

**DRAFT**

**TRB Mid-Year Workshop on  
Vehicle Infrastructure Integration (VII) and Collaborative Intersection Collision  
Avoidance System (CICAS)**

Organizing TRB Committees:  
Traffic Signal Systems Committee  
Intelligent Transportation Systems Committee  
Vehicle Highway Automation Committee

Organizers:  
Brian Park, Chair  
Larry Head  
Gary Piotrowicz  
Vijay Kovalli  
Daiheng Ni  
Edward Fok  
Gene McHale  
Steven E. Shladover

Monday, July 23, 2007 in Palo Alto, CA  
Optional Tour on Tuesday, July 24, 2007

Purpose:

The mid-year workshop on Vehicle Infrastructure Integration (VII) and Cooperative Intersection Collision Avoidance System (CICAS) will bring national leaders in VII and CICAS programs from government, industries, and academia and provide participants with current status including roadmap to deployment, potential issues faced and to be faced with the proposed deployment, up to date research activities that are closely related to traffic signal systems. In addition, the workshop will identify data needs and future research topics under VII/CICAS especially for traffic signal control system through break-out sessions.

Format:

Invited presentations  
Laboratory demonstrations  
Field demo – depends on the location of workshop place  
Brainstorming on research needs related to traffic signal control

DRAFT\*DRAFT Tentative Schedule

**Monday, July 23, 2007**

8:30 am Welcome  
8:40 am Jim Wright  
9:00 am Mike Schagrin  
9:20 am Greg Larson  
9:40 am Jim Misener

Break

10:20 am Michael Maile  
10:50 am Gary Piotrowicz  
11:20 am Brian Park

Lunch

1:00 pm Larry Head  
1:30 pm Daiheng Ni  
2:00 pm Gary Duncan (tentative)  
2:30 pm Rick Denny

Break

3:30 pm Breakout session(s)  
4:15 pm Discussion  
5:15 pm Adjourn

**Tuesday, July 24, 2007**

Afternoon VII/CIAS Tour/Demo

[PATH/CalTrans Tour/Demo](#) – Jim Misener (Confirmed)

SR 82 (El Camino Real) it is, not SR 84 (which is further North and actually intersects with SR 82.

BTW, Page Mill & SR 82 has a current sniffer and talks to cars buses. 5th Ave & SR 82 does that SPAT (this is a quiz 'cause this was defined earlier) the digital (AB 3418) way, talks to cars -- and we can get it to talk to buses.

[Daimlerchrysler](#) –

[Econolite](#) – Tentative

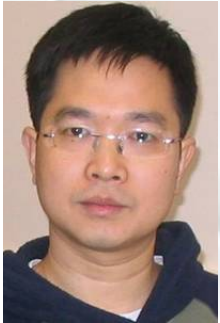
## VII & CICAS Workshop Speakers



**Jim Wright**  
511 & VII Program Director, AASHTO

*AASHTO's Role in the VII Program*

Presentation will cover policy committee issues, outreach and education to the AASHTO community and the latest VII policy positions from AASHTO.



**Daiheng Ni, Ph.D.**  
Assistant Professor, University of Massachusetts Amherst

*Development of a Prototype Intersection Collision Avoidance System under VII*

This paper presents the design of a prototype intersection collision avoidance system based on Vehicle Infrastructure Integration (VII). Underlying the system are wireless communications, positioning technology, and information technology that ensure accurate and timely safety information.



**Byungkyu (Brian) Park, Ph.D.**  
Assistant Professor, University of Virginia

*VII/CICAS Evaluation Test-bed Using HILS and SILS*

This talk presents a HILS and SILS-based system evaluating potential benefits of VII/CICAS in traffic signal control system. The proposed system architecture and application programs including dynamic gap-out, dilemma zone detection, and advisory guidance to drivers will be presented. Some preliminary results will be also discussed.

**Michael Maile** (30 min – can do in 20)  
Research Principal, DaimlerChrysler Research, Engineering and Design North America

*Cooperative Systems for Intersection Crash Prevention*

Crashes at or near intersections are a serious traffic safety problem and account for more than 9000 deaths and more than 1.5 million injuries annually in the US. The USDOT has sponsored research toward cooperative systems (CICAS) that use DSRC wireless communications between the intersection and the vehicle to alert the driver of a vehicle to an impending violation of a traffic signal or stop sign. . This presentation will give an overview over the CICAS system, the current status of the project and the future development activities.



**James A. Misener** (30 minutes)  
Transportation Safety Research Program Leader, California PATH

*VII California and Intersections: Past, Present and Future*

In the talk, the application of low latency, high availability, safety critical messaging between RSEs and OBEs for cooperative intersection safety will be described. The background -- which focuses on signal violation, dilemma zone warning (to address the onset of yellow signal phase) and reducing left-turn crashes -- will be given. Then the current set of information requirements

will be discussed; this will include the need for high data rate, as wireless map updates may constitute a significant component of the communicated message.



**Larry Head**

Research Professor and Interim Department Head, The University of Arizona

*Traffic Control Systems in a VII Environment*

Traffic control in a VII environment changes the paradigm from one of reacting to detector calls for service and extension to one where priority for class of vehicles can be considered, where actual vehicle performance can be monitored and reported, and where safety can be enhanced through signal control decisions and real-time distribution of signal state information.

This talk will discuss some of the issues related to the realization of traffic control systems in the new VII environment.

**Richard W. Denney, Jr., P.E. (30 min.)**

Associate Vice President, Iteris

*The Signal Optimization Application for VII*

Much work has been done in thinking about the signal timing optimizations opportunities presented by VII. For example, can VII produce the input data for traditional traffic signal timing software? But the more important question is: Can VII help us bypass the traditional volume-based modeling on which current signal timing optimizations are based, allowing us to characterize the traffic stream in a way that relates directly to our objective? Before we can answer that question, we must take the step of characterizing how practitioners define their objectives in a VII context. The presentation will review what work has been done to-date to develop the signal timing optimization application of VII, and will propose two areas where involvement from practitioners and researchers will be most important.



**Greg Larson (20 minutes)**

Chief, Office of Traffic Operations Research, Division of Research and Innovation, California Department of Transportation

*VII and CICAS Testbeds in California*

Caltrans and MTC, in partnership with four local auto industry research labs, are building a VII/CICAS Testbed along 60 miles of Caltrans-owned right-of-way in the Palo Alto area. The VII California Testbed will consist of 40 Roadside Equipment locations (DSRC Radios, local intelligence, and backhaul) along three parallel routes: US 101, State Route 82 (El Camino Real), and Interstate 280. The VII California Testbed has both intersection and freeway sites, and is used by Caltrans, MTC, and the auto companies to develop, test, and evaluate various VII safety and mobility applications, such as intersection collision avoidance, curve speed warning, in-vehicle signage of traveler information, and electronic toll collection.



**Gary Piotrowicz (30 minutes)**

Signal Systems Engineer, Road Commission for Oakland County, MI.

*VII: the Michigan Experience*

This presentation will include information regarding most of the VII projects underway in Michigan. This includes CICAS, test beds, the VII Proof of Concept, and DUAP. The status will be given on each of these projects and will include lessons learned from early implementations.

**Email list of Speakers (in alphabetical order):**

Richard W. Denney, Jr., ITERIS [rwd@iteris.com](mailto:rwd@iteris.com)

Gary Duncan, Econolite, [gduncan@econolite.com](mailto:gduncan@econolite.com)

Larry Head, University of Arizona, [larry@sie.arizona.edu](mailto:larry@sie.arizona.edu)

Daiheng Ni, University of Massachusetts Amherst, [ni@ecs.umass.edu](mailto:ni@ecs.umass.edu)

Greg Larson at CalTrans, [greg.larson@dot.ca.gov](mailto:greg.larson@dot.ca.gov)

Michael Maile, [Michael.Maile@daimlerchrysler.com](mailto:Michael.Maile@daimlerchrysler.com)

Jim Misener, UC Berkeley PATH program, [misener@path.berkeley.edu](mailto:misener@path.berkeley.edu)

Brian Park, University of Virginia, [bpark@virginia.edu](mailto:bpark@virginia.edu)

Gary Piotrowicz, Oakland Co., Michigan, [gpiotrowicz@rcoc.org](mailto:gpiotrowicz@rcoc.org)

Mike Schagrin, USDOT ITS JPO CICAS Program Manager, [Mike.Schagrin@dot.gov](mailto:Mike.Schagrin@dot.gov)

Jim Wright, AASHTO Executive Fellow, [Jim.Wright@dot.state.mn.us](mailto:Jim.Wright@dot.state.mn.us)

