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ORIGINAL

Decision No. 88956

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation for the purpose of establishing a list for the fiscal year 1978-79 of existing and proposed crossings at grade of city streets, county roads or state highways most urgently in need of separation, or projects effecting the elimination of grade crossings by removal or relocation of streets or railroad tracks, or existing separations in need of alteration or reconstruction as contemplated by Section 2452 of the Streets and Highways Code.

OII No. 6
(Filed November 22, 1977)

(Appearances are listed in Appendix A.)

O P I N I O N

By its order dated November 22, 1977, the Commission instituted an investigation for the purpose of establishing the 1978-79 Railroad-Highway Grade Separation Priority List as required by Section 2452 of the Streets and Highways Code, which requires that by July 1 of each year the California Public Utilities Commission shall establish a priority list of those railroad grade separation projects, including the elimination of existing or proposed grade crossings, the elimination of grade crossings by removal or relocation of streets or railroad tracks, and the alteration or reconstruction of existing grade separations most

urgently in need of separation or alteration. The list, based on criteria established by the Commission, contains projects on city streets, county roads, and state highways which are not freeways as defined in Section 257 of the Streets and Highways Code. The list is furnished to the Department of Transportation (Caltrans) and the California Transportation Commission^{1/} and those agencies, pursuant to the provisions of Sections 190 and 2453 of the Streets and Highways Code, allocate \$15,000,000 annually, plus amounts carried over, to those nominations in accordance with their priority on the list.

Funding for projects included on each annual priority list is provided through Section 190, and the basis for allocation is contained in Sections 2450-2461 of the Streets and Highways Code. On projects which eliminate an existing crossing, or alter or reconstruct an existing grade separation, an allocation of 80 percent of the estimated cost of the project is made, with the local agency and railroad each contributing 10 percent. On other projects an allocation of 50 percent of the estimated cost of the project is made for a proposed crossing with the remaining 50 percent contributed by the local agency.

Following issuance by the Commission of an Annual Grade Separation Priority List, applications to the Department of Transportation for an allocation must be made no later than the first business day after April 1 of each fiscal year. The requirements for filing an application for an allocation of grade separation funds are set forth in Title 21 (Public Works), Chapter 2, Subchapter 13 (Grade Separation Projects) of the California Administrative Code.

^{1/} The California Transportation Commission superseded the California Highway Commission effective February 1, 1978 (AB 402).

The allocation by the Transportation Commission is limited to that necessary to make the separation operable and the initial allocation of funds by the Transportation Commission is not to exceed the applicant's project cost estimate utilized by the Public Utilities Commission in establishing the annual separation priority list.

By Decision No. 87496 dated June 21, 1977 in Case No. 10214, the Commission established the twenty-first priority list of 68 projects for the 1977-78 fiscal year, which will expire on June 30, 1978. A new priority list for the 1978-79 fiscal year is now required.

Public hearings were held in San Francisco and Los Angeles before Administrative Law Judge Daly, and the matter was submitted on March 16, 1978 upon the receipt of late-filed Exhibit 8 and concurrent briefs which were filed on April 3, 1978.

Copies of the Order Instituting Investigation were served upon each city, county, and city and county in which there is a railroad crossing, each railroad corporation involved, Caltrans, the California Transportation Commission, the League of California Cities, the County Supervisors Association, and other persons who might have an interest in the proceeding.

In response to the Order Instituting Investigation, various public bodies desiring to nominate crossings or separations on the 1978-79 priority list filed with the Commission the following information:

- A. For Existing or Proposed Crossings at Grade Nominated for Elimination by Proposed Separation and Grade Crossings Nominated for Elimination by Removal or Relocation of Streets or Railroad Tracks
1. Identification of crossing, including name of street or road, name of railroad, and crossing number.
 2. Twenty-four hour vehicular traffic count, or for proposed crossings, estimated ADT for 1978.
 3. Number of train movements for one typical day segregated by type, i.e., passenger, through freight, or switching.
 4. Vehicular speed limit and the maximum prevailing train speed.
 5. Quantitative statement as to vehicular delay at crossing, in minutes per day.
 6. Distance on each side of the crossing to the nearest alternate routes, in feet.
 7. A 10-year accident history of the number of vehicle-object and vehicle-vehicle accidents directly attributable to the presence of the grade crossing.
 8. Width of the crossing in feet and in number of lanes.
 9. Preliminary cost estimate for the project with costs separated into right-of-way, engineering, and construction.
 10. Statement as to need for the proposed improvement and agencies' willingness to pursue the project.

11. Any proposed crossing nominated for separation should be subtyped either:
 - a. A grade crossing is practical and feasible.
 - b. A grade crossing is not practical and feasible.
12. For grade crossing(s) nominated for elimination by removal or relocation of streets or tracks, the estimated cost of eliminating crossing(s) if grade separation facilities on the existing alignment of the street and railroad tracks were constructed.

B. For Grade Separations Proposed for Alteration

1. Identification of crossing, including name of street or road, name of railroad, and crossing number.
2. Twenty-four hour vehicular traffic count.
3. Number of train movements for one typical day segregated by type, i.e., passenger, through freight, or switching.
4. Description of existing and proposed separation structure with principal dimensions.
5. Type of alteration proposed.
6. Preliminary cost estimate for the project with costs separated into right-of-way, engineering, and construction.
7. A list and relative description of any of the following, if applicable:
 - a. Substandard highway width or height clearances.
 - b. Highway speed reduction due to alignment.
 - c. Railroad slow order due to structure.
 - d. Highway load limit due to structure.

8. A 10-year history of the number of vehicle accidents attributable to the structure.
9. A detailed statement describing acute structural deficiencies, if any, and the probability of structural failure.
10. Statement as to need for the proposed improvement and agencies' willingness to pursue the project.

Upon receipt of the requested information, the staff applied a formula adopted in determining the 1977-78 Grade Separation Priority List, and introduced the results thereof in Exhibit 2.

For the purposes of determining the 1978-79 Grade Separation Priority List, the staff used the following criteria which are similar to that found in the 1977-78 proceedings:

$$P = \frac{V \times T}{C \times 24} + SCF$$

Where:

- P = Priority Index Number
- V = Average 24-Hour Vehicular Volume
- C = Total Costs of Separation Project
(In Thousands of Dollars)
- T = Average 24-Hour Train Volume
- SCF = Special Conditions Factor

For Existing or Proposed Crossings Nominated for Separation or Elimination

$$SCF = G1 + G2 + G3 + G4 + G5 + G6 + G7$$

Where:

Points Possible

G1 = Vehicular Speed Limit	0- 5
G2 = Railroad Prevailing Maximum Speed	0- 5
G3 = Crossing Geometrics	0- 5
G4 = Crossing Blocking Delay	0-10
G5 = Alternate Route Availability	0- 5
G6 = Accident History	0-20
G7 = Irreducibles	<u>0-15</u>
Total Possible	0-65

For Separations Nominated for Alteration
or Reconstruction

$$SCF = S1 + S2 + S3 + S4 + S5 + S6$$

Where:

	<u>Points Possible</u>
S1 = Width Clearance	0-10
S2 = Height Clearance	0-10
S3 = Speed Reduction or Slow Order	0- 5
S4 = Load Limit	0- 5
S5 = Accidents at or Near Structure	0-10
S6 = Probability of Failure and Irreducibles	<u>0-10</u>
Total Possible	<u>0-50</u>

Points in each category were assigned according to the following schedule:

Grade Crossings

G1 = Vehicular Speed Limit

<u>MPH</u>	<u>Points</u>
0-30	0
31-35	1
36-40	2
41-45	3
46-50	4
51-55	5

G2 = Railroad Maximum Speed

<u>MPH</u>	<u>Points</u>
0-25	0
26-35	1
36-45	2
46-55	3
56-65	4
66 +	5

G3 = Crossing Geometrics

0-5 points based on relative severity
of physical conditions.

G4 = Crossing Blocking Delay, Total Minutes per Day

<u>Minutes</u>	<u>Points</u>
0-20	0
21-40	1
41-60	2
61-80	3
81-100	4
101-120	5
121-140	6
141-160	7
161-180	8
181-200	9
201 +	10

G5 = Alternate Route Availability

<u>Distance-feet</u>	<u>Points</u>
0-1,000	0
1,001-2,000	1
2,001-3,000	2
3,001-4,000	3
4,001-5,000	4
5,001 +	5

G6 = Accident History (10 years)

Each reportable vehicle-train accident

$$\text{Points} = (1 + 2 \times \text{No. killed} + \text{No. injured}) \times \text{PF}^*$$

* PF = Protection Factor for:

- Std. #9 = 1.0
- Std. #8 = 0.4
- Std. #3 = 0.2
- Std. #1 = 0.1

Note 1. No more than 3 points shall be allowed for each accident prior to modification by the protection factor.

Note 2. Each accident shall be rated separately and modified by a factor appropriate to the protection in existence at the time of the accident.

G7 = Irreducibles

- (a) Secondary accidents.
- (b) Emergency vehicle usage.
- (c) Accident potential.

Separations

S1 = Width Clearance		S2 = Height Clearance	
<u>Width (ft.)</u>	<u>Points</u>	<u>Underpass (ft.)</u>	<u>Points</u>
9' + 12(N)	0	15' +	0
6' but less than 9' + 12(N)	2	14' but less than 15'	4
3' but less than 6' + 12(N)	4	13' but less than 14'	8
		Less than 13'	10
0, but less than 3' + 12(N)	6	<u>Overpass (ft.)</u> 22-1/2' +	0
11(N) but less than 12(N)	8	20' but not less than 22-1/2'	4
Less than 11(N)	10	18' but not less than 20'	8
		Less than 18'	10

N = Number of Traffic Lanes

S3 = Speed Reduction or Slow Order

None	0
Moderate	2
Severe	5

S4 = Load Limit

None	0
Moderate	2
Severe	5

S5 - Accidents at or Near Structure (10 years)

<u>Number</u>	<u>Points</u>
0- 10	0
11- 20	1
21- 30	2
31- 40	3
41- 50	4
51- 60	5
61- 70	6
71- 80	7
81- 90	8
91-100	9
101 +	10

S6 - Irreducibles

- (a) Probability of Failure.
- (b) Accident Potential.
- (c) Delay Effects.

Following the hearing the staff prepared and submitted late-filed Exhibit 8. Based upon the testimony and evidence presented during the course of the hearing, changes were made in the number of points originally awarded to projects, as the result of changes in factual data and further explanation of data that was first submitted with the nominations. Changes were also made where local agencies did not provide sufficient evidence or foundation for the information contained in their original nominations. Projects for which no appearance was made were eliminated from consideration.

Projects with points revised because of changes in factual data or because of further explanation of previously submitted information are as follows:

<u>Agency</u>	<u>Crossing Name</u>	<u>Affected Category</u>
Alameda Co.	Liv-Ples Cnsl.	Vehicle Volume Project Cost Geometrics Accident History
Anaheim	Lincoln Av.	Train Volume Geometrics Irreducibles
Buena Park	Beach Bl.	Nominating Agency Project Cost
Fairfield	Main-Rio Vista	Project Cost Irreducibles
Hayward	'A' St.-SPT	Project Cost
Irvine	Irvine Lwr.	Vehicle Speed
Los Angeles Co.	Greenwood-Mtb.	Blocking Delay
Los Angeles Co.	Hollywood Way	Vehicle Volume
Los Angeles Co.	Alondra Bl.	Irreducibles
Los Angeles Co.	Eastern Av.	Geometrics Blocking Delay
Los Angeles	Daly St.	Load Limit
Los Angeles	Valley/Eastern	Vehicle Volume
Los Angeles	Santa Fe-Wash.	Vehicle Volume Delay Irreducibles
Oceanside	Downtown Lwr.	Irreducibles
Oceanside	Combined Lwr.	Irreducibles
Ontario	Euclid Av.	Irreducibles
Orange Co.	Weir Canyon	Blocking Delay
Riverside	Van Buren Bl.	Vehicle Volume Irreducibles
San Bernardino Co.	Cherry Av.	Blocking Delay Irreducibles
Sunnyvale	Wolfe Rd.	Train Speed Geometrics
Torrance	Torrance Rlc.	Irreducibles Irreducibles

The following projects were eliminated from consideration either by request of the nominating agency or because a representative of the nominating agency failed to appear at the hearing in support of the project:

<u>Agency</u>	<u>Crossing Name</u>
Contra Costa Co.	Sommersville Rd.
Ontario	Grove Av.
San Diego	Smythe Av.
Ventura Co.	Pleasant Valley
Ventura Co.	5th-Pleasant Valley
Ventura Co.	Las Posas Rd.

Motions were made by the staff that three nominations, each of which consists of two separations, be stricken and each separation considered as an individual project. The staff expressed concern with a tendency by nominating agencies to combine several unrelated projects into a single project for the purpose of achieving a higher place on the list. The staff argues that the Commission cannot meet its statutory responsibility for establishing a list, in order of priority, if two or more unrelated separations are combined in a single project.

The motions relate to the following nominations:

<u>Agency</u>	<u>Crossing Name</u>
Bakersfield	Chester-Union
Caltrans	St Rte 138-San Bernardino
Pittsburg	Railroad Av.

Bakersfield

The proposed Bakersfield project would separate an existing at-grade crossing of Union Avenue and the tracks of Southern Pacific Transportation Company (Southern Pacific) by construction of an underpass. It would also separate an existing at-grade crossing of the railroad's tracks located approximately one mile away at Chester Avenue by construction of an overpass.

The staff believes that the two separations are unrelated because of the distance separating them and because they do not serve the same vehicular traffic. Another reason advanced by the staff for considering them as individual projects is that the present proposal would allow an existing grade crossing located between the two proposed separations to remain open.

The city argues that the separations are interrelated and should be considered as a single project because of the substantial savings that could be realized if constructed at the same time. It further argues that simultaneous construction of both separations would result in benefits to the railroad freight service.

The primary savings would be achieved because excavation material removed during construction of the underpass could be used as fill in constructing the overpass. As indicated by data submitted by the city in a letter dated March 14, 1978, the savings would be nominal. If constructed separately, the total cost would be \$7,570,000 as compared to a total cost of \$7,210,000 if constructed at the same time. The major portion, or \$210,000, of the increased cost would be due to a combination of increased contractor's mobilization costs and cost for fill material.

The staff's motion to strike the city of Bakersfield nomination and to consider each separation as individual projects will be granted.

Caltrans

The staff made the same motion with respect to the nomination of Caltrans to construct separations of two existing at-grade crossings of State Highway Route 138 across the tracks of The Atchison, Topeka and Santa Fe Railway Company (AT&SF) in San Bernardino County.

Although the crossings relate to the same vehicular and train traffic the staff believes that the separations should be considered as individual projects because the crossings are approximately one-half mile apart and the total cost of construction would be about the same whether constructed as combined or separate projects.

Caltrans argues that the separations should be combined for safety reasons. It contends that a vehicle traveling east on State Route 138 first travels under a separation of the Southern Pacific tracks and then a short distance farther east encounters the first of the AT&SF tracks. Caltrans is of the opinion that leaving one of the tracks unseparated could lead a traveler to believe that the unseparated track is not a main line. According to Caltrans the confusion could be exaggerated by the high speeds of the vehicles coming down the hill toward the crossing; and if the most easterly track is left unseparated, a "trap" situation would exist.

Because of safety reasons the Commission is of the opinion that there is a correlation between the proposed separations and that they should be considered as a single project. The staff's motion will be denied.

Pittsburg

The staff made a similar motion with respect to the nomination of the city of Pittsburg, which proposes to separate existing at-grade crossings of the tracks of the Southern Pacific and AT&SF at Railroad Avenue by the construction of underpasses. Both of the underpasses would come back to grade a reasonable distance from Central Avenue, an intermediate street. The distance between the two crossings is approximately 1,500 feet.

Apparently the only justification for combining the separations in a single project is the construction economics. Revised cost estimates submitted by the city indicate that the cost for constructing the two separations as individual projects would be \$7,015,065 as compared to the estimated cost for a combined project of \$6,725,000.

The staff's motion to strike the city of Pittsburg's nomination and to consider each as separate projects will be granted.

Appendix B lists, in alphabetical order, the projects nominated for the 1978-79 priority list. Included in the table, in addition to information identifying each project, are the vehicular and train volumes, project cost, and the $\frac{V \times T}{C \times 24}$ calculation for each named project.

Appendix C is a list of point values awarded in each Special Conditions Factor category to existing or proposed crossings nominated for separation or elimination.

Appendix D is a list of point values awarded in each Special Conditions Factor category to existing grade separations nominated for alteration or reconstruction.

The basic procedure employed by the staff for processing and evaluating the nominations was as follows:

1. Nominations were received by the Commission and logged in by the Traffic Engineering Section staff.
2. The data required to complete the formulae and the information identifying the crossing(s) were entered on a crossing file input form.
3. Data entered on the form was transferred to data input cards and entered into the computer.

4. The $\frac{V \times T}{C \times 24}$ calculation was performed for each project and SCF points were assigned according to the defined schedules by the computer.
5. Totals for each project in the Special Conditions Factor categories were gathered and the Priority Index Number was calculated.
6. The projects were ranked according to their descending Priority Index Numbers.

The Commission found in Decision No. 85991 that when it was established that an agency would not be able to meet the requirements of the California Highway Commission^{2/} for the filing of an application for an allocation of funds by the February 14 deadline, such project would be included on the list with an asterisk by its priority number. In addition thereto, the Commission found that the Highway Commission should consider the admissions made during the course of hearing that the projects will not be able to meet all of the requirements for an allocation by the February 14 date as waivers and should consider for allocation purposes projects lower on the list that are ready to proceed. The same procedure, with the same recommendations to the Transportation Commission, will be followed this year and each year hereafter. Our current recommendations do, of course, reflect the present April 1 administrative deadline. (21 Cal. Adm. Code 1552.)

^{2/} Now the "California Transportation Commission", supra.

Discussion

Subsequent to submission Caltrans informed the Commission that the following projects have received funds from the 1977-78 priority list: (1) Crenshaw Bl. (Torrance), (2) Crown Valley (Orange Co.), and (3) Durham-Grimmer (Fremont).

Findings

1. The Commission adopts the criteria set forth in Appendices B, C, and D attached hereto for use in establishing the 1978-79 priority list.
2. Each of the separations proposed in the recommendations made by the cities of Bakersfield and Pittsburg should be considered as individual projects.

3. Because of safety reasons the separations of State Highway Route 138 in San Bernardino County, as proposed by Caltrans, should be combined and considered as a single project.

4. Because a representative of the nominating agency failed to appear in support of the nomination the following projects should be eliminated from consideration:

<u>Agency</u>	<u>Crossing Name</u>
Contra Costa Co.	Sommersville Rd.
Ontario	Grove Av.
San Diego	Smythe Av.
Ventura Co.	Pleasant Valley
Ventura Co.	5th-Pleasant Valley
Ventura Co.	Las Posas Rd.

5. The criteria of rules of the Commission established for use in determining the 1978-79 priority list are subject to modification, and the Commission invites the participation of interested parties to offer their recommendations.

6. The list set out in Appendix E will be established as the 1978-79 Grade Separation Priority List established in accordance with Section 2452 of the Streets and Highways Code.

7. With regard to projects having the same priority index number, consideration shall first be given to projects which separate or eliminate existing grade crossings, then to projects for the alteration or reconstruction of grade separations, and finally to projects for the construction of new grade separations. Within each of these categories, first consideration shall be given to the lowest cost project in order that the maximum number of projects may be accomplished with the available funds.

As the statute requires our order by July 1, the effective date of the order will be the date of signing.

O R D E R

IT IS ORDERED that:

1. The list of projects appearing in Appendix E is established, as required by Section 2452 of the Streets and Highways Code, as the 1978-79 list, in order of priority, of projects which the Commission determines to be most urgently in need of separation or alteration.

2. The Executive Director shall furnish a full, true, and correct copy of this opinion and order to the California Transportation Commission.

The effective date of this order is the date hereof.

Dated at San Francisco, California, this 13th day of JUNE, 1978.

Robert Baber
President

William J. Quinn Jr.
Secretary

Charles P. ...
Commissioners

Clair ...
Commissioners

APPENDIX A

LIST OF APPEARANCES

Interested Parties: Harold S. Lentz, Attorney at Law, for Southern Pacific Transportation Company and affiliated companies; John C. Miller, for The Western Pacific Railroad Co.; O. J. Solander and Gene Bonnstetter, Attorneys at Law, for California Department of Transportation; George E. Cook, for City of San Carlos; Jean F. Ridone, for City of Richmond; Allen E. Sprague, Attorney at Law, for City of Fremont; Joseph L. Shilts, for City of Fairfield; DeLew, Cather & Co., by Robert M. Barton, for City of Bakersfield and Greater Bakersfield Separation of Grade District; Donald M. Somers, for City of Sunnyvale; James L. Lundgren, for City of Hayward; Douglas E. Will, for City of Chico; Bruce P. Crandall, for City of Dunsmuir; William T. Stanton, for City of Rohnert Park; Woodman C. Hamilton, for City of Redding; Jack A. Burgess, for City of Newark; Allen H. Kelm, for Los Angeles County Road Department; Glenn F. Welch, for City of El Monte; William D. Gardner, for City of Riverside; Jack Reynolds, for Department of Public Utilities and Transportation, City of Los Angeles; Monroy L. Edgar, for City of Santa Barbara; Juan Mijares, for City of Barstow; Michael A. Caccese, for Santa Barbara County Department of Transportation; Ronald John Brown, for City of Irvine; Glen E. Danielsen, for City of Santa Fe Springs; James G. Galanis, Jr., for San Bernardino County; Dwight F. French, for City of San Gabriel; Gerald Taylor, for City of Oceanside; William L. Zaun, for County of Orange; Arthur A. Kerschbaum, for City of Buena Park; Paul Singer, for City of Anaheim; Frederick A. Roos, for City of Norwalk; Eugene E. Bourbonnais, for City of Torrance; and Rosalind A. Daniels, for City of Ontario.

Commission Staff: Robert W. Stich.

Alphabetical List of Projects by Nominating Agency

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Type Proj</u>	<u>Veh Volume</u>	<u>Train Volume</u>	<u>Project Cost</u>	<u>V x T C x 24</u>
Alameda County	Pleasn-Sunol	4		37.2	B		4	1985	19	1140000	1
Alameda County	Liv-Ples Cnsl	4		38.7	B		1	79934	5	6430000	3
Anaheim	State College	2		170.3			1	18900	26	3500000	6
Anaheim	Katella Av	1	BK	512.4			1	29600	44	4000000	14
Anaheim	Lincoln Av	2		167.7			1	17800	30	5000000	4
Bakersfield	Union-24th	1	B	312.3			1	21200	38	4853000	7
Bakersfield	Chester Av	1	B	311.2			1	29800	36	2718000	16 ✓
Barstow	First St	2		746.5	A		4	9925	70	3628000	8
Buena Park	Beach Bl	2		160.6	B		4	54960	52	3145000	38
Caltrans	41-Fresno	1	B	205.9			1	12000	32	6329000	3
Caltrans	So 47th St	1	A	13.1			1	12000	53	7000000	4
Caltrans	237-Snta Clara	1	E	37.1	A		4	24900	59	2300000	27
Caltrans	68-Monterey	1	E	119.29			1	13000	50	2740000	10
Caltrans	180-Fresno	2		997.8			1	20000	38	4966000	6
Caltrans	84-Yolo	1	A	87.5		*	2A	10000	36	1903000	8
Caltrans	166-Sta Barba	1	E	276.8			1	5000	34	1670000	4
Caltrans	70-Yuba	1	C	141.7	B		4	13300	40	6353000	3
Caltrans	238-Alameda	4	G	1.4	B		4	15200	8	1340000	4
Caltrans	138 San Brdo	2		60.9			1	3800	47	2630000	3

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APPENDIX B
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Alphabetical List of Projects by Nominating Agency

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Type Proj</u>	<u>Veh Volume</u>	<u>Train Volume</u>	<u>Project Cost</u>	<u>V x T C x 24</u>
Caltrans	237-Santa Clara	1	L	39.8			1	34000	9	6750000	2
Caltrans	79-Riverside	1	B	562.4			1	7500	45	2118000	7
Chico	Dayton Rd	1	C	183.8			3	1256	29	466000	3
Dunsmuir	Schrer-Butfly	1	C	321.7			1	1527	40	996000	3
El Monte	Peck-Ramona	1	B	495.0			1	42374	32	11795000	5
Fairfield	Main-Rio Vista	1	A	49.0			1	20130	44	5600000	7
Fremont	Durham-Grimmer	1	DA	34.7			1	12137	76	5050000	8
Hayward	A St	1	D	20.0			1	32332	29	4590000	9
Hayward	A St	4		20.2			1	28074	8	5507000	2
Irvine	Irvine Lwr	2		180.5			1	27186	18	13019000	2
Los Angeles County	Florence Av	1	BG	488.3			1	31184	14	5698000	3
Los Angeles County	Greenwood-Mtb	2		149.5			1	13400	71	4164000	10
Los Angeles County	Grand-Industry	1	B	508.5		*	2A	9000	40	4190000	4
Los Angeles County	Douglas St	2	H	15.02	B	*	2A	12000	12	3330000	2
Los Angeles County	Eastern Av	2		147.3			1	15589	54	1882000	19
Los Angeles County	Rt 105 RLC	1	BBL	491.91			3	133101	4	14500000	2
Los Angeles County	Alondra Bl	2		159.6			1	17571	76	6767000	8
Los Angeles County	Bandini Bl	3	A	3.4			1	21575	20	5595000	3
Los Angeles County	Hollywood Way	1	B	469.4			1	25630	16	6135000	3

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Alphabetical List of Projects by Nominating Agency

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>FR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Type Proj</u>	<u>Veh Volume</u>	<u>Train Volume</u>	<u>Project Cost</u>	<u>V x T C x 24</u>
Los Angeles	Santa Fe-Wash	2		143.29	G		1	40020	70	9601000	12
Los Angeles	Valley-Eastm	1	B	485.8			1	24988	28	13013000	2
Los Angeles	Nordhoff St	1	E	448.5		*	2A	16000	16	3918000	3
Los Angeles	Daly St	1	B	483.26	A		4	16600	124	1956000	44
Newark	Newark Bl	1	DAB	38.1		*	2A	10000	19	1400000	6
Norwalk	Imperial Hwy	1	BK	498.0			1	29850	8	2802000	4
Oceanside	Combined Lwr	2		225.9			1	29521	63	8426000	9
Oceanside	Downtown Lwr	2		225.9			1	28171	63	7502000	10
Ontario	Euclid Av	1	B	520.1			1	32021	66	7154000	12
Orange County	Crown Valley	2		193.1	A		4	20000	22	611000	30
Orange County	Wier Canyon	2	B	35.4		*	2A	20000	27	1890000	12
Pittsburg	Railroad Av	1	B	48.9			1	21714	38	4137000	8
Pittsburg	Railroad Av	2		1155.7			1	19122	33	2878000	9
Redding	South St	1	G	258.0			1	10480	31	5895000	2
Richmond	23rd St	1	A	14.5			1	17500	34	6697000	4
Riverside	Arlington Av	2	B	12.4			1	29140	31	3957000	10
Riverside	Van Buren Bl	2	B	16.4			1	27100	31	2878000	12
Rohnert Park	Rohnert Pk Ex	5		47.4			1	14400	10	2137000	3
Santa Barbara County	Hollister Av	1	E	365.7	B		4	15070	17	1800000	6

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Alphabetical List of Projects by Nominating Agency

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Type Proj</u>	<u>Veh Volume</u>	<u>Train Volume</u>	<u>Project Cost</u>	<u>V x T C x 24</u>
Santa Barbara	St Barbara Rl	1	E	370.6			3	30250	9	3850000	3
Santa Fe Springs	Carmenita Rd	2		157.3			1	14384	54	3787000	9
San Bernardino County	Cherry Av	2		91.7			1	9660	51	2100000	10
San Bernardino County	Vivienda Av	1	BJ	540.9	A		4	500	2	360000	0
San Carlos	Holly St	1	E	23.2			1	20100	62	6286000	8
San Gabriel	San Gabri	1	B	490.2			1	69830	42	13560000	9
Stockton	Hammer Lane	4		98.5			1	22500	15	4390000	3
Sunnyvale	Wolfe Rd	1	E	39.7			1	21589	68	6050000	10
Torrance	Grenshaw Bl	2	H	20.9			1	41237	35	1660000	36
Torrance	Del Amo Bl	2	H	19.5		*	2A	25000	36	3092000	12
Torrance	Torrance Rlc	1	BEG	500.73			3	55100	4	891000	10

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Special Conditions Factors for Grade Crossings
Nominated for Separation or Elimination

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Veh Spd Limit G1</u>	<u>Train Speed G2</u>	<u>Xing Geom G3</u>	<u>Blkng Delay G4</u>	<u>Alt Rte G5</u>	<u>Acc Hist G6</u>	<u>Irr G7</u>	<u>Total SCF</u>
Alameda County	Liv-Ples Cnsl	4		38.7	B		1	2	5	1	3	20	15	47
Anaheim	State College	2		170.3			2	5	2	2	2	3	8	24
Anaheim	Katella Av	1	BK	512.4			1	0	2	10	5	0	8	26
Anaheim	Lincoln Av	2		167.7			0	5	3	2	0	2	8	20
Bakersfield	Union-24th	1	B	312.3			1	3	4	10	2	2	10	32
Bakersfield	Chester Av	1	B	311.2			1	3	4	6	3	11	9	37
Caltrans	41-Fresno	1	B	205.9			0	4	3	2	0	3	8	20
Caltrans	So 47th St	1	A	13.1			0	3	2	5	4	10	10	34
Caltrans	68-Monterey	1	E	119.29			1	0	2	6	1	3	7	20
Caltrans	180-Fresno	2		997.8			0	0	2	5	1	6	8	22
Caltrans	84-Yolo	1	A	87.5		*	3	1	0	3	3	0	4	14
Caltrans	166-Sta Barba	1	E	276.8			0	3	2	4	4	5	7	25
Caltrans	138 San Brdo	2		60.9			5	1	4	7	5	9	8	39
Caltrans	237-Snta Clara	1	L	39.8			5	4	2	1	4	2	9	27
Caltrans	79-Riverside	1	B	562.4			1	3	2	5	1	2	8	22
Chico	Dayton Rd	1	C	183.8			3	1	4	5	5	0	6	24
Dunsmuir	Schrer-Butfly	1	C	321.7			0	0	5	10	5	1	12	33
El Monte	Peck-Ramona	1	B	495.0			2	4	3	4	4	20	13	50
Fairfield	Main-Rio Vista	1	A	49.0			0	5	4	9	3	4	12	37

APPENDIX C
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Special Conditions Factors for Grade Crossings
Nominated for Separation or Elimination

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<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Veh Spd Limit</u> <u>G1</u>	<u>Train Speed</u> <u>G2</u>	<u>Xing Geom</u> <u>G3</u>	<u>Blking Delay</u> <u>G4</u>	<u>Alt Rte</u> <u>G5</u>	<u>Acc Hist</u> <u>G6</u>	<u>Irr</u> <u>G7</u>	<u>Total</u> <u>SCF</u>
Fremont	Durham-Grimmer	1	DA	34.7			3	2	4	7	5	6	12	39
Hayward	A St	1	D	20.0			0	1	3	2	3	10	11	30
Hayward	A St	4		20.0			0	4	5	0	1	2	8	20
Irvine	Irvine Lwr	2		180.5			5	5	3	1	2	3	10	29
Los Angeles County	Florence Av	1	BG	488.3			1	0	3	1	2	4	6	17
Los Angeles County	Greenwood-Mtb	2		149.5			1	4	3	6	3	3	8	28
Los Angeles County	Grand-Industry	1	B	508.5		*	3	5	0	4	2	0	4	18
Los Angeles County	Douglas St	2	H	15.02	B	*	2	1	0	1	2	0	5	11
Los Angeles County	Eastern Av	2		147.3			2	4	4	7	3	2	7	29
Los Angeles County	Rt 105-RLC	1	BBL	491.91			1	0	2	3	0	15	8	29
Los Angeles County	Alondra Bl	2		159.6			4	5	3	7	5	2	10	36
Los Angeles County	Bandini Bl	3	A	3.4			4	0	3	4	1	3	8	23
Los Angeles County	Hollywood Way	1	B	469.4			3	3	3	1	4	3	9	26
Los Angeles	Santa Fe-Wash	2		143.29	C		2	0	3	8	2	6	10	31
Los Angeles	Valley-Eastern	1	B	485.8			2	0	3	3	4	2	7	21
Los Angeles	Nordhoff St	1	E	448.5		*	0	4	0	0	1	0	6	11
Newark	Newark Bl	1	DAB	38.1		*	1	1	0	3	1	0	7	13
Norwalk	Imperial Hwy	1	BK	498.0			2	1	3	2	2	2	8	20
Oceanside	Combined Lwr	2		225.9			0	1	4	6	2	10	13	36

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Special Conditions Factors for Grade Crossings
Nominated for Separation or Elimination

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Veh Spd Limit G1</u>	<u>Train Speed G2</u>	<u>Xing Geom G3</u>	<u>Blkng Delay G4</u>	<u>Alt Rte G5</u>	<u>Acc Hist G6</u>	<u>Irr G7</u>	<u>Total SCF</u>
Oceanside	Downtown Lwr	2		225.9			0	1	3	6	2	9	11	32
Ontario	Euclid Av	1	B	520.1			1	4	2	6	1	2	13	29
Orange County	Wier Canyon	2	B	35.4		*	5	4	0	7	5	0	6	27
Pittsburg	Railroad Av	1	B	48.9			0	2	3	3	2	0	9	19
Pittsburg	Railroad Av	2		1155.7			0	4	4	3	2	4	10	27
Redding	South St	1	C	258.0			0	2	3	3	2	3	8	21
Richmond	23rd St	1	A	14.5			0	3	4	3	1	10	9	30
Riverside	Arlington Av	2	B	12.4			1	2	5	3	1	5	9	26
Riverside	Van Buren Bl	2	B	16.4			2	3	5	2	1	8	10	31 ✓
Rohnert Park	Rohnert Pk Ex	5		47.4			1	2	1	1	2	0	4	11
Santa Barbara	St Barbara Rl	1	E	370.6			0	0	3	1	1	6	11	22
Santa Fe Springs	Carmenita Rd	2		157.3			3	4	3	4	3	12	8	37
San Bernardino County	Cherry Av	2		91.7			4	5	2	10	5	7	7	40
San Carlos	Holly St	1	E	23.2			0	4	2	4	4	6	10	30
San Gabriel	San Gabrl	1	B	490.2			0	1	4	5	2	4	13	29
Stockton	Hammer Lane	4		98.5			3	4	1	1	5	3	7	24
Sunnyvale	Wolfe Rd	1	E	39.7			1	5	3	4	2	2	10	27
Torrance	Grenshaw Bl	2	H	20.9			3	0	3	2	5	4	9	26
Torrance	Del Amo Bl	2	H	19.5		*	3	0	0	7	5	0	5	20
Torrance	Torrance Rlc	1	BBG	500.73			2	0	3	2	3	1	9	20

APPENDIX D

Special Conditions Factors for Separations
Nominated for Alteration or Reconstruction

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>Width Clear S1</u>	<u>Height Clear S2</u>	<u>Speed Reduc S3</u>	<u>Load Limit S4</u>	<u>Acc Struc S5</u>	<u>Irr S6</u>	<u>Total SCF</u>
Alameda County	Pleasn-Sunol	4		37.2	B		10	4	5	0	3	9	31
Barstow	First St	2		746.5	A		6	0	2	5	10	6	29
Buena Park	Beach Bl	2		160.6	B		10	4	2	5	10	6	37
Caltrans	237-Santa Clara	1	E	37.1	A		0	0	5	0	6	5	16
Caltrans	70-Yuba	1	C	141.7	B		4	4	5	2	2	8	25
Caltrans	238-Alameda	4	G	1.4	B		6	4	2	0	1	4	17
Los Angeles	Daly St	1	B	483.26	A		8	0	0	0	0	7	15
Orange County	Crown Valley	2		193.1	A		0	0	5	0	9	8	22
Santa Barbara County	Hollister Av	1	E	365.7	B		0	0	5	0	10	8	23
San Bernardino County	Vivienda Av	1	BJ	540.9	A		10	0	5	5	0	10	30

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Projects Nominated by Priority Index Number

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	$\frac{V \times T}{C \times 24}$	<u>SCF</u>	<u>Priority Index Number</u>	<u>Priority Number</u>
Buena Park	Beach Bl	2		160.6	B		38	37	75	1
Los Angeles	Daly St	1	B	483.26	A		44	15	59	2
El Monte	Peck-Ramona	1	B	459.0			5	50	55	3
Bakersfield	Chester Av	1	B	311.2			16	37	53	4
San Bernardino County	Cherry Av	2		91.7			10	40	50	5
Alameda County	Liv-Ples Cnsl	4		38.7	B		3	47	50	6
Los Angeles County	Eastern Av	2		147.3			19	29	48	7
Santa Fe Springs	Carmenita Rd	2		157.3			9	37	46	8
Oceanside	Combined Lwr	2		225.9			9	36	45	9
Fairfield	Main-Rio Vista	1	A	49.0			7	37	44	10
Los Angeles County	Alondra Bl	2		159.6			8	36	44	11
Riverside	Van Buren Bl	2	B	16.4			12	31	43	12
Los Angeles	Santa Fe-Wash	2		143.29	C		12	31	43	13
Caltrans	237-Santa Clara	1	E	37.1	A		27	16	43	14

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Projects Nominated by Priority Index Number

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	<u>V x T 0 x 24</u>	<u>SGF</u>	<u>Priority Index Number</u>	<u>Priority Number</u>
Caltrans	138 San Brdo	2		60.9			3	39	42	15
Oceanside	Downtown Lwr	2		225.9			10	32	42	16
Ontario	Euclid Av	1	B	520.1			12	29	41	17
Anaheim	Katella Av	1	BK	512.4			14	26	40	18
Hayward	A St	1	D	20.0			9	30	39	19
Bakersfield	Union-24th	1	B	312.3			7	32	39	20
Orange County	Wier Canyon	2	B	35.4		*	12	27	39	21
Los Angeles County	Greenwood-Mtb	2		149.5			10	28	38	22
San Carlos	Holly St	1	E	23.2			8	30	38	23
Caltrans	So 47th St	1	A	13.1			4	34	38	24
San Gabriel	San Gabrl	1	B	490.2			9	29	38	25
Sunnyvale	Wolfe Rd	1	E	39.7			10	27	37	26
Barstow	First St	2		746.5	A		8	29	37	27
Dunsmuir	Schrer-Butfly	1	C	321.7			3	33	36	28
Pittsburg	Railroad Av	2		1155.7			9	27	36	29
Riverside	Arlington Av	2	B	12.4			10	26	36	30
Richmond	23rd St	1	A	14.5			4	30	34	31
Alameda County	Pleasn-Sunol	4		37.2	B		1	31	32	32
Torrance	Del Amo Bl	2	H	19.5		*	12	20	32	33

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Projects Nominated by Priority Index Number

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	$\frac{V \times T}{G \times 24}$	<u>SCF</u>	<u>Priority Index Number</u>	<u>Priority Number</u>
Irvine	Irvine Lwr	2		180.5			2	29	31	34
Los Angeles County	Rt 105-Rlc	1	BBL	491.91			2	29	31	35
Torrance	Torrance Rlc	1	BBG	500.73			10	20	30	36
Caltrans	68-Monterey	1	E	119.29			10	20	30	37
Anaheim	State College	2		170.3			6	24	30	38
San Bernardino County	Vivienda Av	1	BJ	540.9	A		0	30	30	39
Caltrans	166-Sta Barba	1	E	276.8			4	25	29	40
Caltrans	79-Riverside	1	B	562.4			7	22	29	41
Los Angeles County	Hollywood Way	1	B	469.4			3	26	29	42
Caltrans	237-Snta Clara	1	L	39.8			2	27	29	43
Santa Barbara County	Hollister Av	1	E	365.7	B		6	23	29	44
Caltrans	180-Fresno	2		997.8			6	22	28	45
Caltrans	70-Yuba	1	G	141.7	B		3	25	28	46
Chico	Dayton Rd	1	G	183.8			3	24	27	47
Pittsburg	Railroad Av	1	B	48.9			8	19	27	48
Stockton	Hammer Lane	4		98.5			3	24	27	49
Los Angeles County	Bandini Bl	3	A	3.4			3	23	26	50

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Projects Nominated by Priority Index Number

<u>Agency</u>	<u>Crossing Name</u>	<u>RR</u>	<u>BR</u>	<u>Mile Post</u>	<u>Suf</u>	<u>Prop</u>	$\frac{V \times T}{C \times 24}$	<u>SCP</u>	<u>Priority Index Number</u>	<u>Priority Number</u>
Santa Barbara	St Barbara Rlc	1	E	370.6			3	22	25	51
Norwalk	Imperial Hwy	1	BK	498.0			4	20	24	52
Anaheim	Lincoln Av	2		167.7			4	20	24	53
Redding	South St	1	G	258.0			2	21	23	54
Caltrans	41-Fresno	1	B	205.9			3	20	23	55
Los Angeles	Valley-Eastrn	1	B	485.8			2	21	23	56
Hayward	A St	4		20.2			2	20	22	57
Caltrans	84-Yolo	1	A	87.5		*	8	14	22	58
Los Angeles County	Grand-Industy	1	B	508.5		*	4	18	22	59
Caltrans	238-Alameda	4	G	1.4	B		4	17	21	60
Los Angeles County	Florence Av	1	BG	488.3			3	17	20	61
Newark	Newark Bl	1	DAB	38.1		*	6	13	19	62
Rohnert Park	Rohnert Pk Ex	5		47.4			3	11	14	63
Los Angeles	Nordhoff St	1	E	448.5		*	3	11	14	64
Los Angeles County	Douglas St	2	H	15.02	B	*	2	11	13	65