an effective program in reducing accidents. This program combined public information activities with task force mobilization. The result was a decrease in traffic accidents during the month as compared to the previous two years.
- The area patrol as used by the STEP task force did not prove effective. In only one area (Area H, Experiment 3) was there a decrease in accidents.

Judicial and Public Information Countermeasures

The judicial countermeasures were used in El Paso to streamline court procedures in relation to traffic cases. Probably the most significant improvement was the expansion from two municipal courts to three.

In El Paso all moving violations (except DWI, hit and run, manslaughter, and other more serious crimes resulting from the operation of motor vehicles) are tried in the Municipal Court. It is a policy in El Paso to call police officers into court only during their regular working hours. The new court convenes in the afternoon and evening and, therefore, improved scheduling of cases has resulted. The new scheduling reduced the backlog of cases that had accumulated due to the work schedules of the issuing officers. The case load for the courts became more evenly distributed among the days of the week and among court sessions for each day.

A statistical clerk was added to relieve court personnel of the additional work load required by the program. The clerk performed several functions relative to STEP activities, particularly in developing court data for evaluation of the STEP program. The statistical clerk was responsible for

coding warning tickets issued by the Department. These tickets were also logged and classified according to hazardous and nonhazardous violations, and the clerk prepared monthly reports, summarizing the warning ticket information.

A deputy court clerk was also hired under the STEP program for the court arrangement section. The deputy court clerk had primary authority for the court schedule and was, therefore, able to make last-minute changes in the court schedule due to changes in an officer's work shift, days off, or vacation. He also checked for accuracy all case settings and subpoenas of witnesses. It was the belief of the court personnel that the efforts of the deputy court clerk resulted in speedier trials of traffic cases.

Finally, an additional mechanized file unit was added to the Traffic Records Office with STEP funds. This unit provided a one-third increase in space available for the housing of permanent traffic records, eliminating the problem of overcrowded file drawers and expediting record checks for court hearings, for insurance companies, and for other interested parties.

In summary, all of the efforts in the judicial area can be classified under judicial countermeasure J01, Reviewing and Streamlining Court Procedures in Relation to Traffic Cases. Toward this aim, the El Paso STEP program has been successful in improving the court system. One lesson was learned in the process: the increase in court work load due to STEP can easily be overestimated. The original proposal requested six additional court positions based on a 25 percent work load increase. In actuality, two positions were added. The addition of one court with improved scheduling has been a more effective method of handling the court work load increase.

With regard to public information countermeasures, we have already discussed the special public information effort in December 1973. Although this was a deviation from the intent of national STEP public information countermeasures, it did prove effective. It should be mentioned that a local public relations firm was retained to accomplish this effort as well as other efforts for the El Paso STEP project.

Throughout the STEP project there was some activity with regard to public information. Local radio stations were requested to make public service announcements. There was apparently no major problems in gaining acceptance of the STEP project in El Paso. Because of the nature of the operational plan and the areas worked, it was not necessary to develop specialized publicity to gain public support. Additionally, no adverse editorials appeared in the local papers about the STEP project.

END