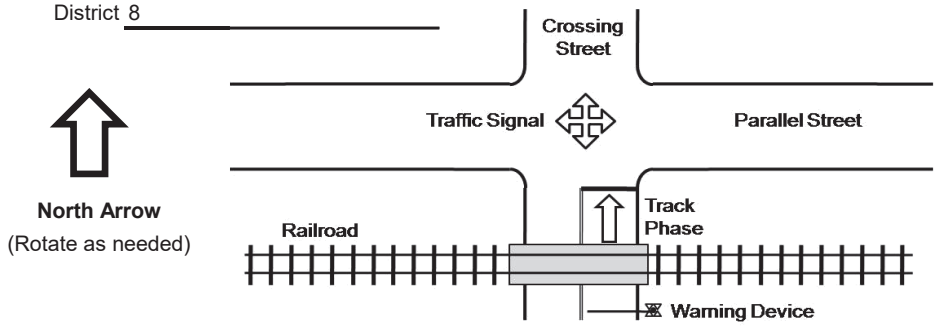
OHIO DEPARTMENT OF TRANSPORTATION
GUIDE FOR DETERMINING TIME REQUIRMENTS FOR TRAFFIC SIGNAL PREEMPTION AT HIGHWAY-RAIL GRADE CROSSINGS

City Deer Park
County Hamilton
District 8

Date 10/2/2025
Completed by Travis Hunt



Parallel Street Name: Blue Ash Road

Crossing Street Name: **Webster Ave**

Railroad I&O
DOT No. **525278F**

Railroad Contact
Phone

Enter values in non-shaded boxes. Shaded boxes are calculated.

SECTION 1: RIGHT-OF-WAY TRANSFER TIME CALCULATION

Preempt verification and response time

			Remarks
1. Programmed preempt delay time (sec)	**1.**	1.0	Matches Matson
2. Controller response time to preempt (sec)	**2.**	0.0	Controller type: New Standard
3. Preempt verification and response time (sec): add lines 1 and 2	**3.**	1.0	

Worst-case conflicting vehicle time

			Remarks
4. Worst-case conflicting vehicle phase number(s)	**4.**	2+6(NB+SB)	
5. Minimum green time during right-of-way transfer (sec)	**5.**	4.0	Matches Matson
6. Other green time during right-of-way transfer (sec)	**6.**	0.0	
7. Yellow change time (sec)	**7.**	3.5	
8. Red clearance time (sec)	**8.**	3.0	
9. Worst-case conflicting vehicle time (sec): add lines 5 through 8	**9.**	10.5	

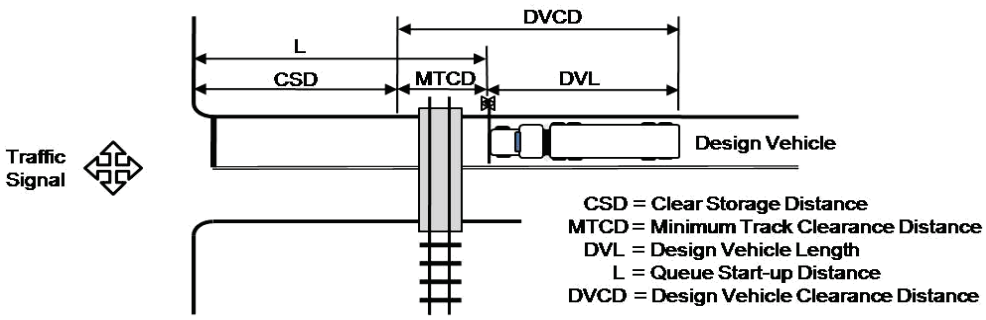
Worst-case conflicting pedestrian time

			Remarks
10. Worst-case conflicting pedestrian phase number(s)	**10.**	8 (EB)	
11. Minimum walk time during right-of-way transfer (sec)	**11.**	0.0	Truncated
12. Pedestrian clearance time during right-of-way transfer (sec)	**12.**	0.0	Truncated
13. Vehicle yellow change time, if not included on line 12 (sec)	**13.**	3.5	
14. Vehicle red clearance time, if not included on line 12 (sec)	**14.**	3.0	
15. Worst-case conflicting pedestrian time (sec): add lines 11 through 14	**15.**	6.5	

Worst-case conflicting vehicle or pedestrian time

16. Worst-case conflicting vehicle or pedestrian time(sec): maximum of lines 9 and 15	**16.**	10.5
17. Right-of-way transfer time (sec): add lines 3 and 16	**17.**	11.5

SECTION 2: QUEUE CLEARANCE TIME CALCULATION



			Remarks
18. Clear storage distance (CSD, feet)	**18.**	29	
19. Minimum track clearance distance (MTCD, feet)	**19.**	49	
20. Design vehicle length (DVL, feet)	**20.**	65	Design vehicle type: Tractor-Trailer
21. Average grade over crossing (%)	**21.**	0.0%	See instructions if L>400'

22. Queue start-up distance (L, feet): add lines 18 and 19 ..... **22.** 78

23. Time required for design vehicle to start moving (sec): calculated as 2+(L/20) ..... **23.** 5.9 — **Remarks**

24. Design vehicle clearance distance (DVCD, feet): add lines 19 and 20 ..... **24.** 114

25. Time for design vehicle to accelerate through the DVCD (sec) ..... **25.** 14.5 From Fig. 2 and Table 2

26. Queue clearance time (sec): add lines 23 and 25 ..... **26.** 20.4

SECTION 3: MAXIMUM PREEMPTION TIME CALCULATION

			Remarks
27. Right-of-way transfer time (sec): line 17	**27,**	11.5	
28. Queue clearance time (sec): line 26	**28.**	20.4	
29. Desired minimum separation time (ST, sec)	**29.**	4.0	Minimum of 4 sec

30. Maximum preemption time (sec): add lines 27 through 29 ..... **30.** 35.9

SECTION 4: SUFFICIENT WARNING TIME CHECK

			Remarks
31. Required minimum time (MT, sec), per regulations	**31.**	20	
32. Wide crossing clearance time (CT, sec): verify w/ railroad	**32.**	2	round up (MTCD-35)/10
33. Additional CT (sec): from railroad or public agency	**33.**	8	used at Matson

34. Minimum warning time provided by railroad (MWT, sec): add lines 31 thru 33 ..... **34.** 30.0

35. Minimum amount of advance preemption time needed from railroad (sec): subtract line 34 from line 30, round up to nearest full second; enter zero (0) if less than zero **35.** 6

If the value on line 35 is greater than zero, this is the minimum advance preemption time that should be requested from the railroad. Alternatively, the maximum preemption time (line 30) may be decreased after performing an engineering study to investigate the possibility of reducing the values on lines 1, 5, 6, 7, 8, 11, 12, 13 and 14.

Remarks:

SECTION 5: VEHICLE-GATE INTERACTION CHECK (OPTIONAL)

36. Right-of-way transfer time (sec): line 17 ..... **36.** 11.5

37. Time required for design vehicle to start moving (sec): line 23 ..... **37.** 5.9

38. Time required for design vehicle to accelerate through DVL (on line 20, sec) ..... **38.** 10.9 From Fig. 2 and Table 2

39. Time required for design vehicle to clear descending gate (sec): add lines 36 through 38 ..... **39.** 28.3

Remarks

40. Duration of flashing lights before gate descent start (sec): get from railroad ..... **40.** 3.0 NEED RR INPUT

Remarks

41. Full gate descent time (sec): get from railroad ..... **41.** 9.0 NEED RR INPUT

42. Distance from center of gate support to design vehicle (ft) ..... **42.** 15.0 See Figure 4

43. Proportion of non-interaction gate descent time ..... **43.** 0.47 From Figure 5

44. Non-interaction gate descent time (sec): multiply lines 41 and 43 ..... **44.** 4.2

45. Time available for design vehicle to clear descending gate (sec): add lines 40 and 44 ..... **45.** 7.2

46. Advance preemption time (APT) required to avoid design vehicle-gate interaction (sec):
subtract line 45 from line 39, round up to nearest full second, enter zero (0) if less than zero **46.** 22

Use Vehicle Gate Interaction ? No

SECTION 6: TRACK CLEARANCE GREEN TIME CALCULATION

Is Gate Down Circuit Present ? Yes

Preempt Trap Check (Use if gate-down circuit not present)

47. Advance preemption time (APT) to be provided (sec) ..... **47.** 0 NA Enter APT from line 35 or line 46

48. Multiplier for maximum APT due to train deceleration ..... **48.** 2.00 NA See Instructions for details.

49. Maximum APT (sec): multiply line 47 and 48 ..... **49.** 0.0 NA **Remarks**

50. Time from start of flashing lights until gate is horizontal (sec) ..... **50.** 0.0 NA

51. Gates down after start of preemption (sec): add lines 49 and 50 ..... **51.** 0.0 NA

52. Preempt verification and response time (sec): line 3 ..... **52.** 0.0 NA **Remarks**

53. Best-case conflicting vehicle or pedestrian time (sec): usually zero (0) ..... **53.** 0.0 NA

54. Minimum right-of-way transfer time (sec): add lines 52 and 53 ..... **54.** 0.0 NA

55. Minimum track clearance green time (sec): subtract line 54 from line 51 ..... **55.** 0 NA

CLEARING OF CLEAR STORAGE DISTANCE (OPTIONAL)

56. Time required for design vehicle to start moving (sec): line 23 ..... **56.** 5.9

57. Design vehicle clearance distance (DVCD,feet): line 24 ..... **57.** 114 **Remarks**

58. Portion of CSD to clear during track clearance green (feet) ..... **58.**

59. Design vehicle relocation distance (DVRD,feet): add lines 57and 58 ..... **59.** 114

60. Time required for design vehicle to accelerate through DVRD (sec) ..... **60.** 14.5 From Fig. 2 and Table 2

61. Time to clear portion of clear storage distance (sec): add lines 56 and 60 ..... **61.** 20

62. Track clearance green interval (seconds): maximum of lines 26, 55, or 61, round up to full second **62.** 21