

TRAFFIC SIGNAL COMMITTEE
Meeting Minutes
June 1, 2005

ATTENDEES

Jerry Kotzenmacher	MnDOT	Roger Plum	S.E.H
Bryant Ficek	Bonestroo	Rachel Guan	Mn/DOT
Ben Osemenam	MnDOT	Suzanne Danen	Dakota Co.
Joe Gustafson	Scott Co.	Steve Misgen	Mn/DOT
George Stuempfig	SRF	Pete Sorenson	Bolton & Menk
Kristi Sebastian	Dakota Co.	Nick Erpelding	RLK - Kussisto
Don Sobania	Mpls		

LOCATION: Mn/DOT Water's Edge – Conference Room C

HANDOUTS: Chapter 4. Detection of the Mn/DOT signal Design Manual pages 4-1 through 4-3

Topic I – Types of Detection

Three main types of detection and focus of discussion are:

- Loops
- Microwave – with sonic is the common Mn/DOT set-up
- Video

Loops –

- Most common detection used throughout Minnesota.
- The NMC loops work well with a low rate of failure or repair needed. Steve M. notes that Mn/DOT metro has over 20,000 loops and replaced 33 loops this year.
- Most difficult trouble is the splice.
- With the NMC loops installed being placed deeper for conduit box to be lower than 3” (per new detail on the website) this detector type serves its function well. The standard of placing the loops below the typical milling thickness has allowed loops to remain during maintenance projects.

Microwave Devices –

- Trouble occurs during rain conditions from the devices allowing water in.
- The sonic loops have worked well for left turn detection during construction.

Video --

- Video Detectors can be a great source of real information – system can be taken back to office and viewed.
- Mn/DOT has looked at various video systems and found them to be costly compared to NMC loops.
- The auto scope detection system has been hit by lightning on occasion (MnDOT experience)
- It can be difficult to find parts to repair video system because the equipment becomes obsolete in just a few years (similar to the upgrades of computers). To address this issue, cities and Mn/DOT have purchased spare parts upfront for replacement in the future.

- Experience is required to repair the video detections. This could be an issue for installation in smaller cities/counties where technicians are unfamiliar with the devices.
- Need to clean lenses annually or more often in areas with greater pollution (Mnpl experience)
- This system can work fine for system detectors (not activating phases) due to issues with sunlight/shadows from buildings causing false calls or blocking actual vehicle presence.
- Video cameras are not very stable and need to be replaced (usually 1 camera will need replacement) after each temporary use (Mn/DOT experience).
- Angle of video placement can significantly affect results. (Mn/DOT experience)
- Group noted the City of Rochester and Mankato are using several cameras.
- Snow can also be an issue; if video is aimed, wrong with respect to the luminance the camera picks up the lighted flakes of snow and counts it.
- In snow conditions, vehicles often do not follow the lane lines. The video detectors can lose cars that are out of the standard zones (Mnpl. Experience)

Topic II – Various types of interconnection.

Three main types of interconnect and focus of discussion are:

- Fiber Optics
- Direct Bury or conduit buried copper wiring
- Radio – wireless

Fiber Optics –

- More costly to install. Mn/Dot found it was difficult to justify fiber unless the conduit would be carrying more than just fiber for the signal system. They also found others reluctant to share in additional cost for the price of fiber. (Mn/Dot experience)
- Repairs require highly experienced personnel and equipment.
- To deal with malfunction, vendor was called in to diagnose the issue (Scott Co. experience).
- Use of Video for observation (not detection) does require fiber optic cable (Mn/DOT)
- The TMC direct buries fiber and uses conduit only under pavement to reduce costs. They are looking for a method to keep water out and have tried a gel substance to expand and absorb water.

Direct Bury or Wire in Conduit –

- Standard 6c19 is the most common interconnect cable being used.
- Most common/least expensive – has limited abilities with advanced equipment such as videos.

Radio –

- Requires a line of sight between the two cabinets being interconnected.
- Good application for retro fitting a system between an older system and a new installation when going underground is difficult.
- Antennas are mounted overhead. Two brands are available, one requires a FCC license.
- To use cellular econolite would need to modify software; they currently do not plan to make these changes.

ROUND ROBIN

Roger – Detailed his observations of the LRT on 26th street. Funeral procession was crossing highway. Train pre-empted signal but, track did not clear due to traffic control of the funeral “cop” who was stopping vehicles that would be receiving the green light for the pre-emption clear phase. The train operator identified the problem and stopped the LRT avoiding a potential collision. Moral of the story: you believe you have engineered the operation properly for various scenarios but other issues can arise outside of your control.

Rachel –Project to evaluate four section heads is continuing to be developed. There is a special design for the controller needed to operate the four section head with flashing amber correctly. Mn/DOT needs to select the locations before they can obtain permission from FHWA to proceed with the study.

Rachel – Pedestrian flasher study update: A 3-car collision occurred in front of the Mn/DOT central office at the pedestrian flasher crossing. The first two vehicles stopped for a pedestrian but, a third did not resulting in a rear end collision. The pedestrian was not involved in the collision. Police issued a ticket to the driver of car 3 for inattentive driving.

JoeG. – Asked about naming convention for overlap phasing and delay for the operation. Steve M. Explained it was best to use the overlap feature in the controller– using this feature, it would be called overall and not given a phase number for the operation. A second method is to hard wire the overlap however; Mn/DOT no longer uses this method as it creates non-standard cabinets with the technician not necessarily replacing the system in the same manner during a repair.

Don S. – Don Sobania will be starting work on Monday (June 6,2005) with the City of Minneapolis as their new Traffic Engineer. **Congratulations Don and best wishes in your new position!**

Jerry – The battery back-up cabinet spec is now on the web sight. The pad design must be modified to fit the new cabinet. The cabinet will be 40% higher in cost but the price is expected to come down with competition.

Ben – Sue Zarling has taken the position of Signal Engineer previously held by Ray Star. She will start June 8, 2005. **Congratulations to Sue – and we welcome you to our Signal Committee Group!**

NEXT MEETING

The next meeting will be on Sept. 7, 2005 at Bolton and Menk, inn’s new office at
12224 Nicollet Avenue
Burnsville, MN 55337-1649

Topic – Battery Back-up System and Cabinet Design