

BEFORE THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Investigation on)
the Commission's own motion of the)
safety and necessity of grade cross-)
ings of Santa Fe Avenue, and of the)
tracks of the Los Angeles Railway)
Corporation across the tracks of Los)
Angeles and Salt Lake Railroad)
Company, and of The Atchison, Topeka)
and Santa Fe Railway Company at Butte)
Street, in the City of Los Angeles,)
State of California.)

ORIGINAL

Case No. 2061.

F. E. Pettit, Jr., for Los Angeles and Salt Lake
Railroad Co.
M. W. Read, for The Atchison, Topeka and Santa Fe
Railway Co.
S. M. Haskins, for Los Angeles Railway Corporation.
David R. Faries and John R. Berryman, Jr., for the
Automobile Club of Southern California.
Jess E. Stephens, City Attorney, and Milton Bryan,
Assistant City Attorney for the City of
Los Angeles.
Frank Karr, for Southern Pacific Company.
S. M. Haskins, for the City of Vernon.

BRUNDIGE, COMMISSIONER:

O P I N I O N

This is a proceeding instituted by the Commission on its own motion for the purpose of determining whether, in the interest of public safety, convenience and necessity, the installation and maintenance of additional protective devices, the separation of grades or the abolition of or relocation of grade crossings is or will be required at the grade crossing of Santa Fe Avenue and the tracks of the Los Angeles Railway Corporation with the tracks of the Los Angeles and Salt Lake Railway Company, (hereinafter called the "Salt Lake") and The Atchison, Topeka and Santa Fe Railway Company (hereinafter called the "Santa Fe") at or near the intersection of Butte Street with said Santa Fe Avenue in the City of Los Angeles, and for the further purpose of determining the proportions in which

the expense of construction and maintenance of any such additional protection, or separation of grades, or abolition or relocation of crossings, if prescribed, shall be divided among the interested parties.

This proceeding was instituted because of certain representations made to the Commission in connection with Application No. 10032, wherein the Salt Lake sought permission to use jointly Southern Pacific Company's passenger station at Fifth Street and Central Avenue in Los Angeles, and Southern Pacific Company sought to divert certain freight traffic from Alameda Street to the east river bank via Butte Street. In the Commission's Decision No. 13923, in which that application was granted, the following paragraph appears:

"It is moreover to be anticipated that an unsatisfactory and hazardous condition will arise at Santa Fe Avenue, and the Commission will immediately, upon making effective the arrangements outlined, institute proceedings on its own motion to determine whether a grade separation should be made at that point."

This referred to the crossing of the Salt Lake with Santa Fe Avenue, a few feet south of Butte Street, over which the Commission, by its order, authorized the operation of a greatly increased number of passengers and freight movements.

Public hearings were held in this case in Los Angeles before Commissioner Brundige on December 31, 1924 and January 28, 1925.

Attitude of Interested Parties.

Counsel for the Salt Lake expressed the opinion that separation of grades would eventually be justified, but that conditions do not warrant the separation at the present time. The other carriers substantially concurred with this view. On the other hand, counsel for the Auto Club took the position that the separation is needed now and should be made as early as possible. The

Vernon Southwestern Industries Association stated that in their opinion an immediate separation is justified. The City of Los Angeles is neutral in the matter and willing to abide by the Commission's decision.

General Description of the Location.

The intersection of Santa Fe Avenue with Butte Street is in the southeasterly part of the City of Los Angeles, a portion of the City devoted almost exclusively to industrial purposes. Santa Fe Avenue has a width of 80 feet between property lines and 56 feet between curbs, and serves numerous industries adjacent to it with convenient trucking facilities. It is the principal north and south avenue of travel between Los Angeles and the City of Vernon. The Los Angeles Railway operates a double track street car line on Santa Fe Avenue between Los Angeles and Vernon.

Butte Street extends from Santa Fe Avenue easterly to the river, but it has never been improved for vehicular travel and is devoted mainly to railroad operations. Two railroads operate across Santa Fe Avenue at Butte Street; namely, the Santa Fe and the Salt Lake, each company having at the present time but one track. each Southern Pacific Company and Pacific Electric Railway Company/have an interchange yard, lying to the southwest of Santa Fe Avenue and Butte Street. These yards have connections to both the Santa Fe and Salt Lake tracks near Santa Fe Avenue. The Southern Pacific and the Salt Lake jointly own an industrial lead track located in Santa Fe Alley, parallel to and about 200 feet east of Santa Fe Avenue. This track, crossing as it does the tracks of the Santa Fe and Salt Lake at Butte Street near Santa Fe Avenue, is affected by the grade separation project herein considered.

The track of the Santa Fe crossing Santa Fe Avenue is an industrial lead which connects with the Butte Street yards for interchange purposes and also serves several industries. The Salt

Lake tracks forms a connecting link between its main line on the east bank of the river and the Southern Pacific Company's Alameda Street line, by means of which the Salt Lake secures entry into the Fifth and Central passenger depot. This lead also has a connection with the Butte Street yards, by means of which the Southern Pacific Company diverts some of its freight movement from Alameda Street to the east river bank.

The interchange yards referred to, have a very important bearing on any plan of grade separation on Santa Fe Avenue, for the reason that any substantial elevation or depression of the tracks across Santa Fe Avenue will require a change of grade extending into this yard, materially affecting cost of construction.

Santa Fe Avenue Traffic.

Traffic checks taken by the Salt Lake and by the Automobile Club of Southern California at Butte Street and Santa Fe Avenue indicate an average week-day traffic on Santa Fe Avenue of approximately 15,200 vehicles daily, of which about 4,400 are trucks. Sunday traffic is small in comparison. Santa Fe Avenue carries the largest proportion of heavy industrial trucking of any street in Los Angeles, more than 25 percent of the vehicular traffic being trucks.

Mr. C. H. Cheney, a member of the Consulting Board employed by the Traffic Commission of the City and County of Los Angeles to make a general traffic survey, testified that Santa Fe Avenue is ideally situated as a through artery for truck hauling and industrial traffic, being in the center of a long, narrow industrial territory. He called attention to the recommendation of the Traffic Commission of the City and County of Los Angeles, where in their report on a major traffic plan for Los Angeles, it was suggested that Santa Fe Avenue be carried through to the harbor as a main trucking artery. This recommendation contemplates the future

widening of Santa Fe Avenue to 94 feet between curbs, and the elimination of obstructions and crossings.

A summary of data submitted by 39 industries of the Vernon-Southwestern Industries Association, in response to a questionnaire prepared by the Auto Club, emphasizes the industrial character of Santa Fe Avenue traffic. Of several thousand carloads of raw material received monthly by these 39 industries, a substantial portion is brought in by truck moving over the Santa Fe Avenue crossing at Butte Street. Of their finished products, an even larger proportion is shipped out by truck across Butte Street on Santa Fe Avenue.

Santa Fe Avenue is also a principal route between Los Angeles and Vernon. It appears that Slanson Avenue is soon to be completely paved between Santa Fe Avenue and Downey Road. The latter at present carries considerable Vernon-Los Angeles traffic. The Secretary of the Vernon-Southwestern Industries Association expressed the opinion that this improvement would divert traffic from Downey Road to Santa Fe Avenue. He pointed out that another improvement is contemplated; namely, the improvement of Pacific Boulevard from 52nd Street to Santa Fe Avenue, which he stated would also tend to divert additional traffic to Santa Fe Avenue. This witness also stated that the City of Vernon is at present engaged in widening Santa Fe Avenue within City limits, as a result of traffic increases on that street.

The record shows that there are now pending proceedings for the opening of Alameda Street southerly from 25th Street to Slanson Avenue, there connecting with the Harbor Trunk Boulevard. Unquestionably this improvement will tend to relieve the present congestion on Santa Fe Avenue as it will afford another through artery between Los Angeles and Vernon. It appears, however, that after this extension of Alameda Street is completed, the large number of industrial track crossings at grade and the volume of railroad

traffic along the street, together with the heavy local vehicular traffic, will tend to limit the ability of Alameda Street to handle a large increase of thru traffic. Mr. E. E. East, Highway Engineer of the Automobile Club of Southern California, expressed the opinion that vehicular traffic on Santa Fe Avenue will increase in direct proportion to the automobile registration increase, and that any betterment in conditions due to the opening of Alameda Street for through travel will be more than offset by this increase of automobiles.

Railroad Traffic.

A two day check of the railroad traffic by the Auto Club indicates an average of 95 movements per day at this crossing, with a total of 885 cars. Of these movements, 61 are Salt Lake, 19 Santa Fe and 15 Southern Pacific.

The railroad traffic at the present time consists of both main-line passenger and freight operation, as well as industrial, interchange and bridge switching movements. The future volume of railroad traffic is dependent, to some extent, upon the particular plan finally adopted as a solution of the Los Angeles terminal problem. All terminal plans yet proposed have assumed that all freight, with the exception of industrial switching local to Alameda Street, will be diverted to the east side of the river by moving over the Butte Street track of the Salt Lake, and none of the proposed terminal plans contemplate permanent passenger train operation across Santa Fe Avenue at Butte Street.

Mr. A. G. Mott, Transportation Engineer for the Commission, expressed the opinion that although the character of railroad traffic over this crossing would probably change from part passenger and part freight to all freight, the total volume would not change materially except as it would increase with the normal growth of business of the community.

Delay.

As stated before, several traffic checks were made by interested parties. The delays to this traffic caused by the railroad operations across Santa Fe Avenue at Butte Street were also observed. A summary of these checks indicate the magnitude of the traffic and the amount of the traffic at the crossing in question:

	* Week Day			#Weekday	#Sunday
	6A-6P	6P-6A	24 hr.	24 hr.	24 hr.
Total Vehicles, incl.					
Trucks,	12535	2274	14809	15413	9193
Trucks	3585	348	3933	4760	789
L.A.Ry. Street cars	342	174	516	497	348
L.A. & S.L. Ry. movements	42	19	61	-	-
" cars	246	197	443	-	-
Southern Pacific Co. movements,	3	12	15	-	-
Southern Pacific Co. cars	53	255	308	-	-
A.T. & S.F. Ry. Co. movements	8	11	19	-	-
" cars	55	80	135	-	-
Total Railway movements	53	42	95	-	-
" cars	355	530	885	-	-
Total delay caused by trains (minutes),	51'	76'	127'	184'	122'

* Auto Club traffic check taken from 6 A.M. on December 22, 1924 to 6:00 A.M. on December 24, 1924, (2 days).

Salt Lake traffic check taken from 12:01 A.M. on November 30, 1924 to 12:00 A.M. on December 6, 1924, (7 days).

Los Angeles Railway presented evidence to the effect that 548 street cars were scheduled to pass the crossing on January 28, 1925, a normal 24-hour period, and that for a period of 18 hours on November 13, 1924, during the passage of 430 street cars, there was an aggregate delay to these cars of one hour, 30 minutes and 11 seconds.

The Salt Lake presented a graphical chart showing the in-

terference of train operation with vehicular traffic. The exhibit shows the number of times gates were down per hour in comparison with vehicular traffic per hour, the data being averaged from a seven day check. It appears from this exhibit that vehicular traffic averages well above 1000 vehicles per hour for the period from 7:00 A.M. to 6:00 P.M. and that it is during this period the greater portion of the railroad movements are made.

An analysis of the evidence on delay shows the occupancy of the crossing by passenger movements, as compared with freight and switching movements as follows:

	<u>Passenger Movement</u>	<u>Freight & Switch Movement</u>	<u>All Train Movement</u>
Average number of times crossing gates lowered per day,	20.86	80.00	100.86
Average length of time gates remained lowered each time, (Minutes)	1.10	1.83	1.68
Total time crossing was occupied by trains, (Minutes)	22.9	146.4	169.3

Thus it is evident that passenger train operation is responsible for but 13.5% of the delay to vehicular traffic, and even though passenger train operation is withdrawn at some future date, the delay would not greatly be reduced.

The Salt Lake's trainmaster, Mr. J.K. Aimen, testified that a staff system between Santa Fe Avenue and the River had been installed on their line for the very purpose of speeding train movements across Santa Fe Avenue. This staff system was installed at a cost of \$1,695., and requires for operation the employment of six men; one man each eight-hour shift at each end of the staff block. Each man is paid \$4.74 per day. It thus appears that the Salt Lake has assumed an additional payroll expense of over \$10,000. per year in order to minimize the delay to vehicular traffic at

Santa Fe Avenue, and, undoubtedly, the Salt Lake has in this manner very substantially reduced the traffic delays at this crossing from what they otherwise would have been.

Hazard.

It appears that there has been only two accidents in this location within the past two years, both of which were due to vehicles being driven into the side of trains already occupying the crossing. While the number of accidents occurring at a crossing is a measure, to some degree, of the hazard present, still the record of accidents for two years or even ten years can not be considered as a conclusive measure of the accident hazard. It would be possible to have a hazardous crossing which has only been opened a day and where no accidents have occurred, and as to this crossing it appears that it is but recently that the number of train movements across Santa Fe Avenue has been largely increased. Many factors have a bearing on the degree of accident hazard such as train speeds, number of trains, volume of highway travel, and effectiveness of protection afforded. The railroads, in an endeavor to reduce the hazard at this crossing, have provided crossing gate protection at an annual cost of approximately \$3,500., and in addition the Street Car Company maintains a flagman for the sole purpose of protecting its cars. It can not be reasonably concluded, however, even with this protection provided, that all of the hazard at this crossing has been eliminated.

Type of Separation.

The Commission's Transportation Engineer presented studies of two general methods of grade separation; namely, first, a complete elevation of the street over the railroads without disturbing the grade of the latter; and second, a partial depression of the street and a partial elevation of the railroad grade.

A preliminary estimate of cost for a viaduct carrying Santa Fe Avenue over the existing grade of the railroads, based on a design similar to the approach portion of the Macy Street viaduct plans filed by the City of Los Angeles in Application 9671, is given as \$304,320. exclusive of property damage.

A subway designed to carry the full 56-foot roadway width of Santa Fe Avenue, together with two 12-foot sidewalks, under the railroads, with tracks raised 5 feet and the roadway depressed sufficient to give a 14 foot clearance is estimated to cost \$206,775. exclusive of property damage.

Another factor in favor of the subway is the expense of property damage. Both plans provide for roadway approach grades of 4 per cent; therefore, the length of approach for the viaduct, where a street elevation of 25 feet is required, must necessarily be much longer than for the subway where the street is depressed but 12 feet. More property would thus be damaged by the viaduct than by the subway.

Not only does it appear that costs of construction and property damage are substantially less for a subway than for a viaduct, but the expense of moving all traffic thereafter, will be less with a subway than with a viaduct constructed at this location. It thus appears that a subway is to be preferred to the overhead viaduct. Several modifications of subway design were presented.

Salt Lake introduced plans and estimate for a subway, the cost being estimated at \$404,100. This plan proposes a depression of 10.75 feet for Santa Fe Avenue, on a four percent grade with an elevation of 7.58 feet for the railroad grade, and includes a three track abutment and a 15'6" street clearance. A storm culvert estimated at \$32,500. is included. The Auto Club submitted a plan for a subway in which abutments for four tracks are provided, and pro-

vision made for the future widening of Santa Fe Avenue to 80 feet between curbs. This plan proposes that the railroad grade be raised but 5 feet, and the street depressed on a five percent grade sufficiently to provide a 15'6" clearance, and the cost is estimated to be \$233,100. exclusive of any provision for flood water drainage. The plan of the Commission's Engineering Department, above referred to, provides for two track abutments, a 14'0" overhead clearance and a 56-foot clear roadway on the Santa Fe Avenue. The estimated cost of \$206,775. includes \$30,000. to provide for flood water drainage. It was estimated by the Commission's engineers that a three track abutment could be provided for \$10,385. additional; abutments and walls could be so constructed as to provide for a future 80-foot roadway for \$7,200. additional, and a 15'6" overhead clearance provided for \$9,380. additional. All of these features, it appears, are proper provisions to be included in an adequate subway at this point. With these items included, the Engineering Department's estimate will amount to \$233,740.

Mr. L. T. Jackson, Assistant Engineer, for the Salt Lake Company stated that a considerable portion of the cost of their plan was due to raising tracks in the Butte Street yards of Southern Pacific and Pacific Electric, and to the construction of retaining walls for the railway embankment. This cost, he testified, would largely be eliminated if the railroad grade was raised but 5.0 feet as against the Salt Lake's plan of 7.58 feet.

It has previously been shown that Santa Fe Avenue is primarily an industrial artery, carrying the highest proportion of trucks in comparison to total vehicular traffic of any thoroughfare in Los Angeles. Taking into account the volume and character of this traffic, it is concluded that a grade of not more than 4% should be provided in depressing Santa Fe Avenue. Economy of con-

struction, together with considerations of satisfactory operating conditions for the railroads, would indicate that the tracks should have their west approaches on approximately 0.75% grades, and their east approaches on approximately 0.5% grades.

The continued operation of the Joint Southern Pacific-Salt Lake "Santa Fe Alley" spur across the Butte Street tracks will result in an increased cost of construction and in an unwarranted hazard. The record shows that it is entirely practicable to operate this trackage, without the crossing, either by existing wye tracks or by a physical division of the tracks between the two companies. This crossing, therefore, should be abolished.

Economic Consideration.

An analysis of the expense that the railroads are incurring for protection and prevention of delay at this location, develops some interesting facts. Following is a tabulated statement of the direct expense in connection with the operation of the existing grade crossing:

	<u>Annual Expense</u>
Staff System	\$10,000.
Crossing Gates	3,500.
Human Flagman (estimated)	<u>1,200.</u>
Total	\$14,700.

It will be noted that this expense will pay six per cent interest on an investment of \$245,000.

There are a number of indirect benefits resulting from grade separation. Speedier train operation, ability to switch unrestricted by crossing traffic, and relief from accident liability are among those benefits accruing to the railways. Street car service free from annoying delays, and elimination of hazard of accident would benefit the street railway. Elimination of large aggregate delays of man and vehicle, together with relief from accident poss-

ibility, is an important benefit to the public.

It is apparent from testimony that the item of property damage will be considerable. Mr. T. N. Canfield, realtor and appraiser, in testifying regarding property damages, estimated that the total property damages would amount to \$217,700. of which \$154,200. is damage to land and \$63,500. damage to improvements. Mr. L. T. Jackson, Assistant Engineer for the Salt Lake, estimated property damage as between \$50,000. and \$60,000. It is apparent that neither estimate was made as the result of a careful survey of the situation, and the testimony can be taken as indicating only that property damage is present and amounts to a substantial item of cost. Mr. Canfield further testified that land values are higher now than they were two or three years ago, and that they will continue to increase in value. Furthermore, as the district grows industrially, the cost of the damage to improvements will increase, due to the probable erection of larger and more expensive improvements.

Property damage, therefore, will always be presenting a more serious obstacle to grade separation as time goes on. If a subway is ever to be constructed at this location, a consideration of the item of property damage can logically be used only to urge its immediate construction.

Conclusion.

After a careful consideration of all of the evidence in this case, it is concluded that a separation of grades by means of a subway at Butte Street and Santa Fe Avenue is justified by reason of public safety, convenience and necessity, and that the separation should be carried out as expeditiously as is reasonably possible.

It appears desirable, however, that the parties hereto be given an opportunity to agree among themselves as to plans, and as

to division of cost of construction and maintenance of the subway, subject to approval and further order of this Commission, and a reasonable time should be allowed for such purpose.

The following form of Order is recommended:

O R D E R

Public hearings having been held in the above entitled matter, the Commission being apprized of the facts, the matter being under submission and ready for decision,

IT IS HEREBY ORDERED that Los Angeles Railway Corporation, Los Angeles and Salt Lake Railroad Company and The Atchison, Topeka and Santa Fe Railway Company be and they are hereby directed to eliminate the grade crossing of Santa Fe Avenue and of the tracks of the Los Angeles Railway Corporation with the tracks of the Los Angeles and Salt Lake Railroad Company and of The Atchison, Topeka and Santa Fe Railway Company at or near the intersection of Butte Street with said Santa Fe Avenue in the City of Los Angeles, County of Los Angeles, State of California, by the construction of a subway carrying said Santa Fe Avenue and the tracks of the Los Angeles Railway Corporation under the tracks of the Los Angeles and Salt Lake Railroad Company and The Atchison, Topeka and Santa Fe Railway Company, in accordance with plans and specifications to be hereafter approved by this Commission.

IT IS HEREBY FURTHER ORDERED that said Los Angeles and Salt Lake Railroad Company shall prepare plans for said separation of grades, and shall submit said plans to The Atchison, Topeka and Santa Fe Railway Company, Los Angeles Railway Corporation, and City of Los Angeles for their approval or disapproval. Within one hundred twenty (120) days from the date hereof, said Los Angeles and Salt Lake Railroad Company shall submit said plans to this

Commission, together with the written approval of The Atchison, Topeka and Santa Fe Railway Company, Los Angeles Railway Corporation and City of Los Angeles, or in the event that said Atchison, Topeka and Santa Fe Railway Company, Los Angeles Railway Corporation and City of Los Angeles, or any of them, shall fail to approve said plans, the reason given for such failure to approve, shall be stated in writing to the Commission. Upon receipt of said plans, together with a statement of such agreement as to division of cost as the interested parties reach, this Commission will make its further order in this matter relative to plans and division of cost of construction and maintenance among the interested parties, with or without further public hearing, as may be deemed necessary.

IT IS HEREBY FURTHER ORDERED that the Commission reserves the right to make such further orders relative to the location, construction, operation, maintenance and protection of said crossing as to it may seem right and proper, and to revoke its order if, in its judgment, the public safety, convenience and necessity demand such action.

The foregoing Opinion and Order are hereby approved and ordered filed as the Opinion and Order of the Railroad Commission of the State of California.

For all other purposes, the effective date of this order shall be twenty (20) days from and after the making hereof.

Dated at San Francisco, California, this 7th day of

April, 1925.

H. K. B. Brundage
Al. Leary
E. J. O'Connell
George D. Quinn

Commissioners.