

PASSENGER TRAIN DISTANCE IN FEET vs. SPEED IN M.P.H.

SPEED					SPEED					SPEED				
DISTANCE IN FEET					DISTANCE IN FEET					DISTANCE IN FEET				
MPH	⑤ STOP	⑥ IRED	⑦ FRED	⑧ APER	MPH	⑤ STOP	⑥ IRED	⑦ FRED	⑧ APER	MPH	⑤ STOP	⑥ IRED	⑦ FRED	⑧ APER
0	0	0	0	0										
1	13	12	1	1	51	2766	2549	1951	1734	101	9685	8835	7651	6800
2	27	26	3	3	52	2863	2638	2028	1802	102	9866	8999	7803	6935
3	43	42	7	6	53	2962	2728	2107	1872	103	10049	9165	7957	7072
4	60	59	12	11	54	3063	2820	2187	1944	104	10233	9332	8112	7210
5	79	77	19	17	55	3166	2914	2269	2016	105	10419	9500	8269	7349
6	100	97	27	24	56	3270	3009	2352	2090	106	10606	9670	8427	7490
7	123	119	37	33	57	3376	3105	2437	2166	107	10796	9842	8587	7632
8	147	142	48	43	58	3484	3203	2523	2242	108	10986	10015	8748	7775
9	173	166	61	54	59	3593	3303	2611	2320	109	11179	10189	8911	7920
10	201	192	75	67	60	3704	3404	2700	2400	110	11373	10365	9075	8066
11	230	220	91	81	61	3816	3506	2791	2480	111	11569	10543	9241	8213
12	261	249	108	96	62	3930	3610	2883	2562	112	11767	10722	9408	8362
13	293	279	127	113	63	4046	3716	2977	2646	113	11966	10902	9577	8512
14	328	311	147	131	64	4164	3823	3072	2730	114	12167	11084	9747	8663
15	363	345	169	150	65	4283	3931	3169	2816	115	12369	11268	9919	8816
16	401	380	192	171	66	4404	4041	3267	2904	116	12574	11453	10092	8970
17	440	416	217	193	67	4527	4153	3367	2992	117	12779	11639	10267	9125
18	481	454	243	216	68	4651	4266	3468	3082	118	12987	11827	10443	9282
19	524	494	271	241	69	4777	4380	3571	3174	119	13196	12017	10621	9440
20	568	535	300	267	70	4904	4496	3675	3266	120	13407	12208	10800	9599
21	614	577	331	294	71	5033	4614	3781	3360	121	13620	12400	10981	9760
22	661	621	363	323	72	5164	4733	3888	3456	122	13834	12594	11163	9922
23	711	667	397	353	73	5297	4853	3997	3552	123	14050	12790	11347	10085
24	762	714	432	384	74	5431	4975	4107	3650	124	14267	12987	11532	10250
25	814	762	469	417	75	5567	5098	4219	3750	125	14487	13185	11719	10416
26	868	812	507	451	76	5705	5223	4332	3850	126	14707	13385	11907	10583
27	924	863	547	486	77	5844	5350	4447	3952	127	14930	13586	12097	10752
28	982	916	588	523	78	5985	5478	4563	4056	128	15154	13789	12288	10922
29	1041	971	631	561	79	6127	5607	4681	4160	129	15380	13994	12481	11093
30	1102	1027	675	600	80	6272	5738	4800	4266	130	15608	14200	12675	11266
31	1164	1084	721	641	81	6417	5871	4921	4374	131	15837	14407	12871	11440
32	1229	1143	768	683	82	6565	6005	5043	4482	132	16068	14616	13068	11615
33	1295	1204	817	726	83	6714	6140	5167	4592	133	16300	14827	13267	11791
34	1362	1266	867	771	84	6865	6277	5292	4704	134	16535	15039	13467	11969
35	1431	1329	919	817	85	7018	6416	5419	4816	135	16770	15252	13669	12149
36	1502	1394	972	864	86	7172	6556	5547	4930	136	17008	15467	13872	12329
37	1575	1461	1027	913	87	7328	6697	5677	5045	137	17247	15684	14077	12511
38	1649	1529	1083	963	88	7485	6840	5808	5162	138	17488	15902	14283	12695
39	1725	1598	1141	1014	89	7654	6985	5941	5280	139	17731	16121	14491	12879
40	1802	1669	1200	1067	90	7805	7131	6075	5399	140	17975	16342	14700	13065
41	1882	1742	1261	1121	91	7968	7278	6211	5520	141	18221	16565	14911	13253
42	1963	1816	1323	1176	92	8132	7427	6348	5642	142	18468	16789	15123	13441
43	2045	1891	1387	1233	93	8298	7578	6487	5765	143	18718	17014	15337	13631
44	2129	1968	1452	1291	94	8466	7730	6627	5890	144	18968	17241	15552	13823
45	2215	2047	1519	1350	95	8635	7883	6769	6016	145	19221	17470	15769	14015
46	2303	2127	1587	1411	96	8806	8038	6912	6143	146	19475	17700	15987	14209
47	2392	2208	1657	1473	97	8978	8195	7057	6272	147	19731	17931	16207	14405
48	2483	2291	1728	1536	98	9153	8353	7203	6402	148	19989	18164	16428	14601
49	2576	2376	1801	1601	99	9328	8512	7351	6533	149	20248	18399	16651	14799
50	2670	2462	1875	1666	100	9506	8673	7500	6666	150	20509	18634	16875	14998

**FOR STOPPING DISTANCES:**

- A) SELECT MAXIMUM AUTHORIZED SPEED (OR INITIAL SPEED) IN MPH COLUMN.
- B) READ DISTANCE TO STOP ON SAME LINE IN COLUMN 5.

**FOR REDUCING DISTANCES:**

- A) SELECT MAXIMUM AUTHORIZED SPEED (OR INITIAL SPEED) IN MPH COLUMN.
- B) READ DISTANCE ON SAME LINE IN COLUMN 6 & 7.
- C) SUBTRACT DISTANCE DERIVED FROM COLUMN 7 FROM DISTANCE DERIVED FROM COLUMN 6 ; THIS IS THE REDUCING DISTANCE.\*

**NOTES:**

1) "\*" INDICATES THAT ACTUAL BRAKING TESTS WERE NOT PERFORMED ON THIS DATA\* FOR INFORMATION ONLY\*

2) EQUATIONS FOR CALCULATIONS:


⑤ STOPPING DISTANCE:  
 $D_{STOP} = 0.83333V_1^2 + 11*73V_1$


⑥-⑦ REDUCING DISTANCE:  
 $D_{RED} = D_{IRED} - D_{FRED}$   
 $= 0.7500(V_1^2 - V_F^2) + 11*73V_1$


REV	DATE	BY	CHK	APP	DESCRIPTION

**PENINSULA CORRIDOR JOINT POWERS BOARD**

APPROVED BY:

  
 ENGINEERING MANAGER

  
 DEPUTY DIRECTOR OF ENGINEERING

  
1250 San Carlos Avenue  
San Carlos, CA 94070

**STANDARD DRAWINGS**

CADD FILE NO.: SD-5006

REV 0 DATE 093011

SIGNAL  
SIGNAL AND COMMUNICATION  
SPEED CHARTS  
PASSENGER TRAIN  
BRAKING DISTANCE CALCULATIONS

STANDARD NO.: SD-5006