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Report No. SR94-05-03

final report:

**Performance of Analysis and
Research Tasks for the
California Smog Check Program**

prepared under:

Contract No. A164-074

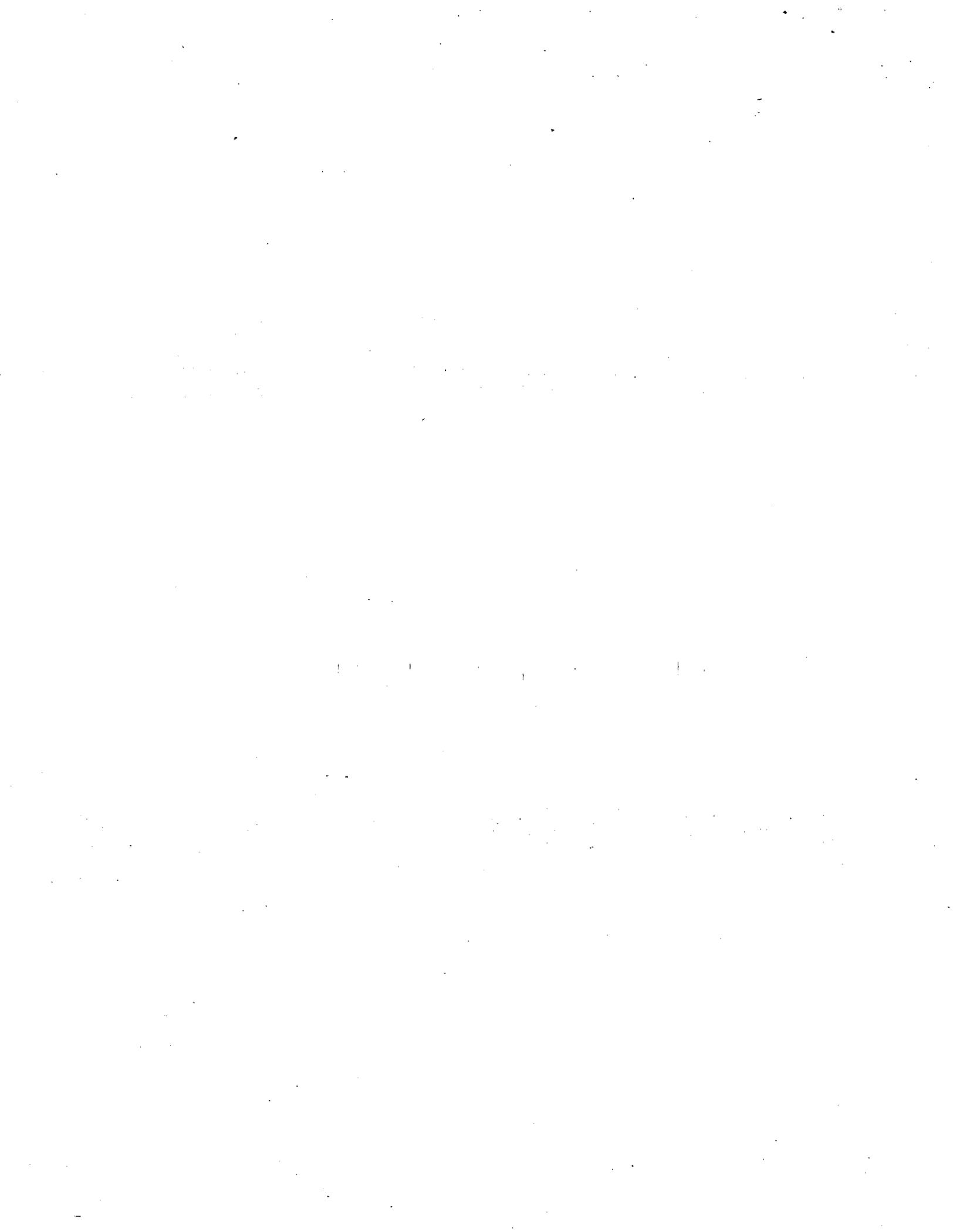
prepared for:

California Air Resources Board

May 18, 1994

prepared by:

Sierra Research, Inc.
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Final Report Under
Contract No. A164-074

**PERFORMANCE OF
ANALYSIS AND RESEARCH TASKS
FOR THE CALIFORNIA
SMOG CHECK PROGRAM**

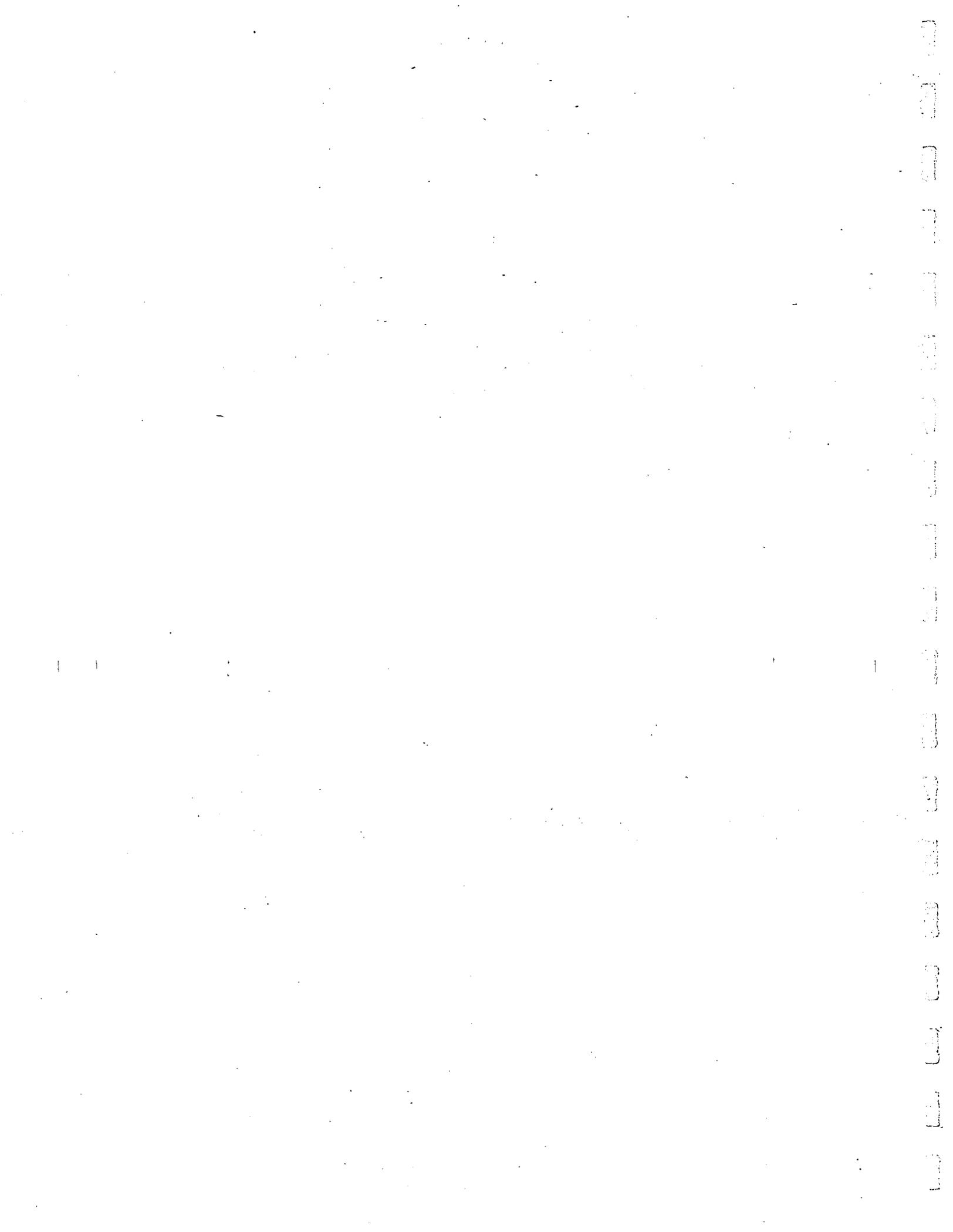
prepared for:

**California Air Resources Board
Mobile Source Division**

May 18, 1994

prepared by:

**Sierra Research, Inc.
1801 J Street
Sacramento, California 95814**



**PERFORMANCE OF
ANALYSIS AND RESEARCH TASKS
FOR THE CALIFORNIA
SMOG CHECK PROGRAM**

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SUMMARY

Under Contract No. Al64-074, Sierra Research Inc. (Sierra) was retained by the California Air Resources Board for "Performance of Analysis and Research Tasks for the California Smog Check Program." The work began in November of 1991 and was substantially completed in October of 1992. Work performed during the course of the contract included:

1. participation in periodic meetings of the I/M Review Committee;
2. providing miscellaneous staff support to the chairman of the I/M Review Committee primarily related to the preparation of draft correspondence, legislative testimony, and presentations at air pollution control-related symposia;
3. analysis of data collected under the 2nd Evaluation of the California Smog Check program;
4. preparation of draft versions of the I/M Review Committee's report to the Legislature covering the 2nd Evaluation of the Smog Check program;
5. analysis of the enforcement practices used for expired license plate tabs;
6. completion of a vehicle registration study initiated under an earlier contract that could not be completed due to lack of data required from DMV and ARB requests for additional resources related to "task order" work;
7. development of a data acquisition system for a state-owned Chevrolet Lumina; and
8. modifications to a computer model for vehicle emissions estimation to address roadway grade.

The work described above was performed under four tasks: 1) Analysis and Reporting of I/M Evaluation Data; 2) Support to the I/M Review Committee at Bi-Monthly Meetings; 3) Preparation of the 1993 Report to the Legislature; and 4) Miscellaneous Support. Under the original scope of work, it was envisioned that the contract would run through November 1993, during which time two different analyses of I/M Evaluation Program data would be performed and summarized in a report. During the course of the contract, the schedule and scope for the analysis of the I/M Evaluation Program and the 1993 report to the Legislature were changed by Senate Bill 1294. That bill substantially increased the required content of the Review Committee's next report to the Legislature and accelerated the report due date to the end of 1992.

Sierra made substantial progress on the preparation of the report under the contract. The majority of the work performed under the contract was related to the preparation of the report, which was published on February 16, 1993*. That 253-page report provides detail regarding the work performed under Tasks 1 and 3. Additional detail regarding the work performed under Tasks 2 and 4 is set forth below.

Task 2, Support to the I/M Review Committee at Bi-Monthly Meetings

Under Task 2, Sierra provided support to the I/M Review Committee during its regular meetings on October 28-29, 1992, in Sacramento and Los Angeles; and September 28, 1992, July 29, 1992, May 27, 1992, March 25, 1992, January 29, 1992, and November 20, 1991, in Sacramento. Most of the services for the I/M Review Committee under this task were of a "staff" nature and did not result in the publication of final work products by Sierra Research. One exception is an analysis requested by the Review Committee regarding law enforcement agency policies regarding expired license plate tabs. That report, edited to reflect comments previously received from the Review Committee, is attached as Appendix A.

Task 4, Miscellaneous Support

There were two major subtasks performed under Task 4 during the course of the contract. Under the first subtask, Sierra provided supplemental data collection and model refinement in support of ARB efforts to characterize vehicle operation patterns and estimate the effect of different vehicle operation patterns on emissions. The data collection portion of the effort is thoroughly described in a report to the Research Division entitled, "Characterization of Driving Patterns and Emissions from Light-Duty Vehicles in California." The modelling portion of the effort is described below.

VEHSIME Model Refinement - Under the above-referenced contract with the Research Division, Sierra performed a variety of tasks related to the modification of a "vehicle simulation" model (VEHSIME) to estimate the emissions of vehicles over a wide range of possible driving conditions. The model can be used to estimate the difference in emissions between the "LA4" driving cycle and driving patterns recorded in customer service. Under this subtask, a series of runs were performed to estimate the effect of grade variation in Los Angeles on vehicles with different power/weight ratios. In addition, the VEHSIME model was modified to allow the effect of terrain on vehicle emissions to be estimated in the absence of second-by-second data representative of the area of interest.

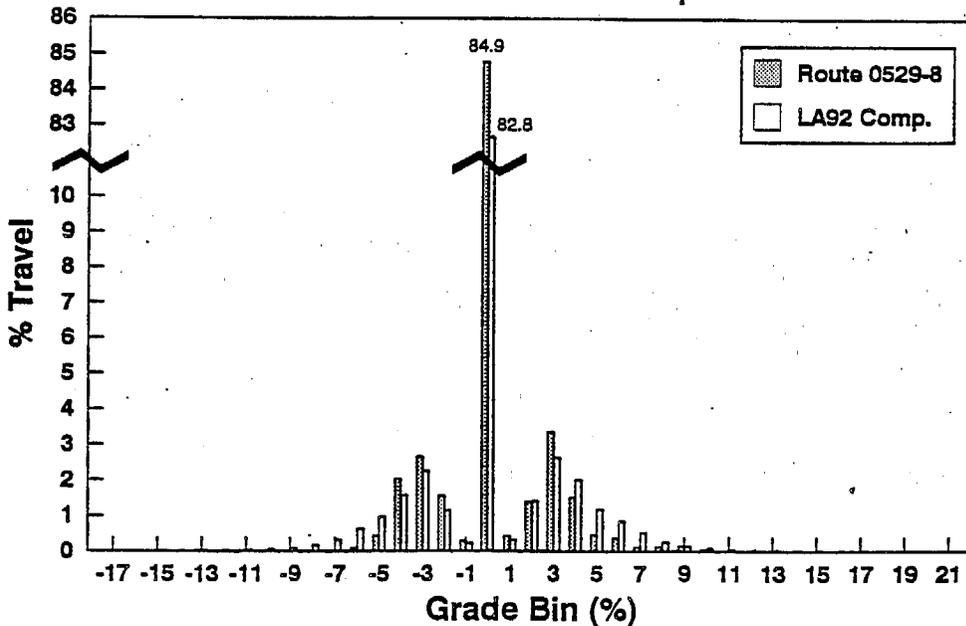
* "Evaluation of the California Smog Check Program and Recommendations for Program Improvements, Fourth Report to the Legislature," California I/M Review Committee, February 16, 1993.

Analysis of Real Time Grade Variation - The first portion of the subtask involved using second-by-second data collected in Los Angeles to estimate the effect of grade on specific trips. From all of the second-by-second data available, a single trip was selected that best represents the average distribution of travel by grade range. Figure 1 shows the percent of operation within each grade bin for the selected "trip" (Route 0529-8) compared to all of the data collected during 1992. As the figure shows, most of the route was over essentially flat terrain. Using a map for a three-way catalyst equipped engine, the VEHSIME model was run for three different power-to-weight ratios. A second map for an oxidation catalyst equipped vehicle was used at one power-to-weight ratio. For each combination, the model was run with and without the second-by-second grade values.

Figure 2 presents the results of the analysis based on using an engine map for a 3.3 litre Chrysler New Yorker engine in vehicles of three different weights: 2750, 3750, and 4750 pounds. One set of simulations includes the segment-by-segment grade values encountered along the single trip that best represents the grade variation observed during the total data collection effort. As the figure shows, there are substantial differences in predicted emissions associated with the power to weight ratio of the vehicle, but little effect of grade. One of the largest differences is with the CO emissions of the combination with the low power/weight ratio. In this case, the CO emissions are higher over flat terrain. This can occur when accelerations demanding high power levels occur on downgrades.

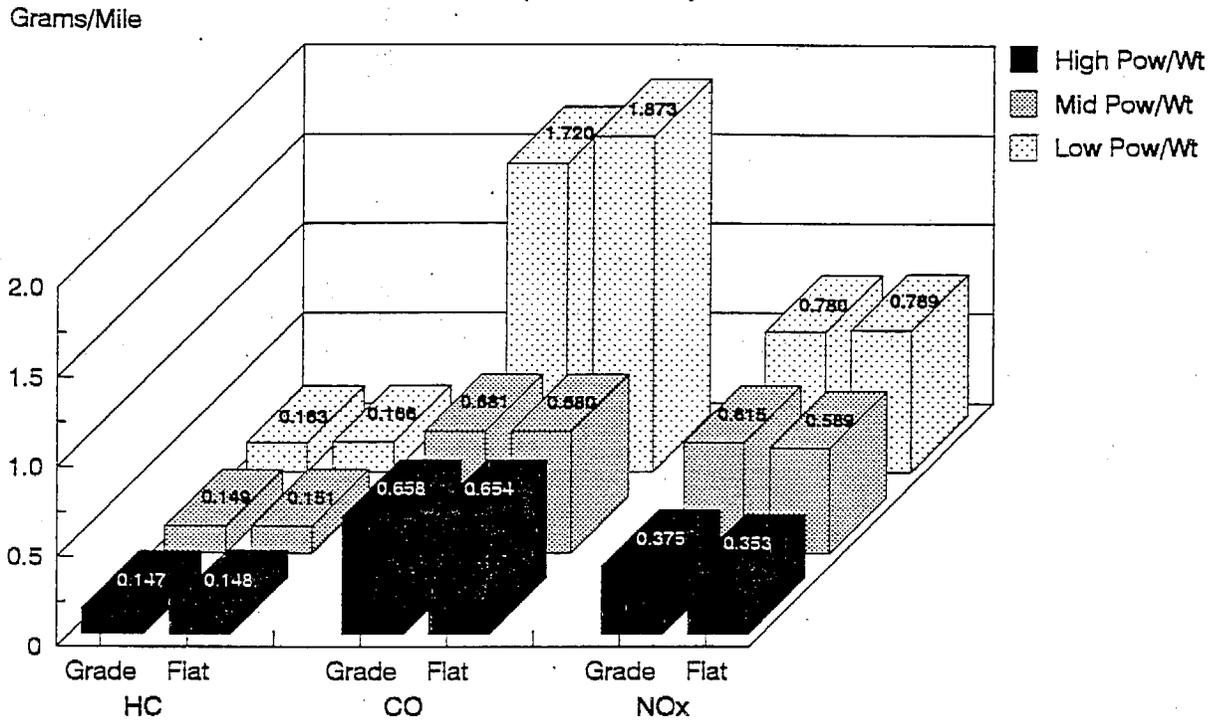
Figure 1

Road Grade Comparison of
"Best Fit" Route vs. LA92 Composite



*See the Attachment to this Summary (page 8).

Figure 2
VEHSIME Predictions of Emissions
Segment-Specific Grade vs. Flat Terrain
(Route 0529-8)



Model Modification to Estimate Terrain Effects With Standard Driving Cycles - Sierra revised the VEHSIME model to address grade in the absence of second-by-second data for a particular trip. The approach used involved the development of a new input file reflecting the terrain of the roadway network. Data collected in Los Angeles were used to determine the range of grade values to be specified on a "roadway grade distribution file." The file was structured so that each "bin" of grade contains the VMT-weighted fraction of roadway surface. The values stored in the file were computed from second-by-second data collected by the chase car, but area-specific topography combined with roadway traffic counts could be used in an area where chase car data were unavailable. The VEHSIME code changes were modified to run the model 2n-1 times, where "n" is the number of grade bins. Each run consisted of the selected speed-time trace being run from start to finish using a grade representing the mid-point of the grade range for each bin. Non-zero grade bins were run twice, once uphill and once downhill. Composite gram/mile emissions results for each run are shown in Table 1. As the table shows, there are very large differences in emissions across the range of the grade bins. The engine map for the Buick equipped with an oxidation catalyst seemed relatively well behaved, with a fairly consistent trend of higher emissions with increasing grade. The three-way catalyst map was less consistent at the extremes, showing a dip in CO and NOx emissions between 17-19% grade. This is thought to be due to

Table 1

VEHSIME Buick Ox Cat Grade Runs
(LA92 Route 081, Stabilized, Typical PW)

VEHSIME Chrysler 3WY Cat Grade Runs
(LA92 Route 081, Stabilized, Typical PW)

Grade Bin	Route 081 %Travel	Time (sec)	Distance (miles)	HC (g/mi)	CO (g/mi)	NOx (g/mi)	Time (sec)	Distance (miles)	HC (g/mi)	CO (g/mi)	NOx (g/mi)
-17%	0.00	2,808	27.30	0.099	0.001	0.096	2,808	27.31	0.047	0.248	0.021
-16%	0.00	2,808	27.30	0.099	0.001	0.097	2,809	27.31	0.048	0.249	0.021
-15%	0.00	2,807	27.28	0.100	0.045	0.101	2,808	27.28	0.048	0.251	0.021
-14%	0.00	2,807	27.28	0.099	0.001	0.102	2,808	27.28	0.048	0.253	0.021
-13%	0.03	2,807	27.25	0.099	0.001	0.105	2,807	27.24	0.049	0.255	0.021
-12%	0.01	2,806	27.24	0.099	0.001	0.110	2,808	27.23	0.049	0.255	0.022
-11%	0.02	2,805	27.20	0.099	0.001	0.117	2,805	27.19	0.049	0.257	0.022
-10%	0.01	2,804	27.13	0.099	0.001	0.130	2,804	27.11	0.050	0.259	0.023
-9%	0.00	2,803	27.10	0.099	0.002	0.150	2,801	27.02	0.052	0.265	0.024
-8%	0.00	2,802	27.04	0.098	0.002	0.192	2,802	26.93	0.055	0.277	0.025
-7%	0.00	2,797	26.94	0.098	0.003	0.246	2,798	26.82	0.060	0.307	0.031
-6%	0.10	2,798	26.91	0.099	0.096	0.344	2,795	26.73	0.067	0.343	0.047
-5%	0.44	2,795	26.81	0.097	0.005	0.497	2,793	26.67	0.078	0.394	0.075
-4%	2.03	2,797	26.83	0.096	0.006	0.729	2,799	26.77	0.090	0.451	0.118
-3%	2.66	2,799	26.88	0.097	0.029	1.120	2,800	26.76	0.107	0.507	0.191
-2%	1.57	2,798	27.18	0.102	0.515	1.641	2,798	27.06	0.129	0.607	0.315
-1%	0.29	2,792	27.06	0.117	1.530	2.227	2,789	26.97	0.145	0.660	0.484
0%	84.94	2,794	27.11	0.129	2.362	2.548	2,794	27.04	0.151	0.680	0.589
1%	0.42	2,791	27.08	0.142	3.176	2.913	2,787	26.91	0.157	0.735	0.674
2%	1.40	2,783	26.93	0.182	5.497	3.715	2,780	26.72	0.164	0.914	0.917
3%	3.35	2,763	26.74	0.264	10.751	4.429	2,751	26.15	0.180	1.962	1.117
4%	1.52	2,745	26.56	0.361	17.006	5.062	2,746	25.64	0.193	2.519	1.132
5%	0.47	2,736	26.35	0.566	30.938	5.004	2,770	24.97	0.223	3.856	1.429
6%	0.36	2,716	25.89	0.719	41.269	4.876	2,772	23.90	0.468	24.321	0.891
7%	0.11	2,729	25.70	0.862	51.065	5.017	2,773	22.76	0.289	8.610	1.161
8%	0.12	2,741	25.29	0.941	56.457	4.973	2,756	22.67	0.321	11.089	1.104
9%	0.14	2,730	24.63	0.931	58.528	5.339	2,765	22.53	0.383	15.769	1.198
10%	0.03	2,736	24.51	1.089	77.112	5.748	2,775	19.00	0.294	2.740	1.401
11%	0.00	2,731	23.94	1.335	87.138	5.748	2,768	17.66	0.482	11.257	1.169
12%	0.00	2,726	23.31	1.643	107.565	5.737	2,777	18.03	0.521	16.940	2.514
13%	0.00	2,724	21.55	1.462	89.052	6.096	2,769	18.72	0.939	39.693	2.722
14%	0.00	2,733	20.63	1.736	108.021	6.820	2,765	18.70	1.290	73.843	2.326
15%	0.00	2,732	19.90	1.781	114.894	7.477	2,751	18.57	1.071	52.233	3.109
16%	0.00	2,733	19.11	1.811	121.148	8.628	2,755	17.84	1.227	72.615	1.910
17%	0.00	2,727	20.17	2.420	196.148	7.951	2,767	13.95	0.416	3.310	2.578
18%	0.00	2,721	20.00	1.748	154.614	9.335	2,773	12.72	0.474	3.986	1.753
19%	0.00	2,720	19.58	2.434	204.850	7.960	2,779	11.48	0.631	8.249	1.429
20%	0.00	2,721	19.07	1.726	117.436	10.362	2,776	13.68	2.613	204.587	3.675
21%	0.00	2,731	18.21	2.835	190.354	8.777	2,781	14.22	2.580	208.013	3.821

Comparison of Bin-Weighted Composite to Actual Grade Emissions

	Buick Ox Cat					Chrysler 3WY Cat				
	Time (sec)	Distance (miles)	HC (g/mi)	CO (g/mi)	NOx (g/mi)	Time (sec)	Distance (miles)	HC (g/mi)	CO (g/mi)	NOx (g/mi)
Bin-Weighted Composite	2,792	27.06	0.143	3.247	2.594	2,792	26.93	0.152	0.885	0.599
Actual Segment Grade	2,788	27.01	0.128	2.115	2.724	2,790	26.95	0.149	0.681	0.615
Ratio: Bin Comp/Actual			1.117	1.535	0.952			1.019	1.299	0.974
%Change From Actual			11.7%	53.5%	-4.8%			1.9%	29.9%	-2.6%

the incomplete mapping that was done using a chassis dynamometer procedure.

At the bottom of Table 1 is a comparison of the bin-weighted composite emissions computed by making multiple runs of the entire speed-time trace with a constant grade during each run and weighting the results together using the VMT fractions associated with each grade bin. Comparing this approach to the actual grade values for the same route, the approach appears to overestimate HC and CO while underestimating NOx. However, the segment-specific grade values are based on running the route in only one direction. Further analysis might indicate that the bin-weighted composite is a reasonable approach for representing a broad range of vehicle activity over a specified grade profile.

Appendix D contains an addendum for the VEHSIME users manual that explains how to use the grade simulation routine.

Vehicle Instrumentation - Under this subtask, Sierra developed an improved instrumentation system for a vehicle originally loaned to Sierra by the Mobile Source Division (MSD) to serve as a "target" vehicle for Sierra's laser rangefinder-equipped "chase car", which was being developed to collect data under a contract with Research Division. To assist in the development of the hardware and software used with the chase car, the Lumina was originally equipped with a relatively simple system for collecting second-by-second speed data and manifold air pressure using a laptop computer operated by a passenger in the vehicle. After the successful development of the chase car, MSD asked Sierra to modify the Lumina to add throttle position information to the data being collected before returning the vehicle to ARB. In addition to collecting additional data, Sierra also sought to improve the reliability and operational simplicity of the data acquisition system to facilitate routine use by untrained personnel. To this end, the vehicle has been instrumented with the addition of an onboard data acquisition system and appurtenances to measure and record key aspects of the vehicle's operation. The following parameters are measured and recorded on a second-by-second basis: vehicle speed, manifold air pressure sensor voltage, engine RPM, oxygen sensor voltage, and throttle position sensor voltage. Lateral and longitudinal acceleration are measured at 10 hertz and readings are averaged and stored at 1 hertz. With the exception of added accelerometers, the system samples data exclusively from OEM system sensors. The data acquisition system operates automatically without operator attention, following start-up of the vehicle ignition. The data acquisition system includes an 80386-based, DOS-compatible computer with a custom-modified power supply and start-up circuitry, a 7 MB battery-backed static RAM card (for computer start-up and data collection without mechanical disks), an IBM PC-compatible analog-to-digital converter/digital counter board and custom accessory box and a commercial data acquisition program. While not required in normal data collection, the system can be operated with an added video monitor for real-time display of data. A keyboard and mechanical floppy disk drive are included with the system and can be used for data/program exchange.

Appendix C provides a detailed description of the computer-based data acquisition system, connections to OEM sensors and other sensors whose

output signals are sampled, and sample results that illustrate performance. Results from special-purpose test runs and experiments are also presented and discussed. Copies of pertinent product manuals and software will be provided under separate cover.

Unregistered Vehicle Study - During the course of the contract, Sierra and its subcontractor Valley Research Corporation completed the second phase of a study under which the percentage of vehicles operating without current registration was investigated. Although all of the field work for the study was successfully completed under a prior contract for I/M support, data analysis could not be completed because of delays in receiving information from the Department of Motor Vehicles regarding the registration status of vehicles observed during the survey.

The results of the study were fully described in Section 7 of the earlier referenced February 16 report to the Legislature from the I/M Review Committee. Appendix B contains the detailed survey results from Sierra's subcontractor, Valley Research.

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Attachment

Description of Route 0529-8

Route 0529-8 (Off-Peak 22), Los Angeles to Long Beach, approximately 27 miles

Begin on Vermont Avenue at Monroe, near Los Angeles Community College
Drive South on Vermont

Enter Highway 101, heading southeast

Continue on 101, it merges with I-5 southbound

Continue on I-5, then exit southbound onto I-710 (Long Beach Freeway)

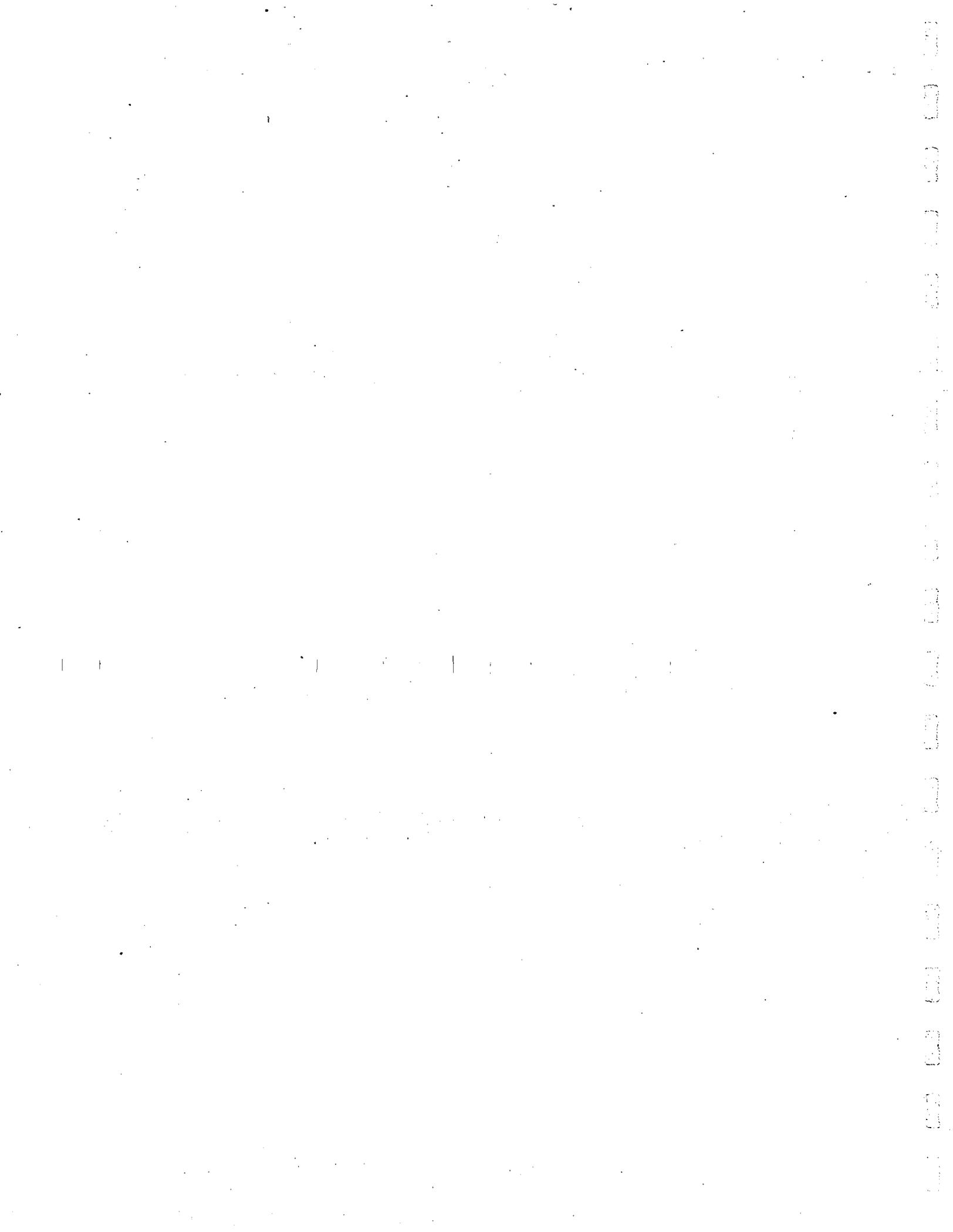
Continue South on I-710

Exit I-710 at Anaheim Street

Turn Left onto Anaheim (eastbound)

Turn Left onto Cedar Avenue

End on Cedar at 14th Street, near the Junior High School



APPENDIX A



sierra research



Report No. SR94-05-02

**An Evaluation of the
Effectiveness of Vehicle
License Tab Enforcement**

prepared for:

California Air Resources Board

May 18, 1994

prepared by:

Sierra Research, Inc.
1801 J Street
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AN EVALUATION OF THE EFFECTIVENESS OF VEHICLE LICENSE TAB ENFORCEMENT

ARB Contract No. A994-183

Prepared for:

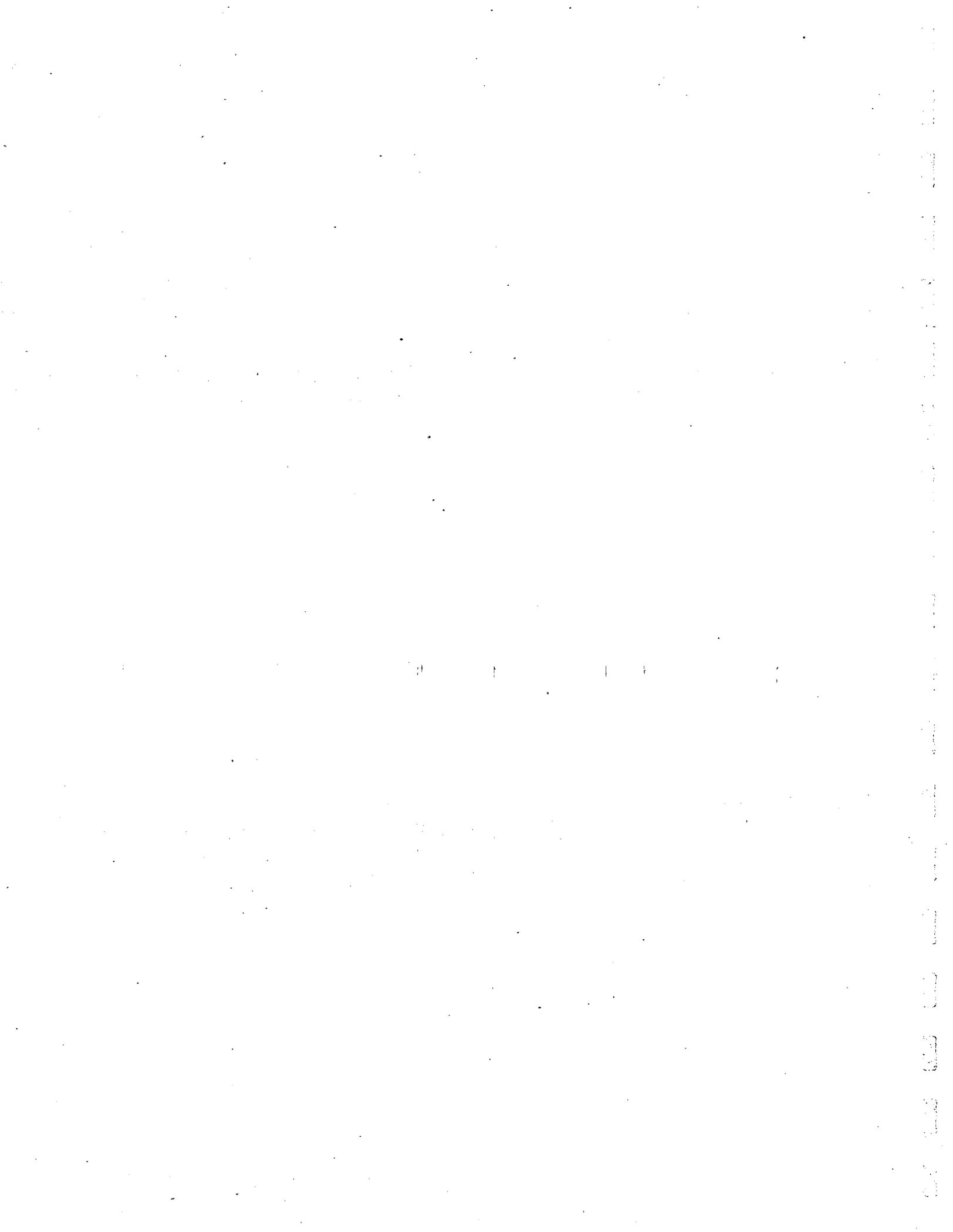
California Air Resources Board

May 18, 1994

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AN EVALUATION OF THE EFFECTIVENESS OF VEHICLE LICENSE TAB ENFORCEMENT

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1. SUMMARY

Owners of most light-duty vehicles in California are required, as a condition of vehicle re-registration with the Department of Motor Vehicles (DMV), to show proof on a biennial basis (i.e., every other year) that the vehicle has complied with the state's official motor vehicle inspection program (California's "Smog Check" program). Upon re-registration each year, DMV issues tabs (stickers) for affixation to the rear license plate as visible evidence that the vehicle's registration is current. Because of the linkage between re-registration and Smog Check compliance, license tabs are also a visible indication of whether a vehicle has received its required biennial Smog Check. Vehicles with out-of-date tabs are therefore likely to be vehicles that have not complied with the Smog Check program.

In a previous study for the California Air Resources Board (CARB), Sierra Research determined, based on a 1990 survey of license tabs on vehicles on the road and of DMV records, that about 8% of California vehicles, or about 1.3 million vehicles each year, do not comply with registration requirements in a timely fashion. As a follow-up to that study, CARB asked Sierra to determine whether the existing enforcement mechanisms for ascertaining and citing license tab violations are adequate.

To fulfill that charge, and as reported herein, Sierra conducted a telephone survey of seven California law enforcement agencies: city police in Sacramento, Los Angeles, Oakland and San Diego; the Los Angeles County Sheriff's Department; the City and County of San Francisco; and the California Highway Patrol (CHP). The survey asked each agency what its official policy is regarding license tab violations (e.g., how serious such violations are viewed in comparison to other offenses), what its enforcement practices are in the field, what disposition is made of fines or penalties for tab violations (and in particular whether enforcement policy or practice might change if a portion of such penalties were returned to the agency), and whether legislative changes are needed.

In conjunction with the survey, Sierra also reviewed the applicable Vehicle Code provisions that make operating a vehicle with out-of-date tabs an offense (i.e., an infraction), the statutes that direct where dollars generated by license tab fines are distributed, and current DMV practices and penalties for late registration.

Based on these efforts, it was determined that the priority assigned to enforcement of license tab requirements varies significantly from agency to agency. At one end of the spectrum, the CHP aggressively enforces the law, and will stop vehicles for tab violations only. At the other

end of the spectrum, the San Francisco police deliberately avoid stopping vehicles for tab violations to avoid increasing traffic congestion. The predominant policy is to write citations for tab violations only if the vehicle has been first stopped for other reasons. Sierra has also found that enforcement against parked vehicles is limited to public streets. Except where the CHP is involved, therefore, a significant gap in enforcement appears to exist.

Sierra has also confirmed that local agencies do not receive any budgetary support from license tab penalties collected, and that they do not expect any such support. However, the CHP does obtain funds from DMV registration penalties, which appears to be a reason for its distinctively aggressive attitude toward registration violations.

A number of technical flaws and inconsistencies in how the Vehicle Code provisions are written and enforced were identified during the performance of this evaluation; in particular, violators are receiving relatively low fines and in certain circumstances can escape fines entirely.

Finally, Sierra is recommending a number of steps that CARB can take to improve enforcement, including legislation to allocate to local enforcement agencies a portion of the fines and penalties collected by the courts for tab violations, and/or legislation to strengthen DMV penalties and allocate a portion thereof to local enforcement agencies. The recommendations also include technical improvements to the Vehicle Code to assure more consistent, effective enforcement. Several other actions that CARB could take, and that do not involve legislation, have also been developed. These recommendations are presented in the context of a key finding in Sierra's 1990 survey, which is that the 8.3% non-registration rate is reduced to only 1.4% within one year, resulting in better than a 98% overall compliance rate for the Smog Check program. This finding raises the question of whether the existing enforcement program in fact will benefit significantly from reform, and suggests that any needed reforms should be directed primarily at making compliance more timely rather than improving overall compliance.

2. STATEMENT OF THE PROBLEM

The California Motor Vehicle Inspection Program (Health and Safety Code Sections 44000-44070; or Smog Check program) requires vehicles subject to registration in the state to be inspected on initial registration, change of ownership and biennially upon re-registration. The inspection determines whether a vehicle has excessive tailpipe emission concentrations of hydrocarbons (HC) and carbon monoxide (CO), and whether key emission control system components are installed and operating correctly. Owners of passing vehicles receive a Certificate of Compliance; failing vehicles must be repaired and pass on re-inspection, unless completing the necessary repairs would require the owner to spend more than a specified amount, in which event the owner receives a Certificate of Noncompliance. Enforcement of the program is accomplished through the Department of Motor Vehicles (DMV), which must biennially require a valid Certificate of Compliance or Noncompliance upon renewal of registration.

The requirement for biennial compliance with the Smog Check program is the focus of this report. The Smog Check program envisions that every non-exempt vehicle registered in the state will be inspected, and if necessary repaired to come into compliance, every two years. Vehicle license tabs, which are affixed to the rear license plate of passenger vehicles and most trucks, are an important indicator of compliance with the biennial inspection requirement because they provide prima facie evidence of whether a vehicle's registration is current. Of all vehicles being operated on the road at a given time with expired tabs, it is likely that many are not in compliance with Smog Check program requirements.

In 1990, Sierra conducted a survey for the California Air Resources Board (CARB) to determine the percentage of vehicles being operated with expired tabs and therefore presumptively in noncompliance with the Smog Check program. Briefly summarized, Sierra found that a relatively large fraction (about 8%) of the vehicles being operated in the sample area had expired license tabs. Through examination of DMV records, Sierra also learned that most of the vehicles with expired tabs were properly re-registered within one year, with only about 1-2% of the vehicles remaining unregistered for more than one year. However, based on model year and vehicle type, Sierra further estimated that many of the vehicles remaining unregistered would likely have very high emissions that could be corrected by the Smog Check program.

These data indicate that better enforcement of the biennial inspection requirement presents an opportunity for improvement in the effectiveness of the Smog Check program. With this objective in mind, CARB asked Sierra to examine current procedures for enforcing license tab

violations and determine whether those procedures might be improved. Specifically, Sierra was asked to contact a number of urban law enforcement agencies, DMV, and the CHP to ascertain what their enforcement policies are with respect to expired license tabs; to determine what penalties apply; and to advise CARB whether changes to the statutes governing penalties and disposition of penalty monies might be advisable. The remainder of this report will present Sierra's findings on these questions.

3. LEGAL FRAMEWORK

DMV Authority to Issue License Tabs

When a motor vehicle is registered in California, DMV is required to issue two "license plates or devices", except for motorcycles and certain vehicles for which one plate or device is authorized (Vehicle Code Section 4850(a)). The purpose of the plate or device is to "identify the vehicles for which they are issued for the period of their validity" (*ibid.*). Each plate is to display a vehicle registration number "and the year number for which it is issued or a suitable device issued by the department for validation purposes, which device shall contain the year number for which issued" (Vehicle Code Section 4851). Use of tabs is authorized by Vehicle Code Section 4853, which states:

The department may issue one or more stickers, tabs, or other suitable devices in lieu of the license plates provided for under this code. Except where the physical differences between stickers, tabs, or devices and license plates by their nature render the provisions of this code inapplicable, all provisions of this code relating to license plates may apply to stickers, tabs or devices.

The purpose of the tabs is therefore twofold: to serve in lieu of a new plate when a vehicle is re-registered (i.e., to extend the life of the plate), and to identify the period for which the plate is valid.

DMV's practice is to issue new plates when a vehicle is first registered, and at the same time to issue tabs showing the month and year when re-registration is due. Each time a vehicle is re-registered, the owner retains his/her original plates but receives new tabs.

The tabs used by DMV consist of two reflectorized stickers with adhesive backs, approximately 1½ inches wide by 1 inch high. One tab is affixed to the upper left-hand corner of the plate, and shows the month of registration, abbreviated to three letters (e.g., SEP for September) in colored letters on a white background. The color of the letters varies according to the series of plate on the vehicle. The other tab is the same size, and is affixed to the upper right-hand corner. It has "California" abbreviated to "CA"; shows the year when re-registration is required, shortened to two numbers (e.g., 92 for 1992); and depicts the California Great Seal and a separate tab ID number in smaller size print. The right hand sticker is in black letters, with the color of the background varied by month. Both tabs also have a lightly imprinted, background pattern that cannot be copied, consisting of the words "Official Use Only" surrounded by an eight-sided polygon and repeated in a grid-like fashion, to deter counterfeiting. Figure 1

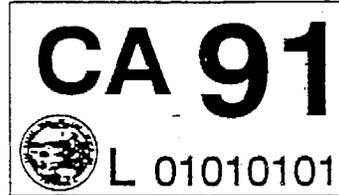
Figure 1

License Tabs
(Approximate Actual Size)

Upper Left-Hand Tab



Upper Right-Hand Tab



generally depicts the two tabs. In combination, the two tabs show the month and year that registration for a vehicle expires.

It should be noted that the tabs do not, strictly speaking, show the "year number for which issued" as contemplated by Vehicle Code Section 4851, but rather the year number of expiration. The year number for which tabs are issued may be inferred, by simply subtracting one from the year on the tab, but it is not actually shown. This discrepancy may seem minor, but as will be discussed later, it has caused some enforcement discrepancies.

Requirement for Affixation of Tabs

The requirement for affixation of tabs is contained in Vehicle Code Section 5204; which provides:

5204. (a) Except as provided in subdivision (b), a tab shall indicate the year number for which issued and a tab shall indicate the month of expiration, which tabs, stickers, or other suitable devices shall be attached to the rear license plate assigned to the vehicle for the last preceding registration year in which license plates were issued, and, when so attached, the license plate with the tabs, stickers or other devices shall, for the purposes of this code, be deemed to be the license plate for the ensuing registration year, except that truck tractors and commercial motor vehicles having an unladen weight of 10,000 pounds or more, shall display the tabs, stickers, or other devices upon the front license plate assigned to the truck tractor or commercial motor vehicle.

(b) The requirement of subdivision (a) that the tab indicate the year for which issued and month of expiration does not apply to fleet vehicles subject to Article 9.5 (commencing with Section 5300).

A close reading of Section 5204 raises two issues. First, as noted previously, there is the discrepancy between the tabs issued by DMV, which show the year of expiration, and the language in Section 5204 stating that the tabs should show "the year number for which issued". Second, and potentially more serious, Section 5204 does not actually require that the tabs be up-to-date or otherwise valid. Literal compliance with Section 5204 can be achieved merely by having one tab showing the year of issuance and another showing the month of expiration, regardless of how old the tab. This could mean that once a set of tabs has been affixed to a plate, the failure to update the tabs annually is not, per se, a citable violation of Section 5204. While other Vehicle Code violations may be involved that prevent this deficiency from completely thwarting enforcement efforts (e.g., failure to have a valid registration), and it is technical enough to be missed upon a quick reading of Section 5204, it should be remedied.

Code Violations

If a vehicle is being operated without valid tabs, there are two citable violations. The first is a violation of Section 5204, which, as just noted, requires a vehicle to display tabs showing the year number for which the tabs were issued and the month of expiration. Overlooking any technical deficiencies in the wording of Section 5204 (i.e., reading the statute as enforced in the field), a violation would exist if a vehicle has no tabs or just one tab, expired tabs, or false or fraudulent tabs. Section 5204 can be cited even if the vehicle has in fact been properly registered or re-registered, as in the case where the owner has received new tabs but failed to place them on the plate. A violation of Section 5204 can be written in the absence of the vehicle owner or operator, as in the case of a parked, unoccupied vehicle. Finally, because Section 5204 contains no limitations on where it may be applied, a violation could occur in the case of a vehicle on a street or highway, or not on a street or highway; the latter case would include a vehicle on public property (e.g., a state or city parking lot) or private property (e.g., a mall or apartment parking lot)*.

The other violation is of Vehicle Code Section 4000(a), which provides:

4000 (a) (1) No person shall drive, move, or leave standing upon a highway, or in an offstreet public parking facility, any motor vehicle, trailer, semitrailer, pole or pipe dolly, logging dolly, or auxiliary dolly unless it is registered and the appropriate fees have been paid under this code, except that an off-highway motor vehicle which displays an identification plate or device issued by the department pursuant to Section 38010 may be driven, moved, or left standing in an offstreet public parking facility without being registered or paying registration fees.

* With regard to citations on private property, the citing officer would have to show that s/he was lawfully on such property.

(2) For purposes of this subdivision, "offstreet public parking facility" means either of the following:

(A) Any publicly owned parking facility.

(B) Any privately owned parking facility for which no fee for the privilege to park is charged and which is held open for the common public use of retail customers.

(3) This subdivision does not apply to any motor vehicle stored in a privately owned offstreet parking facility by, or with the express permission of, the owner of the privately owned offstreet parking facility.

While missing or expired tabs do not per se violate Section 4000(a), they indicate that the "underlying" vehicle registration and fees may not be up to date. Thus, missing or expired tabs can be written as a Section 4000(a) violation in addition to Section 5204, or separately. It should be apparent that writing a violation of Section 4000(a) on the basis of tabs alone, in the absence of the owner or operator, involves a significant risk of error; there is a fair chance that the registration may be in order even though the proper tabs have not been affixed. Also, as is not the case with Section 5204, Section 4000(a) contains express limitations on where violations may occur: Section 4000(a) may be cited against vehicles on streets or highways, in public parking areas, and in privately owned parking facilities that are open to retail customers (e.g., malls and building garages), but not vehicles in private parking facilities (e.g., apartment parking lots).

"DMV Policy" (30-Day Respite)

CARB also needs to be aware of a significant enforcement policy, known among law enforcement officers as the "DMV Policy", regarding tab violations. Vehicle Code Section 4606 provides:

4606. When application for registration of a vehicle has been made as required in Sections 4152.5 and 4602 [i.e., by midnight of the day before the expiration date], the vehicle may be operated on the highways until the new indicia of current registration have been received from the department upon the condition that there may be displayed on the vehicle the license plates and validating devices, if any, issued to the vehicle for the previous registration year.

This provision, first enacted in 1959, has been interpreted by DMV to mean that expired license tabs should not be enforced for a period of time sufficient to allow DMV to receive an application (plus fees) which was posted or delivered in a timely fashion, process it and mail the new tabs. There is apparently no written DMV advisory to this effect, but the policy seems to be well known to law enforcement officials. In practice, therefore, an expired license tab will not be cited until it is at least 30 days delinquent. Within the 30-day grace period, officers will simply pass by or overlook a vehicle with out-of-date tabs, or if the vehicle has been stopped for other reasons, simply advise the owner/operator that the tabs are out-of-date without writing

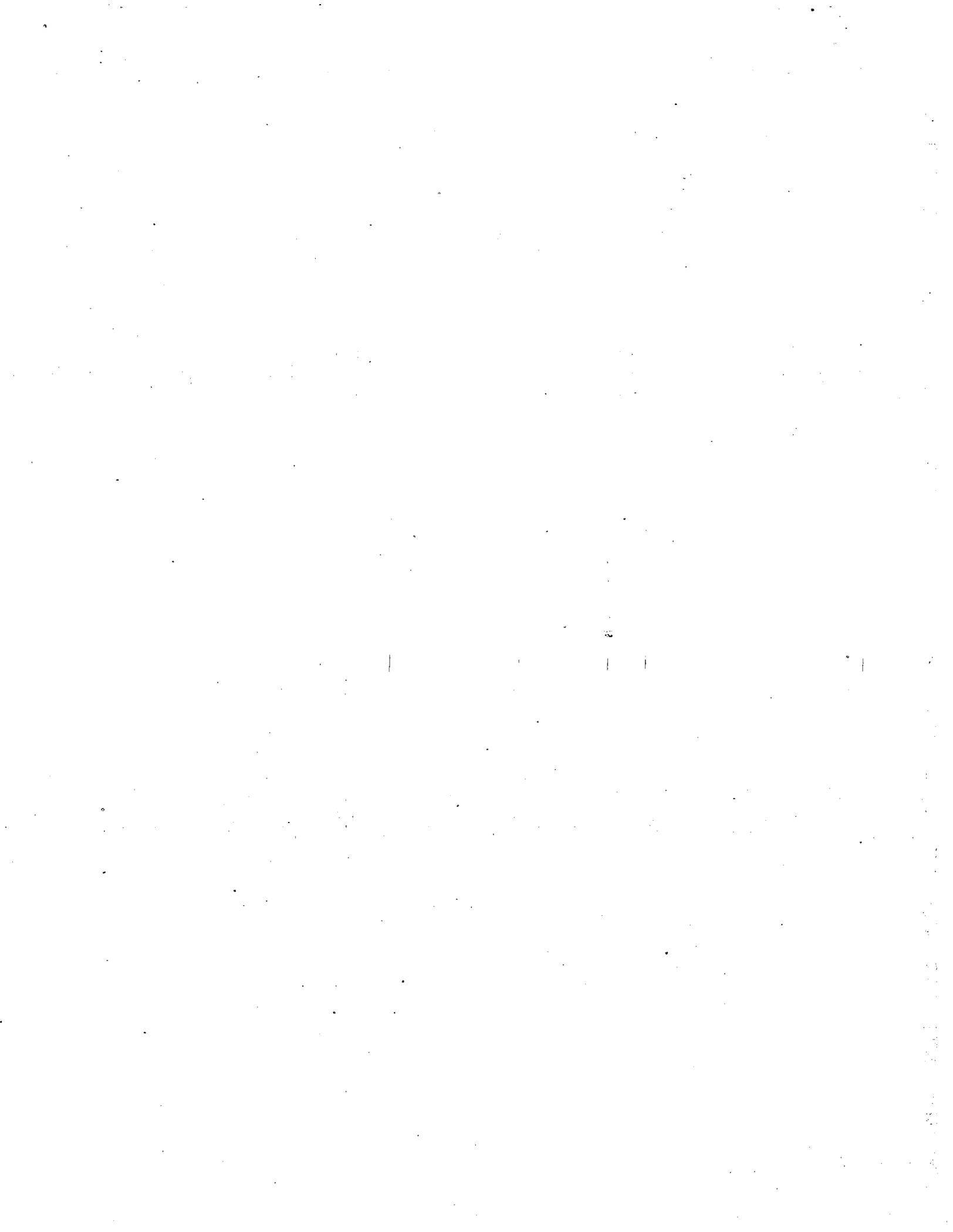
either a Notice of Correction or infraction notice. For this period, an officer can only inquire if the tabs have been received. If they have, a Section 5204 violation may be written; if not (or if the owner/operator says they have not), no violation will be written.

DMV "Fees Only" Policy

In the course of this investigation, Sierra learned of another DMV policy that could be significantly influencing license tab and Smog Check compliance. Section 4000(a) of the Vehicle Code, quoted previously, makes it illegal for a person to operate a vehicle in California "unless it is registered and the appropriate fees have been paid under this code" (emphasis added). Despite this requirement for both registration and payment of fees, DMV has administratively established a policy allowing vehicles to be operated when the owner has paid the fees only. DMV has done this to accommodate the public. Many times, owners will apply to re-register their vehicles but fail to provide proper paperwork or fail to provide a required Smog Check certificate. Typically re-registration is sought very close to the deadline. Rather than refuse the applicant entirely, which might cause the applicant to be late and therefore subject to late penalties, DMV will accept payment of fees, issue a receipt and instruct the applicant that the transaction must be completed (e.g., the Smog Check certificate must be presented) in 30 days. Under this process, the vehicle is not actually re-registered until the owner re-applies.

The practical effect of this policy is to allow vehicle owners to avoid timely compliance with the Smog Check program for at least one year, unless they happen to be stopped by a peace officer for an out-of-date license tab. (This is not a strong incentive for many vehicle owners, as explained in subsequent sections of this report, because delinquent tabs carry extremely low court penalties, and most enforcement agencies do not stop vehicles for out-of-date tabs.) In an attempt to enforce compliance, DMV used to issue a red window permit indicating the expiration date of the 30-day period for completing re-registration. But DMV no longer issues the permit, because vehicle owners were simply having them renewed, and they were ineffective. Aside from the risk of being stopped by a peace officer, the only enforcement mechanism now in place for the 30-day deadline is through DMV's revenue collection unit, which automatically sends out "Incomplete Transaction" warning letters to owners who delay in completing their re-registration.

This "fees only" policy of DMV, while perhaps responsive to public demand, appears to be entirely inconsistent with DMV's statutory directives. It allows vehicle owners to postpone Smog Check compliance, for up to a year, with relative impunity. (Even worse, DMV is knowingly allowing owners to operate their vehicles while unregistered for months at a time.) Sierra believes that modification of this policy to include some means for effectively limiting its effect to only 30 days, coupled with imposition of late registration penalties if the 30-day deadline for completing registration is not met, is critical to achieving more timely compliance with the biennial inspection requirement of the Smog Check program.



4. PENALTIES

Infraction Fines

Vehicle Code Section 4000.1 states that any violation of the Vehicle Code is an infraction unless otherwise provided. As there is no such other provision for either Section 5204 or 4000(a), the code violations explained above are infractions.* Under Section 42001(a), the penalty for an infraction is given as follows:

First offense Fine not exceeding \$100

Second infraction within one year
of a prior infraction resulting in
a conviction Fine not exceeding \$200

Third or subsequent infraction
occurring within one year of two or
more prior infractions resulting in
convictions Fine not exceeding \$250

To the amounts specified above must be added the requirement in Vehicle Code Section 42001.8 that "Every person convicted of an infraction for a violation of Section 4000 shall be punished by a fine of not less than fifty dollars (\$50) and not more than two hundred fifty dollars (\$250)." Section 42001.8 clearly sets a minimum fine of \$50 for any conviction under Section 4000(a); however, it is not clear if its maximum penalty (\$250) is applicable to first and second offenses, thus effectively overriding and increasing the penalty for registration violations that would otherwise apply under Section 42001(a). If the intent of Section 42001.8 is in fact to increase the applicable penalties, it needs to be more directly stated. It is doubtful that a judge would apply a \$250 penalty for a first offense under Section 42001.8, as it is presently drafted.

It is also apparent that the penalty minimums stated in Section 42001.8 do not apply to violations of Section 5204. Thus, a different (lower) penalty might result if the citing officer determines to write a tab violation under Section 5204 as opposed to Section 4000(a).

* An unofficial "List of Violations" at the back of the DMV-published version of the Vehicle Code confirms that violations of Sections 5204 and 4000(a) are infractions.

Notice of Correction

A second form of penalty, which can apply separately but not concurrently with infraction fines, is the issuance of a Notice of Correction (the so-called "Fix-it" ticket). Vehicle Code Section 40303.5 specifies that an arresting officer must allow an individual to execute a promise to correct a violation (Notice of Correction) for equipment violations, driver's license violations, etc., unless, as further provided in Section 40610, the officer determines that certain disqualifying conditions exist, such as fraud, persistent neglect, or a violation that has created an immediate safety hazard. Section 40303.5 also applies to any "registration infraction", but with one important exception: registration infractions involving "subdivision (a) of Section 5204" -- i.e., license tab violations. This exception preventing the issuance of a Notice of Correction for Section 5204 violations is repeated in other Vehicle Code provisions dealing with the Notice of Correction procedure (see Sections 40610 and 40522), so it is firmly established in the Vehicle Code.

Application of Penalties

The practical result of these two provisions is that tab violations written under Section 4000(a) should result (unless disqualifying conditions exist) in a Notice of Correction and not an infraction notice, while those written under Section 5204 must be written only as an infraction notice. This can make a significant difference in the actual penalty. Sections 40610 and 40522 both state that a court may not impose either a fine or an administrative fee if a person receiving a Notice of Correction submits proof of correction that has been secured in a timely and proper fashion. Thus, a tab violation written as a Notice of Correction under Section 4000(a) will result in no monetary court penalty, although the vehicle owner will have to cover the expense of complying with the Smog Check program, plus any late registration fees imposed by DMV; whereas a violation written under Section 5204 should result in some kind of court-imposed fine. Moreover, as explained further in Section 6, many officers are apparently not aware of the prohibition against issuing a Notice of Correction for a Section 5204 violation, which could result in the issuance of an invalid Notice of Correction. In such a case (assuming the cited person, his/her attorney, or the court was aware of the invalidity), there would be no sanction at all: no fine, no requirement to re-register, and no requirement for compliance with the Smog Check program.

Sierra contacted court officials in Sacramento, Los Angeles and Alameda Counties to determine how these penalties are administered in the real world. There are two basic procedures under which penalties are applied, forfeiture of bail and conviction. Forfeiture occurs when the individual cited decides not to contest the citation or make a court appearance. The courts maintain standard bail schedules for most Vehicle Code violations, including Sections 5204 and 4000(a). If the scheduled amount is paid, either by mail or by personal delivery to the County Treasurer, all fines and related assessments are deemed paid and the citation is discharged without need for a personal appearance in court. In Sacramento County, the schedule requires payment of a \$24

fine, plus proof of correction for a Section 5204 violation, and proof of correction (no penalty) for a Section 4000(a) violation. In Los Angeles County, a fine of \$20 plus proof of correction is scheduled under Section 5204, and \$50 plus proof of correction under Section 4000(a). In Alameda County, a Section 5204 violation may be discharged by payment of \$20; apparently no proof of correction is required, but an extra \$10 administrative fee is charged if one is not supplied. Section 4000(a) violations in Alameda County are scheduled as no penalty (\$10 administrative fee only) if proof of correction is supplied, and \$160 if no proof of correction is supplied. Table 1 below displays these bail schedules in tabular form.

Table 1

Penalties for VC §§ 5204 and 4000(a) Violations
in Sacramento, Los Angeles and Alameda Counties
(Per Published Bail Forfeiture Schedules)

	Proof of Correction			Fines ¹		
	SAC	LA	ALA	SAC	LA	ALA
VC 5204	Yes	Yes	No	\$24	\$20	\$20 ²
VC 4000(a)	Yes	Yes	No	\$0	\$50	\$160 ³

¹ Includes state but not county penalty assessments.
² \$10 fee added if no proof of correction show.
³ \$10 if proof of correction is shown.

If the cited individual decides to contest the citation, a court appearance is necessary. If a conviction is entered after an appearance, the penalty is determined within the limits set by the Vehicle Code provisions quoted earlier, according to the court's discretion. There is no published schedule for convictions, although most judges tend to penalize uniformly, within a range set by each judge individually, unless special extenuating or aggravating facts exist. Sierra was informed that penalties in the range of \$50-150 for first offenses are typically imposed by judges for a first offense under both Sections 5204 and 4000(a), with proof of correction also usually required.

There are several points that emerge from these "as applied" penalty data. First, the absolute level of penalty is quite low. It must be remembered that the "fines" reported above include not only a fine element but also all applicable state penalty assessments and court fees. Such charges are typically equal to the fine in amount, and can run higher. In the case of Alameda County, for example, we were informed that the \$20 "fine" actually consists of a \$3 penalty under the Vehicle Code, plus \$17 in state penalty assessments and court fees. As explained below, such assessments are revenue generation measures, automatically determined by statute, and not fines intended to fit the offense.

Second, there is considerable inconsistency in whether proof of correction is required. In Alameda County, proof of correction can clearly be avoided for both Section 5204 and 4000(a) violations if the individual is willing to pay higher penalties. Also, proof of correction, as a court-imposed requirement, seems to operate independently of whether the citing officer can write the violation as a Notice of Correction.

State Penalty Assessment

As indicated in the previous section, there is a second component to the penalty imposed on all Vehicle Code violations, including license tab violations, known as the "State Penalty Assessment." Under Penal Code Section 1464 as effective until July of 1991, the state added "seven dollars (\$7) for every ten dollars (\$10) or fraction thereof upon every fine, penalty, or forfeiture imposed and collected by the courts for criminal offenses, including all offenses involving a violation of the Vehicle Code...". In July 1991, the amount was increased to \$10 for every \$10 in fine or forfeiture. This assessment applies to all penalties, whether collected under forfeiture of bail or pursuant to conviction by a court. The courts are authorized to increase their bail schedules to take the State Penalty Assessment into account.

Obviously, the State Penalty Assessment is a significant additive on a relative basis, as it effectively doubles the amount of any penalty. However, the penalties for license tab violations described in the previous section include the State Penalty Assessment. Thus, our previous comments concerning the relatively low absolute level of the penalty for tab violations are not changed by the imposition of the State Penalty Assessment.

County Penalty Assessment

In July of 1991, the Legislature added a new charge on top of the basic fines and forfeitures for all criminal offenses, including violations of the Vehicle Code. With the enactment of Government Code Sections 76000-76248 (AB 544; Chapter 189, Statutes of 1991, effective July 29, 1991), a County Penalty Assessment was created, to work in essentially the same manner as the State Penalty Assessment. This new assessment imposes an additional \$7 levy for every \$10, or fraction thereof, on every penal fine, penalty or forfeiture. The bail schedules listed above, Sierra has been informed, do not include this new County Penalty Assessment. Since the "fine, penalty, or forfeiture" portion of the amounts collected under local bail schedules can be as low as \$10 or less, the new county assessment should not cause a significant change in the absolute level of the total monetary penalty.

DMV Penalties

Another level of penalty, consisting of late registration penalties, comes into play where citation of a license tab violation leads to proper registration or re-registration with DMV. A Section 4000(a)

violation written as a Notice of Correction would activate these penalties. But a Section 5204 violation would not automatically do so, because an infraction notice, rather than a Notice of Correction, is (or should be) issued, and the person cited may decide to pay the fine and continue driving without proper tabs (and without compliance with the Smog Check program), at least in those counties like Alameda that do not have a strict court-imposed proof of correction requirement.

The DMV penalties work as follows. Under Vehicle Code Section 9554, DMV is required to add a penalty on any application for renewal of registration that is delinquent, i.e., "made later than midnight of the date of expiration or on or after the date penalties come due." An application is deemed to be made before midnight, in the case of an application made by mail, if "any instrument for effective payment" of the fee is properly mailed by the midnight deadline (Vehicle Code Section 9557), or if a DMV authorized agent has received and endorsed a receipt for fees by the midnight deadline (Vehicle Code Section 9556). The penalties are calculated as a percentage of the regular fee plus weight, license and other applicable fees. In 1990, the Legislature doubled the penalty percentages, which are currently set as follows:

Delinquency of one year of less	40%
Delinquency of more than one year but less than two years	80%
Delinquency of more than two years	160%

In cooperation with DMV, Sierra developed two case samples to illustrate how the penalty is computed, and how it compares with the regular costs of re-registration (see Table 2).

Cases A and B in Table 2 represent typical penalty situations for an older vehicle and a newer vehicle of average value. The lowest penalty case would be where an older, low-value vehicle is less than one year delinquent and would result in a delinquency penalty of less than \$40. The highest delinquency penalty would be in the case of an expensive late-model vehicle over 36 months delinquent, and would exceed \$250. These calculations indicate that DMV delinquency penalties are typically higher than the applicable court penalties (except perhaps where the vehicle owner has multiple infractions). They also indicate that DMV penalties are significant relative to other DMV fees for delinquencies beyond one year, but marginally significant for shorter delinquencies. Under the newly enacted percentages, the length of the delinquency is obviously a major factor in determining the size and presumably the effectiveness of the sanction; however, the first step-up seems to occur

after an inordinately long period (one year). A step-up that occurs after two or three months might be more effective.*

Table 2

DMV Penalties

	Case A	Case B
	1980 Passenger Car, 18 Months Delinquent, non-smog county, no CHP or safety fees, no use fees	1991 Passenger Car, 8 Months Delinquent, smog county, CHP & safety fees due, use fee due
Registration Fee	\$ 25	\$ 25
Weight Fee	\$ 25	\$ 25
Vehicle License Fee	\$ 50	\$100
Safety Fee	-	\$ 1
CHP Fee	-	\$ 1
Air Quality Fee	-	\$ 4
Use Tax	-	\$ 25
Basic Fees (Total)	\$100	\$206
Deletions for Calculation of Delinquency Fee	None	Use Tax
Delinquency Fee	\$ 80 ($\$100 \times .80$)	\$ 72.40 ($\$181 \times .40$)
Total Fees Due	\$180	\$278.40

* Until 1990, a vehicle owner could completely avoid payment of DMV late registration penalties by filing a "certificate of nonoperation", under Vehicle Code Section 4604, stating that the vehicle had been not operated on a highway after expiration of its registration. Because this procedure was so frequently used, DMV developed a pre-prepared form and would offer the form to late filers as a means of avoiding the penalties. Unfortunately, DMV was not able to verify each form, for example, by cross-checking with arrest records, so the certificate amounted to a serious discrepancy. However, in 1990, Section 4604 was amended to require certification that a vehicle will not be operated on any highway prior to expiration of registration. This change prevents an owner from filing a false certification after the fact, and virtually assures that any penalties avoided due to nonoperation are legitimate.

5. DISPOSITION OF PENALTIES

CARB has asked Sierra to determine what happens to penalty revenues from tab violations. The basis for this inquiry is CARB's concern that if such revenues are not being allocated back to the citing agencies, then an institutional disincentive (or lack of incentive) to enforcement may exist.

To research this subject, Sierra reviewed the relevant code provisions and contacted administrative officials at the Sacramento, Los Angeles and Alameda County municipal courts, and at DMV.

Vehicle Code Penalties

All penalty revenues from license tab violations, whether imposed as bail forfeitures or court-adjudged fines and assessments, are collected by county municipal and traffic courts and forwarded directly to the County Treasurer. The County Treasurer then distributes such revenues, along with all other municipal court revenues from criminal offenses, including all non-parking Vehicle Code violations, as directed by statute.

Old Law - Until July 29 of 1991, the relevant statutes in the Penal Code (principally Sections 1463 and 1464) established a complex distribution formula that parceled out nearly all funds to cities and counties and worked basically as follows:

- For the "fine and forfeiture" portion of revenues (amounting to about 60% of all revenues):
 1. All revenues from special categories of violations (e.g., violations on parks and recreation property, or alcohol and drug violations) were segregated and dispersed to special funds, which generally then allocated all revenues to related special purposes (e.g., improvement of parks or alcohol education/rehabilitation). Approximately 20 such special funds existed, but none pertained to registration or license tab violations.
 2. The remaining revenues were then distributed monthly to the cities and counties according to where the violation occurred, the identity of the agency employing the citing officer, and whether the violation was a Vehicle Code violation or some other kind of violation. For example, a statutory percentage of revenues from all types of violations written by city officers were diverted to county general funds (the percentage varied from 7% in Livermore to 75% in Biggs, Loyalton and Montague, with the typical percentage in the range of 15-30% for most cities).

However, the statutory percentage could be altered by agreement between city and county, and such agreements frequently applied. Likewise, revenues from violations in a city written by a state or county officer went to the county general fund, except that Vehicle Code violations written by a state officer were split 50-50 between the city and the county Special Road Fund.

- For the "State Penalty Assessment" portion of revenues:

Section 1464 of the Penal Code required segregation and deposit of all such revenues in the State Penalty Fund in the State Treasury, for monthly distribution to 10 different funds, such as the Restitution Fund, Peace Officers Training Fund, and the Traumatic Brain Injury Fund, according to statutory percentages.

Once distributed according to the strictures in Section 1463, further direction for monies derived from Vehicle Code violations was provided under Vehicle Code Sections 42200 (cities) and 42201 (counties). In the case of cities, revenues were paid to a special "Traffic Safety Fund" and used for specific traffic control and road repair purposes. Section 42200 also specifically provided that "the fund shall not be used to pay the compensation of traffic or other police officers." For counties, monies were directed by Section 42201 to the county road fund, or to defray the costs of school crossing guards, unless the Supervisors by proper vote re-allocated it to the county general fund. (There was no express prohibition on compensating county police.)

This old scheme required an extensive, computerized system to enable the county to properly label all revenues by location and arresting officer, develop subtotals for all distribution categories, and then issue warrants monthly. Revenues from license tab violations were lumped with all other revenues, and were not subject to special distribution. There was clearly no direct benefit or special incentive to law enforcement agencies for enforcement of license tab violations, although allocations to special funds existed and could serve as a precedent for creation of a new special fund for license tab (and registration) violations.

New Law - In 1991, responding to the state budgetary crisis, the Legislature completely revamped the old system by diverting approximately 75% of the revenues from criminal violations away from the cities and counties to the state. Under AB 544 (enacted as Chapter 189, Statutes of 1991, effective July 29, 1991), Penal Code Sections 1463 and 1464 were extensively re-written and supplemented with new provisions that establish new revenue distribution channels, as follows:

- First, the County Penalty Assessment (\$7 for each \$10 of base fine or forfeiture) is deposited with the County Treasurer and then distributed monthly to one or more special funds that the county board of supervisors are authorized to create (see Govt. Code Sections 76000-

76248). The percentage allocation among such funds is determined by the supervisors. The special funds pertain to court construction, construction of criminal justice facilities, automated fingerprint ID, forensic laboratory facilities, emergency medical services, and/or special courts and jails projects listed in AB 544 for certain named counties. License tab and registration violations are not included in any of these special funds.

- Second, the State Penalty Assessment (\$10 for each \$10 of base fine or forfeiture) is split 30/70, with 30% going to the state general fund and 70% into a new State Penalty Fund. The latter is then allocated monthly as follows:

- .33% - Fish & Game Preservation Fund
- 32.02% - Restitution Fund
- 23.99% - Peace Officers' Training Fund
- 25.70% - Driver Training Penalty Assessment Fund
- 7.88% - Corrections Training Fund
- .78% - Local Public Prosecutors and Public Defenders Training Fund
- 8.64% - Victim-Witness Assistance Fund
- .66% - Traumatic Brain Injury Fund

Again, there is no special allocation for license tab or vehicle registration purposes.

- The remaining revenues, which consist of the base fines and forfeitures for all criminal violations (infraction, misdemeanors, felonies and juvenile offenses), including all non-parking Vehicle Code violations, are then broken into two pots: special funding and general. Monies that go to special funds are those from arrests in specific areas by specific law enforcement personnel or for specific kinds of offenses. Of the revenues in this category, 75% go the state general fund; the remaining 25% go to counties for special uses as specified in the Penal Code (see Sections 1463.04-1463.26). The special revenues and allocations consist of the following:

- SNO-PARK violations to the State Winter Recreation Fund;
- U.C. campus violations to the Regents for specified University-related uses (other than land acquisition and parking);
- Litter violations to the counties for litter cleanup;
- Drunk/drug-impaired driving violations to the Restitution Fund (first \$20), remainder to counties;
- Drunk/drug-impaired driving violations to the counties to cover drug and alcohol testing costs or community alcohol programs and services;

- Uninsured motorist violations to the courts to cover administration of the uninsured motorist program, after allocation of \$3 per violation to the State Motor Vehicle Account to defray DMV costs of administration and \$10 to the state general fund
- Certain health violations to the counties for AIDS education;
- Certain alcohol violations to the counties for alcohol abuse education and prevention; and
- HOV lane violations split one-third to cities, one-third to counties, and one-third to the agency with approval authority for HOV lane construction.

Any special allocations that go to a county are subject to an annual increase cap of 1.25%, with any excess going to the state general fund. As with other special allocations, there is no category for license tab or registration violations, although the last category for HOV lane violations could be viewed as related, as HOV lanes also have a secondary or indirect function of reducing vehicular emissions.

The remaining revenues are distributed monthly depending on whether the violation results from a "county arrest" (a CHP arrest outside a city limits or an arrest anywhere by a county or other state officer) or a "city arrest" (a CHP arrest within a city or an arrest anywhere by a city officer). "County arrest" revenues are simply split 75/25, with 75% going to the state general fund, and 25% to county proper funds (subject to the 1.25% annual increase cap). "City arrest" revenues are first split according to specified statutory percentages between cities and counties, as set forth in Penal Code Section 1463.002 (these percentages are the same as under the old law, as described above), or per agreement between any city and county (as noted previously, such agreements prevail in many areas). Then an amount equal to the county percentage under Section 1463.002 is split 75/25, with 75% going to the state general fund and 25% to county proper funds. Anything remaining is split between the state general fund and the city 50-50. These splits are all subject to annual increase caps.

Once revenues reach cities and counties, the restrictions applicable under Vehicle Code Sections 42200 and 42201, described above, still apply.

This process is perhaps slightly less complicated than under the old law, and still gives no special treatment to license tab or registration violations, the revenues from which are simply agglomerated with all other non-earmarked criminal violation revenues. This allocation system clearly contains no special incentives for enforcement of license tab or registration-related violations. However, the establishment of special funds in other areas where the Legislature has agreed that earmarking is warranted could serve as a precedent for special allocation of license tab and registration violation revenues.

AB 911 - Completely apart from the complex distribution formula described above, Sierra has identified one special case where Vehicle Code pollution-related fines have been specially allocated to the enforcing agency. In 1991, AB 911 was signed into law (Chapter 367, Statutes of 1990) to amend Section 42001.2 of the Vehicle Code. Under AB 911 Section 42001.2 now sets forth special elevated penalties (e.g., not less than \$250 and not more than \$2,500 for a first violation by a heavy-duty vehicle) for smoke emissions from vehicles that violate Ringelmann standards specified in Vehicle Code Section 27153.5. Subsection (d) of Section 42001.2 provides:

(d) Revenues collected from fines imposed under this section shall be allocated as follows: 25 percent to the prosecuting agency, 25 percent to the enforcement agency, except the Department of the California Highway Patrol, and 50 percent to the general fund of the air quality management district or air pollution control district in which the infraction occurred. If the enforcement agency is the Department of the California Highway Patrol, the revenues shall be allocated 50 percent to the prosecuting agency, and 50 percent to the district in which the infraction occurred. (Emphasis added)

In effect, AB 911 creates a special penalty revenue source, then sequesters a portion of such revenues to the agencies involved in enforcing the provision; i.e. a closed-loop, self-funding program that stands apart from other Vehicle Code violations and penalties.

While AB 911 may have been passed due to the popular and political support for air pollution control district programs to eliminate smoking vehicles, this bill nevertheless sets a clear precedent for returning penalty revenues to agencies responsible for enforcing laws directed at reducing pollution from vehicles. Given the existing strong legislative directive for an effective Smog Check program, it is possible that the Legislature would approve of revenue return as one way for enhancing Smog Check, particularly if the approach taken is to create new or higher penalties and sequester only such added penalties for special allocation, while leaving an amount equivalent to regular penalties for distribution under the standard formula.

DMV Penalties

Under Vehicle Code Section 42270, penalties collected by DMV for late re-registration of a vehicle are broken into two categories: those which are deemed a percentage of the applicable weight and registration fees, and the remainder. The former are deposited in the Motor Vehicle Account in the State Transportation Fund, and then distributed, in accordance with Vehicle Code Section 42271, primarily to DMV and the CHP for the purpose of "carrying out the provisions of [the Vehicle Code] and enforcing any other laws relating to vehicles for the use of highways." In FY 1989-90, for example, DMV and CHP received just over 90% of the disbursements made from the Motor Vehicle Account. The actual split between DMV and CHP is determined annually according to legislative appropriation. The latter (remainder funds) are split between the Motor Vehicle License Fee Account in the Transportation Tax

Fund (which helps fund DMV), and the Motor Vehicle Account (which mainly benefits DMV and the CHP, as noted) and the State Highway Account in the State Transportation Fund (mainly benefitting CalTrans), in proportion to the revenues allocated in previous years.

In order to provide an indication of the amounts generated by DMV late registration penalties, Sierra obtained data regarding penalty collections and distributions from DMV administrative officials. In FY 89-90, \$33 million in penalties were collected, with about \$9 million allocated to the CHP. In FY 90-91, after implementation of the new increased penalty scale, the CHP share jumped to \$33 million. Forty-two million dollars in penalties are projected for allocation to the CHP in the current fiscal year, or about 5% of the CHP's overall budget.

None of the DMV late penalties channel back to city or county law enforcement agencies; however, as shown, the CHP does directly benefit, and the CHP is a major enforcing agency with respect to license tab and registration violations. Thus, for the CHP, collection of DMV penalties appears to present a budgetary incentive, at least to some degree, for enforcement of Sections 5204 and 4000(a). As explained below, the CHP actively seeks out and writes tab violations -- a policy that may reflect this incentive.

6. ATTITUDES AND VIEWS OF LAW ENFORCEMENT AGENCIES

To determine the enforcement practices applied in the field to license tab violations, Sierra prepared a Questionnaire For Law Enforcement Agencies (a sample is provided in the appendix to this report). We then telephoned officials with the following seven city, county and state agencies and asked them the questions in the Questionnaire:

Sacramento Police Department
Oakland Police Department
San Diego Police Department
Police Department for the City & County of San Francisco
Los Angeles Police Department
Los Angeles County Sheriff
California Highway Patrol

The officials contacted included in all cases the supervisor of the agency's traffic enforcement division; in three cases (Oakland, San Diego, and San Francisco), Sierra also gave the Questionnaire to representatives in the parking enforcement division because the traffic enforcement representative stated that significant license tab enforcement activity occurred through the parking enforcement division. In all cases, the individuals surveyed were asked to provide official as opposed to personal views, and were advised that the results would be presented without personal attribution, in order to promote candor.

The results of Sierra's polling are shown below.

General Agency Policy

All the surveyed agencies profess to a basic policy of citing all observed tab violations. All surveyed agencies also understood that reducing vehicular emissions is one of the reasons for keeping tabs current, although the importance of the emissions reduction objective clearly varied.

At least three agencies (Sacramento, San Diego, CHP) have memos, manuals or other written requirements for writing tab violations, which are confidential in nature. All agencies confirmed the existence of a "DMV Policy", as explained in Section 3 above, under which officers refrain from citing vehicles with tabs less than 30 days out-of-date. In all of the local agencies, Sierra learned that Section 5204 violations are

mainly the province of the parking enforcement division (or in the case of Oakland, the Department of Public Works), since they can be written without stopping a vehicle and without having to interview the owner/operator. The officers in the parking divisions are not actual peace officers, with the power to stop and arrest; they are "public officers" who either do not have the authority to write Section 4000(a) violations, or who are not expected typically to write such violations. We also learned that parking enforcement does not typically extend to private property (despite the fact that Section 5204 is not limited in its application).

In discussing agency policy, Sierra gained a distinct impression that for local agencies Section 5204 violations differ in status from Section 4000(a) violations, with the former seen as a "meter reader" type of offense, and Section 4000(a) violations seen as a "police" type of offense. Thus, lapsed tabs are more important to the parking enforcement division than to regular traffic officers. In addition, due to the "DMV Policy", vehicles subject to a biennial Smog Check requirement, and which have not been re-registered in a timely fashion, will not be detected or written up for at least 30 days, thereby creating a de facto one month postponement of the Smog Check program.

Enforcement Practices

Sierra found considerable variation from agency to agency, as well as between departments within agencies, in how enforcement personnel in the surveyed agencies actually deal with tab violations "on the street".

Sacramento - In Sacramento, both police and parking enforcement are instructed actively to look for tab violations. Police officers are instructed to stop vehicles and cite for tab violations even if no other violation is observed, and to look for tab violations if the vehicle is stopped for other reasons. Sacramento was one of the two local agencies not to volunteer or affirm that tab violations were a secondary level of priority for regular police officers, or used primarily as probable cause to stop a vehicle suspected of other "more serious" violations (e.g., drug violations). Nevertheless, because most other agencies stated tab violations are a secondary priority for police, Sierra believes a similar attitude must exist among some or even many Sacramento police.

Tab violations where the overdue period is less than one year are written as Notices of Corrections, except where there is evidence of fraud or persistent neglect, despite Vehicle Code Sec. 40303.5, which as noted disallows a Notice of Correction for tab violations. (The representative surveyed was not aware of that section.)

Sacramento police estimate that they are "aggressive" on vehicle registration violations, and that about 15-20% of all citations relate to such violations.

Oakland - Oakland police treat license tab violations as primarily a "parking" offense, so such violations are not their primary mission. License tabs are used as probable cause to stop vehicles, although

Oakland police are instructed always to look for and write tab violations once a vehicle is stopped. The Oakland Department of Public Works does look for and write tab violations on parked vehicles, even if there is no other parking-related violation. The representative at Public Works stated (with obvious frustration) that most tab violations occur on vehicles parked on private property (e.g., malls, private garages or supermarkets) where they are constrained from enforcing, and that vehicles parked on public streets typically have up-to-date tabs.

Like Sacramento police, Oakland police and parking enforcement personnel write tab violations as Notices of Corrections under Vehicle Code Section 5204, and are not aware of the prohibition against such notices in Section 40303.5.

San Diego - Both police and parking personnel in San Diego are instructed to look for and write tab violations. San Diego police use tab violations as probable cause to stop vehicles for other offenses, but also will stop vehicles if the only observed violation is tabs. San Diego is the only other agency beside Sacramento whose police say they do not treat tab violations as "secondary".

San Diego officials are aware of Section 40303.5, and write tab violations under Section 5204 as citations; tab violations also involving a registration violation under Section 4000(a) are written as Notices of Correction.

San Diego parking enforcement personnel feel that tab violations represent a "quite high" proportion of their citations, and that such citations are their "most written citation", although the department does not actively track the number of such violations. This official also said that as many as 10% of the vehicles with tab violations involve either stolen or fraudulent tabs; he attributed this to the high cost of re-registration (increased DMV fees plus smog check) coupled with the inability (or unwillingness) of many people to pay such costs.

San Francisco - San Francisco police are not interested in tab violations, even on moving vehicles, unless a vehicle has been stopped for other reasons, in which event they will look for and write tab violations. Parking enforcement personnel have approximately the same practice; they will look for tab violations only on vehicles parked illegally or overtime, or if the "beat is slow" for regular parking violations. The one-month DMV Policy used by most agencies is also enforced as a three-month "grace period" in San Francisco.

License tab violations are written as infractions, not Notices of Correction, by both police and parking enforcement personnel. Neither department maintains readily accessible data of the fraction of their hours or resources spent on license tab enforcement.

Los Angeles P.D. - A small minority of city police in Los Angeles look for tab violations alone; most look for moving violations and then look for and write tab violations once a vehicle is stopped. Tab violations are also used to stop vehicles suspected of other violations.

Los Angeles police issue a "correctable" Notice to Appear for tab violations, meaning that persons cited must appear in court but may avoid statutory penalties by showing proof of correction. This procedure is equivalent to a Notice of Correction, and thus is inconsistent with Vehicle Code Section 40303.5.

Los Angeles police do keep track of the number of citations issued by type of violation. For the last month for which full data was available at the time of the survey (July 1991), the department issued only 78 citations for violation of Sec. 5204, or considerably less than 1% of all violations. The department representative stated that such violations "are definitely not a high priority." Violations of Sec. 4000(a), on the other hand, are one of the department's most frequent citations.

Los Angeles Co. - The Sheriff's Department representative stated that enforcement of tab violations varies across 26 substations. Generally, regular deputies will cite for tab violations if a vehicle is stopped for other reasons, but most will not stop vehicles for tab violations alone. The primary focus is typically on other more serious criminal offenses. The same is true for parking enforcement personnel, although there are some areas (e.g., Hollywood) where parking is a major problem and license tab enforcement is actively used as a tool for solving parking problems.

The Sheriff's Department is aware that Notices of Correction are not allowed for Sec. 5204 violations, and therefore requires officers to issue citations. Sec. 4000(a) violations are handled through Notices of Correction. The department representative stated that citations were the preferred penalty, since requiring a court appearance to show proof of correction was a "waste of time." He also stated that a "large" fraction of the department's resources was spent on registration-related violations, although the department did not maintain readily accessible data.

CHP - The CHP clearly has the most aggressive attitude against license tab violations. Their officers are instructed to look for lapsed tabs, on both moving and stopped vehicles, and write all observed violations, even if no other violations (e.g., speeding) are involved. The CHP, however, does extend the "DMV Policy" to two months, instead of one month.

The CHP's policy is to write mainly violations of Sec. 4000(a) for tab violations. Violations are written as Notices of Correction if the tabs are less than six months overdue, and as a regular citation requiring a court appearance if more than six months overdue. The CHP is aware of the prohibition in Sec. 40303.5 against issuing Notices of Correction for tab violations under Sec. 5204.

In 1990, the CHP issued over 400,000 expired registration violations statewide, representing approximately 20% of their total number of citations.

Disposition of Penalties

In this area, Sierra's survey found a great deal of misinformation and lack of information. Several enforcement officials exhibited considerable knowledge about fines and where penalty monies go, but most had imprecise information. None of the law enforcement personnel interviewed were aware of the recent legislative changes diverting the majority of vehicular fine revenues to the state General Fund.

Sacramento - The Sacramento Police representative, based on the department's policy of issuing Notices of Correction, did not believe tab violations generate significant revenue, and was not aware how fines are distributed, other than "not to the department." While he did not feel that lack of revenues was an actual disincentive to enforcement, he believed that if the department received a share of any fines, it would be an incentive to enforcement.

Oakland - The Oakland police department representative expressed frustration about how the courts deal inconsistently and too leniently with registration violations. He did not know how fine revenues are distributed, other than "some percentage to the city and some percentage to the county." He stated that if revenues were channeled to their department, no additional incentive for enforcing tab violations would be created. In fact, he suggested that his department would "resent" such a policy, because "a violation is a violation, and [the department] is interested in compliance, not revenues."

San Diego - The San Diego police representative was not familiar with the applicable fines, or how fine revenues were distributed. He was aware that no funds were channeled back to his department, and stated that if his department received such revenues, it would not change their enforcement practices, since writing citations is "not revenue driven." The parking enforcement representative, by contrast, had considerable knowledge about what fines apply, including detailed information concerning the breakdown between fines, bail, and other charges. While his department writes all violations observed, he indicated that some return of revenues would be useful -- not as an incentive to enforcement, but to augment their ability to purchase automated/computerized citation equipment. He stated that the main limiting factor on their ability to cite was the time required to fill out forms, and that automation would enable them to write more violations.

San Francisco - The San Francisco police representative estimated the fine for tab violations at "\$50 plus correction", but had no idea where fine revenues go. He did not think that returning revenues to his department would increase enforcement. He said the principal focus in San Francisco is on the "flow of traffic", not parking. The parking enforcement official surveyed by Sierra thought that revenues were channeled to the general fund of the City and County, but not to his department.

Los Angeles Police - The Los Angeles police representative stated that the applicable fine was \$20, plus \$36 in bail, for a total of \$56, plus proof of correction. He had a detailed knowledge of how the fine is computed, and a reasonably accurate understanding of how fines are

distributed to cities and counties under the old system. He stated that it would make no difference if revenues were re-allocated so some would return to his department, unless the bail (as distinguished from the fine) were increased. Overall, he did not think receiving revenues from citations would have much of an effect on his department's enforcement policies.

Los Angeles County - The Sheriff's representative had no idea whether any revenues from tab violations went to his department, but stated further that fiscal considerations would not be a factor because their enforcement policy was already strict, and was based on public safety.

CHP - As a statewide agency, the CHP representative estimated the range of fines from \$50 to \$250, depending on the location. He had no special knowledge about how revenues are distributed, but believed that they are split between cities and counties. He did not feel that channeling revenues to the CHP would affect their policy, as it is already very aggressive. But he emphasized that providing revenues to local law enforcement agencies would be effective, because their efforts to enforce have been undercut by judges who waive fines and require only correction, which results in a net financial burden on the system that is highly frustrating to local officials.

Need for Legislation

Sierra's final set of questions dealt with whether the agency being surveyed would favor or support legislation channeling revenues from tab violation fines to the agency. (The individual surveyed was asked to state an "agency" position, and not a personal opinion, as best as possible without obtaining formal agency approval.) Following the pattern of divergence on policy, enforcement, and revenues described above, two agencies (Sacramento and San Diego) felt that legislation diverting revenues to enforcement agencies would be a good idea, two agencies were not supportive (Oakland and Los Angeles County Sheriff), and two did not know what position their department would take (San Francisco and Los Angeles Police). Where there was no support, there was also no opposition; the official interviewed simply felt that there would be no benefit from legislation. The CHP felt no need for legislation at the state level, but favored legislation diverting funds to local agencies.

7. CONCLUSIONS

Sierra's overall assessment of license tab enforcement is that an adequate system is in place, but that there are a number of technical flaws and inconsistencies in application.

Technical Flaws

No Requirement for Current Tabs - Vehicle Code Section 5204 requires license tabs to display the "year number for which issued." In actuality, DMV issues tabs that show the year of renewal. This difference, while seemingly trivial, was reported by one law enforcement representative as the basis for dismissal of citations by at least one judge. A relatively non-controversial legislative correction would solve this problem. Without such a correction, Section 5204 as presently written does not literally require that current tabs be affixed.

Different Penalties Apply - Tab violations are being cited under either Section 4000(a) or 5204. However, different penalties apply, depending on the section cited. A Section 4000(a) violation is subject to a minimum penalty of \$50 and a maximum penalty of \$250, apparently regardless of how many offenses have occurred; Section 5204 violations are subject to the regular penalty for infractions, as set forth in Vehicle Code Section 42001, of \$100, \$200, and \$250, respectively for the first, second and subsequent conviction within one year. Where tab violations are involved, equal penalties should apply.

Inconsistent Use Of Notice of Correction - Under Vehicle Code Section 40303.5, tab violations written under Section 5204 cannot be written as Notices of Correction; only an actual citation requiring payment of bail or a court appearance may be written. If proof of correction is not required by the applicable city or county bail schedule, or a judge in the case of a court appearance (e.g., in Alameda County), then a tab violation written under Section 5204 can result in no requirement to properly register a vehicle and therefore no compliance with the Smog Check program. However, for the very same offense written under Section 4000(a), a Notice of Correction is allowable. As the Notice of Correction does not result in court penalties, it is significantly less onerous. Legislation is needed to equalize the sanction under these two sections.

Enforcement Deficiencies

Variation In Sanctions - As detailed in Section 4, there is significant variation in how justice is applied for license tab violations. The extremes range from paying no penalty (proof of correction only) in Sacramento County or a penalty of \$24 paid by mail with no proof of correction required (Alameda County), to a maximum penalty of \$100 (first offense) plus state and local penalty assessments and proof of correction if convicted by a strict judge. Sierra's conclusion is that the variation is caused not due to factual or equitable differences from one case to another, but to such factors as differing citation procedures (e.g., use of Section 5204 vs. Section 4000(a)), variations in the cost of administering legal justice (e.g., local penalty assessments), and simple discretionary differences as to what penalty should apply.

While greater uniformity might be desirable, Sierra believes that it would be difficult to create uniformity. Much of the variation is inherent in the system, which assigns great discretion to local administration of justice. As a practical matter, the achievement of greater uniformity is probably limited to seeking more consistent treatment of tab violations under the Vehicle Code.

Moving Vehicles - Except for the CHP, the majority of the agencies interviewed by Sierra confirmed that regular peace officers are either instructed or allowed not to look for or stop moving vehicles with tab violations, unless a moving violation (e.g., speeding) is also observed or the occupants of the vehicle are suspected of other criminal activity (e.g., drug or alcohol offenses). Tab violations are typically viewed as a secondary priority, and are usually written as an incident to other violations or used as a basis for stopping a vehicle for investigation of other offenses. Sierra is not in a position to second-guess this policy, which is intended to give higher priority to offenses that are deemed more serious violations of the law (i.e., misdemeanors and felonies as opposed to an infraction). But the fact is that it results in a definite enforcement gap as far as tab violations are concerned. In addition, there is anecdotal evidence from the survey that owners of vehicles with lapsed tabs are aware of this gap, and modify their driving habits accordingly -- i.e., by driving carefully, they know they can reduce if not eliminate the chance of being seen or cited for lapsed tabs. Sierra cannot quantify the extent of this enforcement gap, but believes it is significant because the policy is widespread.

Parked Vehicles - With very little exception, the survey indicated that regular peace officers do not look for tab violations on parked vehicles. However, Sierra's survey determined that parking enforcement personnel generally do look for and cite vehicles with lapsed tabs, although there may be exceptions in crowded urban centers such as downtown San Francisco where traffic movement is the highest priority. Parking enforcement personnel almost universally cite under Section 5204 for tab violations; they cannot typically cite under Section 4000(a) because, not having the opportunity to interview the owner/operator, they have no evidence of a registration violation. Section 5204, however, is silent on where it may be enforced. Accordingly, parking enforcement personnel almost uniformly confine their enforcement to

vehicles parked openly on public streets; vehicles parked on private property (residential or commercial), or even on private property that is open to the public (e.g., shopping malls, department stores) are not investigated. Section 4000(a) allows enforcement on public streets and any "offstreet public parking facility", including those that are no-fee privately owned (e.g., a shopping mall), but its apparent greater reach is not used for parking enforcement purposes. There is anecdotal evidence from Sierra's survey that tab violations are higher for vehicles parked on private property, as opposed to vehicles parked on public streets -- i.e., owners of vehicles with lapsed tabs know that they can avoid citation by not stopping in public areas and parking only in private areas.

Zone of Free Movement - In combination, the moving and parked vehicle gaps described above create a "zone of free movement", or interregnum, where vehicles with lapsed tabs can circulate between personal residence, place of employment and commercial locations with significantly reduced risk of detection or citation. Vehicle owners who wish to avoid or delay payment of Smog Check inspection and repair costs therefore have the means to do so with relative impunity. Sierra believes that a significant percentage of the vehicles moving within this zone may in fact be high emitters, because the individuals who do not have the ability (or desire) to pay Smog Check costs would also typically lack the ability (or motivation) voluntarily to maintain their vehicles.

Fraudulent Tabs - Sierra received anecdotal information during its survey from one agency (San Diego Police) that a significant number of vehicles have false tabs indicating proper registration when in fact the vehicle is not properly registered. No quantification of the extent of this problem is possible from this study. The representative who made this comment observed that the high cost of vehicle registration, in combination with increased Smog Check costs, may be motivating factors. The display or use of false tabs is presently treated as a misdemeanor under Vehicle Code Section 4462.5, and no further remedy appears to be needed.

DMV 30-Day Policy - All agencies surveyed confirmed their adherence to the so-called "DMV Policy" of not citing vehicles with tabs more than 30 days out-of-date. However, our survey revealed that the 30-day period may be extended (officially or unofficially) to 60 days, or perhaps even longer, by some agencies or individual officers.

DMV "Fees Only" Policy - The policy of DMV allowing vehicle owners to pay fees only, and then drive off for up to a year without actual registration and without proof of compliance with the Smog Check program, is a major disparity. Ideally, complete termination of this policy, which is of questionable legality, would be preferred. However, there could be a significant adverse public reaction, not just to DMV but also to the Smog Check program, if complete termination occurs. Sierra believes that allowing applicants for re-registration who have failed to obtain a required Smog Check certificate an additional 30 days to do so without penalty would be acceptable if there is an adequate incentive for compliance within the 30-day grace period. DMV could provide the needed incentive by changing its policy so that vehicle

owners are advised that if the registration process is not completed within 30 days, DMV will request local law enforcement agencies to investigate and issue citations. It would also be useful to have the late registration penalties under Section 9554 apply if registration is not completed within the 30-day period (this requirement would appear to require legislation).

No Revenue Return To Local Enforcement Agencies - This study confirms that local law enforcement agencies do not receive any revenues from license tab enforcement. In fact, the 1990 statutory changes diverted revenues to the state that previously went to cities and counties. Many of the representatives interviewed stated, with evident pride, that enforcement of the law is inherent to their jobs and that revenues are not a factor. While such an attitude is admirable, Sierra believes that if at least a portion of the revenues from license tab fines and penalties were diverted to local enforcement budgets, greater emphasis on license tab violations would in fact occur.

The proof of this conclusion is the CHP -- the one exception to our finding of no return of revenues. The CHP presently does receive funding from DMV late registration penalties. Sierra's interview of the CHP determined that CHP officers consider vehicle registration violations as one of their highest priorities, and that they actively look for and write all registration violations. The CHP's attitude was uniquely more aggressive than the local agencies; in recommending that local agencies need and should support revenue return, the CHP representative acknowledged that revenue return was important to the CHP.

Two possible sources for local revenues exist: infraction fines and penalties, and DMV fees. In each case, Sierra believes that there is sufficient justification and precedent for increasing the amount assessed and requiring that such increase be used for direct funding of local license tab/registration violations. Legislative action would be required to accomplish this objective.

Need for Better Enforcement

Before reaching its recommendations in the next section, Sierra believes that CARB should also consider whether reform of the existing license tab compliance system will in fact significantly improve the Smog Check program.

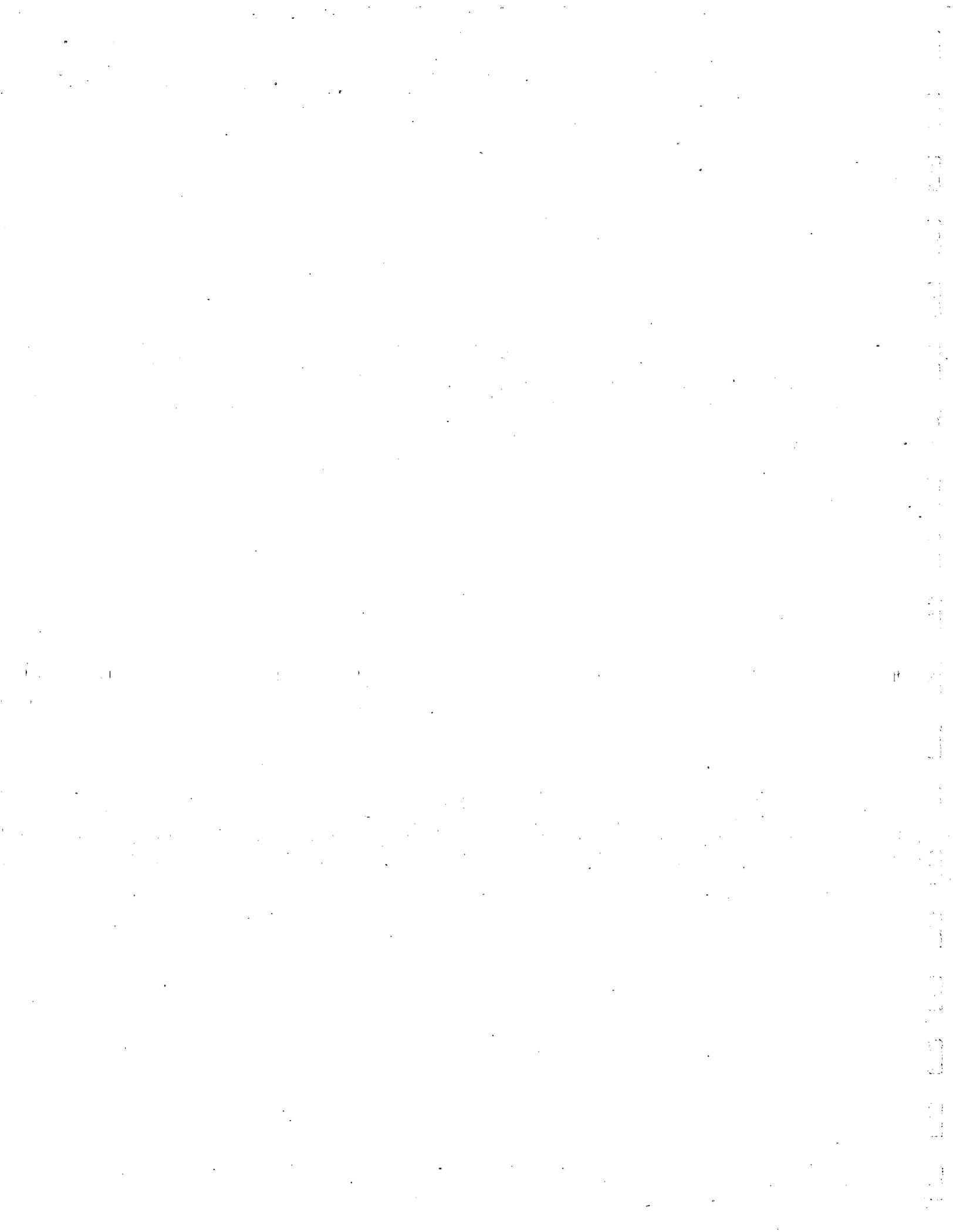
To address this question, CARB should examine the results of this report in conjunction with Sierra's 1990 survey, referred to previously. The 1990 survey showed that, under the enforcement program in place in 1990, the "rate of unregistration" is reduced by half within three months after the date of expiration (from 8.3% to 4.3%), and by over 80% within one year (from 8.3% to 1.4%). These results demonstrate that nearly all vehicle owners either voluntarily come into compliance or are caught by enforcement and made to comply within one year. Put another way, compliance with the Smog Check program through the biennial re-registration requirement is effective on about 98-99% of the state's vehicle population, subject to a 12-month delay.

Sierra assumes that an 8.3% noncompliance rate is unacceptable to CARB. At the same time, however, the 1.4% noncompliance rate achieved after one year is probably at or close to a level that cannot significantly be improved even with full implementation of all the recommendations in this report. Thus, the real question before CARB is whether better enforcement should be sought primarily to obtain more timely enforcement, as opposed to an improved ultimate level of compliance.

In determining whether more effective enforcement to achieve more timely compliance is appropriate, CARB should consider a number of factors:

- Because the one-year delay in achieving substantial compliance is constant from year to year, the most that could be accomplished through more effective enforcement of the license tab requirement would be a one-time speed-up in Smog Check compliance. Once the speed-up has been accomplished, there would be no further benefit from more timely compliance; additional benefits could only come from a reduction in the 1-2% remaining non-compliance rate, which Sierra suspects will be extremely difficult to achieve.
- Implementation of the most effective improvements might not speed up compliance more than several months on average.
- On the other hand, Sierra's 1990 survey found that many of the vehicles not properly registered were older vehicles that tend to fall into the high emitter category; if the recommended reforms cause even a small improvement in the overall compliance rate (e.g., from 1.4% to 1%), there could be a compensating large air quality benefit from capturing such vehicles in the Smog Check program.

Sierra raises these competing considerations to assure that CARB will consider whether efforts to improve compliance with the Smog Check program through better enforcement of the license tab requirement are in fact worthwhile. Sierra's recommendations in the following section are provided on the assumption that CARB determines that such efforts should be pursued.



8. RECOMMENDATIONS

Sierra has identified the following measures as ways to improve compliance with the Vehicle Code requirement that vehicles display current license tabs:

1. Revenue Return - Based on the CHP example, Sierra believes that returning some portion of penalty dollars to local law enforcement agencies for writing license tab violations is CARB's most effective option, notwithstanding statements by the local agencies that enforcement is not revenue-dependent. This would be the most effective way to close down the vehicle enforcement gap, described previously, that exists due to the secondary status of license tab violations for regular peace officers.

Revenue return could be based on either fines collected from bail forfeiture and court verdicts, from DMV penalties, or both. Given that existing penalty funds are being used to help balance the General Fund, Sierra recommends that a new or additional penalty be created, as was done in AB 911 in 1991. Merely redirecting existing penalty monies is not likely to be accepted by the Legislature.

An alternative approach would be a bill adding a reasonable "smog surcharge" to DMV late penalties, and allocating the monies so collected to local law enforcement agencies based on their pro rata share of the annual statewide license tab violations written.

A final possible mechanism for collecting such a surcharge for the benefit of enforcement agencies would be through the Smog Check program itself. Licensed stations could be required to impose a surcharge for inspections done for the purpose of issuing a proof of correction following citation, with the extra funds so collected going to the citing agency. This approach would require a change in BAR procedures, so that licensed stations can identify when inspections are being done to remedy late re-registration. Sierra recommends looking at the extent to which this approach might be feasible under existing law; however, our preliminary reading is that legislation will be required.

2. Vehicle Code Reform - Sierra recommends that the Vehicle Code technical flaws described in Section 7 be corrected so that the following consistent, clear procedure would apply:

- Tabs must show the year and month of expiration (not of issuance).
- The Notice of Correction option should be prohibited under both Sections 5204 and 4000(a).

- Tab violations under both sections should be subject to a minimum fine of \$100, increasing to \$200 for the second offense and \$250 for the third and subsequent offenses; for the purpose of determining multiple violations, carryover could run for five years instead of just one year, in order to catch repeat offenders.
- In addition to the fine, proof of correction should be made mandatory, whether the offense is disposed of through bail forfeiture or court order.
- Both Sections 5204 and 4000(a) should contain provisions allowing enforcement on private property that is available to the public for parking, whether for free or for fee, in order to close the parked vehicle enforcement gap identified above.
- The "DMV Policy" (grace period) should be officially codified and set not to exceed 30 days maximum; in addition, issuance of a warning ticket and/or other document to emphasize the need for compliance during the 30-day grace period might be authorized.

3. DMV Penalties - As noted, DMV late registration penalties were doubled last year and now appear to be somewhat more costly than infraction fines. However, the penalty may still be low for the first year, which Sierra's 1990 survey has shown to be the most critical time period. Accordingly, Sierra recommends that the penalty be revised to step upward geometrically within the first three months, rather than over three years, in order to provide a stronger incentive for timely re-registration. The following accelerated version of the current schedule might be used:

- If the delinquency is less than one month..... 40%
- If the delinquency is more than one month but less than three months..... 80%
- If the delinquency is more than three months..... 160%

The "smog surcharge" for local law enforcement agencies mentioned previously could be added to this schedule, and could also be made to increase geometrically, e.g., 10% of total fees, increasing to 25% and then 50%, respectively, over the same three-month period. Sierra recognizes that these changes, individually and cumulatively, would make the DMV penalties much more severe; however, with penalties at such levels, the improved deterrent effect on vehicle owners and the enforcement incentive for law enforcement should be significant.

In addition, Sierra recommends that a formal request be sent to DMV asking it to revise its "fees only" policy so that any vehicle which is not completely registered within 30 days of its registration date is referred to local law enforcement agencies for citation. In addition,

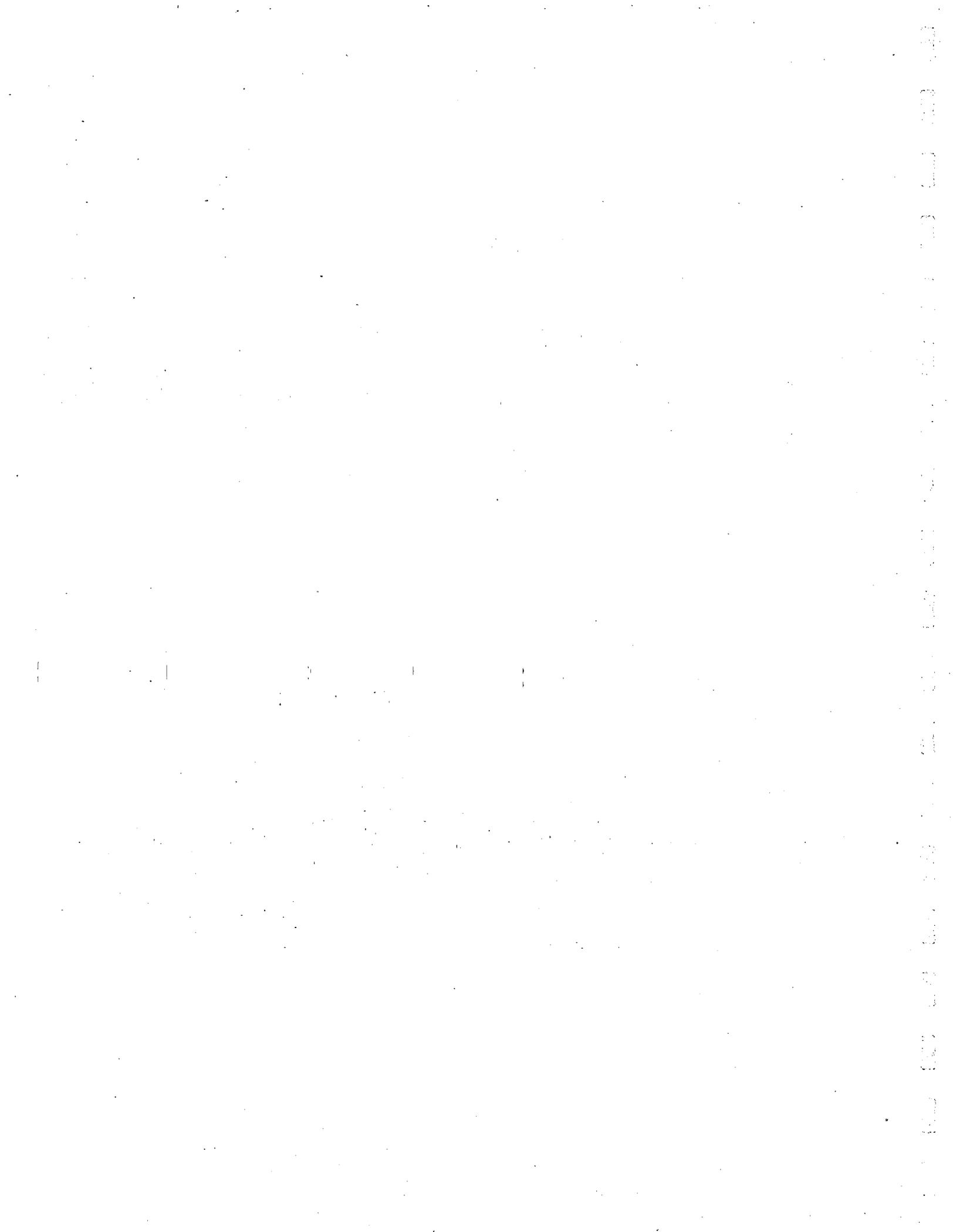
DMV support should be sought for legislation applying the late penalties described above if an applicant does not complete the re-registration transaction, including Smog Check certification, within 30 days of the re-registration deadline.

4. "Jawboning" - As in the case of national economic policy, in coordination with the Bureau of Automotive Repair, CARB should also consider a number of actions promoting voluntary public compliance and stronger enforcement by local law enforcement agencies. Possible such actions include the following:

- A high-quality public information campaign (e.g., public service TV spots and newspaper ads) to inform California vehicle owners of the air quality benefits of timely re-registration and compliance with Smog Check program, versus the disadvantages of suffering the applicable sanctions. The new, higher DMV penalties might be the focus of the latter message.
- A letter from the Governor, Attorney General and/or CHP Director to local law enforcement agencies explaining the enforcement gaps under the current law, and asking for their cooperation in looking for and citing lapsed tabs.

5. SIP Requirements - The 1991 Attainment Plan recently adopted by Sacramento County contains a measure entitled "Management of Gross Emitter Vehicles" (Volume IV, Chapter 5, of the "Sacramento 1991 Air Quality Attainment Plan"), which proposes to supplement regular enforcement of vehicle registration requirements by using off-duty or retired law enforcement officers to patrol parking lots (including private parking lots that are open to the public, such as lots serving places of employment and retail operations). The officers would be empowered to issue citations for lapsed license tabs. Sierra has no evidence of how effective such measures might be, but CARB could consider supporting the Sacramento proposal as a pilot program to test effectiveness and public acceptance. If results are favorable, CARB could recommend such programs for adoption as SIP measures in other districts.

The Sacramento plan also proposes a 1-800 number for citizens to phone in to the district the license number of plates with lapsed tabs or no tabs. However, sending officers out in response to unverified citizen complaints would be a highly inefficient use of limited law enforcement resources, and public acceptance of a campaign that uses citizens to turn in other citizens is unlikely.



APPENDIX

Questionnaire for Law Enforcement Agencies

Questionnaire for Law Enforcement Agencies

re: Enforcement of License Tab Requirement

I. Agency Policy

1. Does your agency have an established policy regarding enforcement of the tab requirement (VC §5204)?

If YES,

- What is that policy?

- How long has it been in effect?

- Is it written? If yes, can we get a copy?

- How is it communicated to enforcing officers?

- Is enforcement of the tab requirement regarded as important or useful? yes/no?

If NO,

- Why not?

II. Enforcement Practices

1. Do your officers actively look for tab violations?
2. Are drivers stopped and cited for tab violations alone or only if there are other grounds?
3. If a vehicle is stopped for a non-tab related violation, do your officers look for and write tab violations?
4. Do you issue a Notice of Correction if a tab violation is found, or write an Infraction Notice?
 - Are you familiar with VC §40303.5, allowing a Notice of Correction for all equipment violations except license tabs?
 - Do you think VC §40303.5 is sound policy? (Explain)
5. What fraction of your resources (hours or dollars) is spent on tab enforcement?

III. Disposition of Penalties

1. Do you know what the applicable penalty is? If yes, what is it?

2. What disposition is made of any penalty monies from license tab violations?

- Does VC §42201.5 apply? (Assigns infraction monies to cities and counties for specified road & eqpt. purposes)

3. Is the current amount and disposition of penalties an incentive or disincentive to enforcement?

4. If penalty monies were assigned to enforcement agencies, would that change your agency's policy or enforcement practices? If yes, how?

5. If penalties were increased, would your enforcement policy or procedure become more strict? How much of an increase is needed?

IV. Need for Legislation

1. Do you think legislation is needed in this area?

If YES, what should the bill do:

- Increase the applicable penalty?

- Allow Notice of Correction?

- Assign penalty monies to enforcing agency?

- Other?

If NO, why not?

2. Would a bill a) increasing tab violation penalties and b) assigning penalty monies to the citing agency change your enforcement policies or practices? What if only a) is passed? What if only b)?

3. Would your department actively support a bill with both a) and b)? What if a) only? What if b) only?

April 13, 1992



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research

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Memo To: Rich Sommerville
Tom Cackette

From: ^{TCA} Tom Austin and ^{SKM} Kingsley Macomber

Subject: Follow-up On License Tab Issue

Following our recent presentation to the I/M review committee, we have several items for your consideration:

Final Draft Report - Enclosed as Attachment A is our final draft of Sierra's written report on enforcement of the vehicle license tab requirement. We have incorporated revisions to reflect comments received during the committee presentation, as well as new information recently received from DMV; otherwise, the final draft is similar to the first draft provided in late January.

Technical Amendments - Attachment B is our first draft of legislative changes needed to correct the technical deficiencies in the Vehicle Code noted in our report. As these changes are relatively noncontroversial, we assume that the committee and ARB will want to proceed on these changes once final wording has been agreed upon.

Revenue Return - We have also prepared, as set forth in Attachment C, a separate proposed statutory amendment that would increase the penalty for a license tab violation and allocate the additional funds generated by the increase directly to the enforcement agency. In our opinion, this amendment is probably the single most effective measure that the committee and ARB could take to improve enforcement, since it would provide a real incentive for city and county law enforcement personnel to stop and cite vehicles with delinquent tabs when no other violation is being observed, as only the CHP now does. At the same time, this change could be more controversial and therefore more difficult to take through the legislative process. For this reason, the revenue return proposal should probably be embodied in a separate bill from the technical amendments.

DMV "Fees Only" Policy - Finally, Attachment D is a draft letter to DMV requesting it to revise its current "fees only" policy allowing vehicle owners to pay fees, then drive their vehicles without liability for late registration penalties and without compliance with the Smog Check inspection requirement. While DMV instructs owners that they must complete the re-registration transaction within 30 days, there is no real enforcement other than a reminder letter. Sierra believes this policy is a major contributor to the problem of delayed compliance with Smog Check.

Other - Other recommendations in our report include: statutory revision of DMV's late penalties so they apply sooner (possibly with a surcharge if the reason for lateness is a failure to comply with the Smog Check program); a letter from the Governor, Attorney General and/or CHP Director to local enforcement agencies asking for strict enforcement of the license tab requirement; and a public information program. Sierra will provide specific proposals on these recommendations if requested.

attachments

ATTACHMENT B

Vehicle Code Technical Corrections

1. Amend Vehicle Code Section 5204 as follows:

5204. (a) Except as provided by subdivision (b), a tab shall indicate the year number ~~for which issued~~ of expiration and a tab shall indicate the month of expiration, which tabs, ~~stickers, or other suitable devices~~ shall be attached to the rear license plate assigned to the vehicle for the last preceding registration year in which the plates were issued, and, when so attached, the license plate with the tabs, ~~stickers or other devices~~ shall, for the purposes of this code, be deemed to be the license plate for the ensuing preceding registration year, except that truck tractors, and commercial motor vehicles having an unladen weight of 10,000 pounds or more, shall display the tabs, ~~stickers, or other devices~~ upon the front license plate assigned to the truck tractor or commercial motor vehicle.

(b) The requirement of subdivision (a) that the tab indicate the year number for which issued and the month of expiration does not apply to fleet vehicles subject to Article 9.5 (commencing with Section 5300).

(c) This section shall be enforceable against any motor vehicle that is driven, moved, or left standing upon a highway, or in an offstreet public parking facility, in the same manner as provided in subdivision (a) of Section 4000 of this code.

PURPOSE: Conforms statutory requirement for affixation of tabs to current DMV practice of issuing a year tab showing year of expiration, rather than year of issuance. Strikes outdated references to "stickers or other suitable devices", which are not used by DMV. Clarifies that license tab violations may be enforced in the same locations as registration violations under Section 4000(a), including in offstreet parking areas that are either publicly owned or privately owned but open to the public (e.g., shopping center malls and high-rise parking facilities).

2. Amend Vehicle Code Sections 40152, 40153, 40303.5, 40522, 40610(a)(1), 42001.8 as follows:

40152. (a) Whenever any vehicle or combination of vehicles is found to be not registered as required by this code, and a notice to appear or notice of violation is issued, or a complaint is filed, for such violation, the person to whom ~~the~~ such notice ~~to appear~~ is issued or against whom the complaint is filed shall produce in court satisfactory evidence that the vehicle or combination of vehicles is registered, is in compliance with the motor vehicle inspection program established pursuant to Chapter 5 (commencing with Section 44000) of Part 5 of Division 26 of the Health and Safety Code, had appropriate fees paid, or is reduced to junk, to conform with the requirements of this code. The court

shall not adjudicate the offense, nor shall forfeit of bail be accepted, until that evidence is produced.

(b) A four-day, non-resident commercial trip permit of the type authorized in Section 4004 may not be accepted as evidence of registration compliance as required in subdivision (a) of this section.

40153. Whenever a notice of violation of subdivision (a) of Section 5204 is issued pursuant to subdivision (b) of Section 40225, or other citation for violation of Section 5204 is issued, the court shall not adjudicate the offense, nor shall forfeit of bail be accepted, until satisfactory evidence is produced to the court that the appropriate registration fee has been paid, and that the vehicle is in compliance with the motor vehicle inspection program established pursuant to Chapter 5 (commencing with Section 44000) of Part 5 of Division 26 of the Health and Safety Code, or the vehicle has been dismantled.

40303.5 (a) Whenever any person is arrested for any of the following offenses, the arresting officer shall permit the arrested person to execute a notice containing a promise to correct the violation in accordance with the provisions of Section 40610 unless the arresting officer finds that any of the disqualifying conditions specified in subdivision (b) of Section 40610 exist:

~~(a)~~ (1) Any registration infraction set forth in Division 3, (commencing with Section 4000), except subdivision (a) of Section 4000 and subdivision (a) of Section 5204.

~~(b)~~ (2) Any driver's license infraction set forth in Division 6 (commencing with Section 12500), and subdivision (a) of Section 12951, relating to possession of driver's license.

~~(c)~~ (3) Section 21201, relating to bicycle equipment.

~~(d)~~ (4) Any infraction involving equipment set forth in Division 12 (commencing with Section 24000), Division 13 (commencing with Section 29000), Division 14.8 (commencing with Section 34500), Division 16 (commencing with Section 36000), Division 16.5 (commencing with Section 38000), and Division 16.7 (commencing with Section 39000).

(b) Whenever any person is arrested for violation of subdivision (a) of Section 4000 or subdivision (a) of Section 5204, the notice of violation or other citation issued by the arresting officer shall notify the person that proof of correction is required in addition to payment of any applicable fines.

40522. (a) Whenever a person is arrested for violations specified in Section 40303.5, except a violation of subdivision (a) of Section 4000 or subdivision (a) of Section 5204, and none of the disqualifying conditions set forth in subdivision (b) of Section 40610 exist, and the officer issues a notice to appear, the notice shall specify the offense charged and note in a form approved by the Judicial Council that the charge shall be dismissed on proof of correction. If the arrested person presents, by mail or in person, proof of correction, as prescribed in Section 40616, on or before

the date on which the person promised to appear, the court shall dismiss the violation or violations charged pursuant to Section 40303.5.

The court shall not impose a fine or assess an administrative fee for a violation or processing a proof of correction with respect to a violation for which proof of correction has been timely and properly secured.

(b) Whenever a person is arrested for violation of subdivision (a) of Section 4000 or subdivision (a) of Section 5204, the court shall require, in addition to any fine required under Section 42001.8, that the arrested person show proof of correction as specified in Section 40152 or 40153, as applicable.

40610. (a) (1) Except as provided in paragraph (2), if, after an arrest, accident investigation, or other law enforcement action, it appears that a violation, other than a violation of subdivision (a) of Section 4000 or subdivision (a) of Section 5204, has occurred involving a registration, license, or mechanical requirement of this code, and none of the disqualifying conditions set forth in subdivision (b) exist and the investigating officer decides to take enforcement action, the officer shall prepare, in triplicate, and the violator shall sign, a written notice containing the violator's promise to correct the alleged violation and to deliver proof of correction of the violation to the issuing agency.

42001.8. Every person convicted of an infraction, or who forfeits bail, for a violation of Section 4000 or Section 5204 shall be punished by a fine of not less than fifty dollars (\$50) and not more than two hundred fifty dollars (\$250).

PURPOSE: Taken together, these amendments disallow use of the Notice of Correction in lieu of fines for registration violations under Section 4000(a), and makes payment of fines mandatory, as is presently the case for tab violations under Section 5204. The amendments extend the \$50 minimum fine for Section 4000 violations to violations of Section 5204. In addition to payment of fines, they further require that the vehicle owner show proof that the vehicle has been properly registered and brought into compliance with the Smog Check program, or junked.

ATTACHMENT C

Return of Revenue to Arresting Agency

Amend Vehicle Code Section 42001.8 as follows:

42001.8 Every person convicted of an infraction for a violation of Section 4000 or Section 5204, or who forfeits bail with respect to such a violation, shall be punished by a fine of not less than fifty dollars (\$50) one hundred dollars and not more than two hundred fifty dollars (\$250). Notwithstanding any other provision of law, the first fifty dollars (\$50) of any fine collected under this section shall be allocated to the enforcement agency responsible for making the arrest under Section 4000 or Section 5204; the remainder of the fine shall be allocated as otherwise provided under law.

PURPOSE: Increases the minimum penalty for license tab and registration violations by \$50, and allocates the increase to the enforcement agency that made the arrest. Because only the increase is specially allocated, there is no reduction in revenues allocated to the General Fund and cities and counties under the existing statutory formula. Intended to provide a direct monetary incentive to local and state agencies for stricter enforcement of the registration and tab requirements that assure compliance with the biennial Smog Check program. If a law enforcement agency writes just three extra license tab violations a day as a result of this change, the agency will generate over \$50,000 in extra revenues each year.

ATTACHMENT D

Draft Memo to Department of Motor Vehicles

Re: Modification of "Fees Only" Policy

TO: Carole Waggoner, Chief
Division of Program and Policy Administration
Department of Motor Vehicles

FROM: Richard Sommerville, Chair
Inspection and Maintenance Review Committee

Tom Cackette
Chief Deputy Executive Officer
California Air Resources Board

Re: DMV "Fees Only" Policy

As you know, the primary enforcement mechanism for compliance with the biennial Smog Check inspection requirement is the Vehicle Code provision in Section 4000.3 directing DMV to require a Smog Check certificate as a condition for re-registration of vehicles.

Recent studies by the I/M Review Committee and the California Air Resources Board (CARB) have indicated that about 8.3% of the vehicles on the road in California are being operated with delinquent license tabs, and are therefore presumptively not in compliance with the Smog Check program. An overall non-compliance rate of 8.3% is clearly not acceptable, particularly in light of the increased emphasis on I/M as a highly cost-effective air pollution control strategy under both the federal and state Clean Air Acts.

We have identified a number of approaches to bring down the 8.3% non-compliance rate, including improved enforcement against out-of-date tabs by local enforcement agencies, and higher court penalties. Our studies also confirmed the existence of a DMV policy that appears to be a significant contributor to delayed compliance with the Smog Check program, namely, DMV's "Fees Only" policy.

As we understand the policy, when vehicle owners apply for re-registration of their vehicles and present the required fees, but fail to present a required Smog Check certificate, DMV will accept the fees and issue a receipt along with instructions to the owner that the re-registration transaction must be completed within 30 days. By accepting fees, DMV precludes application of the late registration penalties under Section 9554. We understand that such transactions are noted by DMV's revenue collection unit, which sends out a reminder letter if re-registration is not completed within the 30-day period.

This procedure has apparently been developed to accommodate owners who forget about or procrastinate in complying with Smog Check requirements.

Nevertheless, this "Fees Only" policy does result in many vehicles being allowed by DMV to be driven without Smog Check compliance. Aside from the DMV reminder letter, and the somewhat remote risk of being stopped for delinquent license plate tabs, there is no incentive for vehicle owners to meet the 30-day "deadline" for completing the re-registration transaction. The result is that vehicle owners are able to postpone compliance with Smog Check for up to a year.

We recognize that DMV is obligated to accept fees when a vehicle owner applies for re-registration. But some change in policy is needed to address what is clearly a significant loophole in the Smog Check program. We, therefore, would like to propose the following remedies:

1. Instead of verbal "instructions" that re-registration must be completed within 30 days, DMV should issue the owner an official document entitled "Notice of Unregistered Vehicle" stating that acceptance of fees does not constitute re-registration and that re-registration must be completed within 30 days of the applicable re-registration deadline. The notice should state that it will be sent to the city or county law enforcement agency for the owner's residence address with a request for investigation and citation if re-registration has not been completed by the applicable deadline. If, after the 30-day deadline has passed, DMV records do not show completion of the re-registration transaction, DMV should forward a copy of the notice to the local law enforcement agency with a request for investigation and citation. A copy of the request should be mailed to the vehicle owner.
2. Amend the Vehicle Code late registration penalty provisions to allow DMV to collect late fees if the re-registration transaction is not fully completed within 30 days after the re-registration deadline.

It is possible that DMV will have other ideas for addressing this problem, and we would appreciate your suggestions. But the I/M review Committee and CARB believe firmly that the current DMV "Fees Only" policy must be altered so that the biennial Smog Check requirement is enforced effectively and on a timely basis when a vehicle comes up for re-registration.

APPENDIX B



a final report for:

**UNREGISTERED VEHICLE SURVEY IN THE
SOUTH COAST AIR BASIN - SERIES II**

prepared for:

Sierra Research, Inc. (Prime Contractor)
1521 I-Street
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Project Manager - Robert Dulla

and

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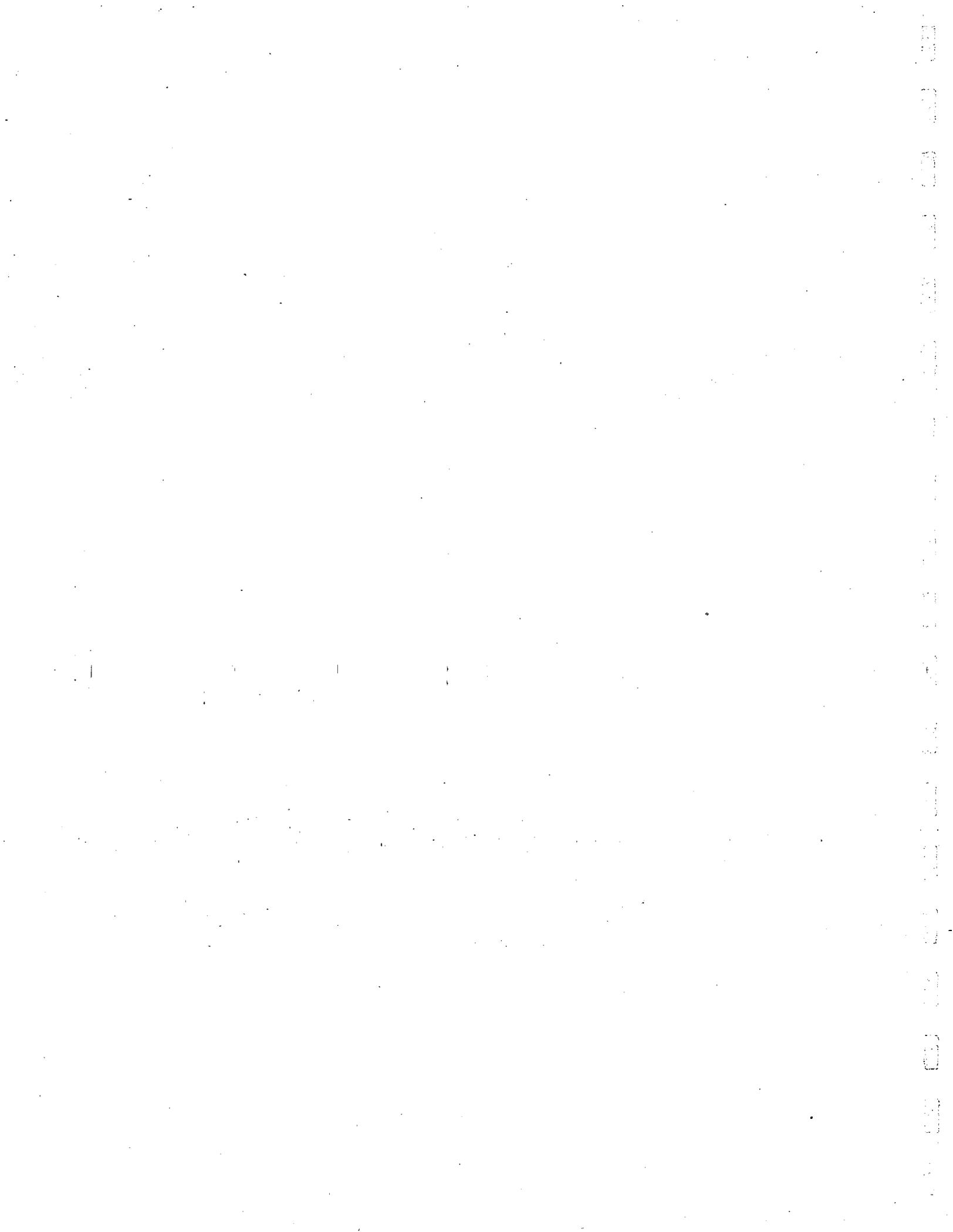


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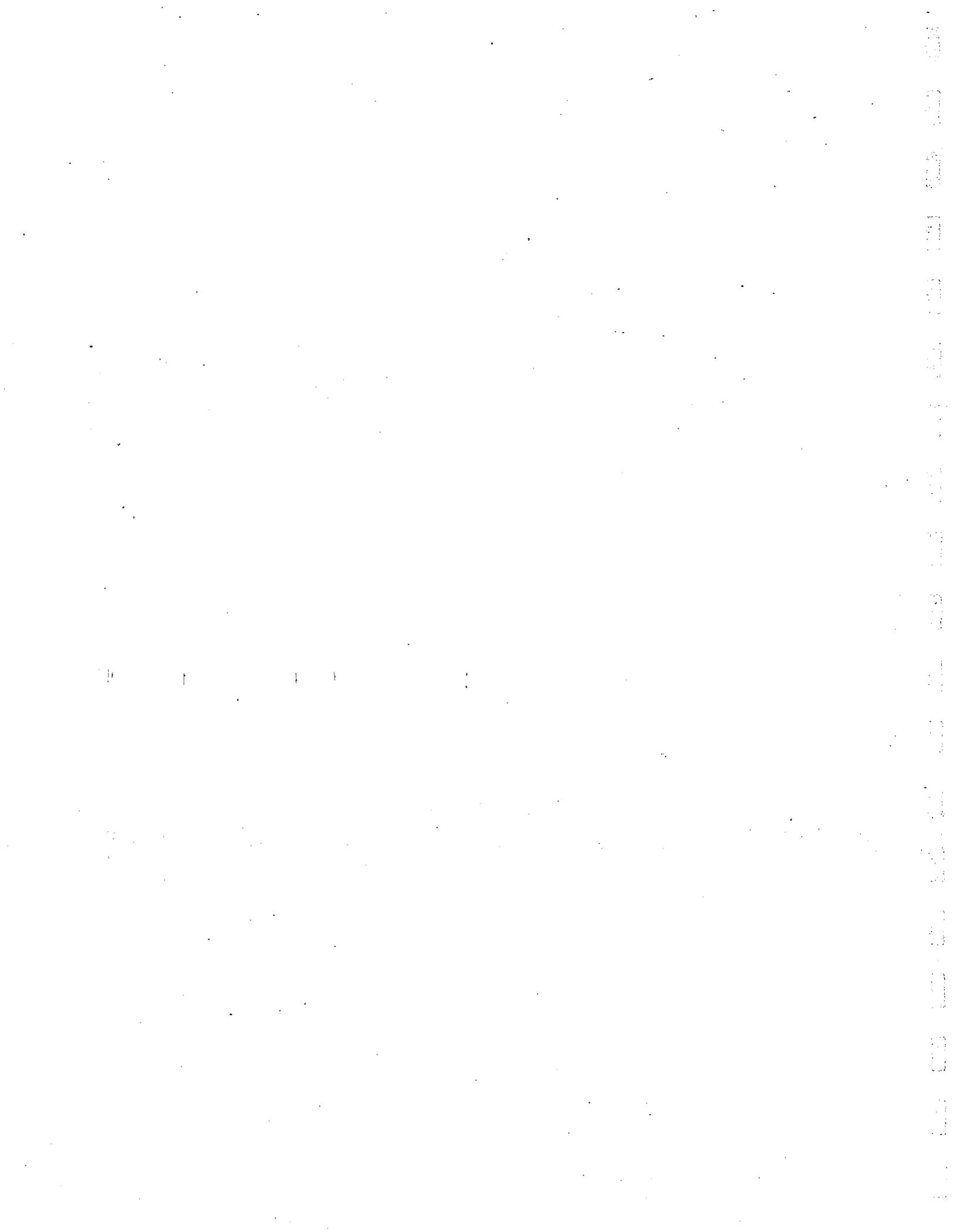
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1.0 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

California's biennial inspection and maintenance (I/M) program, commonly called the "Smog Check", was implemented in March 1984. The program, which applies to gasoline-powered cars and light- and medium duty trucks in air quality non-attainment areas, requires vehicles to be inspected every two years or upon change of ownership. In January 1990, repair cost ceilings under the program were increased substantially. To investigate the impacts of these cost increases on compliance with the program, Valley Research Corporation has completed the second phase of a two-phase survey of vehicle unregistration rates in the South Coast Air Basin (SCAB).

In Phase I of the study, completed in the summer of 1989, a total of 30,306 were sampled at parking lots of retail establishments. Surveyors recorded the vehicle license number and month and year of expiration on registration decals. Unregistration rates were estimated in two ways: first according to registration status observed on registration decals and then by using Department of Motor Vehicles (DMV) registration records. Since DMV records provide information such as county of registration, vehicle identification number (VIN), and vehicle model year, a more detailed analysis of the characteristics of the unregistered vehicle population was also completed.

Phase II of the study was implemented during the summer of 1991 -- two years subsequent to Phase I and about 1.5 years after increases in smog check repair cost ceilings went into effect. Thus more than 75% of vehicles would have been subject to post-1989 repair cost ceilings had they failed a smog check. The survey was conducted in the same manner as in Phase I, with surveyors visiting shopping centers throughout the SCAB and recording expiration month and year found on decals, license plate number and type, and vehicle body type. DMV provided additional information from registration records. Unregistration rate was calculated for four model-year groups as well as for the statewide vehicle population. Results were compared with the results of Phase I of the study.

1.2 SUMMARY OF FINDINGS AND CONCLUSIONS

This study has produced the following findings and conclusions:

- Based on expiration decals on license plates throughout the SCAB, the overall unregistration rate for some 30,000 vehicles surveyed in 1991 was found to be 7.8%, a decrease of 1.2% from a rate of 9.0% in 1989. This decal-based determination is imprecise, however, because among other reasons about 5% of vehicles have current-month decals and thus their registration statuses cannot be determined from decals alone.
- Raw DMV-based unregistration rates for the 1991 survey sample exhibit large differences from those for the 1989 survey sample. However, these differences were significantly reduced after adjustments for vehicles that moved out of California and retired from use during a prolonged data processing delay that occurred after the 1991 survey.
- When corrected for the delay, the overall unregistration rate for the 1991 vehicle sample based on DMV registration records was found to be 7.1%, a decrease of 1.0% from 8.1% in 1989.
- As in the 1989 survey, unregistration rates were found to generally increase with increasing vehicle age, except for the oldest model years. The highest unregistration rates were found in the 1972-1974 model year group.
- Based on the findings of this study, there is no evidence to suggest that unregistration rates have increased due to increased I/M repair cost ceilings. In fact, there is evidence to suggest that unregistration rates decreased slightly between the 1989 and 1991 surveys, probably due to an increased familiarity of vehicle owners with the smog-check program.

2.0 SURVEY DESIGN AND IMPLEMENTATION

2.1 SUMMARY OF SURVEY METHOD

Most aspects of the field survey of in-use vehicles were worked out prior to Phase I of the study. At that time, several possible approaches were evaluated with regard to their statistical soundness and practicality of operation. The advantages of approaches such as a telephone survey or video surveillance of vehicles in traffic were noted, but ultimately it was concluded that a survey of vehicles parked in parking lots at shopping centers would provide a cost-effective way of developing a large sample while meeting other statistical requirements such as representativeness and low sampling error. Parking lots tend to have high numbers of vehicles concentrated in a relatively small area, while shopping centers attract a generally representative cross-section of the vehicle population. Since they are parked rather than in traffic, both the license number and registration decals can be read and recorded with accuracy. Although the Smog Check Program applies to gasoline-fueled vehicles in all non-attainment areas of California, sampling was limited to the SCAB, the largest I/M area in the state. To ensure a geographically balanced sample, the SCAB was divided into 34 subareas, which coincide with 38 Regional Statistical Areas designated by the Southern California Association of Governments but for 4 sparsely populated areas which were merged with adjacent areas. The sample of 30,000 vehicles was allocated to the subareas in proportion to 1987 population.

During the Phase I (1989) survey, it was found that a proportional random sampling of vehicles in shopping center parking lots would not provide a large enough sample of commercial vehicles or vehicles in the older model year groups. Thus a targeted random sampling method for use along with proportional random sampling in the second half of Phase I was devised. In the targeted sampling, sample sizes for each of several license plate series in two license plate types were allocated to each subarea. The license plate types distinguish auto-licensed vehicles, whose license numbers include 3 alphabetic characters, from commercially-licensed vehicles, whose license numbers have a single alphabetic character. A few changes in the patterns, or license plate series, over the past few decades provide a rough indication of the vehicle model year for vehicles whose license plates have not been replaced. The license plate series start dates and the number of outstanding license plates is shown in Table 2-1.

Table 2-1. CALIFORNIA LICENSE PLATE SERIES START DATE AND NUMBER OF
OUTSTANDING LICENSE PLATES

License Plate Series	Start Date	Volume	Percentage
Commercial License Plates			
Forward Alpha (A00000)	Jan-63	286,112	3.86
Reverse Alpha (00000A)	Oct-69	814,163	10.98
7 Character (1A00000)	Jan-74	1,395,626	18.82
7 Character (2A00000)	Apr-83	1,884,698	25.42
7 Character (3A00000)	Dec-82	2,261,467	30.50
7 Character (4A00000)	May-90	<u>772,172</u>	<u>10.41</u>
Total		7,414,238	100.00
Auto License Plates			
Forward Auto (ABC123)	Jan-63	1,162,162	4.22
Reverse Auto (123ABC)	Oct-69	6,512,883	23.66
7 Digit (1ABC123)	Sep-79	7,923,421	28.79
7 Digit (2ABC123)	Dec-82	<u>11,925,596</u>	<u>43.33</u>
Total		27,524,062	100.00

Source: DMV registration data as of September 1991.

Data acquisition for Phase II of the study proceeded in the same manner as in the previous survey, with student surveyors recording license numbers, expiration decal month and year, and body type on survey forms. At each parking lot, 50 to 100 vehicles were sampled. Most parking lots visited in Phase II were the same as those that had been visited in Phase I. Also as in the previous survey, sampling consisted of a combination of proportional random sampling, where all qualified vehicles were sampled in the order they were observed, and targeted random sampling, where commercial vehicles and vehicles with older license plate series were preferentially selected to meet target sample sizes allocated to each of a few selected license plate series in auto- and commercial-licensed vehicles in each subarea.

2.2 SURVEY DESIGN

Sample sizes were allocated to subareas and license plate categories with two main objectives. First, subarea total sample sizes were allocated to each subarea to reflect the distribution of resident population within the SCAB. Second, sample sizes for model year groups were allocated so that each would be sufficiently large for calculating meaningful unregistration rates.

In the Phase I (1989) survey, surveying was conducted in two parts, or "waves", of 15,000 vehicles each. In the first wave, vehicles were surveyed by random proportional sampling. The distribution of vehicles by license plate type and series was then reviewed before target samples for wave 2 were allocated to each license plate types and series. In the present survey, however, it was possible to anticipate the distribution of vehicle license plate types and series based on the results of the Phase I survey. Vehicles with license plates in the following three categories were known to require special targeting in order to meet the study's minimum sampling requirements:

1. Forward Auto (issued 1963-1969)
2. Reverse Auto (issued 1969-1979)
3. Commercial 6-Digit (issued 1963-1979)

Vehicles in other license plate categories would be adequately sampled using a record-as-seen random sampling method, and thus would require no special targeting.

Because proceeding with surveying the entire 30,000 vehicles based on target samples established prior

to the survey would have left the possibility of unanticipated biases, it was decided to first allocate sample for the first 90% of the survey (27,000 vehicles) and hold the final 10% (3,000 vehicles) until after review of the distribution of vehicles in the first 90%. Table 2-2 presents this sample allocation. The total sample of 27,000 was first allocated to the 34 subareas in proportion to population. Then, within each subarea, minimum target samples were calculated for the three special categories. Because older vehicles, especially pre-1970 model year, were extremely difficult to locate in a few of the subareas during the Phase I survey, target samples were not established in a few cases. The elimination of target samples in these cases were compensated by increased target samples in subareas where older vehicles were found to be most common.

After completion of the surveying of the first 27,000 vehicles, the following two biases were identified:

1. Commercially-licensed vehicles were undersampled in all four counties as compared to the county proportion of commercially-licensed vehicles; and
2. Vehicles were oversampled in Los Angeles County and undersampled in Riverside and San Bernardino counties.

To remedy these biases, the remaining 3,000 vehicles were allocated so that (1) the commercial proportion of sampled vehicles matched the proportion of commercial vehicles in each county, and (2) additional autos in Riverside and San Bernardino counties were surveyed. Table 2-3 shows the sample allocation for the final 3,000 vehicles.

Table 2-4 shows overall sample allocations over four counties of the SCAB and auto/commercial license types. It shows that both county fractions and license type fractions in the overall sample agree well with those in the latest DMV registration records.

Table 2-2. SAMPLE ALLOCATION BY SUBAREA FOR THE FIRST 27,000 VEHICLES.

Subarea	1987 Population Fraction	Total Vehicles	Auto Forward 6	Auto Reverse 6	Comm. 6 Digit
101 Calabasas	0.0064	173	12	14	6
102 Newhall	0.0101	272	12	50	6
103 SW San Fernando Valley	0.0531	1433	74	277	38
104 Burbank	0.0245	660	55	159	13
105 NE San Fernando Valley	0.0263	710	49	152	25
106 Santa Monica	0.0282	762	43	152	19
107 West Central	0.0925	2498	197	572	76
108 South Bay	0.0478	1292	141	277	57
109 Palos Verdes	0.0403	1087	117	222	51
110 Long Beach	0.0394	1065	74	259	25
111 East Central	0.0810	2188	196	640	120
112 Norwalk/Whittier	0.0549	1483	123	311	88
113 Los Angeles CBD	0.0117	317	6	93	-0-
114 Glendale	0.0387	1045	105	238	-0-
115 West San Gabriel	0.0651	1759	166	389	63
116 East San Gabriel	0.0492	1328	80	202	44
117 Pomona	0.0171	461	55	91	13
Los Angeles County Total	0.6862	18533	1508	4096	644
201 Buena Park	0.0134	362	18	73	6
202 Fullerton	0.0151	409	25	80	-0-
203 Anaheim	0.0312	842	68	179	25
204 North Coast	0.0285	771	43	125	-0-
205 Central Coast	0.0159	429	6	75	13
206 South Coast	0.0151	407	37	57	6
207 Canyon	0.0116	315	-0-	48	-0-
208 Santa Ana	0.0346	935	43	191	32
209 El Toro	0.0101	195	-0-	20	6
210 Trabuco Oak	0.0072	274	31	39	6
Orange County Total	0.1828	4939	270	888	95
301 Jurupa	0.0041	110	18	14	6
302 Riverside	0.0315	851	37	136	25
303 Perris/Elsinore	0.0097	263	-0-	43	13
304 Hemet/Idyllwild	0.0079	213	12	46	6
Riverside County Total	0.0532	1437	68	239	51
401 West End	0.0379	1022	31	143	44
402 East End	0.0347	937	43	175	19
403 San Bernardino Mtns	0.0052	139	-0-	20	-0-
San Bernardino County Total	0.0777	2098	74	338	63
BASIN TOTAL	1.0000	27,007	1920	5561	853

Table 2-3. SAMPLE ALLOCATION BY SUBAREA FOR THE FINAL 3,000 VEHICLES.

Subarea	Autos	Commercial	Total
101 Calabasas	0	0	0
102 Newhall	0	0	0
103 SW San Fernando Valley	0	176	176
104 Burbank	0	0	0
105 NE San Fernando Valley	0	0	0
106 Santa Monica	0	0	0
107 West Central	0	306	306
108 South Bay	0	160	160
109 Palos Verdes	0	133	133
110 Long Beach	0	0	0
111 East Central	0	268	268
112 Norwalk/Whittier	0	181	181
113 Los Angeles CBD	0	0	0
114 Glendale	0	0	0
115 West San Gabriel	0	216	216
116 East San Gabriel	0	163	163
117 Pomona	0	0	0
Los Angeles County Total	0	1603	1603
201 Buena Park	0	0	0
2002 Fullerton	0	53	53
203 Anaheim	0	109	109
204 North Coast	0	100	100
205 Central Coast	0	56	56
206 South Coast	0	0	0
207 Canyon	0	0	0
208 Santa Ana	0	121	121
209 El Toro	0	0	0
210 Trabuco Oak	0	0	0
Orange County Total	0	439	439
301 Jurupa	0	0	0
302 Riverside	180	189	369
303 Perris/Elsinore	55	59	114
304 Hemet/Idyllwild	0	0	0
Riverside County Total	235	248	483
401 West End	67	181	248
402 East End	61	166	227
403 San Bernardino Mtns	0	0	0
San Bernardino County Total	128	347	475
BASIN TOTAL	363	2637	3000

Table 2-4. OVERALL SAMPLE ALLOCATIONS OVER FOUR COUNTIES AND TWO LICENSE PLATE TYPES.

County	Auto	Commercial	Total	Sample Fraction	Veh. Popl. Fraction**
Los Angeles	16,685	3,538	20,222	.673	.611
Orange	4,428	959	5,387	.179	.192
Riverside	1,425	483	1,908	.063	.087
San Bernardino	1,881	664	2,545	.085	.104
Total	24,418*	5,664*	30,062*	1.000	1.000
Sample Fraction	.812	.188	1.000		
Veh. Popl. Fraction*	.809	.191	1.000		

* These totals differ from the sum of totals in Tables 2-2 and 2-3 because of slight deviations occurred in the actual survey of the initial 27,000 vehicles.

** Based on DMV vehicle registration records as of July 31, 1991.

2.3 SURVEY INSTRUMENTS, TRAINING, AND EXECUTION

Each subarea was delimited with clearly marked boundary lines on detailed street maps. On each map, the locations of the shopping centers visited in the Phase I survey were marked. In addition to the mapped locations, lists of sites from the previous survey were prepared giving the site number, store name(s), major cross streets, and city or community name.

In addition, two data collection forms were prepared: survey sheets and summary sheets. The survey sheet included space for recording vehicle license number, expiration decals, body type, and the license plate type and series. The summary sheet was designed for tabulating progress toward target samples in each subarea. Summary sheets listed target samples in each category, and provided space for surveyors to sum current sample sizes in each category after each visit.

Finally, materials were designed to assist the surveyors in interacting with the public. In the previous survey, surveyors encountered vehicle owners and security guards at many sites inquiring as to the purpose of the survey. To limit the delays caused by these interactions and dispel public concerns, a flyer giving a short explanation of the survey emphasizing its non-punitive nature was prepared. The flyer gave ARB's toll-free public information telephone number for anyone wishing to verify the survey's authenticity. T-shirts identifying the surveyors were also prepared.

Student surveyors were recruited from the University of California, Los Angeles, for the current survey. The surveyors were trained by VRC staff members who participated in the previous survey. The training focused on addressing questions from vehicle owners and parking lot security guards as well as on the field survey protocol. Brief in-field training was also conducted at parking lots in the vicinity of the VRC office in Van Nuys.

The actual Phase II survey started on the 3rd day of August, 1991, and ended on the 4th day of November, 1991. All survey-gathered data were entered into a study database and checked for quality and duplication. This data entry and quality checking effort was completed by the end of November, 1991.

3.0 RESULTS OF THE PHASE II SURVEY

3.1 OBSERVATIONAL RESULTS

A total of 30,251 vehicles were sampled in the Phase II survey. After eliminating vehicles inadvertently sampled more than once (such vehicles accounted for about 2 percent of the sample, or 1 out of 50 observations), the sample size was reduced to 29,704. Of these, 19,693 were identified in proportional random sampling and 10,011 in sampling targeted at older license plate series and commercial license plates.

Table 3-1 shows sample sizes and decal-based unregistration rates for vehicles sampled in the Phase II survey. Unregistration rate was calculated for each category by assuming that 50% of the vehicles bearing decals showing the month of observation (e.g., "August 1991" decals observed in the month of August) were unregistered at the time of observation. Vehicles bearing decals showing subsequent months and years were considered "registered" while those bearing decals showing previous months and years were considered "unregistered".

For purpose of comparison, results of the Phase I survey which was conducted in 1989 are given in Table 3-2. The raw average unregistration rate for vehicles in the sample is 7.7% (if corrected for the skewed age distribution a statewide average unregistration rate would be slightly different). As was the case in the Phase I survey, unregistration rate tends to increase with older license plate series. Also, commercially-licensed vehicles' unregistration rates are higher than those for auto-licensed vehicles.

A comparison of Phase II results (Table 3-2) with Phase I results shows a decrease instead of an anticipated increase in unregistration rate in nearly all categories. Unregistration rates for auto licensed vehicles decreased from 8.7% to 7.1%, while unregistration rates for commercially licensed vehicles decreased from 11.1% to 10.2%. Overall, unregistration rates decreased from 9.3% to 7.7%.

However, decal-based determination of unregistration rate is quite imprecise because some vehicle owners who have renewed their registrations may delay placing the decals on their license plates and because of vehicles bearing current-month decals whose registration status cannot be determined by this method were about twice as numerous as "unregistered" vehicles in both the 1989 and 1991 samples. Therefore, a more precise determination by DMV registration records must be applied to these samples to determine changes in true unregistration rates.

Table 3-1. OBSERVED UNREGISTRATION RATES BY LICENSE PLATE SERIES IN THE PHASE II SURVEY.

License Plate Type	Total # Vehicles	# Unregistered	# Unknown*	# Current Month	% Unregistered**
Auto License					
Forward 6	1,940	99	113	79	7.5
Reverse 6	5,566	286	236	210	7.3
1 + 6-digit	4,746	212	36	237	7.0
2 + 6-digit	10,040	434	44	520	6.9
Total Auto	22,292	1,031	429	1,046	7.1
Commercial License					
6-digit	1,062	70	94	68	10.7
1 + 6-digit	602	41	23	39	10.4
2 + 6-digit	1,227	83	16	102	11.1
3 + 6-digit	1,881	134	19	151	11.3
4 + 6-digit	851	35	8	27	5.8
Total Comm.	5,623	363	160	387	10.2
Other License					
Env. Plate	1,122	53	13	64	7.8
CA - Misc.***		65	1	4	55.7
No Plate - Old	16	(16)	(0)	(0)	(100.0)
No Plate - New	258	(0)	(0)	(0)	(0.0)
Out-Of-State	328	21	152	8	14.2
Total Other	1,788	91	169	77	8.0
Grand Total	29,704	1,485	758	1,510	7.7

*Registration status indeterminate due to missing or illegible month or year decals.

**Calculated as: $100 * (\# \text{ Unregistered} + \# \text{ Current Month} / 2) / (\text{Total} \# \text{ Vehicles} - \# \text{ Unknown})$

***Commemorative, disabled and dealer.

Table 3-2. OBSERVED UNREGISTRATION RATES BY LICENSE PLATE SERIES IN THE PHASE I SURVEY.

License Plate Type	Total # Vehicles	# Unregistered	# Unknown*	# Current Month	% Unregistered**
Auto License					
Forward 6	2,400	155	94	116	9.2
Reverse 6	8,060	553	343	332	9.3
1 + 6-digit	5,321	336	59	259	8.9
2 + 6-digit	6,194	325	35	281	7.6
Total Auto	21,975	1,369	531	988	8.7
Commercial License					
6-digit	1,471	110	150	88	11.7
1 + 6-digit	1,660	143	74	108	12.4
2 + 6-digit	1,754	141	23	136	12.1
3 + 6-digit	1,725	98	15	94	8.5
Total Comm.	6,610	492	262	426	11.1
Other License					
Env. Plates	982	54	8	49	8.1
CA - Misc.***		45	4	0	312.2
No Plate - Old	29	(29)	(0)	(0)	(100.0)
No Plate - New	352	(0)	(0)	(0)	(0.0)
Out-Of-State	313	33	54	27	18.0
Total Other	1,721	120	62	79	9.6
Grand Total	30,306	1,981	855	1,493	9.3

*Registration status indeterminate due to missing or illegible month or year decals.

**Calculated as: $100 * (\# \text{ Unregistered} + \# \text{ Current Month}/2) / (\text{Total} \# \text{ Vehicles} - \# \text{ Unknown})$

***Commemorative, disabled and dealer.

3.2 UNREGISTRATION RATE BY DMV RECORDS

The use of expiration month and year decals to determine unregistration rates has the advantage of the instantaneous determination of registration status. In other words, there is no time lag between observation of the in-use vehicle and determination of registration status as is the case in using the DMV registration records which usually takes several months through an interagency service. However, the use of decal-based determination has several limitations, including:

- About 4.5% of vehicles have missing or illegible month decals, 0.3% have missing or illegible year decals, and 0.2% have both decals either missing or illegible.
- About 5% of vehicles have current month and year decals. The precise date of expiration for these vehicles, and thus their registration status, cannot be determined.
- Decals are not always a true indicator of a vehicle's registration status. Some vehicles with up-to-date registrations may show out-of-date decals due to a variety of reasons, such as theft of decals or failure of the vehicle owner to place the new decal on the license plate. Conversely, some vehicles with expired registration may fraudulently bear decals showing up-to-date registration.
- Useful information such as vehicle model year, motive power (gasoline, diesel, etc.), and home county of the vehicle cannot be readily determined.

On the other hand, the major drawback to registration record-based determination is the time lag between observation and determination of registration status. Since DMV is not receptive to determining registration status retroactive to the date of observation, there are in fact two sources of time discrepancy. First is the time span of observations, in this case a 3 month period. Second is the time lag between completion of the survey and DMV's creation of a registration database for the study. For the present study, the DMV registration database was created on July 13, 1992, 8.5 months after completion of the field survey.

This time lag is considerably longer than the 2-month time lag in the Phase I survey. In that survey, reasonable agreement was found between decal-based and DMV registration record-based unregistration rates.

3.2.1 CREATION OF CLEAN DATABASE

A database was created by merging field survey data with the following additional data fields from the database created by DMV:

1. Expiration date (as of July 13, 1992)
2. Vehicle model year
3. Body type
4. Motive power
5. Last digit of VIN

A "clean" database was created by eliminating records in the following categories:

1. Out-of-state vehicles (n=965).
2. Vehicles with no license plate (n=274).
3. Dealer and commemorative plates (n=65).
4. License numbers that did not match with active license numbers in DMV registration records (many presumably due to field transcription or data entry errors, or license numbers that have been purged from DMV files) (n=317).
5. Vehicles registered in counties other than Los Angeles, Orange, Riverside, or San Bernardino (n=308).
6. Vehicles not powered by gasoline (n=280). Since no motive power was given for many pre-1985 vehicles, many of the pre-1985 vehicles not eliminated from the sample may in fact be diesel-powered.

Thus the final clean database contained 27,344 records.

3.2.2 ESTIMATED NUMBERS AND PERCENTAGES OF UNREGISTERED VEHICLES

Table 3-3 lists the estimated numbers and percentages of unregistered vehicles by model year groups. For each model year group, unregistration rate was calculated directly from the DMV registration records for the survey sample. The overall unregistration rate was then calculated by weighting the

Table 3-3. ESTIMATED NUMBERS AND PERCENTAGES OF UNREGISTERED VEHICLES BY MODEL YEAR GROUP IN CALIFORNIA

Model Year Group	Vehicle Sample			Statewide Vehicle Population		
	# Vehicles	# Unreg.	% Unreg.	# Vehicles	Model Year Fraction	% Unreg.
<1966	956	113	11.8	616,169	0.030	11.8
1966-1971	2,245	312	13.9	995,299	0.049	13.9
1972-1974	1,592	273	17.2	868,681	0.042	17.2
1975-1979	4,775	697	14.6	2,869,595	0.140	14.6
>1979	17,661	1,434	8.1	15,180,917	0.739	8.1
Unknown Model Year (UMY)	115	16	13.9	-	-	-
Total w/o UMY	27,299	2,829	10.4	20,530,661	1.000	9.8*
Total w/UMY	27,344	2,845	10.4			

*Weighted average of unregistration rates of individual model year groups where the weight is a model year fraction of the statewide vehicle population.

unregistration rate for each model year group by the fraction of vehicles in the model year group according to statewide statistics. Figure 3-1 shows a comparison of the model year distribution of the survey sample with the model year distribution of the statewide vehicle population. Because of the relative similarity between the distributions, the adjustment for model year distribution had a negligible effect on the overall registration rate. This is in contrast to the case in Phase I, where the model year distribution of the survey sample was strongly bimodal. Figure 3-2 shows a comparison of the model year distributions of the Phase I and Phase II vehicle samples.

The unregistration rates calculated from DMV registration records are given in Table 3-3. Their values, which range from 8.1% for 1980 and newer model year vehicles to 17.2% for 1972-1974 model year vehicles, with the overall average of 9.8%, are considerably higher than those determined by registration decals. These high unregistration rates do not seem to accurately reflect unregistration rates for the actual in-use vehicle population. Rather, it seems that the delay in DMV processing of the database resulted in systematic overestimates of unregistration rates. Evidence for the effects of this delay are seen when unregistration rates for Phase I are compared with those for Phase II. Table 3-4 shows that the decal-based unregistration rates apparently decreased while DMV-based unregistration rates apparently increased. Further clarification of the difference is shown in Figure 3-3. Figures 3-3 and 3-4 compare either months since becoming unregistered (for unregistered vehicles) or months until registration expires (for registered vehicles) for vehicles in the 1989 and 1991 surveys. Figure 3-3 shows that according to registration decals, the shape of the distributions changed little while the proportion of unregistered vehicles appeared to decrease. In Figure 3-4, the same comparison is made based on DMV registration records. In this figure, the shapes of the curves show much stronger differences while the proportion of unregistered vehicles appears to have increased. Thus apparently contradictory changes between Phase I and Phase II are seen in the results of the two methods. This problem, along with a technique used for correcting the raw unregistration rates, are discussed in the following section.

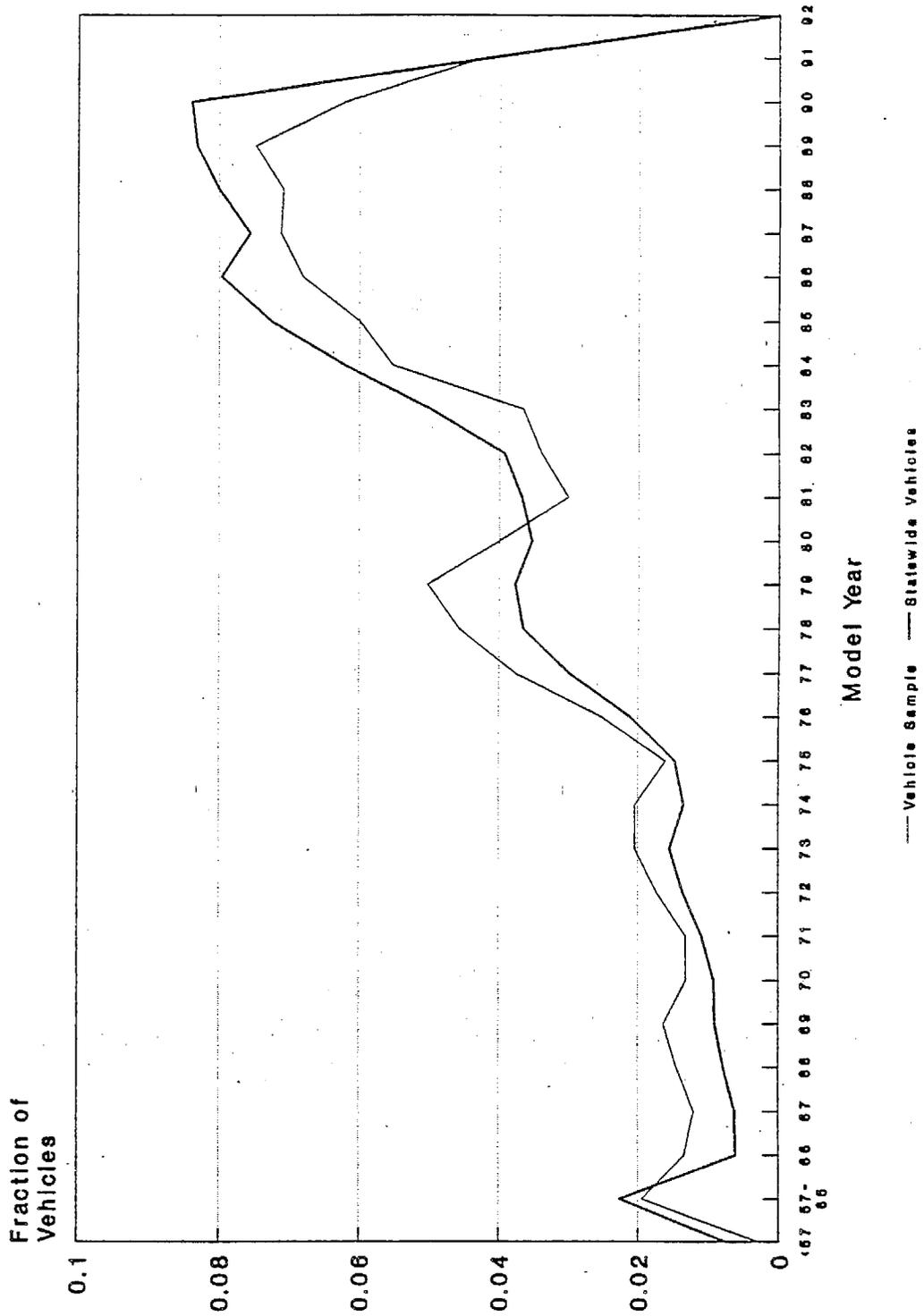


Figure 3-1. Model Year Distribution of Phase II Sample and 1991 Statewide Vehicle Population.

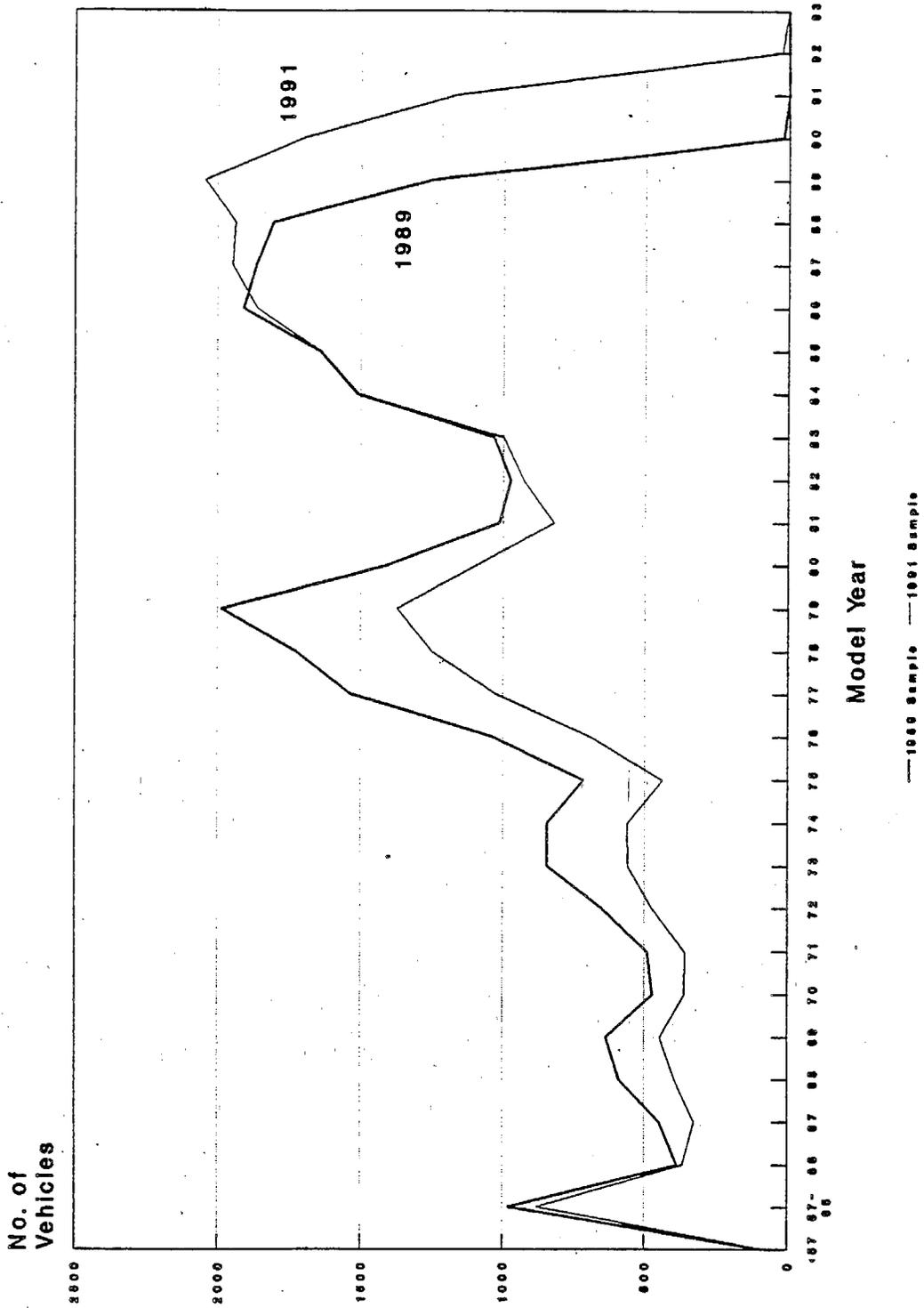


Figure 3-2. Model Year Distributions in Phase I (1989) and Phase II (1991) Samples.

Table 3-4. UNREGISTRATION RATES DETERMINED FROM DECALS AND THOSE FROM DMV RECORDS FOR PHASE I (1989) AND PHASE II (1991) SAMPLES

	Even VIN	Odd-VIN	Total
<u>1989 Sample</u>			
Decal-Based	8.1	9.5	9.0
DMV-Based	7.0	9.7	8.4
<u>1991 Sample</u>			
Decal-Based	7.0	8.3	7.8
DMV-Based	10.3	9.3	9.8
<u>Difference (1991-1989)</u>			
Decal-Based	-1.1	-1.2	-1.2
DMV-Based	+3.3	-0.4	+1.4

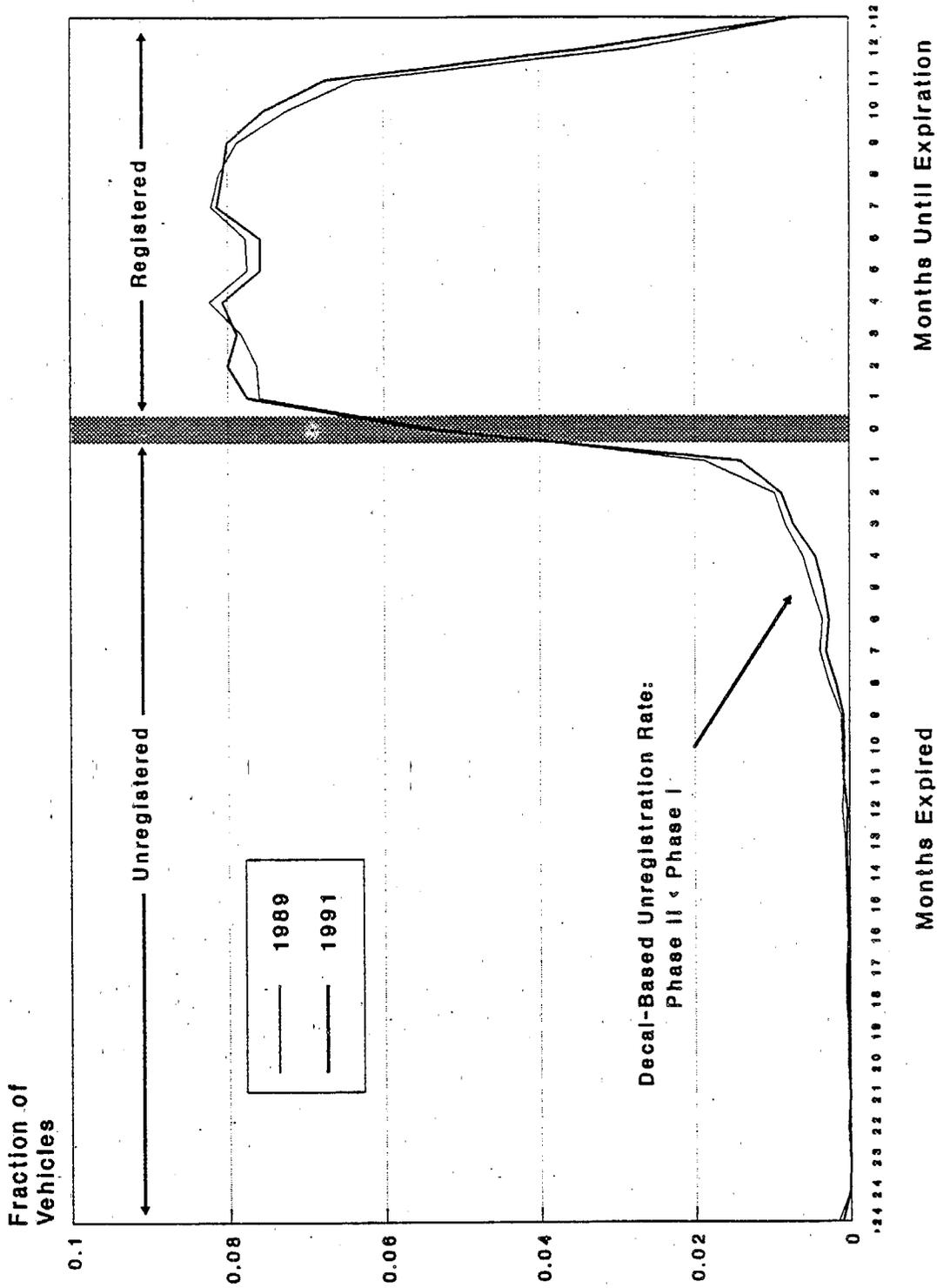


Figure 3-3. Distributions of Registration Status Determined from Decals for Vehicles in Phase I (1989) and Phase II (1991) Samples.

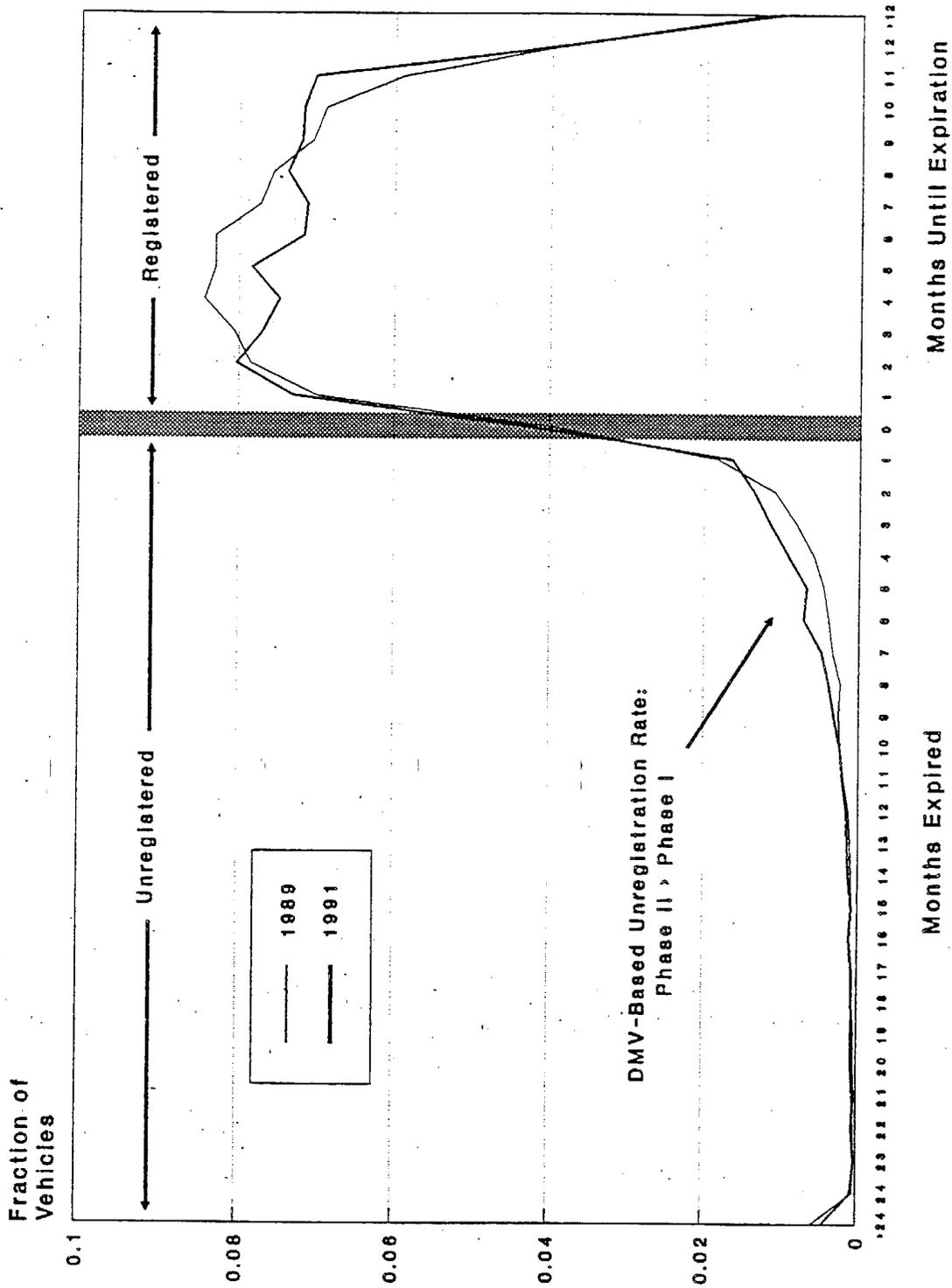


Figure 3-4. Distributions of Registration Status Determined from DMV Records for Vehicles in Phase I (1989) and Phase II (1991) Samples.

4.0 CORRECTIONS FOR DMV-BASED UNREGISTRATION RATES

4.1 PROBLEMS WITH DMV DATA PROCESSING DELAYS

An accurate determination of the registration status of a vehicle observed in this survey requires an examination of the vehicle's registration record held at the California Department of Motor Vehicles (DMV). DMV registration records are continuously updated as vehicle owners renew their vehicle registration or change the ownership. Therefore, the most accurate determination of a vehicle's registration status would be an immediate examination of the vehicle's registration record at the time of observation of the vehicle in the survey. However, immediate examinations of the registration records of all surveyed vehicles was not possible because of the time delay required for data compilation and reduction and a delay for obtaining a DMV data processing service. Although VRC tried to minimize the first delay, the second delay was largely determined by actions at ARB and reactions at DMV.

In Phase I, the time delay that occurred between the time of vehicle observations and the time of DMV data processing was about 3 months (the end of August to the end of November, 1989). In Phase II, the same time delay was about 10 months (mid-September, 1991, to mid-July, 1992). Although in Phase I, the unregistration rate determined from DMV records agreed well with those determined from registration decals on license plates, the DMV-based unregistration rates in Phase II were found to be much higher than those determined from registration decals. The disagreement in unregistration rates as determined by the two methods in Phase II appears to have been caused by the long time delay in obtaining DMV vehicle registration records. The 10 month delay happened due to a combination of a leave of the ARB contract manager during the project period and a change that took place in the governmental inter-agency services for processing DMV registration records.

As a long delay occurs between the time of observation and the time of DMV record examination, the registration status of the observed vehicles changes due to:

- Vehicles Moved Out-of-State -- Some registered vehicles at the time of observation move out-of-state and become "unregistered" in DMV records after a certain elapsed time.

- Vehicles Junked/Retired -- Some registered vehicles at the time of observation are junked or retired and the registrations have not been returned to DMV.
- Registration Renewed/Delinquent -- Some registered vehicles at the time of observation remain in-use but become "unregistered" due to delinquency while some "unregistered" vehicles become "registered" because of registration renewals.

Although the registration renewal and delinquency occur rather randomly on vehicles in the survey sample and thus would not affect an overall unregistration rate of the vehicle sample, the first two activities would increase the unregistration rate as the time lag increases. Suppose that a fully operational vehicle whose California registration expires in 3 months moves out of state a few weeks after the time of observation, then the vehicle may be judged to be unregistered in DMV record examination that takes place 10 months later. These activities would not cause much impact on an unregistration rate when the delay is short like the 3-month delay in Phase I. However, they have been found to have a significant impact on an unregistration rate when the delay is as long as the 10 months which happened in Phase II.

Therefore, the effect of the increased repair cost ceiling on vehicle unregistration rates cannot be determined without applying appropriate adjustment to the DMV-based unregistration rates by taking into account the effect of the delays that occurred in Phase I and Phase II. The next subsection discusses such an adjustment method and delay-corrected unregistration rates in the two survey samples.

4.2 CORRECTED UNREGISTRATION RATES

DMV registrations come from three types of vehicles: new vehicles purchased in California, vehicles of non-residents who move to California on a permanent basis, and vehicles of California residents who renew their registration. According to DMV, there were 310,000 non-resident vehicles registered in California during the July 1991 to June 1992 period. Although no similar statistic is available for vehicles of previous California residents who moved out-of-state during the same period, the number of moved-out vehicles is expected to be similar to that of immigrant vehicles. Since most of these moved-out vehicles certainly do not renew their California registrations and DMV retains expired registrations up to 36 months, some moved-out vehicles among those observed in Phase I and Phase II

samples would have become "unregistered" vehicles during the delays that occurred in processing their DMV registration records. The monthly rate of these moved-out vehicles is estimated to be:

$$\begin{aligned} & (310,000/20,530,661) \times 100 \\ & = 1.51\% \text{ per year} \\ & = 0.13\% \text{ per month} \end{aligned}$$

Figure 4-1 shows model-year distributions of the statewide vehicle populations as of April 28, 1989 and July 31, 1991. The figure indicates that by the summer of 1991, many vehicles of model years 1989, 1990 and 1991 were added to 1989 vehicle population while vehicles of some model years prior to 1989 were removed from the 1989 vehicle population. Since moved-out vehicles of California residents are more or less compensated by moved-in vehicles of non-residents, the vehicles removed from the 1989 vehicle population in Figure 4-1 are presumed to be vehicle attrition due to scrapped vehicles and retired vehicles (i.e., those discarded on streets or those slept in backyards and garages).

Table 4-1 shows statewide average vehicle retirement rates computed for five model-year groups: prior to 1966, 1966-1971, 1972-1974, 1975-1979, and 1980-1988. During the delays for DMV data processing in Phase I and Phase II, some vehicles would have been retired. Some of these vehicles retired during the delays would be judged to be "unregistered" vehicles according to the 3-month and 10-month delayed DMV record examinations of the Phase I and Phase II samples. Therefore, DMV record processing delays would have induced artifact unregistration rates due to vehicles retired during the delays.

Artifact unregistration rates due to moved-out vehicles and retired vehicles during the 3-month delay in Phase I and the 10-month delay in Phase II are estimated in Table 4-2. In the table, total attrition rates of the surveyed vehicles over the 3 month delay in Phase II are estimated from the sum of moved-out vehicles and retired vehicles over the periods. Here, the word "attrition" is used to indicate that while the very reason for having a survey sample was to determine the registration status of only currently active California vehicles, those vehicles that moved out or retired during the delays lost their qualification of being currently active California vehicles. However, these vehicles did not necessarily become "unregistered" vehicles at the time of DMV registration record processing that took place 3 months and 10 months after the time of observation in Phase I and Phase II, respectively.

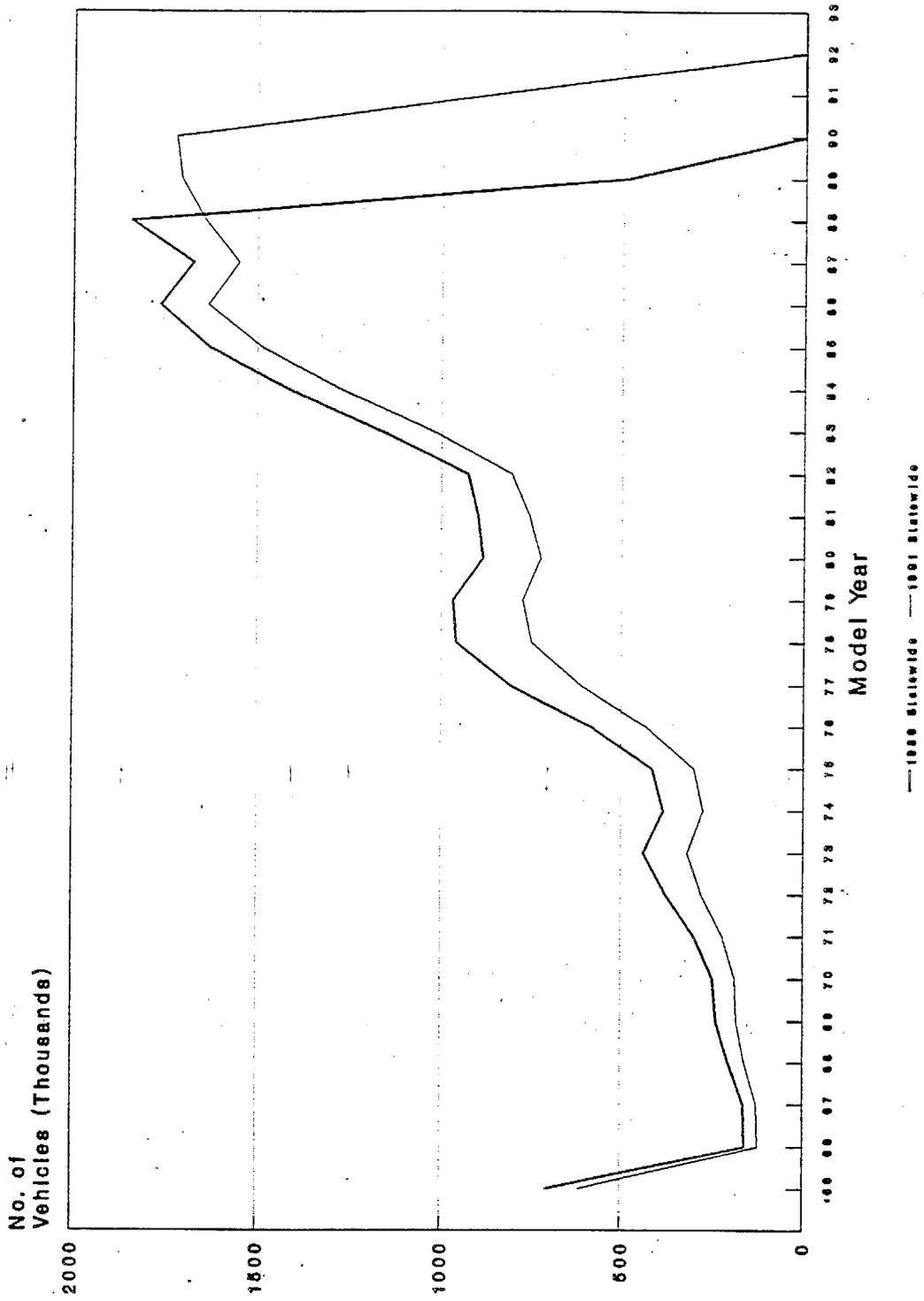


Figure 4-1. Model Year Distributions of the 1989 and 1991 Statewide Vehicle Populations.

Table 4-1. STATEWIDE AVERAGE VEHICLE RETIREMENT RATES FOR FIVE MODEL YEAR GROUPS.

Model Years	Statewide Vehicle Population		% Change over 27 months	Monthly Retirement Rate
	4/1989	7/1991		
<1966	706,845	616,169	-12.8	-0.47
1966-1971	1,307,999	995,299	-23.9	-0.89
1972-1974	1,199,196	868,681	-27.6	-1.02
1975-1979	3,737,740	2,869,595	-23.2	-0.86
1980-1988	12,200,535	10,899,473	-10.7	-0.40

Table 4-2. ARTIFACT UNREGISTRATION RATES DUE TO 3-MONTH AND 10-MONTH DELAYS THAT OCCURRED IN PHASE I AND PHASE II (All values in percent).

Model Years	Monthly Attrition Rate (A)	3-month Attrition Rate (B)	10-month Attrition Rate (C)	Artifact Unreg. Due to 3 month Delay (D)	Artifact Unreg. Due to 10 month Delay (E)
<1966	0.60	1.80	6.0	0.23	2.50
1966-1971	1.02	3.06	10.2	0.38	4.25
1972-1974	1.15	3.45	11.5	0.43	4.79
1975-1979	0.99	2.97	9.9	0.37	4.13
>1979	0.53	1.59	5.3	0.20	2.21

A = monthly move-out rate + monthly retirement rate

D = B x (3/2) x (1/12)

E = C x (10/2) x (1/12)

Suppose that one of the surveyed vehicles moved out-of-state one month after the time of observation and its registration status was good for 5 months after the time of observation. Then, this vehicle would be judged "registered" if its DMV registration record were examined 3 months after the observation, but it would be judged "unregistered" if the record were examined 10 months after the observation. An average departure time of the vehicles that moved out or retired after the time of observation would be 1.5 (=3/2) months for the 3-month delay and 5.0 (=10/2) months for the 10-month delay. The chance of having a particular number of effective registration months for each attritioned vehicle is 1 month out of 12 possible effective registration months at the time of departure. Therefore, an artifact unregistration rate for the 3-month delay among the surveyed vehicles would be given as:

$$(3\text{-month attrition rate}) \times (3/2) \times (1/12)$$

Columns (D) and (E) of Table 4-2 provide the artifact unregistration rates for the Phase I and Phase II samples according to the logic described above. It shows that the 3-month delay induced small artifact unregistration rates of 0.2% to 0.4% while the 10-month delay in Phase II induced large artifact unregistration rates of 2% to 5%. These large artifact values appear to have caused a large discrepancy in the Phase II sample between the decal-based and DMV-based unregistration rates.

Table 4-3 shows corrected unregistration rates of the two samples which were computed by subtracting the artifact unregistration rates from the raw DMV-based unregistration rates. It shows that unregistration rates of the Phase I and Phase II samples become much closer to each other after the corrections were made.

For total vehicles in the two samples, the raw DMV-based unregistration rates are 8.4 in Phase I and 9.8 in Phase II while the corrected unregistration rates are 8.1 and 7.1, respectively. This is a dramatic change in implications of the two survey results. Prior to the corrections, DMV-based unregistration rates indicated that the unregistration rate increased from 1989 to 1991 -- contrary to a decreasing trend found in the decal-based unregistration rates. After the corrections, the DMV-based unregistration rates also exhibited a decreasing trend from 1989 to 1991.

Table 4-3. CORRECTED DMV-BASED UNREGISTRATION RATES BY MODEL YEAR GROUP FOR PHASE I AND PHASE II SAMPLES

	Statewide Model Year Fraction	Raw Unreg Rate	Artifact Unreg Rate	Corrected Unreg Rate
<u>1989 Sample</u>				
<1966	0.036	10.0	0.23	9.8
66-71	0.067	12.4	0.38	12.0
72-74	0.061	13.8	0.43	13.4
75-79	0.190	10.0	0.37	9.6
>79	0.646	6.9	0.20	6.7
Total	1.000	8.4		8.1
<u>1991 Sample</u>				
<1966	0.030	11.8	2.50	9.3
66-71	0.049	13.9	4.25	9.7
72-74	0.042	17.2	4.79	12.4
75-79	0.140	14.6	4.13	10.5
>79	0.739	8.1	2.21	5.9
Total	1.000	9.8		7.1

unregistration rates of the Phase I and Phase II samples become much closer to each other after the corrections were made.

For total vehicles in the two samples, the raw DMV-based unregistration rates are 8.4 in Phase I and 9.8 in Phase II while the corrected unregistrations are 8.1 and 7.1, respectively. This is a dramatic change in implications of the two survey results. Prior to the corrections, DMV-based unregistration rates indicated that the unregistration rate increased from 1989 to 1991 – contrary to a decreasing trend found in the decal-based unregistration rates. After the corrections, the DMV-based unregistration rates also exhibited a decreasing trend from 1989 to 1991.

Figure 4-2 shows a comparison of Phase I and Phase II unregistration rates for each of the five model year groups: 1965 and prior, 1966-1971, 1972-1974, 1975-1979, and 1980 and newer. Decal-based unregistration rates indicate 0.5% to 2.5% decreases between 1989 and 1991 with the smallest decrease occurring in the latest model year group. DMV-based unregistration rates with the corrections also indicate a generally decreasing trend for all model year groups except for 1975-1979 model year vehicles, for which the opposite is true. Overall, trends in the decal-based and the corrected DMV unregistration rates over the two survey years and the five model year groups are similar to each other, indicating that the corrections made on DMV-based unregistration rates seem reasonable.

As stated earlier, the decal-based determination of unregistration rates is imprecise while the DMV-based determination is precise but inaccurate due to the time delay which occurred between the time of observation and the time of DMV registration record processing. As a result, the two methods initially yielded a contradicting trend in unregistration rates over the two survey years, 1989 and 1991. This problem was largely resolved by applying some adjustments to DMV-based unregistration rates for artifact unregistration rates which were believed to be induced by the time delay of DMV record processing.

Figure 4-3 shows a range of decal-based unregistration rates and raw and corrected DMV-based unregistration rates for all five model year groups in the Phase I and Phase II samples. For the best estimate of a decal-based unregistration, it was assumed that half of the vehicles with current month decals (i.e., current month vehicles) were "unregistered" and the other half were "registered." However, a more conservative assumption would be that all current month vehicles were "unregistered." An alternative assumption would be that they were all "registered." These three assumptions yielded three

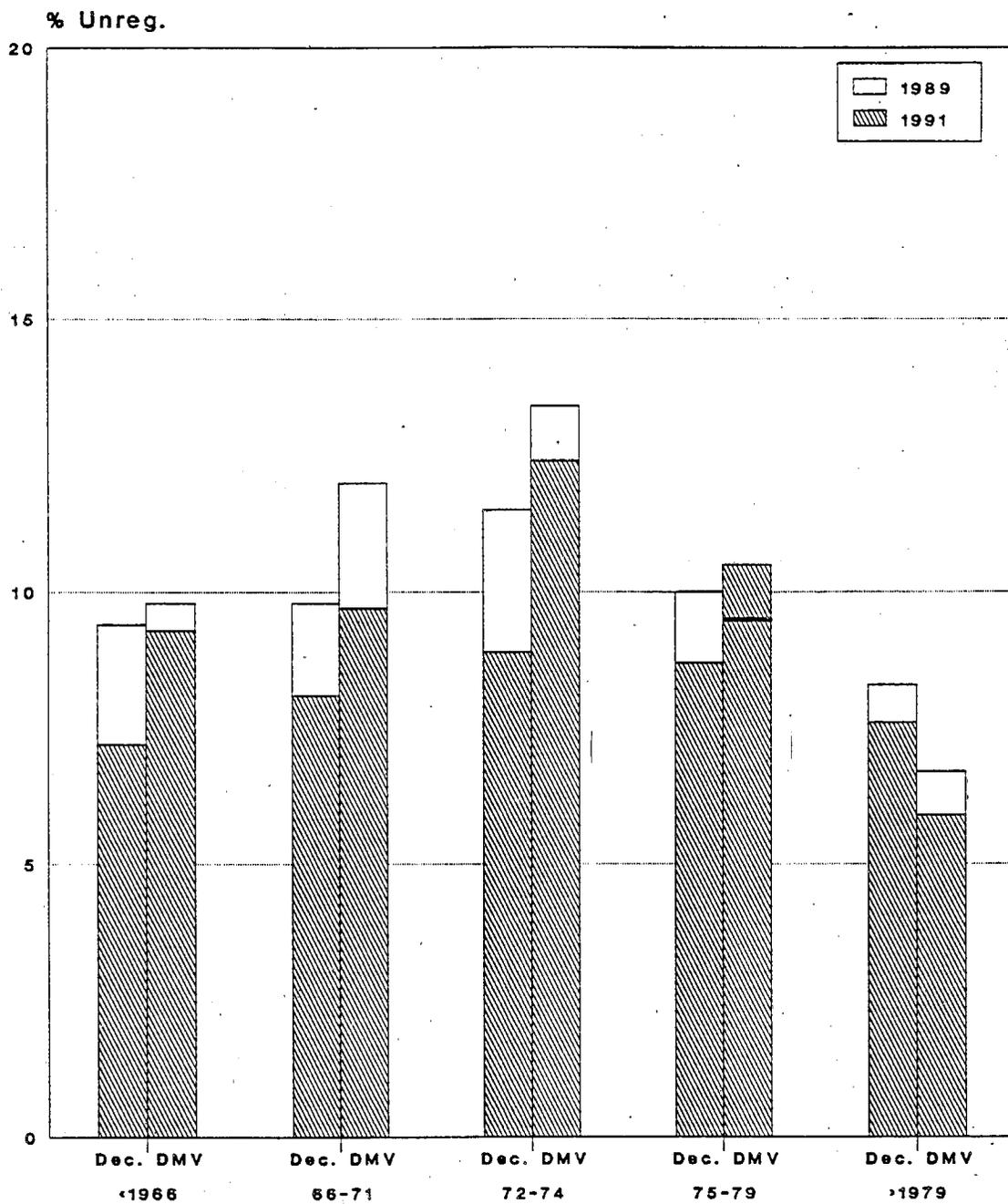


Figure 4-2. Comparison of Phase I and Phase II Unregistration Rates for Each Model-Year Vehicle Group by Decal-Based and Corrected DMV Methods.

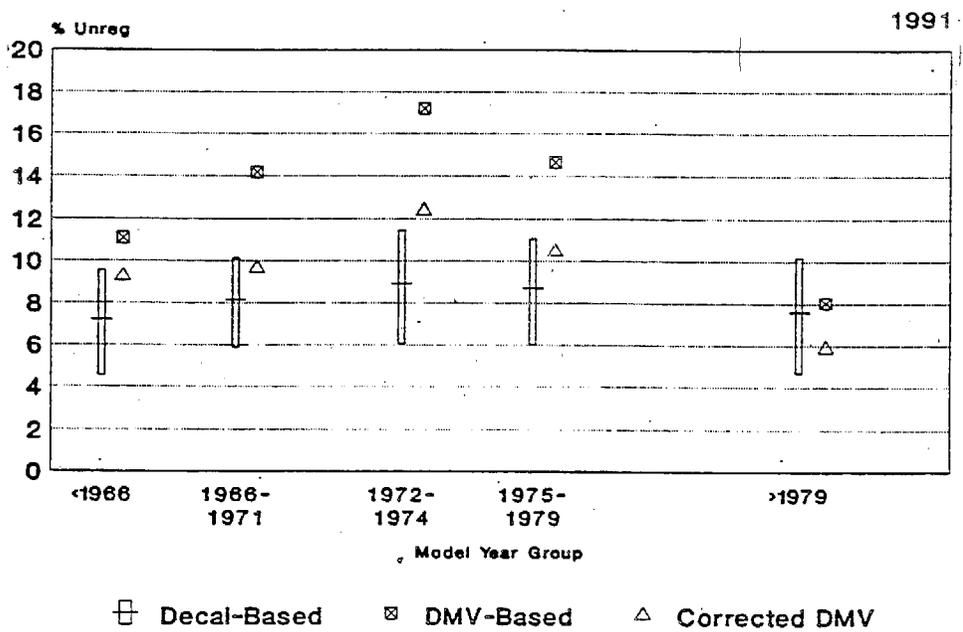
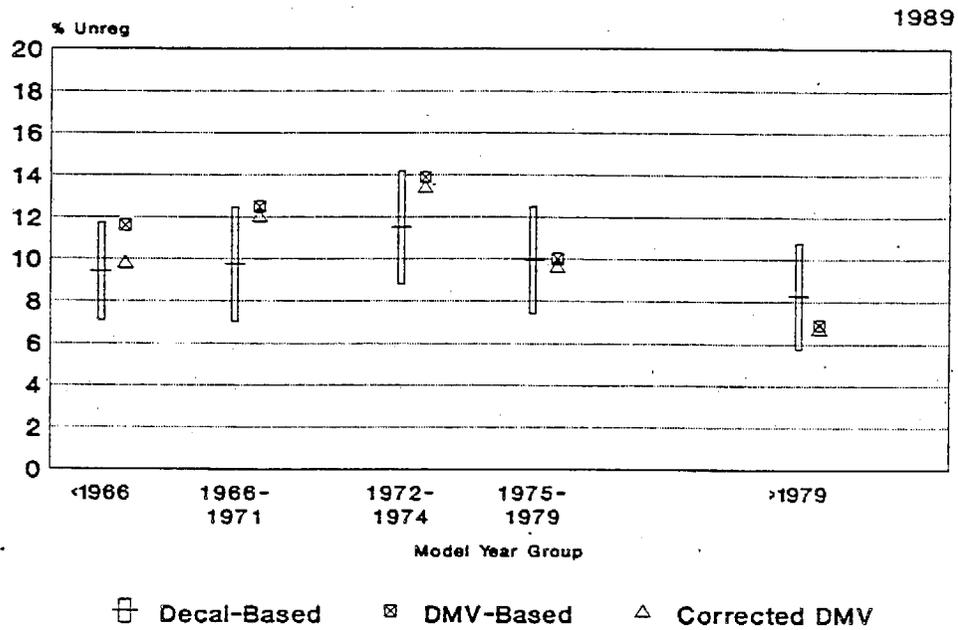


Figure 4-3. Comparison of Decal-Based and DMV-Based Unregistration Rates for Phase I and Phase II Samples.

estimates of an unregistration rate for each model year group as shown in the figure by a box plot where the longer middle bar indicates the best estimate -- a 50/50 chance for a current month vehicle to be "registered" or "unregistered."

In the Phase I sample, both the raw and corrected DMV-based unregistration rates for each model year group are within the range of decal-based values, which were arrived at by the three assumptions on current month vehicles. In the Phase II sample, on the other hand, the raw DMV-based values for all model year groups but the latest group exceed the entire ranges of decal-based unregistration rates. Only the corrected DMV-based values fall inside the ranges of decal-based unregistration rates or come close to the range (for 1972-1974 group).

In conclusion, according to the decal-based method, unregistration rates of motor-vehicles subject to the I/M program decreased from 9.0% in 1989 to 7.8% in 1991. The DMV-based estimates with corrections also exhibited a decrease in unregistration rates from 8.1% in 1989 to 7.1% in 1991. The two different methods yielded a similar decrease of about 1% between the two survey years (1.2% by the decal-based vs 1.0% by the DMV-based method).

