



## Signal TEO Committee Meeting Minutes

Meeting Date: 9-9-2020

Skype meeting

Meeting Time 9:00am to noon

### Skype Meeting Attendees:

Jerry Kotzenmacher	Sue Zarling	Kevin Chan	Trent Lauderbaugh
Cindy Dittberner	Chad Lisser	Ron Christopherson	
Mike Fairbanks	Alex Govrik	Curt Krohn	
Clint McCullough	Marty Carlson	Nicole Stromgren	
Chris Bosak	Eric Klute	Derek Lehrke	
Peter Skweres	John Fahrendorf	Linda Heath	
Les Bjerketvedt	Tod Becker	Ben Osemenam	
Mark Korwin-Kuczynski	Nick Ollrich	Greg Kern	

### Old Business –

1. **Cabinet/Controller committee update** – Approved prototypes. Should be NRTL listed in accordance with UL508 by the end of month. Field indication circuits will also be NRTL listed as class 2 or 3 power limited. After we receive this documentation from McCain we can begin to process orders.
2. **Details and Plates** – Will be a long process. Will send out drafts to all districts for your review. Discussions on changes will take place in this committee and we will vote to pass along to TEO executive committee. We will get these switched over.
3. **Voting members** – District Traffic Engineers provided names of the voting members for items at this committee.
  - D1 - Paul Ackerley
  - D2 – Cindy Dittberner
  - D3 – Ken Hansen – Robin DeLage back up
  - D4 – Les Bjerketvedt
  - D6 – Greg Wagner
  - D7 – Nick Ollrich
  - D8 – Jeff Knofczynski

Metro – Steve Misgen alternates: Mike F. for operations issues and Mike G for design issues as backup

ESS – Clint McCullough with Eric Klute as back up

If something needs a vote, info will be sent out a couple weeks ahead of time for districts to discuss internally. TEO Signal Committee recommendations will then go to TEO executive committee when a decision is needed from them. At this time each vote is weighed equally. This might need future discussion with the District Traffic Engineers and the TEO Executive committee.

- 4. New Pedestal Pole and Base-** This is to replace the current pedestal shaft and base Standard Plate 8122 used for traffic signals, AWF, RICWS and RRFBs. It is similar to the light pole base with a pole that tapers on top. Top of pole is straight so that the height can be altered to meet needs in the field. Samples from one manufacturer have been sent to ESS to review and install. Another manufacturer will be sending samples to ESS for review and to install. ESS is evaluating all will provide feedback on mounting of push buttons and installation.

It was asked, how do we address when items need to be installed on the pole that were not part of the breakaway testing, such as a camera? OTE is working on this question and see what we can allow. The whole structure is aluminum. **Banding will not collapse pole.** When finalized this will be the new installation for all pedestal bases, poles, and shafts.

It was asked if anti-seize would still be required for the bolts. - Anti-seize is required for all our structures and Alex has found a new compound that is meant for dis-similar metals.

The installation of this base and pole is the same as it has been for the light poles. There is also a foundation change for pedestal poles, this would be needed regardless of new design. New construction will require a Design E light foundation. **However, for existing pedestal foundations there is a transformer base that attaches to this new pole and fits the bolt circle pattern for existing pedestal foundations.**

Can a steel screw in light foundation be used with this new pole and base? Yes, the pole transformer mounts to the steel screw in foundation in same manner as a light transformer base mounts to a steel screw in foundation.

- 5. Pedestrian Push Button Station -**

**Ped Station Blue Cap-** The shaft for the pedestrian push button station was MASH tested and approved for use at a specific height. Height is a factor in how the structure performs/reacts during breakaway and part of the MASH testing evaluation. Because of this, MnDOT will have to do an internal test/evaluation to allow the blue cap to be installed on the ped shaft since it extends the height of the shaft that was MASH tested. The retro-reflective tape will be included, installed on the cap with two black strips and a white band between the two stripes as shown in details sent out in earlier conversations and previous email correspondence.

A vote on whether the ped station blue cap should be used and if it should be standard or optional was taken by the voting members at the meeting and recorded as follows;

D1 – yes, optional  
D2 – yes, optional  
D3 –yes, optional  
D4 – yes, optional  
D6 – yes, optional  
D7 – yes, optional  
D8 – yes, standard  
Metro – yes,  
ESS – yes, optional  
Will go to TEO executive committee with the recommendation from the signal committee to be able to install as an option.

**Ped Base Tether-** The tether was installed during the MASH testing evaluation of the base. Therefore, because the tether plays a part in how the structure performs/reacts during breakaway, it is required to use when the pedestrian push button station is installed. The tether is provided by the manufacturer, along with installation instructions, and shown on their website.

**Current Design-**Current pedestrian pushbutton station design as shown in plan details and installed on construction project may not meet MASH, since the sign that attaches to the pushbutton exceeds the height of the pedestrian pushbutton station. Similar situation as the blue cap, height is a factor in how the structure performs/reacts during breakaway and part of the MASH testing evaluation. Because of this, that installation will be included in the MnDOT internal evaluation.

**Retro-reflective tape locations-** The white and yellow retro reflective tape placed at the locations on the shaft currently required will continue to be installed on those shaft locations even with the use of the blue cap.

6. **Pedestrian Countdown indication** project – Phase 1 includes Districts 4, 6 and 8. District 6 has agreed to take on the project management roll. OTE will be asking for someone in Districts 4 and 8 to help with the inspections in their districts. Phase 2 includes Districts 1, 3 and Metro. Metro will be the project manager for that project that will take place next year. District 2 had received their own funding and their project has been let and awarded. The pedestrian heads are behind in delivery, but installations should be in November.
7. **No Splice Signal** – New sample plan is posted. The connector detail needs to be removed so there will be another update. Special provisions have already been updated. Extra cable that was already required in the base is now shown as looped in hand hole. Spare cables being pulled is to be left in closes hand hole to the pole. No splice signals are now the MnDOT standard for new construction.

District 2 got feedback from contractors is that they are interested in doing the work and they don't see any extra work in not putting in a splice.

Greased wire nuts are approved for use on retrofit signals and maintenance and special provisions are written to include this.

## **New Business**

8. **CCTV Cabinet** – The need for a provision for a cabinet to be attached to the new traffic signal pole was discussed. The box would be used for fiber and ethernet connections. The RTMC has a CCTV Pole Cabinet that is used on camera and non-intrusive detection poles that can be used.

Since we are redesigning our signal pole, now is the time to look at it. Fiber has a minimum bending radius and must be considered when sizing the cabinet. The RTMC cabinet size is 30" high, 24" wide, 16" inches deep. There is not a structural issue with putting this cabinet on the pole according to Bridge/Structures office, but it is being verified that it can fit with all the other signal components. ESS prefers hub mounts and not banding straps. 2 mounting flanges and a 3" X 5" access opening would need to add to each pole at 135 degrees from the mast arm. This modification should be added to the BA pole when it is reviewed by structures. The CCTV pole cabinet mounting requirements should not be a high cost.

9. **AWF When Signal in Flash** – Came up when using new features of the new controllers. AWF will only flash a single indication when the traffic control signal is in flash.

New ATC cabinet will not support the existing custom NEMA load switches used for AWF.

What should the AWF be doing when signal in flash? Most like to have both indications of the AWF flashing when signal is in flash. Should we start to monitor AWF indications and place the traffic control signal to flash if AWF indications are not working? Will discuss more at controller/cabinet committee meeting. Jerry will set up controller/cabinet committee meeting on this subject. Let Jerry know if you want to be included on this discussion. Emails with additional information on the AWF operation are included as an attachment to these minutes.

10. **Signage for Signals with Railroad Crossings** – The signing section was asking about locations where there is a supplemental sign directing traffic to take alternate route when train is present. Email to Sue if your districts has anything like this.
11. **Wireless Broadband Ethernet Radio update** – There are a lot of broadband radios being deployed and the RTMC is expressing concern with the number of different radios. The RTMC is working getting things more secure. Metro has been working with the RTMC to find a radio If anyone wants to put in a broadband radio you should work with the RTMC before specifying the radio.
12. **Nesses scanning tool** – RTMC has started to test everything on their server as part of a security vulnerability test. So much data was being put out during the test that they were putting signals into flash. At the moment they have stopped scanning, but they will want to do it again. The scanning takes place daily. In the future they would probably need to get approval from ESS and the DTE before scanning.

There has also been an issue with Cobalt controllers running ASC3 software having SDLC issues. If seeing this you might want to switch to running EOS.

### **13. Current Controller Software Versions**

- a. EOS 3.2.6
- b. ASC3 2.67.30
- c. Cobalt/ASC3 32.67.30
- d. Maxtime 2.1.6

### **14. Current Video detection firmware**

There has been some issues with bine build up on camera lenses. Trying to get it addressed before winter.

- a. Autoscope Vision 2.8 (2.9 was released twice but had major SDLC issues in our TS2 cabinets)
- b. Gridsmart 19.12 (20.10 will be released next month). California uses a lot of Gridsmart cameras and an update is being made by Gridsmart to comply with CalTran standards. Will likely have to use a laptop for access in the future. All passwords for earlier models will be lost
- c. Iteris Next 09.02.23

### **15. Remote access to RTMC net to access MMUs, ped buttons, video detection, etc**

Currently some components are accessible.

#### **Round Robin –**

Linda – first time in the 14 years that she has been there that every position at ESS has been filled.

Eric - Round 3 of the signal upgrade project to get signals on Maxview is getting done. Equipment is out and HST's will hook up. Round 4 is coming up. Arnie was instrumental in programming of all of the equipment, but he only has a few weeks left.

Next Skype Meeting:

January 27th, 2021

9:00 am to noon

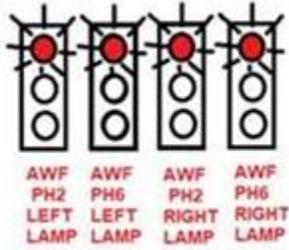
Send agenda items to Jerry K.

Attachments –

Signal TEO Committee,

The following is correspondence on when the signal goes into flash and what happens to the AWF. We will discuss at the Signal TEO meeting on October 8<sup>th</sup>.

We can drive the AWF in this way using logic. This is how we'd probably label it in the cabinet.



So, for the record, I've added my cell phone text ideas to the list I sent Friday:

1. **Use our AWF module and the extra FTR** to send a wig-wag signal to the AWF when in flash and in operation (not an ATC solution).
2. **Use the logic steps/standard load switch and remove the extra FTR.** Then the AWF will only have a Wag when in flash, the wig lamps will be dark. This would work with all cabinet types. We can still use our custom flash plug wiring method in ATC and TS cabinets.
3. **Use the logic steps/standard load switch and use a blue flash plug for the AWF load switch.** The result will be that the AWF will be dark during FLASH and start working once the controller gets back on line. This method works for all cabinet types.
4. **Use the logic steps/standard load switch with the extra FTR plugged in** AND mount an extra Flash Transfer Relay in the cabinet to disconnect the yellow between the load switch and the fuse terminals (make the break at the flash plug by cutting the "yellow flash plug jump wire" and routing it thru the external flash transfer relay). We would still need two specially wired flash plugs which would route the opposite leg of the flasher to the Yellow fuse terminal. This method would work for all cabinet types.
5. **Use blue flash plugs for the AWF load switch, then route the Wig-Wag fuse terminals out thru a double pole-double throw Flash Transfer Relay which is mounted in the cabinet.** The relay coil will be energized when all FTR's are energized and send the load switch wig-wag out under OPERATION conditions (probably tap into the FTR coil circuit behind the load switch bay). Then the flasher outputs can be tapped and wired to the normally closed contacts to go out thru to the field when the flash circuit is reenergized (in flash condition).
6. **Add a separate relay panel with flasher block.** There would be a single flash transfer relay which would be held in by the GREEN output of the load switch (logic would keep this ON always). The energized flash transfer relay would send the AUTO operation AWF to the RED and YELLOW fuse terminals. When the signal was in flash, no AC+ Lights would be available so the FTR would relax and sent the flasher block outputs to the RED and YELLOW fuse terminals. We would use blue (PED) flash plugs on the AWF load switches for this operation. Can be used in any cabinet design.
7. **Use two load switches to drive an AWF direction and only use the RED output.** Only feasible in the ATC cabinet design. Because we have load switch pairs on each flasher output, an AWF direction would be on every other load switch (i.e. AWF PH2 = Load Switches 13 & 15 while AWF PH6 = Load Switches 14 & 16). Logic would redirect the AWF outputs. The YELLOW and

GREEN outputs would be available for right turn overlaps or, better yet, be the EVP output drivers on the yellows? Ron

Opinion –

1. **Use our AWF module and the extra FTR** to send a wig-wag signal to the AWF when in flash and in operation (not an ATC solution).

As I have seen over the course of programming controllers the "Overlap" option makes many internal function not behave properly especially in coord. Additionally I would think having a special special load switch would be a concern over time with maintenance and knock downs (not sure how difficult they are to make or how many are available)

2. **Use the logic steps/standard load switch and remove the extra FTR.** Then the AWF will only have a Wag when in flash, the wig lamps will be dark. This would work with all cabinet types. We can still use our custom flash plug wiring method in ATC and TS cabinets.

I find this operation acceptable as the AWF is still flashing and so the sign is still valid. The one condition being that if the fuse or FTR blew there is no reducncy for the flash operation. In some cases like at 237th, where a flashing signal can be seen for miles, this would be ok. For some signals like TH8 & TH95 in Taylor falls this would not since the AWF is there due to sight line restrictions.

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As mentioned in 2. Acceptable in some locations but likely not in some.

4. **Use the logic steps/standard load switch with the extra FTR plugged in** AND mount an extra Flash Transfer Relay in the cabinet to disconnect the yellow between the load switch and the fuse terminals (make the break at the flash plug by cutting the "yellow flash plug jump wire" and routing it thru the external flash transfer relay). We would still need two specially wired flash plugs which would route the opposite leg of the flasher to the Yellow fuse terminal. This method would work for all cabinet types.

This is a good option but gets into the "custom" cabinet type and would likely require more effort from maintenance to have enough spares built up and on hand.

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For some TS2's this would also be feasible. For example 237th only has 1 AWF and three open Channels. We could reconfigure that one to this configuration. For ATC cabinets we have plenty of CH's so even with 4 way AWF we would just have to use 8 CH's. I did test this on my controller at my house and it worked well in the Maxtime. I will see what it looks like in EOS.