

Signal Systems Users Group Quarterly Meeting Minutes
Wilmington, NC
Tuesday October 19, 2004

9:50 AM Buddy Murr (NCDOT) kicked off the meeting with a welcome.

Mr. Murr announced the renaming of his section to the Intelligent Transportation Systems (or ITS) Section (formerly called the Traffic Management Systems Section). In conjunction with the name change, the Traffic Operations Group from the Congestion Management Section has been moved to the ITS Section. Accordingly, the name of Greg Fuller's Unit where the ITS Section resides has been renamed the ITS and Signals Unit.

Mike Braswell (ITS Section) discussed the Schedule C and D maintenance agreements. He referred to a handout that contained a sample Municipal Maintenance Agreement, City Council Resolution, Schedule D requirements, and Schedule D quarterly report.

Mr. Braswell stated that the Divisions are responsible for Schedule C and D annual reports. He called attention to the first five pages of the handout, which was the Municipal Maintenance Agreement. The level of service goal is LOS C. Mr. Braswell stated that when old maintenance agreements expire, NCDOT would use the new agreement. This new agreement will be uniform through out the state, although a word may change here and there.

NCDOT will not pay for preventive maintenance of fiber optic communications cable. By its nature, F.O. cable needs no preventive maintenance.

Mr. Braswell covered the Systems Operations Engineer experience requirements and the Schedule D quarterly report requirements. He then opened the floor for discussion.

Greg Fuller (ITS & Signals Unit) pointed out the "Activities for the Quarter" on the second to last page of the handout and how it discussed what actions were taken to improve traffic on specific corridors. He said that his Unit is not responsible for payment (Bill Rosser, Assistant Chief Engineer, oversees all Divisions), but they will review the Annual Reports for the R-4701 Program.

Greg Fuller said that Divisions have to comply with the same requirements and added that Ray Goff (Div. 6) was thinking about hiring consultant to retune some of his systems.

Bill Dillard (CDOT) asked if the money was divided per maintenance responsibility. Greg Fuller said that if the muni's were working at LOS F, E, or D, then NCDOT was going to reimburse at that level. If you aren't doing your preventive maintenance (PM), then NCDOT isn't going to pay. He added that there isn't enough money to pay for everything, but that they have more money than ever before. He stated that the Divisions

should consider hiring a temporary employee or consultants if they can't meet the program expectations. He said that muni's should do the same.

Dawn McPherson (Div. 9) asked how the divisions could ensure the muni's are doing their PM. Greg Fuller said that there is a checklist in the R-4701.

Dawn McPherson asked what kind of document to use for trouble calls. The answer was that the Divisions use a red logbook.

Dawn McPherson said that contracting out could get expensive and burn through money.

Bill Dillard said that the muni's were concerned that the muni's will get what is left over after the Divisions use all the money. David Naylor (Div. 10) stated that they split up the money between the Division and the muni's based on the total number of signals maintained within the Division regardless of who is responsible for providing maintenance.

Bill Dillard said that he thinks expectations will rise, but that the money won't rise. Greg Fuller stated that the money would rise. NCDOT has \$15 million this year and \$18 million next. He added that maintenance expenditures should go down if you're doing PM.

Bill Dillard said that Charlotte keeps records, but not exactly the same as the division. He said that the divisions should not be quick to say this is the way we do it and we want you to do it this way. Greg Fuller answered that is why NCDOT didn't specify a particular format.

Lee Jerigan (Div. 6) said that the report requirements use "shall" when referring to extensions to maintenance agreements, while "may" is used in other places. Greg Fuller answered that this has been changed to "may". He added that after 5 years, you have to execute a new agreement, which city councils must approve.

Don Bennett (Wilmington) said that his existing agreement find loops functional, but not up to LOS C. Greg Fuller said that the key was to identify the marginal loops and put them on a priority list to be replaced when funds are available.

Don Bennett asked about corridors that are way over capacity. Greg Fuller said to do your best. He added not to ride your corridors only at the AM or PM peak. Ride during the off-peaks. He said that we've over emphasized the peaks over the years and the public expects to encounter congestion during the peak traffic periods. Greg feels we can do a better job during the off-peak and weekend periods.

J.P. Couch (Div. 9) asked which expenses does the Schedule C/D not cover. Greg Fuller said that they fall under emergency maintenance (Article 1, Provision 5). He added that NCDOT is taking the approach that there is no PM for fiber communications plants.

Steve Hamilton (Div. 2) asked what was the annual maintenance rate for system loops. Mike Braswell answered \$6.60 each.

Don Bennett asked what he should do if NCDOT contractors destroy loops in the middle of one of his systems. Greg Fuller said that you have to contact the Resident Engineer or work through the Division Traffic Engineer.

Belayneh Mekuria (Signals and Geometrics Section) covered signal system timing practices. He started out by saying that three or four muni's asked what are NCDOT's timing principles. He referred the assembly to a handout, which had two major parts: Goals and common practices. He said you should identify your goal, the problem, the constraints, and requirements. He emphasized the 5th and 6th bullets in the goals section.

Mr. Mekuria said that he did a survey of citizens in five triangle cities. He asked 10 people in each city what they recommended to improve traffic: signal timing, geometric improvements, or do-nothing. He said that 85% of the people responded signal timing.

Mr. Mekuria covered the system timing major milestones. He pointed out the importance of TOD intervals. You can review your system and local detector data and adjust your TOD plans. The idea was that peak times fluctuate over a month and over a year.

Mr. Mekuria then opened the floor to discussion.

Larry Young (Signals and Geometrics Section) said that you could sometimes use a combination of signal timing and geometric improvements, such as making lane assignment changes.

Don Bennett said that you should do your own turning movement counts on the critical intersection. This will allow you to better understand the characteristics of the intersection.

Steven Click (Signals and Geometrics Section) said that the more data, the better, say over a month.

Bill Dillard said that we should be willing to expand considerations and have transition time periods to bridge between peak and off-peak time periods.

Steven Click next discussed TS/PP-Draft. He referred the assembly to a handout and covered the highlights. He said it uses a GPS receiver for tracking and can plot intersections. It makes before and after studies easy. A GPS with cables costs \$300-400 and the software costs \$500.

Don Bennett added that TS/PP-Draft is very helpful for off-peak timing plans.

Status of 2070 Software

Translink 32 is the central upload/download software. Oasis is the integrated local and master software. Oasis is up to version 81 and has stabilized pretty well. Only one or two minor issues remain to be work out.

Someone asked if the central software was ready yet. It is close to being ready, but not yet. It doesn't upload and download correctly.

Greg Fuller recommended getting Procom Plus software, which he says speeds up downloads. Get the script from Steven Click or Belayneh Mekuria. Greg's Unit won't buy it for you, but you can get it for ~\$100 per license through the R-4701 Program.

Carl McCartney (Fayetteville) discussed their experience with Dallas Phasing. He said that they have had 3 city-owned intersections with this configuration for 3 years. Dallas Phasing eliminates the yellow trap associated with normal protected/permitted heads. In Dallas Phasing, the left turn heads become dedicated left turn heads. They are also louvered so the drivers in the through lanes can't see the Dallas heads. This allows the P/P heads to be lagged. Ramey Kemp designed the conversion. Mr. McCartney said that in 3 years, they've had zero questions from the public and no accidents. NCDOT and Fayetteville are going to look at 15 NCDOT signals to convert to Dallas Phasing.

Steven Click discussed 4-section protected-permitted heads. He provided a handout that depicted the 4-section P/P head operation. He said that studies have shown huge drops in accidents. He said that it is not in the MUTCD yet, but if you want to install one, contact Greg Fuller. These form letters go to FHWA and are location specific. Mast arms are preferred when using 4-section P/P, but are not a requirement. For those interested, Mr. Click has animation files available that show how the head operates.

Charlotte has installed one of these heads. Conversion using a TS-2 is complicated. 2070 is the easiest. FYI – if you install one of these, make sure it is working before you do a press release.

Buddy Murr discussed incident management coordination with signal systems. He said that most divisions have ITS regional engineers to coordinate incident management. Eventually, there will be no "borders" in the state. Muni's will have to give their Division an incident contact name. Kelly Damron has the statewide responsibility to clear incidents faster.

Bill Dillard said that Charlotte had an integration project that will provide a hard fiber link between the division's incident center and their signal system.

Greg Fuller discussed metal poles. He said that they are constantly changing specifications and Project Special Provisions (PSPs) to address constructibility. He said to go to the ITS & Signals (may still be called Traffic Management and Signal Systems) Unit website for updates. Call Pam Alexander (919) 715-8333 if you have problems.

Greg Fuller stated they are asking Ron Hancock (NCDOT State Bridge Construction Engineer) to clarify if the leveling nut should be torqued.

Someone asked if they could get help from NCDOT for metal pole inspections. Answer – The Bridge maintenance unit contracted out pole inspections a few years back. The big thing they found were loose anchor nuts. The important thing is to go back 48 hours after installation and recheck the anchor bolt nuts.

Don Bennett asked if there is a checklist for metal pole inspections. Answer – There is a simple one in Schedule C and a detailed one that NCDOT Bridge Maintenance does every 5 years.

Don Bennett asked if they were supposed to remove grout. The following answer was provided by Mr. Don Idol, Assistant State Bridge Inspection Engineer:

“If the non-shrink grout is cracked or deteriorated in any way, the grout should be removed. While it would be desirable to remove all non-shrink grout between the Base Plate and the foundation of Metal Traffic Signal Poles, we would not recommend trying to remove solid non deteriorated non-shrink grout. We believe it will be difficult to remove the non-deteriorated non-shrink grout. It would have to be chipped out with chipping hammers. There would be a risk of damaging the anchor bolts while trying to chip out the non-shrink grout.

If the non-shrink grout becomes cracked or deteriorated over time, we would recommend removing the non-shrink grout at that time...”

Lee Jernigan said that the bridge maintenance let one year go by before notifying his division of loose bolts. Greg Fuller said that part of the Schedule C (12 month) requires you to check the torque on the nuts.

Don Bennett asked what happens when a special design pole is knocked over. Greg Fuller said that recent special designs have been required to have the standard bolt pattern. He added that if time is critical, put up a wood pole.

Dawn McPherson said that they have had difficulty purchasing their own laptops. Greg Fuller said that Senate Bill 991 established a Chief Information Office that reports directly to the Governor. All software and IT issues go through them. They’re taking a

hard line right now, so that everything has to go through the CIO. It'll take a while to work out. NCDOT is going to have a meeting with the CIO to work things out.

Lunch Break (Excellent meal catered by Middle of the Island Restaurant).

Kevin Smith (Kimley-Horn) gave a short presentation on Ethernet. He said it wasn't as widely deployed as one would think. He said San Francisco has ~100 controllers on Ethernet. Ethernet is just for communications. Stuff in the cabinets on the street side of the controller stays the same. Stuff at central this side of the communications panel stays the same. CCTVs, controllers, etc. can all be plugged into the same Ethernet switch.

Pros - Open standards means a lot of vendors.

Cons – From a maintenance standpoint, technicians are unfamiliar with this technology. There are security issues. Right now, the current OASIS doesn't know how to “speak” Ethernet. This stems from a gap in CALTRANS specifications (however, there are ways around this).

Bill Dillard said that they are going to have 16 controllers on Ethernet on Westshire.

Alf Badgett (PBS&J) gave a power point presentation of Broadband Over Powerline (BPL). BPL utilizes electrical power lines to provide broadband Internet services over the last mile, rather than fiber, cable, or DSL. Duke Energy has been running a test bed in Charlotte for the last 6-8 months. This includes one controller and one CCTV

Belayneh Mekuria asked what type of controller is being used. Answer – an old Traconex controller, which is acting as a dummy controller for now.

Justin Carroll (CDOT) asked if 5000 feet was the maximum limit for BPL. Mr. Badgett answered yes.

Buddy Murr briefly discussed NCDOT's use of wireless technology. He said that they are using spread spectrum radio. He added that his Section has two site survey kits.

J.P. Couch has three signals in Thomasville that are wireless. He said that the Encom units initially had problems, but have only had 5 failures in 3 months (5 failures out of 10,000 polls).

Fiber was briefly discussed. NCDOT has three manufacturers of fiber products on the QPL: IFS, Meridian, & Optelecom. IFS was recently bought out by GE and they are cutting back on their warranty to 5 years. Charlotte and High Point are using Optelecom,

which recently increased their warranty to lifetime. A basic Optelecom data modem costs in the neighborhood of \$2,100.

Buddy Murr started to wrap up the meeting. He asked if people liked the quarterly format. There was general agreement to the quarterly format. Greg Fuller thought that the division and muni folks should provide more input to the Agenda and be willing to do presentations.

Bill Dillard like combining NCSITE meetings with SSUG meetings. He said that travel budgets are tight, and combining the meetings may allow more people to attend.

Buddy Murr noticed that there wasn't as much interaction at the Charlotte meeting. The NCSITE annual meeting is December 2, which is a little too close for the next SSUG meeting. Keep an eye out for January or February for the next meeting. Buddy will send out solicitations. He said that at the first meeting, Raleigh, High Point, Chapel Hill, and Greensboro volunteered to host a meeting. Cary and Fayetteville also volunteered to host after their signal systems were complete.

Greg Fuller said that he passed out a handout at the Burlington meeting that provided costs for upcoming signal system projects. He said that if people have inputs on these costs, then turn them into Greg Fuller or Buddy Murr. They are trying to get these projects funded in the TIP.

Carl McCartney asked if there was any thought to getting muni and division technicians together like the SSUG does? Greg Fuller said that his Unit will be having the annual Signal Tech/signal contractor meeting in February. Right now, they are not planning to invite municipal personnel.

Bill Dillard asked if there would be any IMSA training for muni techs like in the past. Greg Fuller sent this information to the divisions recently, but didn't send to muni's. (Glen Bollinger is the current contact person for training provided by the International Municipal Signal Association (IMSA). His contact information is listed below.

Glen Bollinger, Certification Chairman
Southeastern Section IMSA
Glynn County Public Works
Traffic Engineering
4145 Norwich Street
Brunswick, Georgia 31520
912-554-7713
glen@glynncounty.org

Don Bennett asked if anybody else has had problems with power companies after going to LED heads. Steve Johnson said you were better off using meters than a flat rate.

Dawn McPherson said that they've had problems with utility locators not being timely. Don Bennett said that being a member of NC One-Call (utility locating service) works well. Division 3 has also experienced success as a member of this same service. It was suggested to allow further discussion at the next SSUG Meeting

2:22 Meeting adjourned.

For the record: 57 total people attended this meeting. This number was comprised of representatives from 11 Municipalities, 6 Private Engineering Firms, 10 NCDOT Divisions, and the NCDOT ITS and Signals Unit.