INTERSECTION TRAFFIC CONTROL COMMITTEE
Meeting Minutes
October 7th, 2015
(Note: September 2015 meeting was cancelled)

ATTENDEES

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
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<tbody>
<tr>
<td>Dean Chamberlain</td>
<td>Toole Design Group</td>
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<tr>
<td>Mark Wagner</td>
<td>SEH</td>
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<tr>
<td>Jake Bongard</td>
<td>Bolton &amp; Menk</td>
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<td>Allen Eisinger</td>
<td>Traffic Control Corp.</td>
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<td>Molly Stewart</td>
<td>Bolton &amp; Menk</td>
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<tr>
<td>Mike Martinez</td>
<td>HDR</td>
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<tr>
<td>Scott Poska</td>
<td>SRF</td>
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<td>Derek Nieveen</td>
<td>Alliant Engineering</td>
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<td>Tyler Krag</td>
<td>Alliant Engineering</td>
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<tr>
<td>Roger Plum</td>
<td>SEH</td>
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<tr>
<td>Ken Levin</td>
<td>Hennepin County</td>
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<tr>
<td>Nick Van Gunst</td>
<td>Alliant Engineering</td>
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<tr>
<td>Jon Krieg</td>
<td>Hennepin County</td>
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<tr>
<td>Nicole Flint</td>
<td>MnDOT</td>
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<td>Kevin Schwartz</td>
<td>MnDOT</td>
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MEETING LOCATION: HDR Engineering

I. Remaining meeting times/locations for 2015
   November 4, 2015 (8:00-10:00am): HDR – Golden Valley
   December 2, 2015: Time and location to be determined

II. Presentation – ATMS Systems Planning, Projects, And Lessons Learned – Nick Van Gunst (Alliant Engineering)
The following is a summary of Nick’s presentation. The full presentation is attached at the end of these minutes.

1. Project Need – MnDOT/Dakota County
2. Project Goals
3. Project Team
4. Project Overview
5. Concept of Operations
6. Concept of Operations - Needs
2015 Executive Committee

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7. Operational Concept and Requirements
8. Procurement Documents
9. Lessons Learned
10. Next Steps

III. Round Robin
1. No round-robin discussion

NEXT MEETING:

Date: Wednesday, November 4th, 2015 (8:00-10:00am)

Location: SRF Consulting Group
One Carlson Parkway, Suite 150
Plymouth, MN 55447

Topics: LRRB Training: Tool for Time-of-Day Use

Presenting: Vahid Moshtagh

Minutes Submitted By: Mark Wagner
Systems Engineering for Centralized Traffic Signal Control Software

October 5, 2015
Project Need MnDOT

1. Metro District currently utilizes Siemens i2 Central Traffic Signal Control Software

2. i2 Software is no longer supported.

3. Metro District plans to continue to expand central system and migrate signals off of Aries.
Project Need Dakota County

1. Dakota County currently utilizes Aries Central Monitoring System
2. Aries is no longer being enhanced and developed, soon to be not supported.
3. Dakota County plans to continue to expand central system and migrate signals off of Aries.
Project Goals

- Complete the **Systems Engineering analysis** to identify the needs and features of a new CTSCS.
- Fosters **integration** of the deployment with **regional ITS systems** and components while complying with federal regulations.
- Enhances MnDOT/Dakota County’s financial effectiveness while taking proper **consideration of systems interoperability** and future expansion compatibility.
- Work cooperatively with **agency partners** to achieve greater safety, mobility, and efficiency on the signalized arterial system.
- Develop **procurement specification** that meets the operating needs of MnDOT/Dakota County and its agency partners.
Project Team

• MnDOT
  - MnDOT ITS PM
    - Rashmi Brewer, OTST
  - MnDOT Technical Lead
    - Steve Misgen, Metro District Traffic
  - MnDOT Metro Traffic Operations
    - Tim Bangsund
    - Mike Fairbanks
    - Kevin Schwartz

• Alliant Engineering, Inc.
• Athey Creek Consultants
Project Team

• Dakota County
  - Project Manager
    - Kristi Sebastian
  - Project Management Team
    - Carver County
    - Hennepin County
    - Ramsey County
    - Scott County
    - Washington County
    - City of Bloomington
    - MnDOT

• Alliant Engineering, Inc.
Project Overview
1. Concept of Operations
2. Systems Requirements
3. Detailed Design - Procurement Specification
4. System Testing, Verification, Acceptance, and Validation Plans
Concept of Operations

1. Stakeholders
   - MnDOT Metro District Traffic Staff
     - Use CTSCS to monitor and maintain traffic signal operations on MnDOT operated roadways within the Metro District boundaries.
     - Use CTSCS to troubleshoot hardware issues with traffic signals.
     - Provide administrator for CTSCS to manage operator access and user rights.
     - Serve as in-house technical expert for MnDOT.
     - Serve as primary MnDOT contact with CTSCS vendor for training, technical support and warranty services.
   - Other MnDOT District Traffic Staff
     - Use CTSCS to monitor and maintain traffic signal operations on MnDOT operated roadways within the District boundaries.
   - MnDOT Office of Traffic, Safety and Technology-Electrical Services Section Staff
     - Review CTSCS operational performance logs, identified by District traffic staff, to troubleshoot and repair (as needed) hardware issues with traffic signals.
   - MN.IT
     - Maintain communication, server and computer infrastructure used by MnDOT to operate the CTSCS with traffic signals throughout the state.
   - Local Partners
     - Use CTSCS, as per agreement with MnDOT, to monitor and maintain traffic signal operations on roadways with shared jurisdictional control and interests.
   - CTSCS Vendor
     - Provide training, technical support and warranty services as negotiated by MnDOT.

2. Needs

3. Operational Concept

4. Proposed System

5. Roles and Responsibilities

6. Operational Scenarios
Concept of Operations

1. Stakeholders
2. Needs
3. Operational Concept
4. Proposed System
5. Roles and Responsibilities
6. Operational Scenarios

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<thead>
<tr>
<th>Stakeholder</th>
<th>Role / Responsibility</th>
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| Dakota County Traffic Engineering Staff | • Use CTSCS to monitor and maintain traffic signal operations on Dakota County operated roadways.  
• Use CTSCS to troubleshoot hardware issues with traffic signals.  
• Serve as in-house technical expert for Dakota County.  
• Serve as primary contact with CTSCS vendor for training, technical support and warranty services. |
| Dakota County Traffic Signal Staff Services | Review CTSCS operational performance logs, identified by County traffic staff, to troubleshoot and repair (as needed) hardware issues with traffic signals. |
| Dakota County IT Department          | • Maintain communication, server and computer infrastructure used by Dakota County to operate the CTSCS with traffic signals throughout the county.  
• Provide administrator for CTSCS to manage operator access and user rights. |
| Local Partners                       | • Use CTCS, as per agreement with Dakota County, to monitor and maintain traffic signal operations of signals operated by the local partner.  
• Use CTSCS to troubleshoot hardware issues with traffic signals operated by local partner.  
• Use CTSCS to monitor Dakota County operated traffic signals. |
Concept of Operations - Needs

• Met with stakeholders and operators to discuss project
• Identified 18 Needs to be addressed
• Needs are mapped to the Operational Concept and Requirements

**EXAMPLES OF NEEDS FROM ConOps**

**Need 1:** MnDOT/Dakota County needs to control any department-operated traffic signal controller that is equipped with continuous communications (e.g. Ethernet) capabilities and also supports NTCIP 1202 Actuated Signal Controller (ASC) management information base (MIB) codes, from one central system.

**Need 2:** MnDOT/Dakota County needs central control software to be easy to use and convenient, supporting both regular operators who will work with it daily and occasional operators.

**Need 3:** MnDOT/Dakota County needs central control software to be compatible with MnDOT/Dakota County hardware and software environments, as well as the Minnesota Statewide Regional ITS Architecture.

**Need 4:** Operators need easy access to real-time signalized intersection information.
Operational Concept and Requirements

1. 18 functional areas were identified.
2. Operational scenarios were identified to identify how the system would be used by stakeholders.
3. Requirements were developed and mapped to the operational concept and needs.
4. Requirements were used to develop detailed specifications for the procurement document.
Procurement Documents

1. References – Proven Systems
2. Request for Proposal – Process for Selection
3. System Requirements, Testing, and Validation – Proof of Concept
4. Cost Proposal
   • Base Bid
   • Alternates

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<tr>
<th>No.</th>
<th>Requirement</th>
<th>Meets and Will Comply with Requirement</th>
<th>Describe</th>
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<tr>
<td>1.</td>
<td>Fully compatible with the ASC/3 controller, including upload/download of all NTCIP mandatory and proprietary MIBs.</td>
<td>Yes</td>
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Sample of Requirements to be addressed by Proposer
Lessons Learned

• **Project Team Meetings** and stakeholder input at key decision points

• **Full compatibility with signal controller features** (proprietary Management Information Base data) may be needed by the operating agency. NTCIP compatibility isn’t always enough.

• **Check with legal / administrative staff early** on regarding what’s allowed during evaluation and procurement.

• **Procurements involving multiple agencies can be difficult** because of the increased complexity caused by interagency agreements, schedule, competing needs, funding, and differences in the ranking of evaluation criteria.

• **Build off previous systems engineering documents** whenever possible. Using the Utah DOT procurement document resource saved us a significant effort on this project.

• **Maintain focus on your goals.** Adaptive Signal Control requirements and a new signal controller procurement were discussed, but excluded to maintain the focus on the CTSCS features.
Next Steps

- MnDOT RFP release in October 2015
- Contract Award in February 2016
- Final Systems Acceptance in July 2016
- Dakota County waiting for MnDOT