Background:

A joint annual inspection is required at all traffic signals interconnected with highway-railroad grade crossings in Wisconsin. The inspection shall include at least one representative from the traffic signal operating agency and one representative from the railroad operating company. The purpose of the inspection is to verify that the interconnected system operates as designed. The traffic signal operating agency is responsible for completing form 1a and submitting it to the railroad. The railroad operating company is responsible for completing form 1b, combining it with form 1a in a singular PDF document and submitting the final PDF document to the OCR.

BE ADVISED! This document is a guide for how to complete form 1a. This document **IS NOT** a guide on how to conduct a joint railroad preemption inspection. Additionally, this generic document will need to be modified for non-standard applications, such as when the railroad crosses two legs of an intersection, and both are preempted.

This document is organized by sections matching the form. Under each section, you will see a header in bold representing each field to be completed in that section. The final page of this document is an example of a completed form.

Section 1 – Review Team:

Traffic Signal Inspection Completed By: Record the name(s) of the representative(s) participating in the inspection on behalf of the traffic signal operating agency.

Inspection Date: Record the date of the inspection.

Signature: Representative from the traffic signal operating agency vouching for the accuracy of the form. If this individual is not listed under the 'Traffic Signal Inspection Completed By' section of the form, include a printed version of the name as well.

Date of Last Inspection: Record the date of the previous inspection.

Section 2 – Location Data:

Highway Intersection: Record the highway intersection controlled by the traffic signal that is interconnected with the railroad.

Municipality: Record the municipality that the traffic signal and railroad crossing are located within.

County: Record the county that the traffic signal and railroad crossing are located within.

Traffic Signal Operating Agency: Record the agency responsible for operating the traffic signal.

Signal ID: Record the identification number for the traffic signal (if applicable). Contact the traffic signal operating agency to acquire this number, if unknown.

Signal Contact: Record the name of the contact responsible for coordinating the preemption inspection on behalf of the traffic signal operating agency.

Signal Contact Phone: Record the phone number for the traffic signal agency contact.

Railroad Operating Company: Record the name of the railroad operating company for the subject crossing.

RR Crossing ID: Record the railroad crossing ID.

Railroad Contact: Record the name of the contact responsible for coordinating the preemption inspection on behalf of the railroad operating agency.

RR Contact Phone: Record the phone number for the railroad contact.

Traffic Signal Emergency Contact Number: Record the emergency contact number(s) for the traffic signal operating agency. This number(s) should also be posted inside the railroad bungalow.

Railroad Emergency Contact Number: Record the emergency contact number for the railroad. This number should also be located inside the traffic signal cabinet and on the Emergency Notification Sign (ENS) posted at the crossing.

Section 3 – Traffic Signal Data:

Cabinet Type: Select the box next to the cabinet type.

Controller Make & Model: Record the controller make and model.

Type of Preemption: Select the box next to each type of preemption operating within the traffic signal cabinet.

Other Type of Preemption: Select the box next to each additional type of preemption that is operational within the traffic signal cabinet.

Does RR Preempt Have Priority? If there are other types of preempt in the traffic signal cabinet, does railroad preemption have priority within the traffic signal cabinet? Select yes or no. If there are not additional preemptions in use, select N/A.

Blankout Signs Present? Are blank out signs present at the intersection? These would typically be NO RIGHT TURN and/or NO LEFT TURN signs that come on during a preemption call to stop movements towards the crossing.

Battery Backup Present? Is battery backup installed at the signalized intersection? Select yes or no.

Available Circuits: Select the box next to each type of circuit available within the traffic signal cabinet.

- APP = Advance Pedestrian Preemption
- AP = Advance Preemption
- GD = Gate Down
- HC = Health Circuit
- SIM = Simultaneous
- SUP = Supervisor
- XR = Crossing Active

Used Circuits: Select the box next to each type of circuit in use (defined as being interconnected with the railroad bungalow) in the traffic signal cabinet. Not all available circuits within the bungalow may be in use if the railroad bungalow is not yet able to provide them.

- APP = Advance Pedestrian Preemption
- AP = Advance Preemption
- GD = Gate Down
- HC = Health Circuit
- SIM = Simultaneous
- SUP = Supervisor
- XR = Crossing Active

Vehicular Phases Present: Select the box next to each vehicular phase present at the signalized intersection. If additional vehicular phases are present, they can be added in the 'Other Phases Present' box.

Pedestrian Phases Present: Select the box next to each pedestrian phase present at the signalized intersection. If additional pedestrian phases are present, they can be added in the 'Other Phases Present' box.

Other Phases Present: Record any other phases that are in use at the signalized intersection. (i.e. OL A or phase 9)

Section 4 – Railroad Preemption Phasing Sequence:

Worst Case Phase Veh: Record the worst-case conflicting vehicular phase as identified during the initial preemption design. Phase(s) represent the longest total time for any vehicular phase(s) (min green + yellow + red.

Worst Case Phase Ped: Record the worst-case conflicting pedestrian phase as identified during the initial preemption design. Phase(s) represents the longest total time for any pedestrian phase(s) (min walk + min flashing don't walk + yellow + red).

Track Clear Phase(s): Record the track clearance phase(s) for the signalized intersection.

Preempt Dwell Phase(s): Record the preempt dwell phase(s) for the signalized intersection. This is the first phase or set of phases to be served after exiting the track clearance phase(s).

Preempt Cycle Phase(s): Record the preempt cycle phase(s) for the signalized intersection. These are any phases that are allowed to be serviced while a train is occupying the crossing.

Section 5 – Traffic Signal Timings:

This section is to be populated with information related to the design of the preemption system (**designed**), the details of what is programmed in the controller (**programmed**) and what is visually confirmed in the field (**measured**). For the measured values, it is acceptable to watch the traffic signal controller screen count down the time instead of using a stopwatch. If it is an older controller, however, verification will require stopwatch usage.

Preempt Delay: Not typically used in newer controllers but was historically used to account for issues with transient calls that would put the signal in and out of preempt unnecessarily causing a disruption to signal operations.

(Entrance) Min Green: The minimum green time allowed to be displayed to any phase when a preemption call is received before transitioning out of the current phase and into the track clearance phase.

(Entrance) Walk + Ped Clear: The maximum walk and pedestrian clearance time allowed to be provided to any movement in operation when the preemption call comes in. Once this amount of time is served, the traffic signal will transition to the track clearance phase.

(Entrance) Yellow + Red: The maximum yellow plus all red time to be served to the current phase in operation when the preemption call is received before the traffic signal can display the track clearance phase.

Max Right of Way Transfer Time: Record the Maximum Right-of-Way Transfer Time (RWTT) used in the design of the preemption operation. It is the greater of the vehicular movement (delay + min green + yellow + red) or the pedestrian movement (delay + walk + ped clear + yellow + red).

Track Clear Min Green: The minimum track clearance green that must be provided.

Track Clear Ext Green: Not often used, but this is the amount of time that is added to the track clearance green. Typically used to extend the green additional time after the gate down notification is received so as to ensure any vehicles that cleared the track can also clear the intersection and are not stuck waiting until after the train has left the crossing since this phase will not come up again until it exits preempt (typically).

Track Clear Max Green: This is the maximum amount of time that a track clearance phase can run before the traffic signal goes into a flash mode. It is used when there is a gate down circuit and would trigger a flash operation if the gate was broken and never came down.

Min Dwell: The minimum green time that must be provided before the traffic signal is allowed to exit a dwell phase (either to serve a cycle phase, or to serve the exit phase if the preempt call has ended).

Dwell Preemption Ext: Not often used, but this will extend the minimum green time for the dwell phase before it can exit the preemption call.

Section 6 – Field Testing and Inspection:

Are the blankout signs working properly? If blankout signs are installed at the intersection, do they turn on and off at the point in the preemption sequence as expected? Select N/A if blank out signs are not present at the intersection. Add notes, if necessary, to provide clarity to your response.

Does a preempt call trigger right-of-way transfer? When a preemption call is received, does the traffic signal respond immediately as designed with programmed (entrance) values? Add notes, if necessary, to provide clarity to your response.

Does a protected arrow come up for track clearance? When an opposing through movement exists, recommended design includes a left turn arrow be installed to let drivers know that during the track clearance phase they have the right of way (no opposing movements). If answering no, include explanation in notes.

Does gate down release the track clearance phase? If a gate down circuit is installed at the crossing, does the traffic signal controller hold the track clearance green only until the gate is horizontal at which point it transitions to a dwell phase? Use N/A if a gate down circuit is not in use. Add notes, if necessary, to provide clarity to your response.

Do the proper dwell & cycle phases operate? After the track clearance phase is served, does the controller move to the appropriate dwell phase and then on to any other cycle phases as programmed? Verify all cycle phases can be served. Use N/A if the signal transitions to a solid all red or flash operation after the track clearance phase is served. Add notes, if necessary, to provide clarity to your response.

Is the preempt call released as expected? When the train has left the island circuit and the gates initiate their ascent, does the preempt call from the railroad bungalow drop? Please note, the preemption operation will not end, typically, until the exit phase is served. This question relates only to the physical call from the bungalow. Add notes, if necessary, to provide clarity to your response.

Does the signal exit to the proper phase(s) after preempt? Exit phases can be programmed as part of the preemption operation. If phase(s) have been designated in the design, confirm they are served. Add notes, if necessary, to provide clarity to your response.

Does preempt reservice activate? If a new preempt call is received after exiting a previous call, does the controller begin a fresh preemption sequence? This is a setting in many controllers and should be set such that the new preempt call is treated as a new fresh call restarting the preemption operation. Add notes, if necessary, to provide clarity to your response.

Is emergency contact information posted in the cabinet? Is the emergency contact number for the railroad operating company (as listed above under heading 2) posted inside the traffic signal cabinet in case there is an emergency, and the railroad operating company needs to be contacted? Add notes, if necessary, to provide clarity to your response.

Section 7 – Other Information / Notes:

Use this section of the form to cover important details that were tested/confirmed but not covered by this document (examples include pre-signal operation, queue cutters, etc.). Also, document important details regarding any non-standard responses to the form if additional information provides additional clarity. Summarize any issues that were addressed and any that need to be addressed in the future.

WisDOT RAILROAD PREEMPTION INSPECTION FORM 1a
(to be completed by the TRAFFIC SIGNAL OPERATING AGENCY)

1. REVIEW TEAM

TRAFFIC SIGNAL INSPECTION COMPLETED BY:	Ann Johnson	INSPECTION DATE:	11/6/24
SIGNATURE:	Ann Johnson	DATE OF LAST INSPECTION:	10/17/23

2. LOCATION DATA

HIGHWAY INTERSECTION:		MUNICIPALITY:	COUNTY:
WIS 32 (Ashland Avenue) & Cormier Road (CTH H)		Ashwaubenon	Brown

TRAFFIC SIGNAL OPERATING AGENCY:	SIGNAL ID:	SIGNAL CONTACT:	SIGNAL CONTACT PHONE:
WisDOT	S05-0125	Ann Johnson	(444) 777-9999

RAILROAD OPERATING COMPANY:	RR CROSSING ID:	RAILROAD CONTACT:	RR CONTACT PHONE:
Canadian National	180091C	John Smith	(555) 222-3333

TRAFFIC SIGNAL EMERGENCY CONTACT NUMBER:	RAILROAD EMERGENCY CONTACT NUMBER:
800-375-7302	800-465-9239

3. TRAFFIC SIGNAL DATA

CABINET TYPE:	CONTROLLER MAKE & MODEL:	TYPE OF PREEMPTION:	OTHER TYPE OF PREEMPTION:
☐ TS1 ✕ TS2	Econolite Cobalt	✕ Advanced ☐ Simultaneous	☐ Emergency ☐ Bus/Transit

AVAILABLE CIRCUITS:
☐ APP ✕ AP ✕ GD ☐ HC ☐ SIM ✕ SUP ☐ XR

USED CIRCUITS:
☐ APP ✕ AP ✕ GD ☐ HC ☐ SIM ✕ SUP ☐ XR

VEHICULAR PHASES PRESENT:	PEDESTRIAN PHASES PRESENT:	OTHER PHASES PRESENT:
✕ 1 ✕ 2 ✕ 3 ✕ 4 ✕ 5 ✕ 6 ✕ 7 ✕ 8	✕ 2 ☐ 4 ☐ 6 ✕ 8	OL A & OL C

DOES RR PREEMPT HAVE PRIORITY?	BLANKOUT SIGNS PRESENT?	BATTERY BACKUP PRESENT?
☐ Yes ☐ No ✕ N/A	✕ Yes ☐ No	✕ Yes ☐ No

4. DESIGN RAILROAD PREEMPTION PHASING SEQUENCE

WORST CASE PHASES:		TRACK CLEAR PHASE(S):	PREEMPT DWELL PHASES:	PREEMPT CYCLE PHASES:
Veh: 4	Ped: 8	3 & 8	2, 6 & OL A	1, 2, 6, 7, OL A & 2P

5. TRAFFIC SIGNAL TIMINGS

CONTROLLER SETTINGS	DESIGNED		PROGRAMMED		MEASURED		NOTES
Preempt Delay:	0.0	sec.	0.0	sec.			
Entrance Min Green:	7.0	sec.	7.0	sec.	7.0	sec.	
(Entrance) Walk + Ped Clear:	17.0	sec.	17.0	sec.	17.0	sec.	
(Entrance) Yellow + Red:	5.5	sec.	5.5	sec.	5.5	sec.	
Max Right of Way Transfer Time:	22.5	sec.	22.5	sec.			
Track Clear Min Green:	23.0	sec.	23.0	sec.	23.0	sec.	
Track Clear Ext Green:			1.0	sec.	1.0	sec.	
Track Clear Max Green:			100	sec.			
Min Dwell:			10.0	sec.	10.0	sec.	
Dwell Preemption Ext:			0.0	sec.	0.0	sec.	

6. FIELD TESTING AND INSPECTION

		NOTES
Are the blankout signs working properly?	✕ Yes ☐ No ☐ N/A	
Does a preempt call trigger a right-of-way transfer?	✕ Yes ☐ No	
Does a protected arrow come up for track clearance?	✕ Yes ☐ No	
Does gate down release the track clearance phase?	✕ Yes ☐ No ☐ N/A	
Do the proper cycle & dwell phases operate?	✕ Yes ☐ No ☐ N/A	
Is the preempt call released as expected?	✕ Yes ☐ No	
Does the signal exit to the proper phase(s) after preempt?	✕ Yes ☐ No	
Does preempt reservice activate?	✕ Yes ☐ No	
Is emergency contact information posted in the cabinet?	✕ Yes ☐ No	

7. OTHER INFORMATION/NOTES