

President's Message

Thank you to all those that attended the successful joint ITE International/District 6 meeting in Seattle. A total of 2,260 registered, which was one of the highest attendance



Julie Townsend,
District 6 President

levels ever. A record 89 students were in attendance! The success of this joint meeting was made possible by the extraordinary coordination efforts of Jeff Webber, the LAC, International staff, and International President Jack Freeman, who worked tirelessly to mesh the International and District 6 events together. This joint meeting format provided our District an opportunity to showcase many of our unique events to members from outside District 6.

The first event that was showcased was the James H. Kell Student Competition. This event exceeded all expectations, with 36 students from 10 schools participating in a signal timing

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Can Buses Predict Your Car's Travel Time?

Winner of the Annual Meeting Best Paper Award!

Analysis of a Transit Bus as Probe Vehicle for Arterial Performance Measurement

By Sutti Tantiyanugulchai (A) and Dr. Robert L. Bertini (M)

Introduction

With data increasingly available from Intelligent Transportation Systems (ITS) deployments, we now have increasing power to develop and test the use of actual performance measures. On freeways, important measures like density, average speed, travel time, and delay are often estimated directly using data from inductive loop detectors. For arterials with numerous signalized intersections, performance measures are more challenging due to more complex traffic control and many origins and destinations.

For site-specific arterial performance measurement, traffic conditions are usually evaluated using travel time and delay studies. However, these studies are limited temporally and spatially, and are time consuming and

costly. With ITS, the floating probe vehicle technique can be applied over larger areas (corridors or entire urban areas) and longer time periods (all day, every day). Floating probes respond to changes in traffic flow as they traverse the network, and can transmit location and travel time data to a traffic management center at frequent intervals using Automatic Vehicle Location (AVL). In the case of a transit fleet with AVL deployed, these potential floating probes are already in the traffic stream today. Transit AVL systems are currently used primarily for managing transit operations in real time. This article explores their applicability for measuring arterial performance. The sponsors of the project include the Tri-County Metropolitan Transportation District (TriMet), the Oregon Department of Transportation (ODOT), and the City of Portland.

TriMet provides transit service with more than 600 buses along major arterials in Portland. Each vehicle is equipped with a Bus Dispatch System (BDS) including AVL, which consists of a differential Global Positioning System (GPS) receiver, automatic passenger

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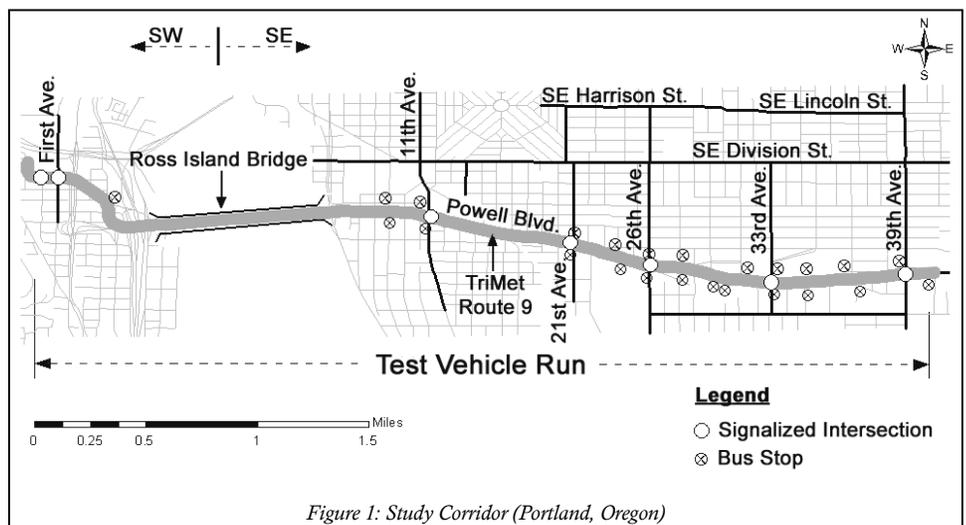


Figure 1: Study Corridor (Portland, Oregon)

The 12 Points Program

The Seattle Annual Meeting was a huge success, and significant thanks go out to Jeff Webber and his committee for all their efforts in helping organize this meeting. With nearly 2,300 attendees, it was about as large a meeting as ITE has ever hosted. Please take time to review the photos and award winners from the conference (pages 4 and 5).

Significant thanks also go out to outgoing President Julie Townsend and Past President Rory Grindley for all their efforts to make this meeting a success. Their efforts resulted in the greatest attendance in ITE history of students at an Annual Meeting (nearly 90 students).

Now, with only 300 days until the next District 6 Annual Meeting in Sacramento, CA (June 20-23, 2004), I provided a brief outline my objectives for the coming year in Seattle. The following 12-point plan summarizes the key actions I will work to provide during my tenure as President. During the initial months of this coming year, I will be talking to many of you looking for input on this plan and seeking your assistance on several initiatives. The action plan was organized around the general themes of the ITE Strategic Plan—areas such as membership, communication, technical knowledge, professional and workforce development, and member services align with the overall goals of ITE. Please join me in this exciting year ahead in “Expanding Our Profession.”

Member Services/ Technical Knowledge

1. Develop a data collection program combining the revitalizing value of student/retired mentor projects to student chapters and member service of providing needed information to our

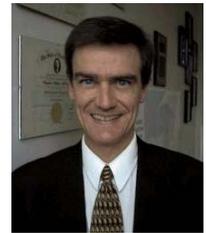
profession, similar to historic documents produced by Caltrans in the 1960’s through 1980’s on trip ends research.

2. Establish a section level transportation tips section to WesternITE to summarize projects, findings, research, tips, education/training opportunities and community involvement that are relevant to our sections – sharing the transportation knowledge of District 6.
3. Establish a credit card system for payment of advertising and potentially for meeting registration for convenience of members and improved District accounting. Consider possible on-site sale of new publications (such as the Parking Generation Informational Report) as I travel to District 6 section/ chapter meetings in 2004.
4. Support enhancements to the District 6 web site as a tool for membership and ITE leadership to rapidly obtain relevant current and historic information.
5. Support the 2004 Sacramento Annual Meeting Local Arrangements Committee in establishing the first FOUR concurrent track District 6 technical program on June 20 through 23.

Professional and Workforce Development

6. Work to further gains in student/ professional relations by continuing programs and seeking energetic leadership at universities. This will include site visits to campuses, reviewing status of advisors, seeking support from university department heads and issuing letters of support to department heads of participating ITE student chapters.

7. Establish a new activity to raise funds for student travel expenses at the Sacramento Annual Meeting involving vendors and members racing remote controlled cars.
8. Work with Student Initiatives Committee to expand the role of professional liaisons/ mentors at student chapters – focusing on young professionals and school alumni.
9. Make ITE International resources available to sections/chapters and members in reaching out to train membership as well as informing the public to the valuable role our profession provides.



Randy McCourt,
incoming District 6
President

Communications/ Membership

10. Put PowerPoint presentation templates on the web for membership to download and utilize in presentations to students to market the transportation engineer/ planning profession.
11. Recruit ITE members to act as liaisons to other complementary transportation professional groups and activities – particularly seeking joint transportation forums at all district/section/chapter levels with WTS, ASCE, APWA, SWE, ITS America, FHWA, FTA, IMSA, AASHTO, TRB, RTEA, ACEC, APTA, ULI, APA and ITE Technical Councils. This may include having groups sponsor sessions at our meetings.
12. Work with the District 6 Board to complete a Strategic Plan for District 6 by June 2004.

undertaken by the board during the meeting include:

- District 6 membership dues were eliminated for lifetime members who are retired.
- District 6 will donate \$2506 to the ITE International Professional Development Fund in support of the ITE Educational Foundation. Donations to this fund will be used to assist ITE in the expansion of affordable, more accessible, professional development/ training opportunities to meet the

(Continued on page 4)

Highlights from the Seattle Meeting



Zaki Mustafa,
outgoing District 6
Secretary-Treasurer

Board Meeting Highlights

The District’s Annual Board Meeting was conducted on August 24th, 2003, in Seattle, Washington. President Julia Townsend called the meeting to order promptly at 8:38 am. The Meeting was well-

attended, with over 41 distinguished members and guests present, including all Board members, and most of the District’s Committee Chairs and International ITE executive board (Executive Director Tom Brahm, International President Jack Freeman, International Vice President Steve Hofener, International Past President Jenny Grote, and International Vice President candidates, Tim Harpst and Don Henderson). The most notable actions

District 6 Awards for 2003



Julie Townsend presents the Wayne T. Van Wagoner Award to Nate Larson



Dr. Shashi Nambisan receives the Outstanding Transportation Educator award



James H. Kell Student Competition Winners, left to right: Freddy Monge, Scott Lee, Yu Zhang, Julie Townsend (presenter), and Maria Miranda



Dr. Robert Bertini receives the Best Annual Meeting Paper award for Sutti Tantiyanugulchai



Monica Suter, President, Southern California Section, receives the Section Activities Award

Lifetime Achievement Award	Willa Wilcox-Myroie
Individual Achievement Award	Timothy P. Harpst
James H. Kell Student Competition	Scott Lee, Montana State Yu Zhang, UC Berkeley Ryan Avery, UW Freddy Monge, Cal Poly Pomona Maria Miranda, Cal Poly Pomona
District 6 Fellowship Award	Christopher S. Maciejewski, UC Berkeley
Student Paper Competition	Lin Zhang, University of Hawaii at Manoa, "Freeway Travel Time Estimation: Case Study in Honolulu"
Student Chapter Award for Best Student Chapter Report	Montana State University Honorable Mention: University of Nevada, Las Vegas
Outstanding Transportation Educator	Shashi S. Nambisan, Ph.D., P.E. University of Nevada, Las Vegas
Outstanding Student	Elizabeth W. Rutman, University of New Mexico
Wayne T. Van Wagoner Award (for best paper by a District 6 member published in ITE Journal in prior calendar year)	Nathan M. Larson, "Signalized Intersection Delay Estimation: Case Study Comparison of TRANSYT-7F, Synchro and HCS," ITE Journal, March 2002
Annual Meeting Best Paper Award	Sutti Tantiyanugulchai, "Analysis of a Transit Bus as a Probe Vehicle for Arterial Performance Measures"
WesternITE Editorial Award (for best paper by a District 6 member published in WesternITE in prior calendar year)	Paul F. Brown & Kathryn J. Harris, for "School Access and Circulation: A Changing World," March/April 2003
Wisest and Windiest Scribe Award	William A. Hange, Colorado/Wyoming Section
Section Activities Award	Southern California Section
Membership Award for: Highest Number Gain Highest Percentage Gain	Southern California Section (84) Northern California Section (16.3%)
Best Web Site Award	Hawaii Section
Traffic Bowl	First Place: Southern California Section Second Place: Washington Section Third Place: Intermountain Section



WesternITE Back Issues Needed

The San Diego State University Student Chapter is compiling a compendium of previous WesternITE newsletters. Most have been located, but a few are still missing. Any help locating the following WesternITE issues would be greatly appreciated:

- | | | |
|---------------|---------------|------------------------|
| Mar-Apr 1976 | August 1971 | November 1967 |
| Jan-Feb 1975 | December 1971 | July 1966 |
| December 1974 | December 1970 | October 1966 |
| Feb-Mar 1971 | July 1968 | Anything prior to 1964 |

Please contact the San Diego State University Chapter at:
 c/o Urban Systems Associates, attn: Justin Schlaefli
 4540 Kearny Villa Road, Suite 106, San Diego, CA 92123
 (858) 560-4911
 SDSU_ITE@hotmail.com

To arrange for safe delivery and return of these important historical District 6 documents!

Seattle Meeting Highlights

(Continued from page 2)

- growing demand and need of the ITE membership.
- Allow the District 6 President to waive the District 6 Annual Meeting registration fees for the Local Arrangements Committee (LAC) General Chair and Vice Chair (or Co-Chairs).
- Begin a process to develop a Strategic Plan to help guide its future leadership.
- The Outstanding Student Achievement Award was restructured to provide separate recognition for undergraduate and graduate students.

President Julia Townsend reported attending ten ITE meetings since the Mid-Year Board meeting in February. She also met with LAC Co-Chairs Bob Grandy and Steve Brown to discuss 2004 LAC activities; as Past President, Julie will serve as the Board's District 6 liaison to the 2004 LAC. She announced the appointment of Marie Girardot as the new District 6 ad hoc Vendor Committee Chair. She thanked everyone for attending the District 6 board meeting and thanked LAC chair Jeff Webber and the international staff for a wonderful job in hosting the joint annual meeting.

Vice President Randy McCourt indicated that the Board now has 25 out of the 31 student chapters' Charters/Bylaws. He prepared a document on the District 6 web site that outlines the ins/outs of negotiations with hotels for our annual meetings and presented to the attendees a list of all of the awards that were to be presented at the Western States Luncheon.

Secretary/Treasure Zaki Mustafa



The 2002-2003 District 6 Board (from left to right): Rory Grindley, Zaki Mustafa, Randy McCourt, Julie Townsend, Ray Davis, Pat Noyes, and Rich Romer

presented the fiscal year 2002-2003 year-to-date financial report and the fiscal year 2003-2004 budget proposal. As of August 18th, District 6 assets totaled over \$166,000.

Past President Rory Grindly gave an update on the selection process for the lifetime achievement and individual achievement award. The Advisory Committee, which Rory chairs, will be developing a matrix on District 6 officials' travel authority. The District Administrator Selection Committee is accepting nominations for the Administrator's position, as Wes Pringle's term will expire in June 2004.

International Directors' Reports

International Director Rich Romer reported that the ITE International Strategic Plan has been approved, and that a Professional Development Program Fund has been created in support of the ITE Educational Foundation.

International Director Ray Davis reported on his travel to local sections, including Hawaii Section. He also indicated that he is chairing the Finance Committee for the ITE International Strategic Plan.

International Director Pat Noyes gave an update on her first eight months on the International Board. She has been appointed as the Chair of the Transportation Security and Evacuation Advisory Committee.

International President Jack Freeman provided an update on International's areas of focus for 2004, including implementation of the strategic plan, intersection safety tool box, operations/signal timing, continuing education, public awareness/outreach, and designing facilities for all users. Jenny Grote, International Past International President, noted that Mr. Robert Crommelin became an ITE Honorary Member.

Other Reports

WesternITE Managing editor John Kerenyi reported on the status of the use of credit card for WesternITE. He is working closely with Jon Pascal our Webmaster. Randy McCourt noted for Jon that upgrading efforts for the web site



Rich Romer, International Vice President Steve Hofener, Ray Davis, and Dr. Jodi Carson



District 6 Board members Julie Townsend, Randy McCourt, and Zaki Mustafa



Left to right: Erik Zandvliet, Southern California Section President; Monica Suter, Southern California Section Past President; Ken Ackeret, District 6 Technical Committee Chair and Secretary-Treasurer-elect; and Rock Miller, International Director-elect

will continue with new features, especially related to the use of credit cards.

Ken Ackeret, Technical Chairman, informed us that this year, Nate Larson received the Wayne T Van Wagoner Award, and that San Diego State is looking for some missing back issues of *WesternITE* [see list on Page 3—Ed]. San Diego State is expecting to finish scanning all of the historic WesternITE issues by the end of this year; CD's will be available from the



This was the Boardroom at the scheduled meeting ending time of 3 pm. The Board meeting ended early for the first time those present could remember!



Attendees at the District 6 Leadership Breakfast on Tuesday morning



Carlos Ortiz, RBF Consulting, and Ken Ackeret, Kimley-Horn and Associates, enjoying the Annual Meeting's exhibit hall

student chapter. The CD's will also be sold at the 2004 Annual Meeting in Sacramento.

Vice Membership Chair Steve Sasaki reported that Southern California section had the highest increased in their membership; the Northern California Section had the next highest percentage increase and the highest numerical increase, and the Intermountain Section had the second-highest numerical increase.

Annual Business Meeting Highlights

The 2003 Annual Business Meeting was held on Monday, August 25, 2003, in Seattle, Washington. President Julia Townsend opened the meeting with a

moment of silence for members in District 6 that passed away in the prior year. Julie recognized all of the officers and committee members present from International, District, Sections and Chapters. She highlighted key District 6 key activities, specifically the student initiatives. Jeff Webber and his LAC were praised for their outstanding job in hosting the 2003 joint Annual Meeting. She highlighted future District 6 Annual Meetings:

- 2004: Sacramento
- 2005: Kalispell Glacier
- 2006: Honolulu
- 2007: Portland
- 2008: Anaheim (International Meeting)

The following International news items were shared: District 6 member Tim Harpst's election to International Vice President, the Southern California Section's award for best section (a District 6 first), and the Montana State University Student Chapter's award for best student chapter.

An overview of District 6 finances and the proposed 2003-2004 budget was presented by Zaki Mustafa to the membership. He provided a budget with income of \$238,600 and expenses of \$253,552. The proposed budget was approved by the membership.

Dean Hobson, the chair of the Teller Committee, presented the District 6 election results to President Julie Townsend. Julie announced the election results as:

- President: Randy McCourt
- Vice President: Zaki Mustafa
- Secretary Treasurer: Ken Ackeret
- International Director: Rock Miller (commencing January 2004).



Members of the repeat winning Traffic Bowl team (left to right): Jim Otterson, Rock Miller, Walter Okitsu, John Kerenyi, and Wes Pringle



The extremely strict Traffic Bowl judges (left to right): Ken Cottingham, Nazir Lalani, and Bob Crommelin



The newly formed San Diego State University Student Chapter competes in the Traffic Bowl

*Together we're the best
And only together can we make a difference!*

Zaki Mustafa

The Seattle ITE Local Arrangements Committee, left to right: Darrel Chambers, Rory Grindley, Sherman Goong, Jeff Webber, Seyed Safavian, Wayne Wentz, Jim Bloodgood, Jim Ellison, and Claudia Hirschey.

Not pictured: Jim MacIsaac, Les Jacobson, Edie Smith, Rick Perez, Jay Pearson, Mike Mariano, and Kevin Chang.

Thank you for a job well done!





ITS Telecommunications Overview Course to be Held in Denver



The ITS Rocky Mountain Chapter will host the ITS Telecommunications Overview Course on Monday, November 3, 2003 in Denver, Colorado. Offered through NHI, the course will introduce participants to the fundamentals of wire-line and wireless telecommunications systems and will conclude with a brief discussion of the telecommunications technology acquisition process.

Who should attend? The course is for transportation managers and engineers involved in policy making, procurement, planning, program development, and legal aspects of ITS infrastructure deployment. Upon completion of the course, participants will be able to:

- Distinguish between the uses of different telecommunications technologies for traffic management applications.
- Determine which technologies best meet the needs of the regional plan.
- Explore ownership and leasing options.
- Describe uses for the Global Positioning System (GPS).
- List issues relating to the availability of radio frequencies for public radio applications and data exchange standards.
- Describe how Dedicated Short-Range Communications (DSRC) are used in ITS applications.
- Describe how different telecommunication technologies are used to convey travel information.

When/Where? A continental breakfast will be offered at 7:30 am with the course beginning at 8:00 am. All functions will be held in Room 4F6 of the Webb Building located at 201 West Colfax in Denver. Seating is limited and will be assigned on a first-come, first-serve basis. Questions can be directed to Meetings Northwest at (406) 273-7224.

Registration. All registrations must be received by Tuesday, October 28, 2003. No registrations will be accepted after

this date. To register, please contact the ITS Rocky Mountain Chapter at:

c/o Northwest/Sage Enterprises, P.O. Box 2083, Missoula, MT 59806, (406) 273-7224.

Use of the word "Comprise"

Have you ever written or read a sentence of the form "x is comprised of y and z"? Did you know that this is incorrect usage? An entity comprises its parts; those parts compose the entity. So, for instance, it would be correct to state "ITE comprises ten districts," or "ITE is composed of ten districts," but not "ITE is comprised of ten districts." The list of parts is also supposed to be a complete accounting, so it would not be correct to state "ITE comprises Districts 5 and 6" since there are other districts too.

Several dictionaries contain a special discussion about the usage of the word. Also, a commonly used style manual, Strunk and White's "Elements of Style," contains a discussion of the proper usage.



Mark your calendars for the 2004 International Annual Meeting in Florida

Call for Abstracts for 2004 District 6 Annual Meeting in Sacramento



The Technical Committee for the 2004 ITE District 6 Annual Meeting is accepting abstracts and proposals for special sessions for consideration for the meeting Technical Program. Abstracts are welcome on any of the following transportation topic areas:

- Traffic Engineering
- Transportation Planning
- Mobility/Operations

- Safety
- Pedestrian/Bicycle Planning/Design
- Travel Models and Microsimulation
- Transit Planning/Design/Operations
- Livability/Community Issues
- Advanced Vehicles/Emission Reduction Strategies

Abstracts are due Friday, December 5, 2003. More information is available at www.westernite.org.

Submittals, questions, and comments should be directed to the Technical Committee Chair:

Bruce Griesenbeck
DKS Associates
8950 Cal Center Drive, Suite 340
Sacramento, CA 95826
(916) 368-2000
bag@dksassociates.com

Can Buses Predict Your Travel Time?

(Continued from page 1)

counters, wireless communications, and stop-level data archiving capabilities. The BDS records bus arrival and departure times at each geo-coded bus stop, as well as recording the maximum instantaneous speed achieved between stops.

Data

The study location is a 2.5-mile corridor on Powell Boulevard in Portland, Oregon. The corridor, illustrated in Figure 1, runs from SE 39th Avenue across the Willamette River on the Ross Island Bridge to downtown Portland at SW First Avenue. Each end of the corridor serves as a time point for the route. The corridor serves approximately 50,000 vehicles per day with peak travel westbound during the

About the Authors:

Sutti Tantianugulchai is currently finishing his Master's Degree at Portland State University, Oregon, where he also serves as a graduate research assistant in the Intelligent Transportation Laboratory. He received a B.S. in Civil Engineering from Kasetsart University, Thailand. He was also the president of the PSU ITE Student Chapter in 2001-2002 and is an Associate Member of ITE.



Dr. Robert L. Bertini is an Assistant Professor of Civil and Environmental Engineering, and of Urban Studies and Planning, at Portland State University. He is also the director of the campus-wide Center for Transportation Studies. He received a B.S. in Civil Engineering from California Polytechnic State University, San Luis Obispo, an M.S. in Civil Engineering at San Jose State University, and a Ph.D. in Civil Engineering (Transportation) at the University of California at Berkeley. He is a registered Professional Engineer in California and Oregon and is a Member of ITE.



A.M. peak and eastbound during the P.M. peak. This study focuses on the portion of data in the westbound direction only using BDS and test vehicle data obtained on Nov. 1, 2001.

For the transit probe investigation, Route 9 was selected for analysis on Powell Boulevard.

Route 9 provides service between the Gresham Transit Center and downtown Portland with approximately 80 trips per direction per day. The study corridor includes 13 westbound and 12 eastbound stops. In the study corridor, TriMet provides a scheduled mean trip time of 10.65 min, with trip times ranging between 8 min during the off-peak and 13 min during the peak. On Nov. 1, 2001, the mean observed dwell time was 16.3 sec per stop with an average of 2 passengers boarding and 1 passenger alighting per stop served. The buses stopped at an average of 8 stops to serve passengers.

The BDS provides a unique source of transit monitoring information in both real-time and archived formats—the data are available for all buses on all days. For each geo-coded stop on each bus trip, the BDS records arrival time, departure time, number of boardings and alightings, and location. In addition, the system stores the maximum instantaneous speed achieved between stops. As shown in Figure 2, each stop has an imaginary 100-foot diameter circle inscribed around it. If the bus does not stop at stop *i*, the BDS records the times that the bus crosses the circle as the “arrive time” and “leave time” for stop *i*. If the bus stops at stop *j*, then the BDS records the time that the door opens as the “arrive time,” records the “dwell time” (the time the door was open), and records the “leave time” as the time the bus leaves the stop circle. Also at each stop where passengers are served, the BDS automatically records the number of boardings and alightings at both doors.

As a control, non-transit test vehicles equipped with GPS devices were dispatched during the study period to collect simultaneous corridor time, location and travel time information. The GPS devices were programmed to record each

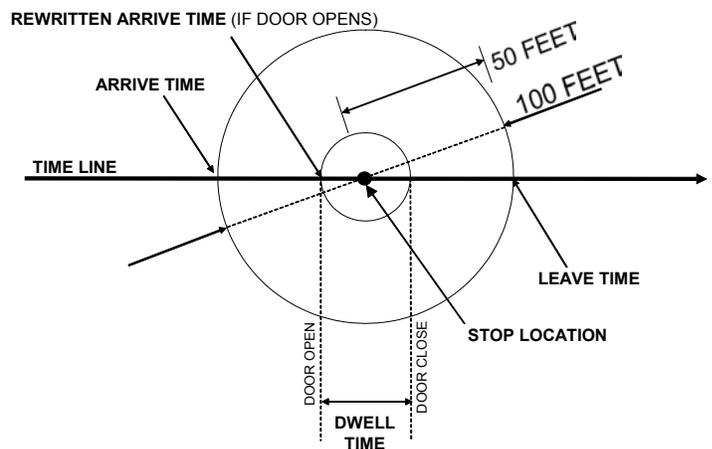


Figure 2: Definition of times used by Automatic Vehicle Location system

test vehicle's precise location (latitude-longitude) with a time stamp every three seconds. Transit AVL data were also obtained for the same days and times for this study. Note that the transit data is location-based, since the BDS system recorded data at preprogrammed geo-coded stop locations, while the test vehicle GPS data is time-based, recorded at specific time intervals. This article will demonstrate how fusing the location-based data with the time-based data can reveal important relationships between the two sources.

Bus Probe Analysis

A preliminary investigation of the BDS data and test vehicle data was conducted using vehicle trajectories, constructed by plotting the cumulative distance each bus traveled on the y-axis and time on the x-axis. A trajectory's slope at any time *t* is the speed at that time and location.

To develop an algorithm to relate the bus data to actual traffic conditions, experiments using the BDS data were conducted using “hypothetical” and “pseudo” bus scenarios. Non-transit vehicles do not decelerate and accelerate to serve passengers, so the “hypothetical bus” concept considers a potential non-stop bus trajectory by subtracting the dwell times. The resulting non-stop trajectory is an approximation of how a bus would travel if it did not stop to serve passengers.

The BDS recorded the maximum instantaneous speed achieved between pairs of stops. Recognizing that a bus does not perform like regular vehicles in the traffic stream, a “pseudo bus” trajectory was created by stringing together segments of a trip where the pseudo bus traveled at its maximum speed between each pair of stops. This was based on the hypothesis

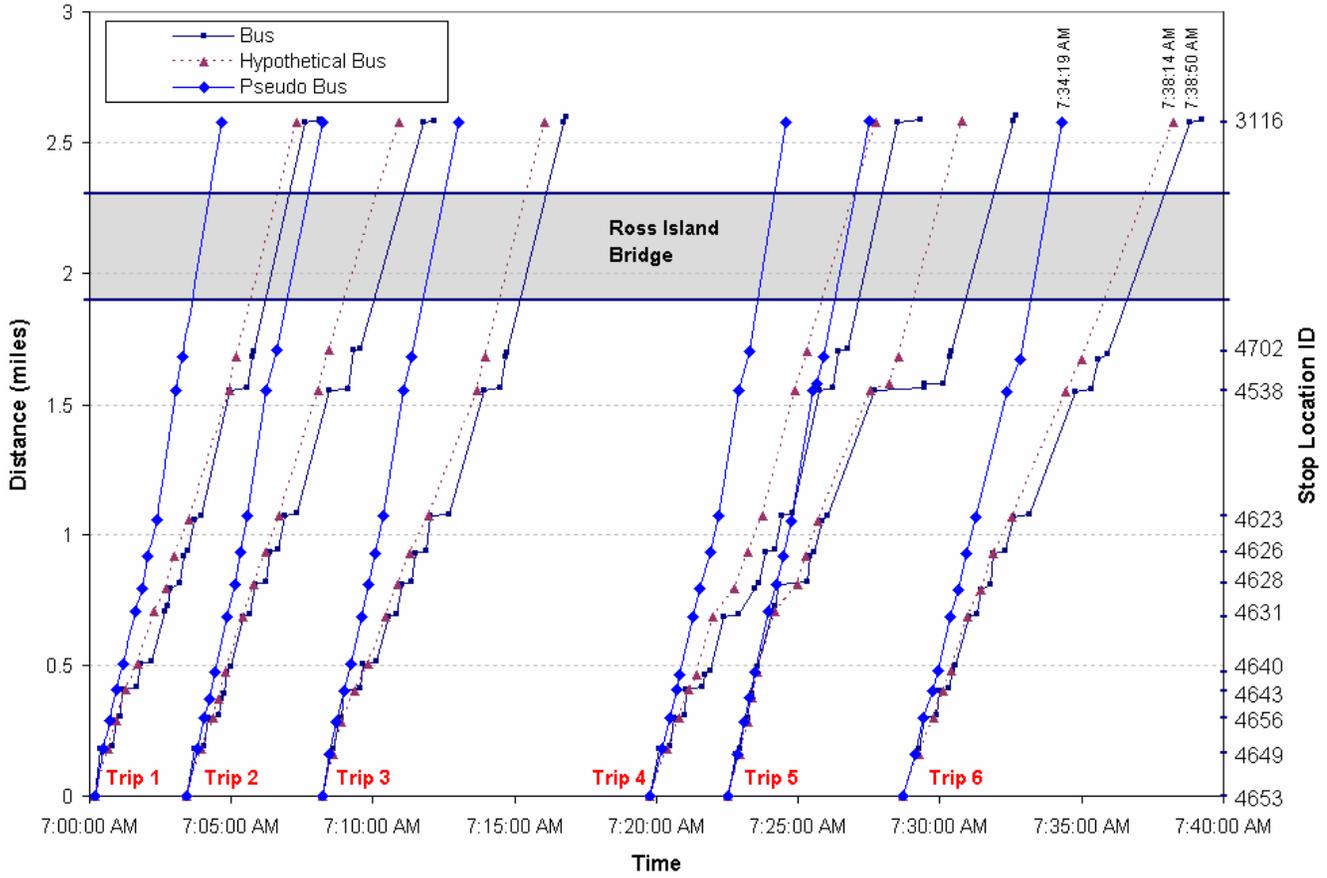


Figure 3: Comparison of actual, hypothetical, and pseudo bus trajectories

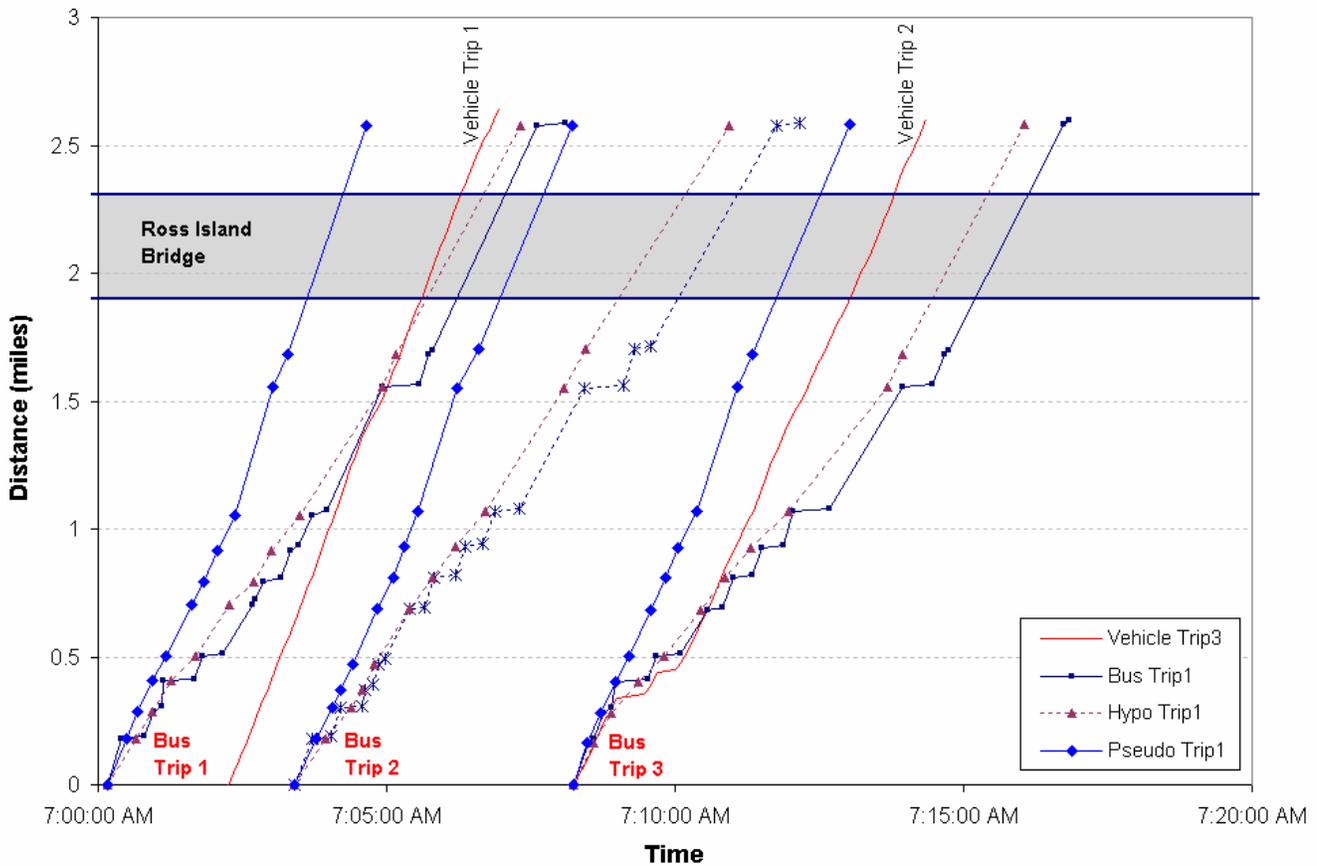


Figure 4: Comparison of test vehicle trajectories to bus trajectories

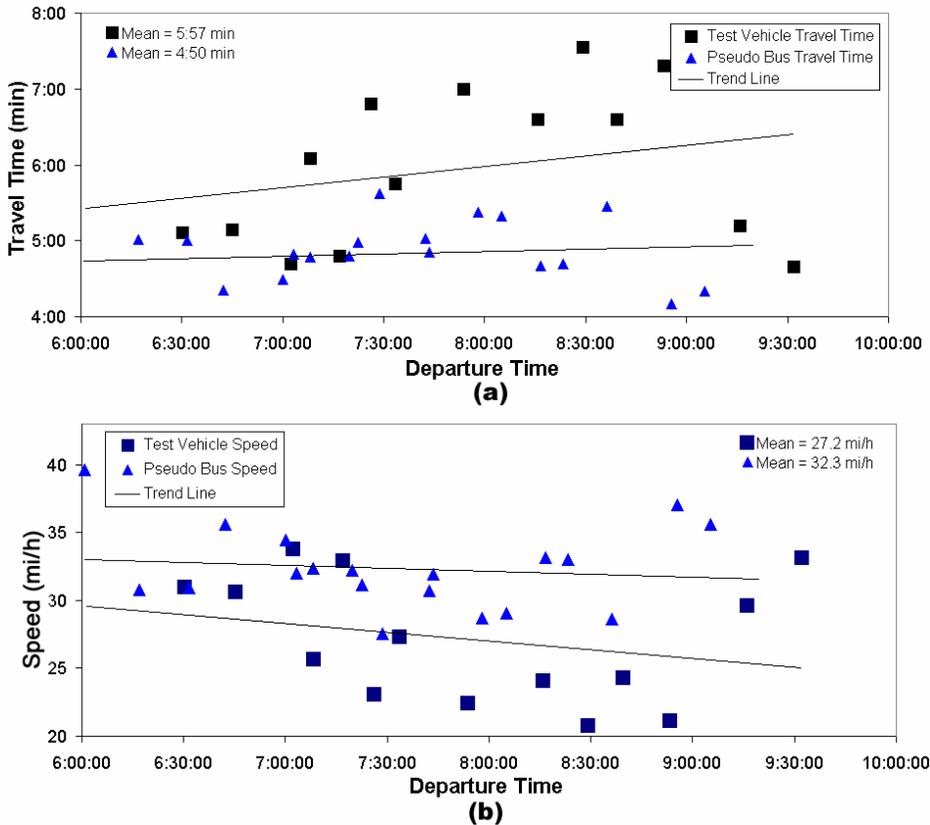


Figure 5 (a) and (b): Travel time and speed of the test vehicle and pseudo bus vs. departure times

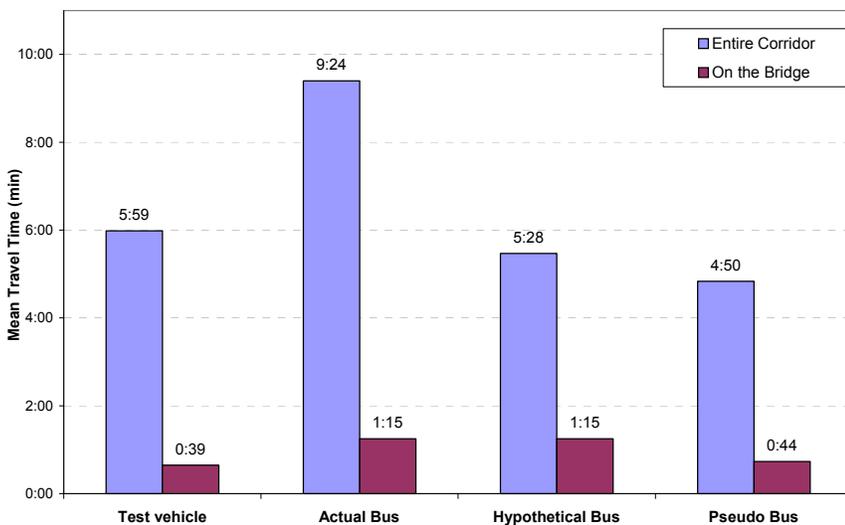


Figure 6: Mean travel time of each vehicle type (entire corridor and bridge only)

that the maximum speed could approximately reflect the speeds of non-transit vehicles along the route.

Figure 3 (previous page) shows the “hypothetical,” “pseudo,” and actual bus trajectories. All three trajectories began at the same departure time. For example, Bus Trip 1, Hypothetical Bus Trip 1 and Pseudo Bus Trip 1 began at 7:00:10 A.M. Pseudo bus trajectories reflect the shortest

travel times; for example, Pseudo Bus Trip 4 finished its trip at 7:34:19 A.M., faster than Hypothetical Bus Trip 4 and Bus Trip 4 by 3:55 and 4:31 min respectively. The mean pseudo bus speed was 32.3 mi/h, twice the actual mean bus speed (16.9 km/h); and the mean hypothetical bus speed was 20.1 mi/h, about 1.3 times the mean actual bus speed. Pseudo bus speeds varied the least along the route. The comparison

between the pseudo buses and the test vehicles is the most relevant and will be described below.

The relationships between travel times and speeds of the test vehicles and the three bus scenarios were analyzed. Figure 4 (previous page) plots bus trajectories, corresponding hypothetical and pseudo trajectories, and test vehicle trajectories for three trips. This figure shows that the actual bus and test vehicle trajectories had similar shapes at the beginning of their trips, indicating both were experiencing congestion. Subtracting the horizontal offsets that result from congestion shows the test vehicle link speeds were substantially higher than those of the actual bus and are similar to the pseudo bus speed.

To verify this, test vehicle and pseudo bus travel times and speeds were compared by departure time. Test vehicle and pseudo bus travel times were plotted versus departure time in Figure 5(a). Travel time trend lines indicate that all vehicles spent more time traversing the study corridor during the morning peak period (7:00–9:00 A.M.). The speeds of the test vehicles and pseudo buses were also plotted against the departure time as shown in Figure 5(b). The speed scatter plots show that vehicles traveled at lower speeds during the morning peak period as well. Traffic conditions improved after the peak period as shown in Figure 5(b), at 9:30 A.M. Test vehicles were traveling at approximately 33 mi/h. The mean travel times for all four scenarios are also plotted on Figure 6.

It was determined that the mean test vehicle corridor travel time was 1.23 times the pseudo bus travel time. However, the test vehicle and pseudo bus travel times were found to be more similar on the bridge. Figure 6 shows that the test vehicle mean travel time was lower than the pseudo bus mean travel time on the bridge, yet higher when comparing their mean corridor travel times. This is assumed to occur because traffic conditions on the bridge are nearly free flow, allowing the test vehicles to achieve higher speeds than the buses.

Corridor speeds were derived by dividing the total travel distance by the net travel time. As shown in Table 1, the test vehicle speed was 0.84 and 0.90 times the pseudo bus speed for the entire corridor and on the bridge respectively. Figures 7(a) and 7(b) also show a comparison between bridge travel times and speeds in detail. Both test vehicle and pseudo bus travel times and speeds were scattered close to one other, and their trend lines were close and partially overlapping.

In a national study, average U.S. bus travel times were reported as 4.2 min/mi (14.3 mi/h) in the suburbs, 6.0 min/mi (10 mi/hr) in the city, and 11.5 min/mi (5.2 mi/h) in the central business district. Figure 6 shows a mean travel time of 9:24 min, or 3.8 min/mi, faster than the national data reported. Table 1 also shows a comparison of test vehicle and bus speeds, showing that test vehicle speeds were 1.63 times greater. The national averages indicate that non-transit vehicles usually travel 1.4 to 1.6 times faster than buses.

A three-dimensional speed contour technique was used to assist in visualizing the speed differences between the buses and the test vehicles spatially and temporally (Figure 8). Speed contour plots for buses and test vehicles were generated using distance and time as the x- and y-axes, respectively, with speed plotted on the z-axis. The speed contour diagram shows that the test vehicle speed changed smoothly on the surface due to the availability of data every 3 sec while the changes in bus speeds were more coarse since the number of bus data points was more limited. The concave surface reflects slower traffic conditions compared to other patterns on the surface. As vehicle i or bus j traversed through distance and time diagonally on the surface, concave and convex surface features describe the varying traffic conditions resulting from acceleration and deceleration. A concave surface feature, as an example, indicates that a vehicle faced queued traffic downstream and accordingly decelerated. A steep slope on the surface represents a faster change in vehicle speed. After the lowest point on the surface, traffic conditions began to return to unqueued conditions as the vehicle accelerated. By viewing the differences between the two speed surfaces, one can locate specific locations and times that the test vehicles experienced conditions that were different from those experienced by the buses.

Conclusion

From this preliminary study, it is shown that it is possible to explain actual arterial traffic conditions using archived transit vehicle AVL information. From the set of transit data used herein, the “pseudo bus” trajectory, generated from the maximum instantaneous speed achieved between each stop, was found to most reliably predict the trajectory of non-transit vehicles. Key performance measures like travel time and speed should also be described using the relationship established

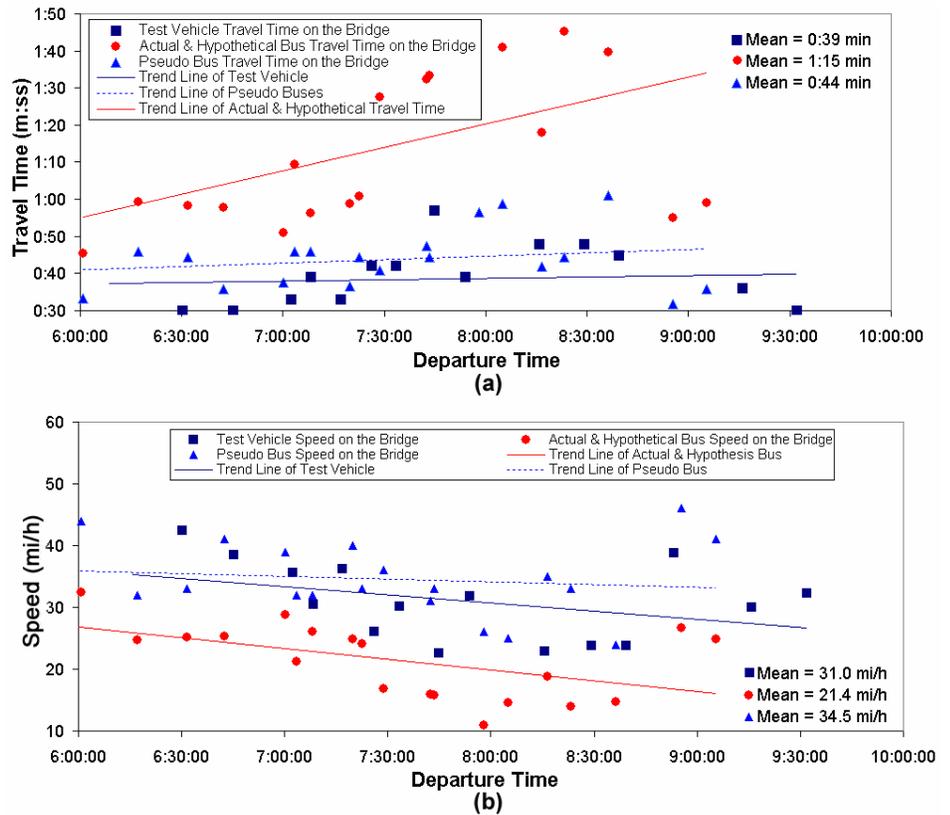


Figure 7 (a) and (b): Comparison of travel time and speed on bridge

3D Speed Contours

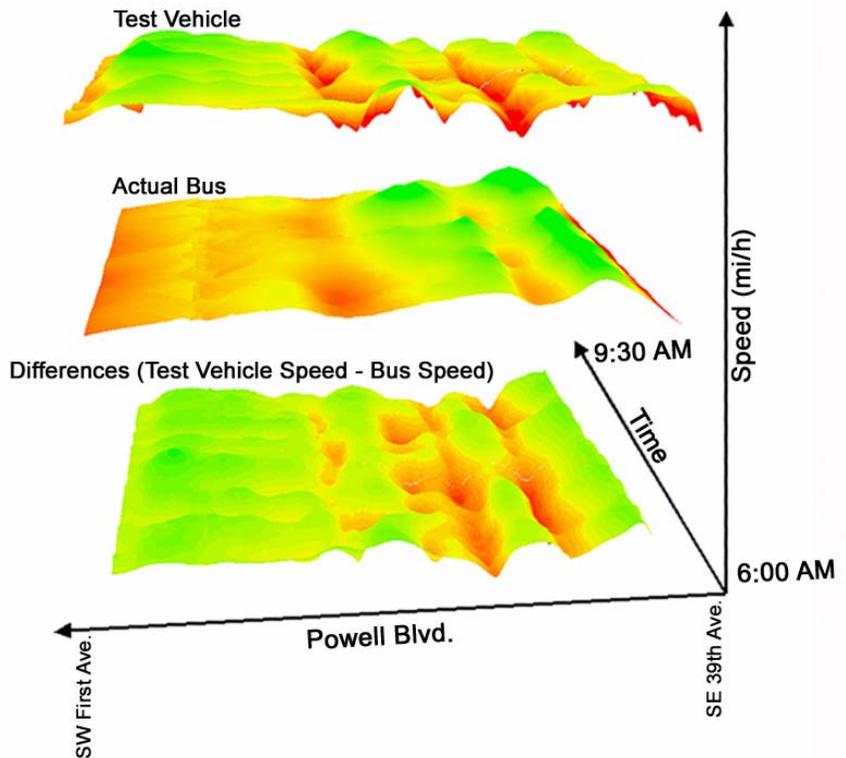


Figure 8: Speed contour plot

between the test vehicle and the pseudo bus. This study found that the test vehicle travel time was 1.23 times the pseudo bus travel time. Conversely, it was shown that the average test vehicle speed was 0.84 times the maximum instantaneous speed achieved by the buses. While this study focused on only one direction during the morning peak for one day, further analysis on both traffic directions on additional days is ongoing. These results will provide a greater level of confidence to the study results. However, it is possible that this preliminary study could be helpful in developing systems to assist transit

agencies and traffic engineers in better understanding arterial performance or providing arterial traffic conditions to drivers.

Acknowledgments

The authors gratefully acknowledge Steve Callas of TriMet, who generously provided the BDS data. Chie Taniguchi, Tung Ly, John Fasana, Lara Downs, Tu Ho, Huy-Thac Tran, Ahmad Qayoumi, Michael Kehano, Renee Summers, Monica Leal and Shazia Malik collected the test vehicle data. Ahmed El-Geneidy assisted

with the corridor and contour mapping. Ken Turner, TriMet; Jack Marchant and Dennis Mitchell, ODOT; Thomas Kimpel and James Strathman, Center for Urban Studies; Roger Lindgren, Oregon Institute of Technology; and Peter Koonce, Kittelson & Assoc., also assisted in developing and completing this study.

Discuss this article at www.westernite.org— Visit the Tech Board feature of the District 6 Web site to comment on, or otherwise discuss this article.

President's Message

(Continued from page 1)

competition, culminating in each team maneuvering a race car through an obstacle course complete with signals and a roundabout. As this event was so popular, the number of allowed entries was increased to accommodate all those students that were interested in participating. Pat Gibson generously donated \$250 to the District's \$1,000 award so that each of the five members of the winning team could receive \$250. Thanks, Pat, and congratulations to the winning team.

The number of students attending the annual meeting this year was quite impressive. Thanks to all of the Sections and Chapters that sponsored students through travel and International registration fees. I would encourage each of the Sections and Chapters to sponsor a student at future meetings. A special thanks to the Montana State University Student Chapter for increasing student attendance at the meeting. The MSU students graciously

donated the \$1,000 travel expenses award they received for having this year's Best District 6 Student Chapter to the UNLV Student Chapter. Congratulations to MSU on receiving this award and for your generosity in helping other students!

At the Western States luncheon, Wilma Wilcox-Mylorie was presented the District's Lifetime Achievement Award, and Tim Harpst was presented the Individual Achievement Award. Congratulations to both for receiving the District's most prestigious awards! A complete list of District 6 award recipients is presented in a separate table. Congratulations to all of this year's award winners. Your efforts to improve ITE and the transportation profession are greatly appreciated!

District 6 also did well at the International level. The Southern California Section was selected as the Best International Section, and Montana State University was selected as the Best Student Chapter. Congratulations! In addition, Bob Crommelin was selected as the Institute's 71st Honorary Member, and Tim Harpst was elected as the 2004 International Vice

President. Congratulations to both of you on your outstanding accomplishments!

Past International President Jenny Grote swore in the newly elected officers at the end of the Western States luncheon. Congratulations to all of you! Please refer to the Highlights of the Annual Board meeting and Annual Business Meeting column for a summary of the election results and District Board of Direction motions.

As I conclude my last President's message, I want to express my sincere appreciation to all those that provided me an opportunity to serve ITE. While there are too many to mention individually, I would like to acknowledge the members of the District 6 Board, the Committee Chairs, and LAC members that I have had the opportunity of working with as well as my family and employer who consistently worked around ITE commitments. Thanks to all of you and especially to you the membership! It has truly been an honor and a privilege to serve ITE at the District level over the past three years and I look forward to the upcoming year with Randy McCourt's leadership.

Thank You

Thank you, my fellow ITE members, for the opportunity to serve you and the Institute over the next three years. I very much appreciate the input I have received from members throughout the ITE family as I traveled during this year's campaign. I will use the valuable insight you have provided me as I join the Executive Committee.

ITE exists to help provide us with the tools we need to do our jobs better. We have heard much over the past year of the

significant work done by the International Board of Direction in updating ITE's Strategic Plan. The goals I spoke to during my travels this year fit well with the key areas identified in this plan. I look forward to helping implement specific efforts in the areas of:

- Broadened membership services;
- Increased workforce development opportunities;
- Enhanced communication among our members and with elected

leaders and the public; and

- Encouraging worldwide growth in our membership so we can all learn from the diversity and knowledge of transportation professionals everywhere.

Tim Harpst



Tim Harpst, ITE International Vice President Elect

Section and Chapter Activities



Hawaii Section

January meeting

At the January 16, 2003 luncheon meeting, Mr. Earl Matsukawa, Director of the Planning Consultant Group at Wilson Okamoto Corporation, spoke about the County of Maui's preservation plan for the bridges in the Hana Highway Historic District. When the project initially started, the district was eligible for, but hadn't yet been nominated for, inclusion in the State and National Register of Historic Places. However, the application process was completed by the time the project was finished. The project only covered the 14 County bridges in this district, which are about 80-90 years old. The bridges are narrow (essentially single-lane bridges) with low posted weight limits (as low as 3 tons). The planning process for the project considered the historic resource values, public safety issues, funding, and community and agency input. Only one bridge is categorized as being individually significant, but the other bridges are considered as contributory resources to the historic character of the district.

Some of the historic defining features of the bridges include the single-lane configuration, unique railings, inscriptions, arches, abutments and wingwalls. Structurally, some of the bridges were in very bad shape. For instance, the rebars were exposed and rusted through, which puts the bridge at risk for catastrophic failure. If current AASHTO standards were followed, two lanes, higher railings, guardrail on approach, additional signage, and increased hydraulic capacity all would be required.

In a recent court case, a drunk driver hit a guardrail on Kauai that had a buried end treatment; the State Supreme Court ruled that the State DOT had an obligation to improve the guardrail since they had widened the highway pavement. As a result, State highway officials have made it policy to bring all components of the highway up to contemporary standards

when improvements are undertaken, even though the highway may have been built to earlier/different standards when it was originally constructed. Also, to qualify for federal funds, then it has to meet current State standards, which are the AASHTO guidelines. However, the local community opposed bridge widening.

To allow the project to proceed, the FHWA allowed a design exception for the single-lane bridge configuration on a case-by-case basis. The design/reconstruction of each bridge is discussed with the community. Rock guardwalls are being installed at the approaches in lieu of steel guardrail. The restoration of railings and other features is also being included in the project. In addition, simpler, different signage is desired by the community. Finally, if the State subsequently develops historic/scenic bridge standards, then these

bridges would be included in such a program.

In summary, the State DOT is increasing its flexibility and is willing to consider alternative designs, but the liability for the State remains a very strong concern.

February meeting

At the February 17, 2003 ITE meeting, the guest speaker was Mr. Anthony Gelish, an Associate with Booz-Allen and Hamilton. He is currently working on the Critical Infrastructure Protection/Homeland Security development effort for the Pacific Command, Command Surgeon's office at Camp Smith. Mr. Gelish identified the Presidential Executive Orders that led to the establishment of the Homeland Security office in 1998, or prior to the September 11, 2001 events. All the

Section Report Guidelines



The purpose of the section reports is to share information on District 6 section activities. These include technical, membership, career and student guidance, and social activities. The reports should also provide enough information that members throughout the District can easily contact local sections if they are traveling or relocate into a new section.

Contents

The reports should:

1. Report on recent activities, including:
 - Technical
 - Membership
 - Career and Student Guidance
 - Social
2. Provide a list of scheduled upcoming events, including locations, times, topics and contact person(s).
3. Provide a membership or general contact person name and phone number.

Guidelines

Section reports received by the end of every odd-numbered month will be included in the following issue of *WesternITE*. The report should be formatted as an article, with appropriate headers for separate topics. Membership contact names and phone numbers should be provided at the end. The normal method of submission should be via email, to the Managing Editor, in plain text or Microsoft Word format. The section reports will be edited prior to publication.

Remember the purpose of the reports is to provide interesting, timely information on section activities. It is also an opportunity to share section and section members' accomplishments. Please try to limit the reports to one typed page.

If you have questions about these guidelines, please contact John Kerenyi, *WesternITE* Managing Editor, at john.kerenyi@kimley-horn.com or (714) 939-1030.

These guidelines originally appeared in the May/June 1995 issue of WesternITE and were prepared by Pat Noyes.

information Mr. Gelish presented at the meeting was from public sources.

Mr. Gelish defined terrorism as politically motivated, pre-meditated violence against non-combatants (civilians) to influence people. It changes behaviors, as evidenced by the higher security at our airports. If military soldiers attack soldiers in another country, then it is defined as war. Terrorists are considered to be socio-paths and display anti-social behavior.

About 85% of infrastructure is in the private sector, and the remainder is controlled by the public sector. Thus, protection of our infrastructure requires close working relationships between the federal, state, and county governments, and the private sector. A major issue is that the military is prohibited from participating in civil law action. The military cannot enforce the state or federal laws unless they are doing it at the direction of civilian governmental authorities. Hence, a new paradigm is needed, as a new level of cooperation that has not previously existed is required to protect our infrastructure. Also, the separation between the U.S. Department of Defense (DOD) enforcement responsibilities as a war-fighting unit and the civil responsibilities for law enforcement must be maintained. The DOD has always been, and will continue to be, responsible for homeland defense if our country is attacked. With the establishment of the Homeland Security office, there is a heightened national responsibility to anticipate and identify vulnerabilities and find mitigations to prevent terrorist attacks.

For transportation facilities, the ability to transport people or cargo may be affected if damaged, but there may be greater economic impact on the telecommunications industry. Some railroads on the East Coast receive more money for leasing their rights-of-way for fiber optic cable than for hauling people or cargo. As an example of

the value of this communication infrastructure, when a train crashed and a fire burned in a Baltimore tunnel about two years ago, it damaged a large cable bundle and caused the failure of several large servers and disrupted the telecommunications system in the Northeast region. Although the newspapers did not report this consequence, it showed vulnerability in the telecommunications industry. Many bridges may also have fiber optic cables attached to them.

When airport runways are blocked by natural or other disaster, there may be difficulties in providing emergency assistance. For instance, when Kauai lost power because of Hurricane Iniki, the DOD delivered a very large electrical generator on a C-5 airplane. However, there was no equipment that could unload the large generator at the airport. Also, the plane could not take off with the generator on board because the runway was too short. The plane was too heavy to park on the asphalt tarmac. The only place they could park the plane was on the concrete runway, however, it meant the only open runway was blocked. Fortunately, some resourceful National Guardsmen took telephone poles and palm trees and used them like rollers; they pulled the generator out of the back of the C-5 plane with humvees, allowing the empty plane to depart.

Many harbors have only one entrance and one exit with no back-up access. Also, the vulnerability of fuel systems at harbors should be examined.

Damage on the highway system could have a significant impact. On Oahu, a traffic simulation of a damaged overpass in the vicinity of Halawa Interchange resulted in the highway system shutting down within 75 minutes. (For residents living on the west side, this is not a surprising finding, since accidents affect regular commuting traffic conditions in a similar way.)

Possible sources of information that terrorists could use to plan attacks include:

1. Press releases about executive's families when promotions, etc. occur.
2. Emergency/disaster plans, especially those that identify weaknesses and protective measures.
3. EIS are public domain and

contain a lot of detailed project information.

4. Vendor contractor/consultant information may identify company information or methodology.
5. Visitor tours of site facilities allow strangers onto the site.
6. Process/system information – how things are operated or maintained may be detailed in public forums.
7. Design plans on the website – convenient for design firms or construction contractors, but may show too much detail.

Measures to lessen the possibility of attack include:

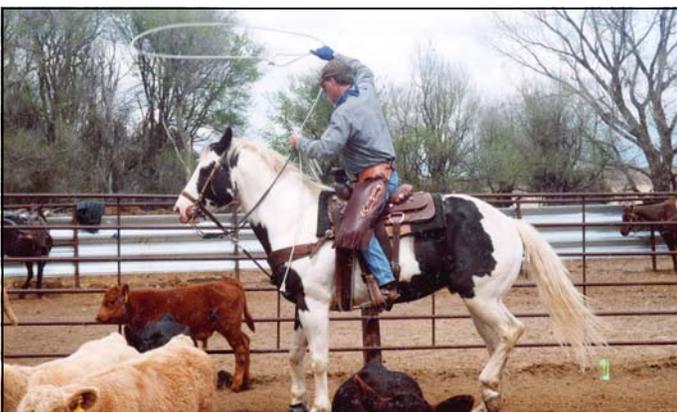
1. What cannot be identified, cannot be attacked. Beware web site information that shows your vulnerabilities.
2. What is not known cannot be used. For example, don't place executive's personal information on a website.
3. Monitor for suspicious activity.
4. Vehicle travel and package delivery (packages should be held at a single site for inspection).
5. Let people know there is security—increased awareness of your security measures makes you less vulnerable.
6. Shred all documents with personal information, including email printouts.

April meeting

At the April 24, 2003 meeting, Dr. Ricardo Archilla, an Assistant Professor at the UH Department of Civil and Engineering, discussed the lack of appropriate traffic engineering measures resulting in higher accident rates in Argentina when compared to the United States (US). Dr. Archilla gave a slideshow presentation of typical Argentina cities and roadway facilities. From his rough estimates, Dr. Archilla believes that Argentina has an accident rate of more than five times of the US, after accounting for differences in population and travel statistics.

Dr. Archilla indicated that the lack of traffic control devices (such as stop signs and lane demarcation) and inadequate sight distance makes it difficult to determine who has the traffic right-of-way at intersections. More alternate modes of traffic—bicycles, scooters and pedestrians—share the roads in Argentina. For instance, joggers like to jog on the freeways. Also, Argentinian motorists are commonly observed to stop along the roadway and talk to friends they see walking along the road.

Argentinian standard roadway designs



Colorado/Wyoming Section Scribe Bill Hange celebrates his Windiest and Wisest Scribe award by rasslin' doggies

were adopted many years ago, and have not been modified for recent changes that would improve safety. Road construction cost is still a very important factor, and the local highway departments resist changes that result in higher cost. For instance, there are no guardrails along mountainous roads without shoulders.

In rural areas, people may herd animals across or alongside roads, and motorists have to be patient and wait to maneuver around the animals. Motorists have been killed in high-speed accidents with large animals. Seat belt usage is low in Argentina.

Dr. Archilla noted that he had accepted the poor roadway and intersections facilities as normal conditions when he was growing in up in Argentina. After Dr. Archilla had lived in the US for awhile and returned home for a visit, then he began to recognize the great differences in US and Argentinian roadway designs. He has visited Argentina agencies to let them know what he has learned about improved safety designs, but change is slow in Argentina when the country has economic problems that have a higher priority for the public sector.



Susan Uejo, Secretary



Border Section

Student Chapter at SDSU

The California Border Section is pleased to announce the reactivation of the San Diego State University Student Chapter. Its first meeting was held on March 20, 2003, at which the executive officers were elected. The officers for the Student Chapter are:

- President: Justin Schlaefli
- Vice President: Leo Espelet
- Treasurer: Stephen Cook
- Secretary: Jennifer Block
- Faculty Advisor: Dr. Sherry Ryan

The first order of business for the Student Chapter was to prepare a proposal

and scope for the archiving of past WesternITE newsletters onto a CD. The Student Chapter was awarded the contract and began work immediately, with the goal of completing the electronic archive by mid-August. [Ed.: See page ___ for more information.] Pre-orders are being accepted now. Make sure you purchase your copy! All proceeds will benefit the Student Chapter.

The California Border Section Executive Board passed a motion to supply matching funds for the Student Chapter, to pay for travel and registration expenses incurred to attend the International Conference in Seattle. The Border Section hopes to continue to support a strong Student Chapter through continued fundraising, workshops, and training opportunities. We are all so pleased of the reactivation of the Student Chapter, and a thank you goes out to all members who assisted in the reactivation: Dr. Sherry Ryan, Faculty Advisor; Edgar Perez, Scholarship Chairman; Mike Kenney, Frank Yates, and Sam Morrissey.

June meeting

The June luncheon meeting was the California Border Section's annual awards presentation. At this meeting, awards for Small Project of the Year and Large Project of the Year were given to outstanding projects from the region. The awards and the recipients are as follows:

- Small Project of the Year: 5th Avenue and Market Street Intersection "Pedestrian Scramble," City of San Diego. Accepted by Frank Yates, City of San Diego.
- Large Project of the Year: The Central I-5 Corridor Study, SANDAG. Accepted by Mike Hix, SANDAG, and Mark Peterson, URS.

The June meeting also featured the announcement of the election results for the 2003-2004 Board members. The Board for the 2003-2004 year will be:

- President: Ralph Leyva, Retired
- Vice President: Zoubir Ouadah, City of Poway
- Treasurer: Victoria Cole, City of San Diego
- Secretary: Sam Morrissey, URS Corporation

The Board is looking forward to an exciting year of luncheon meetings, informational programs, and technical sessions. One of the main goals for the 2003-2004 year is to organize a tour of the transportation and circulation features of the new Petco Park baseball stadium in downtown San Diego.

Upcoming Meetings

The schedule and general locations for the 2003-2004 luncheon meetings is as follows:

- October: Joint meeting with WTS
- November: San Diego
- December: Holiday Dinner Dance
- January: North San Diego County
- February: San Diego
- March: Joint Meeting with the Southern California Section
- April: San Diego
- May: Golf Tournament



Sam Morrissey, Secretary



San Francisco/ Bay Area Section

June meeting

The June meeting was held on the 19th at the Silver Dragon Restaurant in Oakland. "Intelligent Transportation Systems (ITS) in the Bay Area" was the topic, and over 90 members and guests were in attendance. Cheryl Liu of "SF Go," from the ITS branch of the City and County of San Francisco, presented her motto "Let's Not Take Free-Flowing Streets for Granted." A sampling of the City's ITS strategies would include items such as the satellite Transportation Management Center (TMC) at Pacific Bell Park, substantial investment in infrastructure replacement over the next 30 years, a citywide fiber optic network plan, and efforts to mainstream ITS. SF Go's guiding principles and operational

Attention Scribes: Publication Deadline

The deadline for submitting Scribe reports is the last day of the odd-numbered month prior to the date of the issue. For example, Scribe reports are due by March 31st for publication in the May-June issue.

strategies can be found on the City's web site at www.ci.sf.ca.us.

Joy Lee, with Caltrans, reported on the benefits of the Caltrans District 4 TMC, which is located at the District Headquarters in Oakland, is staffed around the clock 365 days a year, and serves the entire Bay Area. The TMC works to reduce incident delay, which in the past has accounted for about one-half of the total vehicular delay in the Bay Area. Some of the TMC's functions include accelerated incident response, vehicle detection, the Freeway Service Patrol (or FSP, which is a fleet of trucks roving the freeway system looking for stalled vehicles and any other traffic obstruction), mainline metering on the San Francisco Oakland Bay Bridge, and traveler information (including control of changeable messages signs for Amber Alerts and other messages to motorists).

John Elson, from Santa Clara County, described the County's ITS plans, including 80 to 90 miles of fiber optics, 20 critical closed-circuit television cameras plus several non-critical cameras, upgraded controllers at intersections, upgraded signal loop detection, and battery back-up at signalized intersections for safety during power outages. One topic not talked about enough is security: expensive signal control equipment is vulnerable to theft by telecommunications hackers and must be protected. Another caveat is: Any time you need to install a larger controller box (for fiber optics) over a smaller traditional one, be sure to include a bid item for cutting the conduit back. If not, you may be facing a cost of \$250,000 to fix the intersection! Also be wary that AASHTO requires structural calculations for mounting cameras on poles. At the end of the meeting, the results of the new officer elections were announced. A golf tournament is planned for the summer, and a meeting of the Section Board will convene in August. Regular meetings will resume in September 2003. Many thanks to the efforts of our guest speakers and membership over the past year.

Rachel Donovan, Co-Scribe



The 2003-2004 Southern California Section Board (left to right): Bahman Janka, Monica Suter, Raymond Lee, Glen Pedersen, and Erik Zandvliet; and Rich Romer, International Director



Southern California Section

June meeting

The ITE Southern California Section Mini-Seminar and Annual Business Meeting was held on Wednesday June 16, 2003, at the Radisson Hotel in Buena Park. Approximately 80 members including 10 students attended and this meeting.

Mr. Rodolfo "Rudy" Rodriguez, US Traffic Corp, began the Mini-Seminar with his presentation, Traffic Signal Turn-On Tips and Tribulations. In this presentation Mr. Rodriguez discussed lessons learned from some of his many traffic signal turn-ons. In addition he provided a traffic signal turn-on check list and typical cabinet wiring diagram.

Mr. Nazir Lalani, County of Ventura, presented "Signalized Intersection Safety." In his presentation, Mr. Lalani discussed various safety aspects of signalized intersections including: vehicle indications, signal timing, new technology (such as battery back-up and pedestrian indications), pre-emption, special operations, design considerations, and automated enforcement. His presentation provided a comprehensive overview of the factors that should be considered to increase safety at signalized intersections.

Mr. Rock Miller, Katz, Okitsu and Associates, presented Traffic Safety at Highway-Rail Grade Crossings. In his presentation, Mr. Miller provided a comprehensive overview of the Manual on Uniform Traffic Control Devices, Millennium Edition, as it relates to



All the student paper competition participants from the April meeting (see the July-August issue of WesternITE for details from that meeting)

highway-rail grade crossings including a discussion on signing, pavement markings, pedestrian treatments, four-quadrant gates, medians, active signs, pre-signals and barrier gates.

Mr. Nathaniel Behura, Transportation Energy Solutions, presented "LED Traffic Signals—The Standards Conflict." In his presentation, Mr. Behura provided the history of the LED signals and the various specifications established for LED signals, including the request to postpone the California Energy Commission Ruling on LED and to exempt the yellow LED signal aspect from the ruling.

Mr. Weston Pringle, Willdan, presented "Red Light Running, What Transportation Professionals Should Do First." Mr. Pringle stated that engineering countermeasures should receive priority before red light running photo enforcement is recommended. Engineering countermeasures include signal operation (phasing, cycle length, yellow interval), motorist information (sight distance, advance warning signs) and physical improvements (remove unneeded signal, add capacity, improve roadway geometry). Mr. Pringle provided specific examples and emphasized that observation of traffic movements is a key role in identifying countermeasures.

Mr. Wayne Tanda, City of Los Angeles Department of Transportation, presented "A Tale of Two Cities: San Jose and Los Angeles." Mr. Tanda shared the similarities and differences between the Los Angeles Department of Transportation, where he now serves as General Manager, and San Jose, where he spent 31 years, comparing the cities as art vs. science. His presentation focused on the objectives of the agencies, including how to survive, how to thrive, understanding the environment and defining success.

Mr. Matt Schmitz, Federal Highway Administration, presented "Traffic Control



Joaquin Siques, Korve Engineering, receives the Southern California Section's Young Traffic Engineer of the Year award from Bahman Janka

Devices and Hardware, the FHWA Way.” In his presentation, Mr. Schmitz discussed the changes in the MUTCD Millennium Edition, the California MUTCD Supplement that will replace the California Traffic Manual, the Peer-to-Peer program developed by the FHWA to assist agencies interpreting the MUTCD, and discussed the crashworthiness of roadside hardware.

The Annual Business Meeting took place during the working lunch, where the new officers for the Southern California Section were announced. The 2003-2004 Officers are Erik Zandvliet, President; Glen Pedersen, Vice President; and Raymond Lee, Secretary-Treasurer. In addition, the Southern California Section's Young Transportation Engineer of the Year Award was presented to Mr. Joaquin Siques.

Following the Annual Business Meeting, the headline speaker, Mr David Royer, David Royer Consultants presented “Protecting Your Agency's Design Immunity.” Mr. Royer stated that the primary protection available to government agencies is that of design immunity, based on California Government Code Section 831.6. This code continues to afford Public Works agencies significant protection if they follow current design guidelines and document the approval process. He discussed that design immunity requires that the design be reasonable, that the design be approved in advance of the construction by a legislative body or employee exercising discretionary authority, and that it follow current design standards. What is important is the “reasonableness of the design” based on current practice.

Mr. Royer explained that documentation is critical. Litigation can be

successfully defended based on a well-engineered plan, with the engineering decisions obvious or documented on the plan. It is important that the approving authority have the knowledge, experience, or training to review the design for conformance with the “industry standards” and compliance with the agency's criteria.

He further explained that one thing that can destroy design immunity is “changed conditions.” Over time, a reasonable design may be compromised by changes that create a safety problem not considered in a previously well-engineered plan. Mr. Royer provided examples, such as: Significant changes in traffic patterns because of increased volumes may create a safety problem with a previously well-engineered traffic signal design, or tree placement in a well-engineered landscape plan that grows in excess of six inches in diameter and becomes a fixed object. Also, if major maintenance or upgrades take place, then the original plan needs to be revised to conform to current safety standards, or if the standards haven't changed this should be noted on the as-built record drawing. Not revising the as-built plan can void design immunity. Changes made to improve operations or safety need to be reflected in the as-built and properly approved plan. Again, documentation is critical.

August meeting

The Southern California Section started the year with its traditional Annual Steak BBQ dinner at the Los Angeles Police Academy. This informal meeting was attended by 46 members and 6 student members. The members had the opportunity to get to know their newly elected officers. New ideas, comments and suggestions were discussed in this meeting.

Erik Zandvliet, the newly elected President, thanked the sponsors for donating \$1900 to the Student Chapters to help them attend the ITE 2003 Annual Meeting at Seattle, Washington.

The next Southern California Section meeting will be held at Monterey Hill Restaurant on Wednesday September 17, 2003.



Joaquin Siques, Sunil Rajpa, Co-Scribes



DKS Associates Acquires the Communications and Transportation Systems Practice from Bucher, Willis & Ratliff Corporation

Oakland, California—DKS Associates, a national transportation solutions consulting firm, announced the acquisition of the Communications and Transportation Systems (CTS) practice, from Bucher, Willis & Ratliff Corporation (BWR), headquartered in Kansas City, MO. The acquisition includes key personnel in three states as well as the transfer of several significant projects. This acquisition expands DKS' strategic goal to build upon the company's nationally recognized Intelligent Transportation Systems (ITS) and Homeland Security services, bringing new expertise to serve new and existing clients, and adding greater depth to DKS' successful ITS division.

The new staff of professional engineers (P.E.) and electrical engineers (E.E.) bring over 120 total years of experience in ITS and related communications projects. New staff additions to DKS include: Dr. Bruce Abernethy, PhD., E.E., Scott Everett, E.E., and Chris Cain, ITS Analyst, who are based in Dallas, TX; Robert Gottschalk, E.E. and Tom Brock, P.E., based in Tallahassee, FL; and Andrew Kolcz, P.E., A.I.C.P., based in Phoenix, AZ, who had previously joined DKS.

As a result of the acquisition, and its strong reputation, DKS acquired several major ITS contracts with agencies such as the Arizona Department of Transportation, the Florida Department of Transportation and Hillsborough County, FL.

According to Richard T. Sauve, President of DKS Associates, “Acquiring BWR's excellent team of ITS staff not only enhances our already solid ITS practice, but also builds on our strategy to expand our firm's ITS expertise and services to clients nationally. We are proud to bring on the new staff which allow us to provide their expertise in ITS, communications systems, and Homeland Security on a national scale.”

DKS Associates is headquartered in Oakland, CA, with offices in Sacramento, CA, San Jose, CA, Irvine, CA, Phoenix, AZ, Seattle, WA, Portland, OR, Tallahassee, FL, Tampa, FL, and Dallas, TX. DKS Associates is one of the largest specialized transportation planning and engineering firms, providing state-of-the-art consulting services for all modes of ground transportation nationwide.

Positions Available

SAN LUIS OBISPO

Principal Transportation Engineer—Salary \$4,697 - \$5,872/mo including exceptional benefits. Equivalent to graduation from a four year college with major coursework in traffic, transportation or civil engineering and five years' professional experience in design and construction and management of traffic eng projects or comb. of education and experience. Open until filled. www.slocity.org to apply.

RBF CONSULTING

Civil Engineering Office Manager, Camarillo, CA—RBF Consulting has a career opportunity for a Senior Civil Engineering Manager to lead our Camarillo Office, which has a staff of 25 members and provides a wide range of civil engineering, planning and land surveying services to public and private sector clients. We are looking for the right professional who possesses the industry experience to lead our staff, and the interpersonal skills and business development experience to represent RBF to our clients, and in the Ventura County professional community. The Office Manager will have access to the extensive range of engineering, planning, and support service resources available throughout RBF and must have the experience and understanding required to command those resources in service to the firm's Ventura County clients.

Candidates should have a minimum of 15 years of progressively responsible involvement in the civil engineering industry, either in private land development or public works engineering, with a minimum of five years of department or office management. Proven experience directing and mentoring office and field personnel, responsibility for budgets and cost control, and development of long-term client relationships are essential. A Bachelor's degree, professional registration, and strong communication and interpersonal skills are also required. Compensation will be determined commensurate with experience. Position includes the opportunity for eligibility of Company ownership within one year, and offers the potential for involvement in company-wide corporate governance.

Traffic Engineer—RBF is currently seeking a Traffic Engineer to join our team in our Irvine, CA office. The position requires a Bachelor's degree in Civil Engineering, professional registration, and

a minimum of 4 years of traffic/transportation engineering experience. Strong design skills utilizing AutoCAD/Softdesk and/or Microstation/ InRoads is preferred. Lead design and CADD production staff in the development and successful delivery of all technical work products. Prepare traffic engineering design plans, such as signing, striping, traffic control, traffic signal, communication systems, Intelligent Transportation Systems, and lighting plans, specifications and estimates, for city, county and state highway facilities.

Founded in 1944 on a commitment to quality, professionalism and continuing innovation, RBF Consulting is a 700 member civil engineering, land planning, and surveying firm with offices throughout California, Arizona and Nevada. RBF is consistently ranked among the Top 100 Engineering Design Firms in the Nation by the Engineering News Record Magazine (ENR) and was ranked among the "Top 20 Civil Engineering Firms To Work For" in the Nation by the C.E. News. RBF offers an excellent compensation and benefits package including matching 401(k), profit sharing and bonus plans, and relocation assistance. For further information please visit our website at www.rbf.com and send your resume to:

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EOE M/F/D/V

SAN MATEO, CALIFORNIA

Deputy Director of Public Works, Transportation and Private Development—The City of San Mateo is recruiting for a Deputy Director of Public Works. The Deputy Director will serve as the City Engineer and is responsible for directing and managing all programs involving transportation and private development to include traffic engineering, private development review, the pavement management program, street and traffic maintenance, construction management, surveying, and street sweeping. The successful candidate must have the ability to supervise, coordinate and review all public works engineering activities including engineering design, inspection

and survey, contract administration, solid waste disposal operations, traffic engineering and field operations. The City Engineer works closely with the Community Development Department to coordinate and monitor the private development provision of land division records, and to determine the level of facilities and funding for Public Works infrastructure improvements necessary to provide service for proposed projects.

Minimum qualifications include eight years of public works experience including four years of management experience; equivalent to a bachelor's degree with an accredited college or university with major course work in engineering; a master's degree is desirable; license to practice as a Professional Civil Engineer with the State of California is required; possession of license to practice Traffic Engineering within the State of California is desirable.

Salary: \$7,943 – 9,474/mo plus excellent benefits. This position is open from 8/25/03 thru 5 p.m. on 9/26/03. An official City of San Mateo application must be received by that date. Postmarks will not be accepted. Resumes are welcome, but must be accompanied by an official City of San Mateo application.

Please see our website for complete details at www.cityofsanmateo.org or contact our hotline at 650-522-7777x424.

SALEM, OREGON

Assistant Traffic Engineer—Salary range up to \$69,900 / Year plus benefits. The City of Salem, Oregon is seeking a registered engineer to fill a new vacancy as Assistant Traffic Engineer. This position will design traffic engineering projects, manage consultant contracts, supervise employees, prepare and review traffic impact analyses for major developments including capacity analysis and trip generation estimates for transportation system development charges. In addition, the Assistant Traffic Engineer reviews new subdivisions, partitions and other land use actions to determine traffic impacts. Requires considerable experience in civil and traffic engineering work along with supervisory experience; four-year degree and registry as PE (or temp. permit to practices issued by the Board of Engineering Examiners). Open through

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August 29, 2003. For more info, please visit www.cityofsalem.net or contact us at 503/588-6162. City of Salem, HR Dept., 555 Liberty St SE, Rm 225, Salem, OR 97301 EOE

AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA

Traffic Safety Specialist—We are seeking an experienced Traffic Safety Specialist to contribute to a variety of public policy, safety and legislative initiatives including our new School Site Traffic Safety Program. The successful candidate will be able to articulate and represent organizational and member interests, maintain close working relationships with public agencies and staff, work with Public Relations staff to obtain appropriate publicity, assist staff with traffic safety and operational issues, conduct and supervise research, develop and monitor programs, and represent the Auto Club on safety committees and similar groups.

Qualifications:

- Bachelor of Science degree in related field. Advanced degree highly desirable.
- Current California registration in traffic engineering or a closely related engineering discipline desirable, but not required.
- Five or more years' experience in traffic safety education, research, program implementation and design, enforcement or related areas.
- Excellent oral and written communication skills.
- Ability to make persuasive public presentations.
- Excellent interpersonal skills and consensus-building abilities.
- Computer skills including Internet research and MS Word, Excel, and PowerPoint.

Send resume to personnell@aaa-calif.com; reference JD/TS on the subject line.

Transportation Policy Advocate—**Duties:** Identify, analyze, develop and advocate transportation policy and air quality initiatives. Articulate and represent organizational and member interests, maintain close working relationships with public agencies and staff, work with Public Relations staff to obtain appropriate publicity, conduct and supervise research, develop and monitor programs, and represent the Club on committees, public policy forums and similar groups. Assist Club legislative representatives in analyzing and advocating positions on legislation. Work with other Club business units and field staff to identify and advocate public policy issues and opportunities. May supervise staff, teams and projects.

Qualifications:

- Bachelor of Science degree in Urban Planning, Transportation or related field. Advanced degree highly desirable.
- Five or more years' experience in transportation funding, planning, legislation and/or program implementation. Supervision of professional staff highly desirable.
- Excellent oral and written communications skills.
- Ability to make persuasive public presentations.
- Excellent interpersonal skills and consensus-building abilities.
- Computer skills including Internet research and MS Word, Excel and PowerPoint.
- Valid California driver's license.

Please send your resume to personnell@aaa-calif.com; reference JD/TPA on the subject line.

MIRAI ASSOCIATES

Senior Traffic Engineer—Mirai Associates is a dynamic professional transportation planning and engineering firm in the Seattle area. We are currently working with a variety of local, regional, and state agencies on major transportation studies. We are seeking a Senior Traffic Engineer who enjoys bringing hands-on experience to traffic engineering issues. As a senior member of Mirai's 10-person firm, this person will also be directly involved with developing and managing a wide range of our company's projects.

The position requires a BS in Civil Engineering (MS preferred); P.E. and/or PTOE with 10+ years of experience in traffic/transportation engineering. The applicant must show a proven record of accomplishments and increasing levels of responsibility. The applicant should demonstrate familiarity with current traffic engineering simulation and analysis software. Prior consulting experience is desirable.

Mirai Associates offers an excellent opportunity for professional and financial growth. Please visit our web site at www.miraiassociates.com. Submit your resume to Donald Samdahl at don@miraiassociates.com, 425-415-0905, or Mirai Associates, 19110 Bothell Way, NE Suite 202, Bothell, WA 98011.

CITY OF KENNEWICK, WASH.

Traffic Engineer—*Salary Range: \$55,632 - \$90,612 DOQ*—Under administrative direction of the Public Works Director, the Traffic Engineer provides managerial oversight to the Traffic Division in the Municipal Services Department. The ideal candidate will have had previous management experience in a similar position for a local municipality along with excellent communication and leadership skills. Master's degree in traffic or civil engineering with a minimum of 2-4 years' recent experience in traffic or transportation engineering; or a Bachelor's degree in civil engineering or a closely related field with a minimum of 4-6 years recent experience in traffic or transportation engineering, including a minimum of 1-year supervisory experience; or an equivalent combination of education and experience to provide sufficient evidence of the successful performance of the essential elements of the job, such as those listed above. A current State of Washington Professional Engineer's license (or obtain within 12-months of hire) and a valid Professional Traffic Operations Engineering (P.T.O.E.) are both desirable. A valid State of Washington driver's license is required. A complete job description is included in the application packet. Application packet may be obtained at Kennewick City Hall, 210 W. 6th Ave in Kennewick; by calling (509) 585-4240; by Email at

Positions Available Ads:

To place your ad, e-mail your ad to john.kerenyi@kimley-horn.com. The deadline is the 28th of the previous odd-numbered month. The cost is \$6.00 per line, with a minimum cost per ad of \$100.00. Ads are also posted on our web site at www.westernite.org. More information is available on our Web site.

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adminfo@ci.kennewick.wa.us; or by downloading from www.ci.kennewick.wa.us. Completed application packet is required. Position will be open until filled. EOE

PB FARRADYNE

PB Farradyne, a wholly owned subsidiary of Parsons Brinckerhoff, specializing in Intelligent Transportation Systems is seeking a senior engineer with a minimum of five years of experience in one or more aspects of the design, development, and operation of advanced traffic signal control, traffic data collection and communications, and traffic management center systems to join its growing Southern California practice. The position offers an excellent opportunity for technical growth, project management and business development responsibilities, and work on leading edge ITS systems development and deployment projects.

Individuals applying for this position should be interested in taking on project management responsibilities for the design and development of traffic management systems. Strong writing and oral presentation skills are required. A degree in electrical or civil engineering or a related systems engineering discipline is required. Registration as a California Professional Engineer will be a plus.

Please send resumes and salary requirements to PB Farradyne, 1725 Cliff Rose Lane, Lewisville, TX, 75067, FAX: 972.420.1172, e-mail: halliburto@pbworld.com. EEO M/F/D/V

CITY OF RIVERSIDE, CALIFORNIA

Associate Traffic Engineer—The City of Riverside seeks an Associate Traffic Engineer to work in the Traffic Engineering Division of the Public Works Dept. The Assoc. Engineer will perform professional traffic and transportation engineering work in the design and construction of traffic signal projects. Assignments include: preparation of plans, specifications, and estimates for traffic signal projects, development of traffic signal system timing plans, reviewing traffic studies for various development projects, and providing background information and documentation for management consideration on various projects; and making sound decisions on problems related to the work being performed based on established guidelines and principals. These duties shall generally include supervising the administration of traffic signal design and construction, neighborhood traffic management issues,

and traffic signal system coordination plans. This position involves advanced professional engineering and supervisory work and requires the exercise of independent judgment and initiative in scheduling and assigning work to other personnel.

Required are: a Bachelor's degree in civil or electrical engineering or in a closely related field from an accredited college or university and two years of experience in professional engineering work comparable to that of an Assistant Engineer with the City of Riverside, or the possession of a Certificate of Engineer in Training from the State of California and at least three years experience in professional engineering work. Registration as a professional engineer in the State of California is highly desirable. Knowledge of AutoCAD is also a definite asset.

Salary: \$5110 - 6212 per month plus excellent benefits. This position is open until filled.

APPLY TO: City of Riverside, Human Resources Dept., 3780 Market Street, Riverside, CA 92501. APPLY ONLINE @ www.ci.riverside.ca.us. For more info see our website or call 909-826-5808/909-826-2515 TDD.

DKS ASSOCIATES

Planner/Engineer/Modeler, Oakland, CA

Summary: The Planner/Engineer/Modeler will work on transportation engineering and planning projects. These projects include GIS, travel demand modeling, traffic impact studies, and intersection and traffic analysis.

Qualifications:

Required:

- Master's degree in Civil Engineering or Urban Planning (specializing in Transportation), or Bachelor's degree with equivalent coursework and a minimum of five years related work experience.
- Experience with TransCAD, EMME/2 or Cube software.
- Experience writing set-ups or macros to analyze model outputs.
- Experience with GIS, such as Arcview.
- Strong background in statistics.
- Good written and verbal communication skills.
- Should be able to work both as a team member and independently.

Desired:

- Experience in project management.
- Experience with multi-modal modeling (i.e. experience with transit modeling).

- Experience in traffic operations including Synchro, HCS, Traffix, Corsim and Vissim

If interested, please send resume and cover letter to careers@dksassociates.com.

Football Fundraiser

The Cal Poly Pomona and San Diego State University Student Chapters are hosting a tailgate party to raise funds to support their activities!

- Where: Qualcomm Stadium
- When: Sunday, November 30
- Cost: \$50 per ticket includes food, soda, and beer

Please RSVP as soon as possible; tickets are limited! Contact the SDSU student chapter at sdsu_ite@hotmail.com or Jennifer Block at (858) 382-9411.

Sign of the Times



"If that cow hits my dad's car, he's gonna ground me forever!"

Submitted by John Cinatl, California Department of Transportation. [Note: Mr. Cinatl checked the Caltrans photo log and confirmed that this sign really was

posted on California State Route 178 for a period of time in August 2000.]



"I'm not thick, I'm just well-fed!"

Submitted by Martina Wilkinson; sign found throughout western Massachusetts

Legislative Update



Walt Stringer,
District 6 Legislative
Committee Chair

As this column is written in late summer, a status report on several recurring topics at the federal and state levels is appropriate.

Starting with Oregon, the state legislature continues to meet, well beyond their normal spring session, to resolve a severe

fiscal crunch that could impact many social services including transportation. While the outcome is not yet known at this writing, the current session is the longest in Oregon history. In California, the new state budget was signed during the week of August 4, ended a protracted process that, at one point, saw Caltrans issue a mid-July letter to contractors advising that the state could not pay bills after July 20. California counties with ample reserves and/or transportation

sales tax revenues arranged to guarantee loans to contractors to keep them working, versus dealing with project shutdowns and the attendant costs of ceasing work for an undetermined period. The CTC continues to decline to allocate future funds, although some FY03 funds were released in mid-summer. The next CTC meeting was set for August 14 with an agenda full of allocation requests, but each item contains the admonition that funds will not be released until both a state budget and an allocation plan (reflecting deficit reduction strategies) are in place.

At the federal level, with Congress in recess until after Labor Day, various proposals for SAFETEA, other transportation bills, and budget authorizations are in the hoppers with a goal of adoption by October 1. On July 24 the House Appropriations Committee approved their FY04 spending bill (HR2989), with total highway funding set at \$34.6B, with transit at \$7.23B (you can



view the bill at <http://thomas.loc.gov>). The Senate version was to be acted upon after Labor Day. In addition, Senators Grassley and Baucus have proposed a bill to fund transit programs with bond revenues instead of motor vehicle tax revenues, while Senators Talent and Wyden are proposing the Build America Bonds Act. Other proposed legislation of interest includes the Pedestrian and Cyclist Equity Act (PACE) and the Freeing Alternatives for Speedy Transportation Act (FAST), which illustrate the trend towards catchy acronyms in recent proposals. By the time of our next column, the surviving bills should be known.

Editor's Corner

While attending the Seattle meeting, I took a big step in life. I asked my girlfriend, Cindy, to marry me, and I'm pleased to report that she said yes! It occurred on the observation deck of the Space Needle on the Friday before the meeting started. I had a Space Needle employee take pictures while I completely surprised her with the engagement ring and "popped the question." At the moment this picture was snapped, after it was all over, Cindy was extremely happy and I was extremely relieved. Cindy is very special to me and I'm lucky she feels the same toward me. We look forward to many happy years together.

Thank you to Zaki and all the other ITE members that have supported our relationship so far.



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