Formula For Crossing Nominated For Separation Or Elimination

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

Where:
P - Priority Index Number
V - Average 24-Hour Vehicular Volume (1 point per vehicle)
T - Average 24-Hour Train Volume (1 point per train)
C - Project Cost Share to be Allocated from Grade Separation Fund (1 point per thousand dollars)
LRT - Average 24-Hour Light Rail Train Volume (1 point per train)
AH - Accident History (up to 3 points per accident)
SCF - Special Conditions Factor = BD+VS+RS+CG+PT+OF (up to 58 pts)
    BD - Crossing Blocking Delay (up to 5 points)
    VS - Vehicular Speed Limit (up to 5 points)
    RS - Railroad Prevailing Maximum Speed (up to 7 pts)
    CG - Crossing Geometrics (up to 17 points)
    PT - Passenger Trains (up to 10 points)
    OF - Other Factors: passenger buses, school buses, trains carrying hazardous materials trains and trucks, and community impact (up to 14 points)

C = Project Cost Share to be Allocated from Grade Separation Fund
Up to five million dollars per project will be allocated (S&H Code § 2454(g)) per fiscal year, unless the applicant is seeking multiple-year funding as prescribed in S&H Code § 2454(h). Local agencies are eligible to receive up to $5 million each year, over a period of 5 years. The total amount they may receive is $20 million, not to exceed 80% of the cost, if an at-grade crossing is closed and the project meets other specific requirements. If a crossing is not closed, the maximum allocation is $5 million.

AH = Accident History (last 10 years from application filing due date)
Points are awarded as follows for accidents involving trains at crossings
with the Crossing Protection Factor (CPF) based on the crossing's warning devices:

Points = (1 + 2 x No. Killed + No. Injured) x CPF

STANDARD	9	8	3	1
CPF	1.0	0.4	0.2	0.1

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

Note 2: Each accident is rated separately and modified by a factor based on the warning devices in existence at time of the accident.

SCF = Special Conditions Factor = BD+VS+RS+CG+PT+OF

BD = Blocking Delay Per Train (The time in which vehicular traffic is delayed to allow a train to pass at a crossing.) The blocking delay, for a typical day, is the elapse time in minutes when trains pass the crossing. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset. The BD points are the total delay time, valued in a range from 0 to 5 points.

VS = Vehicular Speed Limit - Posted Speed Limit

SPEED-MPH	0-30	31-35	36-40	41-45	46-50	51+
POINTS	0	1	2	3	4	5

RS = Railroad Maximum Speed

SPEED-MPH	0-25	26-35	36-45	46-55	56-65	66-75	76-85	86+
POINTS	0	1	2	3	4	5	6	7

CG = Crossing Geometrics - 0 - 17 points are awarded to each crossing based on the relative severity of physical conditions, i.e. grade, alignment, site distance, track skew angle, traffic signals, entrances and exits, etc.

PT = Passenger Trains – Additional points are given to projects that have passenger trains, including light rail transit, traveling through the crossing based on the following:

NO. OF TRAINS	1-2	3-5	6-10	11-20	21-30	31-40	41-50	51-60	61-70	70+
POINTS	1	2	3	4	5	6	7	8	9	10

OF = Other Factors- Other Factors are valued in a range from 0 to 14 points based on:

CATEGORY	POINTS
SCHOOL BUSES (SB)	0-3
PASSENGER BUSES (PB)	0-3
HAZ-MAT TRUCKS* (HM)	0-3
COMMUNITY IMPACT (CI)	0-5

   *Hazardous material trucks must display the placard with a clearly visible diamond-shaped sign to be counted for this category.

Formula For Existing Separations Nominated For Alteration Or Reconstruction

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

Where:

P	-	Priority Index Number
V	-	Average 24-Hour Vehicular Volume (1 point per vehicle)
T	-	Average 24-Hour Train Volume (1 point per train)
LRT	-	Average 24-Hour Light Rail Train Volume (1 point per train)
C	-	Project Cost Share to be Allocated from Grade Separation Fund (1 point per thousand dollars)
SF	-	Separation Factor = WC + HC + SR + AS + POF + AP + DE
WC	-	Width Clearance (up to 10 points)
HC	-	Height Clearance (up to 10 points)
SR	-	Speed Reduction (up to 5 points)
AS	-	Accidents at or near structure (0.1 pt per accident)
POF	-	Probability of Failure (up to 10 points)
AP	-	Accident Potential (up to 10 points)
DE	-	Delay Effects (up to 10 points)

C = **Project Cost Share to be Allocated from Grade Separation Fund**
Up to five million dollars per project will be allocated (S&H Code § 2454(g)) per fiscal year, unless the applicant is seeking multiple-year funding as prescribed in S&H Code § 2454(h). Projects are eligible to receive up to $5 million each year, over a period of 5 years, the maximum is $20 million, not to exceed 80% of the project cost, if an at-grade crossing is closed and the project meets other specific requirements. If a crossing is not closed, the maximum allocation is $5 million.

SF = Separation Factor = WC+HC+SR+AS+PF+AP+DE

WC = Width Clearance is determined by bridge width (in feet) and the number of traffic lanes in existence (N):

If the Width is:	POINTS
16′+12(N)	0
12′ but less than 16′ + 12(N)	2
8′ but less than 12′ + 12(N)	4
Less than 8′+12(N)	6
11(N)	8
Less than 11(N)	10

HC = Separation Height Clearance is determined by the height clearance from center of traffic lane and bridge (Underpass) or from top of rail and bridge (Overpass).

Underpass

Height (feet)	Points
15' and above	0
14' but less than 15'	4
13' but less than 14'	8
Less than 13'	10

Overpass

Height (feet)	Points
22.5' and above	0
20' but less than 22.5'	4
18' but less than 20'	8
Less than 18'	10

SR = Speed Reduction or Slow Order

	Points
None	0
Moderate	2
Severe	5

AS = Accidents at or near the structure during the last 10 years from the application due date. The AS points are determined by dividing the total number of occurrences by 10 and rounded off to the nearest tenth of a point (86 occurrences = 86/10= 8.6 points).

PF = Probability of Failure has a 10 point maximum taking structure age into account.

	Points
Minimal/None	0
Slight	2-3
Moderate	4-6
Extreme	7-10

AP = Accident Potential – A maximum of 10 points is given for the geometrics at the separation like: road curvature, signage, and illumination.

	Points
None	0
Slight	2-3
Moderate	4-6
Extreme	7-10

DE = Delay Effects – A maximum of 10 points is given to conditions that cause traffic delays at the separation like road bottlenecks, slow vehicle usage (trucks, agriculture equipment, lack of left or right turn lanes or other traffic congestion.

	Points
None	0
Slight	2-3
Moderate	4-6
Extreme	7-10

ATTACHMENTS (part of application instructions)

Please attach an 8 ½″ x 11″ location map and two 8″ x 10″ photographs of the proposed crossing location (one from each approach) showing the entire crossing and pertinent crossing geometrics. Also attach a brief explanation of the community impact including its justification, how it meets transportation planning goals, and impacts especially emergency vehicle usage. **If applicable applicant should indicate potential blockage if the crossing is near a hospital, or if the path over the crossing is classified as an emergency vehicle route.** *(emphasis added)*