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SAN ANTONIO
ALCOHOL SAFETY ACTION PROJECT
ANALYTIC STUDY NO. 3

Analysis of Selective Enforcement
1975 - 1976

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While every attempt has been made to make this a *stand-alone* document, it should be recognized that an Alcohol Safety Project encompasses a wide spectrum of activities, which are integrated into a total system. A full appraisal of effectiveness can only be made after a careful review of all the Evaluation Reports and the Final Reports of the Project Director.

16. Abstract

Enforcement countermeasure activities during the 2-year continuation period of the San Antonio Alcohol Safety Action Project included the design and conduct of a number of patrol strategies aimed at determining the most effective methods of conducting ASAP selective enforcement. Included in the strategies evaluated were city evaluation area patrols, weekend expressway patrols, saturation expressway patrols and the use of citizen band radios in selective enforcement patrol vehicles. A description and analysis of these activities is contained in this document, along with a summary of enforcement countermeasure findings during the initial three years of the program.

The Selective Enforcement Abstract at the beginning of this report summarizes the major activities and findings during the 1975-1976 continuation period. The evaluation objective and research questions which formed the basis for the research conducted during the continuation period are presented in Section I, and the background and findings of the initial three year program are summarized in Section II. Section III, Results of the Evaluation, contains an administrative and scientific evaluation of each of the patrol strategies undertaken during the continuation period, including city patrols, expressway patrols, saturation expressway patrols and the use of CB-equipped patrol vehicles.

Section IV, Conclusions and Recommendations, represents an overall summary of activities and results of the entire 5-year project period and identifies those findings which could be of greatest benefit to the initiation and operation of locally funded ASAPs.

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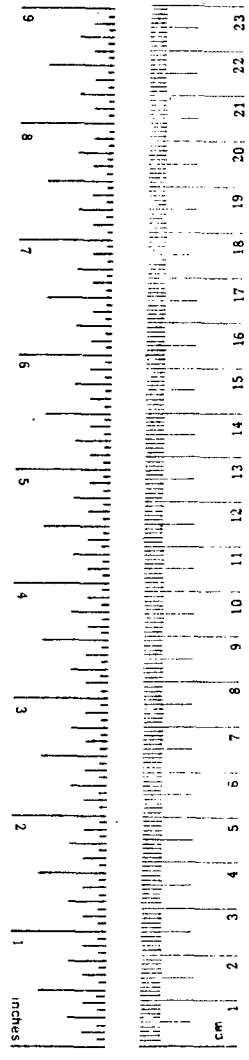
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

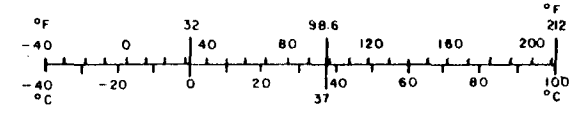
Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	*meters*	*m*
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
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



SELECTIVE ENFORCEMENT ABSTRACT

Selective enforcement activities for the continuation period were implemented in five areas: training of additional officers, evaluation patrols on weekend nights on selected sections of the expressway system, evaluation patrols on all nights in to city evaluation areas, city-wide roving patrols on all nights of the week, and saturation patrols on all nights of the week on four segments of the expressway system.

An analysis was performed to determine the effect of ASAP training on the number of DWI arrests made while on regular patrols. Performance data on a group of officers selected for ASAP training were collected for a 6-month period prior to the training. These data were then compared to performance data for the 6-month period following training. Results of the analysis showed that the criteria used for selection was appropriate for locating highly motivated officers, and the training was effective in increasing the arrest rate of these officers. However, the analysis also showed that continuous monitoring was required to sustain the high level of DWI arrest productivity, even for highly trained and motivated personnel.

The effectiveness of the use of citizen band radios in assisting selective enforcement patrols was determined by an analysis of the extent of activity generated by the CB units and a comparison of patrol man-hours per DWI arrest for equipped and nonequipped patrol units. The data indicate that the presence and use of CB radios result in officer involvement in non-DWI activities to a somewhat higher degree than that experienced by those not equipped with the units. It was concluded that the use of CB radios to apprehend DWI offenders is not cost-effective in urban areas of high traffic density.

The cost-effectiveness of ASAP selective enforcement patrols was determined through analysis of expenditures incurred and revenues gained from DWI arrests and adjudication. Total allocable costs for the enforcement effort during 1975-1976 were $600,000, and total revenues generated were $968,000, resulting in a net revenue per DWI of approximately $56. This net revenue from enforcement activities was nearly sufficient to offset federal and local matching funds expended for project management, the problem drinker evaluation center, and public information and education. It was concluded that, with minor policy changes, the City of San Antonio and the County of Bexar could together develop a financially self-sufficient DWI control system.

Selective enforcement evaluation patrols were conducted on all nights for six months in each of two city evaluation areas. Four units were on patrol on weekday nights, and six units were deployed on weekend nights during both studies. Analysis of patrol man-hours per DWI, accident data, BAC levels, and street crime data from evaluation area A (7 square miles, densely populated) indicated that a force level of 4 to 6 units was marginally effective in reducing accidents but did not have a positive impact as measured by the other parameters. Analysis of evaluation area B (37 square miles, sparsely populated) showed the 4 to 6 unit level of enforcement to be insufficient to produce a deterring effect on abusive drinking-driving or on street crime.

The analysis of weekend expressway patrol activities was conducted in two parts, paralleling the two strategies applied to the expressway system from July 1975 through June 1976. During the first six months, five expressway segments totaling 19.3 miles in length were patrolled each weekend, using ten units on Friday and Saturday nights and four units on Sunday nights. Evaluation of patrol man-hours per DWI, BAC levels, and monthly and cumulative traffic accident data indicated that the patrol level applied was marginally effective in reducing fatal and injury accidents. However, it did not impact the percentage of DWI's. During the final six months, a total of 37 miles of expressway were patrolled at the same level of effort; evaluation of data showed the levels of patrol to be insufficient to have any deterring effect on abusive drinking-driving.

During the last six months of 1976, all ASAP patrol efforts were concentrated on patrolling four expressway segments totaling 24.4 miles in length. Patrols were conducted each night of the week; 10 units were used Sunday through Wednesday, 12 units patrolled on Thursday, and 16 units were dispatched Friday and Saturday nights. Analysis of monthly and cumulative traffic accident data showed that the presence of additional units during all nights of the week had a significant impact on the number and severity of accidents, particularly on those segments of from 4 to 6 miles in length.

The activities undertaken in enforcement over the 5-year San Antonio ASAP provided considerable insight to those activities which were essential or which could have the greatest impact. Among the findings which could be of most benefit to the initiation and operation of locally funded ASAP were: the early and continued support of police officials is essential to the success of the enforcement countermeasure and all other ASAP activities; special police training in identifying, apprehending, and processing DWI's is a major factor in increasing the number and quality of arrests; the use of special overtime forces at a sustained level is effective in increasing the number of DWI arrests; and, in order to maintain an effective enforcement countermeasure, ASAP must provide for increased cooperation between police departments and the courts. In order to be effective over the long term, the enforcement program must be tailored to local conditions and must reflect local support.

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I. EVALUATION OBJECTIVES AND RESEARCH QUESTIONS

Selective enforcement activities for the continuation period were implemented in five areas: training of additional officers; evaluation patrols on weekend nights on selected sections of the expressway system; evaluation patrols on all nights in two evaluation areas, one a densely populated residential area and the other a sparsely settled commercial area; city-wide roving patrols on all nights of the week; and saturation patrols on all nights of the week on four segments of the expressway system.

Five research questions were to be answered by the administrative evaluation. The evaluation methodology for the first two research questions was a longitudinal comparison between baseline periods and the continuation period for 22 evaluation measures. The effectiveness of ASAP training was accomplished by a comparative analysis of DWI arrest activity while on regular patrols for three categories of police officers. The effectiveness of citizen band radios was determined by a longitudinal analysis of activity and a comparison of patrol man-hours per DWI between regular and CB-equipped patrol units. The cost-effectiveness of ASAP selective enforcement involved the development and comparison of both costs (local and federal) and offsetting revenues (city and county) generated by the ASAP selective enforcement patrols.

- How efficient were the selective enforcement patrols?
- Did selective enforcement have a catalytic effect on regular patrols?
- How effective was ASAP training on regular patrol DWI arrests?
- How effective was the use of CB radios?
- How cost-effective were ASAP selective enforcement patrols?

Three research questions were to be answered by the scientific evaluation. Evaluation methodologies used to answer these questions included: a longitudinal comparison of patrol man-hours per DWI arrest; comparison of BAC levels found during two annual Voluntary Roadside Surveys for city-evaluation area patrols and seven Voluntary Roadside Surveys for expressway patrols; and a longitudinal trend analysis of accidents occurring during baseline and patrol periods. A longitudinal trend analysis also was used to compare street crime during baseline and patrol periods.

- To what degree was the ASAP selective enforcement strategy of city-evaluation area patrols effective in altering drinking-driving behavior and in reducing accidents and street crime?
- To what degree was the ASAP selective enforcement strategy of weekend expressway patrols effective in altering drinking-driving behavior and in reducing accidents?
- To what degree was the ASAP selective enforcement strategy of saturation expressway patrols effective in altering drinking-driving behavior and in reducing accidents?

II. BACKGROUND

A. Findings From Project's Initial Three Years

Enforcement consisted of two countermeasures: enforcement training and selective enforcement. During the initial 3 years, the program expended $1,009,686; of the total, $959,282 was used for selective enforcement. Training was conducted initially in 1971, and again in 1972. Selective enforcement patrolling was conducted every night during 1972-1974. The result in terms of DWI arrests was a 450-percent increase over historical levels. This increase came predominantly from the selective enforcement patrols, but the effect of training and using officers of the regular forces on an overtime basis had the desired catalytic impact.

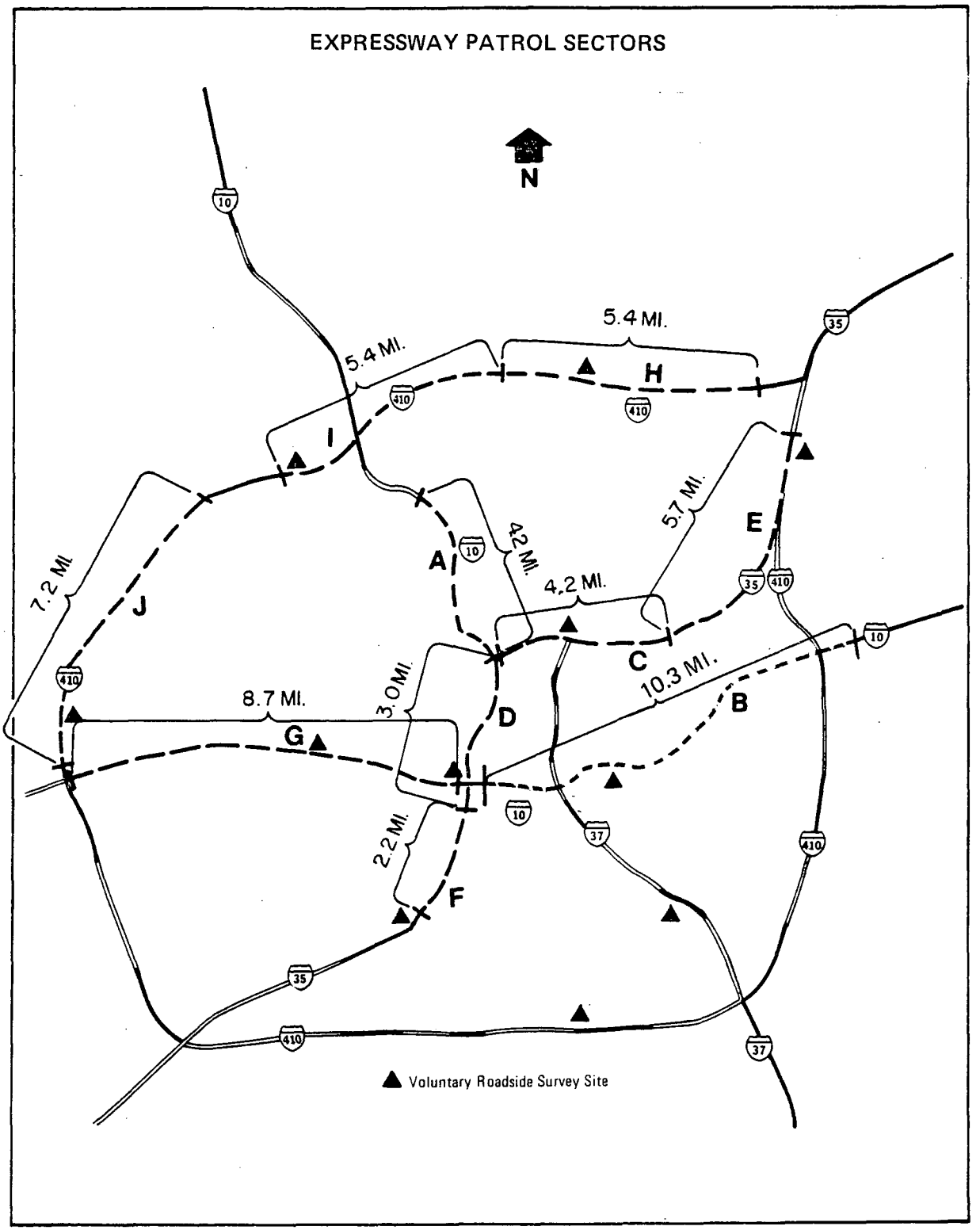
The administrative evaluation of enforcement indicated that the countermeasures operated essentially as planned. A dramatic increase in DWI arrests resulted in 1972, with some decrease in numbers of DWI arrests and an increase in patrol hours per DWI arrest during the last 2 years. Not all expenditures for capital equipment were cost-effective. Mobile vans and video-tape units were poor investments, while chemical breathtesting equipment was a wise choice. Finally, the decision to initially procure only ten patrol vehicles constrained ASAP below optimum force levels.

The scientific evaluation of the overall effectiveness of the ASAP enforcement countermeasure activity area was accomplished by two special experiments and two longitudinal trend analyses. All four scientific methodologies were intended to contribute to the answer of one major research question: What level of enforcement is required to substantially reduce fatal and injury crashes caused by drunk drivers? Unfortunately, due to inadequate enforcement levels during the initial period, this basic question remained unanswered.

In 1973, in cooperation with the San Antonio Police Department, a field experiment was designed to correlate arrest patterns with potential arrestees derived from the Voluntary Roadside Survey. Police subsectors were drawn in relatively tight areas around each of the eight general sites for the Voluntary Roadside Survey. On different weekends, either one, two, four, or eight ASAP units were assigned to each area from 9 P.M. to 3 A.M. on a Friday or Saturday night. The results of the "alternative force level" experiment revealed that the major factor in patrol detection and efficiency was the enthusiasm and motivation of the officers on patrol; there was excellent consistency in correct apprehensions; and the probability of arrest for DWI was in direct proportion to the number of units on patrol. As a generalization, for a patrol density of 1 unit/10 square miles, the probability of arrests were 1/1000 and 1/400 for BAC levels of 0.10 to 0.14 and over 0.15, respectively.

During 1974, three different saturation patrol experiments were conducted. A reduction in accidents during the first saturation patrol experiment indicated that saturation patrolling shifted alcohol-related accidents away from the saturated areas, and that there was a 2-month residual effect on accident rates. However, the two other saturation experiments failed to show any statistically significant reductions.

Monthly, nighttime fatal and injury accident data for a 6-year period were analyzed by the Box-Jenkins technique. However, fatal accidents were too few for application of this technique, and injury accidents showed a random fluctuation. Classical statistical tests for significance also were conducted. No effect of the ASAP selective enforcement patrols was evident in the total or single-vehicle fatal or total injury accident data. However, analysis of single-vehicle injury accidents disclosed a reduction, which bordered on statistical significance.


EXPRESSWAY PATROL SECTORS
N
5.4 MI.
5.4 MI.
H
I
5.7 MI.
E
4.2 MI.
4.2 MI.
A
7.2 MI.
J
C
10.3 MI.
B
8.7 MI.
3.0 MI.
G
D
2.2 MI.
F
Voluntary Roadside Survey Site

Voluntary roadside surveys were conducted annually in 1971-1974. There was no longitudinal trend in the percentage of drivers surveyed who were impaired (≥0.05 percent) or "bombed" (≥0.15 percent). However, for drivers who were DWI (≥0.10 percent), the percentage dropped from 12.9 percent in 1971, to 10.7 percent during the first two ASAP years, and then increased to 11.8 percent in 1974. These reductions were not statistically significant. However, the fact that the decline in activity in both selective enforcement and public information and education in 1974 coincided with the observed DWI percentage increase suggested that ASAP enforcement had a marginal impact on the overall level of DWI.

B. Highlights of Continuation Period Activity

Selective enforcement activities during 1975-1976 were divided into three distinct periods. The period between January and June 1975 was transitional, and activity involved preparation for the implementation of the patrol strategies to be employed during the continuation period. The period between July 1975 and June 1976 was operational, and activity involved three patrol strategies. The period between July and December 1976 also was operational, but activity involved only one patrol strategy.

In addition to the selective enforcement effort, the regular patrol forces continued to emphasize the arrest of DWI's. During 1975, SAPD regular patrols arrested 2048 DWI's, and other law enforcement agencies within Bexar County arrested 673 DWI's. During 1976, the DWI arrests for the SAPD regular patrols were 2211. Other Bexar County enforcement agencies had 496 DWI arrests during 1976.

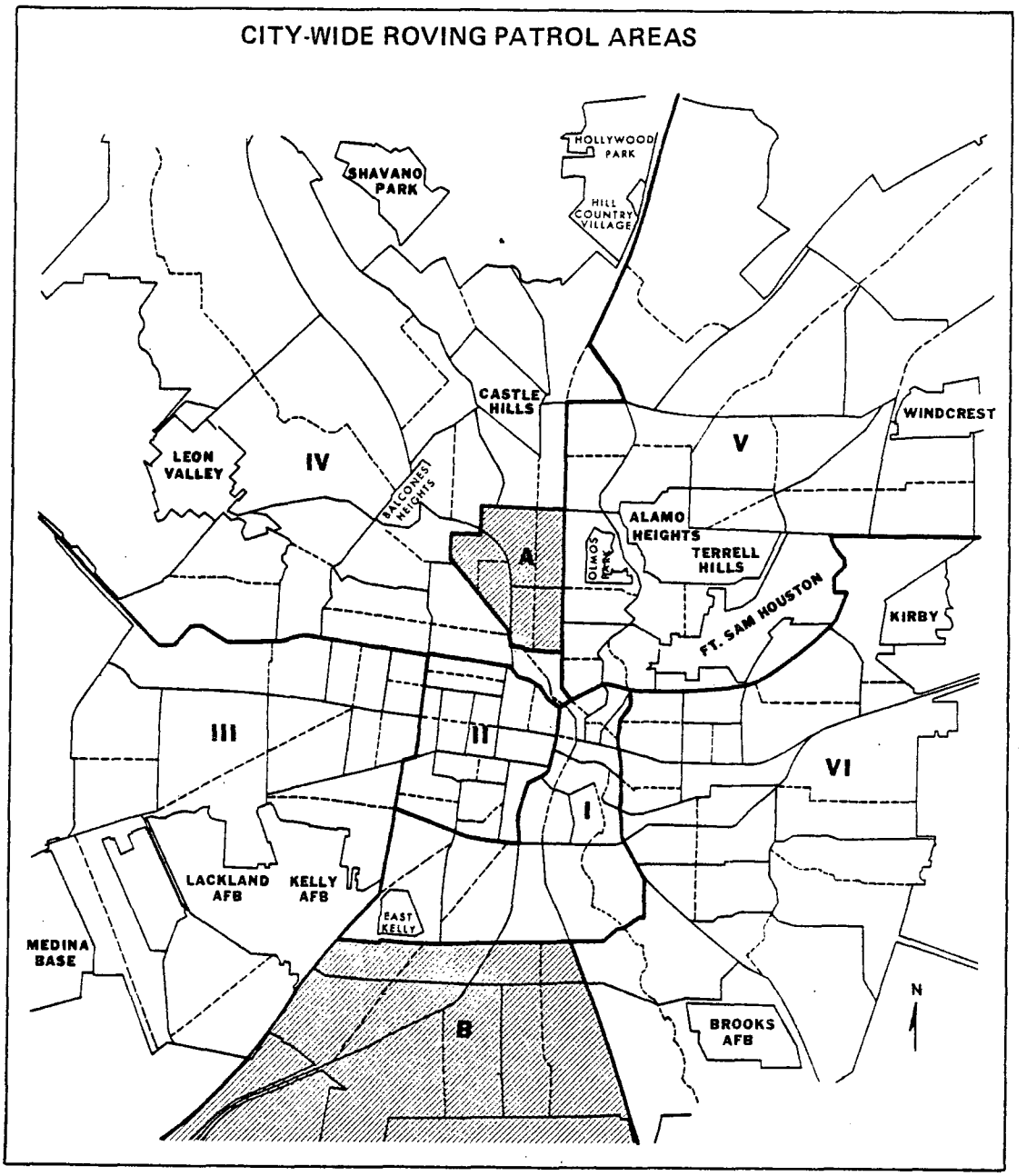
1. January-June 1975

A total of 17 new police cars was delivered and placed in operation. With these additions, ASAP selective enforcement had available 22 patrol vehicles. This number was the level required in the detailed plan. The new vehicles were 1975 Plymouth four-door sedans, completely equipped with the standard police package. Also, five new Model 900-A Breathalyzers and five simulators were purchased and placed in operation to replace units worn-out during the initial 3 years. Selective enforcement training was held in March 1975, using San Antonio Police Department training division supervisors as instructors. A total of 164 police officers, who displayed a strong motivation for ASAP and high detection and apprehension rates, participated in the training program. The training sessions concentrated on the following areas: explanation of the ASAP program; patrolling techniques that may be utilized; probable cause; basic steps in case preparation; and breathalyzer indoctrination.

Patrol operations during the first five months of 1975 were consistent with previous patrol activity. During June, preparations began to convert to the new patrol strategies. All ten expressway patrol areas were patrolled during the weekends of June. Weekday activity occurred in both the city evaluation patrol areas (A and B) and in most city roving patrol areas.

2. July 1975- June 1976

ASAP selective enforcement patrols were funded to average approximately 492 patrol man-hours per week. Single-man patrol cars continued to be the standard operating procedure for the San Antonio Police Department and the practice of the ASAP selective enforcement patrols. This practice had proven to be both economical and efficient during 1972-1974, when both one- and two-man patrol stratagems were used and evaluated. Selective enforcement activity involved three strategies: city roving patrol areas, city evaluation areas, and expressway evaluation patrols. SAPD officers, as in past years, were specially trained and worked overtime.


CITY-WIDE ROVING PATROL AREAS
HOLLYWOOD PARK
SHAVANO PARK
HILL COUNTRY VILLAGE
CASTLE HILLS
WINDCREST
LEON VALLEY
IV
V
BALCONES HEIGHTS
ALAMO HEIGHTS
OLMOS PARK
TERRELL HILLS
A
FT. SAM HOUSTON
KIRBY
III
II
VI
I
LACKLAND AFB
KELLY AFB
EAST KELLY
MEDINA BASE
B
BROOKS AFB
N

The six city-wide roving patrol areas are shown on the figure on the facing page. These areas were designed so that each contained approximately the same number of alcohol-related accidents. Patrolling was accomplished every night of the week, with a rotating saturation configuration. During the first six months, 3842 patrol man-hours were expended, and 473 DWI's were arrested. During the last six months, 3323 patrol man-hours were expended, and 347 DWI's were arrested. This strategy was employed for political purposes to avoid adverse reaction from ethnic areas; it was anticipated that no significant impact would result from it.

Two relatively small areas, also depicted on the figure on the facing page, were selected for concentrated patrol effort every night of the week. During the first 6-month period, all efforts were in Evaluation Area B; 4404 patrol man-hours were expended, and 531 DWI's were arrested. During the last 6-month period, all efforts were in Evaluation Area A; 4145 patrol man-hours were expended, and 455 DWI's were arrested. This strategy was employed as a research experiment; it was anticipated that the density of patrol units would produce a significant impact.

The San Antonio area expressway system was divided into an unpatrolled area and ten patrol areas (A-J). These sectors are shown on the figure presented previously. During the first 6-month period, patrols were in operation on Friday, Saturday, and Sunday nights on Segments A, C, D, E, and F; 3741 patrol man-hours were expended, and 489 DWI's were arrested. During the last 6-month period, patrols operated on Segments B, G, H, I, and J; 3606 patrol man-hours were expended, and 374 DWI's were arrested. This strategy was employed as a research experiment; it was anticipated that the density of patrol units would produce a significant impact on weekend nights.

3. July - December 1976

During the last 6 months of the San Antonio ASAP, all selective enforcement units were shifted to the expressway system, with four of the ten expressway segments being subjected to saturation enforcement. Since the number of accidents on any segment during a month was low, making evaluation difficult, it was decided to base the selection of segments on the stability of historical accident patterns. Segments F, G, H, and J were excluded because of low accident rates and/or variable accident patterns. Segment I was excluded because that section of the expressway was under construction to convert it from four to six lanes. Finally, Segment D (even though it has the highest accident rate) was eliminated because of variable accident patterns and the fact that the segment is only 3.0 miles long. Thus, Segments A, B, C, and E were patrolled during the last 6 months of 1976.

Even using all available selective enforcement units, it was believed that there would not be enough forces to saturate all four areas at once. Thus, the available force was rotated among the areas to create the impression of continuous patrol. The pattern is shown in Table 1. During the 6-month period, 11,086 patrol man-hours were expended, and 917 DWI's were arrested.

TABLE 1. SELECTIVE ENFORCEMENT UNIT PATTERN

Segment	Shift	Week One							Week Two							Week Three						
		M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
A	21-2400	5		5			8	5		5	5	6			5	5			6		8	
	00-0300		5		6	8			5				8	8			5	5		8		5
B	21-2400		5		6	8			5				8	8			5	5		8		5
	00-0300	5		5			8	5		5	5	6			5	5			6		8	
C	21-2400	5		5			8	5		5	5	6			5	5			6		8	
	00-0300		5		6	8			5				8	8			5	5		8		5
E	21-2400		5		6	8			5				8	8			5	5		8		5
	00-0300	5		5			8	5		5	5	6			5	5			6		8	

Five patrol cars were equipped with citizen band radios at a cost of $1500. Officers in equipped units communicated directly with CB-equipped motorists and also interacted with Bexar County React. The radio scanned two channels with continual monitoring of Channel 19 (truckers channel in Texas) and priority on Channel 9 (uniform emergency channel).

TABLE 2. ENFORCEMENT LONGITUDINAL TRENDS

Evaluative Measure	Type Patrol	Initial Operations			Continuation Period Operations									
		1972	1973	1974	1Q 1975	2Q 1975	3Q 1975	4Q 1975	1975	1Q 1976	2Q 1976	3Q 1976	4Q 1976	1976
No. DWI–Expressways	Selective					106	238	251	595	217	157	474	443	1,291
No. DWI–City Evaluation	Selective					38	259	272	569	254	201			455
No. DWI–City Roving	Selective	3,355	3,289	3,206	544	343	255	218	1,360	184	163			347
No. DWI–Total SE	Selective	3,355	3,289	3,206	544	487	752	741	2,524	655	521	474	443	2,093
PMH/DWI–Expressways	Selective					7.5	7.6	7.6	7.6	8.8	10.8	11.8	12.4	11.4
PMH/DWI–City Evaluation	Selective					7.9	8.4	8.1	8.2	8.8	9.5			9.1
PMH/DWI–City Roving	Selective	10.0	9.4	8.6	8.2	11.3	7.3	9.0	9.6	10.0	9.1			9.6
PMH/DWI–Total	Selective	10.0	9.4	8.6	8.2	9.8	7.8	8.2	8.4	9.1	9.8	11.8	12.4	10.6
Average BAC	Selective	0.163	0.163	0.166	0.157	0.153	0.163	0.165	0.160	0.161	0.161	0.161	0.155	0.159
BAC Refusals (%)	Selective	16.9	14.2	16.2	18.0	16.6	14.8	13.9	15.8	16.5	13.8	15.4	16.3	15.5
Booked/Arrested (%)	Selective	92.3	91.5	91.9	88.4	87.6	91.0	90.0	89.2	89.4	86.0	84.0	86.6	86.7
Processing Time (min)	Selective	69.0	67.5	92.0	91.0	93.7	85.3	100.0	92.5	98.0	98.3	98.0	98.0	98.0
Traffic Citations	Selective	14,337	14,511	11,108	2,373	2,887	3,716	3,704	12,680	3,604	3,488	3,638	3,377	14,107
Misdemeanor Arrests	Selective	N/A	N/A	N/A	82	76	100	94	352	119	86	67	59	331
Felony Arrests	Selective	N/A	N/A	N/A	8	8	19	24	59	5	5	4	15	29
No. DWI–SAPD	Regular	1,991	1,773	1,763	578	493	438	539	2,048	610	46.9	553	579	2,211
No. DWI–Non-SAPD	Regular	747	766	664	161	92	232	188	673	102	163	91	140	496
Average BAC	Regular	0.178	0.178	0.177	0.171	0.184	0.173	0.178	0.177	0.180	0.178	0.174	0.186	0.179
BAC Refusals (%)	Regular	21.7	19.6	24.6	24.7	20.9	26.8	19.7	23.0	19.7	21.2	21.8	17.2	19.9
Booked/Arrested (%)	Regular	92.8	92.1	93.0	94.8	93.0	92.8	93.5	93.5	93.4	93.7	91.3	93.0	92.8
No. DWI–Total	Overall	6,093	5,828	5,633	1,283	1,072	1,422	1,468	5,245	1,367	1,153	1,118	1,162	4,800
DWI/1000 Licensed Drivers	Overall	17.1	13.9	13.1					11.8					10.5

III. RESULTS OF THE EVALUATION

A. Administrative Evaluation of Enforcement Patrols

1. Analytic Methodology

The effectiveness and efficiency of selective enforcement patrols and the extent of the catalytic effect on regular patrols stemming from the use of overtime officers were measured by a longitudinal comparison between baseline periods and the continuation period for 22 evaluative measures. Of the evaluative measures, 15 compared arrest patterns for the selective enforcement patrols, 5 compared arrest patterns for regular force patrols, and 2 were concerned with overall productivity.

2. Analysis of Longitudinal Trend Data

The longitudinal trend data for the 22 evaluative measures are contained in Table 2. The data are presented annually for each of the three initial ASAP years (1972-1974) in San Antonio, and quarterly for the two years (1975-1976) of the continuation period.

- DWI arrests by selective enforcement patrols during 1975 and 1976 were less than in previous years, but this decrease was due to the lower level of effort rather than to any decline in SAPD efficiency. DWI arrests per man-hour of patrol effort were consistent with that of previous years. During 1975, eight patrol man-hours of selective enforcement resulted in 1.1 misdemeanor arrests (DWI and other), 4.8 traffic citations, and 0.02 felony arrests. During 1976, eight patrol man-hours of selective enforcement resulted in 0.87 misdemeanor arrests, 5.1 traffic citations, and 0.01 felony arrests.

- Processing time per DWI in 1971 was estimated to be in excess of 2 hours. New procedures stimulated by ASAP reduced that time but, due to factors beyond SAPD control, it remains above an optimum 60 minutes. In 1974, a change in tow-in policy dictated by the City Council added about 25 minutes; in the fourth quarter of 1975 another 15 minutes was added by increased paperwork caused by U.S. Supreme Court decisions affecting night magistrate procedures.

- Due to the inverse relationship of average BAC levels with the percent of arrests actually DWI, coupled with community reaction to apprehensions below the legal BAC limit, an average BAC of 0.15 for those arrested for DWI would appear optimum. Average BAC of selective patrol arrests during 1975-1976 was approximately 0.16; the average neared 0.15 in two quarters of 1975 and one quarter of 1976.

Based upon comparison with data from other ASAP's, this was an efficient enforcement program.

During the year (1971) prior to ASAP, the regular forces of the San Antonio Police Department arrested 1130 DWI's. The catalytic effect from using overtime officers on selective enforcement was apparent in the initial 3 years of ASAP operation, when there was a 63-percent increase in DWI apprehensions over historical levels. During 1975, the increase over the 1971 level was 81 percent; in 1976, it was 95 percent. After 5 years of ASAP influence, it would seem reasonable to expect that there has been achieved a permanent gain in regular patrol DWI arrest patterns. Even without ASAP selective enforcement, DWI arrests by the San Antonio Police Department and other enforcement agencies within Bexar County *should continue at or above an annual rate of 2500 for several years; this would represent 5 to 6 DWI's per 1000 licensed drivers.*

B. Administrative Evaluation of Effectiveness of ASAP Training

1. Analytic Methodology

The effectiveness of ASAP-trained officers on selective enforcement patrols was monitored by the enforcement coordinator within SAPD. Besides the natural attrition of those officers who no longer desired to work overtime, officers whose performance was found to be below their potential were no longer assigned to ASAP duty.

In addition, an analysis was made to determine the effect of ASAP training on the number of DWI arrests made while on regular patrols. Three groups, each containing 50 officers assigned to the Patrol Division, were included in the analysis: Group 1 included officers who had received ASAP training in March 1975; Group 2 officers had previously received ASAP training in 1971 or 1972; and Group 3 officers had never received the specialized training. The DWI arrest performance of these three groups of officers was examined for a 6-month baseline period prior to the ASAP training received by the Group 1 officers in March 1975, and for 9 months subsequent to the training.

TABLE 3. PRE-POST TRAINING PRODUCTIVITY DWI REGULAR PATROL ARRESTS

Period	Pre/ Post	Group		
		1	2	3
Sep-Nov 74	Pre	50	24	20
Dec-Feb 75	Pre	54	56	28
Apr-Jun 75	Post	61	27	23
Jul-Sep 75	Post	43	18	24
Oct-Dec 75	Post	65	17	27

2. Analysis of Training Productivity Data

The pre-post training DWI productivity data are shown in Table 3. Examination of the pre-training period data indicated that the officers (Group 1) selected for specialized ASAP training had a high degree of motivation for regular patrol DWI arrests. Examination of the post-training data indicated that the training had the desired catalytic impact, but that its degree of impact tended to lessen with time. It was concluded that the criteria used for selecting officers to be trained were good, the training was effective, but that continuous monitoring was required to sustain a high level of DWI arrest productivity, even for well-trained and highly motivated police officers. This was the system employed by the San Antonio Police Department.

C. Administrative Evaluation of CB Radios

1. Analytic Methodology

The effectiveness of the use of CB radios in assisting the selective enforcement patrols was determined by an analysis of the extent of the activity generated by the CB units, and by a comparison of the patrol man-hours per DWI arrest between equipped and non-equipped units.

2. Analysis of CB Data

The number of CB contacts and positive dispositions are shown in Table 4. Fourth quarter data indicate a significant decrease in CB contacts per patrol man-hour, suggesting that the level at which CB-equipped motorists would respond to this service was quickly reached.

CB/Non-CB Comparison

Measure		3Q76	4Q76
CB	PMH/DWI	12.7	12.8
Non-CB	PMH/DWI	11.8	12.3

The comparative DWI arrest data between CB-equipped and non-CB-equipped units indicate that the presence and use of CB radios resulted in officer involvement in non-DWI activities to a somewhat higher degree than that experienced by those without CB

TABLE 4. CB UNIT ACTIVITY

CB Contact	3Q		4Q	
	Contacts	Positive Outcome	Contacts	Positive Outcome
DWI Reported	33	21	19	6
MTV Reported	59	14	24	17
Acc Reported	10	6	17	17
Med Emergency	9	4	4	2
Info Requested	162	84	203	179
Service Requested	27	20	44	44
Patrol Man-Hours		891		1,622

equipment. It was concluded that, within an urban area of high traffic densities, the use of CB radios to apprehend DWI's is not cost-effective.

D. Administrative Evaluation of Enforcement Cost-Effectiveness

1. Analytic Methodology

The cost-effectiveness of ASAP selective enforcement patrols was determined through analysis of the expenditures incurred and revenues gained from DWI arrests and adjudication. Cost elements of the ASAP patrols were enumerated, and the total amounts of funds accounted for by source; those funds expended in support of project evaluation were excluded from the total. ASAP cost per DWI was calculated by dividing the total cost of ASAP selective enforcement by the number of effective DWI's; this is a number which includes the catalytic effect of the ASAP on regular patrol arrests. Revenue elements were enumerated for fines assessed in the County Courts-at-Law, assuming that all adjudication actions occurred during the year of arrest; monies accruing to the City for traffic citations and non-DWI misdemeanor arrests; and the values generated from felony arrests through prevention or recovery by the patrols of stolen property, narcotics seized, and weapons confiscated. ASAP revenue per DWI was calculated by the same algorithm used for the cost determination.

2. Analysis of Cost and Revenue Data

Total allocable costs for the enforcement effort during 1975 and 1976 were $600,000 while the total revenues generated (shown in Table 5) were $968,000. This amounted to a net revenue per DWI of approximately $56. The net revenue from the enforcement activity was nearly sufficient to offset federal funds and local matching funds for project management, the problem drinker evaluation center, and public information and education. It was concluded that, with minor policy changes, the City of San Antonio and County of Bexar operating together should develop a financially self-sufficient DWI control system; such a system is postulated in Analytic Study #1-2.

TABLE 5. ASAP ENFORCEMENT REVENUES

Revenue Element	Events	1975 $/Events	Revenue	Events	1976 $/Events	Revenue
DWI Reduced Fine	1,433	$ 86	$123,238	1,282	106	$135,892
DWI-Probation Fine	941	92	86,572	1,260	125	157,500
DWI Final Fine	452	62	28,024	270	50	13,500
Traffic Citations	12,680	10	126,800	14,107	10	141,070
Misdemeanor Arrests	352	100	35,200	331	100	33,100
Stolen Property	24	Variable	41,515	22	Variable	40,750
Narcotics Seized	22	Variable	1,550	32	Variable	3,255
Weapons Confiscated	41		33			
Total Revenue			$442,899			$525,067
Effective DWI	3,442	$128.67/DWI		3,174	$165.42/DWI	

E. Scientific Evaluation of City Evaluation Area Patrol Effectiveness

1. Analytic Methodology

The analytic basis for determination of the impact of selective enforcement on abusive drinking-driving behavior in the city evaluation areas was an analysis of the longitudinal trends of

patrol man-hours per DWI arrest in the areas of emphasis, accident trends before and during the emphasis patrolling, and BAC levels obtained through Voluntary Roadside Surveys. A total of 8 general and 24 specific sites and 480 respondents, divided between Friday and Saturday nights between 9:00 P.M. and 3:00 A.M., was used to measure the degree of drinking and driving on the city streets of San Antonio. These survey sites are identical to those used for the first four years, except that previous surveys also measured BAC levels during the 7:00 to 9:00 P.M. time block. Two general and six specific sites were located in the evaluation areas.

It had been hypothesized by NHTSA that heavy patrolling with ASAP selective enforcement would significantly reduce the incidence of street crime in a geographic area of emphasis. A prepatrol-patrol, emphasis-control area design was used to test NHTSA's hypothesis. The city evaluation areas were the emphasis areas, with nearby areas having comparable crime rates designated as the control areas. Data were collected for the pre-patrol periods (July through December 1974 in Area B and January through June 1975 for Area A) on four categories of street crime: theft-automobile and automobile accessories; burglary-business and residential; robbery-individual and business; and rape. The data were seasonally adjusted by determining a 3-month moving average. The net difference was developed from the differences between the adjusted mean of the prepatrol period and the patrol period. Where there was a net difference in the emphasis area during the patrol period, a "t" test was performed.

2. Analysis of City Evaluation Area Patrol Data

Emphasis during the period between July and December 1975, was in City Evaluation Area B, which was an area of 37 square miles. Four units were on patrol on weekday nights, and six units were deployed on weekend nights.

- The monthly patrol man-hours per DWI data were subjected to a least-squares analysis. This analysis, which yielded a formula of PMH/DWI = 8.35−0.05 hr/month indicated that there was no positive impact on abusive drinking drivers.

- The analysis of accidents indicated a relative increase in all accidents in Area B, but a relative decrease in fatal and injury accidents (Table 6). This decrease was not significant ($p = 0.50$).

TABLE 6. EVALUATION AREA B TRAFFIC ACCIDENT DATA–9 P.M.-3 A.M.

Parameter	Baseline Period (Jan-Jun 1975)	Patrol Period (Jul-Dec 1975)
Area B (Emphasis)		
All Accidents	226	242
Fatal and Injury	142	111
Area A (Nonemphasis)		
All Accidents	61	53
Fatal and Injury	27	30

- The analysis of BAC levels obtained through the Voluntary Roadside Surveys indicated an increase in DWI's during the period of emphasis.

VRS Data

BAC	Baseline	1975	1976
⩾0.01%	55.0%	61.7%	Rained
⩾0.10%	11.7%	16.7%	out

- The analysis of street crime data indicated decreased crime rates in only one category, rape, and it was not statistically significant.

Based upon these analyses, it was concluded that a force level of four to six units in an area of 37 square miles was not sufficient to produce a deterring effect on the abusive drinking driver or on street crime.

The emphasis during the period between January and June 1976 was in City Evaluation Area A, which was an area of 7 square miles. Four units were on patrol on weekday nights, and six units were deployed on weekend nights.

- Least-square analysis of patrol man-hours per DWI arrest, which yielded a formula of PMH/DWI = 9.13 + 0.06 hr/month, indicated no positive impact on abusive drinking-drivers.

TABLE 7. EVALUATION AREA A TRAFFIC ACCIDENT DATA–9 P.M.-3 A.M.

Parameter	Baseline Period (Jan-Jun 1975)	Patrol Period (Jan-Jun 1976)
Area A (Emphasis)		
All Accidents	142	104
Fatal and Injury	27	25
Area B (Nonemphasis)		
All Accidents	226	242
Fatal and Injury	61	77

- The analysis of accidents (Table 7) indicated a relative decrease both in overall accidents and in fatal and injury crashes. The overall accident reduction was statistically significant ($p = 0.02$), while that for fatalities and injuries was not ($p = 0.40$).

VRS Data

BAC	Baseline	1975	1976
⩾0.01%	36.5%	46.0%	46.0%
⩾0.10%	8.9%	12.7%	1.6%

- The VRS data, which was acquired in November of each year, may not be pertinent to Evaluation Area A. The 1975 survey preceded its emphasis, and the 1976 survey occurred four months after emphasis had ceased. However, the percent of DWI's in the 1976 sample was greatly reduced from the levels found in the earlier samplings.
- The analysis of street crime data indicated decreased crime rates in only one category, rape, and it was not statistically significant.

Based upon these analyses, it was concluded that a force level of four to six units in an area of 7 square miles was marginally effective in reducing accidents, but was not sufficient to produce a deterring effect on street crime.

F. Scientific Evaluation of Weekend Expressway Patrol Effectiveness

1. Analytic Methodology

The analytic basis for determination of the impact of weekend selective enforcement on abusive drinking-driving behavior on the expressway system was an analysis of the longitudinal trends of patrol man-hours per DWI arrest in the areas of emphasis accident trends before and

during the emphasis patrolling, and BAC levels obtained through Voluntary Roadside Surveys. There were twelve survey sites, one for each of the ten expressway segments and two for control areas, and 300 respondents, equally divided among Friday, Saturday, and Sunday nights. Four surveys were conducted: May 1975 for baseline, and October 1975, April 1976, and June 1976 for the operational period. Due to inclement weather, only partial data were obtained during the April 1976 survey, and data from it were not used in the analysis.

The accident analysis of selective enforcement activities on expressway systems in San Antonio was conducted in two parts paralleling the two strategies applied to the system from July 1975 through June 1976. For each 6-month period, data concerning fatal and injury accidents and all accidents were compared to statistics obtained for the 1972-1974 period and subjected to a statistical comparison of two counts, assuming the data in both the historical periods and the operational periods followed a Poisson distribution. A second set of analyses was performed using cumulative figures for the entire 6 months, the last 5 months, the last 4 months, etc., down to the last month for each of the expressway patrol efforts. The same statistical approach was used as for the monthly evaluations, resulting in an evaluation of the effect of continued enforcement efforts on the various expressway segments.

2. Analysis of Weekend Expressway Patrol Data

During the period from July through December 1975, weekend expressway patrol efforts were confined to segments A, C, D, E, and F, a total of 19.3 miles of expressway. Ten patrol units were used on Friday and Saturday nights, and four units were used during Sunday nights.

- Monthly patrol man-hours per DWI arrest data were subjected to a least-squares analysis. The resulting formula, PMH/DWI = 7.7−0.04 hr/month, indicated no positive impact on abusive drinking drivers.

- The analysis of BAC levels obtained before and at the end of the period of emphasis showed no change in percent of DWI's traveling these roadways.

VRS Data

BAC	May 1975	Oct 1975
⩾0.01	42.4%	37.6%
⩾0.10	11.2%	10.4%

- Monthly fatal and injury accident analysis showed a significant decrease in fatal and injury accidents during October (historical average: 3; 1975 total: 0) and a nearly significant reduction in December (historical average: 7.67; 1975 total: 3). There was no significant decrease in overall accident rates.

TABLE 8. CUMULATIVE FATAL AND INJURY ACCIDENT ANALYSIS– JULY-DECEMBER 1975

Period	Baseline Jul-Dec, 1972-1974	Operational Jul-Dec, 1975	Percent Decrease
Jul-Dec	25.33	23	9.2
Aug-Dec	21.67	19	12.3
Sep-Dec	19.33	13	32.8
Oct-Dec	14.67	7	52.3
Nov-Dec	11.67	7	40.0
Dec	7.67	4	47.8

- Statistical analysis of cumulative fatal and injury accident data (Table 8) showed a significant reduction in these accidents over the last 3 months of the period, although the reduction over the last 2 months was not significant at the evaluation level of $\alpha = 0.05$. There was an overall decrease in fatal and injury accidents with the

major portion of the decrease occurring during the latter months of the patrol effort. Overall accident data showed similar trends, although not at the levels experienced in fatal and injury accidents.

Based on these analyses, it was concluded that the patrol level applied to these segments was marginally effective in reducing fatal and injury accidents; however, the percentage of DWI's was not affected.

Weekend expressway patrol activities during the period from January through June 1976 were limited to expressway segments B, G, H, I, and J, a total of 37 miles. As during the first 6 months, ten units were used during Friday and Saturday nights, and four units patrolled on Sunday nights.

- A least-squares analysis of monthly patrol man-hours per DWI yielded the formula, PMH/DWI = 9.7–0.04 hr/month, indicating no positive effect on the abusive drinker driver population.

- BAC levels obtained from the voluntary roadside surveys conducted before and at the end of the period of emphasis indicated no significant change in the percent DWI's using the patrolled roadway segments.

VRS Data

BAC	Oct 1975	June 1976
≥0.01	44.0%	35.2%
≥0.10	5.6%	3.2%

- Analysis of monthly data showed that the occurrence of fatal and injury accidents in 1976 increased over those experienced during the 1973-1975 baseline period. Only two segments, G and J showed any decrease, and this was more than offset by increased accidents on the other segments. Occurrence of all accidents did decrease during the evaluation period, but not at significant levels.

TABLE 9. CUMULATIVE FATAL AND INJURY ACCIDENT ANALYSIS– JANUARY-JUNE 1976

Period	Baseline Jan-Jun, 1972-1974	Operational Jan-Jun, 1976	Percent Decrease
Jan-Jun	16.67	22	(–32.0)
Feb-Jun	14.33	21	(–46.6)
Mar-Jun	10.00	16	(–60.0)
Apr-Jun	6.67	11	(–64.5)
May-Jun	3.67	7	(–90.7)
Jun	1.67	2	(–19.8)

- The comparison of cumulative fatal and injury accident data presented in Table 9 reflects the results obtained from the monthly analysis. Statistical analysis of cumulative totals for Segments G and J did not show the decreases in these two segments to be significant, nor were the decreases in overall accident occurrence.

As a result of these analyses, it was concluded that the level of patrol effort expended on the 37 miles of expressways evaluated was not sufficient to have a deterring affect on abusive drinking-driving.

G. Scientific Evaluation of Saturation Expressway Patrol Data

1. Analytical Methodology

The three measures of effectiveness used to evaluate weekend expressway patrol effectiveness–longitudinal trends of patrol man-hours per DWI arrest, BAC levels obtained through

TABLE 10. CUMULATIVE FATAL AND INJURY ACCIDENT ANALYSIS JULY-DECEMBER 1976

Period	Baseline Jul-Dec, 1972-1974	Weekend Patrol* Jul-Dec, 1975	Operational Jul-Dec, 1976	Percent Decrease
Weekends 9-3				
Jul-Dec	18.33	20	12	34.5
Aug-Dec	16.00	19	11	31.2
Sep-Dec	13.67	14	9	34.2
Oct-Dec	11.67	7	6	48.6
Nov-Dec	8.67	4	2	76.9
Dec	5.00	2	0	0
Jul-Sep	6.67		6	10.1
Oct-Dec	11.67		6	48.6
Weekdays 9-3				
Jul-Dec	12.33	13	11	10.8
Aug-Dec	11.33	11	9	20.6
Sep-Dec	10.33	6	6	42.0
Oct-Dec	8.33	6	5	40.0
Nov-Dec	5.33	1	3	42.8
Dec	3.33	0	2	39.9
Jul-Sep	4		6	–
Oct-Dec	8.33		5	40.0
All Days 9-3				
Jul-Dec	30.67	33	23	25.0
Aug-Dec	27.33	30	20	26.8
Sep-Dec	24.00	20	15	37.5
Oct-Dec	20.00	13	11	45.0
Nov-Dec	14.00	5	5	64.3
Dec	8.33	2	2	76.0
Jul-Sep	10.67		12	–
Oct-Dec	20.00		11	45.0

*Expressway Segment B not patrolled during this period.

TABLE 11. SATURATION EXPRESSWAY PATROL CUMULATIVE FATAL AND INJURY ACCIDENTS BY SEGMENT

Period	Segment A (4.2 miles)			Segment B (10.3 miles)			Segment C (4.2 miles)			Segment E (5.7 miles)		
	Baseline Average	Operational Period	Percent Decrease	Baseline Average	Operational Period	Percent Decrease	Baseline Average	Operational Period	Percent Decrease	Baseline Average	Operational Period	Percent Decrease
Jul-Dec	8.33	7	16	6.67	6	10	7.00	4	43	8.67	6	31
Aug-Dec	6.67	6	10	6.67	6	10	6.00	3	50	8.00	5	37
Sep-Dec	5.67	3	47	5.33	5	6	5.33	2	62	7.67	5	35
Oct-Dec	4.33	2	54	4.67	4	14	4.67	1	79	6.33	4	37
Nov-Dec	3.33	1	70	3.00	2	33	3.67	1	73	4.00	1	75
Dec	3.33	1	70	1.67	0	–	2.00	1	50	2.33	0	–
Jul-Sep	4.00	5	–	2.00	2	0	2.33	3	–	2.33	2	14
Oct-Dec	4.33	2	54	4.67	4	14	4.67	1	79	6.33	4	37

voluntary roadside surveys, and accident trends before and during the emphasis period—were also used in the analysis of the saturation expressway patrol conducted during the last six months of 1976. Analysis of accident data was expanded to include weekend, weekday, and overall monthly and cumulative effects. In addition, results from each segment were examined separately to determine the effect of the patrol effort on various lengths of roadway and to further establish the validity of the conclusions drawn.

2. Analysis of Saturation Expressway Patrol

During the last 6 months of 1976, all ASAP patrol efforts were concentrated on patrolling four expressway segments (A, B, C, and E) totaling 24.4 miles of roadway. Patrols were conducted each night of the week from 9 P.M. to 3 A.M.; 10 patrol units were used Sunday through Wednesday nights, 12 units were used on Thursday nights, and 16 units were on patrol Friday and Saturday nights.

- A least-squares analysis of patrol man-hours per DWI was performed, resulting in the formula, PMH/DWI = 12.2+0.06 hr/month. This evaluation provided no indication of a positive impact on abusive drinking drivers.

- BAC levels obtained during voluntary roadside surveys conducted in July and October showed no change in the percentage of DWI's on the patrolled segments. Efforts to conduct a final VRS in December were rained out.

VRS Data

BAC	Jun 1976	Oct 1976	Dec 1976
≥0.01	50%	38%	Rained out
≥0.10	10%	9%	

- Monthly analysis of fatal and injury accidents showed a statistically significant decrease only during the month of December, with the major portion of the decrease occurring on the weekends. There were no significant decreases in overall accident rates for either weekends or weekdays.

- Analysis of cumulative fatal and injury accidents showed a steady decrease in numbers over the evaluation period (Table 10), with the reduction becoming statistically significant during the last 3 months ($p = 0.05$). The major portion of the reduction occurred during the weekends. Cumulative data on the occurrence of all accidents showed similar trends, although not at levels which could be considered statistically significant.

- Analysis of data obtained from each of the four sites indicated a direct correlation between length of segment and degree of impact (Table 11). The two 4.2-mile segments realized statistically significant decreases in fatal and injury accidents during the last 3 months of the evaluation period. The reduction on the 5.7-mile segment approached significance, while there was no significant decrease in these types of accidents on the 10.3-mile segment. Overall accident data reflected similar trends.

- Analysis of the individual site data further indicated that a decrease in the occurrence of fatal and injury accidents had occurred at all four sites. As the probability of this occurring due to random chance is 1 in 16, it was concluded

that the decreases realized were, indeed, due to the additional patrol efforts applied during this period.

As a result of these analyses, it was concluded that, while there were no changes in DWI arrest efficiency or BAC levels, the presence of additional patrol units during all nights of the week did cause a significant overall decrease in the number and severity of accidents occurring on these portions of the expressway system. More specifically, the level of enforcement applied during this period was effective in reducing the occurrence of accidents on roadway segments of 4 to 6 miles in length.

It should be noted that there were public service television announcements informing the public of the increased patrol activity and the areas where this activity would be concentrated, which may have contributed to the overall impact of the saturation expressway patrol activity.

IV. CONCLUSIONS AND RECOMMENDATIONS

The enforcement countermeasure of the 5-year San Antonio Alcohol Safety Action Program emphasized activities in three areas; equipment procurement, training, and patrol activities. All enforcement efforts were undertaken under contract with the San Antonio Police Department, an arrangement which allowed ASAP to have an unusually persistent and flexible relationship with the department. While ASAP remained dependent upon SAPD for activities in this countermeasure, there was a general attitude of cooperation, and debate was limited to how the increases could be achieved, rather than whether or not activities should be undertaken.

A variety of equipment was procured over the life of the program in an effort to improve the department's ability to identify, apprehend, and provide adequate evidence for the prosecution of DWI's.

- While obtaining additional patrol cars is not the only way to increase arrests, it is necessary if program plans call for an appreciable increase in patrol activity. To support the San Antonio ASAP patrol strategy, an initial fleet of ten patrol cars was purchased; this number increased over the years to 22 patrol vehicles during the last year of activity. In addition, replacement vehicles were periodically acquired to maintain fleet reliability.

- Enforcement countermeasure activities which result in significant increases in DWI arrests will normally require that additional breath tests be obtained to process arrestees within a reasonable period of time. San Antonio ASAP initially purchased two additional units for SAPD and also furnished three units for use by other area law enforcement units. These units required replacement after about 3 years of extensive use.

- Properly equipped vans, used as mobile breath-testing and booking stations, may be of benefit to local programs. The success of these operations depends on the size of the area patrolled, distance to normal booking facilities, availability of locations to stations, the units, and local acceptance of the validity of breath-testing results obtained at mobile facilities. San Antonio ASAP attempted this approach, but it proved unsuccessful due to a combination of these factors.

- Portable video-tape units may be used to obtain evidence on the actions of DWI arrestees at the scene and at the booking facility. However, the additional effort required for taping, the difficulty of getting the evidence admitted in court, and various technical problems resulted in this program being discontinued early in the San Antonio program.

The selection and training of police officers to participate in ASAP activities was a key ingredient in the success realized by the San Antonio ASAP.

- The San Antonio ASAP patrol strategy was conducted on a purely overtime basis; ASAP patrol officers were all members of the SAPD who volunteered to participate in the program and had shown an interest in the drinking-driving problem through a high level of DWI arrests during regular patrol. This approach resulted in an ASAP force which was motivated both by their interest in decreasing the incidence of DWI and by the opportunity to receive additional income.

- All ASAP patrol officers underwent special training in the identification, apprehension, and processing of DWI offenders. This training proved very beneficial and resulted in the officers' operating with a high degree of efficiency.

- The selection and training of regular police officers to participate in ASAP activities on an overtime basis had an additional benefit during regular patrol hours. General SAPD support of the program, coupled with a large group of officers with special training and interest, resulted in an annual "catalytic" increase in regular duty DWI arrests of from 57 to 94 percent over the 5 years of the program.

ASAP funded selective patrol operations on an overtime basis nightly throughout the five years of the program. A number of patrol strategies were introduced, conducted, and evaluated in an effort to identify the most effective methods of using the available manpower and equipment.

- The use of selective patrols resulted in a five-fold increase in DWI's apprehended the first year and a four-fold annual increase thereafter, as compared to baseline figures. In general, this increase was maintained regardless of the specific strategy employed; arrest rates appear to be a function of the number of units patrolling and the motivation of the selective enforcement officers.

- The support and interest of the police department's leadership remained high throughout the program. This support was essential to the initiation and operation of an effective enforcement countermeasure.

- In spite of the drastic increases in DWI arrests, little evidence was gathered to indicate that the occurrence of DWI in San Antonio decreased significantly, nor that the number of accidents was impacted. It is apparent that ASAP activities must be applied at a consistent level over many years before decreases in these measures would become significant.

- An evaluation of expressway saturation patrol strategies indicated that a force of 10 to 16 patrol cars operating 7 nights a week resulted in a significant decrease in fatal and injury accidents on expressway segments of 4 to 6 miles in length. Analysis showed that the impact was cumulative, requiring 3 to 4 months of patrol activity before significant decreases were realized. Limited data gathered after conclusion of the 6-month patrol activity indicated some residual effect; however, due to the completion of the ASAP in December 1976, insufficient data were available to fully evaluate post-patrol impacts. This evaluation confirmed the earlier conclusion that ASAP patrol activities must be applied at a level which can be sustained over a long period of time in order to realize significant decreases in accident occurrence.

- At the beginning of the San Antonio ASAP, DWI arrest and booking procedures were examined and refined to decrease the amount of time spent in these activites by the arresting officer. While later changes in procedures necessitated by changes in SAPD policy caused initial savings to be lost, the San Antonio experience did indicate the need for periodic examination and refinement of these procedures.

The activities undertaken in enforcement over the 5-year San Antonio Alcohol Safety Action Program provided considerable insight into those activities which were essential or could have greatest impact. Among the findings which could be of greatest benefit to the initiation and operation of locally funded ASAP's were:

- The early and continued support of police officials is essential to the success of the enforcement countermeasure. Further, without an effective enforcement countermeasure,

other ASAP activities will be largely futile. Without viable police support and activity, community reaction to the program will be, at best, neutral.

- Special police training in identifying, apprehending, and processing DWI's is a major factor in increasing the number and improving the quality of arrests. Continuing in-house training of regular patrol officers is considered essential to maintaining a motivated force familiar with the latest techniques and equipment.

- The use of special overtime forces during nighttime hours is effective in increasing the number of DWI arrests. However, such activities should be initiated at a level which can be sustained over a long period of time if a significant permanent impact is desired.

- In order to be effective, ASAP must provide for increased cooperation between police departments and the courts. The ASAP systems approach is preferred to isolated enforcement efforts if it can provide solutions to the problems connected with the waste of police time in trial appearances and the presence of unwarranted dismissals of cases and inequitable, informal plea negotiation.

- In order to survive in the political arena, selective enforcement must have very firm community support or it must be oriented to all geographic areas to avoid adverse reaction from ethnic areas.

A large amount of information on enforcement has been developed by the various federally funded ASAP's and by NHTSA; this information is available for local use. It is recommended that local ASAP's become familiar with the information available at the national level and make use of it to the maximum extent possible. However, it must be remembered that the greatest success can be achieved with programs which are tailored to local conditions or modified and amended to reflect local support.