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Decision No. 44873

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Commission Investigation into Matters affecting safety in the use of passenger stages and auto trucks upon the highways in California.	))))	Case No. 5136

O P I N I O N

An order instituting this investigation was issued by this Commission on October 4, 1949. This order reads in part as follows:

"It appearing that large numbers of passenger stages and auto trucks are operated upon the highways in California, some in interstate, others in intrastate, commerce, some pursuant to prescriptive or certificated rights, some pursuant to permitted rights, and others in the absence of such rights but in a proprietary capacity; and

"It appearing further that in the present intensive use of the highways by such vehicles great hazards exist, and

"It appearing further that this Commission has authority to prescribe safety rules and regulations respecting that portion of such traffic which falls within the Public Utilities Act (Calif. Stats. 1915, ch. 91, as amended); and

"It appearing further that the problems relating to safety in the use of the highways require an integrated study and approach not limited to one phase of the traffic involved; and good cause appearing,

"IT IS HEREBY ORDERED that an investigation on the Commission's own motion is hereby instituted into the general problem of safety in the use of highways within California by passenger stages and auto trucks, such investigation to relate, but not to be confined, to matters of speed, loading, "bunching", and crossings at grade. The purpose of such investigation shall be, among other things, to determine whether legislative or other recommendations should be made respecting suggested remedial action, and to determine whether rules and regulations should be prescribed affecting those carriers falling within the purview of the Public Utilities Act (Calif. Stats. 1915, ch. 91, as amended)."

Certified copies of the order were mailed to all passenger stage corporations and highway common carriers operating under authority of this Commission as of the date of the order, all trucking associations, the Department of Motor Vehicles of the State of California, the California Highway Patrol, and to many other individuals, agencies, and groups likely to be interested in the subject matter of the proceeding. The press throughout the State carried releases advising the general public of the date the hearings would begin. The widest possible dissemination of notice of the investigation was given.

Public hearings were held before Commissioner Huls and Examiner R. K. Hunter at San Francisco, on November 9, 10 and 14, 1949, and on February 9 and 10, 1950; at Los Angeles on December 28 and 29, 1949, and on February 2 and 6, 1950. The matter was submitted at the final hearing in San Francisco on February 10, 1950.

Many interested parties appeared.(1) Testimony and evidence was offered by 44 witnesses. Exhibits totaling 127 were introduced, some of which were voluminous. Many divergent viewpoints were presented.

Comprehensive surveys were introduced in evidence by this Commission, the California Highway Patrol, California Division of Highways, the Directors of the Golden Gate Bridge, the Interstate Commerce Commission, the California Railroad Association, railroad labor organizations, and by public witnesses.

(1) See Appendix A for appearances and Appendix B for a list of witnesses.

The Assistant Director of Transportation and Chief Engineer of the Transportation Department of the Commission outlined the scope of the presentation by the Commission's staff and stated that the Commission was considering a general revision of General Order No. 93-A containing the safety rules and other regulations covering the operations of passenger stage corporations and highway common carriers. Upon his motion the record in Cases 5097 and 5098, dealing with this subject, were included herein by reference; but in view of the scope of the evidence introduced in this investigation it has been deemed unnecessary to refer to the evidence introduced in those cases.

Due to the large number testifying and the great volume of surveys and exhibits introduced, it is not deemed practicable to set forth individually the testimony and evidence introduced by each witness. In the interest of orderly procedure, this opinion will consider the testimony and evidence by subject matter under the following headings:

1. Grade Crossings
2. Statewide Grade Crossing Survey
3. Interstate Commerce Commission Surveys
4. California Division of Highways Survey
5. California Highway Patrol Surveys and Reports of Accidents
6. Department of Industrial Relations Survey
7. Public Utilities Commission Annual Accident Report - Bus and Stage Lines
8. California Highway Patrol Survey of Vehicle Code Violations
9. Public Utilities Commission Field Check of Vehicle Code Compliance

10. Public Utilities Commission Analysis of California Highway Patrol Arrests

11. California Railroad Association Survey of Arrests Involving Commercial Vehicles

12. California Highway Patrol Survey of Overloads

13. Golden Gate Bridge and Highway District Accident Experience

14. Testimony of Others on General Highway Safety

15. Enforcement

16. Speed

17. Rules of the Road

18. Size and Weight

19. Methods of Loading and Securing Loads

20. Chauffeurs' Licenses

21. Hours of Service and Drivers' Logs

22. Identification on Trucks

23. Insurance Requirements

24. Safety Programs -
    (a) Passenger Stage Corporations
    (b) Trucking Industry

25. Tachographs or Similar Recording Devices

26. Considerations Concerning Extent of the Public Utilities Commission Jurisdiction

27. Summary of Conclusions

1. GRADE CROSSINGS

The "Annual Report of Accidents Reported Under General Orders Nos. 22-A and 93-A for Year 1948" (Exhibit 66) was introduced. It includes data on all railroad grade crossing accidents in California for that year. The report has had wide distribution.

Table I shows that railroad crossing accidents constituting 10.7% of all highway accidents in 1929, decreased to 4.3% in 1948. Those killed in railroad crossing accidents represented 8.9% of those killed in all highway accidents in 1929 and 5.7% in 1948. Those injured in railroad crossing accidents represented 2.7% of those injured in all highway accidents in 1929 and 1.2% in 1948. The 1948 figures show a decrease of 6.2% in the total number of crossing accidents, a decrease in the number killed of 15.0% and a decrease in the number injured of 7.6% when compared with the previous year. This table shows an increase over 1947 in the total number of all highway accidents and of those injured in them but a decrease in the number killed.

The total motor vehicle registration in 1948 was 4,167,413, the largest on record to that time. In 1915 the casualty rate (total killed and injured) was 21.5 persons per 10,000 vehicles. This rate decreased to 3.0 in 1947 and to 2.6 in 1948.

Table III shows the accidents and casualties from 1938 through 1948 at public and private railroad-highway crossings. Accidents and casualties per million train miles show little variation since 1945, the average for the eleven year period being: accidents, 26.9, casualties, 13.7. However, the numbers of accidents and casualties per million gallons of fuel consumed show a definite and steady improvement since 1944 and were at their lowest point in 1948, being respectively 0.81 and 0.38.

On December 31, 1944, there were in the State of California 13,061 public grade crossings and 749 grade separations distributed as follows:

	Grade Crossings	Grade Separations
*City Streets	7,174	290
County Roads	4,738	169
State Highways	642	246
Federal Roads	64	13
Doubtful Jurisdiction	443	31
Total	13,061	749

*Includes City Streets and State Highways in cities.

The 443 crossings of doubtful jurisdiction for the most part are former private crossings which have become public through use but over which the city or county does not assume jurisdiction and, as such, have become a problem because of the question as to who is responsible for their maintenance.

The following summary shows the number of accidents by class of crossing:

Type of Crossing	Number of Accidents		Casualties					
			Killed		Injured		Total	
	1948	1947	1948	1947	1948	1947	1948	1947
Class "A" (Main or Branch)	1,941	2,100	156	184	756	824	912	1,008
Class "B" (Separation)	-	3	-	-	-	1	-	1
Class "C" (Spur)	263	252	5	5	112	119	117	124
Class "D" (Pedestrian or Alleyway)	4	1	-	-	-	-	-	-
Private Crossing	78	63	10	13	29	20	39	33
Total Crossing Accidents	2,286	2,419	171	202	897	964	1,068	1,166
Accidents Between Crossings	137	165	5	5	46	57	51	62
Grand Total	2,423	2,584	176	207	943	1,021	1,119	1,228
Per Cent of Decrease	6.2		15.0		7.6		8.9	

The following tabulation from Table VI shows accidents and casualties at Class "A" crossings by political subdivision:

Jurisdiction	Number of Accidents			Casualties						
				Killed		Injured		Total		
	1948	1947	Change	1948	1947	1948	1947	1948	1947	Change
City	1,222	1,399	*12.6%	56	85	388	555	444	640	*30.6%
State (Urban)	208	158	31.6%	15	12	69	50	84	62	35.5%
State (Rural)	124	175	*29.1%	16	14	78	64	94	78	20.5%
County	350	330	6.1%	67	69	204	142	271	211	*28.4%
Public Status Doubtful	37	38	*2.6%	2	4	17	13	19	17	11.8%
Total	1,941	2,100	*7.6%	156	184	756	824	912	1,008	*9.5%

* Decrease

With reference to Class "A" railroad crossings, the 1948 record shows that although but 48.9% of the crossings in the state are located within municipalities, 73.6% of the accidents occurred therein resulting in 45.5% of the deaths and 60.5% of the injuries. In 1948, 93.7% of the accidents in which trains were involved occurred in connection with movements on main or branch line tracks, while switching and other movements on side tracks accounted for the remaining 6.3%. In about 24% of the accidents reported in which a train was involved, the vehicle was reported as having run into the train. The report indicates that in the case of accidents with high speed main line trains, too much weight should not be given to this circumstance as in many such accidents a fraction of a second determines whether the collision is reported as "vehicle hits train" or "train hits vehicle". In nearly 3.1% of the accidents the vehicle ran into a standing train or car, often on a secondary track. While 66.9% of the accidents in which the train ran into the vehicle occurred during daylight, only 46.7% of the vehicle ran into train accidents

happened during daylight hours. This indicates the importance of proper illumination at crossings, particularly those used by freight and switching movements.

In conclusion the report comments that while the ideal solution of the grade crossing problem is complete separation, such a program is impracticable because of the unavailability of funds. The hope is that eventually the more heavily travelled grade crossings can be eliminated by separation.

Representatives of the railroad labor organizations testified that, because they are engaged in operating trains over grade crossings in California and because grade crossing accidents have resulted in fatalities and serious injuries to operative personnel, something should be done to reduce this type of accident. They testified further that while they do not expect this Commission to put guards or policemen at each crossing, they believe that its jurisdiction should be broadened so that the Commission would have complete control of operating vehicles over such crossings.

The representative of the California Railroad Association introduced Exhibit 44 citing 37 instances, observed by railroad personnel, of tank trucks or school buses crossing the tracks of railroads at grade without first stopping as required by law. With reference to grade separations, it was his view that the railroads would be pleased to have all crossings in California separated but that the tremendous cost of accomplishing separation would be economically impracticable.

The Chief of the California Highway Patrol testified that when it is observed that trucks or buses fail to stop at such crossings as required by the Vehicle Code, arrests are made but that it is impossible to have an officer stationed at every crossing at all times. Another representative of the highway patrol introduced Exhibits 62, 63 and 64, containing detailed comprehensive information on commercial motor vehicle (truck, truck and trailer and bus) accidents in California for the first six months of 1949. A partial summary of these exhibits is contained in Appendices C and D to this decision. Of the 5,172 accidents reported, only 45 occurred at railroad grade crossings and of the 296 accidents involving fatalities, only 8 occurred at such crossings.

The representative of the California Division of Highways introduced Exhibit 122, showing that from November 1945 to March 1, 1950, 48 grade separations have been completed or were under construction by his division.

The representative of the Joint Committee for Grade Crossing Safety, a citizens' committee, cited several illustrations of tragic grade crossing accidents and stated that his committee felt that human watchmen should be stationed at all crossings where conditions might demand, but having in sight the ultimate goal of separating the grades wherever the possibility of accidents, death and destruction of property might exist. He cited statistics covering the State of New York, comparing them with those of California and concluded that they indicate greater progress in the former state. He advised that it was the desire of his committee and the organization supporting it to proceed with the draft of a grade crossing elimination act to be introduced in the state legislature.

It was the opinion of a representative of the California Farm Bureau Federation that there is too much talk about separation and not enough about other protective devices and warnings. He stated that it would take a very long time to bring about general grade separation and would result in a tremendous expenditure of money and, therefore, consideration should be given to the use of other more readily installed devices which would result in some protection at a lower cost. He observed that there is too much reluctance to provide reasonable crossing protection at a large number of dangerous grade crossings where a substantial number of people and motor vehicles cross every hour of the day and that this was the really important thing in connection with the highway-rail problem. He added that notwithstanding anything that might be done you can't keep people from killing themselves.

A representative of the organized trucking industry stated that many grade crossing accidents have been investigated. It was found that in many cases the men involved were known to be good drivers. In spite of thorough investigations, it was frequently difficult or impossible to ascertain why such accidents occurred. It was his opinion in view of the large number of people and vehicles using grade crossings and the relatively small number of accidents resulting, that grade crossing accidents generally do not constitute a major problem. He stated that all interested agencies should continue to emphasize that grade crossings are dangerous and that great care should be used by the drivers of all vehicles in negotiating them.

A member of the Commission's staff introduced and displayed at the hearing a proposed reflectorized warning sign, a reproduction of which appears in Exhibit 69, and stated that it has

been proposed that this sign be installed at all grade crossings over which high speed trains operate which are protected only by a fixed warning sign (cross buck) and to be used there until such crossing can be protected with automatic signals or other more effective devices. The record shows that the proposed sign has not been approved by the national committee which has as one of its purposes, the study of universal signs. In the opinion of the witness the sign was superior to the proposed boulevard stop sign. He suggested that such signs be installed at crossings over which trains operate at speeds of 60 miles per hour or more, which probably would involve the placing of the proposed sign at every main line crossing now protected only by fixed signs. The record further indicates the problems that might be involved in installing these signs at crossings on electric interurban systems where some trains operate occasionally at 60 miles per hour and others do not. It is also indicated that the railroads themselves restrict the speed of trains at many of the crossings involved. There was testimony as to how the sign would be installed on the post of a standard crossing sign just below the cross buck, as to its visibility, and the liklihood of its not being seen if placed too low, the view being obstructed by other vehicles.

It is our conclusion that the value of such a reflectorized "high speed train" sign as a warning at main line crossings can be gauged best by experience through a sampling test use. The order herein will direct the installation of a limited number of such signs for temporary experimental purposes only at a number of crossings which have been selected by the Commission's engineers and the railroads.

It is also our conclusion that the organized trucking industry, all other operators of commercial vehicles, and passenger stage corporations, should use every possible means at their command, including the proper training and indoctrination of their drivers, to eliminate grade crossing accidents.

2. STATEWIDE GRADE CROSSING SURVEY

This Commission's general statewide grade crossing survey dated December 15, 1949, was introduced in evidence (Exhibit 68). The report is based upon data obtained from comprehensive field investigations, traffic and accident records from the Commission's files, and information obtained from other agencies. Crossings have been divided in four classes as follows:

Class A - Main and Branch Line Grade Crossings
Class B - Grade Separations
Class C - Spur Track Grade Crossings
Class D - Alley and Pedestrian Grade Crossings

The classification of these crossings by jurisdiction is as follows:

Jurisdiction	Total Crossings	Class A	Class B	Class C	Class D
City	7,120	4,466	271	2,195	188
City and County	137	113	5	19	-
City and State	516	286	84	146	-
County	4,921	4,174	173	564	10
State Highway	752	399	229	124	-
Other State Agencies	9	5	2	2	-
Federal	64	43	14	7	-
Military	38	9	11	18	-
Doubtful	382	293	20	68	1
Total	13,939	9,788	809	3,143	199

The field investigation consisted of an inspection of each of the 13,939 public crossings in the State. These were performed by committees of engineers comprising representatives of the political

subdivisions having jurisdiction over the highways involved (city, county and state), the railroads and the Commission's staff. All features of the crossings were inspected and recorded. At each location, recommendations were made which were calculated to bring about a reduction in potential hazards. The recommendations were forwarded to the respective parties expected to perform the work with the request that the Commission be advised as soon as recommendations were carried out or a report submitted as to the status thereof. The Commission's staff is continuing its efforts to have the recommendations carried out as expeditiously as possible.

Many so-called private crossings existing along the lines of the railroads were originally established as farm and industry crossings, the roads leading thereto being under private control. These private crossings were not included in this study.

The following is a brief summary setting forth the improvements recommended:

Number of Recommendations for Improvements	By Whom Work to be Performed	Estimated Cost *
17,269	Railroads	$ 2,865,720
18,668	Political subdivisions	4,379,450
122	Miscellaneous	1,611,085
36,059	Subtotal	$ 8,856,255
An additional unspecified number of grade separations were recommended at an estimated cost of		$ 7,200,000
	Grand Total	$16,056,255

*To be borne by the railroads and political subdivisions on an agreed basis or to be apportioned by the Commission.

Included in the foregoing figures were 798 recommendations pertaining to closing of crossings, future investigations to consider closing or classifying the status of certain crossings and changes in human flagmen protection hours at certain crossings, all of which can be effected without the expenditure of any material amount of capital.

In many cases the railroads and political subdivisions involved carried out certain recommendations without waiting until the entire survey was completed. The following is a list of the approximate expenditures made as of December 1, 1949, in compliance with the various recommendations:

By railroads	$ 530,875
By cities	48,320
By counties	50,575
By state	12,085
By federal	140
Total	$ 641,995

The following summary shows the number of public crossings in California in 1949 compared with those existing in 1935 and 1937:

Type	1935		1937		1949	
	Crossings	Per Cent	Crossings	Per Cent	Crossings	Per Cent
Class A (Main or Branch)	11,672	78.8	11,369	77.6	9,788	70.2
Class B (Separation)	606	4.0	641	4.4	809	5.8
Class C (Spur)	2,411	16.2	2,461	16.8	3,143	22.6
Class D (Pedestrian or Alley)	146	1.0	176	1.2	199	1.4
Total	14,835	100.0%	14,647	100.0%	13,939	100.0%

From the foregoing it is clear that there has been a reduction in the number of public grade crossings resulting from the abandonment of branch line railroads, the closing of unnecessary grade crossings, and the substitution of grade separations for grade crossings.

Included in the appendix to the exhibit is a chart showing the relationship of grade crossing accidents to crossing use from 1929 through 1948, which indicates that substantial improvement has been achieved in the last twenty years during which period traffic on the highways has greatly increased. This chart uses a theoretical measuring stick or use factor to show the number of rail and highway movements over the average grade crossing. The use factor is the product of the annual millions of train miles multiplied by the annual millions of gallons of gasoline consumed. This use factor has risen from 73,416 in 1929 to 221,942 in 1948, while the number of accidents reached a high of 2,868 in 1929, gradually decreased to a low of 1,655 in 1934, then rose to a high of 2,614 in 1946 and dropped to 2,286, in 1948.

The report also contains the following observations germane to this proceeding:

"1. The results obtained from this survey demonstrate the need for intensive development in the field of reducing potential hazard at grade crossings.

"2. The ideal method of improving the grade crossing situation would be through a comprehensive program of grade separations. A complete separation program that would provide for the elimination of all grade crossings on main and branch line railroads in this state would involve an expenditure of approximately two and one-half billion dollars. Obviously, if such a program were undertaken, it would necessarily have to be financed over a long period of time. The most practical method of procedure would be to pursue a plan of effecting grade separations and providing suitable protective devices at the remaining grade crossings, to be installed as rapidly as they could reasonably be financed. Coincident with the construction of a separation, adjacent grade crossings should be limited to the minimum number necessary to reasonably meet the requirements of the public for access over the railroads.

"3. This study impels the conclusion that many existing grade crossings should be closed, and coincident therewith, the traffic across the railroad should be concentrated over properly located and protected crossings. Of the 181 crossings recommended to be closed in this report, 18 have been reported closed as of December 1, 1949.

Additional grade crossings over railroads should be allowed only where it has been conclusively shown that public convenience and necessity so require. This is particularly true where high-speed train movements are conducted over the railroad involved.

"4. Private crossings should be limited to the number that can reasonably be justified, and those allowed to remain should be properly constructed, maintained, and protected.

It very often occurs that so-called 'private' crossings develop into 'publicly' used crossings, and the question is raised as to their proper classification, as well as presenting a problem as to the party responsible for the maintenance and protection of such crossings. Many such publicly used and designated as 'private' crossings could be closed through the construction of highways to serve the area tributary to properly located crossings.

Our grade crossing accident report for 1948 shows that on a statewide basis, 4% of the accidents and 4.3% of the casualties occurred at so-called 'private' crossings. During the year 1947, these percentages were 3% and 3.3%, respectively. There are a great number of such crossings along the railroads in this state, many of which are poorly constructed and maintained, as well as improperly located. This class of crossing should be reviewed with the objective of limiting the number necessary to meet the requirements of the private interests involved, and those allowed to remain should be properly constructed, maintained, and provided with suitable protective devices.

"5. With the increased speed of trains, the ringing circuits of automatic signaling devices should be checked, and, if found wanting, should be constructed so as to provide approximately 25 seconds advance warning for the approach of the fastest normal train movement over the line at that location. Also, the circuits should be so arranged that the signal ceases to function as soon as the train has cleared the crossing. The ringing circuits should also be arranged to eliminate excessive functioning where trains normally stand for short periods of time or move slowly within the circuits, such as obtain at certain stations; otherwise, the public develops an attitude of disregard for all warning signals.

"6. The records show that of the various types of protective devices installed at grade crossings in this state, the automatic gate is the most effective. This is a comparatively new type of protection which has demonstrated its effectiveness where it has been employed, particularly in the case of

double-track operation which has been the scene of many serious two-train accidents. The cost of installing such a device is somewhat more than in the case with automatic wig-wag or flashing light signals commonly used in this state. It is recommended that the Commission give consideration to the adoption of this type of grade crossing protective device as one of its standards if and when General Order No. 75-B is revised.

"10. The Motor Vehicle Code and regulations prescribed by this Commission require, among other things, that passenger stage operators and highway common carriers transporting inflammables and explosives stop before passing over a railroad grade crossing. In cases where the grade crossing involves a highway over which vehicles normally travel at high rates of speed, turnouts should be provided to permit those vehicles required to stop to clear the normal lane of traffic in order to avoid a rear-end collision by a following vehicle.

"11. Grade crossing accidents can be reduced through the cooperation and concerted effort of all interested parties. This joint action should be manifested in the way of education; proper regulatory measures; enforcement; construction of grade separations as fast as they can be reasonably financed; closing of unnecessary crossings; proper maintenance and construction of grade crossings in the way of grades of approach, widths and surface of crossings, appropriate protective devices, and clearing of views; due consideration of the various problems as they arise by the management of railroads, federal, state, county, and city agencies; and reasonable caution to be taken by all those making use of crossing."

The evidence of record shows, and we find, that the foregoing recommendations are in the public interest, that the grade crossing program of the Commission is producing very good results and should be continued; that the recommendations should be effected as expeditiously as possible consistent with the cooperation and assistance of the State Division of Highways, the counties and cities involved, and the federal government; that the improvement of facilities and property of the railroads as recommended will promote the health and safety of employees, passengers and the public; that the Commission should institute an investigation into the necessity of revising its General Order No. 75-B; and that, where necessary to implement the authority of the Commission by legislation, the

Commission should recommend such legislation to the Legislature of the State of California.

3. INTERSTATE COMMERCE COMMISSION SURVEYS

The District Director of the Bureau of Motor Carriers of the Interstate Commerce Commission introduced Exhibits 18, 19 and 20, the first entitled "Motor Carrier Accidents 1945-1946", the second "Analysis of Mechanical Defect Accidents of Motor Carriers 1947", and the third "Motor Carrier Fire Accidents 1948", all issued by the Interstate Commerce Commission. These cover interstate operations throughout the United States.

The first exhibit contains a comprehensive analysis of motor carrier accidents reported to the Interstate Commerce Commission for the years mentioned and includes 35 detailed tables and charts analyzing these accidents from practically every possible viewpoint. The witness called particular attention to the following figures:

	Total		Passenger-carrying		Property-carrying	
	1945	1946	1945	1946	1945	1946
All types of accidents:	12,213	15,149	3,709	4,546	8,426	10,524
Collision accidents	9,216	11,547	2,778	3,317	6,358	8,152
Non-collision accidents	2,997	3,602	929	1,229	2,068	2,372

Figures for years subsequent to 1946 were not available.

The following summary is taken from the report:

"1. Of those accidents reported by motor carriers operating motor vehicles in interstate or foreign commerce, something less than one-third are reported by motor carriers of passengers; and slightly more than two-thirds by motor carriers of property; those being less than 1% of the accidents reported involving motor vehicles of both kinds of motor carriers. This is true both for 1945 and 1946.

"2. The amount of the reporting of accidents by motor carriers of passengers is greater proportionately than corresponds either to the relative number of such carriers or to the number of motor vehicles operated by them. This would indicate either a greater relative frequency per unit operated or a greater faithfulness of reporting. Our view inclines to the latter. To what extent the probable greater number of miles per day operated by buses as compared to property-carrying vehicles affects this result, is not known.

"3. (a) The percentage of fatal accidents by each type of motor carrier is about the same as the percentage of accidents reported by each (1945 or 1946). (b) Somewhat less than half of the injury accidents were reported by passenger-carrying motor carriers; less than 60% by property-carrying motor carriers (1945 or 1946). (c) Of the accidents involving property damage only, the property-carrying motor carriers reported nearly 85% of the total number of such accidents (1945 or 1946). This is as would be expected.

"4. (a) Roughly speaking about one-quarter of the persons killed in 'bus' accidents fall in each of the categories 'passengers on interstate vehicles,' 'drivers of other vehicles,' 'passengers on other vehicles,' and 'pedestrians'. (b) In contrast, about 60% of those killed in 'property-carrying' accidents are about evenly divided between 'drivers of other vehicles' and 'passengers of other vehicles'; and nearly the entire remainder being approximately evenly divided between 'driver of interstate vehicle' and 'pedestrians'. (c) The facts being as above stated, the greater number of persons killed in 'property-carrying' accidents results principally because of the greater number of such fatal accidents.

"5. For the most part, the total property damage and the property damage per accident did not increase in 1946 over 1945 to an alarming extent. Indeed, when correction is made for the decreased value of the dollar, it would appear either that the dollar damage was nearly the same or represented even a somewhat lesser physical equivalent.

"6. The other data exhibited show a remarkably normal relation to prior data except in a few, and these not very large, respects. The tables and figures thus serve to speak for themselves."

Exhibit 19 is an analysis of mechanical defects accidents of motor carriers for the year 1947. It shows that during 1947 motor carriers reported to the Interstate Commerce Commission 1,382 accidents attributable to defects in or failure of various parts of the motor vehicles. These accidents represented 7.4% of all reported accidents and resulted in 77 fatalities, 1,193 injuries and $3,043,900

property damage. Compared with 1946 this is a substantial increase in the number of accidents and property damage, but fatalities and injuries for 1946 were slightly less than for 1947.

The general purposes of this report are stated as follows:

"(a) To present to the public an analysis of accidents caused by mechanical defects or failures involving motor vehicles operated by common and contract carriers engaged in interstate and foreign commerce.

"(b) To determine the number, causes, types, and results of such accidents; and

"(c) To indicate to interested parties, especially carriers and manufacturers, methods of reducing the number and severity of such accidents."

The main points emphasized in the analysis are: (1) mechanical defect accidents are continually decreasing; (2) as a percentage of all accidents such accidents are decreasing; (3) compared with all accidents, mechanical defect accidents are almost twice as damaging to property but the casualty rates, both deaths and injuries, are approximately the same; (4) in general fashion, the same types of defects occur from year to year, with some variations due to outside influences such as availability of better tires after the war and increased production of trucks with consequent increase in coupling failures in drive-away operations; (5) "stopped accidents", which constitute one fifth of all accidents, cause over half the fatalities; (6) bus operators showed a material improvement in 1947 in contrast with property carriers; and (7) most mechanical defect accidents are due to poor inspection and maintenance practices.

This report shows that the number of accidents caused by defective brakes continues to increase numerically and as a percentage

of all mechanical defect accidents. For 1947, carriers reported 436 such accidents which represented 31% of all accidents caused by failures of mechanical parts of the vehicles.

The report states further that too much emphasis cannot be placed on the necessity for adequate inspection and good maintenance and that the influence of a "good system" in reducing accidents due to mechanical failures is strikingly evident in tire accidents. Almost all the large bus companies utilize the so-called "leased tire" system, in which the tire company is in charge of maintenance and changing tires. While responsibility still rests with the carrier, it is the tire company representative who does the work. The "leased tire" system has resulted in a reduction of tire accidents on buses from a high of 44 during 1945 to a low of 15 for 1947. Property carriers, on the other hand, during the same period reduced the number of such accidents only from 159 to 148. It is estimated that if property carriers had shown a reduction comparable to bus operators it would have resulted in a saving of nine lives, 32 injured persons and $460,000 in direct accident costs alone during 1947.

In general the analysis indicates that a material improvement will result only through cooperative effort by: (a) drivers who perform their inspections carefully, who are better trained and who turn in accurate reports on defective equipment; (b) by carriers who instigate and carry out systematic and adequate maintenance systems; (c) by manufacturers who design and build vehicles tailored to the needs of the carriers; and (d) by a regulating authority which promulgates good regulations and enforces such regulations.

The recommendations in the report deserve careful study and consideration by all motor carriers. The two following recommendations however are particularly significant:

"1. While carriers are becoming increasingly aware of the truth of the saying that 'safety is no accident', many of them still do not apparently realize that mechanical defect accidents are not inevitable. The solution to this accident problem lies mainly in adequate inspection and maintenance with some assistance from the designer and builder. The carriers cannot place their hope upon replacement of their old vehicles by new equipment since most defects are just as likely to occur on a vehicle one year old as on a five year old vehicle. The secret lies in keeping the vehicle in 'new condition' through adequate upkeep.

"15. In most of this report we have laid the main responsibility, and we believe rightly, upon motor carriers who fail to employ adequate inspection and maintenance systems. Some of the blame also lies with the manufacturers who do not provide carriers with equipment which is suited to their needs or so designed as to simplify and minimize their inspection and maintenance practices. In many respects, drivers, and especially owner-drivers, are responsible both for failure to check their vehicles so as to detect defects and failure to take proper action after knowing their vehicles to be defective.

We believe that some mechanical defect accidents resulted from our failure to perform the number of vehicle and terminal inspections which we believe necessary. In this respect, we are of the opinion that an increased field staff for the Bureau would be beneficial both to the carriers and the general public. While the Section of Safety of the Bureau of Motor Carriers feels that increased inspection and enforcement by regulatory agencies would be beneficial, it is still of the opinion that carrier realization of the necessity for keeping their vehicles in safe operating condition and their institution of adequate practices to carry out this realization would be the best method of avoiding accidents due to mechanical defects."

Exhibit 20 is a study by the Interstate Commerce Commission of the occurrences and causes of motor carrier fire accidents for the year 1948. It states that fire accidents are controllable and that there is a definite possibility of reducing the number of fire accidents by proper inspection and maintenance. The following two conclusions are significant:

"A. Fire accidents, as well as all accidents, are attributable almost entirely to two general causes--driver failure and vehicle failure. Insofar as drivers may be responsible for failure to detect and correct many of the vehicle defects, they are responsible for many of the fires due to these mechanical defects. Many of the mechanical defect fire accidents are due to improper--or total lack of--inspection and maintenance by the motor carrier. In addition, inasmuch as motor carriers are responsible for the proper selection, training, and supervision of drivers, whenever the carrier is derelict in the performance of these duties he is responsible for the accident. The two fundamental methods of reducing the number of fire accidents are, therefore, the use of better personnel through proper selection and training and the installation of better inspection and maintenance systems."

"G. It is suggested that carriers carefully examine this report and, in conjunction therewith, make a study of their own fire accidents. They should then be in a position to answer such questions as: 'How is my fire accident experience in comparison with that of other carriers?' 'Are my fire accidents unduly severe?' 'Am I having too many mechanical defect fire accidents?' After answering such questions, a further study of this analysis and his own reports should serve to point out the solution to his difficulties."

It is our conclusion that all motor carriers should carefully study this report and follow its precautionary advice.

4. CALIFORNIA DIVISION OF HIGHWAYS SURVEY

A traffic engineer from the Division of Highways of the State of California stated that any investigation into safety of trucks and buses on highways, such as that undertaken by the Commission in this hearing, must be based on accurate accident statistics uncolored by the hysteria sometimes engendered by a few spectacular accidents and that without such data neither the type nor the magnitude of the problem can be determined. The witness introduced a prepared statement and stressed that no attempt was made to determine the responsibility for any accidents but that the data indicates only the type of vehicle

involved in each type of accident. The material was taken from the accident files of the Division of Highways.

The state highway system is comprised of approximately 14,000 miles of highways in California (county roads are not included). Of this figure approximately 12,600 miles of highways constitute the rural state highway system, i.e., state highways outside of incorporated cities.

The following figures show the number of accidents on rural state highways reported in the division's accident files:

Years	Accidents Reported
1946	20,366
1947	21,504
1948	25,436
Total	67,306

While these figures represent approximately 22% of all motor vehicle accidents on all roads and streets within the State of California, the rural state highway system carries about 33% of all traffic on all roads and streets in the state.

The division's investigation indicates that approximately 16% of the total vehicle mileage generated on the rural state highway system is attributable to commercial vehicles. This percentage has increased from 15.8% in 1946 to 16.5% in 1948.

Table A of Exhibit 120 shows the mileage between accidents on rural state highways for the years 1946 through 1948:

Years	Commercial Vehicles	Passenger Vehicles
1946	221,000	297,000
1947	235,000	310,000
1948	199,000	260,000
Three year average	217,000	287,000

In this table the term "commercial vehicles" includes trucks, buses and pickups. It indicates lower mileage between accidents involving commercial vehicles than between accidents involving passenger cars for each of the three years analyzed. The year 1947 shows a gratifying increase in mileage between accidents for both types of vehicles. The year 1948, however, shows a decrease of mileage between accidents for both types. The witness added that at least a portion of the apparent increase is due to the "Financial Responsibility Law" which went into effect during 1948 and has resulted in the reporting of many accidents, particularly of the property damage type which were not previously reported.

Table B of Exhibit 120 contains an analysis and classification of 67,306 accidents on rural state highways for the three years, 1946 through 1948. The following extract shows the type of vehicle involved and the number of accidents:

Type of Vehicle Involved	Number of Accidents
Single Truck	3,133
Single Bus	77
Single Passenger Vehicle	13,993
Single Miscellaneous Vehicle	805
Truck vs. Truck	1,622
Truck vs. Bus	159
Truck vs. Passenger Vehicle	10,642
Truck vs. Miscellaneous Vehicle	555
Bus vs. Bus	2
Bus vs. Passenger Vehicle	552
Bus vs. Miscellaneous	17
Passenger Vehicle vs. Passenger Vehicle	23,202
Passenger Vehicle vs. Miscellaneous Vehicle	2,382
Miscellaneous vs. Miscellaneous	91
Subtotal	57,232
Three or more Vehicle Accidents	10,074
Total for State	67,306

The types of accidents for the three year period as shown in Table B are as follows:

Type of Accident	Number of Accidents
Not at Intersections:	
Single Vehicle	16,648
Two Vehicle Approach(2)	10,308
Two Vehicle Overtaking(3)	11,664
Total Not at Intersections	38,620
At Intersections, Single and Two Vehicle	18,544
Miscellaneous Accidents	68
Subtotal	57,232
Three or More Vehicle Accidents	10,074
Grand Total	67,306

Table C of Exhibit 120 lists two-vehicle overtaking and single car accidents including fatalities and injuries on grades by type of vehicle and direction of travel, that is, upgrade or downgrade, occurring on rural state highways for the same three year period. This compilation shows that all types of vehicles have many more single vehicle accidents downgrade than upgrade which also appears to be true for overtaking accidents involving passenger cars. In overtaking accidents involving trucks, the number upgrade is almost the same as the number downgrade. For the period mentioned the table reveals the following figures:

	Single Vehicle Accidents			
Type of Vehicle	Upgrade	Downgrade	Other	Total
Truck	196	666	2,271	3,133
Bus	-	11	66	77
Passenger	818	2,350	10,825	13,993
Miscellaneous	65	106	634	805
Total	1,079	3,133	13,796	18,008

(2) Two vehicles approaching from opposite directions.
(3) One vehicle overtaking another while traveling in the same direction.

Two Vehicle Overtaking and Miscellaneous Accidents

Type of Vehicle	Upgrade	Downgrade	Other	Total
Truck vs. Truck	70	69	783	922
Truck vs. Bus	7	9	88	104
Truck vs. Passenger Auto	421	442	4,475	5,338
Truck vs. Miscellaneous	10	39	254	303
Bus vs. Bus	-	-	-	-
Bus vs. Passenger Auto	17	29	273	319
Bus vs. Miscellaneous	-	1	9	10
Passenger vs. Passenger	416	710	8,849	9,975
Passenger vs. Miscellaneous	46	99	959	1,104
Miscellaneous vs. Miscellaneous	1	10	53	64
Total	988	1,408	15,743	18,139

Table D lists the accidents on rural state highways by the day of the week by type of vehicle for the same three year period, and shows that while Sunday is by far the worst day of the week for passenger car accidents the reverse is true for accidents involving trucks. Regular traffic counts taken by the division show that truck traffic on an average weekday is generally 200% of the truck traffic on Sunday.

Table E shows a breakdown of accidents on rural state highways for the three year period by type of highway and type of vehicle. The tabulation fails to disclose any conclusive relationship between the type of vehicle and the number of lanes insofar as accidents are concerned. It does show, however, that substantially more accidents occur on two-lane than on three-lane, four-lane, or four-lane divided highways.

Table F breaks down the single and two-vehicle accidents by type of vehicle for the three year period on rural state highways and shows the number of fatalities resulting within each vehicle classification listed. The witness stated that the previous tables dealing

with all types of accidents did not disclose any particularly alarming number of truck accidents when compared to the number of trucks using the highways. However, when the ratio of persons killed for the number of accidents is considered, a significant difference can be observed. In accidents between or involving two passenger vehicles the ratio of persons killed to the number of accidents is 1 to 35 and in accidents involving only one passenger vehicle the ratio is about 1 to 10. In accidents involving a truck carrying a Board of Equalization license and a passenger vehicle the ratio is approximately 1 to 10, and in accidents involving a truck not carrying a Board of Equalization license and a passenger vehicle the ratio of deaths to accidents is 1 to 25. The witness stated that the large difference between the Board of Equalization licensed trucks and all other trucks is probably due to the fact that there are fewer smaller trucks and pickup trucks in the former group.

Table F also reveals that during the same three year period 1946 through 1948 the total of 57,232 single and two vehicle accidents occurred on rural state highways resulting in 3,378 fatalities, a death to accident ratio of 1 to 17. It also shows that for the same period the occurrence of 16,759 accidents in which Board of Equalization licensed and other trucks and buses were involved resulted in 1,058 fatalities, a death to accident ratio of almost 1 to 16. The last comparison includes 11,194 such accidents in which passenger vehicles were also involved resulting in 647 fatalities, a death to accident ratio of 1 to 17.

Table G deals only with fatal accidents involving buses on rural state highways for the same three year period. It shows the relative number of fatalities of bus occupants compared with

fatalities of pedestrians and occupants of other vehicles. This table revealed the following figures for the period mentioned:

	Fatal Accidents	Number Killed	Number Killed Per Fatal Accident
Total of all vehicles on rural state highways	3,365	3,938	1.17
Total involving buses	62	80	1.29

The witness stated that this tabulation clearly indicates the relative insignificance of fatal bus accidents compared to the statewide accident problem, and that it can be noted by comparison with the several previous tables that the number of accidents involving buses is relatively small. The record of bus versus passenger car accidents shows there were 40 fatal accidents involving 55 fatalities, 2 of which were bus passengers and 53 of which were pedestrians or occupants of passenger cars.

Table H shows the speed of various types of vehicles on rural state highways, a subject of interest to all highway users. The witness stated that the division checks the speeds at some 46 locations throughout the state and that the checks made in 1945 and in 1948 are reflected in this table. A comparison with average speeds throughout the United States as reported by the United States Bureau of Public Roads shows no great difference in California. Table H reveals the following figures:

Average Speeds in California - in Miles Per Hour

	All Vehicles	Passenger Vehicles	Trucks	Buses
1945	45.0	46.1	40.2	45.4
1948	47.6	48.9	44.1	50.8

Percentage of Vehicles Exceeding Certain Speeds in California

Speed	Year	All Vehicles	Passenger Vehicles	Trucks	Buses
50 MPH	1945	25	28	9	24
	1948	38	42	22	53
55 MPH	1945	10	12	3	11
	1948	20	23	9	32
60 MPH	1945	3	3	1	4
	1948	7	9	3	12

It is our conclusion from the information presented in this survey by the Division of Highways: (1) that the increase in accidents reported does not necessarily indicate a corresponding increase in the relative number of accidents actually occurring, some of this increase being accounted for by more accidents being actually reported; (2) that all vehicles are traveling at higher rates of speed; (3) that all types of vehicles appear to be contributing to the accidents, injuries, and fatalities occurring; and (4) that there is still much room for improvement from a safety viewpoint by all vehicles presently using the rural state highway system.

5. CALIFORNIA HIGHWAY PATROL SURVEYS AND REPORTS OF ACCIDENTS

A representative of the California Highway Patrol introduced Exhibits 62, 63 and 64 containing detailed comprehensive information on motor vehicle accidents in California for the first six months of 1949 showing separately the accidents occurring in cities and on all roads including state highways and county roads in rural areas. These contain detailed breakdowns and analyses of the accidents reported to the highway patrol from practically every

conceivable viewpoint and show separately the number of fatal and nonfatal accidents occurring under each of the listed conditions. A brief summary of what these exhibits contain as to the points here under investigation is set forth in Appendix C hereof. It shows that commercial vehicles accounted for 18.31% of the total accidents reported in cities and rural areas for all types of vehicles and accounted for 11.59% of the total number of vehicles involved in these accidents.

These same three exhibits show separate figures for the total fatal accidents involving commercial vehicles for the same six month period. Of the 5,172 accidents, 296 involved fatalities. A summary of these fatal accidents likewise taken from these three exhibits is set forth in Appendix D hereof.

The tabulation of citations issued in connection with the 5,172 accidents involving the entire commercial vehicle group shows that a total of 9,185 were issued. Of these 9,185 citations, 3,148, or 34.27%, involve speed; 1,743, or 18.98% involve the violation of the right of way of either a pedestrian or another vehicle; 800, or 8.71%, were for following too closely; 602, or 6.55%, were for improper passing; 489, or 5.32%, were for driving on the wrong side of the road; and 451, or 4.91%, were for making improper turns.

Reference is made to Appendices C and D hereof for a further breakdown by each type of commercial vehicle and for further information on the condition of vehicles contributing to accidents, road location of the accident, condition of all drivers contributing to accidents and violations by all drivers involved.

The chief of the highway patrol also introduced Exhibit 125 showing the reported accidents of all vehicles on all roads in rural areas for the years 1948 and 1949. The following figures are significant:

	1948	1949	Increase	Per Cent of Increase
Total accidents involving fatalities and injuries	21,863	23,040	1,177	5.83%
Total fatal accidents	1,687	1,695	8	0.47%
Number persons injured	34,452	36,110	1,658	4.81%
Number persons killed	1,915	2,033	118	6.16%

The increase in accidents, especially in the number of persons killed and injured, indicates the need for remedial action directed to the proper observance of traffic laws and regulations. In connection with commercial vehicles the record shows (Appendix D) that in fatal accidents 35.1% of the citations issued involve violations of the speed sections of the Vehicle Code. It is our conclusion, therefore, and we so find, that there is a great need for some remedy calculated to put a stop to the apparent flagrant disregard of speed laws.

6. DEPARTMENT OF INDUSTRIAL RELATIONS SURVEY

A representative of the Department of Industrial Relations introduced Exhibits 22 and 23 which show the importance of the proper regulation of the use of vehicles. The latter shows that for the 1948 calendar year, 649 occupational fatalities occurred in California. Of these, 169, or 26%, resulted from the operation of motor vehicles, 31 occurring off and 138 on the highways. Exhibit 22 shows that

for the first six months of 1949, there occurred 2,436 disabling occupational injuries resulting from motor vehicle accidents in California. Of these, 1336 resulted from collisions, 419 from overturning or running off the road, 191 from falls, 15 from shifting of loads, 10 from objects falling from loads, and 465 from miscellaneous accidents. These figures cover only those persons coming within the provisions of the California Workmen's Compensation Act.

7. PUBLIC UTILITIES COMMISSION ANNUAL ACCIDENT REPORT - BUS AND STAGE LINES

Exhibit 66 entitled "Annual Report of Accidents Reported Under General Orders 22-A and 93-A for the Year 1948" in addition to covering grade crossing accidents, also includes a complete analysis of accidents involving bus and stage lines. It includes the records for the years 1932 through 1948.

Summary table II-F of this exhibit indicates that the number of accidents involving bus and stage lines increased from 222 reported in 1932 to a peak of 2,565 in 1947, then dropped to 1,991 in 1948. It also shows that the casualty rate (total persons killed or injured) per million bus miles rose from 5.07 in 1932 to 14.86 in 1947 and then dropped to 11.76 in 1948. The number killed rose from 6 in 1932 to 71 in 1943 and then dropped to 38 in 1948. The number injured rose from 260 in 1932 to 3,146 in 1947 and then dropped to 2,592 in 1948. This section of the report also contains other analyses by kind of accident and a comparison of accidents involving buses and

stages with those involving other types of land transportation, as well as several summary tables showing the experience of practically every bus and stage line under the jurisdiction of this Commission. The following summary covers the reported accidents of all bus and stage lines in California for the years shown:

	1947	1948
Total number of lines	209	205
Total accidents reported	2,565	1,991
Total killed	41	38
Total injured	3,146	2,592
Total passenger bus miles	214,412,322	223,679,077
Bus miles per accident	83,592	112,345
Bus miles per person killed	5,229,569	5,886,292
Bus miles per person injured	68,154	86,292
Total lines having no accidents	154	152
Total bus miles of lines having no accidents	20,714,313	24,466,830

The following general comment aptly summarizes the significance of the figures set forth in the various tables contained in the report:

> "It is evident from the tables and accompanying remarks in the preceding pages that the accident and casualty record of public transportation by land has been much improved in 1948, continuing the definite trend of the past three years in the railroad and street railway groups. This trend now appears for the first time in the bus and stage figures.
>
> "No doubt many factors have contributed toward this desirable development. Surely among the most important of these is the gradual improvement in the operating personnel of the carrier, through training and experience and by replacement of those less competent or inclined to carelessness. It is well known that during the war emergency many were necessarily employed or retained in service who were obviously not well fitted by prior experience or personal characteristics to render satisfactory service in public transportation. Stabilization of personnel and the cumulative effect of training and experience should combine to pay good dividends in safer operation.
>
> "On the human side also must be included the cumulative effect of the more vigorous campaigns for better safety education of the public, waged by national and state agencies and by civic and industrial organizations. The public transportation groups have been quite active in promoting accident prevention education, not only among their employees but for the general public as well.

"Betterment of physical conditions and equipment must also be given credit for a considerable share in driving the accident rate downward in California. In every field the tracks, roads and streets are undergoing general rehabilitation or permanent enlargement and correction of grades and alignment. Many new and better engines, cars and buses have been put into service, all embodying provisions for greater safety in operation. Literally millions of dollars, necessarily withheld from such use during the war, are now being invested in making ground transportation more efficient, faster and safer.

"In our report for the year 1947 we called attention to the adverse effect on accident frequency of several conditions prevalent in California; namely, the generally mountainous character of the terrain, the phenomenal increase in population during the past few years, and the highest registration of automobiles and trucks of any of the States. It appears obvious that the pronounced decrease in the frequency of accidents and casualties on carriers by rail and highway in 1948, notwithstanding such obstacles, reflects the cumulative efforts of managements, labor organizations and State agencies representing the general public, to abate the needless sacrifice of life, limb and property in preventable transportation accidents."

8. CALIFORNIA HIGHWAY PATROL SURVEY OF VEHICLE CODE VIOLATIONS

The California Highway Patrol representative introduced Exhibits 45, 46 and 47, containing a partial digest of citations issued to drivers and owners or operators of commercial vehicles for the years 1947, 1948 and January through August of 1949. These exhibits include the several firms receiving the highest number of citations and, for comparison purposes, list the citations given three other trucking concerns. They also contain comprehensive details of the exact citations given each firm or its drivers. The names of the involved firms are not shown and it is not deemed essential that the record for each firm be individually analyzed and set forth herein. The following partial digest of the citations issued against drivers and operators of commercial vehicles with the comparison will suffice:

	Total Citations for Nine High Firms			For Comparison - Total Citations for Three Other High Firms		
	1947	1948	Jan-Aug. 1949	1947	1948	Jan-Aug. 1949
Approximate Registration:						
Trucks	550	1,185	878	1,227	1,507	2,128
Trailers	838	1,696	1,112	1,038	1,081	1,142
Total Number of Citations:	1,538	1,171	1,160	134	87	121
For Speed	164	152	75	13	5	6
For Railroad Crossings	58	62	33	19	5	4
For Exhaust and Mufflers	163	119	94	14	4	5
For Overload	1,085	622	768	61	56	86
Pounds of Overload	3,081,443	1,739,470	2,332,783	132,730	151,490	224,190

The foregoing figures indicate that certain highway carriers show a greater tendency to violate provisions of the Vehicle Code than do others.

Exhibit 125, introduced by the highway patrol's representative, shows the following figures for all types of vehicles for the calendar year 1949 occurring on all roads in rural areas only:

Total arrests all types of vehicles - 323,580
Total arrests for moving violations - 266,889
Total warnings issued - 274,171

For commercial vehicles on all roads in rural areas only, the exhibit shows the following arrests and warnings issued during the six-month period July through December, 1949:

Type of Violation	Arrests	Warnings
Mufflers	1,177	634
Speed	3,732	724
Rules of Road	4,806	885
Lights	3,378	6,754
Brakes	968	265
Weight	8,686	337
Size	1,241	225
Other Equipment	2,143	3,319
Miscellaneous	2,401	2,639
Total	28,507	15,736
Percentage of Arrests and Warnings Issued Against all Vehicles (yearly basis)	18.24%	11.47%

Pounds of Overload Removed	21,654,586
Total Commercial Vehicles Checked	243,108
Amount of Fees found Due	$ 23,135.04

According to the record, commercial vehicles generate 16% of the vehicle mileage on rural state highways and from the foregoing figures, it appears they are responsible for about 18% of the arrests made on all roads in rural areas.

9. PUBLIC UTILITIES COMMISSION FIELD CHECK OF VEHICLE CODE COMPLIANCE

A member of the Commission's staff introduced Exhibit 124, entitled "Results of Field Checks Dealing With Highway Safety as Related to Compliance With Certain Sections of the Vehicle Code of the State of California", dated February 9, 1950. The check was commenced on December 22, 1949 and completed on January 20, 1950. A total of 21 days and 972 man hours was consumed in actual field operations. The study covered most of the major highways of the State of California. Certain areas were subjected to concentrated checks by the field representatives and in some cases extended over a 24 hour period. Other portions of the highways were given spot checks on

one or more days during the period of investigation. The operations of all commercial vehicles carrying passengers or property were observed. Three observers were placed in each of two automobiles and they gave concentrated attention to such areas as Altamont Pass, Pacheco Pass, the Grapevine, Cajon Pass and others.

The complete and accurate identification of equipment observed in violation of the Vehicle Code was found to be difficult in a majority of the cases, the main causes for this difficulty being: (a) license plates were obscured either by mud, disfigurement or worn letters; (b) name of carrier was not shown on the vehicle; and (c) unit numbers or other identifying markings were lacking.

From the field work of these investigators, several tables were prepared, recapitulating the violations observed. The first table shows that from December 23, 1949 to January 20, 1950, buses of passenger stage corporations were observed exceeding the prima facie speed limit on 44 occasions. Sixteen buses were observed traveling 70 miles per hour in a 55-mile zone. On U.S. Highway 99 near Cottonwood the field party was unable to keep up with a bus because of the observer's unwillingness to exceed 70 miles per hour. Other buses were observed traveling 30, 35, 45, 50 and 55 miles per hour in 25-mile zones; 40, 45, 50, 55 and 60 miles per hour in 35-mile zones; and 50 and 60 miles per hour in 45-mile zones.

The second table lists other types of violations observed in connection with passenger stage operations including following too closely, driving in the wrong lane, emitting excessive exhaust residue, driving without due regard to safety of persons and property, changing lanes without giving proper signal, straddling

the white line, license plates not properly illuminated, and passing on curves without sufficient visibility.

The third table lists 40 observed violations by property carrying motor vehicles of the speed restrictions of the Vehicle Code, 10 by certificated carriers and 30 by permitted, private or interstate carriers. Three vehicles were observed traveling 70 miles per hour; nine, 65 miles per hour; eleven, 60 miles per hour; and three, 55 miles per hour under the circumstances under which the Vehicle Code prescribes a 40-mile per hour maximum speed limit. Other trucks were observed traveling 45 and 50 miles per hour in 35-mile zones and 35, 40, 50 and 60 miles per hour in 25-mile zones. Three trucks were observed traveling at 20 or 30 miles per hour under conditions permitting a 40 or 55 mile speed, impeding and blocking the normal and reasonable movement of traffic in violation of Section 514 of the Vehicle Code. One truck was observed traveling 55 miles per hour in foggy weather when visibility was estimated to be 25 feet, all in violation of Section 510 of said code. Another truck was observed traveling over 80 miles per hour under conditions permitting only a 40 miles per hour maximum.

The fourth table also covers property carrying vehicles and shows that during the period from December 22, 1949 to January 20, 1950, 65 violations of Vehicle Code sections, other than speed restrictions, were observed; 15 by certificated carriers and 50 by permitted, private or interstate carriers. These involved violations of Sections 158(a) and (b), improper display of license plates; Section 475, failure to obey traffic signal; Section 505, reckless driving; Section 525, failure to stay on right side of road; Section 526(a), riding over center line; Section 527(a), improper passing other

vehicles proceeding in opposite direction; Section 528(b), failure to yield right of way to overtaking vehicle; Section 530, attempting to pass vehicle going in same direction with insufficient visibility; Section 530.5, passing on upgrade at less than 12 miles per hour; Section 531, following too closely; Section 544, failing to give proper signal when turning or stopping; Section 577, failing to heed stop signs; Section 590, failure to display warning devices when vehicle is disabled; Section 604, disregarding one-way traffic signs; Section 621(b), failure to properly illuminate rear license plate; Section 633(b), improper use of spot light; Section 673.5, excessive exhaust residue; Section 700, improperly secured loads; and Section 701(e), trailer swaying or whipping excessively.

The exhibit indicates that the foregoing tables contain a record of only 175 of the 258 violations observed.

At the conclusion of the report the following observations were made:

> "1. In wet weather a muddy spray is often thrown from wheels of heavy vehicles which causes a deposit on the windshield of following and passing motor vehicles. The residue is not immediately cleared by the wipers and a driver's vison is so impaired as to create hazardous operating conditions. Some provision should be enacted requiring auto trucks in this state to be equipped with mud aprons to prevent this spray.
>
> "2. For the purpose of quick and accurate identification, consideration should be given to requiring all vehicles within the jurisdiction of the Commission to be marked, so as to be legible at a reasonable distance, from the front or rear, either by name or P.U.C. number. The number method has been used quite successfully by the Interstate Commerce Commission.
>
> "A great deal of difficulty was encountered in identifying various vehicles during the check because of:
>
> (a) Failure to display California license plates.
> (b) Plates were displayed so that a part of them was hidden either by signs or other state license plates.

(c) Multilated plates.
(d) Failure to illuminate plates so that they were visible for a distance of at least 50 feet.
(e) Plates were covered with foreign matter.

"3. Passenger automobiles towing house trailers apparently too heavy for the motor power often present a serious hazard. Also in many instances these combinations are not equipped with adequate mirrors or signaling device.

"4. In one area a passenger car was observed traveling at about 50 mph, passing a school bus that was discharging children. The auto made no attempt to decrease its speed or stop.

"5. It would seem that further study is needed in the matter of determining the reasonableness of the 40 mph speed limits for trucks and trailers. On many highways with only two lanes, equipment traveling at this rate of speed often held up automobile and stage traffic for several miles before safe passing could be executed.

"6. It appears that the California Highway Patrol is enforcing the provisions of the Vehicle Code to the best of its ability with the personnel provided. In areas where patrol cars cruised with regularity we discovered few, if any, violations."

We are in agreement with the foregoing comments and embrace as our own the findings in paragraphs 1, 2 and 5.

The violations revealed by this sampling survey indicate an unwillingness to observe or a disregard of the Vehicle Code by the operators or drivers and clearly show that both passenger and property carrying vehicles can greatly improve their performances in this regard. It suggests either voluntary improvement on the part of the carriers themselves or the establishment of greater enforcement and possibly other sanctions calculated to compel involuntary observation of fundamental traffic safety rules and practices.

10. PUBLIC UTILITIES COMMISSION ANALYSIS OF CALIFORNIA HIGHWAY PATROL ARRESTS

Exhibit 126, entitled "Report on Analysis of Arrests Made by the State Highway Patrol for Certain Offenses Which Relate to Highway Safety, Particularly the Issues Involved in Case 5136", dated February 9, 1950, was introduced by a member of the Commission's staff. The analysis was directed to the provisions concerning the violations of the following sections of the Vehicle Code by the class of vehicle known as "commercial", which does not include those vehicles licensed similarly to private passenger automobiles, such as taxicabs, and panel and small pickup trucks:

Section 510	-	Basic Speed Law
Section 511	-	Prima Facie Speed Limits
Section 515	-	Speed Law Based on Weight and Tire Equipment
Section 528	-	Overtaking a Vehicle on the Left
Section 529	-	When Overtaking on the Right is Permitted
Section 530	-	Limitations on Overtaking on the Left
Section 531	-	Following too Closely
Section 533	-	Meeting or Passing School Bus

The following summary from Table 2 for the year 1948 shows the number of violations of the Vehicle Code by type of carrier, for which citations were issued, grouped according to speed violations in the first column and rules of the road in the second:

Type of Carrier	Vehicle Code Sections Violated: 510, 511, 515	528, 529, 530, 531, 533	Total
Proprietary			
Passenger	2	2	4
Freight	1,496	727	2,223
Subtotal	1,498	729	2,227
Percent			31.3%
Permitted			
Passenger	10	1	11
Freight	2,629	961	3,590
Subtotal	2,639	962	3,601
Percent			50.70%
Certificated			
Passenger	276	56	332
Freight	308	86	394
Subtotal	584	142	726
Percent			10.2%
Governmental			
Passenger	8	2	10
Freight	33	10	43
Subtotal	41	12	53
Percent			.8%
Out-of-State			
Subtotal (Freight)	254	49	303
Percent			4.3%
Unclassified			
Subtotal (Freight)	155	41	196
Percent			2.7%
Grand Total	5,171	1,935	7,106
Percent	72.8%	27.2%	100%

Table 3 contains a summary of the total "commercial" arrests by the highway patrol for violations of all Vehicle Code sections for the year 1948 and for the first ten months of 1949.

The following is a comparison of the first 10 months of each year:

1948			1949		
Speed	Rules of Road	Total	Speed	Rules of Road	Total
3,172	4,932	8,104	4,946	7,368	12,314

The foregoing indicates that either more violations or greater enforcement, or possibly a combination of the two have taken place.

11. CALIFORNIA RAILROAD ASSOCIATION SURVEY OF ARRESTS INVOLVING COMMERCIAL VEHICLES

The Director of the California Railroad Association, on behalf of the Class I railroads,(4) introduced Exhibits 25, 26 and 27 based upon information secured from the records of the California Highway Patrol and the local courts of the arrests involving commercial vehicles covering the calendar years 1940 and 1941 and the fiscal year 1946-1947. While it is not practicable to fully set forth their contents here, each of the exhibits has been carefully analyzed and a partial summary has been made and is set forth in Appendix E. The survey of arrests for the fiscal year 1946-1947 (Exhibit 27) contains the following comment:

> "A most significant fact is the total number of commercial arrests during the three years. There were 7,019 in 1940, 4,806 in 1941, and approximately 25,000 in the 1946-47 period. No effort was made to count the exact number of arrests made in 1946-47 as the number involved in the cases reported in the tables of this survey were sufficiently great for the desired analysis. The approximate figure of 25,000 is based upon the records of the highway patrol and is sufficiently accurate for these purposes.

(4) The Atchison, Topeka & Santa Fe Railway Company, Great Northern Railway Company, Southern Pacific Company, Union Pacific Railroad Company and Western Pacific Railroad Company.

"Several factors contributed to the startling increase in the total number of arrests in the last year. Probably the most important was the simplification of the law in 1943 which now permits enforcement activity to be carried on by patrol officers generally rather than being restricted to a relatively small group of specially trained men.

"In 1946-47, 63 operators were found to have been arrested 30 or more times. They were responsible for 3,980 cases. In 1941, 44 operators were arrested 15 or more times and were responsible for 1,294 cases. In 1940, 66 operators were arrested 15 or more times and were responsible for 2,379 cases. Of the 63 operators listed in 1946-47, 16 appear in both the 1940 and 1941 lists and 6 others appear in one of the other lists.

"In 1940, 66 operators having 15 or more arrests to their credit were responsible for 32% of all arrests made. Similarly in 1941, 44 operators having 15 or more arrests were responsible for 26% of all violations. In 1946-47, 63 operators having 30 or more arrests were responsible for 15% of all arrests. However, 317 operators arrested in 1946-47 had 7,533 cases charged against them. This is more cases than the entire number of arrests in either of the two previous years. This last figure represents 30% of all violations apprehended during the year. These figures illustrate the fact that a relatively few number of operators are proving themselves to be consistent violators of the law. The important fact is, however, that this group, small in comparison to the total number of persons who operate commercial vehicles, is the one that runs the largest fleets of trucks which make the most trips and contribute the bulk of vehicle miles traveled on our highways.

"While there has been a notable increase in the number of arrests of commercial violators the fact remains that there is no evidence of any lessening in the number of violations. In fact the evidence shows a continuation of a practice of consistent violations on the part of certain large scale operators on the highways.

"What can be done to discourage a continuance of these practices? One method would seem to be an increase in the fines assessed to the point where the fine paid would cause the violation to be unprofitable to the operator. The result of these violations, particularly those in which overloads are involved, is an unwarranted wear and tear upon the highways used. The truckers who tear up the roads should pay a penalty for such conduct. The moneys collected go into county funds. The cities and counties have been most explicit in their recent public showing that they need more funds to care for local road needs. This is one way in which they may secure additional funds from the very people who make their expenditure necessary."

12. CALIFORNIA HIGHWAY PATROL - SURVEY OF OVERLOADS

It appears that the highway patrol has been giving considerable attention to overloading during the last few years, although it was pointed out that the overloads apprehended certainly do not represent all violations for the reason that the highway patrol does not have enough men to man the scales twenty-four hours per day, and that during 1946, 1947 and 1948, only a relatively small number of patrolmen were assigned to this work. More men were used in 1949 with a resulting increase in the number of citations issued but it was emphasized that even then it was impossible to apprehend all violators.

Exhibit 48 was introduced showing the reduction of overloads of commercial vehicles for the four years 1946 through 1949 and reveals the following overload removals in pounds for the years indicated:

Years	Pounds
1946	7,417,489
1947	10,385,808
1948	13,482,852
January through August, 1949	28,238,246.

The California Highway Patrol has been following a policy of requiring that the quantity of merchandise involved in the overload be unloaded or transferred to another vehicle before the violating truck is allowed to proceed.

This witness also testified relative to the fines which were being assessed for these overload violations. It appears that the fines vary greatly from one jurisdiction to another. Exhibit 49 was introduced showing the fines assessed in connection with citations

issued in Humboldt County for the year 1948. The exhibit lists 67 separate overload citations with a total overload of 812,875 pounds on which the total fines assessed amounted to $1,700 or $.0021 per pound. The smallest fine assessed was $5 and the largest $95. Only one jail sentence was given and that was suspended. The largest single overload was 33,350 pounds on which the fine assessed was $25. The next largest overload was 33,100 pounds on which the fine was $75. On another overload of 28,850 pounds the fine was $20. The average fine for the 67 violations was approximately $25 each. It appears that the fines assessed have not been sufficient to discourage overloading.

In the opinion of the witness from the California State Automobile Association, overloading constitutes one of the worst abuses not only because of the extensive damage such overloads do to an already inadequate highway plant but also of equal importance is the loss of efficiency of the braking system of an overloaded vehicle. It was his opinion that studies should be conducted to determine ways and means of increasing the braking efficiency of heavily loaded trucks.

It appears that the present program of the California Highway Patrol, within existing limitations, is proving helpful in lessening the prevalence of overloads. It is also evident, however, that there is ample room for improvement.

It is our conclusion that the present penalties are proving inadequate and ineffective in curtailing overload violations and that, therefore, the penalties provided in the Vehicle Code should be substantially increased.

It is also our conclusion, therefore, that the Commission's staff should examine the highway patrol's reports from time to time and if the carriers fail to show needed improvement as regards overloads, the Commission investigate further to determine what measures should be taken and what recommendations should be made in dealing further with this situation.

13. GOLDEN GATE BRIDGE AND HIGHWAY DISTRICT ACCIDENT EXPERIENCE

The Vice President of the Golden Gate Bridge and Highway District introduced Exhibit 24 covering 65 accidents reported to the bridge directors commencing with September 2, 1937 and ending with September 29, 1949. This statement indicates that in several instances accidents involving trucks resulted from brake failure and in a few others from the failure of the bindings on loads of lumber. Some accidents were of the so-called rear end collision type. The witness stated that acting upon recent enabling legislation the directors have reduced the maximum speed on the Golden Gate Bridge to 45 miles per hour and that additional highway patrolmen had been assigned to enforce this speed limit with good results.

14. TESTIMONY OF OTHERS ON GENERAL HIGHWAY SAFETY

Representatives of the California State Automobile Association and the Automobile Club of Southern California, among other things, stated that they were vitally interested in the question of highway safety, that this Commission should be commended for undertaking these hearings, and that their officials were greatly concerned over the growing problems arising out of commercial vehicle operations

on the public highways, which from their viewpoint involved the safe use of the highways and the elimination of irritations caused by increased congestion.

One of these witnesses stated that congestion was due in part at least to the inadequacy of existing highway facilities to accomodate the present volume of massed traffic, and while under the present Collier-Burns highway program additional highway facilities are being provided and the existing system is being improved just as rapidly as funds will permit, it will be another ten years before the facilities needed to meet traffic demands can be expected. It was his opinion that some consideration should be given to ways and means of improving commercial vehicle operations and to the elimination of those abuses which jeopardize both the highway itself and the safety of the users thereof.

These witnesses made valuable recommendations on all of the problems involved in this hearing. Their suggestions will be considered subsequently herein.

A public witness appeared and introduced photographs and reproductions of photographs illustrative of accidents that occur on highways and expressed the view that the trucks have taken over the highways relegating private passenger automobiles to a secondary role. This witness also made several general recommendations concerning the problems involved in this hearing which will be considered hereinafter.

The Director of the Public Utilities Department of The California Farm Bureau Federation made certain recommendations. This witness stated that he was at odds with general thinking on the

subject of the hearing and that it was his candid opinion after long years of experience in traveling on the highways that we need very few new laws but that we do need a lot of enforcement. It was his opinion based upon his own personal observations of accidents that in almost every case the situation involved was amply covered by existing laws and expressed the belief that adequate law enforcement would have prevented the occurrence. It was also his opinion that the trucking industry has as a whole received a lot of blame it is not entitled to and that many accidents are caused by the "fool automobile drivers" who can't wait until one truck passes another on the highways to have an accident. He stated that the large majority of the truck operators observe the law and that if the small percentage who do not were compelled by law enforcement officers to do so the accidents in which trucks would be involved would be a very limited number. This witness' suggestions and recommendations on particular subjects will likewise be considered subsequently herein.

15. ENFORCEMENT

In this section it is the intention to consider the broad general question of enforcement. It is recognized that the enforcement problem also arises in connection with speeding, bunching, overtaking, passing and overloading, and these aspects will be considered in connection with the sections on these particular matters.

A representative from a railroad labor organization testified that it was his opinion that the exercise of the highway patrol's jurisdiction was ineffective in that there are not enough patrolmen on the highways.

The Chief of the highway patrol testified that at the present time there are approximately 1,300 men on the highway patrol and that he would like to have approximately 1,000 additional men on patrol on the highways in California in order to bring about adequate enforcement.

The representative from the Automobile Club of Southern California testified that in the opinion of his organization, there is room for improvement of enforcement of existing regulations and that he has had this matter under discussion with the highway patrol. He added that it appears that the highway patrol is being called upon to do some things that are not properly within the province of such a group, for example, the enforcement of the Caravan Act, which he considers a registration and tax measure. He also called attention to the report of the highway patrol showing that a very large number of man hours is devoted to office work. In his opinion, it was the intention of the legislature that the highway patrol should function as a body of law enforcing officers out on the highway but that during the past years a larger and larger percentage of patrolmen's time is being taken up with office work, paper work and various extra functions so that at many times there are not a sufficient number of officers out on the highways.

Some of this, he stated, is not the fault of the administration of the highway patrol for they are required by law to perform more and more functions such as those just mentioned and that there is need for a very careful study of the total functions of the highway patrol with the object of making it more exclusively a body of officers who actually will be present on the highways enforcing traffic laws. He stated further that he was unwilling to say whether his organization

would support a request for additional men for the highway patrol but that he would want first to make certain that it is functioning properly, adding that it would not do any good to add more men to the highway patrol unless they were going to be on the highway.

He called attention to the factor of costs and stated that the total budgets of the California Highway Patrol and the Department of Motor Vehicles result in the spending of very large sums of money which come from the motoring public. He stated that to increase the highway patrol by 900 additional personnel would involve a cost in excess of six million dollars per year and that such an increase, if permitted, would mean that there would be just that much less money available for maintenance and care of the state highways. It was his further opinion that the burden of showing the need for additional personnel was on the highway patrol itself and that his organization would be willing to give consideration to any evidence that may be advanced in support of such a request.

One public witness recommended that more highway patrolmen should be assigned to the highways to enforce the traffic laws. A member of the Commission's staff, who participated in the making of road checks for Vehicle Code violations, testified that it was his observation that practically no violations occurred in areas where highway patrolmen were actually present patrolling the highway.

A representative from the organized trucking industry testified that in his opinion it would not be possible to have enough patrolmen on the highways to completely enforce the laws contained in the Vehicle Code relating to operation of vehicles; that it would not be necessary to have an additional 1,000 patrolmen

to bring about complete compliance; and that the approach now being used by the organized trucking industry (to be considered subsequently) would bring about more nearly complete compliance with the Vehicle Code than adding of additional patrolmen.

On the other hand, another representative from the organized trucking industry testified that if the police authorities would go all out to enforce the law, the job of the safety director of many companies would be easier; that he firmly believed in the enforcement of the Vehicle Code.

Another representative of this group stated that he believed we have enough laws and that the real need is to try to get them universally observed and enforced. He added that safety is something that cannot be legislated, that it is a state of mind and has to be continually worked at, and that ultimately the employer-employee relationship must be improved in order to improve safety and bring about compliance with the law. This witness also stated that he does not think that safety can be accomplished by laws and regulations even with rigid and effective enforcement because men will not respond to a rule unless they want to, but that if you cooperate and consult with them, the result will be much better. It was also his belief that not much good comes from enforcement because the people involved will not comply unless they feel a personal desire to do so and see that it is for their own good; he did admit, however, that if the carrier were deprived of his right to operate because of repeated and frequent violation of the Vehicle Code, it might be effective in bringing about better compliance.

From the record in this hearing it is clear that there is far from complete compliance with the provisions of the Vehicle Code and that there is a difference of opinion as to whether increased enforcement will improve the situation.

It is our conclusion that the subject of enforcement should be given additional study by the California Highway Patrol and other interested organizations and groups for the purpose of ascertaining whether additional enforcement personnel are needed and justified in view of the other aspects of the subject such as expenses and the results likely to be accomplished.

It is also our conclusion in connection with those carriers under the Commission's jurisdiction, including both certificated and permitted carriers, that the Commission should proceed on its own motion to institute proceedings looking to cancellation or suspension for specified periods of the operative rights of those carriers whose records indicate a consistent and flagrant disregard of the provisions of the Vehicle Code.

16. SPEED

A representative from the Interstate Commerce Commission testified that several surveys have been made by his commission in District 16 (Arizona, California and Nevada) which indicated that trucks and passenger cars as well as buses are exceeding the speed limits. It was his conclusion that practically all vehicles are traveling the highways today at a faster rate of speed than they were traveling a few years ago. In connection with buses, he stated that according to management the schedules have been stepped up for

the purpose of meeting competition and are such that, after deducting the time for rest and mail stops, a bus could travel the distance between points at 35 to 40 miles per hour, depending on the schedule, but that traffic conditions on the highway as shown by the survey will not permit a bus to maintain that schedule.

While it may be possible on week days to maintain schedules, on weekends and during heavy traffic periods, it is practically impossible to do so and that buses are exceeding speed limits, especially during weekend periods. It was the witness' conclusion that the principal difficulty in this regard is not an insufficiency of regulations but rather not enough enforcement.

The representative of the California Railroad Association testified that, as the result of considerable study, it had been concluded that excessive speeds present a threat to traffic safety. Statistics on speed violations were included in Exhibits 25, 26 and 27 introduced by this witness and previously considered herein. (See Appendix E.)

The representative of the California Division of Highways introduced in evidence a publication of the American Association of State Highway Officials (Exhibit 121). The recommendation contained in this publication as to maximum speed reads in part:

> "No truck shall be operated at a greater speed than 45 miles per hour. Passenger vehicles may be operated at such speeds as shall be consistent at all times with safety and proper use of the roads."

The Chief of the California Highway Patrol testified that the problem was not alone with excessive speed but also with too slow a speed which impedes the movement of other vehicles and gives rise to many complaints on all types of highways.

We have previously considered and discussed in this opinion the citations for speed violations in connection with accidents as revealed by the field check (Exhibit 124) and the analysis of arrests (Exhibit 126), and also the citations for speed violations as revealed in the accident statistics introduced by the highway patrol (Exhibits 62, 63 and 64), summarized in Appendices C and D hereof, at the conclusion of which we made a finding of the need for some remedy calculated to put a stop to the flagrant disregard of Vehicle Code provisions.

Another problem involving speed is the maximum speed limit contained in Section 515 of the Vehicle Code limiting to 40 miles per hour the speed for any motor truck and trailer and any motor truck alone or truck tractor with a semi-trailer having a gross weight of such vehicles and loads of 25,000 pounds or more.

A representative of the Automobile Club of Southern California testified that many complaints are received that commercial vehicles operate either too slow or too fast. As to the 40 miles per hour speed limit for certain vehicle combinations and vehicles exceeding specified weights, he stated that the subject had been discussed in the advisory committee which had voted to approve an increase in this speed for the reason that the 40 miles per hour speed limit, if adhered to, would result in congestion rather than facilitate the flow of traffic. It was his observation that the 40 miles per hour speed limit was not being complied with, and, in fact, many of the restricted vehicles actually were operating in excess of 60 miles per hour. It was his opinion that this restriction of 40 miles per hour has resulted in a breakdown of enforcement because such a restriction is unreasonable, and as a result of the consequent lack of enforcement,

truck drivers seem to drive about as fast as they please. He stated it would be more appropriate to adopt a higher limit of 45 or 50 miles per hour as a maximum and then require the highway patrol to enforce that limit strictly. It was his belief that if the limits were a bit higher enforcement would be more feasible.

The chief engineer of the same organization testified that it was his opinion that commercial vehicles and private passenger vehicles are operating under the same general highway conditions and that generally speaking the driver of the former is a better operator than the latter. He stated that it was his personal view that a prima facie speed law should be established for commercial vehicles similar to that applicable to private passenger vehicles and that such a law would result in much less congestion and eliminate much of the necessity for private passenger vehicles overtaking and passing trucks.

Various representatives from the organized trucking industry testified extensively on this subject; all strongly favored increasing the limit to 50 miles per hour. It appears from the record that the policy of the trucking industry is to instruct its drivers to observe the law but, if the drivers of trucks and trailers and heavy trucks exceed the 40 miles per hour maximum speed limit, no disciplinary action is taken unless they exceed a 50 mile per hour speed. These representatives of the trucking industry testified further that in their opinion a 50 miles per hour maximum speed limit is definitely safer as a maximum speed for the class of trucks involved and would permit them to operate with the flow of traffic; that a slower speed impedes the flow of traffic and results in rear-end collisions; that the present 40 miles per hour maximum speed limit is an antiquated law and,

when strictly observed, the truck gets into everyone's way, resulting in many complaints and a serious threat to safety.

A member of the Commission's staff introduced two exhibits showing typical results of test runs of certificated highway common carriers between San Francisco and Los Angeles via both the Valley and Coast routes (Exhibits 75 and 76). The Commission's representative actually rode on these test runs and made notes of all of the factors involved. The vehicles were equipped with a mechanical recording device (tachograph) which developed a recorded chart showing rate of speed, standing time, miles traveled, and total elapsed time between all way points and terminals, so the performance could be checked. Several runs were made. On several trips the drivers strictly observed the legal maximum speed limit of 40 miles per hour. Another round trip test run was made during which the driver observed a 50 miles per hour maximum speed limit. The results of typical runs are set forth in the following tabulations taken from the two exhibits:

Typical Test Runs via San Joaquin Valley - U.S. Highway 99

	Northbound		Southbound	
Max. Speed in M.P.H.	40	50	40	50
Lv.	L.A. 7:02 PM	4:40 PM	Oakl. 6:35 PM	4:30 PM
Ar.	Oakl. 10:10 AM	5:20 AM	L.A. 10:25 AM	7:25 AM
Time:	Hrs. Mins.	Hrs. Mins.	Hrs. Mins.	Hrs. Mins.
Running	13 21	11 17	13 8	11 22
Standing	1 47	1 23	2 42	3 33
Elapsed	15 8	12 40	15 50	14 55
Average M.P.H. running	30.2	35.7	32.5	35.4

Typical Test Runs via the Coast Route - U.S. Highway 101

	Northbound		Southbound	
Max. Speed in M.P.H.	40	50	40	50
Lv.	L.A. 1:35 PM	1:50 PM	S.F. 1:30 PM	1:55 PM
Ar.	S.F. 5:10 AM	3:05 AM	L.A. 5:00 AM	2:40 AM
Time:	Hrs. Mins.	Hrs. Mins.	Hrs. Mins.	Hrs. Mins.
Running	13 36	11 49	13 23	11 35
Standing	1 59	1 26	2 7	1 10
Elapsed	15 35	13 15	15 30	12 45
Average M.P.H. running	32.1	37.0	32.6	37.7

This witness stated that on both the 40 miles per hour and the 50 miles per hour runs, he noticed many trucks passing him going in the same direction and noticed some bunching on the highways. It was his opinion that the 50 miles per hour maximum speed rate is more economical than the 40 miles per hour maximum because the present day heavy duty equipment cannot use the economical gears with which the tractors are equipped when operating at the latter speed. It was also his opinion that the higher maximum speed limit was safer, stating that when trucks observed the 40 miles per hour maximum speed, congestion and consequent hazard resulted, especially on two and three lane highways and that if trucks were allowed to travel at the 50 miles per hour maximum it would not be necessary for so much passing to take place. It was also his conclusion, judging from what he observed, that the braking efficiency of the vehicles on which he rode was sufficient to safely control such vehicles under existing traffic conditions at the higher speed and further, that if the 50 miles per hour speed limit were established, it should be strictly enforced.

The record indicates nearly complete unanimity of witness opinion on the desirability of increasing the maximum speed for

the types of trucks involved from 40 to 50 miles per hour, that it would promote rather than hinder safety, and that if established the higher speed limit should be rigidly enforced.

It is our conclusion, however, that the remedy lies not so much in an increase in the maximum speed allowance, as suggested by certain witnesses, as it does with making uniform the allowable speeds as to all forms of highway transportation. The opinion voiced by these witnesses that a higher speed limit should be established and rigidly enforced is unrealistic. According to the record present speed limits are not being observed. Of the 9,185 citations issued by the California Highway Patrol for the first six months of 1949 in connection with 5,172 accidents involving commercial vehicles, 34.27% or 3,148 involved speed, the largest category of violations. We hold that the recommendation to increase the speed limit is inconsistent with the facts.

At the same time it must be apparent that the disparity between the speeds allowable on the highways for private passenger vehicles and those for commercial vehicles is a factor of great weight contributing to accidents. The reasonable remedy is to eliminate the disparity factor by making more nearly uniform the allowable speeds for all types of highway traffic. Whether the allowable speed for private passenger vehicles should be reduced or that for commercial vehicles be increased is a matter for the legislature of the state to determine. Our conclusion is that the legislature should bring into reasonable uniformity the allowable maximum speeds for all types of highway traffic.

17. RULES OF THE ROAD

The term "rules of the road", in this opinion, includes overtaking and passing, following too closely, bunching and cutting in and the further related problems of a uniform speed requirement or a performance ability standard.

The Chief of the California Highway Patrol testified that the question of speed presents a very difficult enforcement problem when vehicles, especially trucks and buses, attempt to pass going in the same direction. The Vehicle Code permits passing but does not require that it be completed within any limit of time or distance. As a result, two heavy vehicles moving much slower than the prevailing traffic speed could block the highway for a considerable distance and for a comparatively long period of time and still not be guilty of a violation. The witness stated that the prevention of bunching is also related to the question of passing because, before a truck can pass another, it must overtake the vehicle ahead and such a maneuver is not illegal. He stated when traffic is held up by one heavily loaded truck attempting to pass another, blocking both lanes on the highway, or by one vehicle following too closely or by cutting in, the highway patrol is making arrests. He added, however, that not many arrests are being made for overtaking and passing because it is extremely difficult to secure evidence that will result in a conviction of the driver of the passing vehicle unless the maneuver is taking place at the wrong place on the highway, for example, on a curve or if there appears to be another vehicle approaching.

He testified that while it is difficult to secure evidence that will convict, officers are instructed to warn all truck drivers

not to make attempts to pass which will result in obstructing traffic. It was his opinion that the only way this difficulty can be corrected is to establish a uniform speed requirement which would eliminate or reduce the necessity for overtaking and passing. Such a requirement is not a part of the law at the present time and it was his belief that if the performance factor were taken into consideration in establishing legal load limits so that commercial vehicles could operate at or near a uniform speed, the present difficulty would be greatly alleviated. It was his conclusion that under the existing provisions of the Vehicle Code, there results too great a difference between the maximum and minimum speeds actually maintained on the highways but that to bring about a correction of this situation, additional legislation would be required.

An automobile association witness stated in connection with these problems that it is apparent that some operators take advantage of the size and weight of their equipment and added that these practices not only call for strict law enforcement but also better control of the driving privileges of those who are guilty of such abuses, some of which, in his opinion, can be corrected under the present law. It was his further opinion that the setting up in the law of a performance ability standard and adequate braking standards for commercial vehicles could well receive further study. He emphasized that these problems do not arise from any single group of commercial vehicle operators but that the abuses mentioned may be committed by a relatively few operators in each group and that whatever remedial measures are determined upon, should be applied equally to all.

The general counsel of the Automobile Club of Southern California also testified that some consideration should be given to

a performance ability standard for all vehicles, including not only commercial vehicles but also private passenger vehicles hauling house trailers because of complaints received of their inability to maintain average highway speeds. He added that the matter of performance ability is a very large subject which has been given wide study and that it should be recognized that it would be unwise to apply any such standard to existing equipment because it might rule off the highways a substantial number of existing commercial vehicles. He also pointed out that it would be unreasonable to expect a performance ability standard which would require a large truck and trailer to go up a steep grade as fast as a private passenger vehicle but that there is ample room for improvement over the extremely slow speeds presently traveled by many of such vehicles using the highways today.

He called attention to Vehicle Code Section 530.5, which requires that the overtaking vehicle be capable of and be operated at a speed of at least 12 miles per hour before attempting to overtake and pass another vehicle upon a grade and pointed out that this was a compromise measure and does not completely solve the problem, but leaves room for further study and investigation to determine whether or not performance ability standards can be developed which would be equitable and not impose too great a burden upon commercial operators but which, at the same time, would insure a better speed for such vehicles upon grades. It was the witness' opinion that this minimum might be increased in future years whenever it appears that commercial vehicles can generally comply with it.

Another witness discussed the attempts which had been made to alleviate the situation resulting from the overtaking and passing problem on level stretches of highway and stated that

consideration was being given to suggesting that passing lanes be constructed alternately along the highway on both two lane and three lane roads to adequately provide for this maneuver.

It was the opinion of the representative of the California Farm Bureau Federation that there are many trucks on the highway today having power entirely inadequate for the type of operation they engage in, resulting in congestion which becomes intolerable to the automobile driver and makes him so impatient that he attempts to pass and then runs into some other vehicle. In his opinion, it would be desirable to establish certain minimum speeds at which trucks must be able to operate to take effect in the future as it would be impracticable to apply such a requirement to those vehicles presently in existence.

A representative of the organized trucking industry, in testifying with reference to heavy trucks passing each other on grades, stated that the industry is opposed, as a matter of record, to the present provisions of the Vehicle Code not because it is opposed to any provision that will prevent trucks from blocking traffic unreasonably, but because it has been the experience of the trucking industry that it is impossible to develop or devise a plan which would be enforceable and satisfactory. He stated that the present law was passed over the trucking industry's objections and that it tends to cause congestion rather than to relieve it.

On the subject of bunching, he testified that the 12 miles per hour passing law likewise tends to increase bunching rather than to lessen it for the reason that many vehicles are unable to operate on grades at the required speed of 12 miles per hour and as a result

some vehicles operating faster than others but less than 12 miles per hour would have to stay behind the slowest operating vehicle in the line. As to bunching on level stretches of the highway, the witness stated that he has no answer for it and that it does not seem to be possible to work out a completely satisfactory law on the subject; that the requirement that an overtaking truck stay 300 feet to the rear of the truck ahead is not enforceable for the reason the driver merely has to state that he was preparing to pass. It was his opinion that the nearest thing to an answer would be simply to appeal to the driver's pride and his professional ethics. He stated that he knows of no other approach to the problem. It was this witness' opinion that normal progress will bring about a solution of the problem concerning the power of trucks and thereby make the establishment of a performance ability standard unnecessary.

This witness also testified that the organized trucking industry had accomplished good results in establishing what was known as a "diesel smoke control board" which has been successful in eliminating excessive smoke from diesel engines and brought about excellent compliance with the provisions of the Vehicle Code. In fact, this board was discontinued for lack of business. He added that at the present time this industry is exploring on a scientific basis what can be done about diesel engine noises.

It is clear from the record that the matters embraced within the term "rules of the road" present problems the solution of which is extremely difficult even for those eminently qualified by training and experience. Nevertheless, these problems continue to be a major factor in the matter of safety on the highways.

Therefore, it is our conclusion that these subjects should be given further study by all interested parties. It is also our conclusion that the trucking industry should continue to endeavor to improve the situation by proper training and disciplining of drivers; and further that every possible enforcement means should be used to bring about better compliance with existing laws concerning rules of the road.

18. SIZE AND WEIGHT

The representative of the Division of Highways testified extensively relative to size and weight of vehicles. He referred to previous testimony herein by representatives of labor organizations involved in the lumber industry, suggesting the initiation of legislation which would permit increases in the weight limitations in proportion to the safety equipment installed on a truck. He stated that the Division of Highways wished to take issue with this proposal because the California legislation on the size and weight of vehicles is among the most liberal in the nation. He then gave a brief summary of those provisions of the Vehicle Code applicable to this subject.

This representative stated that the weight limitations are the result of many years of study and the consideration by interested parties and the legislature and that aside from the purely safety angles having to do with the acceleration and braking ability of the vehicle, the weight limitations are based upon two primary considerations: first, to protect highway surfaces, there must be a limitation upon the axle and wheel weight; second, bridges or other structures require additional protection because consideration

must be given to the construction and distribution of weight. The primary purpose of design being to spread the weight over a substantial portion of the structure; there is, therefore, a very definite relationship between the length of a vehicle and the weight which can be safely imposed upon such a structure.

The witness pointed out that this subject has also received detailed study in other states because of the desirability of uniformity or substantial uniformity between the states, a considerable portion of the transportation of both persons and properties by motor vehicles involving the crossing of many state lines and, in some instances, the crossing of the entire nation from coast to coast. In addition, the witness testified that the American Association of State Highway Officials, which is composed of the engineering staffs of every state in the union, and the Bureau of Public Roads of the United States has also given this subject intensive study and has adopted in substance the type of regulation as to size and weight which is presently enforced in California as a model toward which every state should strive and that in California the only departure from these recommendations has been on the side of being more liberal.

In pointing out the importance from a safety standpoint of the enforcement of the present regulations and the retention of the limitations imposed upon the present law, this witness called attention to the fact that on the State Highway system for the past five years, vehicles of illegal size or weight, by reason thereof, very seriously damaged 33 bridges, 8 of which collapsed and that in addition, more than 75 bridges have been slightly damaged and in

many instances have been hit repeatedly. He stated that damaging of bridges by overheight loads alone has cost in excess of $500,000 over the past five years. He stated that it should be obvious to everyone that an over-loaded vehicle cannot be as easily controlled when proceeding downhill as can a properly loaded one, and that more important from a traffic standpoint are the extremely slow speeds which necessarily result on ascending grades when vehicles are over-loaded. He also stated that the heavier vehicles are not sufficiently powered to permit speeds on ascending grades which will be sufficient to avoid traffic congestion and that over-loading inevitably decreases the speed generally which can be maintained.

This witness testified further that the revenues used by the Highway Department consist of the receipts or designated portions of receipts of various taxes imposed upon the distribution of fuel used in the operating of motor vehicles upon the highways and that funds are insufficient immediately or in the foreseeable future to permit the improvement of all highways in our state highway system to the maximum desirable safety standards. He added that anything which increases maintenance costs or requires the expenditure of money for reconstruction of highways or bridges because of structural failures necessarily subtracts from the money available for new construction and, as a result, highway improvements necessary or desirable from a safety standpoint are delayed.

Modern design standards, continued the witness, to which highways and bridges are being constructed, are based upon the assumption of the continuation of the present limitation of size and weight and that many highways and bridges so constructed in the last 15 years are reasonably safe from the standpoint of grade, sight

distance and width of surface so that their reconstruction from these standpoints will not be required for many years but that any increase in weight limitations would result in their damage and require their rebuilding.

This witness then discussed the engineering factors supporting the views of the Division of Highways and introduced a chart (attached to Exhibit 120) showing the relative increase in the average weight of commercial vehicles from 1936 to 1949. It was his conclusion from these figures that not only have there been substantial increases in the average weights of the various combinations of vehicles but that the number of vehicles carrying maximum permitted loads have likewise increased very substantially. In concluding his testimony, the witness stated that the figures introduced illustrate that the maximum capacity for which the highways and bridges have been designed is being approached and that since the question of increasing size and the weight limitations was injected into this hearing, the Division of Highways strongly urges this Commission to go on record against any increases in the sizes, weight and loading of vehicles in excess of what is presently provided by law.

A representative of the Automobile Club of Southern California also testified that his organization was opposed to any increase in the permissible size or weight of commercial vehicles because the California law in this regard is very liberal. He stated that there should be strict enforcement of the present limitations.

It is our conclusion after a careful consideration of the testimony, and we so find, that from the viewpoint of safety it would not be in the public interest to change the laws to increase the maximum size, weight, or loading of vehicles.

19. METHODS OF LOADING AND SECURING LOADS

This subject deals primarily with the transportation of logs, lumber, and hay. In connection with logs and lumber, the Chief of the Division of Industrial Safety, State Department of Industrial Relations, testified that by virtue of certain provisions of the Labor Code, his department has rather broad jurisdiction over the conditions surrounding the places of employment of those engaged in the lumber industry, including the transportation of logs and other forest products. That division's primary interest, however, has been for the safety of the employee rather than that of the public.

He testified that many meetings have been held between the representatives of management, particularly the California Lumbermen's Accident Prevention Association, the representatives of labor working in that industry, representatives from his department and from the Public Utilities Commission, as a result of which certain rules and regulations calculated to promote safety for the employee have been promulgated and published as a part of the California Administrative Code. Suggested rules and regulations calculated to further promote safety within the lumber industry and in the transportation of forest products were introduced by the representatives of the two labor organizations involved in this industry, by the representative of the

California Highway Patrol, and by a member of the staff of the Operations and Safety Division of this Commission.

The California Highway Patrol representative also introduced a series of photographs (Exhibits 50 through 61) together with detailed reports showing typical accidents, many of which were caused by improperly secured loads, failure of load binders, top heavy loading of trailers, the shifting of loads of lumber and the overloading and improper binding of loads of logs.

It appears that much of the hauling of logs, lumber and hay is done by other than certificated highway common carriers.

The representative of the California Farm Bureau Federation testified that it was his opinion that improper methods used in loading deserved some attention by this Commission and the highway patrol. He added that too many loads of hay fall off on the highways, that most of the hay is hauled by permitted carriers and that those carriers owned by various cooperative associations have been much more careful about their loading methods than have the individuals who own their own equipment and the public carriers who haul hay for hire. He stated that if this Commission sees fit to recommend the applying of safety rules and regulations to private carriers, the farmers represented by his organization should also be required to comply with them.

A Commission staff member introduced in evidence a book entitled "Rules Governing the Loading of Commodities on Open Top Cars" together with its effective amendments as of 1949, published by the Association of American Railroads (Exhibits 72-A and 72-B).

It shows what is being done by the railroads in many instances in formulating rules covering the important subject of methods of loading and securing loads. The witness stated that the rules represented the results of 53 years of study and experience and added that while he recognized that the operating conditions under which trucks and railroads function are not exactly the same he believed that the subject of loading on trucks is deserving of at least the same degree of thoroughness as is given to the study of the loading of freight on railroad cars, particularly in view of the trucks' great exposure to accidents.

The Commission staff representative also introduced Exhibit 71-A consisting of photographs, together with critical analysis thereof, showing the various observed methods employed by highway carriers in the loading and transportation of lumber, logs and hay. This exhibit contains the following conclusions and recommendations:

"Conclusions

"In the investigation into the prevailing practices existing in the loading of lumber, logs, hay, etc., and the current rules and regulations applying thereto, the following conditions were found to exist:

"1. There is a complete lack of uniformity in the loading of lumber, logs, and hay, and said lack of uniformity results in the construction of loads on highway carriers which could conceivably be subject to falling off of the equipment or shifting thereon, in such a way as to create a hazard to the motoring public or pedestrians.

"2. This Commission has no rules and regulations applying to the loading or hauling of lumber, logs, and hay on motor vehicles.

"(a) The Interstate Commerce Commission, Bureau of Motor Carriers, rules and regulations applying to the hauling of various commodities by highway carriers do not apply to the hauling of lumber, logs, and hay.

"(b) The State of California Department of Industrial Relations, Division of Industrial Safety, logging and sawmill safety orders in this connection apply only to the hauling of logs. However, it is understood that this agency contemplates the revision of said current logging and sawmill safety orders, and the extension of their other jurisdictions to result in a general order regulating the hauling of various commodities by highway carrier, not regarding class of carrier. Nevertheless, it is further understood that such rules would be general in nature and would not specify loading methods in detail.

"Recommendations

"In view of the findings set forth above, the following recommendations are made for the Commission's consideration:

"That the Commission (1) continue the study of the matter of loading of various commodities on motor trucks; (2) solicit the opinion of industry and labor representatives through informal conferences, and/or at hearings; (3) work jointly with the Highway Patrol, Division of Industrial Safety, and other State agencies, for the purpose of promulgating loading rules and regulations covering the loading upon and hauling by motor truck of various commodities; and (4) obtain legislation which will assure a strict application of such loading rules to all carriers using the public highways to any degree, regardless of class."

After a careful consideration of the testimony, it is our conclusion, and we so find, that the above quoted recommendations are justified and we hereby adopt them as our own.

20. CHAUFFEURS' LICENSES

Four representatives of the organized trucking industry testified that they consider the present method used in the issuance of chauffeurs' licenses by the Department of Motor Vehicles to be unsatisfactory and inadequate. They were unanimous in their testimony that much could be accomplished if the requirements for the issuance of these licenses were made more stringent and that the examinations given applicant were to take into consideration the types of vehicles to be operated by said applicant.

One of the witnesses stated he believed that such a change would have a marked beneficial effect on the quality of truck driving on the highway and on the truck driver's ability.

Another of the witnesses was of the opinion that the Vehicle Code provisions relative to the issuance of chauffeurs' licenses could be greatly improved by requiring tests which would adequately determine the ability of the applicant to drive various types of equipment and that this would be the only way that all truck drivers could be properly tested and the public safeguarded.

Another witness from the organized trucking industry stated that the Vehicle Code apparently contemplates some such tests and standards at present but that the wording is still too vague and should be changed.

The general counsel of the Automobile Club of Southern California testified on this subject and stated that the matter was under consideration by the Division of Drivers' Licenses of the Department of Motor Vehicles and that a number of years ago the advisory committee recommended amendments to the Vehicle Code which were adopted and which permitted that department to examine applicants for chauffeurs' licenses in a manner appropriate to the licenses to be received and the type of vehicle to be operated (Vehicle Code Section 268). It was his opinion that these classes of licenses should be held to the fewest possible number, and that there should be special investigations of drivers who are to operate heavy commercial vehicles and with special examinations for those who are to operate combinations of heavy vehicles. He expressed the hope that an agreement in this regard can be brought about between the vehicle owners and the unions representing the drivers which will enable

the Motor Vehicle Department to put into effect an adequate examination system. It was his further belief that this would accomplish a great deal of good because heretofore there has been practically no suitable examination for those who operate the heavier types of vehicles.

In view of the fact that all drivers, whether operating certificated vehicles or not, are subject to the Vehicle Code, it is our conclusion that an adequate and comprehensive examination system for chauffeurs' licenses should be put into effect by the Department of Motor Vehicles at the earliest possible time.

21. HOURS OF SERVICE AND DRIVERS' LOGS

A public witness recommended that the number of hours a driver is allowed to drive should be controlled. It appears that the Vehicle Code (Section 602) and the Commission's General Order No. 93-A are not exactly the same. The Vehicle Code permits the drivers of property carrying vehicles to drive for 12 consecutive hours, while General Order No. 93-A restricts drivers of certificated highway common carriers to a ten-hour period with certain exceptions.

The representative of the Tank Truck Operators Association testified that his association feels that the regulation requiring the drivers of highway common carrier vehicles to drive not more than ten hours is too stringent and that the 12 hour provision of the Vehicle Code is more reasonable and not inimical to safety on the highways. It was his belief that the drivers should not be restricted to ten hours by the Commission's rules and regulations when the general state law permitted 12 hours.

Another representative of the organized trucking industry testified in connection with hours of service and drivers' logs that he had attended the hearings preceding the adoption of the existing rules applicable in interstate traffic and had heard the nation's experts disagree on the subject. He stated that he did not know just what the rules should be with respect to these matters, but that it seemed to him that those people intimately acquainted with the Interstate Commerce Commission's rules and regulations and their application to the trucking industry are fairly well satisfied that they are sound. He stated that he saw no particular objection to having similar provisions established in California whether they are made by rules of this Commission or added to the Vehicle Code.

The representative of the California Railroad Association was of the opinion that the drivers of all types of highway carriers, even of proprietary carriers, should be required to maintain driver's logs for the purpose of checking on hours of service, adding that the keeping of a log would enable enforcement officers of all governmental agencies to more easily enforce the hours of service law.

It is our conclusion that it would be desirable to have uniformity in the hours of service regulations applicable to all types of highway carriers, both intrastate and interstate, and whether certificated, permitted, or proprietary.

It is also our conclusion that the use of driver's logs in a manner similar to that required by the Interstate Commerce Commission should be established in California and made applicable to all types of over the road commercial vehicles. It appears that these matters can be best accomplished by having appropriate

legislation enacted as part of the Vehicle Code. It is our further conclusion, therefore, that this Commission should recommend to the legislature consideration of the enactment of such legislation.

22. IDENTIFICATION ON TRUCKS

Considerable testimony was received on the subject of identification on trucks. All who testified favored adequate identification which would make it possible for anyone to easily identify the owner or operator of the vehicle. This Commission's representatives who made the field check testified that it was difficult, if not impossible, at times, to ascertain the name of the operator either because the name was not carried at all or could not be read.

Two representatives of the organized trucking industry favored adequate identification not only on owned equipment but also on leased equipment. One of these witnesses added that the present regulation of the Interstate Commerce Commission in this regard appeared to be satisfactory.

It is our conclusion that all property carrying motor vehicles should be required to be identified in a manner similar to that provided by the Interstate Commerce Commission regulations and, therefore, that this Commission should recommend to the legislature the enactment of appropriate legislation as part of the Vehicle Code.

23. INSURANCE REQUIREMENTS

Two representatives of the organized trucking industry testified that the present insurance requirements were unrealistic and inadequate, and that the minimums required should be increased so as to bring them more in line with the upward trend in prices and costs. It was his opinion that such action would tend to improve the safety situation.

Another witness testified that in his opinion the present limits of public liability and property damage insurance are much too low. He added that his company provides for limits on public liability of $50,000/$100,000 and on property damage of $50,000.

It is our conclusion, and we so find, that this Commission should undertake, on its own motion, an investigation to determine proper and adequate limits for public liability and property damage insurance requirements.

24. SAFETY PROGRAMS

Representatives of the passenger stage corporation industry and the trucking industry testified extensively on the general subject of safety and on safety programs and introduced numerous exhibits relative thereto.

(a) Passenger Stage Corporations

In connection with passenger stage corporations, the records show that approximately 205 companies report to this Commission. These companies in 1948 operated a total of 223,679,099 bus miles. Six witnesses representing eight of these carriers testified in this proceeding. These eight carriers operated a total of 111,265,954 bus

miles in 1948. No testimony was introduced on behalf of the remaining 197 bus or stage lines.

Attention was called to the fact that in addition to the bus and stage lines operating under the Commission's jurisdiction, there are a large number of municipally owned buses, bus lines operated wholly within a single city, school buses, charter buses and buses hauling agricultural workers not under this Commission's jurisdiction, especially as to safety and from which no reports as to accident experience are received. The uniform application of safety rules and regulations to these segments of passenger transportation operations deserves legislative consideration.

It appears that the passenger stage corporations whose representatives testified, fully realize the importance of an adequate safety program. In several instances these programs have been embarked upon after extensive study of the problem and the coming to a realization of their necessity. The programs of all of the companies introducing testimony involve a comprehensive basis for the selection, schooling, training and supervision of the drivers. Some of the tests given to applicants cover mental ability, the Johnston temperament analysis, vocational aptitude and the Minnesota Multiphasic personality inventory. Also included in these testing programs are guided interviews, physiological testing, Keystone Telebinocular tests, tests for color blindness, reaction time, field of visions and depth of perception, psychological testing, including the Otis employment test, driving knowledge examination and Kuder Preference record. In addition, a physical examination is given involving complete medical checkups by a competent physician.

The driver's training schools include a general description of a driver's responsibility and his advantages, instruction in coach operation, with emphasis on how to prevent various kinds of accidents, instruction in the operator's manual and a full description of all rules and regulations of the Interstate Commerce Commission and state agencies, as well as all rules and general company orders and accounting work.

The prospective drivers are also given instruction on the maintenance of the types of buses operated and on the use of fire extinguishers. Practically all programs require each student driver to spend a minimum time in actual driving practice after which he is assigned to student break-in trips. Upon completion of the school training, the new driver is assigned a minimum number of days under a selected senior operator in regular scheduled service, during which he is expected to learn bus operation by observation and by actually driving the bus under the senior operator's supervision. After the new driver is assigned to regular operation, regular checks are made by the safety superintendent and other supervisorial personnel.

All of the companies represented carry on a continuous safety program involving merchandise rewards in drivers' safety contests, safety bulletins sent both to the driver and to his home, bulletins which are posted conspicuously at all terminals, frequent safety meetings and other rewards for various periods of accident-free driving.

While the individual programs may vary in some of the details, fundamentally they are essentially the same.

All of the companies appeared to follow, with considerable benefit to themselves and with great increases in safety, extensive and well integrated preventive maintenance programs.

Examples of the accomplishments of some of these companies show commendable results. One passenger stage corporation in 1946 operated 39,821 bus miles between accidents and for the first nine months of 1949 operated 79,197 miles between accidents. In 1946 this company operated 19,867,340 miles between bus passenger fatalities and in 1949 this figure had been increased to 77,752,942 bus miles. Exhibit 31 introduced by this company shows that 1,924 drivers had a total of 630 driver years of safe driving including two drivers with seventeen years, three drivers with sixteen years, one driver with fifteen years, thirty drivers with ten years, and 125 drivers with five years.

It is not deemed necessary to set forth fully the individual results of each of the passenger stage corporations whose representatives testified. The testimony and evidence introduced by them likewise shows commendable results.

It is our conclusion, based upon the record, that the safety programs followed by those who appeared and testified, are very necessary and desirable and their use should be continued and encouraged.

The record does not reveal the character of the safety programs followed by the companies which did not appear in this hearing and it is hoped that their absence does not indicate indifference on this subject. It is our conclusion that if they do not have and are

not following adequate safety programs at present they should take steps immediately toward their establishment.

(b) Trucking Industry

The principal witness of the organized trucking industry was the executive secretary of the California Motor Truck Association which is composed of the various trucking associations in California. This witness is also the general manager of the Motor Truck Association of Southern California. He testified that the various trucking associations in California have earnestly concerned themselves with the problem of highway safety and stated that such concern must be paramount for three reasons: (1) the human abhorrence for death or injury; (2) the economic cost of accidents, adding that an operator cannot long remain in the trucking business if he has many accidents; and (3) the public relations angle, adding that if the trucking industry does not make safety paramount it will not be possible for it to continue to operate on the highways. This witness testified further that of the many factors involved in the approach to the safety problem the organized trucking industry has concentrated its attention on those that it is qualified to approach and study, and has cooperated with state agencies and other groups on many of the other factors in programs calculated to promote safety.

Many of the programs followed by the organized trucking industry, continued the witness, emanate from the American Trucking Association, a federation of state associations, which has a permanent research organization constantly studying the problem of accidents and causes of accidents and makes suggestions on how to reduce or eliminate them. One of these programs is the so-called S.O.S. program, or Sights On Safety, a reward incentive program for drivers. Another program is the truck "Roadeo" contest involving state and national

contests based on drivers' skill. Still another program is the "Driver of the Month" contest in which outstanding drivers are selected and given awards.

The organized trucking industry in the southern part of California established about three years ago, what is known as the Drivers Safety Center, a non-profit organization sponsored jointly by the Motor Truck Association of Southern California and the Western Line Drivers' Council of the Teamsters' Union. It specializes in conducting physical examinations and other tests of drivers for the trucking industry with very favorable results. At the present time this center is operating only in Southern California but the establishment of a similar set-up in the northern part of the state is under consideration. From the results shown by the record this would appear to be a desirable objective and one likely to improve the safety performance of the trucking industry.

It also appears that the organized trucking industry uses other available means to continuously promote safety such as publications, films, safety meetings, road checks and in addition, collects and evaluates all available statistics and information. In this connection the witness testified that it has been extremely difficult to find out the real "why" of accidents. It was his opinion that the most important factor is the man behind the wheel. For this reason great stress has been laid upon the selection, training and continuous education of drivers.

In summary, this witness stated that more improvement can be achieved in highway safety in so far as it involves trucks by development of voluntary action on the part of the industry itself in

improving the quality and attitude of the men driving the trucks. He stated that it is his firm belief that there is no other way to approach the problem.

He also stated that the present proceeding is one in which the entire trucking industry has desired to take an active part and that it has caused the members of the various associations in the state to take an inventory of their safety programs. Some of the carriers and some segments of the trucking industry, he testified, were very apprehensive about this hearing but he believes that the great majority welcome the opportunity to show what they are doing.

Other witnesses for the for hire property carriers testified generally along the same lines relative to their safety programs including preventive maintenance procedures and emphasized that any successful safety program must be based upon good management and adequate employer-employee relationships; and further that it is believed the safety programs now being followed are producing good results, that it is clear that safety is not any one thing but a continuous program and that the organized trucking industry as such has reached a definite goal in connection with safety far above and beyond the normal requirements of any regulatory body. All recognized that perfection has not been achieved but that the endeavor to attain a good safety record is a long and never ending struggle. They also stated that their accident frequency record has been greatly improved as a result of the safety programs being followed.

It appears from the record, and we so find, that notwithstanding these commendable safety programs being followed by the highway transportation industry and progress in the field of safety,

there is still wide spread disregard and non-compliance with the Vehicle Code. Therefore, it is our conclusion, in view of the industry's belief that voluntary action on its part is the best solution of the highway safety problem, that it should leave no stone unturned to bring about a more complete compliance with the provisions of the Vehicle Code than is being achieved at present.

25. TACHOGRAPHS OR SIMILAR RECORDING DEVICES

The Director of Safety of a substantial carrier was called to the stand and testified at some length in the use of tachographs or similar recording instruments which make a permanent record on a chart of the speed, standing time, miles traveled, and total elapsed time between all way points and terminals. He stated that his firm has installed a tachograph in each of the units owned by it and that they have been in use for over five years. At first the tachograph was called a "stool pigeon" but this attitude has been completely overcome for the reason that the drivers have come to realize that it really protects the good driver and that only a "crank" will try to beat it. This instrument gives the maintenance department a complete index of what is happening. He stated that transmission overhauls have decreased tremendously since these instruments were installed and they enable the maintenance department to learn of the exact conditions surrounding the operation of a truck. The primary reason for installing tachographs is to secure data on and keep supervision of the operation of a truck at all points on the highway. What is needed is more control and this is given by this instrument. Notwithstanding the highway patrol, the insurance companies' patrols, the companies' policies and regulations, safety

programs, and federal and state laws, the driver is many times out on the highway alone and the tachograph or other similar recording device makes a permanent record of what is going on at all times. Its use constantly works to increase safety on the highways not only for the truck on which it is installed but also for all others using the highways. It was his opinion that the installation of such an instrument would be a distinct advantage to all highway carriers and strongly recommended its use.

While we do not deem it advisable to recommend compulsory installation of such recording instruments at this time, it is our conclusion that they offer an invaluable aid in controlling the operation of motor vehicles and in promoting safety on the highways, and therefore their use should be given serious study and earnest consideration by all operators of over the road commercial motor vehicles.

26. CONSIDERATIONS CONCERNING EXTENT OF PUBLIC UTILITIES COMMISSION JURISDICTION

Practically every interest appearing at this hearing testified concerning the enlarging of or restriction of the Public Utilities Commission's jurisdiction and authority over safety of operations. Some advocated the extension of the Commission's jurisdiction similar to what it now has over railroads; that the Transportation Rate Fund Act (Statutes 1935, Chapter 683 as amended by Statutes 1937, Chapter 831) should be amended to authorize the Commission to use these funds for the purpose of enforcing safety orders; that legislation be introduced authorizing the Commission to revoke the operating rights of those carriers found to be consistent and flagrant violators of

Vehicle Code provisions and that if the safety rules of the Commission were applied to permitted and proprietary carriers, the farmer owned vehicles also should be required to observe them; that laws be passed requiring all highway carriers to comply with this Commission's safety rules and that the Commission's jurisdiction over intrastate carriers be made comparable to that of the Interstate Commerce Commission over interstate carriers.

Others advocated that either the Commission's jurisdiction remain as it is without any further extension or that it be restricted to the extent of placing all safety rules and regulations governing the operation of commercial motor vehicles on the highway in the Vehicle Code.

Those advocating the latter view pointed out that at the present time this Commission's safety rules and regulations apply only to highway common carriers who represent approximately 2% of the registered commercial vehicles; that it would be manifestly unfair to apply more restrictive provisions to this group than to the remaining 98%.

It was contended by some that the Vehicle Code, with enforcement by the highway patrol, is the proper place for rules and regulations involving the safety of operations on the highways; and that if this Commission's rules and regulations were extended, it would be impossible for it to effectuate adequate enforcement.

One witness expressed doubt as to the legality of this Commission's authority to establish more stringent regulations for those under its jurisdiction than are contained in the Vehicle Code applicable to all commercial motor vehicles. It is our conclusion that this particular view is without merit for it is the established

law that this Commission's authority controls in matters of safety of operations as to those carriers subject to the provisions of the Public Utilities Act.

It can hardly be gainsaid that it would be desirable in the interest of safety on the highways, to have the same safety rules and regulations apply to, and be adequately enforced in connection with, all commercial vehicles including certificated, permitted, proprietary, and private carriers. If all highway carriers were made subject to this Commission's safety jurisdiction, obviously it would require adequate enforcement personnel with a tremendous increase in the Commission's personnel and a commensurate increase in the Commission's budget.

It is our conclusion, based upon the testimony and evidence of record, that the rules and regulations governing the safety of operations of all carriers on the highways should remain in the Vehicle Code; that this Commission, however, should continue its activity in the safety field in connection with adequate and safe equipment, including preventive maintenance programs, and that legislation should be considered extending this phase of its safety jurisdiction to all carriers under its general jurisdiction.

In the foregoing opinion, we have already considered the question of revoking or suspending the operating rights of carriers found to be consistent and flagrant violators of Vehicle Code provisions.

27. SUMMARY OF CONCLUSIONS

Based upon the record and the findings heretofore made, we have reached the following conclusions:

(1) A limited number of reflectorized "high-speed train" signs should be installed at selected railroad crossings agreed to by the railroads and the Commission's engineers for temporary experimental purposes only.

(2) The organized trucking industry, all other operators of commercial vehicles, and passenger stage corporations, should use every possible means at their command, including the proper training and indoctrination of their drivers, to eliminate grade crossing accidents.

(3) The grade crossing program of the Commission is producing good results and should be continued; the recommendations made in the Commission's survey entitled "General Statewide Crossing Survey of the State of California", dated December 15, 1949 (Exhibit 66), are in the public interest and should be effected as expeditiously as possible, consistent with the cooperation and assistance of the State Division of Highways, counties and cities involved, the Federal Government and the railroads; the improvement of facilities and property of the railroads, as recommended, will promote the health and safety of employees, passengers and the public; the Commission should institute an investigation into the necessity of revising its General Order No. 75-B; and where necessary to implement the authority of the Commission by legislation to be recommended by the Commission to the Legislature of the State of California.

(4) The information and recommendations set forth in the three studies introduced in this proceeding by the Interstate

Commerce Commission's representative entitled "Motor Carrier Accidents 1945-1946", "Analysis of Mechanical Accidents of Motor Carriers, 1947" and "Motor Carrier Fire Accidents, 1948" (Exhibits 18, 19, and 20), respectively, should be given careful consideration and study by all motor carriers.

(5) The present penalties are inadequate and ineffective in curtailing overload violations and this Commission should recommend to the state legislature the amendment of the Vehicle Code to provide for increased penalties. Also, in connection with the overloading of trucks, the Commission's staff should examine the highway patrol's reports from time to time and if it is found that the carriers fail to show a needed improvement in the elimination of overloads, the Commission should institute an investigation, on its own motion, to determine what further measures should be taken and what recommendations should be made toward a correction of this situation.

(6) The subject of enforcement should be given study by the Legislature of the State of California, in conjunction with the California Highway Patrol and other interested organizations and groups, for the purpose of ascertaining whether additional enforcement personnel are needed and justified, giving particular consideration to the highway patrol's statistical and clerical load and activities not directly related to the enforcement of the Vehicle Code.

(7) In connection with carriers coming under this Commission's jurisdiction, including buses and both certificated and permitted trucks, the Commission should proceed, on its own motion, to institute proceedings looking to cancellation or suspension, for specified periods of the operative rights of those carriers whose records indicate a consistent and flagrant disregard of the provisions

of the Vehicle Code or the Commission's safety rules and regulations.

(8) That the speed differential between the classes of motor vehicles specified in Section 515(a) of the Vehicle Code and private passenger vehicles creates a serious threat to safety on the highways and that therefore this matter should be brought to the attention of the Legislature of the State of California for further consideration.

(9) That the problems involved in connection with the "rules of the road", which includes overtaking and passing, following too closely, use of mud aprons by commercial motor vehicles, bunching and cutting in, and a uniform speed requirement or a performance ability standard should be given further study and consideration by all interested authorities, groups and parties, including the Legislature of the State of California.

(10) That from the viewpoint of safety it would not be in the public interest to change the laws to increase the maximum size, weight, or loading of vehicles.

(11) In connection with the existing practices in the loading and securement of loads of lumber, logs, hay, and other commodities, the Commission should (a) continue the study of the matter of the loading of commodities on motor trucks; (b) solicit the opinion of industry and labor representatives through informal conferences or at hearings; (c) work jointly with the California Highway Patrol, the Division of Industrial Safety, other state and private agencies, and shippers with the objective of promulgating loading rules and regulations governing the loading upon and hauling by motor trucks of various commodities; and (d) recommend to the Legislature of the State of California the introduction of appropriate legislation calculated to assure a strict application of such loading

rules and regulations to all carriers using the public highways, regardless of class.

(12) This Commission should recommend to the state legislature the amendment of the Vehicle Code so as to make mandatory an adequate and comprehensive examination system for chauffeurs' licenses.

(13) It would be desirable to have uniformity in the hours of service regulations applicable to all types of highway carriers, whether certificated, permitted or proprietary. The necessary changes to accomplish this result should be made in the Commission's rules and regulations, and recommendations should be made to the Legislature of the State of California to make whatever changes are necessary in the Vehicle Code.

(14) The use of driver's logs, in a manner similar to that required by the Interstate Commerce Commission, should be established in California and made applicable to all types of commercial vehicles operating in over the road service and, to this end, the Commission should recommend to the legislature consideration of the enactment of such legislation.

(15) All property carrying motor vehicles should be required to be identified in a manner similar to that provided by Interstate Commerce Commission regulations and this Commission should recommend to the Legislature of the State of California the enactment of appropriate legislation as a part of the Vehicle Code.

(16) The present minimum insurance requirements for property carrying vehicles under this Commission's jurisdiction appear unrealistic and inadequate and, therefore, this Commission, on its own motion, should undertake an investigation to determine

proper and adequate limits for public liability and property damage insurance for these vehicles.

(17) All carriers of persons and property who do not have and are not following adequate safety programs should take steps immediately to establish such programs.

(18) That notwithstanding the many commendable safety programs being followed by the highway transportation industry and progress in the field of safety, there still remains a widespread disregard for and noncompliance with the Vehicle Code. Therefore, it is our further conclusion, in view of the belief expressed during this hearing that voluntary action is the best solution to the highway safety problem, that the entire industry should take whatever steps are necessary to bring about a more complete compliance with the provisions of the Vehicle Code than is being achieved at present.

(19) It is not deemed advisable to recommend compulsory installations of tachographs or similar recording instruments at this time. However, it is our further conclusion that such instruments offer an extremely valuable aid in controlling the operation of motor vehicles and in promoting safety on the highways, and that their use should be given serious study and earnest consideration by all operators of motor vehicles in over the road operations.

(20) That the safety of operations of all carriers on the highways should continue to be subject to the provisions of the Vehicle Code and the enforcement thereof by the California Highway Patrol, subject however to the provisions of Section 42 of the Public Utilities Act.

(21) That this Commission should continue to be active in the safety field in requiring adequate and safe equipment and as to

preventive maintenance programs, and should recommend legislation to the Legislature of the State of California extending this phase of its safety jurisdiction to all carriers presently subject to its general jurisdictional control.

(22) The uniform applications of safety and preventive maintenance programs and rules and regulations concerning safety of operations of those passenger carriers not presently under this Commission's jurisdiction should be given consideration by the legislature.

O R D E R

Based upon the evidence of record and upon the findings and conclusions set forth in the preceding opinion,

IT IS ORDERED:

1. That the Commission undertake on its own motion the following investigations:

(a) To determine the necessity of revising General Order No. 75-B.

(b) To determine proper and adequate limits for public liability and property damage insurance required of all highway carriers under the Commission's jurisdiction.

2. That the Commission proceed to initiate proceedings looking to the cancellation or suspension, for specified periods, of the operative rights of those carriers whose records indicate a consistent and flagrant disregard of the provisions of the Vehicle Code or the Commission's safety rules and regulations.

3. That a copy of this decision be forwarded to the Governor of the State of California.

4. That the Commission transmit to the Legislature of the State of California this decision together with the following recommendations:

(a) That the legislature undertake a study in conjunction with the California Highway Patrol and others of enforcement of Vehicle Code provisions for the purpose of ascertaining whether additional enforcement personnel are needed and justified, giving particular consideration to the highway patrol's statistical and clerical load and activities not directly related to the enforcement of the Vehicle Code.

(b) That further consideration be given to the existing speed differential between vehicles specified in Vehicle Code Section 515(a) and private passenger cars and the resultant threat to safety on the highways.

(c) That the legislature in conjunction with others interested, should conduct further study of the laws involving overtaking and passing, following too closely, bunching, cutting in, use of mud aprons by commercial motor vehicles, and of the desirability and feasibility of establishing a uniform speed requirement or performance ability standard for commercial motor vehicles.

(d) That there be no change made in the laws to increase the maximum size, weight, or loading of vehicles.

(e) That the legislature amend the Vehicle Code so as to make mandatory an adequate and comprehensive examination for chauffeurs' licenses.

(f) That the legislature amend the Vehicle Code so as to establish uniform hours of service for drivers of all commercial vehicles in over the road operations.

(g) That the legislature amend the Vehicle Code so as to require all drivers of commercial vehicles operating in over the road service to keep and maintain an appropriate type of drivers' log.

(h) That the legislature amend the Vehicle Code so as to require all property carrying commercial vehicles to be properly identified by displaying the name of the carrier on each side and the rear thereof in a manner similar to that required by the Interstate Commerce Commission rules and regulations.

(i) That the legislature amend the Vehicle Code to provide substantially increased penalties for violation of the maximum weight provisions of that code.

(j) That the legislature give consideration to the uniform application of safety and preventive maintenance programs and rules and regulations concerning safety of operations of those passenger carriers not presently under this Commission's jurisdiction.

5. That in the revision of this Commission's General Order 93-A now under submission in Cases 5097 and 5098, consideration be given to bringing about uniformity in the hours of service rules and regulations.

6. That this investigation be held open and that a further hearing be set at a time and place to be determined after the close of the year 1950 for the purpose of:

(a) Receiving reports from Commission staff members on the matters they have been requested to further examine in the foregoing opinion.

(b) Receiving reports of the results of the experimental installation of reflectorized "high speed train" signs.

(c) Ascertaining what progress has been made by highway carriers, including passenger stage corporations, in establishing

safety and preventive maintenance programs and what has been accomplished by the highway transportation industry toward bringing about a more complete compliance with the Vehicle Code by the use of "voluntary action".

(d) Receiving reports on grade crossing accident experience.

(e) Ascertaining what has been accomplished as to the elimination of overloading.

(f) Ascertaining what has been accomplished toward developing rules and regulations concerning loading and securement of loads on commercial motor vehicles.

(g) Receipt of evidence relating to any further matters that may appear necessary concerning the problem of safety on the highways.

7. That Southern Pacific Company, The Atchison, Topeka and Santa Fe Railway Company, Union Pacific Railroad Company, and The Western Pacific Railroad Company are authorized and directed to install and maintain on an experimental basis, within ninety (90) days from the effective date of this order, a special reflectorized sign substantially as illustrated on Exhibit 69 in this proceeding, at the following crossings on their respective lines of railroad:

SOUTHERN PACIFIC COMPANY

Crossing No. E-36.6 - Ada Avenue
Crossing No. E-72.2 - Tennant Street
Crossing No. A-17.2 - County Road
Crossing No. A-55.4 - County Road

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY

Crossing No. 2-98.2 - Hellman Avenue
Crossing No. 2-109.5 - Cienega Avenue
Crossing No. 2-169.7 - Cerritos Avenue
Crossing No. 2-233.2 - Lacosta Boulevard

UNION PACIFIC RAILROAD COMPANY

Crossing No. 3-9.3 - Van Norman Road
Crossing No. 3-34.5 - Ramona Avenue
Crossing No. 3-39.0 - Grove Avenue

THE WESTERN PACIFIC RAILROAD COMPANY

Crossing No. 4-156.0 - Pleasant Grove Road
Crossing No. 4-162.0 - Nicholas Road
Crossing No. 4-162.6 - Pacific Avenue

Within thirty (30) days thereafter, the carriers shall notify the Commission in writing of the installation of these signs.

The effective date of this order shall be sixty (60) days after the date hereof.

Dated at San Francisco, California, this 15th day of August, 1950.

COMMISSIONERS

APPENDIX A

APPEARANCES

S. G. Ballard, for Brotherhood of Locomotive Trainmen; F. W. Dickey, for Brotherhood of Locomotive Engineers; S. A. Buckley, California State Legislative Committee, Brotherhood of Railway Clerks; Henry C. Barri, for International Association of Machinists; G. F. Irvine, for Brotherhood of Locomotive Firemen and Enginemen; C. O. Davis, for International Brotherhood of Blacksmiths, Forgers and Helpers of the Southern Pacific Railroad Company and Western Pacific Railroad Company; C. M. Gibbens, for Brotherhood of Railroad Carmen of America; F. G. Pellett, for Brotherhood of Railroad Trainmen; C. E. Goeble, for Order of Railway Conductors; John Gardner, for Southern Pacific Carmen.

Kermit Maxwell, C. Kutz and Gordon Duggan, for International Woodworkers of America, C. I. O.; Glyn Cantrell, Robert Giesick and Daniel Johnston, for Lumber and Sawmill Workers, A. F. of L.;

Douglas Brookman, for Pacific Greyhound Lines; E. J. Potter, for Key System Transit Lines; L. G. Perry, for Peerless Stages, Inc.; H. F. Campbell, for American Bus Lines, Burlington Transportation Company and Gibson Lines; David E. Canning, for Los Angeles Transit Lines; Randolph Karr, for Pacific Electric Railway Company; Gordon, Knapp & Hennessy, by Wyman C. Knapp, for American Bus Lines, Burlington Transportation Company and Gibson Lines; Robert W. Walker and Frederic A. Jacobus, for The Atchison, Topeka & Santa Fe Transportation Company; E. E. Bennett, for Union Pacific Railroad Company and Overland Greyhound Company.

E. H. Hart, for the Draymen's Association of Alameda County; Russell Bevans, for Draymen's Association of San Francisco, Inc., and San Francisco Movers, Inc., Larry M. Fites, for Truck Owners Association of California; Arloe D. Poe, for California Motor Transport Associations, Inc., Motor Truck Association of Southern California and Truck Owners' Association of California; H. J. Bischoff, for Southern California Freight Lines and Southern California Freight Forwarders; William L. Osborne, for Walkup Drayage and Warehouse Company; Robert L. McCorkle, for Callison Truck Lines; Bernard S. Morris, for Morris Draying Company; L. A. Oswald, for Railway Express Agency, Inc.; Wade Sherrard, for Motor Truck Association of Southern California; Frank Terramorse, for Kentner Truck Lines; E. C. Blackman, for California Dump Truck Owners' Association; Edward M. Berol, for Tank Truck Operators' Association; Charles C. Miller, for Monterey Bay Draymen's Association; Claude Minard, for California Railroad Association; R. E. Wedekind, California Railroad Association and Southern Pacific Company.

APPENDIX A (CONTINUED)

Edwin A. Kenny and James Adams, Directors, Golden Gate Bridge and Highway District; Pete H. Dawson, District Director, Bureau of Motor Carriers, Interstate Commerce Commission; Ovid L. Holmes and A. C. Blackman, Division of Industrial Safety, Department of Industrial Relations, State of California; E. L. Turkington, for the Governor's Committee on Safety on the San Francisco-Oakland Bay Bridge; Robert Reed and Russell S. Munro, for Department of Public Works, Division of Highways, State of California; E. Raymond Cato, Chief, California Highway Patrol.

Edwin S. Moore, for California State Automobile Association; J. Allen Davis and E. E. East, for Automobile Club of Southern California.

Kathie Zahn, in propria persona; Iver C. Larson, for National Safety Council; Joe C. Lewis and Helga Weigert, for California Farm Research and Legislative Committee; J. J. Deuel, for California Farm Bureau Federation.

J. G. Hunter, for the California Public Utilities Commission.

APPENDIX B

WITNESSES

State and Federal Agencies:

Pete H. Dawson, District Director, Bureau of Motor Carriers, Interstate Commerce Commission;
A. C. Blackman, Division of Industrial Safety, Department of Industrial Relations of the State of California;
Edwin A. Kenny, Vice President, Golden Gate Bridge and Highway District;
E. Raymond Cato, Chief, California Highway Patrol;
Thad Douarin, Captain, California Highway Patrol;
J. C. Young, Traffic Engineer, and Robert E. Reed, California Division of Highways.

Automobile Clubs:

Edwin S. Moore, Manager, Public Relations Department, California State Automobile Association;
J. Allen Davis, General Counsel, Automobile Club of Southern California;
E. E. East, Chief Engineer, Automobile Club of Southern California.

Labor Organizations:

F. G. Pellett, State Representative, Brotherhood of Railroad Trainmen;
Kermit Maxwell, Chairman Safety Committee, District 13, International Woodworkers of America, C.I.O.;
Henry C. Barri, Assistant General Manager, District Lodge No. 89, International Association of Machinists;
F. W. Dickey, Brotherhood of Locomotive Engineers;
C. E. Goeble, State Legislative Representative, Order of Railroad Conductors;
S. A. Buckley, Chairman State Legislative Committee, Brotherhood of Railroad Clerks; Secretary, California State Legislative Board, Railroad Brotherhoods;
C. O. Davis, General Chairman, International Brotherhood of Blacksmiths, Forgers and Helpers;
Robert Giesick, Northern California District Council, Lumber and Sawmill Workers, A. F. of L.

Other Witnesses:

Kathie Zahn, in propria persona;
Joe C. Lewis, Assemblyman, 39th District, Kern County; Farmer; Master Local Grange; Vice Chairman, Joint Committee for Grade Crossing Safety;
J. J. Deuel, Director, Public Utilities Department, California Farm Bureau Federation.

Railroads:

Claude Minard, Director, California Railroad Associations.

APPENDIX B (CONTINUED)

Passenger Stage Corporations:

Glen C. Magnuson, Director of Safety, Pacific Greyhound Lines;
L. G. Perry, Peerless Stages;
D. B. Miller, District Manager, Overland Greyhound Lines;
Fred C. Patton, General Superintendent Passenger Service; Pacific Electric Railway Company;
Arthur Nay, General Manager, Santa Fe Transportation Company and Transcontinental Bus System;
H. F. Campbell, Supervisor of Operations, American Bus Lines, Burlington Transportation Company, Gibson Lines.

Trucking Industry:

Wade Sherrard, Executive Secretary, California Motor Transport Association and General Manager, Motor Truck Association of Southern California;
W. E. Krueger, Manager, Driver's Safety Center, and W. J. Rellaford, Director of Safety and Personnel, Asbury Transportation Company;
C. M. Wilson, Supervisor of Personnel and Safety, Signal Trucking Service;
G. E. McPeek, Director Personnel and Safety, Pacific Freight Lines;
Lloyd W. A. Erxleben, Personnel and Safety Director, Bekins Van and Storage Company;
Kenneth N. Beadle, Director of Safety, Pacific Intermountain Express;
Edward M. Berol, Tank Truck Operators' Association;
Frank Terramorse, President, Truck Owners Association of California; President, Kentner Truck Lines;
David Johnston, Director of Safety, Miles and Son and Motor Transport System;
Walter Nichol, Superintendent Safety and Maintenance, Clark Brothers Motor Transport;
Hugh H. Williams, Superintendent of Safety, Santa Fe Transportation Company.

California Public Utilities Commission:

J. G. Hunter, Assistant Director and Chief Engineer, Transportation Department;
Ward Hall, Supervising Transportation Engineer, Engineering Division, Transportation Department;
Ted E. Rogers, Senior Transportation Supervisor, Operations and Safety Division, Transportation Department;
Benn W. Porter, Associate Engineer, Transportation Department;
Owen Stanley, Associate Transportation Engineer, Research Division, Transportation Department;
William J. Schmidt, Transportation Representative, Field Division.

APPENDIX C

* PARTIAL SUMMARY OF MOTOR VEHICLE ACCIDENTS IN CALIFORNIA (EXCLUDING THOSE ON PRIVATE PROPERTY) - JANUARY TO JUNE, INC., 1949 WITH SELECTED STATISTICS ON THREE TYPES OF VEHICLES

TOTAL NUMBER OF ACCIDENTS REPORTED FOR ALL TYPES OF VEHICLES - WITHIN CITIES 17,775 - IN RURAL AREAS 10,466 - TOTAL 28,241

TOTAL NUMBER OF VEHICLES OF ALL TYPES INVOLVED IN ACCIDENTS REPORTED - WITHIN CITIES 29,641 - IN RURAL AREAS 17,109 - TOTAL 46,750

	HEAVY TRUCKS AND TRAILERS			LIGHT TRUCKS			BUSES			TOTAL FOR HEAVY TRUCKS LIGHT TRUCKS AND BUSES		
	CITY	RURAL	TOTAL CITY AND RURAL	CITY	RURAL	TOTAL CITY AND RURAL	CITY	RURAL	TOTAL CITY AND RURAL	CITY	RURAL	TOTAL
NUMBER OF ACCIDENTS	253	550	803	2,017	1,669	3,686	587	96	683	2,857	2,315	5,172
PERCENTAGE OF TOTAL ACCIDENTS REPORTED	1.42%	5.29%	2.84%	11.34%	15.94%	13.05%	3.30%	.91%	2.42%	16.07%	22.12%	18.31%
NUMBER OF FATAL ACCIDENTS	18	87	105	55	116	171	10	10	20	83	213	296
NUMBER OF NONFATAL ACCIDENTS	235	463	698	1,962	1,553	3,515	577	86	663	2,774	2,102	4,876
NUMBER OF VEHICLES INVOLVED OF THE TYPE SHOWN IN HEADING OF EACH COLUMN	263	569	832	2,131	1,770	3,901	591	97	688	2,985	2,436	5,421
PERCENTAGE OF TOTAL VEHICLES INVOLVED	.89%	3.33%	1.78%	7.18%	10.33%	8.34%	1.99%	.57%	1.47%	10.07%	14.24%	11.59%
CONDITION OF VEHICLES CONTRIBUTING TO ACCIDENTS:												
DEFECTIVE BRAKES	9	23	32	57	62	119	14	2	16	80	87	167
BOTH HEADLIGHTS OUT	-	4	4	2	6	8	-	1	1	2	11	13
HEADLIGHTS INSUFFICIENT OR ONE OUT	-	3	3	4	3	7	-	-	-	4	6	10
HEADLIGHTS GLARING	-	-	-	-	-	-	-	-	-	-	-	-
REAR LIGHT - INSUFFICIENT OR OUT	-	2	2	3	15	18	1	2	3	4	19	23
OTHER LIGHTS OR REFLECTORS DEFICIENT	1	4	5	2	8	10	-	4	4	3	16	19
STEERING MECHANISM DEFECTIVE	-	3	3	2	18	20	-	-	-	2	21	23
PUNCTURE OR BLOWOUT	-	-	-	1	18	19	-	-	-	1	20	21
OTHER DEFECTS	-	18	18	23	36	59	3	1	4	26	55	81
TOTAL DEFECTS	10	59	69	94	166	260	18	10	28	122	235	357
ROAD LOCATION OF ACCIDENT:												
STREET OR ROAD INTERSECTION	149	139	288	1,067	531	1,598	365	37	402	1,581	707	2,288
BETWEEN INTERSECTIONS	94	395	489	913	1,087	2,000	222	56	278	1,229	1,538	2,767
RAILROAD CROSSINGS	4	3	7	15	22	37	-	1	1	19	26	45
ALLEY OR DRIVEWAY	2	1	3	13	-	13	-	-	-	15	1	16
BRIDGE, PIER OR DOCK	4	12	16	9	29	38	-	2	2	13	43	56
NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	253	550	803	2,017	1,669	3,686	587	96	683	2,857	2,315	5,172
CONDITION OF ALL DRIVERS CONTRIBUTING TO ACCIDENT:												
OBVIOUSLY DRUNK	5	10	15	58	84	142	4	1	5	67	95	162
HAD BEEN DRINKING	11	27	38	83	108	191	3	3	6	97	138	235
PHYSICAL DEFECTS	2	1	3	13	19	32	-	-	-	15	20	35
FATIGUED OR SLEEPY	2	12	14	8	12	20	1	-	1	11	24	35
APPARENTLY ASLEEP	1	12	13	10	23	33	1	-	1	12	35	47
CARELESS OR INATTENTIVE	-	-	-	-	-	-	-	1	1	-	1	1
TOTAL	21	62	83	172	246	418	9	5	14	202	313	515
VIOLATIONS BY ALL DRIVERS INVOLVED:												
EXCEEDING STATED SPEED LIMIT	24	32	56	252	134	386	37	5	42	313	171	484
EXCEEDING SAFE SPEED	119	319	438	1,014	966	1,980	202	44	246	1,335	1,329	2,664
PEDESTRIANS RIGHT OF WAY	6	-	6	126	15	141	72	1	73	204	16	220
VIOLATED AUTOS RIGHT OF WAY	98	140	238	653	480	1,133	132	20	152	883	640	1,523
FOLLOWING TOO CLOSELY	40	93	133	356	222	578	66	23	89	462	338	800
DROVE THROUGH SAFETY ZONE	-	-	-	2	-	2	-	-	-	2	-	2
PASSING STANDING STREET CAR	-	-	-	2	-	2	1	-	1	3	-	3
PASSING ON HILL	-	5	5	-	7	7	-	-	-	-	12	12
PASSING ON CURVE	-	1	1	1	5	6	-	1	1	1	6	7
CUTTING IN	4	11	15	11	13	24	6	1	7	21	25	46
OTHER IMPROPER PASSING	26	91	117	211	170	381	24	14	38	261	275	536
ON WRONG SIDE OF ROAD: NOT PASSING	15	123	138	77	250	327	12	12	24	104	385	489
FAILURE TO OR IMPROPER SIGNAL	3	20	23	34	61	95	5	5	10	42	86	128
IMPROPER TURN - WIDE RIGHT	3	2	5	17	10	27	2	1	3	22	13	35
IMPROPER TURN - CUT CORNER ON LEFT TURN	2	11	13	35	26	61	6	3	9	43	40	83
IMPROPER TURN - FROM WRONG LANE	4	11	15	15	23	38	7	1	8	26	35	61
OTHER IMPROPER TURNING	12	31	43	74	130	204	17	8	25	103	169	272
DISREGARDED POLICE OFFICER	-	1	1	2	6	8	-	1	1	2	8	10
DISREGARDED STOP - GO LIGHT	23	4	27	78	13	91	24	1	25	125	18	143
DISREGARDED STOP SIGN OR SIGNAL	9	23	32	75	75	150	15	1	16	99	99	198
DISREGARDED WARNING SIGN OR SIGNAL	6	4	10	21	29	50	4	2	6	31	35	66
DISREGARDED OTHER TRAFFIC CONTROL DEVICE	-	2	2	5	3	8	-	-	-	5	5	10
IMPROPER STARTING FROM PARKING	7	11	18	75	35	110	46	4	50	128	50	178
IMPROPER PARKING, LOCATION	2	16	18	25	43	68	5	7	12	32	66	98
FAILED TO TURN ON LIGHTS	1	3	4	6	18	24	-	-	-	7	21	28
OTHER VIOLATIONS	28	77	105	223	243	466	32	12	44	283	332	615
NO VIOLATIONS	19	17	36	205	87	292	137	8	145	361	112	473
TOTAL VIOLATIONS	451	1,048	1,499	3,595	3,064	6,659	852	175	1,027	4,898	4,287	9,185

* TAKEN FROM EXHIBITS NOS. 62, 63 AND 64.

APPENDIX D

* SELECTED STATISTICS ON FATAL ACCIDENTS INVOLVING COMMERCIAL VEHICLES

JANUARY TO JUNE, INC. 1949

	HEAVY TRUCKS AND TRAILERS			LIGHT TRUCKS			BUSES			TOTAL COMMERCIAL		
	CITY	RURAL	TOTAL	CITY	RURAL	TOTAL	CITY	RURAL	TOTAL	CITY	RURAL	TOTAL
TOTAL ACCIDENTS	253	550	803	2,017	1,669	3,686	587	96	683	2,857	2,315	5,172
TOTAL FATAL ACCIDENTS	18	87	105	55	116	171	10	10	20	83	213	296
CONDITION OF VEHICLES INVOLVED IN FATAL ACCIDENTS:												
1. DEFECTIVE BRAKES	-	5	5	3	2	5	-	-	-	3	7	10
2. BOTH HEADLIGHTS OUT	-	2	2	-	1	1	-	-	-	-	3	3
3. HEADLIGHTS INSUFFICIENT OR ONE OUT	-	1	1	-	-	-	-	-	-	-	1	1
4. HEADLIGHTS GLARING	-	-	-	-	-	-	-	-	-	-	-	-
5. REARLIGHTS INSUFFICIENT OR OUT	-	-	-	-	1	1	-	-	-	-	1	1
6. OTHER LIGHTS INSUFFICIENT OR OUT	-	1	1	-	1	1	-	-	-	-	2	2
7. STEERING MECHANISM DEFECTIVE	-	-	-	-	-	-	-	-	-	-	-	-
8. PUNCTURE OR BLOWOUT	-	1	1	-	2	2	-	-	-	-	3	3
9. OTHER DEFECTS	-	4	4	-	2	2	-	1	1	-	7	7
TOTAL	0	14	14	3	9	12	0	1	1	3	24	27
ROAD LOCATION OF FATAL ACCIDENTS:												
1. STREET OR ROAD INTERSECTION	11	22	33	29	29	58	3	2	5	43	53	96
2. BETWEEN INTERSECTIONS	6	64	70	21	80	101	7	8	15	34	152	186
3. RAILROAD CROSSING	-	-	-	3	5	8	-	-	-	3	5	8
4. ALLEY OR DRIVEWAY	1	1	2	1	-	1	-	-	-	2	1	3
5. BRIDGE, PIER OR DOCK	-	-	-	1	2	3	-	-	-	1	2	3
6. NOT STATED	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	18	87	105	55	116	171	10	10	20	83	213	296
CONDITION OF DRIVER CONTRIBUTING TO FATAL ACCIDENTS:												
1. OBVIOUSLY DRUNK	1	1	2	1	4	5	-	-	-	2	5	7
2. HAD BEEN DRINKING INTOXICANTS	1	3	4	2	11	13	-	-	-	3	14	17
3. DEFECTIVE EYESIGHT - NO GLASSES	-	-	-	-	-	-	-	-	-	-	-	-
4. DEFECTIVE HEARING	-	-	-	-	-	-	-	-	-	-	-	-
5. OTHER PHYSICAL DEFECTS	-	-	-	1	1	2	-	-	-	1	1	2
6. FATIGUED OR SLEEPY	-	2	2	-	-	-	-	-	-	-	2	2
7. APPARENTLY ASLEEP	-	2	2	-	1	1	-	-	-	-	3	3
8. CARELESS OR INATTENTIVE	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	2	8	10	4	17	21	0	0	0	6	25	31
NUMBER OF DRIVER VEHICLE CODE VIOLATIONS INVOLVED IN FATAL ACCIDENTS												
1. EXCEEDING STATED SPEED LIMIT	2	5	7	8	16	24	1	-	1	11	21	32
2. EXCEEDING SAFE SPEED - NOT STATED SPEED	5	54	59	16	68	84	1	3	4	22	125	147
3. VIOLATED PEDESTRIAN RIGHT OF WAY	2	-	2	8	1	9	2	-	2	12	1	13
4. VIOLATED RIGHT OF WAY (AUTO)	7	29	36	10	34	44	-	4	4	17	67	84
5. FOLLOWING TOO CLOSELY	-	5	5	5	3	8	-	1	1	5	9	14
6. DROVE THROUGH SAFETY ZONE	-	-	-	-	-	-	-	-	-	-	-	-
7. PASSING STANDING STREET CAR	-	-	-	-	-	-	-	-	-	-	-	-
8. PASSING ON HILL	-	1	1	-	3	3	-	-	-	-	4	4
9. PASSING ON CURVE	-	-	-	-	-	-	-	-	-	-	-	-
10. CUTTING IN	-	2	2	-	1	1	-	-	-	-	3	3
11. OTHER IMPROPER PASSING	1	7	8	2	12	14	-	2	2	3	21	24
12. ON WRONG SIDE OF ROAD - NOT PASSING	-	26	26	3	20	23	-	2	2	3	48	51
13. FAILURE TO OR IMPROPER SIGNAL	-	1	1	-	4	4	-	-	-	-	5	5
14. IMPROPER TURN - WIDE RIGHT	-	-	-	-	-	-	-	-	-	-	-	-
15. IMPROPER TURN - CUTTING CORNER ON LEFT TURN	-	1	1	-	1	1	-	1	1	-	3	3
16. IMPROPER TURN - TURNED FROM WRONG LANE	-	1	1	1	3	4	-	-	-	1	4	5
17. OTHER IMPROPER TURNING	-	3	3	1	9	10	-	1	1	1	13	14
18. DISREGARDED POLICE OFFICER	-	-	-	-	-	-	-	1	1	-	1	1
19. DISREGARDED STOP & GO LIGHT	5	-	5	3	1	4	1	-	1	9	1	10
20. DISREGARDED STOP & GO SIGNAL	-	7	7	2	5	7	-	-	-	2	12	14
21. DISREGARDED WARNING SIGN OR SIGNAL	-	-	-	4	5	9	-	-	-	4	5	9
22. DISREGARDED OTHER TRAFFIC CONTROLLING DEVICE	-	-	-	1	1	2	-	-	-	1	1	2
23. IMPROPER STARTING FROM PARKED POSITION	1	2	3	1	4	5	3	1	4	5	7	12
24. IMPROPER PARKING LOCATION	-	1	1	1	1	2	-	-	-	-	2	3
25. FAILED TO TURN ON LIGHTS	-	-	-	-	-	-	-	-	-	-	-	-
26. OTHER VIOLATIONS	1	11	12	4	12	16	-	-	-	5	23	28
27. NO VIOLATIONS	3	7	10	11	6	17	4	1	5	18	14	32
TOTAL	27	163	190	81	210	291	12	17	29	120	390	510

* TAKEN FROM EXHIBITS NOS. 62, 63 AND 64.

APPENDIX E

PARTIAL SUMMARY AND COMPARISON SURVEYS OF ARRESTS OF COMMERCIAL VEHICLES FOR 1940, 1941 and FISCAL YEAR 1946, 1947

(From Exhibits 25, 26 and 27)

		Calendar Years 1940	1941	Fiscal Year 1946-47	
1.	Total commercial vehicle arrests by highway patrol	7,019	4,806	Approx.25,000	
2.	Number of operators cited 15 or more times	66	44	53(1)	
	(a) Number cited between 15 and 25 times	34	25		
	(b) Number cited between 25 and 50 times	20	14	33	
	(c) Number cited between 50 and 100 times	9	5	22	
	(d) Number cited 100 or more times	3	0	8	
	(e) Number of repeaters		30	22	
3.	Total number of arrests for operators in Line 2 above	2,379	1,294	3,980	
	(a) Percentage of total commercial arrests	32%	26%	15%	
4.	Number of these operators holding for-hire authority	60	40	55	
5.	Types of violations charged against carriers shown in Line 2 above				
	(a) Faulty brakes	116	103	Not shown	
	(b) Weight restrictions - overloads	2,167	1,080	1,841	
	(c) Other	179	265	2,139(2)	
6.	Disposition of arrests shown in Line 3 above				
	(a) Fined $1 to $5	822	448	173(3)	843(4)
	(b) Fined over $5 to $10	777	317	438	506
	(c) Fined over $10 to $15	331	149	403	145
	(d) Fined over $15 to $20	146	59	229	60
	(e) Fined over $20	201	66	413	107
	(f) Record incomplete or pending		200	113	231
	(g) Dismissals	29	5	5	51
	(h) Warrants issued	51	47	24	94
	(i) Suspended sentences of fines	87	54	43	102
	(j) Total fines	$23,066	$9,588	$28.164	$14,990
	(k) Average fine	$ 9.70	$ 9.22(5)	$ 15.29	$ 7.00

APPENDIX E (Continued)

	Calendar Years 1940	1941	Fiscal Year 1946-47	
7. Examples of carriers having greatest number of violations				
Carrier A				
Total violations	159	78	93(3)	31(4)
Total fines	$ 1,099	$ 597	$ 1,179	$ 174
Average fine	$ 6.92	$ 7.75	$ 12.68	$ 5.61
Most frequent violation	Weight	Weight	All Weight	Other
Carrier B				
Total violations	124	20	15(3)	54(4)
Total fines	$ 1,799	$ 127	$ 172	$ 335
Average fine	$ 14.51	$ 9.82	$ 10.83	$ 6.21
Most frequent violation	Weight	Weight	All Weight	Other
Carrier C				
Total violations	115	76	(6)	
Total fines	$ 799	$ 484		
Average fine	$ 6.94	$ 6.59		
Carrier D				
Total violations	86	82	39	49
Total fines	$ 693	$ 472	$ 741	$ 328
Average fine	$ 8.06	$ 5.97	$ 19.01	$ 6.69
Carrier E				
Total violations			151(7)	39
Total fines			$ 2,181	$ 254
Average fine			$ 14.44	$ 6.51
Carrier F				
Total violations			103(7)	71
Total fines			$ 1,585	$ 782
Average fine			$ 15.38	$11.01
8. Examples of average fines assessed for commercial violations by representative Justices' Courts				
Court A				
Total cases handled	583	398	(3)	(4)
Total fines assessed	$ 3,198	$ 1,739		
Average fine	$ 5.48	$ 4.45		

APPENDIX E (Continued)

	Calendar Years 1940	1941	Fiscal Year 1946-47	
Court B				
Total cases handled	224	26	172	166
Total fines assessed	$ 1,025	$ 94	$ 937	$ 286
Average fine	$ 4.20	$ 4.29	$ 5.45	$ 1.72
Court C				
Total cases handled	225	16	50	24
Total fines assessed	$ 4,857	$ 631	$ 2,052	$ 290
Average fine	$ 21.58	$39.45	$ 41.04	$12.08
Court D				
Total cases handled	254	183	247	52
Total fines assessed	$ 2,922	$2,473	$ 5,297	$ 325
Average fine	$ 11.50	$14.81	$ 21.45	$ 6.26
Court E				
Total cases handled	187	153	369	21
Total fines assessed	$ 2,249	$1,307	$ 4,752	$ 197
Average fine	$ 12.08	$13.75	$ 12.90	$ 9.38

(1) For fiscal year 1946-47, only operators with 30 or more violations are shown.

(2) These violations not segregated as to type.

(3) This column covers overloads only.

(4) This column covers violations other than overloads.

(5) Average fine per pound of overload $.00383.

(6) This carrier not within first 63 for 1946-47 survey.

(7) Neither of these carriers appear in 1940 or 1941 surveys.