



DRAFT Advanced Technology Task Force Meeting Notes – December 4, 2008

The meeting was called to order at 9:30 AM at the CMAP Offices, 233 South Wacker Drive, Suite 800, Chicago, Illinois. Those present at the meeting were:

Attendees **Chuck Sikaras, Chairman Pro Tem**

Members:

Steve Peters	<i>IDOT</i>	Taqhi Mohammed	<i>Pace</i>
John Dillenburg	<i>UIC</i>	John Benda	<i>ISTHA</i>
Chris DiPalma	<i>FHWA</i>	Martin Anderson	<i>IDOT</i>
Jon Nelson	<i>Lake County DOT</i>		

Interested Parties:

Steve Travia	<i>IDOT</i>	Joe Ligas	
Jim Powell	<i>Wilbur Smith Assoc.</i>	Chalen Daigle	<i>McHenry County DOT</i>
Jerry Hron	<i>IDOT</i>	Matt Devery	<i>ISTHA</i>
		Abraham	
Ken Glassman	<i>Jacobs Engr.</i>	Emmanuel	<i>OEMC TMA</i>
Joe Spedale	<i>Traffic Control Corp.</i>	Kevin O’Neill	<i>URS</i>
Jeff Galas	<i>IDOT</i>		

CMAP

Staff:	Claire Bozic	Dan Rice	Tom Murtha	Todd Schmidt
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SUMMARY OF COMMENTS:

1. Introductions

Mr. Sikaras agreed to chair the meeting, in the absence of the two co-chairs. He began by having everyone in the room introduce themselves.

2. Approval of meeting notes from September 18th, 2008 Task Force meeting.

The notes were approved with corrections Mr. Sikaras had suggested before the meeting.

3. Implementer Updates (Attachment 2)

Ms. Bozic explained that Attachment 2 contained a list of projects for which project architectures had been entered into the regional ITS Architecture. Since the time the architecture was updated in 2007, these projects had not been reviewed for accuracy or completeness. Some of the projects are already completed and some of them should likely be dropped from the database. Mr. Dillenberg asked if the status of the associated elements for the Illinois Gateway could be printed so he would have an idea about which

elements he should be more concerned with. Ms. Bozic said she thought she could accomplish that. Mr. Sikaras pointed out a number of projects that he could immediately see must be changed. For example, the State of Illinois is not longer planning to implement Project 56, the Statewide 511 service. This project should be deleted. Will County completed a study of a Traffic Management Center, project 37, at least 2 years ago and is this project progressing at all? The organizations participating in Project 62 Mobil Technologies to Measure Travel Times Using Probe Vehicles should be changed. The City of Chicago OEMC is now working this alone. Other changes and perhaps some combining of projects, for example the ID66 Traveler Information Archive should probably be combined with the Northeastern Illinois Regional Data Archive and Management System. Mr. Sikaras directed participants to take the lists back to their offices for review and to please provide revisions, additional information, or project additions and deletions to Claire Bozic by February 1, 2009 so she can enter the data and produce an updated report for the March meeting.

4. **ISTHA ITS Plan** (John Benda, *ISTHA*)

Mr. Benda introduced Matt Devery who has joined ISTHA to replace Ken Glassman. He then began his presentation of the second 5 year ITS plan developed by the tollway. The first was developed in 2003-2003 when the Traffic and Incident Management System (TIMS) Center was implemented. This current plan has not been formally adopted. It may not end up being adopted as a stand alone plan, so it is not official and CMAP will not be posting the presentation on the ATTF website. In addition, the new "Green Program" of HOV-HOT lanes will likely have a significant impact on the tollway ITS program, but that has not been solidified yet.

There are a number of areas the draft ITS plan addresses. Modernizing the traffic operations center is important. The technology has improved since the center was implemented five or six years ago. Software, speed, and reliability of the system have all improved. For example, when the system was started analog cameras provided better information than digital cameras. Now, digital cameras have improved very much and the tollway has begun installing them instead. This leaves the tollway with a camera system that is partially analog and partially digital. They intend to convert the entire system to digital imaging.

The regional video sharing system must be upgraded to improve the ability to address portable and temporary cameras. The ability to communicate with portable message signs quickly, easily and seamlessly will be improved.

The traffic sensor system will also be improved by filling gaps and expanding the coverage area. Because of needs at the time, the original installation of traffic sensors had sensors installed farther apart than the tollway desires now. Those gaps will be filled and older sensor models will be replaced. The new sensor technology works better and is more reliable than the original technology. Cameras and Remote Traffic Microwave Sensors (RTMS) will be installed in rural areas. The goal is to have the coverage area completed within the five years of the plan. Upcoming is installation of the equipment on I-88 between the Fox River and Dixon.

The closed circuit television (CCTV) system will be expanded. The goal for this equipment is full camera coverage of the tollway system. The tollway is also moving forward in the development of wireless zones where cameras will transmit the data to plaza collection points wirelessly. From there, the collected data will be dropped into a fiber optic cable and routed back to the operations center. This is currently underway on the north Tri-State where there are 52 fixed wireless cameras. The expansion of the camera system is driving an improvement in the digital video management system. A system designed for the original 120 cameras is now serving over 700 cameras.

The dynamic message sign (DMS) use will be expanded. The tollway has found that dynamic message signs (DMS) are the most effective way to communicate with the public about roadway conditions. The original concept was to provide motorists information far enough in advance of interchanges that they would have the opportunity to change routes. Those signs are quite large and expensive so the tollway is investigating DMS Type II technology that can be installed at midpoint locations not adjacent to interchanges. These signs will be very important to support the Green Lanes project which will likely include dynamic pricing. Providing accurate information to guide drivers in use of the lanes and give information about the pricing will be necessary.

The Weigh in Motion (WIM) program has also been successfully implemented in three locations over the last year. The original plan was to implement 31 sites. However, because of both cost and a better understanding of need, and the goal has been reduced to 12 sites. The first 3 locations use bending plate technology, which has provided the tollway with the opportunity to compare this with piezoelectric sensors. The bending plate technology calibration is impacted by weather. They have 2-3 sites in the planning stage for next year. If they find more overweight vehicles at particular times, they use this information to schedule enforcement. This is valuable in two ways. First, keeping overweight vehicles off the roads protects the public investment in infrastructure because overweight vehicles are destructive to road surfaces. In addition, the fines associated with overweight vehicles do go to the tollway – the only ticket type that does.

Funding for the entire 5-year tollway draft ITS plan is not committed. The ITS projects are not funded through the Congestion Relief Plan (CRP), they are funded through the Renew and Replacement funds. Because of this, funds are requested for specific projects each year. This is not a bad thing, because it encourages frequent review of the program.

The ramp queue detection program is going a little slowly. Two locations are under study right now: Naperville Road at I-88 and Army Trail Road at I-355. An active system in at least one location will be up and running by the end of 2009. The tollway is very concerned with the safety impacts of traffic backing up the ramp and onto the mainline. This goal of the program is to have sensors that can detect such backups and change the traffic signals on the connecting arterial, allowing the ramp traffic to exit. There are a number of locations currently that have queue detectors and the action taken is to display the backup information on a sign. At Great America, the tollway worked with management to change the way entrance fees were collected because this was contributing to the backup. The tollway also wishes to develop a capability to deploy portable detectors for special events – for example holiday mall travel or golf tournaments. The south extension of I-355 has all of the hardware installed to provide this capability. The interconnects are not installed, however, so more work will have to be done to actually implement the service here.

Mr. Murtha asked how far down the arterial does control of the arterial traffic lights extend? Mr. Benda responded that if the ramp traffic light is part of an interconnected system they will impact each other. However, the arterial traffic lights are not under the jurisdiction of the tollway, the local authority is responsible for them.

Mr. Travia said that as the queue develops, IDOT tries to flush the ramp but still keep the signals in coordination. It is a difficult balance to maintain.

Mr. Benda said that's why coordination with local jurisdictions is important. Much of how this works depends on the level of sophistication of the existing arterial signal system. For example, because of the type of signal system near Great America, the tollway couldn't implement the active system. The tollway was able to install the message sign and work with Great America Management to adjust how entrance fees were collected. In the end, Mr. Benda stressed, the tollway may not be able to eliminate ramp queues, but they can try to manage them to reduce the hazards associated with ITS technology, information for drivers and roadway design changes that provide more storage space for exiting vehicles.

The Roadway Weather Information Stations (RWIS) will also be upgraded. Since the tollway first installed some of these stations, they have been upgraded two or three times. This technology will continue to evolve and be updated as needed. With the opening of I-355 south, the total number of stations has risen to seventeen. All this information is being fed into the TIMS Center.

TIMS software will also be reviewed because many more demands have been placed on it since it was first developed. Originally it was intended for traffic and incident management. At time passed, it turned out to be good for managing traffic in construction zones. The information on speed and crashes is now used to identify where more enforcement should be scheduled. Many more field devices are feeding information to it. Because of the additional demands, the tollway has to step back and make sure the system is not being negatively impacted.

Mr. Devery added that updated software will make computer system maintenance better and easier. It will reduce system "down time" when maintenance is needed. The existing software was off the shelf then additional layers of software were added to coordinate. The toll way will also be testing video incident detection.

The tollway will also continue working with IDOT and UIC for enhanced video sharing. UIC has made great improvements to the Gateway over the last few years.

Highway Advisory Radio (HAR) so far has not turned out to be the best way to communicate with drivers. There have been some problems with the quality of AM stations. The tollway continues to monitor how other regions are using this technology.

In total, the program described here amounts to about \$39 million over the next 5 years. The agency has not committed these funds to the program but does expect to continue to implement them during this time.

Mr. DiPalma asked about whether ramp metering was being considered. Mr. Benda explained that the toll plazas used to function as meters but now the agency has gone to open-road tolling. There was a difference in opinion between the operations staff and the political point of view. From the political standpoint, the tollway had moved to open-

road tolling and that meant no stopping. From the operations perspective, the ability to stop drivers was useful to help control traffic. In the end, it was decided that traffic would flow freely onto and over the tollway system.

Mr. DiPalma also asked about whether alternative ramp designs were being considered for problem exit or entrance ramps: specifically, such things as roundabouts. Mr. Benda said that they would not likely be retrofitting interchanges with alternative designs, but where new or expanded interchanges were being proposed it would be considered. Mr. Benda also explained that the tollway has a new policy regarding new and expanded interchange. If the local governments have a desire for one of these improvements, ISTHA will contribute one-half the cost. They will not be implementing interchanges over the opposition of local areas, and the interchange designs Mr. DiPalma referred to would be laid out in the agreement with the local jurisdiction.

Mr. DiPalma mentioned that in the list of projects for Dynamic Message Signs, he did not see the new interchange of I-57 and I-294 mentioned. Mr. Benda said that the equipment specific to that new interchange would appear in that project budget, not the ITS plan. Finally, Mr. DiPalma asked whether the items listed in the ITS plan appeared in the Regional ITS Architecture, to which Mr. Benda responded that the tollway is unique in how strictly it did conform to the regional architecture. In any case, during the project review discussed in agenda item 3, ISTHA would be looking closely to make sure no changes needed to be made.

Taqhi Mohammed inquired whether the tollway was using wireless technology. Mr. Devery said that the tollway had experimented with wire-over-cellular but found that the bottleneck is the internet connection. They have also deployed a private wireless network using Firetide technology on the north Tri-State Expressway. This results in nearly a mesh network, where the transmitted data is collected at a plaza and sent via fiber to the tollway. The advantages are that equipment can be moved for construction, etc. without worrying about moving wired connections. Also, IDOT incident response vehicles can drive to a location, set up the camera and link into the private network – transmitting images back to the TIMS center or to emergency responders. The responder can also transmit information back to a DMS sign to warn approaching traffic.

Ms. Bozic asked whether the tollway had any hard data about the impacts on traffic when this sort of technology was in use vs. when it was not used. Mr. Benda said the tollway has produced a number of reports and that they have an average of 20 minute clearance time in property damage only accidents, 40 minutes on injury and 80 minutes on fatal accidents. This technology has proven to be a very good investment.

Mr. Emmanuel asked about the I-Pass technology. Mr. Benda said the tollway was moving away from using I-pass data for calculating travel time because of continuing concerns over privacy. Even though identifying data is stripped from the records before anyone can use them, there is always a concern when data is attached to someone's identity and credit card information.

Mr. Schmidt asked how far apart the sensors would end up when the overly long gaps between them were filled. Mr. Benda said this was really dependent on the geometry of the roadway. Long straight stretches likely didn't need to be too close, curved areas or areas around toll plazas will be closer. Right now they sensors range from about 1 to 2 miles apart, he expects that later they will range from .5 to 1 mile apart.

Mr. Benda ended up the presentation by saying that the new Green Lanes concept was going to be very dependent on all of these ITS technologies because they will need very accurate data to run them well. This is especially true because they propose to implement variable tolling and will need accurate traffic information and excellent ways to communicate the toll information to travelers.

5. Arterial Performance Monitoring (Claire Bozic, CMAP Staff)

Ms. Bozic introduced the subject by saying the agency and region as a whole was interested in arterial performance monitoring but that we were lacking in data to support that. She recollected working with McHenry County on a project a number of years ago. She needed traffic count information and they were able to provide it and said it came from traffic signals. She referred to a map that had been distributed at the meeting, showing traffic signals from the CMAP traffic signal inventory. They were colored based on whether the signals had traffic detection or no traffic detection capabilities reported.

Mr. Travia said that IDOT had 2200 coordinated signals on closed loop systems, and that it looked like the reporting may not have been accurate. He said that he thought any traffic signal installed within the last 30 years had some ability to collect traffic information. He had previously discussed collecting this information with Argonne National Lab and said it could be done with an army of college students. The issue was that the signals had to be dialed up by telephone and the data downloaded. Ms. Bozic commented that she had been at Argonne's TRACC center the previous week and had a similar conversation with the TRACC staff.

Mr. Ligas cautioned that the data might not be that accurate because its intended use was not the same purpose we were discussing. He thought there would be some value to collecting information and comparing it to volume data collected in other ways. Mr. Travia felt that the technology had been improved over the years and was likely more accurate now than in the past. Jon Nelson said that Lake County was currently using traffic information collected by traffic signals for the Lake County Passage projects. Many of the Lake County signals associated with the Lake County Passage system are designed to transmit the information automatically. Mr. Travia added that additional equipment, such as amplifiers can be added to existing traffic signals to improve the quality of data that is collected.

7. Other Business

Mr. Sikaras asked if there was any progress made in setting up the 2009 construction event. It should be in mid-January, and time is passing quickly. Ms. Bozic said she had brought it up again with CMAP management but hasn't had a response yet.

Mr Benda announced that ITS Midwest had elected new officers. Also, the organization had selected Lake County Passage for an award. This was a big accomplishment because it is very competitive. Congratulations to Lake County, Delcan, ISTHA and IDOT.

8. Next meeting

The next meeting will be on March 5, 2009 at 9:30 am.