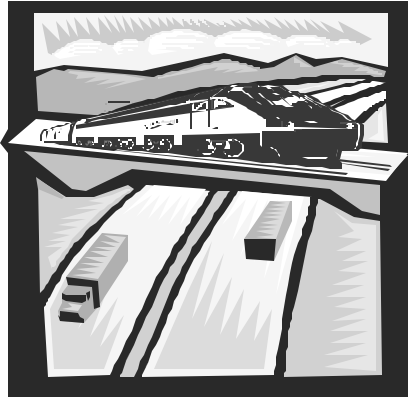


Grade Separation Program

Rail Crossings Engineering Section, CPUC

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Introduction



The Grade Separation Program is a state funding program to grade separate highway-rail crossings. A highway-rail crossing is the intersection of railroad track with any type of highway or pathway used by vehicles and/or pedestrians. Crossings are classified as either grade-separated or at-grade. Grade-separated crossings are where either the highway or the railroad track crosses over or under the other at different elevations, typically using a bridge structure. The elevation difference allows trains to travel through grade-separated crossings at the same time as highway users. At-grade crossings are where the highway and railroad tracks are at the same elevation, thereby creating a potential conflict between trains and highway users. At-grade highway-rail crossings pose significant public safety hazards to California's motorists and pedestrians.

The California Public Utilities Commission (hereinafter referred to as the Commission or CPUC) has jurisdiction over the safety of highway-rail crossings in California. The Rail Crossings Engineering Section (RCES) reviews projects for the safe design of crossings and recommends safety measures, such as automatic warning devices, to mitigate hazards for at-grade crossings users.

The optimal safety improvement for an at-grade highway-rail crossing is the complete separation of the railroad tracks from the roadway through construction of a grade-separation structure. Replacement of at-grade crossings with grade-separated crossings eliminates the fatalities and injuries that often result from collisions between train and highway users. It also eliminates blocking delays that cause traffic congestion, reduces the intrusive noise from train horns and automatic warning devices, and can improve emergency response times.

The Grade Separation Program helps local agencies finance the high costs of grade separating highway-rail crossings, thereby improving public safety and convenience throughout California.

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1. Background

The Commission establishes and furnishes to the California Transportation Commission (CTC) and the California Department of Transportation (Caltrans) a funding priority list of grade crossing projects most urgently in need of separation or alteration. Section 190 of the California Streets and Highways Code (S&H Code) requires the State's annual budget to include \$15 million for funding these projects. Section 2450 *et seq.* of the S&H Code sets out the procedure for administering these funds, and Section 2453 gives the CTC responsibility for allocating the funds to qualified projects.

S&H Code Section 2452 requires the Commission, by July 1 of each year, to establish the priority list for projects and furnish it to the CTC for use in the fiscal year beginning on that date. Our procedure is to promulgate the list for the first fiscal year by issuing an interim decision, and then to revise the list for the second year by deleting projects for which funds were actually allocated in the first. The Commission adopts the revised list by final decision in the second year of the proceeding, and begins the funding cycle again the following year by instituting a new proceeding.

In accordance with S&H Code Section 2452, the Commission is responsible for establishing criteria to be used in determining the priority of projects nominated for separation or alteration. The formula weighs vehicular and train volumes at crossings along with project costs, and considers a variety of special factors such as accident history, sightlines along the crossing approaches, the angle of the tracks to the roadway, traffic delays caused by trains traveling through the crossing and other relevant factors. RCES conducts field inspections and performs safety evaluations.

Interested local agencies are responsible for submitting nominations to the Commission with the required information. These agencies must be ready to share in the project's cost. The Commission requires applicants to attend the formal public hearings and provide testimony in support of their proposals.

2. Eligible Projects

The Commission will consider projects for the Grade Separation Priority List that are nominated by a city, a county, a separation-of-grade district, or any public entity providing rail passenger transportation services.

Eligible projects include: (1) projects for grade separation of existing or proposed crossings of city streets, county roads, or state highways, (2) at-grade crossings in need of elimination by removal or relocation of streets or railroad tracks, or (3) existing separations in need of alteration or reconstruction.

Section 2450(a) of the S&H Code states:

“Grade separation” means the structure which actually separates the vehicular roadway from the railroad tracks.

Although projects comprised of multiple grade separations are eligible, a project nomination shall not include multiple projects that are separate, distinct and clearly severable. The combination of severable projects into a single nomination would preclude the Commission from effectively determining which projects are most urgently in need of separation or alteration as required by S&H Code Section 2452. Furthermore, a single nomination cannot combine projects for both the elimination of existing and the elimination of proposed grade crossings.

If a project qualifies as a multiple crossing or consolidation project, the overall priority is affected by a combined weighting of factors at each crossing. The factors include roadway traffic counts, number of accidents at the crossings, and crossing geometrics. Multiple crossing or consolidation projects may qualify for more than the usual \$5 million maximum allocation.

3. Funding

Section 190 of the S&H Code requires the State’s annual budget to include \$15 million for funding qualified projects on the Grade Separation Priority List Program as ranked by the Commission.

For a project that eliminates an existing crossing or alters or reconstructs an existing grade separation, an allocation of 80% of the estimated cost of the project is made. No allocation shall be made unless the railroad agrees to contribute 10% of the cost of the project. For a project that plans a grade separation of a proposed new crossing (currently no existing crossing), an allocation of 50% of the estimated project costs is made, with the remaining 50% contributed by the local agency.

Subsequent to the Commission's issuance of the Priority List, the California Department of Transportation (Caltrans) accepts applications for an allocation of funds on or before April 1 of each fiscal year. Guidelines on applying for Caltrans allocations are posted at the following website:

http://www.dot.ca.gov/hq/LocalPrograms/lam/prog_g/g19gdsep.pdf.

Caltrans distributes the available funding according to the priority ranking established annually by the CPUC. The project on the list with the highest priority, and which also meets the requirements detailed below, has first claim to the available funds to the extent of the yearly cap. Assembly Bill 1067, approved by the Governor on October 7, 2005, changed S&H Code 2454(g)(2) to make the highest ranking project on the priority list eligible for an allocation of up to \$15 million dollars. The next project in the ranking which meets the requirements receives the next allocation, and so on, until the fiscal year's funds are exhausted. Two different formulas are used to make these computations, one for existing at-grade crossings nominated for separation or elimination and another for existing separations nominated for alteration or reconstruction.

Other critical requirements to secure an allocation from the Caltrans include:

1. Application for funding must be sent to Caltrans by April 1
2. Authority to construct the project must be obtained from the Commission (separate and different from an application to be considered for the Grade Separation Program, information is available on-line:
http://www.cpuc.ca.gov/static/transportation/crossings/filing+procedures/g088b_projects.htm
3. Environmental review documents must be complete
4. Construction, maintenance, and any other necessary agreements with the railroads must be signed; and
5. Final construction plans must be complete

Applicants should be aware of the following funding limits:

- Allocations are made on the basis of estimated cost.
- An allocation to a project may not exceed \$5 million from any one fiscal year.
- Caltrans may only allocate up to 80% of the estimated cost.
- Cumulative allocations may not exceed \$20 million to any one project.
- Allocations are to be reduced or augmented after the project is completed to reflect the actual cost to construct the grade separation.
- Parties anticipating the need for an allocation greater than \$5 million shall be prepared to present evidence at the hearings to justify the additional award. See S&H Code 2454 (g) and (h) for more information.

The probability of projects being funded is dependent on a number of things. The first is the amount of available funding, which is \$15 million and which does not increase from year to year. In accordance with S&H Code 2454(g), funding for an individual project is limited to one-third of the total fund or \$5 million per year (whichever is less). A project

may qualify for up to 80% of the total project cost or a maximum of \$20 million funded over a multiyear period, not to exceed five years, if it shows a saving to the state as indicated in S&H Code 2454(h). An agency which has received an allocation greater than \$5 million shall not be eligible for an allocation for another project for a period of 10 years from the date of approval of that project.

The list is dynamic, responding to local demographic changes. Some projects may drop in ranking from one year to the next, as new nominations, where factors such as rising vehicular traffic levels, increased train activity, or recent accident history indicate a greater public need for grade separation or improvement and may rise on the list.

The system is not one where the first on the list is necessarily the first to be funded. For example, in fiscal year 2002-2003, Caltrans notified the Commission that projects ranking 14, 38 and 52 had received \$6 million, \$5 million, and \$5 million, respectively in allocated funds. For fiscal year 2003-2004, no new projects received an allocation, but previously funded projects received supplemental allocations. The same is projected for fiscal year 2004-2005; allocations are to be made to supplemental requests only.

Although the priority list ranking is an important factor in determining whether a project can be funded, securing of an allocation requires a number of other requirements to be met. These requirements include completion of the design, establishment of a maintenance agreement with the affected railroad, completion of environmental review of the project, and procurement of the local funding share or remainder of the project cost. In recent years, these additional requirements have not been met by the vast majority of projects on the priority list, thereby allowing projects with what may appear to be a low ranking to be funded. If there is a possibility that a grade separation project may be able to meet the requirements outlined above within two years of its nomination, RCES strongly recommends that the local agency apply for funding through the Grade Separation Program.

4. Formulas

There are two formulas used to rank projects: one for crossings nominated for separation or elimination and the other for existing grade separations in need of alteration or renovation.

Formula For Crossing Nominated For Separation Or Elimination

$$P = \frac{V * (T + 0.1 * LRT) * (AH + 1)}{C} + SCF$$

Formula For Existing Separations Nominated For Alteration Or Reconstruction

$$P = \frac{V * (T + 0.1 * LRT)}{C} + SF$$

Note: V- Average Daily Vehicle Traffic, T –Average Daily Freight/Commuter Train Traffic, LRT – Average Daily Light Rail Train Traffic, C – Project Cost Share to be Allocated from Grade Separation Fund, AH – Accident History (number of accidents at crossing), SCF- Special Conditions Factor, SF - Separation Factor

Please see the current Order Instituting Investigation for more details on current Commission adopted formulas.

5. Current Priority List

Commission Decision (D.) 05-06-056, dated June 30, 2005 adopted the final order for the Section 190 Grade Separation Priority List for fiscal year 2005-2006, as required by S&H Code Section 2452. The Priority List for fiscal year 2004-2005, established by D.04-06-020, dated June 9, 2004 required no revision. D.05-06-056 also closes Investigation (I.) 03-07-009 (which established the list for 2004-2005 and revised it for 2005-2006). Decisions are published on the Commission's website: <http://www.cpuc.ca.gov>

6. Next Call for Projects

The Commission is responsible for ranking the nominated projects. The call for projects occurs every two years, therefore the nominated projects stand for two years, with those projects receiving an allocation during the first year being removed from the second year's list. The Commission is required to adopt a list by July 1 of each year. The list is then sent to the CTC and Caltrans. Caltrans allocates the funds.

The proceeding for the current projects is online at the following site:
<http://www.cpuc.ca.gov/proceedings/I0507016.htm>.

Click on **COMMISSION INVESTIGATION** to download the Order Instituting Investigation and the Appendices which include the application forms and instructions.

7. Commission and Caltrans Contacts

California Public Utilities Commission

Rosa Muñoz, PE
 Consumer Protection & Safety Division
 Rail Crossings Engineering Section
 320 West 4th Street, Suite 500
 Los Angeles, CA 90013-1105
 (213) 576-7078
 rxm@cpuc.ca.gov

Caltrans

Lauren Clausen
 Rail Crossing Safety & Track Branch
 Caltrans - Division of Rail
 P.O. Box 942874
 Sacramento, CA 94274-0001
 (916) 653-0243
 lauren_clauson@dot.ca.gov

8. Past Allocations

Fiscal Year	Project	Proceeding	Rank	RR	Lead Agency	State Share
2001-02	Monte Vista Avenue	I.99-07-001	4	BNSF	City of Montclair	\$ 5,000,000.00
	Bailey Avenue & Others	I.99-07-001	16		City of San Jose	\$ 5,000,000.00
	Clovis Ave OH (1994-95)	I.93-07-032	8	UP	Fresno County	\$ 1,370,400.00
Remainder will be used up by supplemental & balance allocations						\$ 3,629,600.00
					Total Allocation	\$ 15,000,000.00
2002-03	Jurupa Road UP	I.01-07-008	14	UP	City of Riverside	\$ 6,000,000.00
	P & Q Streets UP	I.95-07-003	16	BNSF	City of Bakersfield	\$ 342,894.65
	7th Standard Road OH	I.01-07-008	38	BNSF	City of Shafter	\$ 5,000,000.00
	Mohawk Street UP	I.01-07-008	52	BNSF	Kern County/City of Bakersfield	\$ 5,000,000.00
					Total Allocation	\$ 16,342,894.65
2003-04	50th Ave OH	I.93-07-032	4	UP	City of Coachella	\$ 6,014,010.00
	Chestnut Avenue OH	I.97-07-014	18	UP	County of Fresno	\$ 778,748.00
	Kansas-Needham OH	I.95-07-003	1	UP	City of Modesto	\$ 3,418,631.00
	Calloway Drive UP	I.95-07-003	18	BNSF	Kern County	\$ 872,000.00
	Shaw-Marks UP	I.97-07-014	1	BNSF	City of Fresno	\$ 3,340,204.00
					Total Allocation	\$ 14,423,593.00
2004-05 (preliminary)	West Capitol Ave UP-Emergency Repair	I.99-07-001	26	UP	City of West Sacramento	\$ 19,045.42
Remainder will be used up by supplemental & balance allocations						
					Total Allocation	\$ 19,045.42

9. Decision Tools for Grade Separations

The topic of when to construct a grade separation is complex. The Commission does not have strict criteria that would require an existing at-grade highway-rail crossing to be grade-separated. However, resources are available which clearly specify when a grade separation should be considered, and when it may be well justified.

The Federal Highway Administration's Technical Working Group published a document in November 2002 entitled *Guidance on Traffic Control Devices at Highway-Rail Grade Crossings*. This document is available online at:
<http://safety.fhwa.dot.gov/media/twgreport.htm>

On pages 27 and 33, the document discusses particular criteria that should be considered when assessing the need for grade separation.

When considering the need for grade separation of highway-rail crossings, it may be appropriate to use the Federal Railroad Administration's web-based tool "GradeDec.net". The software application, accessible at <http://gradedec.fra.dot.gov>, can be used to evaluate the benefits and costs of rail investment projects, specifically those involving highway-rail grade crossing improvements (including grade separation, closure, or warning device upgrades), within a risk analysis framework. GradeDec.net is particularly well-suited for analysis of rail corridors.

10. Caltrans Guidelines for Grade Separation Allocations

Please see Chapter 19 of the Local Assistance Program Guidelines published by Caltrans for further details regarding allocations from the Grade Separation Program.
<http://www.dot.ca.gov/hq/LocalPrograms/lam/lapg.htm>.

11. Relevant Streets & Highways Code

Funding for projects included on each annual priority list is provided by S&H Code Section 190, and the basis for allocation and state requirements are contained in S&H Code Sections 2450-2461 available on-line at <http://www.leginfo.ca.gov/calaw.html>. Place a check mark next to "Streets and Highway Code" and click on "Search" button.