

**Deployment Workshop Project Updates
September 2007**

	#	Project Name	Project Description	DRI Project Manager	Customer Contact	Status Report
KS	1	Transfer Tank Longitudinal Sealer (TTLS)	The TTLS system consists of 2 separate independent machines (seal application truck and sealant supply transfer trailer) that are only connected briefly to transfer sealant. TTLS allows an operator to seal longitudinal cracks within a moving lane closure inside the truck cab without being exposed to highway traffic and hot sealant. Development of the Sealzall Machine is an upgrade to the TTLS.	Arvern Lofton	Nate Cradle, Maintenance	TTLS project is complete. Maintenance also expressed an interest in a crack blower on the front and a wand on the back to cover transverse cracks. The Sealzall prototype has a wand-applicator to fill transverse and longitudinal roadside cracks and has a more efficient kettle. Valley Slurry Seal Company has been approached to produce more of these products, but discussions fell through. AHMCT is building a new prototype in-house for Maintenance and will be field tested in Spring 2008. AHMCT was asked about developing a training manual and a training team when deploying the product to the end users. There will be an automated touch screen pad to aid users thru the system.
KS	2	Telerobotic Roadway Debris VACuum System (ARDVAC)	The ARDVAC unit is a vacuum truck with an articulating nozzle attached to a boom arm. An operator can maneuver the nozzle to vacuum up debris in difficult to reach places while remaining inside the vehicle cab and not exposed to highway traffic.	Arvern Lofton	Nate Cradle, Maintenance	The Division of Equipment (DOE) assisted in the evaluation of the ARDVAC during Spring of 2003 along Interstate 80 near Mace Blvd. The outcome was that the nozzle needs to have a smoother articulation. DOE recommended that the nozzle not be stored in the front of the vehicle. The new units will have that new modification. Alamo (vendor) may be able to deliver the two promised units by the end of September 2007. Patent revocation or a reduced patent license is being considered if units are not delivered so the patent is not restricted to a single vendor. Maintenance has expressed a strong interest in having the units. Districts 4 and 7 were to receive the units for evaluation by AHMCT. AHMCT will develop an evaluation plan as well as gather data for a business case. Funding to purchase additional units has passed.
KS	3	Bridge Height Measurement System	A vehicle mounted, measuring device utilizes a laser scanner to provide a 3-D model of a scanned bridge	Arvern Lofton	Rick Jorgensen, Structures Maintenance	This project is part of the Maintenance & Operations Deputy Director Innovation Agreement with Caltrans Director. The unit was Field-Operational Testing (FOT) in July 2007

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			<p>infrastructure while the vehicle is moving. The product allows Structure Maintenance workers to collect minimum vertical and horizontal measurements of bridge infrastructures while remaining inside the vehicle and off the highway.</p>			<p>by Structures Maintenance. There are no longer issues with laser reflectivity from asphalt on a bright day as the optics were adjusted, which then compromised the width of the scan. Before the optics were adjusted a 3-lane width scan was possible. However, after the adjustment the system can only scan a single lane. Structures Maintenance needs to make a decision as to if lane width is a priority or if reflectivity is a priority. There are 2 prototypes, one prototype will go to the Northern California region and the second will go to the Southern California region. Mandli, an outside vendor has been in contact with Structures Maintenance. Business case data is being gathered. A training manual and a training team is being organized.</p>
KS	4	Balsi Beam	<p>A portable work zone protection device that helps protect maintenance and geotechnical crews while working within a work zone.</p>	Kamal Sah	Maintenance	<p>A BCP has been routed to the Department of Finance and DRI have received several questions from them regarding the BCP. A decision document is in the process of being signed to allow Caltrans to sell the patent to a private vendor, which would allow external state and private agencies to procure Balsi Beams for their use. Discussions have begun with DGS and DPAC. DGS understands the complexity of the situation and is open to the idea of releasing a Request for Proposal (RFP) to select the most qualified vendor. DPAC is discussing procurement and patent language with Caltrans Legal Division. CCIT has begun advertising an RFI to select a sub-contractor for work on technology transfer and deployment services for the Balsi Beam project. Will be meeting with geotechnical deputy division chief to plan when and how to phase-in Balsi Beams into their unit.</p>
KS	5	Construction Analysis for Pavement Rehabilitation	<p>Pavement construction operation analysis, which establishes the least delays and most economical</p>	Michael Samadian	Mary Beth Herritt, Design	<p>Project is in deployment phase and has been deployed on several projects in California. A draft FSR was completed and handed over to IT. IT then assigned a consultant to revise it for the</p>

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		Strategies (CA4PRS)	roadway closure scenario.			final draft. However, the consultant was dismissed from the project and the FSR is being reviewed in-house, which is to be completed by October. Presentation were made via the WASHTO-X program and went very well. Training is upcoming for engineers in Districts 6 and 7 in October. FHWA is in the process of arranging free group license for other state DOTs and locals.
AB	6	Inductive Signature Technology (IST) Loop Detector Card	To improve the quality of loop detector data collected by the TMC. There are many causes of bad data. Some are caused by deteriorated installations such as a broken loop which requires construction to fix; some are due to crosstalk, low Q, low Meg, etc. It's possible that a number of these problems can be solved by replacing existing 222-type detector cards with the IST cards.	Joe Palen	Vic Barbaric, D4	San Diego Association of Government (SANDAG) in conjunction with District 11 is using Inductive Signature Technology (IST) Loop Detector Card for truck traffic count.
HI	7	Efficient Development of Advanced Public Transportation Systems (EDAPTS) Smart Transit System	Low cost ITS for small transit agencies. Uses performance for cost trade-off and capitalizes on unused infrastructure.	Bruce Chapman	Gail Ogawa, Mass Transportation	<ul style="list-style-type: none"> · In EDAPTS Cost/Benefit evaluation, various data collection efforts were finished. Collected data & cost benefits associated with San Luis Obispo Transit's, EDAPTS Smart Transit System are now being analyzed. · In the Development of Performance Based Specifications, all performance metrics were calculated and documented in a master Excel spreadsheet. · EDAPTS Stage 5 Deployment Support/1 project started at the end of 2006-2007. Have finished the operational guidelines document and are now starting the RFP document.

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AB	8	ITS Decision, Gateway to Understanding and Applying ITS.	Provide up-to-date overview and evaluation of the deployment of ITS products and services at local, state, national, and international locations where they have been deployed. Through ITS Decision Website, users will learn about costs and benefits, risks and roadblocks, and deployment lessons learned. Provide ITS decision making tool box of an Expert System (ES) tool, Case-based Reasoning (CBR) tool, and Cal-ITS-BC Model as one integrated planning suite of models for Caltrans (and its partners) planners and engineers. Give guidance on ITS Architecture and Architecture conformity for those 27 ITS technologies.	Mohamed AlKadri	Reza Navai, Planning	<p>Most work in the summer 2007 has focused on developing the Ramp Metering Module which can be accessed at http://www.path.berkeley.edu/itsdecisiontools/rmtool/rmlook.asp, Advanced Traveler Information Systems (ATIS) Module can be accessed at http://www.path.berkeley.edu/itsdecisiontools/atistool/atislook.asp, and Electronic Toll Collection (ETC) Module can be accessed at http://www.path.berkeley.edu/itsdecisiontools/ectool/etc_nicelook.asp</p> <p>During the 2nd quarter 2007-2008, the team will be revising the above three modules and two more modules are in progress as follows: Corridor Signal Coordination and Automatic Weigh Stations/Weigh-In-Motion (W-I-M).</p>
HI	9	Development of Business Cases for Deployment of AHMCT Projects	This project develops business cases to support the deployment of advanced technologies into the Caltrans work place. Specifically, the business cases will be developed for machines originating from the AHMCT Research Center and from Caltrans. Business case analysis can facilitate the deployment of new technology. This project aims to develop approximately four per year	Bob Meline	<p>TTLS: Courtney Morrison, Maintenance</p> <p>ArdVAC: Sheree Edwards Nate Cradle, Maintenance</p>	The director of AHMCT Steve Velinsky told us that AHMCT could not find a researcher to continue with the Development of Business Case Studies during the project period from January 1st, 2007 to September 30th, 2007 and the project ended without spending any money on it. AHMCT is hoping that CCIT will start working on the Development of Business Case Studies in near future.

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			starting with the most promising projects at the highest stages of deployment.			
AB	10	WeatherShare, Phase II	WeatherShare is a web site that provides relevant road weather information that is easily accessible by incident responders and the traveling public. WeatherShare streamlines and integrates road weather data from various sources such as RWIS, CDEC, and MADIS into one single source. . Phase 2 of the project will prepare the system for full deployment.	Mandy Chu	Ian Turnbull, D-2 Operations	Implemented three levels of quality control processes to the state wide weather data set. Investigated a new version of WeatherShare user interface using Google Maps as the primary mapping interface. Presented at ITS America, "The WeatherShare Project: Aggregation and Dissemination of Weather Information for Public Safety." The presentation was well-received and was presented alongside "Clarus." Clarification was made in discussion regarding the differences between WeatherShare and Clarus. Will work on a new version of the user interface to display this information. Subsequently, we will work on alert and additional display functionality. Once this new data is brought online with a usable interface, we will work to bring new users online with the system for pilot testing.
AB	11	Responder Study Phase II	The Responder System uses a Tablet PC for collecting, tracking and sharing incident information between at-scene responders, the Redding Traffic Operations Center (TOC) and secondary incident responders, facilitating management of the incident scene and improving the effectiveness of response activities. Phase 2 of the project will prepare the system for full corporate deployment.	Mandy Chu	Jeff Kiser, D-2 Maintenance	The Responder system received notoriety at the ITSA America Annual Conference in Palm Springs in early June. Testing of a Responder unit has continued in District 4 and it is understood that District 1 will be the next district to test a unit. This unit has also been tested in District 10 and District 3. A separate unit continues to be used in District 2. Licensing and copyright issues have been discussed, and it was determined that the Responder software should be copyrighted, and the system in general should be handled with an "open" licensing model. The project team has developed two new units for testing. Since satellite service from Globalstar has degraded

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						significantly since Phase 1, we intend to purchase an Iridium system for use in another Responder box. We will pursue this option in the upcoming quarter. We will continue testing with the two new systems and once testing has concluded, we will deliver them to Caltrans for field testing. We will work to develop a system that uses Iridium as a satellite communications alternative to Globalstar.
HI	12	Adaptive Transit Signal Priority (ATSP)	An ATSP that reduces bus travel time through traffic signals while limiting the impact on the rest of traffic and maintaining pedestrian safety.	Z. Sonja Sun	Gail Ogawa, Mass Transportation	Conducted a small-scale field test and preliminary data analysis. Started testing on a simple version of Caltrans Traffic Responsive Field Master (TRFM) software that works with Linux operating system. Built additional 9 cell phone based bus data acquisition systems and installed them on 9 SamTrans-390/391 service buses. Redesignated ATSP database that integrates and synchronizes the traffic and transit data. Demonstrated the improved ATSP system at American Public Transportation Association (APTA) meeting, the on board monitor showed traffic signal changes and the benefit of ATSP. Developed a communication program to emulate the orbital communication system based on orbital protocol using its emergency channel and tested the program using cell-phone based Automatic Vehicle Location data. Held ATSP workshop.
HI	13	Smart Parking	Smart Parking uses advanced technology to provide real-time transit parking information to direct highway drivers to available parking spaces at a transit station. It also enables drivers to make advance reservations for parking at transit stations thus reducing the frustration of	Christine Azevedo	Gail Ogawa, Mass Transportation	Continue the user and economic analysis of "Coaster Station Smart Parking Pilot Project" task. Draft a final report for "Smart Parking at Transit: Phase Two Field Test Evaluation" & "Smart Parking Mgmt. Pilot Project: A Bay Area Rapid Transit (BART) Dist Park" tasks.

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			trying to find an available space.			
AB	14	Google Earth ITS Field Elements Project	Using rudimentary software scripting tools, this project maps California ITS data spatially on Google Earth and updates this data every three minutes.	Sean Campbell		Currently, only CMS data from Districts 1, 3, 4, 5, 6, 8, 9 and 12 are being mapped. Districts 2 and 10 are coming soon. Still looking for the data sets for Districts 7 and 11. The data link for use in the Google Earth browser is located at : http://www.dot.ca.gov/research/its/kml/CMS.kml Next quarter, Districts 2 and 10 CMS data will be added, as well as starting the CCTV data sets for each location.
KS	15	Shakecast	ShakeCast, a post-earthquake response system that will automate the analysis of real-time earthquake ground shaking data against Caltrans bridge design data to deliver bridge inspection priority lists by pager and e-mail to key response personnel. Having this information within minutes following an earthquake will improve the Department's emergency response by more effectively focusing inspection resources in the critical hour after an event.	Loren Turner	Maintenance & Operations	The United States Geological Survey (USGS) has completed the non-Caltrans specific work. Work has been initiated on the map interface to ShakeCast. The deliverable of the beta version is under evaluation. Will be evaluating it's functionality as well as matching the requirements from the scope of work document. The evaluation will be completed by December.
AB	16	Vehicle Infrastructure Integration (VII) Phase II	VII is a public-private challenge to investigate the feasibility of a nationwide deployment of vehicle-to-vehicle and vehicle-to-infrastructure Dedicated Short Range Communications	Hassan Aboukhadijeh	DRI	During this quarter, much of our effort has consisted of upgrading, for reliability, various hardware components, improving and then utilizing our software monitoring program. We continue our Curve Over-speed Algorithm development, with the algorithm currently under active testing at Richmond Field Station (RFS).

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			(DSRC) based communication with the primary goal of enhancing road safety and improving mobility and convenience.			TRB Demonstration was given in July 2007. In the next three months, Dedicated Short Range Communications (DSRC) radios will be installed in Four intersections on Highway 82 and one toll on Dumbarton bridge
HI	17	Travel Time on CMS-Control Software	This project will deploy and expand the Travel Time on CMS system throughout Caltrans District 4 and District 3. The primary objective is to deploy a system that Caltrans' Transportation Management Centers (TMC) can use to configure, manage, and display travel times on CMS.	Asfand Siddiqui	David Lively	Online CMS survey has been completed, over 90% of commuters think that CMS travel time information is useful and over 60% of commuters feel that the travel times on CMS are accurate within 5 minutes. The project team gave a presentation at the ITS America Meeting, June 3-6, 2007 in Palm Springs on the evaluation of methods for computing travel times from 5-minute loop detector data. The research team contacted several vendors and received favorable responses from five vendors for the development of vendor consortium. Caltrans secured additional funding to support the consortium, and a revised scope of work was developed using additional funding, and extending the project timeline.
AB	18	Homeland Security - Keep Abreast with the latest technologies and best practices	Develop a methodology for Caltrans to keep abreast of the latest technologies and best practices in homeland/transportation security.	Azzeddine Benouar		The Homeland Security web-portal was demonstrated to the American Association of State Highway and Transportation Officials (AASHTO) Special Committee on Transportation Security (SCOTS) and the Transportation Pooled Fund-Professional Capacity Building (TPF-PCB) committee at their quarterly meeting in Irvine, CA. Each group seemed to see the potential utility of the server to jump-start their projects. After the meeting/demonstration, Bensen Chiou, the website developer and Webmaster, assigned id's and passwords to each member of SCOTS and the TPF-PCB committee so they can test drive the server and provide feedback. Working on putting together a webinar for SCOTS and other states DOTs and create a

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						marketing plan to promote and market the product.
AB	19	Support for Business Case Development for the GPS-Automated Travel Diary (GPS-ATD) in Preparation for the 2010 Statewide Travel Behavior Survey	The GPS-ATD is an important enabling technology for the 2010 Statewide Travel Behavior Survey. In support of needed additional research and subsequent deployment, this project will develop quantified Business Case inputs for the FSR and BCP processes.	Azzeddine Benouar	Ayalew Adamu	AHMCT is currently providing deployment support for field testing of the prototypes by Caltrans. Early field-testing feedback has been incorporated into the system design. The prototype was designed to be mass produced and deployable for future full-scale household survey. The improved surveys will provide decision makers with current, accurate and reliable traveler behavior data at a significantly reduced cost. In addition, the GPS-ATD will minimize user burden and provide activity-time-space relationships.