

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

City Deer Park			Date	2/14/2025
County Hamilton		C	completed by	
District 8	Crossir	l	•	
	Stree			
)			Parallel Street Name
\triangle	Traffic Signal	> Parallel Stre	eet	Blue Ash Road
7 Г	Traine Signal 45	/ Talalleroue		
ш .				Crossing Street Name
North Arrow	1 4	<u>↑</u> Track		Webster Ave
(Rotate as needed)	Railroad	Phase		
(**************************************				
	T_	■ Warning Device		
	• '	1 a ridning believ		
Railroad I&O		Raile	road Contact	
DOT No. 525278F		Rain	Phone	
DOT NO. <u>3232701</u>			i none	
Entor values in non-shade	ed boxes. Shaded boxes are calcula	tod		
cinter values in non-snaue	d boxes. Siladed boxes are calcula	ieu.		
SECTION 4. DIGHT OF WA	AV TO ANGEED TIME CALCULATION			
	AY TRANSFER TIME CALCULATION			Damanta
Preempt verification and r	-	<u>, </u>		Remarks
	delay time (sec)			used at Matson
2. Controller response tir	me to preempt (sec)	2. <u> </u>	0.0	Controller type: New Standard
• • • • • • • • • • • • • • • • • • • •				
3. Preempt verification a	nd response time (sec): add lines 1 and	2		3. 1.0
Worst-case conflicting vel				
	y vehicle phase number(s)			Remarks
=	during right-of-way transfer (sec)			used at Matson
•	ng right-of-way transfer (sec)		0.0	
= :	ec)		3.5	
8. Red clearance time (se	ec)	8. <u> </u>	3.0	
				
Worst-case conflicting	vehicle time (sec): add lines 5 through	8	9. 10	0.5
Worst-case conflicting pe				
	pedestrian phase number(s)			Remarks
11. Minimum walk time du	uring right-of-way transfer (sec)	11.	0.0	use at Matson
12. Pedestrian clearance t	time during right-of-way transfer (sec)	12.	11.0	
13. Vehicle yellow change	e 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 thro	ough 14	15. 17	7.5
Worst-case conflicting vel	hicle or pedestrian time			
16. Worst-case conflicting	vehicle or pedestrian time(sec): maxim	um of lines 9 and 15		16. 17.5
_				
17. Right-of-way transfer	r time (sec): add lines 3 and 16			17. 18.5

SECTION 2: QUEUE CLEARANCE TIME CALCULATION

		I		VCD	4	
		L Î	→	·		
		◆ CSD →	MTCD	DVL	-	
		<u> </u>	ſſŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢ	<u>~</u>	1	
	Traffic				Design Vehicle	
	Signal			CSD = CI	ear Storage Distand	æ
					nimum Track Clear	
			T		esign Vehicle Lengt Jeue Start-up Distal	
			Ŧ		esign Vehicle Clean	
		-			Remarks	
18.	. Clear storage distance (CSD,	feet)	18.	29		
	. Minimum track clearance dista	•		49		
20.	. Design vehicle length (DVL, fe	eet)	20.	65	Design vehicle t	ype: Tractor-Trailer
21.	. Average grade over crossing ((%)	. 21.	0.0%	See instructions	if L>400'
22.	. Queue start-up distance (L, fe	et): add lines 18 and 19		2	2 . 78	
						Remarks
23.	. Time required for design vehic	cle to start moving (sec):	calculated a	ıs 2+(L/20)	23. 5	.9
24.	. Design vehicle clearance dista	ance (DVCD, feet): add I	ines 19 and	20 2	4. 114	
25.	. Time for design vehicle to acc	elerate through the DVC	D (sec)		25. 14	From Fig. 2 and Table 2
26.	. Queue clearance time (sec):	add lines 23 and 25				26. 20.4
SEC	TION 3: MAXIMUM PREEMPT	TION TIME CALCUL ATI	ON			Remarks
		HOW TIME CALCULATI	ON			Kemarks
27.	. Right-of-way transfer time (se			2	7 , 18.5	Kemarko
	. Right-of-way transfer time (sec.): li	c): line 17			7, 18.5 8. 20.4	Tomario
28.		c): line 17 ine 26		2	8. 20.4	Minimum of 4 sec
28. 29.	. Queue clearance time (sec): li . Desired minimum separation t	c): line 17 ine 26 time (ST, sec)		2 2	8. 20.4 9. 4.0	Minimum of 4 sec
28. 29.	. Queue clearance time (sec): li	c): line 17 ine 26 time (ST, sec)		2 2	8. 20.4 9. 4.0	Minimum of 4 sec
28. 29. 30.	. Queue clearance time (sec): li . Desired minimum separation t	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro		2 2	8. 20.4 9. 4.0	Minimum of 4 sec
28. 29. 30. SEC	Queue clearance time (sec): li Desired minimum separation t Maximum preemption time (c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro	ugh 29	2 2	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9
28. 29. 30. SEC 31.	. Queue clearance time (sec): li . Desired minimum separation time (. Maximum preemption time (. TION 4: SUFFICIENT WARNII . Required minimum time (MT,	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations	ugh 29	2 20	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks
28. 29. 30. SEC 31. 32.	Queue clearance time (sec): li Desired minimum separation t Maximum preemption time (c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro	ugh 29	2 20	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency	ough 29	31. 20 32. 2 33. 10	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency vided by railroad (MWT	oad 3	20 32. 2 33. 10 ines 31 thru 3	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railroad or public agency rided by railroad (MWT) se preemption time neer	ough 29 oad 3 oad 3 , sec): add I	20 31. 20 32. 2 33. 10 ilroad (sec): s	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railroad or public agency rided by railroad (MWT) se preemption time neer	ough 29 oad 3 oad 3 , sec): add I	20 31. 20 32. 2 33. 10 ilroad (sec): s	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency rided by railroad (MWT) te preemption time need up to nearest full second	ough 29 oad 3 o, sec): add I	31. 20 32. 2 33. 10 iires 31 thru 3	8. 20.4 9. 4.0	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (sec): Maximum preemption time (sec): TION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prove Minimum amount of advance line 34 from line 30, round us If the value on line 35 is greater	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency vided by railroad (MWT) the preemption time need to nearest full second	ugh 29	20 31. 20 32. 2 33. 10 ines 31 thru 3 ilroad (sec): s o (0) if less th	8. 20.4 9. 4.0 33subtract tan zero	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0 35. 11
28. 29. 30. SEC 31. 32. 33.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (CTION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov Minimum amount of advance line 34 from line 30, round u	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency rided by railroad (MWT) re preemption time need to nearest full second er than zero, this is the reximum preemption time	oad 3 oad sec): add I ded from ra d; enter zer minimum adv (line 30) may	20 32. 2 33. 10 ines 31 thru 3 ilroad (sec): s to (0) if less the sance preempting by be decreased	8. 20.4 9. 4.0 33	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0 35. 11
28. 29. 30. SEC 31. 32. 33. 34.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (sec): Maximum preemption time (sec): Maximum preemption time (sec): Maximum preemption time (MT, sec): Minimum time (MT, sec): Minimum warning time provements of the second se	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency rided by railroad (MWT) re preemption time need to nearest full second er than zero, this is the reximum preemption time	oad 3 oad sec): add I ded from ra d; enter zer minimum adv (line 30) may	20 32. 2 33. 10 ines 31 thru 3 ilroad (sec): s to (0) if less the sance preempting by be decreased	8. 20.4 9. 4.0 33	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0 35. 11
28. 29. 30. SEC 31. 32. 33. 34.	Queue clearance time (sec): li Desired minimum separation i Maximum preemption time (ETION 4: SUFFICIENT WARNII Required minimum time (MT, Wide crossing clearance time Additional CT (sec): from railro Minimum warning time prov Minimum amount of advance line 34 from line 30, round u If the value on line 35 is greate railroad. Alternatively, the ma	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency rided by railroad (MWT) re preemption time need to nearest full second er than zero, this is the reximum preemption time	oad 3 oad sec): add I ded from ra d; enter zer minimum adv (line 30) may	20 32. 2 33. 10 ines 31 thru 3 ilroad (sec): s to (0) if less the sance preempting by be decreased	8. 20.4 9. 4.0 33	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0 35. 11
28. 29. 30. SEC 31. 32. 33. 34.	Queue clearance time (sec): li Desired minimum separation to Maximum preemption time (sec): Maximum preemption time (sec): Maximum preemption time (sec): Maximum preemption time (MT, sec): Minimum time (MT, sec): Minimum warning time provements of the second se	c): line 17 ine 26 time (ST, sec) (sec): add lines 27 thro NG TIME CHECK sec), per regulations (CT, sec): verify w/ railro pad or public agency rided by railroad (MWT) re preemption time need to nearest full second er than zero, this is the reximum preemption time	oad 3 oad sec): add I ded from ra d; enter zer minimum adv (line 30) may	20 32. 2 33. 10 ines 31 thru 3 ilroad (sec): s to (0) if less the sance preempting by be decreased	8. 20.4 9. 4.0 33	Minimum of 4 sec 30. 42.9 Remarks round up (MTCD-35)/10 used at Matson 34. 32.0 35. 11

SEC	TION 5: VEHICLE-GATE INTERACTION CHECK (OPTIONAL)
36.	Right-of-way transfer time (sec): line 17
37.	Time required for design vehicle to start moving (sec): line 23
38.	Time required for design vehicle to accelerate through DVL (on line 20, sec)
39.	Time required for design vehicle to clear descending gate (sec): add lines 36 through 38
40.	Duration of flashing lights before gate descent start (sec): get from railroad
41.	Full gate descent time (sec): get from railroad
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
44.	Non-interaction gate descent time (sec): multiply lines 41 and 43
45.	Time available for design vehicle to clear descending gate (sec): add lines 40 and 44
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
	Use Vehicle Gate Interaction ? No
SEC	TION 6: TRACK CLEARANCE GREEN TIME CALCULATION Is Gate Down Circuit Present? Yes
	mpt Trap Check (Use if gate-down circuit not present)
	Advance preemption time (APT) to be provided (sec)
	Multiplier for maximum APT due to train deceleration
40.	Wildlipher for maximum Ar 1 due to train deceleration
40	Maximum APT (sec): multiply line 47 and 48
50.	Time from start of flashing lights until gate is horizontal (sec)
51.	Gates down after start of preemption (sec): add lines 49 and 50
	Preempt verification and response time (sec): line 3
54.	Minimum right-of-way transfer time (sec): add lines 52 and 53
55.	Minimum track clearance green time (sec): subtract line 54 from line 51
CLE	ARING OF CLEAR STORAGE DISTANCE (OPTIONAL)
56.	Time required for design vehicle to start moving (sec): line 23
57.	Design vehicle clearance distance (DVCD,feet): line 24
	Portion of CSD to clear during track clearance green (feet) 58.
59.	Design vehicle relocation distance (DVRD,feet): add lines 57and 58
60.	Time required for design vehicle to accelerate through DVRD (sec)
61.	Time to clear portion of clear storage distance (sec): add lines 56 and 60
60	Track clearance green interval (coconds); maximum of lines 26 FE or 61, round up to full cocond