

TRAFFIC SIGNAL COMMITTEE

Meeting Minutes

DATE 09-03-03

This document is available online at <http://www.nc-ite.org/trafficsignal.htm>

ATTENDEES

Wayne Sandberg	Washington Co.
Paul Zeger	Parsons
Nick Erpelding	RLK
Scott Tacheny	City of Minneapolis
Ben Osemenam	MN/DOT - OTSO
Todd Foster	Traffic Technologies
Bryant Ficek	Bonestroo
Marc Culver	City of Maple Grove
Linda Taylor	MN/DOT – Metro District
Roger Plum	S.E.H.
Ray Starr	MN/DOT - OTSO
Jerry Koztenmacher	MN/DOT - OTSO
George Stuempfig	SRF
Kristi Sebastian	Dakota Co.
John Maczko	City of St. Paul

LOCATION

MN/DOT - Golden Valley

MEETING MINUTE CORRECTIONS

None

HANDOUTS

ITS Seminar Schedule

ROUND ROBIN

Ray Star – MN/DOT will have a test site on the new St. Paul Park signals to review different types of mounts and signal heads. Ray thought the plastic heads with Frey mounts were unstable, especially a 5-section mounted on a pedestal (C.R. 49/Rice at Little Canada Road). There are no known pole mounted Frey mount brackets with aluminum heads in the field.

Pedestrian Sign – The sign is not consistent in the MMUTCD manual. MN/DOT signing is aware of the problem and will rectify.

New Guidelines for AWF – New design is in MMUTCD. MNDOT Metro district has replaced many AWF systems with new design and has removed many that no longer meet the new guidelines. Comments from travelers have expressed disappointment in some of the removals. MN/DOT - OTSO also has a new AWF design detail on their web site. Go to: <http://www.dot.state.mn.us/trafficeng/standards/signaldetails.html> to download detail.

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Linda Taylor – MN/DOT Metro District Traffic Office now has a “Data Extracting Station” located at the MN/DOTs Waters Edge building. This station is for consultants and other users who need modeling information on freeways and ramps. MN/DOT will no longer provide this information for consultants. They must extract the information for themselves. The system will query for dates, plot out any freeway system detector and can be used for other data extraction outside of modeling. She recommends using it during non-peak hours and to bring your own disks.

Marc Culver – Question on what a compliant ADA pedestrian push button is. Nothing in spec book that specifies button. Mn/DOT has been looking into and tested different brands. Wayne will send Mark a button Washington County has been using.

Todd F – Another solar powered flasher has been installed at Bethel and Old Snelling (Bethel Collage).

Steve T. – was in Seattle and observed a Red ball go to flashing red arrow for permissive turn. Kittleson web site has example. MMUTCD does not have this in the manual, but is in the Federal MUTCD. Not all Federal rules are transferred to the Minnesota MUTCD.

Wayne S. – No cost training opportunities held at U of M on ITS subjects. (See attached)

George S. – was in Western Europe and enjoyed the sites but wasn’t impressed with roundabouts at high-speed approaches.

Jerry K. – MN/DOT and the City of Rochester are in the process of implementing signal coordination plans in the new ACTRA system. ACTRA is the citywide signal system for the Eagle controller.

Jerry is also the MN/DOTs technical contact for federal pooled fund project for a Portable Non Intrusive Technology Detection System (PNITDS). MN/DOT is the lead state and SRF is under contract for the project. A kick off meeting for the 16 participating states is scheduled for September 18th. Contact Jerry K. with any questions on this project.

Former MN/DOT State Signal Engineer, Gary Ries has retired. A retirement lunch will be held September 23. For more information, contact Jerry K. at 651-284-3438.

TEO UPDATE

See attachment

ADVANCED SYNCHRO TRAINING UPDATE

No update

OTHER ISSUES

A presentation by Earl Hoekman of 3M ITS was given on detection technologies. The following notes are from his power point presentation based on his past research and experience.

Magnetic Detection –

- must be above roadway/bridge rebar
- Adjust per response to vehicles
- \$600 per loop
- 4 turns of wire typical, more if steel near
- 10 to 1 ratio car/motorcycle
- signal cut in half if installed in road base
- square - most consistent performance
- circle - least roadway damage; no sharp corners
- diamond – reduces adjacent lane signal; helps hold hitch
- Quadra pole – best for motorcycles, reduce adjacent lane calls, eliminate 60 hertz noise

Micro loops –

- detects vertical steal
- concentrates earths magnetic field
- probe can't be below vertical steal
- Can be used under bridge decks
- 3" conduit 21" below roadway surface
- Poly pipe has problems with curve in pipe
- detection area is small
- Higher the vehicle, the better the detection

Overhead Sensors –

- need pole or structure
- side fire, will have occlusion
- multi zones with on sensor
- no lane closures

Video –

- full traffic analysis
- can view about 100'
- day/night transition tends to create problems
- cleaning required
- weather effects accuracy

OMRON SVS video system

- object height measuring system

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- twice the cost of video because uses stereo camera

Microwave –

- basic performance similar to video
- setup optimization can be difficult

Sonic –

- large array needed for large area coverage
- can't see noiseless vehicle
- load ambient noises may decrease accuracy
- MN/DOT uses on temporary systems

Infa Red –

- cost to high
- length and occupancy may be approximate

OTHER ISSUES cont.

Gopher State One Call – Wayne and Kristi will bring public agency issues on the One Call proposed billing to the One Call board.

Under the old system, MN/DOT paid \$15,000 locate tickets a year. With the proposed system, this number will increase to \$168,000. 80% of the tickets are NLR (no locate required). The One Call system is not specific enough for locates.

With the number of signal committee participants, the St. Paul conference room that has been used in the past may be too small. Linda T. will look into a larger conference room at the MN/DOT Waters edge building.

City of St. Paul has 24 battery backup units that will flash the signal system if power is lost.

NEXT MEETING

Tentatively - St. Paul public works building – Dale St.

Location may change to MN/DOT Waters Edge building – Roseville

DATE

Wednesday October 1st, 2003

8:00 – 10:00

ATTACHMENTS

**The following meeting minutes are from MN/DOTs TEO Signal Committee:
*TEO Signal Committee***

Meeting Minutes
July 8, 2003

Old Business –

Dialite red LED indication problem - problem with LED itself. As of March 2003, the bad LEDs are no longer in circulation. There is no way of knowing where the bad LED lights may be. Keep an eye on red LED arrows for any that may still be in the field. TH 55 at Eagandale may have a bad left. Report has been made by Dialite for MN/DOT explaining the problem in more detail. . Mike has a copy of this report if interested.

John T. reports that there are two lists of approved LED indications on MN/DOTs web site. OTSO will look into this issue. He also noted that last 3 digits must be shown on web site. John will also get prices on EVP LED lights. He also noted that white and green LEDs are very static sensitive and this may be an issue.

New Controller – OTSO has looked into the Eagle controller as an alternative to the Traconex controller. The Metro District has declined the option to try any new controllers at this time. District 8, which uses the Traconex controller, has expressed interest in testing/learning the new controller. Spicer has two new signals to be installed in the near future (spring 2004). Other alternative locations would be Hutchinson and Fairbault. Hutch is only a single lane in each direction, a poor choice for learning coordination parameters. Fairbault is at least 2 years out. Rodger S. suggested that a location closer/in the metro would be the best option. OTSO will determine which location will be the best option.

John T. also stated that Traconex was bought out by a company owned by U.S. Traffic Corp. An updated controller and software may be in the Traconex future. All new controller/software now in the prototype stage.

Painted Signal Heads – Rachel and Mike are working on a paint study. St Paul Park will have 3 new signals and will be the location of a paint study. One signal will have unpainted heads (aluminum) and Frey mounts. Metro is open to installing any other paint option that the committee recommends at this St Paul Park location Powder coat paint process is another option. Anodized pedestal shafts and bases were also suggested. Mike talked on the Plasticoat type paint. Contact Mike for a sample of this type of paint process.

Polycarbonate heads – Concerns on stability. Marlin noted that they now manufacture a ribbed plastic head to stabilize. Frey mount with plastic heads may pose a stability problem. Committee had no problem with plastic visor and background shields.

Iron Bases – Mike W. could not find any iron bases that meet breakaway standards.

Splice Kits – Marlin had example splices that had been tested at ESS. Gelcap, the gel splice example passed on the lighting splice but failed on the loop splice. Concerns were air pockets and getting the wires centered. Wire for lighting was larger making it easier than the loop wire for this splice. The Raychem splice passed for the loop wire splice. Greg will check with Fargo electric for use of this splice.

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New Business

LED Light Sensor – Since LED indications don't fail completely at once, is there a need for this type of sensor? Sources have indicated that these sensors are not accurate. Committee decided that this sensor is not needed at this time. As in the past, general appearance and eye evaluation of the indication will be suffice.

Gage Wire – The question came up as to whether 14-gage wire could be used to replace 12-gage wire, since most signals are now LED. 14-gage wire would be the smallest wire we could use to meet code. Negative factors in using 14 gage wire rather than 12 are; 12 gage is more rigid and cost benefits may not be that great. Committee agreed that no change is recommended at this time.

Red Lake Signal – The city had requested a signal that would only turn on when fire equipment was exiting the fire hall. Rochester and Duluth both have existing signals that are similar to what Red Lake is requesting. MMUTCD has emergency signal information within that explains when application may be warranted.

AFMS – Greg is not happy with current operation of system. Tim B. has a sheet with key codes that he sent out to AFMS users. IRM Office has agreed to service mainframe. IRM Office will take simple change orders but larger enhancements may require funds.

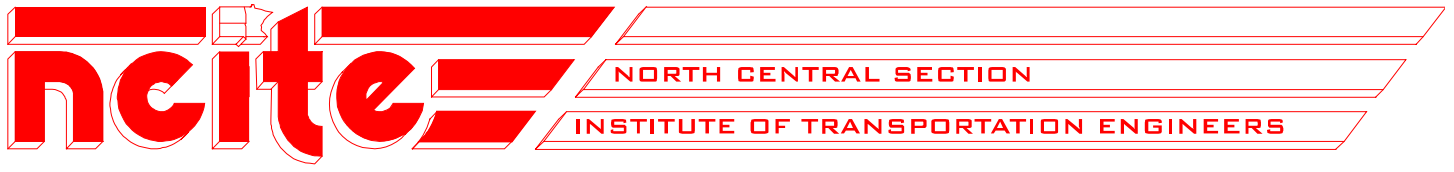
Wireless for AWF – Not a good option. Often the weak link. Committee recommends not using this type a communication for AWF.

Transformer Base – In order for the signal structure (mast arm and pole) to meet the new ASHTO Galloping Fatigue Specification, it was suggested that we replace our current transformer base with Hennepin county "I" tapered base. Ben has been working with Millerbernd and MN/DOT Bridges and Structures Office which both recommend the change to meet the current standard. Arguments against the change are there is little room for tightening the base to foundation bolts for proper torque. Others stated that there has never been a known transformer base failure with the current MN/DOT "H" base. Ben will be working with the U of M and report back to the committee at the next meeting.

Pedestal Washer – Option will be given to contractor to whether they want to install the trapezoidal or round washer. Mike has new spec with both examples. The round appears to be more available.

TE Process – Function 3 Numbers are the issue. ESS can't start building the cabinet without proper function 3 numbers. Often, the number is not available until the cabinets are needed out in the field. OTSO will check into the function 3 process to see if it could be streamlined or if the cabinets can be done before the number is issued.

Policies for Installation of Battery Backup Systems –The current policy is to have the district make the call on when to install this type of system. Negatives of battery backup are the battery maintenance, cost, and hazardous waste issues. Batteries typically last 3 –4 years. OTSO will look for any past notes on this subject.



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Policies for Ped Countdown Installations – Not currently in MUTCD. Feds have specified not to use until it is in the MUTCD. OTSO will attempt policy when the feds ok the installation. Issues with ped countdown indication are when should the countdown start when signal is preempted.

Next Meeting

10-16-2003

10:00am – 2:00pm

Waters Edge Conference Room A

Send agenda items to Jerry Kotzenmacher

Intelligent Transportation Systems Institute

ADVANCED TRANSPORTATION TECHNOLOGIES SEMINAR SERIES

Seminar Series Contact:
Robin Dolbow



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SEMINARS HELD AT TWO UNIVERSITY OF MINNESOTA LOCATIONS:

Twin Cities Campus – East Bank
Room 108 Mechanical Engineering Building*

Duluth Campus
Room 410 Library (via videoconference)

The seminars are open to anyone interested in learning more about technology and transportation. Undergraduate and graduate students, faculty, and practitioners are encouraged to attend. There is no cost to attend, and registration is not required. Each seminar qualifies for one Professional Development Hour (PDH). For more information about the ITS Institute and for updates on the seminars, visit our website at www.its.umn.edu

SCHEDULE FOR FALL SEMESTER, 2003 ~ TUESDAYS, 3:35 – 4:30 PM

- September 9 **Evaluating GPS for Assessing Road User Charges**
Pi-Ming Cheng, Mechanical Engineering
- September 23 **ITS and Industry Clusters**
Lee Munnich, Humphrey Institute of Public Affairs
- October 7 **GPS Modernization**
Bradford Parkinson, Professor Emeritus - Department of Aeronautics and Astronautics, Stanford University
*Special Twin Cities Campus Location: Room 3-180 Electrical Engineering and Computer Science Building
Sponsored in conjunction with Honeywell and the U of M Department of Aerospace Engineering and Mechanics
- October 21 **Inductive Loop Detector Signal Analysis**
Stan Burns, UMD Electrical and Computer Engineering
- November 4 **Integrated Multi-Sensor Navigation Systems**
Demos Gebre-Egziabher, Aerospace Engineering and Mechanics
- November 18 **Adaptive Modulation for Bandwidth and Power Efficient Transmission Over Wireless Links**