Special Adjudication for Enforcement (SAFE)-Seattle

Washington State Dept of Licensing, Olympia

Prepared for

National Highway Traffic Safety Administration, Washington, DC

Apr 78

DOT HS-804 782

SPECIAL ADJUDICATION FOR ENFORCEMENT (SAFE) - SEATTLE

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Contract No. DOT HS-343-3-682
Contract Amt. $631,868

APRIL 1978
FINAL REPORT

Prepared For

U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Washington, D.C. 20590

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT HS 804 782		

4. Title and Subtitle	5. Report Date
Special Adjudication for Enforcement (SAFE) - Seattle	April 1978
	6. Performing Organization Code

7. Author's)	8. Performing Organization Report No.
Philip M. Salzburg, Ph.D. and Carl L. Klingberg, Ph.D.	

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
State of Washington Department of Licensing Olympia, Washington 98504	
	11. Contract or Grant No.
	DOT-HS-343-3-682

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590	FINAL REPORT Supplement July 1977 - April 1978
	14. Sponsoring Agency Code
	NHTSA

15. Supplementary Notes

This report supplements the Special Adjudication for Enforcement (SAFE) Final Report, December 1976, DOT HS 803 216. Familiarity with the Final Report 803 216 should facilitate understanding and interpreting this supplemental report.

16. Abstract

This supplemental evaluation examined the impact of the exceptions made to predesignated treatment assignment and assessed the relative effectiveness of each version of the course. The effectiveness of three versions of the Defensive Driving Course was evaluated within the context of referral to treatment from the SAFE system. The impact of the exceptions was minor. A few differences in group composition were found, but multiple regression analytic techniques controlled for the potentially biasing effects of these variables in the recidivism analyses. Modest but significant reductions in citation recidivism were detected for the Driver Improvement Program (DIP) version of the course. It was recommended that the Defensive Driving Course be further explored and evaluated as a potentially valuable driver rehabilitation treatment.

17. Key Words	18. Distribution Statement
Adjudication, Predesignation, Rehabilitation, Programmed Learning, Recidivism, Traffic Safety, Defensive Driving Course, Magistrate, Driver Improvement Analyst, Infraction, Sanctions, Decriminalized	Document is available to the public through the National Technical Information Service, Springfield, Virginia 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	66	A04-A01

Form DOT F 1700.7 (8-72)   Reproduction of completed page authorized

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

```
      °F
-40        32           98.6              212
  -40   0    40    80    120   160   200
  +--+--+--+--+--+--+--+--+--+--+--+
-40   -20    0    20    40    60    80   100
  °C                    37                °C
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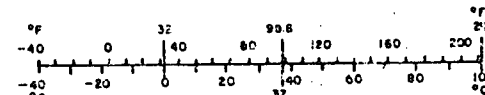
I. BACKGROUND

A. The SAFE System

The Special Adjudication For Enforcement (SAFE) project was designed to examine the effectiveness of a special adjudication/referral/rehabilitation system for dealing with traffic offenders. Although the system has much in common with the administrative adjudication approach in that it eliminates a formal courtroom appearance, it also is unique in that a para-judicial (magisterial) system is employed. Specifically, traffic citations are adjudicated by a magistrate in an informal hearing in which defendants can conveniently and quickly present their cases including any extenuating circumstances. Magistrates are authorized to accept guilty pleas, dismiss the charges, or, where there are questions of evidential fact or where a defendant wishes to contest a case further, to refer cases for formal court hearing. Additional features of the Seattle SAFE system include magistrate referral to a Driver Improvement Analyst (DIA) for diagnosis and/or counselling or direct referral to one of several driver improvement programs. The overall system design and its operational procedure is fully described in the SAFE Final Report (Morehead, 1976) and a brief overview is provided for the readers' convenience in Appendix I.

B. Evaluation of SAFE

An integral part of the SAFE program was an evaluation of its effectiveness and efficiency. Analytic comparisons were made between the special adjudication system and the traditional systems of formal courtroom appearance and bond forfeiture. Within the SAFE system, comparisons were made between direct magistrate referral and predesignated (random) referral of drivers to various driver improvement treatments as well as between differing degrees of DIA involvement in the referral process. Evaluation of the system also included comparisons of the relative effectiveness of different driver rehabilitation programs in reducing citation and accident recidivism.

Among the major rehabilitation alternatives utilized in the SAFE program were three versions of the National Safety Council's Defensive Driving Course (DDC): The standard eight-hour classroom Driver Improvement Program (DIP), a programmed learning version of the DDC course (PL1) consisting of a tape-recorded lecture series and student workbook augmented by four hours of classroom instruction, and a second Programmed Learning course (PL2) consisting of the same recorded materials and self instruction workbook plus a one-hour classroom meeting primarily for testing purposes. Finally, "No Treatment" Control groups were included to permit evaluation of the relative effectiveness of the three DDC courses. Although there were other Department of Licensing[1] Driver Improvement programs utilized in the treatment program (e.g., First Group Interview and Narrative Driving) further detailed evaluation of these programs is beyond the scope of the present report and the reader is referred to the original project report for the effectiveness assessment of these agency effor' .

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[1]On July 1, 1977 the name of the Department of Motor Vehicles was changed to the Department of Licensing.

Within the Predesignated (random assignment) Referral branch of the SAFE system (See Figure 1) drivers were referred to one of the DDC courses or a Control group through one of three possible routes: (1) Predesignated (random) referral without DIA involvement; (2) Predesignated referral with DIA counselling but no decision-making by the DIA as to the appropriateness of the assigned rehabilitation alternative; (3) Predesignated referral to a DIA for diagnosis and subsequent referral to the adjudged best treatment program. Thus, there were 12 comparison groups defined by the four treatment groups (DIP, PL1, PL2 and Control) and by the three alternative referral routes (Predesignated-No DIA, Predesignated-DIA counsel, Predesignated-DIA diagnose).

A complete description of the evaluation design, the predesignation and assignment procedures, and dependent measures can be found in the evaluation section of the SAFE Final Report (Morehead, 1976). A brief summary is presented in Appendix I.
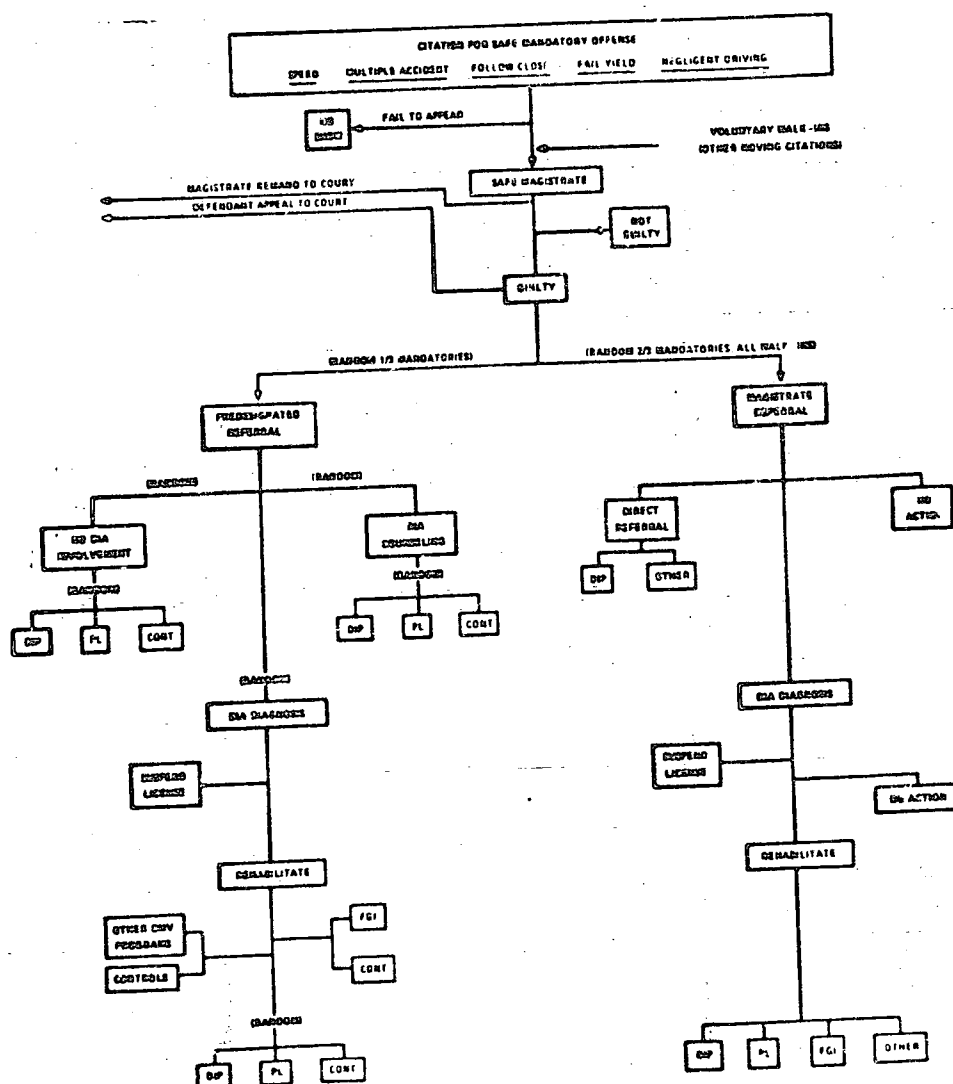

FIGURE 1. Partial Schematic of SAFE System Case Flow.

II. PURPOSE

The initial evaluation of the SAFE project suggested a substantial reduction in both accident and violation recidivism for those offenders who attended the Defensive Driving Course (either DIP or PL versions) as compared to those who were assigned to the Control group. Treatment groups showed an approximate 40% reduction in recidivism on both post-treatment performance measures. The extremely promising results of this initial evaluation prompted the National Highway Traffic Safety Administration to contract with the Research Division of the Washington State Department of Licensing to further explore the specific effectiveness of the various DDC rehabilitation efforts.

Specific among the research questions addressed in the present investigation is the potential impact of the "exceptions" made to predesignated treatment group assignments. The original evaluation design incorporated predesignated <u>random</u> assignment to all major comparison groups. However, during the actual operation of the SAFE system some exceptions were made from this random assignment scheme, i.e., some offenders were excluded from their predesignated group based on decisions by the magistrates or the DIA's that the predesignated treatment was grossly inappropriate and could not in all good conscience be complied with. To the extent that this deviation from the assignment plan introduced any systematic bias in the number and/or type of offender that was excluded and/or the treatment programs from which they were excepted, the randomness of subject assignment (and therefore the validity of between-group comparisons) may have been compromised.

In addition to the predesignated drivers who were excepted from their assigned treatment program (and either received no further treatment or were reassigned to a treatment program other than that for which they were originally predesignated there were others who:

    a.   Failed to appear for any of their scheduled treatment;

    b.   Began their treatment program but did not successfully complete the entire program;

    c.   Appeared for and completed the assigned treatment program.

The control group would obviously consist of drivers who would have fallen into each of these classifications had they been assigned to a treatment program rather than to the No Treatment Control group. Hopefully, the random assignment process would assure that they were represented in proportions equivalent to those found in the treatment groups. However, since it was impossible to identify from within the Control group those individuals who would have been excepted or would have "failed-to-appear" or "failed-to-complete" had they entered a treatment program, it becomes necessary to either, (1) attempt to make the necessary statistical adjustments to the Control group's performance means which would compensate for the various component contributions or (2) define the treatment group as all of the drivers predetermined to become members of that treatment group without regard to the specific treatment conditions they subsequently experienced. It is this latter option which was selected for the present evaluation.

Finally, sequential programming constraints precluded definitive evaluation comparisons between the two versions of Programmed Learning at the time of the initial project analysis. That is, since the PL2 program replaced the PL1 program midway through the project, recidivism comparisons using equivalent tracking intervals could not be made immediately following the project termination. At the time that the data were collected for the present evaluation, sufficient time had elapsed since program termination to permit equivalent one-year tracking intervals to be used for both these treatment programs. Thus, the present report will also include a re-examination of the relative effectiveness of each of the Programmed Learning versions of the DDC course.

III. METHOD

A. The Data Base

The data base used for this supplementary evaluation consisted of three major components: The Master Data File collected during the operational phase of the SAFE program, a data file created for the "Exceptions" cases since many were excluded from the initial SAFE data file, and the current 5 year driving records for both the SAFE and Exception subjects. The data file used for statistical analysis was composed of the SAFE and Exception records merged onto a single file with each subject's driving record appended to his base record. A record description is included as Appendix II.

Driving records were extracted from the Department of Licensing's Driver Records system in December, 1977 and consisted of up to 20 accidents and/or citations. Each accident and/or citation was coded in a field containing the date of occurrence and the type of citation issued. The first 10 of these fields contained data for up to 10 accident/violation incidents that occurred prior to the SAFE entry offense date. The second 10 fields contained up to 10 incidents that occurred subsequent to the SAFE entry offense date. If there were fewer than 10 prior or 10 subsequent incidents the unnecessary fields were blank. Thus, the driving record portion of the data base contained a virtually complete (5 year) driving history.

Initial examination of the data base revealed a substantial missing data problem with regard to the completion status of subjects who had been assigned to a DDC treatment group. In order to obtain these completion data a manual search of the Evergreen Safety Council's SAFE Project records was conducted, and roughly 95% of the missing data was recovered. The data base was then updated with completion codes indicating successful course completion or failure to complete.

B. Study Group Selection

There were six types of defendants identified in the master data file: Exceptions, SAFE Mandatories, SAFE Walk-ins, Court Mandatories, Court Walk-ins and Bond Forfeitures. The initial step in defining the study groups was to select only SAFE Mandatory and Exception subjects. Next, subjects were selected for further analysis if they met one of two conditions: (1) they were members of the Exception (from predesignated assignment) group or (2) they had been processed through the system via one of the predesignated referral routes (left-hand portion of Figure 1). Thus, the subjects selected for analysis were the SAFE Mandatory defendants who had been randomly assigned to a referral and treatment (or Control) group including those defendants excepted from their predesignated assignment.

C. Evaluation Design

Table 1 depicts predesignation group (rows) and assignment/completion (columns) for subjects included in the present analysis. The variable PREDESIG in Table 1 includes both predesignated referral route and treatment group assignment. For the No DIA (rows 1, 2, 3, 4) and DIA Counseling (rows 11, 12, 13, 14) referral routes predesignation codes indicated both route and treatment group assignment. The code for the DIA Diagnosis route, however, indicated diagnosis only. The purpose of this component of the system was to allow the DIA's to determine the most appropriate treatment for individiual defendants. If the diagnostic inter-view indicated eligibility for a Department of Licensing Driver Improvement program the defendant was assigned to that program. The remaining defendants should have been randomly assigned to a DDC or Control group. Even though the DIA Diagnosis predesignation code did not indicate DDC or Control assignment, these treatment group assignments are broken down in Table 1 for purposes of later analysis. The DIA Diagnosis condition (row 28) in Table 1 includes those subjects assigned to a Department of Licensing program and those excepted from any formal treatment program. The remaining subjects who were assigned to a DDC or Control group are represented in rows 21, 22, 23 and 24 of Table 1.

The variable STATUS in Table 1 indicates Treatment group assignment and completion status. Columns 1 and 2 represent completion of predesignated treatment and failure-to-complete, respectively, and the Control group is represented in Column 3. Columns 4 and 5 indicate exceptions from predesignated assignment. Subjects excepted but assigned to another treatment (Column 4) include those assigned to a DDC course other than the one predesignated or a DOL treatment. Column 5 represents exception subjects not assigned to any treatment group and includes 150 predesignated DIP or PL subjects who were assigned to the Control group. Column 6 includes subjects for whom a treatment assignment could not be determined from the existing records. It should be noted that the majority of these subjects were predesignated for Control group assignment, but the DIA's and/or magistrates indicated a group assignment code (Action-Reason code) other than those used to indicate Control group assignment. The reasons for the sub-stantial number of subjects predesignated but not assigned to Control groups remains obscure. Finally, Column 7 represents treatment group assignment but unknown completion status.

TABLE 1

PREDESIGNATION GROUP AND ASSIGNMENT-COMPLETION STATUS
(Sample sizes and percentages are indicated in each cell)

COUNT ROW PCT	STATUS ASSIGNED-COMPLTE 1.I	ASSIGNED-FTC 2.I	ASSIGNED-CONTROL 3.I	EXCPTION OTHR TRT 4.I	EXCPTION NO TRT 5.I	STATUS UNKNOWN 6.I	ASS-CMPL UNKNOWN 7.I	ROW TOTAL
PREDESIG								
1. NO DIA DIP	408 / 62.5	64 / 9.8	0 / 0.0	104 / 15.9	43 / 6.6	17 / 2.6	17 / 2.6	653 / 7.7
2. NO DIA PL1	166 / 49.7	34 / 10.2	0 / 0.0	57 / 17.1	58 / 17.4	10 / 3.0	9 / 2.7	334 / 3.9
3. NO DIA PL2	190 / 61.7	52 / 16.9	0 / 0.0	57 / 18.5	2 / 0.6	6 / 1.9	1 / 0.3	308 / 3.6
4. NO DIA CONTROL	0 / 0.0	0 / 0.0	238 / 34.0	12 / 1.7	16 / 2.3	434 / 62.0	0 / 0.0	700 / 8.2
11. COUNSEL DIP	375 / 48.3	69 / 8.9	0 / 0.0	46 / 5.9	236 / 30.4	38 / 4.9	13 / 1.7	777 / 9.1
12. COUNSEL PL1	176 / 45.5	39 / 10.1	0 / 0.0	30 / 7.8	114 / 29.5	22 / 5.7	6 / 1.6	387 / 4.5
13. COUNSEL PL2	165 / 53.4	44 / 14.2	0 / 0.0	15 / 4.9	74 / 23.9	10 / 3.2	1 / 0.3	309 / 3.6
14. COUNSEL CONTROL	0 / 0.0	0 / 0.0	207 / 28.2	19 / 2.6	4 / 0.5	505 / 68.7	0 / 0.0	735 / 8.6
21. DIA DIAG DIP	626 / 81.0	120 / 15.5	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0	27 / 3.5	773 / 9.1
22. DIA DIAG PL1	292 / 83.4	53 / 15.1	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0	5 / 1.4	350 / 4.1
23. DIA DIAG PL2	303 / 77.5	83 / 21.2	0 / 0.0	0 / 0.0	0 / 0.0	0 / 0.0	5 / 1.3	391 / 4.6
24. DIA DIAG CONTROL	0 / 0.0	0 / 0.0	443 / 38.6	0 / 0.0	0 / 0.0	705 / 61.4	0 / 0.0	1148 / 13.5
28. DIA DIAG	267 / 16.1	34 / 2.1	0 / 0.0	91 / 5.5	827 / 50.0	318 / 19.2	117 / 7.1	1654 / 19.4
COLUMN TOTAL	2968 / 34.8	592 / 6.9	888 / 10.4	431 / 5.1	1374 / 16.1	2065 / 24.2	201 / 2.4	8519 / 100.0

For analysis of the overall system the total predesignated groups (row totals in
Table 1) were used and comparisons were made as a function of predesignation
group and assignment vs non-assignment to the predesignated treatment or Control
group. Analyses of DDC effectiveness included only Columns 1, 2 and 3 of Table
1; those subjects actually assigned to a treatment or Control group, and for sub-
jects assigned to DIP, PL1 or PL2 only those for whom completion status data was

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available. Additionally, subjects referred via the DIA Diagnosis route and
assigned to a DOL treatment were excluded from the analyses of DDC effective-
ness.

Dependent Variables

The two general classes of dependent variables were those measuring group com-
position and recidivism. Group composition variables consisted of descriptive
demographic characteristics (age, sex, race, education, income), exposure to
risk, prior driving record and the SAFE entry offense. Recidivism was measured
by the percentage of drivers involved in one or more accidents or receiving one
or more citations subsequent to their SAFE appearance date.

The recidivism tracking interval was one calendar year following the SAFE appear-
ance date. The last defendants in the SAFE project appeared in June, 1976, and
a one-year tracking interval for these subjects concluded in June, 1977. The
data file used in this research was created on December 15, 1977, and thus allow-
ed six months for reports of citations and accidents to be submitted to the
Department of Licensing and entered on the driver record system.

D. Subjects

The traffic offenders in the SAFE system were Seattle residents who received an
infraction citation for: (1) charges arising from an accident, (2) driving with-
out a valid operator's license on person, (3) speeding in excess of 15 MPH over
the posted limit, or (4) a charge that was the fourth infraction in 2 years or the
third charge in 1 year, while operating a motor vehicle within the Seattle city
limits during the time period June, 1974 to June, 1976.

Driving without a valid operator's license on person was dropped as a mandatory-
appearance category early in the program primarily because neither the magis-
trates nor the analysts could justify to themselves or to the defendants the need
to attend a rehabilitation program based on only this citation on their record.
Three additional infractions, failure to yield right-of-way, following too close
and negligent driving were added to the mandatory SAFE appearance citation cri-
teria when the no valid license on person charge was deleted.

E. Analysis

The SAFE data file complied by the Department of Licensing's Information Systems
Division was processed and analysed using the Statistical Package for the Social
Sciences (SPSS), a set of computer programs developed by Nie et al (1975). The
major analytic techniques used were multiple regression and Chi-square. For
multiple regression analyses dummy variables were created representing predesig-
nated referral routes and treatment group assignments as well as assignment and
completion status. Analyses of group composition were treated as one-way ANOVA's

using dummy variables to represent particular predesignation and status conditions. Recidivism analyses proceeded similarly with the inclusion of a second step in which the group composition variables of age, sex, exposure and prior driving record were entered into the regression equation. Nie et al (1975, pp 373-376) describe this type of analysis. The control groups were pooled across all referral routes to provide a single referrence group for the various comparisons.

The dependent variables examined in many of the analyses were dichotomous e.g., recidivism. It should be noted that even though the use of a dichotomous dependent variable violates the statistical assumptions of the multiple regression model, there appears to be adequate justification for this practice. Empirical tests have documented the robustness of the ANOVA using dichotomous dependent variables when sample sizes are large, e.g., greater than 40 (Lunney, 1970; also see Shultz & O'Day, 1972). Cohen and Cohen (1975, p. 230) also suggest that the central limit theorum and some nonreferenced empirical studies justify using regression techniques with dichotomous dependent variables.

A .05 significance level (one-tailed) was used for comparisons of recidivism. However, a more conservative level of .001 (two-tailed) was used for group composition comparisons. The reason for this somewhat unorthodox procedure is due to the fixed sample size used for both types of comparisons. Normally an investigator would determine the size of an effect considered to be practically significant, then select a significance level and power for the test. Fixing these three parameters then determines the required value of the remaining parameter, sample size. In the present investigation, however, the same sample size is used both for recidivism comparisons, in which a relatively small difference would be practically significant, and for group composition comparisons, in which only fairly large differences would have any practical significance.

IV.   RESULTS

A.   SAFE System Impact - Predesignated Referral

Examination of the predesignated referral component of the SAFE system consists of first, a description of the composition of the total subject sample and comparisons among various predesignation conditions, and second, a determination of the impact of the predesignation/referral system on recidivism. For these analyses the entire sample of 8,519 subjects was used, and comparisons were made between the total predesignation groups represented by the row totals in Table 1.

Group Composition

The mean age of SAFE defendants in the predesignated/referral component was 31.97 years; males accounted for 74% of the sample; subjects reported driving a mean of 189.73 miles per week; their driving records showed means of 0.82 accidents and

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2.97 citations prior to entry into the SAFE system; the mean reported education level was 12.45 years of school; the race of most defendants was Caucasian (85.4%) with Blacks accounting for 9.3% and other races 5.3%; most defendants reported a yearly income of $8,000 or less (60.4%); the majority of defendants were cited for speeding (41.1%), with 25.7% cited as the result of an accident, 14.5% were multiple offenders and the remaining 18.7% received one of the other SAFE entry offenses. Tables A1 - A9 in Appendix III summarize these data.

An examination of these group composition measures as a function of predesignation referral group revealed a number of significant deviations from random assignment relative to the composition of the pooled control groups. The analysis of group composition was a one-way ANOVA (set up as a dummy variable regression). There were 10 comparison groups defined by the three predesignated referral routes (No DIA, DIA Counsel and DIA Diagnosis) and three treatment groups (DIP, PL1, PL2) and the DIA Diagnose group. The composition of these 10 groups was assessed relative to the pooled control group. In the following comparisons the critical F values at a .001 significance level are 2.96 for df= (10,8508) and 10.83 for df=(1,8508). The group composition data is summarized in Table 2.

1. Age - There was no age difference among predesignated treatment groups compared to the pooled Control group, $F(10,8508)=2.46$.

2. Sex - The percentage of males did vary among groups, $F(10,8508)=5.72$, however, this was mostly due to an overrepresentation of males in the DIA Diagnose group, $F(1,8508)=21.53$. None of the DDC treatment groups individually differed from the combined control group.

3. Exposure to Risk - Mean number of miles driven per week showed an overall difference, $F(10,8508)=3.12$, but none of the individual group differences reached the .001 level of significance.

4. Prior Driving Record - The mean number of prior accidents varied significantly across predesignation groups, $F(10,8508)=9.92$. Both the DIP Counsel and PL1 Counsel groups had significantly more prior accidents than did the composite control group, $F's(1,8508)$ of 13.81 and 32.69 respectively, as also did the DIA Diagnose group, $F(1,8508)=60.61$. Prior citations similarly differed among groups, $F(10,8508)=46.40$. The DIP and PL1 conditions within both the No DIA and DIA Counsel referral routes showed more prior citations than the control group, all four $F's(1,8508)>14.14$. The PL2 Diagnose group had fewer prior citations, $F(1,8508)=16.29$, and the DIA Diagnose group had more prior citations than the control group, $F(1,8508)=309.12$.

5. Education - The mean education level did not differ among groups, $F(10,8223)=2.10$.

6. Income - The distribution of income levels differed among groups $\chi^2(48)=105.89$.

7. Race - Racial groups were equivalently represented in predesignation groups, $\chi^2(48)=54.36$, p=.24.

8. SAFE Entry Offense - The SAFE entry offenses were not equivalently distributed across predesignation groups, $\chi^2(84)=536.68$. Examination of Table A9 in Appendix III, however, revealed no consistant patterns with respect to predesignation route or group.

TABLE 2

GROUP COMPOSITION SUMMARY FOR THE
TOTAL PREDESIGNATION GROUPS

	NO DIA			DIA COUNSEL			DIA DIAGNOSIS				POOLED
	DIP	PL1	PL2	DIP	PL1	PL2	DIP	PL1	PL2	DIAGNOSE	CONTROL
Sample Size	653	334	308	777	387	309	773	350	391	1,654	2,583
$\bar{X}$ Age	31.7	30.5	32.3	32.7	30.5	33.4	32.4	31.3	29.8	32.1	32.2
*% Males	74	77	76	74	75	75	68	69	66	79	73
*$\bar{X}$ Miles/Week	174	172	182	161	192	157	153	152	161	186	175
*$\bar{X}$ Prior Accidents	0.80	0.88	0.74	0.88	1.06	0.82	0.75	0.85	0.60	0.99	0.70
*$\bar{X}$ Prior Citations	2.99	3.44	2.69	3.07	3.60	2.79	2.28	2.58	1.90	4.10	2.52
$\bar{X}$ Education	13.0	12.6	13.0	12.8	12.6	13.0	12.6	12.8	12.9	13.0	13.0
*% <$8,000	58	70	57	59	66	52	65	63	64	58	60
% Caucasian	85	83	90	84	83	87	88	86	86	84	85

*Significant overall differences at the .001 significance level.

Additional comparisons were made between subjects assigned to treatment vs those not assigned. Surprisingly, the only difference that emerged from these comparisons was an age difference, $F(1,8517)=61.37$, showing that subjects assigned were on the average 2.55 years younger than subjects not assigned.

Recidivism

Accident and citation recidivism were examined as a function of predesignation group (relative to the pooled control group) controlling for the effects of age, sex, exposure, prior accidents and prior citations. These variables were selected based on the existence of theoretical and empirical reasons to expect that

they might influence subsequent driving performance.

1. Accident Recidivism - The overall predesignation/referral system had no detectable impact on accident recidivism. Table 3 summarizes these data for individual predesignation route by group conditions. The effect of predesignation group was not significant, $F(10,8508)<1$ while the combined effect of predesignation group and the five group composition variables was significant, $F(15,8503)=15.80$. However, this effect was entirely attributable to the variables of prior accidents, age and sex, F's$(1,8503)$ of 89.23, 63.27 and 17.4% respectively (all predesignation F's <1.1).

TABLE 3

PERCENTAGE ACCIDENT RECIDIVISM FOR PREDESIGNATION
ROUTE AND TREATMENT GROUPS

		TRTGROUP					
	MEAN I COUNT I	DIP	PL1	PL2	CCNTROL	DIA DIAG	ROW TOTAL
	I	1 I	2 I	3 I	4 I	5 I	
ROUTE							
NO DIA	1 I I	15.16 I 653 I	17.66 I 334 I	15.91 I 308 I	15.00 I 700 I	0.0 I 0 I	15.64 1995
COUNSEL	2 I I	15.06 I 777 I	14.99 I 387 I	12.62 I 309 I	14.69 I 735 I	0.0 I 0 I	14.58 2209
DIA DIAG	3 I I	13.45 I 773 I	13.14 I 350 I	13.81 I 391 I	14.?5 I 1148 I	16.08 I 1654 I	14.67 4316
COLUMN TOTAL		14.53 2203	15.22 1071	14.09 1008	14.56 2583	16.08 1654	14.87 8519

2. Citation Recidivism - The system had a significant impact on citations, $F(10,8508)=4.76$. The combined predesignation and group composition effect also was significant, $F(15,8503)=86.12$. Table 4 shows citation recidivism. With group composition effects partialled out, there remained a significant impact of DIP for both the No DIA and DIA Diagnose conditions, F's$(1,8503)$ of 5.60 and 3.31 respectively, relative to a critical F of 2.71 at a one-tailed .05 significance level. The differences between these groups and the adjusted control group recidivism level of 43.12% were 4.79% and 3.45% respectively. Additionally, the impact of PL1 varied with referral route. Within the No DIA condition PL1 increased recidivism by 5.48% while it significantly reduced recidivism by 5.01% in the DIA Counsel condition, $F(1,8503)=3.93$. No differences were found for any of the PL2 groups.

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TABLE 4

PERCENTAGE CITATION RECIDIVISM FOR PREDESIGNATION
ROUTE AND TREATMENT GROUPS

	MEAN COUNT	TRTGROUP DDP	PL1	PL2	CONTROL	DIA DIAG	ROW TOTAL
		1	2	3	4	5	
ROUTE							
NO DIA	1	39.51	50.40	42.86	44.29	0.0	43.86
		653	334	308	700	0	1995
COUNSEL	2	42.21	42.64	43.04	42.86	0.0	42.62
		777	387	309	735	0	2208
DIA DIAG	3	37.00	42.00	39.64	40.24	48.13	42.77
		773	350	391	1148	1654	4316
COLUMN TOTAL		39.58	45.47	41.67	42.08	48.13	42.99
		2203	1071	1008	2583	1654	8519

B. Impact of The Defensive Driving Course

An examination of the effectiveness of the DDC course is based on only those subjects assigned to a DDC or Control group and only those for whom completion status was known. These inclusion criteria resulted in a sample of 4,147 subjects. The analysis of this DDC sample proceeded in two steps: First, an examination of the group composition of the treatment groups relative to the control and second, a determination of DDC impact on recidivism.

Group Composition

Any differential composition of the treatment and Control groups should be related to the extent to which subjects were differentially excluded from group assignment. Table 5 shows the exception rates for predesignated referral route and treatment group. The STATUS UNKNOWN subjects were included in the calculation of these exception rates.

As shown in Table 5 subjects were selected out of the treatment groups to a much greater extent than from the Control group. The relatively lower exception rate for the PL2 group is probably related to the fact that exceptions generally were lower later in the program; during the time period after PL2 was substituted for PL1.

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TABLE 5

EXCEPTION RATES (PROPORTIONS) AND SAMPLE SIZES FOR
PREDESIGNATED REFERRAL ROUTES AND TREATMENT GROUP ASSIGNMENTS

(The DIA Diagnose route cannot be broken down by
treatment group, see text)

	MEAN COUNT	TRTGROUP DIP	PL1	PL2	CONTROL	DIA DIAG	ROW TOTAL
ROUTE		1	2	3	4	5	
NO DIA	1	0.23 / 653	0.34 / 334	0.19 / 308	0.04 / 700	0.0 / 0	0.17 / 1995
COUNSEL	2	0.36 / 777	0.37 / 387	0.29 / 309	0.03 / 735	0.0 / 0	0.24 / 2208
DIA DIAG	3	773	350	391	1148	1654	0.21 / 4316
COLUMN TOTAL		2203	1071	1008	2583	1654	0.21 / 8519

Exception rates also varied as a function of referral route. Involvement of DIA's in the referral process tended to increase exception rates. Also, it should be noted that the lack of a treatment group breakdown for the predesignated DIA Diagnosis group is due to the fact that assignment to a DDC or Control group was made after DIA Diagnosis determined ineligibility for any of the Department of Licensing's programs. Thus, the predesignation code did not indicate treatment group assignment for the DIA Diagnosis subjects.

The reasons given by the magistrates and DIA's for granting exceptions are shown in Table 6. The most common reasons were a previous DDC course and a time conflict in attending the course. As indicated in Table 6 the distributions of reasons for the treatment and Control groups were quite different, which contributed to a significant overall difference in distributions, χ^2 (80)=425.59. An examination of the Control group indicates a lack of valid reasons for exclusion. Clearly, an age, medical or language problem should not have resulted in exclusion from the Control group. Also it was surprising to find that a time conflict was given as a reason for exclusion from PL2 as frequently as for DIP since PL2 required only one scheduled hour of classroom time as compared to eight hours for DIP.

TABLE 6

REASONS GIVEN FOR GRANTING EXCEPTIONS FROM PREDESIGNATED TREATMENT GROUP ASSIGNMENTS

EXCODE columns: 1. LEAVING TOWN | 2. PREV DDC | 3. REFUSED DDC | 4. GOOD DRIV RECORD | 5. DMV PROG PENDING | 6. NOT SENT TO DIA | 7. AGE | 8. MEDI CAL PROB | 9. OVERSIGHT FORGOT | 10. NOT STAT ED | 11. LANGUAGE PROB / TIME CONFLICT

PREDESIG (COUNT / ROW PCT)	1.I	2.I	3.I	4.I	5.I	6.I	7.I	8.I	9.I	10.I	11.I	ROW TOTAL
1. NO DIA DIP — count	7	16	16	17	3	0	15	3	15	3	23	118
1. NO DIA DIP — row %	5.9	13.6	13.6	14.4	2.5	0.0	12.7	2.5	12.7	2.5	19.5	7.2
2. NO DIA PL1 — count	4	17	1	7	1	0	10	2	13	4	9	68
2. NO DIA PL1 — row %	5.9	25.0	1.5	10.3	1.5	0.0	14.7	2.9	19.1	5.9	13.2	4.1
3. NO DIA PL2 — count	1	6	20	5	0	0	5	0	1	4	14	56
3. NO DIA PL2 — row %	1.8	10.7	35.7	8.9	0.0	0.0	8.9	0.0	1.8	7.1	25.0	3.4
4. NO DIA CONTROL — count	0	0	1	0	0	0	11	2	8	2	0	24
4. NO DIA CONTROL — row %	0.0	0.0	4.2	0.0	0.0	0.0	45.8	8.3	33.3	8.3	0.0	1.5
11. COUNSEL DIP — count	21	46	30	17	7	2	16	4	3	8	72	226
11. COUNSEL DIP — row %	9.3	20.4	13.3	7.5	3.1	0.9	7.1	1.8	1.3	3.5	31.9	13.7
12. COUNSEL PL1 — count	13	19	9	5	6	2	8	0	7	5	21	97
12. COUNSEL PL1 — row %	13.4	19.6	9.3	5.2	6.2	2.1	8.2	0.0	7.2	5.2	21.6	5.9
13. COUNSEL PL2 — count	8	24	5	5	1	1	11	0	1	4	27	87
13. COUNSEL PL2 — row %	9.2	27.6	5.7	5.7	1.1	1.1	12.6	0.0	1.1	4.6	31.0	5.3
14. COUNSEL CONTROL — count	1	1	0	1	0	4	1	1	11	4	1	25
14. COUNSEL CONTROL — row %	4.0	4.0	0.0	4.0	0.0	16.0	4.0	4.0	44.0	16.0	4.0	1.5
28. DIA DIAG — count	127	218	52	76	36	13	47	15	41	35	277	947
28. DIA DIAG — row %	13.4	23.0	6.5	8.0	3.8	1.4	5.0	1.6	4.3	3.7	29.3	57.5
COLUMN TOTAL	182	347	144	133	56	22	124	27	80	69	444	1648
COLUMN TOTAL %	11.0	21.1	8.7	8.1	3.4	1.3	7.5	1.6	6.1	4.2	26.9	100.0

The analysis of group composition for subjects assigned to treatment was a one-way ANOVA (set up as a dummy variable regression) comparing the nine groups defined by three predesignated referral routes and three treatment groups (DIP, PL1, PL2) relative to the pooled Control group. The critical F values at $p < .001$ for the following comparisons are 3.10 for $df = (9, 4137)$ and 10.83 for $df = (1, 4137)$. Table 7 summarizes group composition of the DDC treatment and Control groups.

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TABLE 7

GROUP COMPOSITION SUMMARY FOR SUBJECTS ASSIGNED TO
DDC TREATMENT AND CONTROL GROUPS
(Significant overall differences are
indicated by an asterisk)

	NO DIA			DIA COUNSEL						POOL CONTROL
	DIP	PL1	PL2	DIP	PL1	PL2	DIP	PL1	PL2	
Sample Size	472	200	242	444	215	209	746	345	386	888
$\bar{X}$ Age	30.7	29.3	31.6	32.2	29.7	31.5	32.4	31.3	29.8	30.8
% Males	74	76	76	73	73	71	69	69	67	75
$\bar{X}$ Miles/Week	178	166	183	158	193	143	153	153	161	174
$\bar{X}$ Prior Accidents	0.73	0.85	0.71	0.84	1.00	0.72	0.75	0.84	0.60	0.83
*$\bar{X}$ Prior Citations	2.90	3.13	2.69	2.64	3.36	2.43	2.32	2.58	1.91	2.97
$\bar{X}$ Education	13.0	12.6	13.0	12.7	12.9	13.0	12.6	12.8	12.9	12.8
% <$8,000	58	68	58	60	67	58	66	63	64	65
% Caucasian	85	86	91	85	83	87	88	86	87	84

1. Age - The mean age of subjects assigned to treatment or Control groups did not differ, $F(9,4137)=1.98$.

2. Sex - There were no differences in the proportion of males in treatment groups relative to the Control, $F(9,4137)=2.32$.

3. Exposure to Risk - The mean number of miles driven per week did not vary among groups, $F(9,4137)=2.12$.

4. Prior Driving Record - The mean number of prior accidents did not vary significantly among groups assigned to treatment, $F(9,4137)=2.74$. This result was somewhat surprising since this measure did vary among the intact predesignation groups. Apparently, one effect of the exceptions was to reduce the bias in this measure among groups. In contrast, the mean number of prior citations did vary among groups, $F(9,4137)=8.24$. This overall difference was mainly due to fewer prior citations in the DIP Diagnose and PL2 Diagnose groups, $F's(1,4137)$ of 21.96 and 38.64 respectively.

5. Education - No significant differences were found in mean grade level, $F(9,4017)=1.70$.

6. Income - The proportion of subjects reporting income of less than $8,000 did not differ between groups, $F(9,3773)=1.83$.

7. Race - There were no significant differences in the proportion of Caucasian subjects between groups, $F(1,4137)=1.37$.

8. SAFE Entry Offense - Tables 8a and 8b show the distribution of entry offenses for treatment groups pooled across referral routes and for routes pooled across treatment groups. Table 8a shows that the Control group had fewer subjects with accident-associated citations and more multiple offenders than did the DDC groups. Also, none of the Control subjects had Negligent Driving, Fail-to-Yield or Follow-too-Close citations. These patterns led to a significant difference in entry offense distributions, $\chi^2(21)=382.09$. The differences between referral route were also significant, $\chi^2(14)=61.92$, as shown in table 8b. In general, there were more accident-associated citations and fewer multiple offenders in the DIA Diagnose route.

TABLE 8a,b

DISTRIBUTION OF SAFE ENTRY OFFENSES BY

TREATMENT GROUP (a) and REFERRAL ROUTE (b)

FOR THE DDC TREATMENT AND CONTROL GROUPS

a.

ENTOFF

COUNT ROW PCT		ACCIDENT 1.I	SPEEDING 2.I	MULTIPLE 3.I	LICENSE 4.I	NEG DRIV 5.I	FAIL TO YIELD 6.I	FOLLOW TOOCLOSE 7.I	TWO OR MORE VIO 8.I	ROW TOTAL
TRTGROUP										
DIP	1.	538	672	190	9	68	75	37	73	1662
		32.4	40.4	11.4	0.5	4.1	4.5	2.2	4.4	40.1
PL1	2.	215	325	111	9	20	17	7	56	760
		28.3	42.8	14.6	1.2	2.6	2.2	0.9	7.4	18.3
PL2	3.	252	350	66	1	35	75	31	27	837
		30.1	41.8	7.9	0.1	4.2	9.0	3.7	3.2	20.2
CONTROL	4.	217	356	177	46	0	0	0	92	888
		24.4	40.1	19.9	5.2	0.0	0.0	0.0	10.4	21.4
COLUMN TOTAL		1222	1703	544	65	123	167	75	248	4147
		29.5	41.1	13.1	1.6	3.0	4.0	1.8	6.0	100.0

b.

COUNT ROW PCT		ACCIDENT 1.I	SPEEDING 2.I	MULTIPLE 3.I	LICENSE 4.I	NEG DRIV 5.I	FAIL TO YIELD 6.I	FOLLOW TOOCLOSE 7.I	TWO OR MORE VIO 8.I	ROW TOTAL
ROUTE										
NO DIA	1.	307	460	186	25	32	37	18	87	1152
		26.6	39.9	16.1	2.2	2.8	3.2	1.6	7.6	27.8
COUNSEL	2.	292	445	175	15	31	40	21	56	1075
		27.2	41.4	16.3	1.4	2.9	3.7	2.0	5.2	25.9
DIA DIAG	3.	623	798	183	25	60	90	36	105	1920
		32.4	41.6	9.5	1.3	3.1	4.7	1.9	5.5	46.3
COLUMN TOTAL		1222	1703	544	65	123	167	75	248	4147
		29.5	41.1	13.1	1.6	3.0	4.0	1.8	6.0	100.0

Recidivism

The accident and citation recidivism percentages for subjects assigned to a DDC group were examined as a function of predesignation group and completion status relative to the pooled Control subjects who had been assigned to that condition. The effects of age, sex, exposure to risk, prior accidents and prior citations were controlled for in these analyses since Tables A1 to A5 in Appendix II show that differences exist between the Control subjects and those subjects who completed treatment. These differences were due to the fact that subjects failing to complete treatment were younger, more likely to be male, had more prior accidents and substantially more prior citations than those who completed treatment.

1. Accident Recidivism - The nine predesignation route and treatment groups when compared to the pooled Control group had no effect on subsequent accidents, $F(9,4137)<1$. Table 9 summarizes these data.

TABLE 9

PERCENTAGE ACCIDENT RECIDIVISM AS A FUNCTION

OF PREDESIGNATED REFERRAL ROUTE AND GROUP

ASSIGNMENT FOR THE DDC SAMPLE

	MEAN COUNT	TRTGROUP DIP	PL1	PL2	CONTROL	ROW TOTAL
ROUTE		1	2	3	4	
NO DIA	1	13.98 / 472	17.00 / 200	17.77 / 242	12.61 / 238	15.02 / 1152
COUNSEL	2	16.22 / 444	17.67 / 215	11.96 / 209	18.36 / 207	16.09 / 1075
DIA DIAG	3	13.67 / 746	13.33 / 345	13.99 / 386	16.70 / 443	14.38 / 1920
COLUMN TOTAL		14.44 / 1662	15.53 / 760	14.58 / 837	15.99 / 888	15.00 / 4147

Controlling for the effects of group composition did not change this result. The combined effect, although significant, $F(14,4132)=8.35$, was attributable to age and prior accidents, $F's(1,4132)$ of 22.61 and 53.95 respectively.

These data were also examined broken down by completion status. Of the 18 groups defined by predesignation and completion status, the DIP-Diagnose-Complete and PL1-Diagnose-Complete conditions produced a reduction in accidents, F's(1,4128) of 3.27 and 2.77 respectively. These differences, however, were eliminated when group composition was controlled for, F's (1,4123) of 1.24 and 2.13, respectively, as compared to a critical F of 2.71. The combined effect of predesignation-completion status and group composition was significant, F(23,4123)=5.52, but again, age and prior accidents accounted for this effect, F's(1,4123) of 20.09 and 55.09.

When the effects of treatment and completion status were examined pooled across referral route (see Table 10) a tendency favoring a reduction for the DIP-Complete subjects was observed, F(1,4140)=2.39. However, this difference was obscured when group composition was entered into the regression equation, F<1. The combined effect was significant, F(11,4135)=10.83, and attributable to age and prior accidents.

TABLE 10

PRECENT ACCIDENT RECIDIVISM AS A FUNCTION

OF TREATMENT GROUP AND COMPLETION

STATUS FOR THE DDC SAMPLE

	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	ROW TOTAL
TRTGROUP					
DIP	1	13.63 1409	18.97 253	0.0 0	14.44 1662
PL1	2	14.04 634	23.02 126	0.0 0	15.53 760
PL2	3	14.59 658	14.53 179	0.0 0	14.58 837
CONTROL	4	0.0 0	0.0 0	15.99 888	15.99 888
COLUMN TOTAL		13.96 2701	18.46 558	15.99 888	15.00 4147

An analysis of Days to Failure indicated that the mean number of days from the SAFE appearance date to the occurrence of a subsequent accident was unrelated to treatment group or group composition, F(14,607)<1. Thus, the hypothesis that treatment might delay the occurrence of subsequent accidents was not supported by the data. The mean number of days for the Control group

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was 171.0 and treatment group means varied from +10 days to -20 days.

2. Citation Recidivism - There was an overall effect of referral route and treatment group, $F(9,4137)=2.30$ as compared to a critical F of 1.88. The only significant group effect was a 6.97% difference in the DIP Diagnose condition, $F(1,4137)=8.13$. This difference, however, was reduced to a non-significant 2.85% when group composition was controlled for. The combined effect of predesignation group and group composition was significant, F $(14,4132=40.71$, and was due to age, sex and prior citations, $F's(1,4132)$ of 210.44, 78.78 and 80.03. Table 11 summarizes these data.

TABLE 11

PERCENTAGE CITATION RECIDIVISM AS A FUNCTION
OF PREDESIGNATED REFERRAL ROUTE AND
GROUP ASSIGNMENT FOR THE DDC SAMPLE

	MEAN COUNT	TRTGROUP DIP 1	PL1 2	PL2 3	CONTROL 4	ROW TOTAL
ROUTE						
NO DIA	1	40.04 / 472	53.00 / 200	41.74 / 242	44.54 / 238	43.58 / 1152
COUNSEL	2	39.86 / 444	43.26 / 215	41.15 / 209	47.83 / 207	42.33 / 1075
DIA DIAG	3	37.40 / 746	41.74 / 345	39.90 / 386	42.66 / 443	39.90 / 1920
COLUMN TOTAL		38.81 / 1662	45.13 / 760	40.74 / 837	44.37 / 688	41.55 / 4147

When citation recidivism was broken down by predesignation group and completion status, an overall significant effect was detected. $F(18,4128)=3.49$. DIP produced a reduction in citations within all three referral routes for subjects who completed treatment, $F's(1,4128)$ of 7.23, 5.90 and 14.99 for the No DIA, Counsel and Diagnose routes respectively. PL2 when treatment had been completed also decreased citations for the No DIA and Diagnose routes, $F's(1,4128)$ of 3.22 and 5.67. Finally, the PL1-Complete treatment condition reduced citations only for the DIA Diagnose route, F $(1,4128)=2.97$.

When these differences were assessed controlling for group composition, only the DIP-No-DIA-Complete and DIP Diagnose-Complete groups showed a citation

decrease, F's(1,4123) of 4.24 and 3.37. The percentage difference in citations was 5.69% for No DIA group and 4.45% for the Diagnose group relative to an adjusted Control group recidivism percentage of 43.87%. The combined effect of predesignation-completion status and group composition was significant, $F(23,4123)=26.26$ and the individual variables of age, sex and prior citations significantly influenced citation recidivism, F's(1,4123) of 190.26, 77.16 and 67.83 respectively.

When treatment group and completion status were pooled across referral route (see Table 12), both the DIP and PL2 subjects who completed treatment showed a decrease in citation recidivism, F's(1,4140) of 16.91 and 7.40. Controlling for group composition eliminated the PL2 effect, $F(1,4135)=1.24$, while a 4.65% effect of DIP for subjects completing treatment remained, $F(1,4135)=5.48$.

TABLE 12

PERCENT CITATION RECIDIVISM AS A FUNCTION

OF TREATMENT GROUP AND COMPLETION

STATUS FOR THE DDC SAMPLE

	MEAN COUNT	STATUS			ROW TOTAL
		ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	
TRTGROUP					
DIP	1	35.77	55.73	0.0	38.81
		1409	253	0	1662
PL1	2	41.17	65.03	0.0	45.13
		634	126	0	760
PL2	3	37.54	52.51	0.0	40.74
		658	179	0	837
CONTROL	4	0.0	0.0	44.37	44.37
		0	0	888	888
COLUMN TOTAL		37.47	56.81	44.37	41.55
		2701	558	888	4147

A significant impact on Days to Failure was found, $F(14,1708)=4.50$. The occurrence of subsequent citations was significantly delayed for all three treatment groups within the DIA Diagnosis route and for the PL1-Counsel group, all four F's(1,1708)>4.00. Age was the only group composition variable that influenced this effect, $F(1,1708)=23.69$. Table 13 summarizes these data.

TABLE 13

MEAN DAYS TO FAILURE

(Citation Recidivism)

MEAN COUNT	TRTGROUP DIP	PL1	PL2	CONTROL	ROW TOTAL
	1 I	2 I	3 I	4 I	
ROUTE					
1 I NO DIA	142.89 I 189 I	141.06 I 106 I	134.38 I 101 I	126.90 I 106 I	137.41 502
2 I COUNSEL	143.89 I 177 I	164.11 I 93 I	139.93 I 86 I	122.44 I 99 I	142.61 455
3 I DIA DIAG	155.42 I 279 I	163.92 I 144 I	162.25 I 154 I	149.75 I 189 I	156.99 766
COLUMN TOTAL	148.59 645	156.91 343	148.36 341	136.74 394	147.49 1723

NUMBER OF MISSING OBSERVATIONS = 2424

Finally, it may be of some interest to estimate what control group recidivism would be for Control subjects who would have completed treatment vs those who would not have completed. This was done by pooling treatment group completers and non-completers, calculating weighted mean recidivism and solving for the X and Y values in the formulas: $R_{pooled}.X=R_{compl}$ and $R_{pooled}.Y=R_{FTC}$. The "pooled" control recidivism value multiplied by X and Y yields estimated "Control-Complete" and "Control-Fail-to-Complete" recidivism values. These estimates are shown in Table 14.

TABLE 14

OBSERVED TREATMENT GROUP RECIDIVISM AND
ESTIMATED CONTROL GROUP RECIDIVISM

	ACCIDENTS		CITATIONS	
	Completed Treatment	Failed to Complete	Completed Treatment	Failed to Complete
DIP	13.63	18.97	35.77	55.73
PL1	14.04	23.02	41.17	65.08
PL2	14.59	14.53	37.54	52.51
Control	15.15	20.04	40.78	61.83

V. DISCUSSION

The SAFE evaluation design was predicated upon the basic assumption that the predesignation scheme for assigning traffic offenders to the various Treatment and Control groups would produce subject samples whose demographic and prior performance characteristics would not differ one from another more than that which could be attributable to chance variations. Recognizing that there often is some degree of incompatibility between the procedures and methods employed in an operational dynamic social process (e.g., the judicial system) and the often restrictive and confining requirements of scientific evaluation methodology, it is reasonable to expect that certain compromises must be made by both sides. In retrospect, it would appear that the compromises and trade-offs made in the process of implementing and operating the SAFE system were successful in producing a system which was, by-in-large, fair, equitable and acceptable to the defendants and the judiciary while still preserving the essence of the critical procedure of random assignment to Treatment groups.

In the comparisons of group composition no differences between Control and total predesignation/referral groups were detected for the measures of age, sex (for the DDC groups), exposure to risk (none of the individual groups differed from the Control), education or race. In contrast, however, prior driving record measures showed significant deviations from equivalent assignment for the DIP and PLI groups within both the No DIA route and especially the DIA Counsel referral route. Additionally, the income and SAFE entry offense distributions indicated some degree of non-randomness as a result of the assignment process. Thus, while there were a few significant departures, the majority of the group composition measures indicated equivalent representation in the predesignation/referral groups.

Relatively little systematic bias was detected between those subjects actually assigned to their predesignated treatment group relative to those predesignated for treatment but not so assigned. A tendency to more frequently assign somewhat younger subjects to treatment programs was found while none of the other descriptive measures differed significantly. Finally, comparisons for the subject sample actually assigned to DDC treatment and Control groups showed differences only in the number of prior citations and particular SAFE entry offenses.

It would appear that, with certain qualifications, the predesignated random assignment process in the SAFE system produced relatively comparable subject samples. The only group composition differences of predictive or theoretical importance for recidivism were the measures of prior driving performance. These differences were, of course, controlled for in the multiple regression analyses of recidivism.

Statistical analysis of system impact on the total predesignated/referral groups (regardless of actual treatment they subsequently experienced or their ultimate treatment completion status) indicated that specific Referral Route-DDC Treatment combinations were significantly effective in reducing citation recidivism in the year following the SAFE system exposure. The drivers predesignated for assignment to the DIP program via either the No DIA contact or the DIA Diagnosis routes

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showed a significant positive effect whereas those predesignated for DIA Counseling followed by participation in the PL1 program also revealed a significant reduction in subsequent citation recidivism.

The impact of the various DDC programs was assessed for those drivers who actually participated in those programs. The only significant effect to emerge from these analyses was a reduction in the proportion of drivers receiving post-treatment traffic citations who had been assigned to, and completed, the DIP course, having been assigned to that program either without any DIA intervention or through the DIA Diagnosis route. DIA Counseling preceeding DIP participation did not appear to enhance post-treatment driver performance.

The present evaluation failed to detect any statistically significant reductions in the proportions of drivers experiencing accidents which could be attributed to their specific DDC treatment condition within the SAFE system. There were, however, a few individual group comparisons for subjects completing given treatment programs (e.g., PL2-Counsel and PL1-Diagnose) which revealed accident recidivism reductions on the order of 3 percentum. When made relative to an adjusted Control group recidivism rate of 14.33% a difference of this magnitude (if reliable) translates to a potential accident reduction of approximately 21%. This raises an issue which would appear to warrant some additional discussion; whether the present evaluation had sufficient statistical power to detect a potentially cost-effective accident reduction effect. The required minimum sample size to detect a 20% reduction relative to a .15 accident probability with a power of .75 is roughly 1,500 subjects per group for a two sample comparison. The sample sizes of the present groups (those that completed treatment) ranged from 200 to 600 and the Control group sample size was 888. Thus, the sample sizes in the present evaluation were insufficient to detect modest although practically significant reductions in accident recidivism. All that can be validly concluded is that the treatments were ineffective in producing accident reductions on the order of 25% or more, since the evaluation did have sufficient power to detect accident reductions of this size. Clearly, then, a definitive conclusion regarding lesser accident recidivism impact is unwarranted.

Parenthetically, it should be noted that sample sizes and statistical power for the comparisons of citation recidivism were much more sensitive since relatively large Control group citation probability levels of roughly 45% result in much smaller required sample sizes. Differences on the order of 10% could be shown to be statistically significant with the given level of citation recidivism.

A major issue examined in the present evaluation concerned selection bias among the treatment groups resulting from the exceptions made to predesignated assignment. A related and equally important issue is the possibility of bias due to "self-selection" among subjects who fail-to-appear or fail-to-complete and those who successfully complete their assigned treatment program. Specifically, it seems reasonable to expect that subjects completing treatment may be less likely to have subsequent accidents and/or citations than those who do not complete regardless of any treatment received; this hypothesis being

derived from notions of "social compliance" such that those subjects who comply with their "court order" to attend the DDC course may also be more likely to comply with traffic laws than would non-compliers.

Numerous methodological techniques are available to deal with this problem of self-selection bias: (1) comparing the intact Treatment and Control groups regardless of completion status, (2) using multiple regression techniques to control for group composition differences which are related to the hypothesised social compliance effect, (3) estimating Control group recidivism rates for "completers" and "non-completers", and (4) actually determining which members of the Control group would have completed treatment by requiring appearance of a "placebo treatment". Although the present evaluation incorporated the first three of these techniques, it is the authors' opinion that these techniques are less than optimal, the fourth alternative providing the greatest methodological precision and control. (However, see Peck, 1976, for a dissenting argument.) It is suggested that future evaluation efforts may profitably incorporate a "placebo treatment" Control group in addition to the standard "no treatment" control.

VI. CONCLUSIONS

Contrary to earlier published findings that the National Safety Council's Defensive Driving Program (DIP) produced reductions of nearly 40% in both accident and citation recidivism for traffic offenders processed through the SAFE adjudication/referral/rehabilitation system (Morehead, 1976), the present analyses suggest that if there truly are any real differences attributable to the treatment program they are substantially less than the impressive improvement figures reported previously.

When the appropriate statistical adjustments were applied in order to equalize the composition of the various Treatment and Control groups (e.g., prior driving record, age, sex, exposure) and the treatment groups were operationally defined as including all subjects (including completers, non-completers and exceptions) only the drivers predesignated for assignment to the DIP program via the No DIA and DIA Diagnostic referral routes and the PLI drivers with DIA Counseling showed a significant improvement in citation free driving performance over the ensuing year. Even in these cases the differences were on the order of 5% (an improvement of about 12%, relative to the recidivism rate of the Control group).

Even when attempting to assess the maximum potential impact of an optimized operational system (one in which only those who would successfully complete the assigned treatment program could be identified and assigned to the program) the results are no more encouraging with the DIP-No DIA and DIP-Diagnose conditions showing citation recidivism improvements of 13% and 10% respectively. None of the treatment groups achieved an accident recidivism rate which was significantly (statistically) better than that of the Control group, even

though there were certain combinations of referral and treatment resulting in relative improvements of approximately 21%.

Although the findings of this investigation are considerably less encouraging than those reported previously, there remains sufficient evidence to continue pursuing the development and refinement of this form of referral/rehabilitation effort for future application in the driver improvement area. The differences between the initial evaluation and this one should in no way be construed to reflect on the credibility or validity of other sub-system or component evaluations performed on the SAFE program or the effectiveness conclusions drawn.

One of the major purposes of this evaluation was to assess the relative effectiveness of the three versions of the Defensive Driving Course. The data show that the DIP version produced the greatest impact, and it probably holds the most promise for future driver improvement programs. However, in considering the cost of implementing and operating such programs the cost-benefit potential of the programmed learning version of the course (PL1 and PL2) should not be overlooked. The instructor costs of DIP per student are substantially more than the programmed learning versions, and especially the PL2 version, which, after the initial start-up costs of equipment purchase, would appear to be a relatively inexpensive program to operate and maintain.

The present study found evidence of a citation reduction which is attributable to certain treatment conditions when the potentially confounding variables of group composition were controlled for. Also, evidence suggestive of a decrease in accidents was found but insufficient sample sizes resulted in a less than optimal test of potential accident reduction effects. Based on the available data it is recommended that those programs and procedures showing the greatest promise for future effective driver rehabilitation be implemented and further evaluation conducted in a research environment permitting more precise control over evaluation design requirements.

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APPENDICES

APPENDIX I   A summary of the SAFE Final Report

APPENDIX II   SAFE "AU/AA" Record Description

APPENDIX III   Tables A1 through A9 Summarize group compo-
                  sition for the entire predesignation sample
                  and individual assignment-completion status
                  conditions

                  Tables A10 and A11 Summarize accident and
                  citation recidivism for the same sample

TECHNICAL SUMMARY OF THE
SAFE FINAL REPORT

Project Objectives

The Seattle SAFE project was organized to demonstrate and assess the value of a noncriminal traffic offenders' adjudication and improvement process. Evaluated were techniques and sanctions designed to improve deterrence and reduce traffic violator recidivism. The project was structured to operate as a subsystem of the Seattle Municipal Court, integrated directly with the driver licensing and control programs of the Washington State Department of Motor Vehicles.

The specific objectives of the project were as follows:

1. To unburden the regular court by transferring less serious traffic infractions to a new driver adjudication/improvement system.

2. To identify and treat problem drivers at an earlier time in their driving experience.

3. To demonstrate a reduction in traffic violator recidivism, as a result of swift adjudication and subsequent prompt referral to driver improvement programs.

4. To evaluate the cost effectiveness of the driver adjudication/ improvement system to identify those elements best suited for inclusion in an expanded comprehensive statewide plan.

5. To determine those types of driver improvement activities which are most enhanced by the application of special adjudication/ improvement processes, techniques and sanctions.

6. To generate and evaluate local public awareness of the SAFE program and to enhance public support for overall project goals through a public education effort.

7. To promote national interest in developing improved driver adjudication/improvement methods by demonstrating program effectiveness.

8. To ultimately reduce the number of accidents caused by drivers in metropolitan Seattle.

Basic Program Design

SAFE was designed and implemented to permit rigorous evaluation of program effectiveness. A schematic representation of the comparison groups established by this program design is shown in figure 1. The evaluation approach involved:

FIGURE 1   SAFE EVALUATION DESIGN

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1. Comparison of alternative ways to handle traffic cases;

2. Random assignment to experimental treatment and control conditions
    where appropriate and consistent with equal justice; and

3. Measurement of impacts in multiple domains related to project goals.

The effects of the overall program and its adjudication, sanction and
rehabilitation components were evaluated with respect to administrative
efficiency and the future behavior of drivers, and the attitudes of drivers
and other people involved in the program.

The major criteria of program effectiveness were:

1. Efficient administration, based on processing volume and time;
    case dispositions and referrals and operating costs;

2. Fairness to defendant;

3. Recidivism among defendants, including violations and accidents
    incurred after a SAFE appearance;

4. The attitudes of defendants toward the program; and

5. The attitudes of the general public, law enforcement and
    adjudication personnel.

Three case-processing alternatives were compared:

1. Bail Forfeiture:
    The project's experimental/control design involved two alternative
    modes of adjudication, with which the outcomes of informal magistrate
    adjudication could be compared. Five percent of the SAFE-relevant
    offenses represent the traditional case-processing method of permitting
    the defendant to assume guilt and pay his ticket. This "forfeit" option
    requires only that the defendant forfeit his bail (amount of fine) and
    have the case closed, primarily via the mails. If, however, the defen-
    dant rejects the option and wishes to contest the citation, he may
    request a court date or appear at his convenience for a magistrate
    hearing.

2. Municipal Court Trials:
    The second major comparison group consisted of a randomly determined
    ten percent of the SAFE-offense cases, which were required to be heard
    in formal municipal court proceedings. These cases were adjudicated
    per the normal process of the courts for adjudication, disposition and
    follow-up referral. Offenders could be referred to driver improvement
    rehabilitation through this route, as well as via magistrate hearings.

3. SAFE Hearings:

(1) Within the SAFE process there were two major referral methods for offenders: (a) actions based on magistrate decisions and (b) actions based on predesignated referrals. The former involved magistrates' referrals to rehabilitation, diagnosis or no action at their discretion. The latter involves pre-determined assignments to DIA action (counseling, diagnosis or none) and rehabilitation (or none) to which magistrates may take exception only with good cause.

(2) Defendants appearing mandatorily and voluntarily were differentiated. Only (one-third of) those cited for offenses requiring a mandatory appearance were included in the experimental versus control evaluation within SAFE.

(3) Offenders could be referred to either a rehabilitation program or a no action control group. Thus, rehabilitation effectiveness could be evaluated by comparing programs against each other and by comparing those offenders who receive a particular kind of rehabilitation with those who did not. The major rehabilitation programs shown in figure 1 are: (a) DIP--Driver Improvement Program--a lecture class based on the National Safety Council's Defensive Driving Course; (b) PL--Programmed Learning--a self-instruction form of the Defensive Driving Course using tape cassettes; and (c) FGI--First Group Interview--a Department of Motor Vehicles Program for drivers diagnosed as over-aggressive. Offenders were randomly referred to DIP, PL or a DIP/PL control group (see part II of the figure). One-third of those who were diagnosed to qualify for FGI were assigned to the FGI control group.

Adjudication outcomes were thus compared for SAFE versus court versus forfeit processes, with equivalent (same types of traffic offenses) populations of defendants.

Following is a brief review of what actually occured when a defendant entered the SAFE system as a result of receiving a citation for a traffic offense that was "SAFE-relevant." (A review of Figure 1 will assist the reader in following through the procedure and placing the program results in their proper perspective.)

1. The driver was cited by the Seattle Police for one of the previously described SAFE-relevant offenses.

2. The driver was ordered to appear for adjudication by means of a computerized bail notice, which encouraged the defendant to call for an appointment.

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3. When the defendant appeared, he was assigned on a "first-come-first-served" basis to one of the three magistrates. The magistrate reviewed the facts of the case with the defendant and rendered a finding. The magistrate may then:

    (a) Refer to court on the basis of insufficient fact to render undisputed judgment of guilt or innocence.

    (b) Not find the defendant guilty (verdicts of not guilty, stricken or dismissed).

    (c) Find the defendant guilty upon admission of guilt. Guilty verdicts were followed by fines, levied in part or in toto or suspended. Jail cannot be imposed as a sanction because of the decriminalization of the traffic offenses.

4. At this point, the process of random referral by predesignation came into play. The magistrate was instructed, by a predesignation code written on a case control sheet and magistrate card, that a guilty offender should be referred specifically to one of the following post-adjudication actions:

    (a) Direct sentence, without driver analyst involvement, to a Driver Improvement Program or no-action control group;

    (b) Counseling with a driver analyst, to be followed automatically, with no analyst-decision making, by referral to the same options as above;

    (c) Diagnostic interview with a Driver Improvement Analyst.

5. The Driver Improvement Analyst, following his diagnostic interview, made one of three general decisions concerning the course of action that was best suited to the offender:

    (a) The offender's operator's license should be suspended;

    (b) The offender was qualified for a specialized Department of Motor Vehicles rehabilitation program or sanction;

    (c) The offender was not qualified for Department of Motor Vehicles programs.

    When decision (b) or (c) was made, the specific referral made by the analyst was then guided by the predesignated assignment procedure. If the person was qualified for a DMV program, he was either sent to that program (e.g., First Group Interview)

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or was held out as a control comparison case without receiving the rehabilitation. Two-thirds of the cases were referred to the program, while one-third served as controls. In this manner, control groups were comprised for each DMV rehabilitation option, excepting the set of three "other sanctions." If the person was not qualified for a DMV program, the analyst randomly assigned the offender to the Driver Improvement Program, Programmed Learning or DIP/PL control, with one-third of the eligible cases entering each group.

The remaining two-thirds of the offender population continued through the system by a process similar to that just described, but without predesignated assignments and control groups. The basic difference was that after a determination of guilt, the follow-up actions were based upon the magistrate's best judgment, rather than by random assignment. This portion of the system represents SAFE activities that would probably be followed after the experimental evaluation project had terminated and represents two kinds of offenders: (a) those whose appearance under a SAFE-relevant citation was mandatory or (b) defendants who appear voluntarily to have their cases heard by a magistrate (walk-ins). Walk-ins were not included for impact evaluation with mandatory cases subject to predesignated adjudication follow-up. All walk-ins were referred to rehabilitation, analyst diagnosis or no action at the magistrate's discretion. Following diagnosis of the cases he analyzed, the analyst made one of three best-judgment decisions:

1. Recommend license suspension;

2. Refer to an appropriate rehabilitation program; or

3. Take no further action.

Referrals to DMV rehabilitation programs were made for offenders with specific driving problems, and no cases were held out for control comparisons.

The foregoing represents the basic design for assessing the effectiveness of SAFE adjudication and rehabilitation. Outcomes of the various treatments, and information to which they may be related, were measured in several ways. The principal data collection measures were a case data control sheet and DMV and TVB records. The control sheet provided information pertinent to case background, defendant characteristics, adjudication, DIA actions, rehabilitation referrals and case updates (rehabilitation completion, fine payment). Recidivism data were collected through the State driver records. (Details of the evaluation information management system are available in the SAFE Detailed Plan, August, 1974.) Additional data were secured to relate to project objectives of "reducing accidents and violations," "unburdening the courts" and "implementing acceptable programs." The basic

experimental/control design was supplemented with more general "before-after" comparisons of accidents and violations. To this end, monthly traffic statistics were provided by the Seattle Traffic Engineering Department. Records of caseflow and dispositions in the regular municipal court were obtained through Monthly Court Activity Summaries.

e) Significant Results

Case Processing: Volume and Speed

During 21½ months of operation, SAFE processed 41,660 minor traffic cases, of which 65% involved mandatory appearances; 36% were speeding cases and 28% were multiple offenders, having three citations in one year or four in two years. The caseload averaged 101 per day or 505 per week. Most of the defendants were men (72%), white (83%), relatively young (65% between the ages of 18 and 34) with low-to-moderate incomes (88% earned less than $15,000). Voluntary defendants included more women and people with better driving records.

It took an average of 52 minutes to process a SAFE case, excluding any time spent in rehabilitation programs. The defendant spent about six minutes with the magistrate and eleven minutes with the DIA. Half of the defendants had to wait less than half an hour for their hearing; 86% saw a magistrate within an hour. The times the DIA spent either counseling offenders or diagnosing their driving problems did not differ substantially.

Case Dispositions

Eighty-nine percent of the cases were judged guilty, exclusive of approximately 3.5% of the cases which were referred to court for formal trial. Offenders were fined an average of $20, of which $10 was typically suspended. For offenders assigned to rehabilitation and also fined, the amounts suspended were higher. Twenty percent of the defendants were referred to some form of rehabilitation; of these, 5,989 (73%) were assigned to Defensive Driving Courses, 1,543 (19%) were sent to First Group Interview and 668 (8%) were referred to other DMV programs. DIA's recommended driver license suspensions for less than .3% of the defendants. The exception rate on predesignated referrals was approximately 16%.

Case Processing Costs

Based on established volumes, it cost $13.22 to process a SAFE case. This estimate includes only costs associated with direct defendant processing, excluding enforcement costs and some ancillary office management costs. Comparable costs for formal court trial and bail forfeiture was $40 and $9, respectively. The diagnostic-rehabilitation component of SAFE accounted for 61% of the administrative cost. Adding

costs incurred by the defendant (fine and time) and subtracting savings due to recidivism prevention produced a net societal economic cost of $17.35 per case.

Adjudication Efficiency

The impact of SAFE on the efficiency of court operations was one of permitting the courts to maintain a manageable court docket in the face of a 25% increase in total court trials. Except for a significant increase in the fine-based court revenues, there was no consistent or reliable improvement or decrement in court performance during the SAFE program period. A comparison (across quarters) of the proportion of cases heard by the courts which were non-traffic related and the number of cases awaiting trial for various lengths of time showed similar case-load characteristics at the beginning and end of the SAFE program, albeit with marked differences between the first and second year of operation.

Equality in Adjudication

Defendants with different personal characteristics, with few exceptions, fared equally in their SAFE hearings. Only driving exposure was related to verdicts, with guilty outcomes being more common for people who reported that they typically drive fewer miles per week. Fines levied on offenders appeared superficially to vary with their sex, age, education and income. However, the effects of such personal characteristics were minimal or nil when the influence of other factors, i.e., offense committed and driving record, were partialled out (controlled). Thus, for example, while men were fined more than women, men also tended to have had poorer driving records and to have committed more serious offenses, which carry higher fines. The only characteristics related to fines, which could not be explained by other logical correlates, were the defendant's education and income. High school graduates were fined more than people with either less or more education. Except for offenders earning less than $3,000 per year, those earning more money tended to be fined less, after fine suspensions were taken into account.

Magisterial Consistency

SAFE employed three magistrates at any given time. What ultimately happened to the defendant generally did not depend on which magistrate heard his case (see Table 1). Different magistrates spent different amounts of time with defendants, differed in the average number of cases they heard in a workday, and differed in their referral patterns (i.e., referrals to court and to rehabilitation) but were consistent in their verdicts, with each finding approximately 89% guilty. While magistrates differed significantly in their fines, the magnitude of the difference (after partial fine suspensions) was on the order of only $1. Citation recidivism rates were equivalent for offenders who saw different magistrates.

TABLE 1

Summary of SAFE Hearing Activities and
Outcomes for the Three Magistrates

Activity or Outcome	Magistrate			Do the Magistrates Differ Significantly
	#1	#2	#3	
Average Cases Heard Per Working Day	42	30	24	yes
Percent of Cases Referred to Court	2.1	10.7	10.8	yes
Percent of Cases Found Guilty	87.4	86.3	88.1	no
Average Dollar Fine Per Case	19.03	20.40	21.05	yes
Average Fine After Part-Suspension	9.28	9.92	10.28	yes
Minutes Spent by Defendant in SAFE	43.07	47.87	50.07	yes
Number of Magistrate-Determined Direct Referrals to DIP	18	258	84	yes
Percent of Defendants Recidivating (SAFE citation)	8.0	9.4	8.2	no
Percent of Defendants Recidivating (Other citation)	15.6	16.7	16.3	no

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Driver Improvement Analyst Consistency

Offenders directed to post-adjudication driver improvement diagnosis and rehabilitation program referral were treated essentially the same by each of the three Driver Improvement Analysts in cases where the initial referral (to the DIA) was at the discretion of the magistrate, and DIA's had totally free choice of their actions (see Table 2). Although between-analyst variance was minimal, strong preferences for certain types of available referral actions were noted.

Attitudes Toward the SAFE Program

Defendants who experienced the SAFE process were generally favorably disposed toward the program, though their degree of satisfaction and perceptions of convenience did not differ from those of court and forfeit defendants. Most SAFE defendants thought their driving improved after their SAFE experience, with the improvement being due to having learned something new or more about driving. Sixty-five percent felt the magistrate was helpful, and 66% thought the DIA was useful. Eighty percent of those who attended rehabilitation programs considered those programs worthwhile. Defendants generally reacted well to components of the adjudication system, particularly rehabilitation.

Attitude surveys of other population groups showed that SAFE was most favorably received by the public and personnel of the host court. There were some ambiguities between the program objectives and (a) attorneys' preferences for bail forfeiture and (b) the "harder-line" viewpoint of police officers toward sentencing traffic offenders.

Impact on Subsequent Driver Performance

Although not all of the SAFE adjudication-sanctioning-rehabilitation combinations were equally effective in improving traffic offenders' subsequent driving behavior, none resulted in significantly poorer driver performance than those associated with the formal court or bail forfeiture procedures. Rather, several were found to significantly enhance performance relating to preventing and/or delaying subsequent accident and/or citation involvement.

When all of the various SAFE system components were combined and the composite effect compared with those of the formal court hearing and the bail forfeiture system, the SAFE system revealed a small, but significant, reduction in the proportion of defendants committing future moving traffic violations relative to the bail forfeiture procedure, but no differences in the proportion of drivers subsequently involved in traffic accidents (see Table 3). The SAFE system significantly delayed the commission of subsequent violations and accidents over that experienced by the defendants attending formal court hearings and also significantly delayed violations over those recidivists who had been permitted to forfeit bail (see Table 4).

TABLE 2

Summary of Major Referrals by the Three DIAs:
Percentage of Offenders to Whom Different Actions Were Applied

Action	Driver Improvement Analyst		
	#1	#2	#3
Recommend License Suspension	2.4	2.6	2.1
Refer to FGI Rehabilitation	26.8	25.8	28.5
Refer to DIP Rehabilitation	18.0	12.6	16.9
Refer to PL Rehabilitaion	1.8	2.1	1.2
Take No Action	48.6	52.6	46.7

TABLE 3.

Percent of Traffic Offenders Recidivating

	Violations	Accidents
Formal Court	36.1	10.0
Bail Forfeiture	40.5*	11.3
SAFE	35.1	11.8

*Significantly higher than the other two case-processing procedures.

TABLE 4

Mean time to Recidivism (in days)

	Violations	Accidents
Formal Court	125	141*
Bail Forfeiture	125	185
SAFE	150*	184

*Significantly different from the other two case-processing procedures.

While some of the positive impact of the program could be attributable to the informal magistrate hearings, the major benefits accrued from specific rehabilitation programs (see Table 5). Both forms of the National Safety Council's Defensive Driving Course were effect 'e in reducing violation and accident recidivism (accident recidivism reductions from roughly 17.5% to 10.5%; violation recidivism reduction from approximately 51% to 30%). DMV's Narrative Driving Program was also successful in reducing violation recidivism from 52% to 36%, but had no significant impact on accident recidivism reduction.

Not all rehabilitation programs or punitive sanctions were effective, however. DMV's First Group Interview Program had no impact on either violation or accident recidivism (Table 5) and when magistrates assigned offenders to the Defensive Driving Course, the potential benefits of that program were totally negated. The magnitude of the monetary fine imposed

had no consistently reliable relationship to recidivism rate. An insufficient number of driver license suspensions were invoked to permit meaningful evaluation of that countermeasure. The contribution to the effectiveness of the SAFE system attributable to the Driver Improvement Analysts was generally small but significantly positive.

TABLE 5

Violation and Accident Recidivism Rates

	Recidivism Rate (%)			
	Citations		Accidents	
	Treatment Group	Control Group	Treatment Group	Control Group
Defensive Driving (Lecture Course)	29.1	51.2	10.9	17.4
Defensive Driving (Prog. Learning Course)	30.6	51.2	10.2	17.4
Narrative Driving Course	36.4	51.6	15.2	16.1
First Group Interview	50.8	50.0	18.1	14.7

Conclusion

Although not all components and combinations of components were equally effective in improving traffic case adjudication efficiency and effectiveness, there were certain subsystems which revealed considerable promise as a strong nucleus for the development of an optimal driver control system. Time and money constraints precluded the performance of a detailed analysis of each of the system elements which were available for assessment in this complex system, but the grouping of elements into system components did permit an adequate and meaningful evaluation of the major features constituting the SAFE system. The data generated by the SAFE program should provide a sound basis for developing new and improved adjudication-sanction-rehabilitation procedures superior to those which have traditionally been in effect for many, many years.

APPENDIX II

SAFE "AU/AA" RECORD DESCRIPTION

POSITION	TYPE	DESCRIPTION
1 - 2	(2) BIN	Block Length
3 - 4	(2) BIN	Binary "0000" Constant
5 - 6	(2) BIN	Record Length
7 - 8	(2) BIN	Binary "0000" Constant
9 - 20	(12) A/N	P.I.C. Driver License Number
21 - 22	(2) A/N	Type Record "AU" Constant
23 - 32	(10) BIN	Zeros
33 - 41	(9) N	Case # Assigned by Seattle Violations Bureau
42 - 52	(11) N	DMV Computer Time Stamp
		XX = Year (74)
		XXX = Day (Feb 2 - 034)
		XX = Hour (Military)
		XX = Minute (Military)
		XX = Seconds (Military)
53 - 54	(2) A/N	SAFE ID "S!" and Exception Reason Code
55 - 60	(6) N	Date School Started
		Year
		Month
		Day
61 - 66	(6) N	Date School Completed
		Year
		Month
		Day
67 - 69	(3) N	Completion grade of PL school
		"FTA" if failed to appear
70 - 71	(2) BIN	Record Length
72 - 73	(2) BIN	Binary "0000" Constant
74 - 85	(12) A/N	P.I.C. Driver License Number

POSITION	TYPE	DESCRIPTION
86 - 87	(2) A/N	Type Record "AA" Constant
88 - 93	(6) N	Administration Date in SAFE
		XX = Year (74)
		XX = Month (Jan 01)
		XX = Day (Jan 2 - 02)
94 - 97	(4) N	Administration Time in SAFE
		XX = Hours Military
		XX = Minutes Military
98 - 106	(9) N	Case # Assigned by Seattle Violations Bureau
107 - 117	(11) N	DMV Computer Time Stamp
		XX = Year (74)
		XXX = Day (Feb 2 - 034)
		XX = Hour (Military)
		XX = Minute (Military)
		XX = Seconds (Military)
118 - 119	(2) A/N	SAFE ID "SI" Constant
120 - 122	(3) N	Total miles driven Business/Private weekly
123 - 125	(3) N	Total Private miles driven weekly
126 - 128	(3) N	Total Business miles driven weekly
129 - 131	(3) N	Percent of miles Business/Pleasure driven in Seattle
132 - 133	(2) A/N	Education Code Completed
		01 - 12 = High School
		C1 - C4 = College
		G5 - G8 = Graduate School
134	(1) N	Income Code
		1 = Below $3,000 4 = $15,000-20,000
		2 = $3,001 - $8,000 5 = Above $20,000
		3 - $8,001 - $15,000
135 - 136	(2) N	Number of Appearances in SAFE including this time

POSITION	TYPE	DESCRIPTION
137	(1) N	Person Code

1 = Caucasian
2 = Black
3 - Native American
4 = Oriental
5 = Other

| 138 | (1) N | Judge Code |

0 = None Seen
4 = Corbett
5 = Towne
6 - Johnson
7 - Yanick

| 139 - 141 | (3) A/N | Pre Designated Code (Direct Sentencing) |
| 142 | (1) N | Magistrate Code |

0 = None Seen
1 = Vercimak
2 = 'awrence
3 - /..acher

| 143 - 153 | (11) N | Adjudication Time/Date In: |

5 position time = XXXXX (24 hrs Military time with M)

6 position date = YR/MO/DY

| 154 | (1) N | Type of SAFE |

1 = SAFE, Mandatory
2 - SAFE, Walk-In
3 - COURT, Mandatory
4 - COURT, Walk-In
5 - FORFEIT

| 155 - 156 | (2) N | Offense Entry Recode |
| 157 - 167 | (11) N | Violation Time/Date |

5 position time = XXXXX (24 hrs Military time with "M")

6 position date = YR/MO/DY

POSITION	TYPE	DESCRIPTION
163	(1) A	Accident Involvement this violation
		N = No / Y = Yes
169	(1) A	If Accident, was there Property Damage
		N = No / Y = Yes
070	(1) A	If Accident, were there injuries
		N = No / Y = Yes
171	(1) A	If Accident, were there fatalities
		N = No / Y = Yes
172 - 173	(2) A/N	DMV Violation Code Violation #1
174	(1) A	Driver's Plea
		N = Not Guilty / G - Guilty
175	(1) A	Judgement
		G = Guilty
		N = Not Guilty
176	(1) A	DMV Disposition Code for Violation #1
		D = Deferred
		S = Total Fine Suspended
		T = Traffic School
		X = Dismissed
		W = Warning
		C = Community Service
		Blank = Other
177 - 181	(5) A/N	Same Format as 172/176 for Violation #2
182 - 186	(5) A/N	Same Format as 172/176 for Violation #3
187 - 191	(5) A/N	Same Format as 172/176 for Violation #4
192 - 194	(3) A/N	Dollar Fine Paid
195 - 197	(3) N	Dollar Fine Suspended
198	(1) A	Direct Sentence Code
		Magistrate I - Improvement Program
		P = Program Learning
		C = Control
		Judge D = Defensive Driving Course
		O = Other
		N = None

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POSITION	TYPE	DESCRIPTION
199 - 203	(5) N	Magistrate Out Time/Date
		5 position time - XXXXX (24 hrs time
		plus Military (M)
204 - 205	(2) A/N	2 position Action Code
ʑ06 - 207	(2) A/N	2 position Reason Code
208	(1) A	Driver Improvement Analyst Code
209 - 219	(11) N	D.I.A. In Time/Date
		5 position time - XXXXX (24 hr., time) plus
		Military (M)
		6 position Date - XX = Year (74)
		XX = Month (Jan 01)
		XX = Day (Jan 2 - 02)
220 - 224	(5) N	D.I.A. Out Time/Date
		5 position Time - XXXXX (24 hrs time) plus
		Military (M)
225 - 230	(6) N	Date Driver was scheduled to go to Driver
		Improvement Program.
		XX = Year (74)
		XX = Month (Jan - 01)
		XX - Day (Jan 2 - 02)
231 - 233	(3) A/N	Time Pay Allowed
		∅∅∅ = No
		1∅∅ = Yes
234 - 274	(45) A/N	Comment Relative to Magistrate
275 - 315	(45) A/N	Comment Relating to D.I.A..
316 - 475	(160) PROG N	DMV Driver's Record

A. Prior Driving Record.
   - 10 fields consisting of date and violation
     type/accident.

POSITION	TYPE	DESCRIPTION

      - most recent incident in right-hand field.

      - if greater th.:n 10, include the 10 most recent incidents only.

      - include only incidents that <u>precede</u> the SAFE entry offense date (i.e.,"Violation Time/Date" in position 157-167 on AU/AA record).

      - Each Field is 8 characters.

         <u>Position</u>

         1 - 4 - Julian date.

         5 - 6 - Citation type (∅= no citation).

         7 - Accident

            1 - yes

            2 - no

         8 - Disposition

   B. Subsequent Driving Record.

      - Date and violation type/accident of first 10 incidents after SAFE entry offense date.

POSITION	TYPE	DESCRIPTION
476 - 478	(3) PROG N	Driver age at SAFE appearance date.
479	(1) PROG N	Driver Sex.
480	(1) PROG N	Rehabilitation Route Code (Based on Action-Reason Codes).
451 - 482	(2) PROG N	Rehabilitation Assignment Code (Based on Action-Reason Codes and Direct Sentence Code).

APPENDIX III

Tables A1 through A9 summarize group composition for the entire predesignation sample and for individual assignment-completion status conditions. Tables A10 and A11 summarize accident and citation recidivism for the same sample.

TABLE A1

MEAN AGE AS A FUNCTION OF PREDESIGNATION
AND STATUS GROUP

PREDESIG	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
NO DIA DIP	1	31.75 / 409	24.11 / 64	0.0 / 0	36.43 / 104	30.70 / 43	34.24 / 17	29.29 / 17	31.68 / 653
NO DIA PL1	2	30.33 / 166	24.12 / 34	0.0 / 0	32.98 / 57	31.95 / 58	38.90 / 10	25.11 / 9	30.54 / 334
NO DIA PL2	3	32.62 / 190	27.87 / 52	0.0 / 0	34.79 / 57	28.00 / 2	42.83 / 6	29.00 / 1	32.34 / 308
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	31.38 / 238	26.08 / 12	32.69 / 16	32.24 / 434	0.0 / 0	31.85 / 700
COUNSEL DIP	11	33.28 / 375	26.59 / 69	0.0 / 0	27.48 / 46	34.19 / 236	35.08 / 38	35.31 / 13	32.74 / 777
COUNSEL PL1	12	30.91 / 176	24.41 / 39	0.0 / 0	26.60 / 30	33.06 / 114	30.00 / 22	32.00 / 6	30.52 / 387
COUNSEL PL2	13	32.90 / 165	26.18 / 44	0.0 / 0	31.53 / 15	38.03 / 74	39.40 / 10	48.00 / 1	33.37 / 309
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	30.23 / 207	34.32 / 19	22.25 / 4	33.32 / 505	0.0 / 0	32.41 / 735
DIA DIAG DIP	21	33.54 / 626	26.62 / 120	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	32.26 / 27	32.42 / 773
DIA DIAG PL1	22	32.12 / 292	26.74 / 53	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	31.20 / 5	31.29 / 350
DIA DIAG PL2	23	30.37 / 303	27.57 / 83	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	32.80 / 5	29.81 / 391
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	30.85 / 443	0.0 / 0	0.0 / 0	33.28 / 705	0.0 / 0	32.34 / 1148
DIA DIAG	28	27.63 / 267	23.21 / 34	0.0 / 0	29.10 / 91	33.25 / 827	35.95 / 318	28.35 / 117	32.08 / 1654
COLUMN TOTAL		31.84 / 2968	26.08 / 592	30.85 / 888	32.02 / 431	33.47 / 1374	33.57 / 2065	29.60 / 201	31.97 / 8519

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TABLE A2

PROPORTION MALES AS A FUNCTION OF
PREDESIGNATION AND STATUS GROUP

	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
PREDESIG									
NO DIA DIP	1	0.72 408	0.88 64	0.0 0	0.76 104	0.79 43	0.71 17	0.76 17	0.74 653
NO DIA PL1	2	0.75 166	0.82 34	0.0 0	0.81 57	0.78 58	0.70 10	0.56 9	0.77 334
NO DIA PL2	3	0.74 190	0.85 52	0.0 7	0.74 57	1.00 2	0.67 6	1.00 1	0.76 309
NO DIA CONTROL	4	0.0 0	0.0 0	0.74 38	0.83 12	0.81 16	0.73 434	0.0 0	0.74 700
COUNSEL DIP	11	0.72 375	0.75 69	0.0 0	0.74 46	0.74 236	0.87 38	0.92 13	0.74 777
COUNSEL PL1	12	0.72 176	0.79 39	0.0 0	0.80 30	0.76 114	0.77 22	0.67 6	0.75 387
COUNSEL PL2	13	0.70 165	0.75 44	0.0 0	0.80 15	0.86 74	0.60 10	1.00 1	0.75 309
COUNSEL CONTROL	14	0.0 0	0.0 0	0.60 207	0.95 19	0.50 4	0.72 505	0.0 0	0.75 735
DIA DIAG DIP	21	0.68 626	0.75 120	0.0 0	0.0 0	0.^ 0	0.0 0	0.59 27	0.68 773
DIA DIAG PL1	22	0.67 292	0.79 53	0.0 0	0.0 0	0.0 0	0.0 0	0.40 5	0.69 350
DIA DIAG PL2	23	0.65 303	0.72 83	0.0 0	0.0 0	0.0 0	0.0 0	0.40 5	0.66 391
DIA DIAG CONTROL	24	0.0 0	0.0 0	0.74 443	0.0 0	0.0 0	0.70 705	0.0 0	0.71 1148
DIA DIAG	28	0.69 267	0.91 34	0.0 0	0.76 91	0.76 827	0.77 318	0.87 117	0.79 1654
COLUMN TOTAL		0.72 2968	0.79 592	0.75 888	0.77 431	0.76 1374	0.72 2065	0.79 201	0.74 8519

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MEAN NUMBER OF MILES REPORTED DRIVEN PER WEEK AS A
FUNCTION OF PREDESIGNATION AND STATUS GROUP

	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNCWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
PREDESIG									
NO DIA DIP	1	177.97 / 408	174.69 / 64	0.0 / 0	167.38 / 104	163.42 / 43	160.24 / 17	154.71 / 17	173.93 / 653
NO DIA PL1	2	171.16 / 166	138.06 / 34	0.0 / 0	155.21 / 57	227.74 / 58	122.00 / 10	120.89 / 9	172.07 / 334
NO DIA PL2	3	184.29 / 190	178.68 / 52	0.0 / 0	174.58 / 57	425.00 / 2	165.83 / 6	0.0 / 1	182.19 / 308
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	161.74 / 238	269.17 / 12	141.88 / 16	175.38 / 434	0.0 / 0	171.59 / 700
COUNSEL DIP	11	155.42 / 375	173.62 / 69	0.0 / 0	202.50 / 46	154.57 / 236	188.76 / 38	127.69 / 13	160.73 / 777
COUNSEL PL1	12	203.61 / 176	142.82 / 39	0.0 / 0	181.33 / 30	188.40 / 114	242.95 / 22	125.00 / 6	192.29 / 387
COUNSEL PL2	13	144.61 / 165	139.02 / 44	0.0 / 0	232.67 / 15	181.50 / 74	126.50 / 10	500.00 / 1	157.49 / 309
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	206.00 / 207	189.47 / 19	145.00 / 4	172.38 / 505	0.0 / 0	182.14 / 735
DIA DIAG DIP	21	150.12 / 626	166.40 / 120	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	170.67 / 27	153.37 / 773
DIA DIAG PL1	22	155.35 / 292	137.15 / 53	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	115.00 / 5	152.01 / 350
DIA DIAG PL2	23	153.60 / 303	186.43 / 83	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	202.00 / 5	161.19 / 391
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	164.70 / 443	0.0 / 0	0.0 / 0	178.06 / 705	0.0 / 0	172.94 / 1148
DIA DIAG	28	237.51 / 267	96.03 / 34	0.0 / 0	158.04 / 91	166.11 / 827	193.17 / 318	236.72 / 117	186.09 / 1654
COLUMN TOTAL		169.58 / 2968	160.17 / 592	173.58 / 888	175.55 / 431	169.36 / 1374	173.62 / 2065	202.74 / 201	172.58 / 8519

TABLE A4

MEAN NUMBER OF PRIOR ACCIDENTS AS A FUNCTION
OF PREDESIGNATION AND STATUS GROUP

	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CHOL UNKNOWN 7	ROW TOTAL
PREDESIG									
NO DIA DIP	1	0.69 / 408	1.00 / 64	0.0 / 0	1.16 / 104	0.72 / 43	1.12 / 17	0.53 / 17	0.80 / 653
NO DIA PL1	2	0.86 / 166	0.79 / 34	0.0 / 0	0.89 / 57	1.21 / 58	0.30 / 10	0.11 / 9	0.83 / 334
NO DIA PL2	3	0.68 / 190	0.79 / 52	0.0 / 0	0.91 / 57	1.00 / 2	0.33 / 6	1.00 / 1	0.74 / 308
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	0.81 / 238	1.08 / 12	1.88 / 16	0.61 / 434	0.0 / 0	0.72 / 700
COUNSEL DIP	11	0.05 / 375	0.75 / 69	0.0 / 0	0.78 / 46	0.99 / 236	1.00 / 38	0.38 / 13	0.88 / 777
COUNSEL FL1	12	1.01 / 176	0.92 / 39	0.0 / 0	1.47 / 30	1.11 / 114	1.09 / 22	0.50 / 6	1.06 / 387
COUNSEL PL2	13	0.71 / 165	0.75 / 44	0.0 / 0	0.93 / 15	1.04 / 74	1.10 / 10	0.0 / 1	0.82 / 309
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	0.90 / 207	1.32 / 19	1.75 / 4	0.62 / 505	0.0 / 0	0.72 / 735
DIA DIAG DIP	21	0.73 / 626	0.84 / 120	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	0.70 / 27	0.75 / 773
DIA DIAG PL1	22	0.86 / 292	0.75 / 53	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	1.20 / 5	0.85 / 350
DIA DIAG PL2	23	0.60 / 303	0.61 / 83	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	0.80 / 5	0.60 / 391
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	0.81 / 443	0.0 / 0	0.0 / 0	0.60 / 705	0.0 / 0	0.68 / 1148
DIA DIAG	28	0.99 / 267	1.15 / 34	0.0 / 0	1.32 / 91	1.08 / 827	0.63 / 318	1.02 / 117	0.99 / 1654
COLUMN TOTAL		0.78 / 2968	0.82 / 592	0.83 / 888	1.10 / 431	1.07 / 1374	0.63 / 2065	0.83 / 201	0.82 / 8519

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TABLE A5

MEAN NUMBER OF PRIOR CITATIONS AS A FUNCTION
OF PREDESIGNATION AND STATUS GROUP

	MEAN COUNT	ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
PREDESIG									
NO DIA DIP	1	2.64	4.55	0.0	3.00	4.16	3.06	2.47	2.99
		408	64	0	104	43	17	17	653
NO DIA PL1	2	3.06	3.50	0.0	3.75	4.84	1.50	1.33	3.44
		166	34	0	57	58	10	9	334
NO DIA PL2	3	2.36	3.92	0.0	2.61	4.50	2.83	1.00	2.69
		190	52	0	57	2	6	1	308
NO DIA CONTROL	4	0.0	0.0	3.21	5.00	4.94	2.18	0.0	2.64
		0	0	238	12	16	434	0	700
COUNSEL DIP	11	2.47	3.55	0.0	4.43	3.68	3.13	2.00	3.07
		375	69	0	46	236	38	13	777
COUNSEL PL1	12	3.11	4.49	0.0	4.20	3.91	4.00	2.17	3.60
		176	39	0	30	114	22	6	387
COUNSEL PL2	13	2.30	2.89	0.0	4.73	3.27	4.00	2.00	2.79
		165	44	0	15	74	10	1	309
COUNSEL CONTROL	14	0.0	0.0	3.46	4.95	6.75	2.22	0.0	2.67
		0	0	207	19	4	505	0	735
DIA DIAG DIP	21	2.12	3.32	0.0	0.0	0.0	0.0	1.37	2.28
		626	120	0	0	0	0	27	773
DIA DIAG PL1	22	2.44	3.36	0.0	0.0	0.0	0.0	2.40	2.58
		292	53	0	0	0	0	5	350
DIA DIAG PL2	23	1.69	2.69	0.0	0.0	0.0	0.0	1.00	1.90
		303	83	0	0	0	0	5	391
DIA DIAG CONTROL	24	0.0	0.0	2.61	0.0	0.0	2.19	0.0	2.35
		0	0	443	0	0	705	0	1148
DIA DIAG	28	5.47	5.91	0.0	3.52	3.75	3.14	5.91	4.10
		267	34	0	91	827	318	117	1654
COLUMN TOTAL		2.66	3.65	2.97	3.60	3.81	2.39	4.19	2.97
		2968	592	888	431	1374	2065	201	8519

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TABLE A6

MEAN REPORTED HIGHEST GRADE COMPLETED AS A
FUNCTION OF PREDESIGNATION AND STATUS GROUP

PREDESIG	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSICNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
NO DIA DIP	1	12.97 / 401	12.83 / 59	0.0 / 0	13.20 / 102	12.88 / 41	12.59 / 17	13.00 / 17	12.98 / 637
NC DIA PL1	2	12.67 / 162	12.22 / 32	0.0 / 0	12.79 / 53	12.72 / 57	13.22 / 9	12.11 / 9	12.65 / 322
NO DIA PL2	3	13.20 / 187	12.37 / 52	0.0 / 0	13.09 / 54	14.00 / 2	1.33 / 5	10.00 / 1	12.99 / 302
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	12.88 / 228	13.42 / 12	12.29 / 14	13.05 / 421	0.0 / 0	12.98 / 675
COUNSEL DIP	11	12.73 / 370	12.40 / 65	0.0 / 0	13.21 / 42	13.05 / 226	12.31 / 35	13.00 / 12	12.81 / 750
COUNSEL PL1	12	12.96 / 172	12.44 / 39	0.0 / 0	11.63 / 30	12.25 / 110	13.05 / 21	12.63 / 6	12.60 / 378
COUNSEL PL2	13	13.35 / 158	11.78 / 41	0.0 / 0	13.13 / 15	13.18 / 66	12.40 / 10	16.00 / 1	13.05 / 291
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	12.57 / 199	12.07 / 15	13.50 / 4	13.10 / 487	0.0 / 0	12.93 / 705
DIA DIAG DIP	21	12.65 / 601	12.22 / 115	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	12.46 / 26	12.58 / 742
DIA DIAG PL1	22	12.89 / 289	12.21 / 52	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	11.40 / 5	12.76 / 346
DIA DIAG PL2	23	12.92 / 290	12.73 / 82	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	12.75 / 4	12.88 / 376
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	12.94 / 433	0.0 / 0	0.0 / 0	12.95 / 685	0.0 / 0	12.95 / 1118
DIA DIAG	28	12.81 / 254	12.27 / 33	0.0 / 0	13.00 / 88	13.21 / 804	12.71 / 303	12.62 / 110	12.98 / 1592
COLUMN TOTAL		12.86 / 2884	12.38 / 570	12.84 / 860	12.94 / 411	13.06 / 1324	12.95 / 1994	13.61 / 191	12.88 / 8234

NUMBER OF MISSING OBSERVATIONS =   285

TABLE A7

DISTRIBUTION OF REPORTED YEARLY INCOME IN $1,000's FOR PREDESIGNATION GROUP

	COUNT ROW PCT	INCOME LT 3K 1.I	3K - 8K 2.I	8K - 15K 3.I	15K - 20 K 4.I	GT 20K 5.I	ROW TOTAL
PREDESIG							
NO DIA DIP	1.	166 27.4	186 30.7	180 29.8	43 7.1	30 5.0	605 7.8
NO DIA PL1	2.	119 38.1	100 32.1	61 19.6	24 7.7	8 2.6	312 4.0
NO DIA PL2	3.	85 30.1	75 26.6	79 28.0	28 9.9	15 5.3	282 3.7
NO DIA CONTROL	4.	186 30.0	182 29.4	170 27.4	46 7.4	36 5.8	620 8.0
COUNSEL DIP	11.	181 25.9	230 33.0	194 27.8	55 7.9	38 5.4	698 9.0
COUNSEL PL1	12.	118 33.0	119 33.2	87 24.3	21 5.9	13 3.6	358 4.6
COUNSEL PL2	13.	73 26.1	73 26.1	76 27.1	38 13.6	20 7.1	280 3.6
COUNSEL CONTROL	14.	199 30.1	218 32.9	168 25.4	43 6.5	34 5.1	662 8.6
DIA DIAG DIP	21.	227 32.4	230 32.9	196 28.0	27 3.9	20 2.9	700 9.1
DIA DIAG PL1	22.	105 32.6	97 30.1	87 27.0	22 6.8	11 3.4	322 4.2
DIA DIAG CONTROL	24.	317 29.8	306 28.7	299 28.1	86 8.1	57 5.4	1065 13.8
DIA DIAG	28.	375 25.6	473 32.2	433 29.5	104 7.1	82 5.6	1467 19.0
COLUMN TOTAL		2271 29.4	2393 31.0	2114 27.4	566 7.3	376 4.9	7720 100.0

CHI SQUARE = 105.88501 WITH 48 DEGREES OF FREEDOM   SIGNIFICANCE = 0.0000

NUMBER OF MISSING OBSERVATIONS = 799

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TABLE A8

RACIAL DISTRIBUTION FOR PREDESIGNATION GROUPS

		RACE					
COUNT ROW PCT		IWHITE	BLACK	NAT AMRC	ORIENTAL	OTHER	ROW TOTAL
PREDESIG		1.I	2.I	3.I	4.I	5.I	
NO DIA DIP	1.	463 85.3	48 8.8	2 0.4	17 3.1	13 2.4	543 7.8
NO DIA PL1	2.	228 82.9	34 12.4	1 0.4	5 1.8	7 2.5	275 4.0
NO DIA PL2	3.	227 90.1	18 7.1	0 0.0	2 0.8	5 2.0	252 3.6
NO DIA CONTROL	4.	580 85.5	64 9.4	3 0.4	16 2.4	15 2.2	678 9.7
COUNSEL DIP	11.	470 83.8	65 11.6	4 0.7	11 2.0	11 2.0	561 8.1
COUNSEL PL1	12.	249 83.3	31 10.4	2 0.7	10 3.3	7 2.3	299 4.3
COUNSEL PL2	13.	194 87.0	15 6.7	0 0.0	9 4.0	5 2.2	223 3.2
COUNSEL CONTROL	14.	614 85.9	74 10.3	1 0.1	18 2.5	8 1.1	715 10.3
DIA DIAG DIP	21.	677 87.6	56 7.2	6 0.8	20 2.6	14 1.8	773 11.1
DIA DIAG PL1	22.	301 86.0	31 8.9	1 0.3	12 3.4	5 1.4	350 5.0
DIA DIAG PL2	23.	338 86.4	30 7.7	0 0.0	9 2.3	14 3.6	391 5.6
DIA DIAG CONTROL	24.	977 85.1	101 8.8	8 0.7	37 3.2	25 2.2	1148 16.5
DIA DIAG	28.	624 83.5	83 11.1	6 0.8	13 1.7	21 2.8	747 10.7
COLUMN TOTAL		5942 85.4	650 9.3	34 0.5	179 2.6	150 2.2	6955 100.0

CHI SQUARE = 54.35730 WITH 48 DEGREES OF FREEDOM   SIGNIFICANCE = 0.2452

NUMBER OF MISSING OBSERVATIONS = 1564

TABLE A9

SAFE ENTRY OFFENSE DISTRIBUTION
FOR PREDESIGNATION GROUPS

COUNT ROW PCT	ENTOFF ACCIDENT 1.I	SPEEDING 2.I	MULTIPLE 3.I	LICENSE 4.I	NEG DRIV 5.I	FAIL TO YIELD 6.I	FOLLOW TOOCLOSE 7.I	TWO OR MORE VIO 8.I	ROW TOTAL
PREDESIG									
1. NO DIA DIP	181 28.1	255 39.6	96 14.9	11 1.7	22 3.4	17 2.6	14 2.2	48 7.5	644 7.7
2. NO DIA PL1	65 20.0	121 37.2	71 21.8	11 3.4	8 2.5	4 1.2	4 1.2	41 12.6	325 3.9
3. NO DIA PL2	83 26.9	127 41.2	32 10.4	0 0.0	8 2.6	32 10.4	11 3.6	15 4.9	300 3.7
4. NO DIA CONTROL	170 24.4	287 41.1	102 14.6	18 2.6	26 3.7	37 5.3	14 2.0	44 6.3	698 8.3
11. COUNSEL DIP	182 23.9	316 41.4	122 16.0	10 1.3	22 2.9	40 5.2	24 3.1	47 6.2	763 9.1
12. COUNSEL PL1	92 24.4	155 41.1	66 17.5	6 1.6	6 1.6	9 2.4	2 0.5	41 10.9	377 4.5
13. COUNSEL PL2	81 26.2	134 43.4	34 11.0	0 0.0	13 4.2	29 9.4	8 2.6	10 3.2	309 3.7
14. COUNSEL CONTROL	196 26.8	302 41.4	100 13.7	10 1.4	21 2.9	43 5.9	20 2.7	38 5.2	730 8.7
21. DIA DIAG DIP	282 36.5	309 40.0	59 7.6	2 0.3	35 4.5	45 5.8	17 2.2	24 3.1	773 9.2
22. DIA DIAG PL1	114 32.6	154 44.0	36 10.3	3 0.9	9 2.6	9 2.6	4 1.1	21 6.0	350 4.2
23. DIA DIAG PL2	124 31.7	166 42.5	17 4.3	1 0.3	19 4.9	40 10.2	16 4.1	8 2.0	391 4.7
24. DIA DIAG CONTROL	291 25.3	538 46.9	112 9.8	20 1.7	27 2.4	64 5.6	24 2.1	72 6.3	1148 13.7
28. DIA DIAG	296 18.6	594 37.4	373 23.5	43 2.7	32 2.0	77 4.8	30 1.9	145 9.1	1590 18.9
COLUMN TOTAL	2157 25.7	3458 41.1	1220 14.5	135 1.6	248 3.0	446 5.3	188 2.2	554 6.6	8406 100.0

CHI SQUARE = 536.68286 WITH 84 DEGREES OF FREEDOM   SIGNIFICANCE = 0.0000

NUMBER OF MISSING OBSERVATIONS = 113

TABLE A10

PERCENTAGE ACCIDENT RECIDIVISM AS A FUNCTION OF PREDESIGNATION AND STATUS GROUP

PREDESIG	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
NO DIA DIP	1	13.48 / 408	17.19 / 64	0.0 / 0	18.27 / 104	25.58 / 43	11.76 / 17	5.88 / 17	15.16 / 653
NO DIA PL1	2	16.27 / 166	20.59 / 34	0.0 / 0	24.56 / 57	13.79 / 58	20.00 / 10	11.11 / 9	17.66 / 334
NO DIA PL2	3	18.95 / 190	13.46 / 52	0.0 / 0	8.77 / 57	50.00 / 2	0.0 / 6	0.0 / 1	15.91 / 308
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	12.61 / 233	0.0 / 12	18.75 / 16	16.59 / 434	0.0 / 0	15.00 / 700
COUNSEL DIP	11	15.47 / 375	20.29 / 69	0.0 / 0	13.04 / 46	13.56 / 236	15.79 / 38	7.69 / 13	15.06 / 777
COUNSEL PL1	12	15.34 / 176	28.21 / 39	0.0 / 0	13.33 / 30	13.16 / 114	0.0 / 22	16.67 / 6	14.99 / 387
COUNSEL PL2	13	11.52 / 165	13.64 / 44	0.0 / 0	6.67 / 15	14.86 / 74	20.00 / 10	0.0 / 1	12.62 / 309
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	18.36 / 207	10.53 / 19	0.0 / 4	13.47 / 505	0.0 / 0	14.69 / 735
DIA DIAG DIP	21	12.62 / 626	19.17 / 120	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	7.41 / 27	13.45 / 773
DIA DIAG PL1	22	11.99 / 292	20.75 / 53	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 5	13.14 / 350
DIA DIAG PL2	23	13.53 / 303	15.66 / 83	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 5	13.81 / 391
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	16.70 / 443	0.0 / 0	0.0 / 0	12.62 / 705	0.0 / 0	14.20 / 1148
DIA DIAG	28	21.35 / 267	20.59 / 34	0.0 / 0	12.09 / 91	14.51 / 827	13.84 / 318	23.08 / 117	16.08 / 1654
COLUMN TOTAL		14.62 / 2968	18.58 / 592	15.99 / 888	14.39 / 431	14.63 / 1374	13.80 / 2065	16.42 / 201	14.87 / 8519

TABLE A11

PERCENTAGE CITATION RECIDIVISM AS A FUNCTION
OF PREDESIGNATION AND STATUS GROUP

PREDESIG	MEAN COUNT	STATUS ASSIGNED -COMPLTE 1	ASSIGNED -FTC 2	ASSIGNED -CONTROL 3	EXCPTION OTHR TRT 4	EXCPTION NO TRT 5	STATUS UNKNOWN 6	ASS-CMPL UNKNOWN 7	ROW TOTAL
NO DIA DIP	1	36.52 / 408	62.50 / 64	0.0 / 0	34.62 / 104	44.19 / 43	47.06 / 17	35.29 / 17	39.51 / 653
NO DIA PL1	2	47.59 / 166	79.41 / 34	0.0 / 0	57.89 / 57	55.17 / 58	10.00 / 10	33.33 / 9	52.40 / 334
NO DIA PL2	3	37.37 / 190	57.69 / 52	0.0 / 0	45.61 / 57	50.00 / 2	50.00 / 6	100.00 / 1	42.86 / 308
NO DIA CONTROL	4	0.0 / 0	0.0 / 0	44.54 / 238	41.67 / 12	56.25 / 16	43.78 / 434	0.0 / 0	44.29 / 700
COUNSEL DIP	11	37.07 / 375	55.07 / 69	0.0 / 0	52.17 / 46	44.49 / 236	44.74 / 38	38.46 / 13	42.21 / 777
COUNSEL PL1	12	39.20 / 176	6..54 / 39	0.0 / 0	43.33 / 30	42.98 / 114	27.27 / 22	66.67 / 6	42.64 / 387
COUNSEL PL2	13	39.39 / 165	47.73 / 44	0.0 / 0	53.33 / 15	45.95 / 74	50.00 / 10	0.0 / 1	43.04 / 309
COUNSEL CONTROL	14	0.0 / 0	0.0 / 0	47.83 / 207	42.11 / 19	75.00 / 4	40.59 / 505	0.0 / 0	42.86 / 735
DIA DIAG DIP	21	34.50 / 626	52.50 / 120	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	25.93 / 27	37.00 / 773
DIA DIAG PL1	22	38.70 / 292	58.49 / 53	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	60.00 / 5	42.00 / 350
DIA DIAG PL2	23	36.63 / 303	51.81 / 83	0.0 / 0	0.0 / 0	0.0 / 0	0.0 / 0	20.00 / 5	39.64 / 391
DIA DIAG CONTROL	24	0.0 / 0	0.0 / 0	42.66 / 443	0.0 / 0	0.0 / 0	38.72 / 705	0.0 / 0	40.24 / 1148
DIA DIAG	28	62.55 / 267	76.47 / 34	0.0 / 0	47.25 / 91	43.53 / 827	41.82 / 318	57.26 / 117	48.13 / 1654
COLUMN TOTAL		39.72 / 2968	57.94 / 592	44.37 / 888	45.48 / 431	44.54 / 1374	40.73 / 2065	48.26 / 201	42.99 / 8519