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Traffic congestion wastes over $100 billion annually. When we’re not moving, we’re losing from lost productivity, increased fuel consumption, air pollution and lower quality of life. On a daily basis, households make four trips per day, averaging 40 miles of travel. As the population increases and the economy improves, congestion will increase unless properly monitored and managed. At the current trend, it is projected that congestion’s adverse impact on the economy will double by year 2020 to $200 billion annually.

Technology has long served an important role in solving transportation problems. Intelligent Transportation Systems (ITS) apply electronics, communications and information processing technology to improve all aspects of transportation.

Iteris is doing its part to mitigate congestion through planning, engineering and implementing of technology-based solutions.

Our focus is to:

- Measure > Collect travel behavior and pattern data
- Manage > Analyze and monitor travel conditions
- Inform > Provide real-time information to traffic managers and motorists
- Guide > Deliver actionable and predictive information

Combined, these actions escalate the throughput of the system, increasing efficiency, improving safety, reducing congestion, and enhancing traveler mobility and convenience.

Iteris synchronizes three areas of technology:

- Roadway Sensors develops products to measure information in the ITS industry. We highlight two of our newest in this newsletter: Vantage SmartCycle and Vantage SmartSpan.
- Transportation Systems plans and deploys solutions to manage transportation networks.
- iPerform®, established two years ago, develops software-based traffic and weather information solutions to primarily serve the public agencies. We are now leveraging our significant expertise and experience in traffic management with world class human capital, and IP through acquisition of Meridian Environmental Technologies (MET), and Berkeley Transportation Systems (BTS), to expand our offerings to commercial markets.

Emergence of technology to better manage transportation systems proactively comes from available and abundant data sources, measurement and monitoring capabilities of the systems, and the analytics to decipher what it all means. Market dynamics are evolving from real-time traffic management to predictive traffic management. The paradigm shift advances from reactive to proactive, informing to guiding, and real-time to predictive. This shift is driven from the regional coordination and integration of systems, and the traveler equipped with their mobile devices that open the gateway to instant information.

In this edition of our newsletter, we’ve highlighted the expansion of our iPerform group, the return on investment agencies have realized from measuring assets with our iPerform flagship software solution “iPeMS”, a Bluetooth data collection and management solution, and our latest 511/traveler information award. All projects are augmented with performance measurement components to aid our clients with actionable information for enhanced system management.

Enjoy reading!

Sincerely,

Abbas Mohaddes
President & CEO
Iteris, Inc.
Iteris’ iPerform® group, established in 2011, provides a new generation of intelligent traffic and weather-related information solutions. These solutions bring the power of big data to the prediction of traffic conditions and the delivery of actionable information to both the public and commercial marketplace. The segment’s initial product, IterisPeMS™, is a state-of-the-art information management software suite that utilizes a wide range of data resources and analytical techniques to determine current and future traffic patterns, permitting the effective performance analysis, and management of traffic infrastructure resources.

Currently, iPerform is a market leader in performance management solutions for federal, state, local, and municipal organizations. Now the firm will leverage its deep experience in the traffic management market, as well as its market-specific intellectual property, to expand the company’s leadership in data aggregation and analytics.

“The market for traffic analytics is expanding dramatically,” said Abbas Mohaddes, president and CEO of Iteris. “Our deep knowledge of traffic engineering and weather forecasting, our experience managing traffic measurements on a massive scale, and our state-of-the-art analytical capabilities should position us to put complex big data to work, enabling our customers to predict and solve real-time traffic management problems. The expansion of iPerform reflects our broadening focus to a wider audience that should benefit from our information-based products and services.”

By increasing investments in both technical and market development, Iteris is focused on expanding the scope of its public sector solutions into the commercial marketplace. According to IBIS World, the world’s largest independent publisher of U.S. industry research, the traffic and weather information markets are expected to grow more than 38% annually to become a $2 billion industry by 2016.

Going forward, iPerform’s solutions are expected to include incident management applications, arterial solutions, predictive traffic, and weather-based data and analytics for both public and commercial markets including media, automotive, and consumer applications.
IterisPeMS™: Proven Return on Investment

IterisPeMS™ analytics enable performance measurement by connecting automated data streams with agency performance measures. This automation is the core return on investment of the product: it automates staff time that would have otherwise been spent on low-level data tasks. Analytics investments yield high returns because they leverage existing data infrastructure, currently used for operations. Over time, returns on analytics investments increase in value and scope as staff members learn to automate more and more business processes using data.

Why do analytics investments yield such high returns?

Analytics software and services leverage existing investments in operations data systems. Analytics approaches often entail a modest investment in software, a minimal investment in staff, and no additional investments in hardware. Thus, the investment is relatively modest. Because it fundamentally transforms the way that agencies do business, the payoff is large, leading to high returns.

Why do analytics returns increase dramatically over time?

As agency staff incorporate analytics from IterisPeMS into their daily routines, they begin increasing opportunities to automate data business processes and gain deeper understanding of their system’s performance. The cumulative impact of these agency resources, saved through automation, continuously adds to the overall return on an analytics investment. In addition, as agencies better understand their system performance, they find new ways to improve it and serve their customers.

See At-a Glance chart on page 5 >
## At-a-Glance: Return on Investment (ROI) for IterisPeMS™

### Summary of Four Case Studies:

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<tr>
<th></th>
<th>Type of IterisPeMS Usage</th>
<th>The Client</th>
<th>What was the Problem?</th>
<th>How IterisPeMS Solved the Problem</th>
<th>What was the Benefit?</th>
<th>Dollars Invested</th>
<th>What was the Return or Cost Savings?</th>
<th>Return on Investment (ROI)</th>
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<tr>
<td>1</td>
<td>Annual State-of-The-System Report: Leverage Existing ITS</td>
<td>Metropolitan Transportation Commission (San Francisco)</td>
<td>Costly routine report produced by consultant</td>
<td>Pulled better &amp; more substantial data automatically</td>
<td>Lowered cost to produce report</td>
<td>$280,000 over 3 years</td>
<td>$600,000 (over 3 years) monies not paid to consultants/contractors</td>
<td>114% (Namely, a $320,000 &quot;profit&quot;, after repaying the original $280,000 investment)</td>
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<td>2</td>
<td>Work Zone Lane Management: Increase Automation</td>
<td>Caltrans</td>
<td>Costly manual preparation of approvable work zone lane closures</td>
<td>Fully automated the data crunching task</td>
<td>Quicker and cheaper task completion</td>
<td>$250,000 over 3 years</td>
<td>$400,000 (over 3 years)</td>
<td>67%</td>
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<tr>
<td>3</td>
<td>Detector Fitness Program: Automate the Business Process</td>
<td>Caltrans</td>
<td>Broken detector repairs were not timely</td>
<td>Contractors paid based on verified repairs</td>
<td>Detector health leaped in six months</td>
<td>$500,000</td>
<td>$800,000</td>
<td>60%</td>
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<td>4</td>
<td>Fixing An Operational Issue: Improving a System’s Performance</td>
<td>Attiki Odos Motorway (Greek tollroad)</td>
<td>A bottleneck’s financial impact to motorists and agency</td>
<td>More rapidly detected and diagnosed the problem</td>
<td>Resolved bottleneck, saving 6 months of labor costs</td>
<td>$350,000</td>
<td>$400,000 of drivers’ time-value savings</td>
<td>14%</td>
</tr>
</tbody>
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Santa Clara County California Installs Better Measurement for Better Management

Santa Clara County asked Iteris to expand the arterial capabilities of its IterisPeMS™ (iPeMS) software product. iPeMS is a leading traffic data collection, processing and analysis tool that assists transportation planners and engineers in assessing the performance of their freeway, arterial and transit networks. iPeMS extracts information from real-time intelligent transportation systems, (such as vehicle sensors and traffic signal systems), saves that information permanently in a data warehouse, then presents it in various visual forms to managers, traffic engineers, planners, and researchers. iPeMS continuously monitors corridor conditions and performance measures in real-time and reports them through a web-based interface to provide access to multiple stakeholders across institutional boundaries. With iPeMS, traffic engineers can base operational decisions on knowledge of the current and historical states of the network. Planners can gauge how performance and travel patterns are changing over time. iPeMS also offers agencies a much-needed toolset for evaluating the impacts of their management and operational changes, allowing them to better manage their resources and evaluate whether they are meeting established goals. In brief, iPeMS helps a wide variety of agency staff make better decisions about investments in their transportation system by leveraging already collected ITS data.

For this project, Iteris configured iPeMS to collect and integrate three types of real-time data from the Santa Clara County Expressway system: (1) vehicle volumes and occupancies from signal system loop detectors; (2) vehicle volumes and speeds from video detection system cameras; and (3) signal phasing information for all intersections. iPeMS continually collects this data, stores it permanently in the cloud, and fuses it to compute demand- and delay-based performance measures using modified HCM equations. In a real-time context, iPeMS displays flow and speed anomalies on a web-based interactive map, so that staff can quickly identify locations that may require operational interventions. It also quality-controls the received detector data, alerts the agency as to which sensors are broken, and sends imputed data back to the county’s signal system for use in traffic responsive control. This critical process helps agencies quickly fix broken equipment and ensures that traffic control plans are selected based on good data. In a historical context, iPeMS uses the archived data to continually track and report performance at intersections and along links through a series of reports and visualizations. Santa Clara County is using these tools to identify locations and time periods that require timing adjustments. Because it provides continuous data and performance measures, iPeMS is also replacing the county’s conventional before-and-after studies for quantifying the impacts and return-on-investment of implemented improvements.
South Carolina Selects Iteris for $2.5 Million 511 Traveler Information Services Project

Award Continues Iteris’ Leadership in 511 Traveler Information Systems, Now at 18 Systems

South Carolina Department of Transportation (SCDOT) through a competitive bid process, selected Iteris to upgrade and operate the State’s next generation 511 Traveler Information System.

A component of the award includes IterisPeMS™ (iPeMS), a unique, state-of-the-art system that authenticates and analyzes multiple sources of traffic data for performance measuring and management.

The three-year contract, valued at approximately $2.5 million, includes two one-year options for ongoing operation and maintenance. The award strengthens Iteris’ leadership position in 511 traveler information systems, with the company currently operating 18 systems nationwide and abroad. Work on the project started in January and is expected to go live in June.

“This award by South Carolina reflects our strengthening record of delivering 511 systems on time and on budget, while providing the best resources and user experience to travelers on the road,” said Abbas Mohaddes, president and CEO of Iteris. “As we begin to upgrade the SCDOT 511 systems to our state-of-the-art technology, we will incorporate the synergies of our IterisPeMS performance measurement and management solution, which is expected to enhance certain aspects of the SCDOT 511 system.”

Under the terms of the engagement, Iteris will lead a team of highly qualified partners experienced in the delivery of traveler information systems. This new system will be implemented in phases and will include the following new features and enhancements:

• Improved voice recognition software
• Robust performance measurement and management (via iPeMS)
• Easy-to-use systems navigation with additional functionality
• Email alerts that deliver personalized, real-time traffic information
• Mobile solutions applications for iPhone and Android platforms
• Improved 511 website with additional features

According to SCDOT’s ITS Coordinator, Dan Campbell, “We are excited about working with Iteris on South Carolina’s next generation 511 system.”
San Diego ICM Going Mobile

Iteris is developing the smartphone pilot mobile application (available on both iOS and Android) as part of the I-15 Integrated Corridor Management (ICM) project for the San Diego Association of Governments (SANDAG). The feature rich mobile app for smartphones will provide users timely information from the existing 511 system, including: travel times, color-coded maps indicating nearby traffic conditions and congestion level. Utilizing the centralized ICMS data system, the smartphone application will enable San Diego’s motorists who are already en-route to receive location-based advisories of upcoming travel disruptions such as construction zones and incidents. Access to Caltrans roadway camera images will also be provided, along with tolling information for the I-15 corridor. Travel time and cost information on alternative routes for both transit and driving will enable travelers to select their route and mode based on real-time conditions. In addition, pre-trip functionality will be included to allow travelers to view transit maps, fares and arrival times for MTS bus routes throughout the region. Finally, the I-15 corridor will include enhanced ICMS information, allowing travelers to select their departure time and route based on predicted conditions.

To measure success of the pilot project, Iteris will provide application usage reports to help guide direction for the future of 511 in the region, ICMS and other SANDAG programs. The mobile app will be fully compliant with local and state distracted driving laws. Support for safe driving practices will be integrated throughout the application’s design. A warning screen will be included in the application’s loading animation. Additionally, the application will contain a text-to-speech engine so that traffic alert information can be read aloud when appropriate.


Iteris PeMS™

The software solution designed to measure and manage your transportation network, providing actionable information to optimize the flow of your entire network.

IterisPeMS™ is the performance management system that provides better measurement for better management.

Innovation for better mobility
University of Nebraska-Lincoln (UNL) Builds State-of-the-Art Traffic Management Center Lab

Transportation Engineering students at the University of Nebraska-Lincoln will benefit from their advanced Transportation Systems Lab (TSL), opened in December 2012. Iteris provided complete design, procurement, installation and integration of UNL’s TSL. UNL and Iteris staff visited several Traffic Management Centers (TMC) throughout the region to evaluate and gather the best concepts for incorporation into their design. The result is a state-of-the-art research lab with the robust functionality of a TMC. The University’s lab is networked with the City of Lincoln’s traffic signal system and ITS field devices such as CCTV cameras for real-world study and solution application. The laboratory is equipped with nine workstations, a 4x3 PLANAR 55” LCD video wall, and two fully built out equipment racks. Iteris will provide operational support and maintenance for the next two years. During the next phase of the project, Iteris will provide comprehensive training on its products Abacus, VantageView and NetScene.

Transportation Plan Includes Performance Measures

The Gateway Cities subregion is comprised of 27 cities in Los Angeles County, with a population of more than two million. Working with L.A. Metro, the region hired a consultant team for its Strategic Transportation Plan, which features innovative multi-resolutional modeling: Macro Demand Modeling, Mesoscopic Transportation System Modeling and Micro-simulation Modeling. Iteris is a key team member and is leading the Transportation Planning tasks, as well as the development of the Macro modeling tools.

The project includes application of IterisPeMS™ (iPeMS) software to evaluate arterial hot spot locations, a first of its kind application in the Los Angeles Metro area. The iPeMS system will ingest historical third party probe data and provide analytics identifying travel trends such as vehicle slowing and corridor travel times, and highlighting congestion hot spots on the arterial network. A deeper congestion analysis will follow the initial arterial evaluation and determine performance levels of intersections, interchanges and arterial corridors, all of which are supported by the iPeMS analytics.

Performance measurement and monitoring criteria for the arterial system throughout Gateway Cities will be developed by the Iteris team and tied to the iPeMS output. These thresholds will measure existing as well as future performance levels of the Gateway Cities arterial network.
“Year of the Bicycle” signals Iteris release of Vantage® SmartCycle™

Vantage® SmartCycle™ Expands Iteris’ Video Detection Product Suite

Iteris rang in 2013 with the launch of SmartCycle™, a new product addition to its Vantage® video detection product suite. Facing rising fuel costs, more commuters are taking to the streets on bicycles, creating an increased need for accurate bicycle detection at intersections.

An intersection configured with SmartCycle effectively differentiates between bicycles and other vehicles, enabling more efficient signalized intersections and maximized traffic throughput.

Vantage SmartCycle accurately detects both vehicles and bicycles with a single video detection camera facing a dedicated approach. Agencies using bicycle timing benefit from bicycle-specific virtual detection zones that can be placed anywhere within the approaching traffic lanes, eliminating the need for separate bicycle-only detection systems.

“SmartCycle provides traffic engineers and planners a cost effective way to bring their traffic management systems into compliance with new state regulations that require bicycle detection capabilities,” said Abbas Mohaddes, President and CEO of Iteris. “We believe the addition of SmartCycle enhances safety for the estimated 50,000 signalized intersections nationwide where cycling is most abundant.”

SmartCycle builds on Iteris’ proven Vantage video vehicle detection technology, which has been deployed throughout North America, Latin America, Europe, Asia, and the Middle East. The firm is the market leader with more than 100,000 video detection sensors operational worldwide.
Vantage Velocity™ Delivers Actionable Information

The City of Arcadia, California is made up of roughly 60,000 residents with approximately 59 traffic signals. Arcadia is also home to the famed Santa Anita thoroughbred horse racetrack, bringing in tens of thousands of visitors from southern California and other regions each race day. This provides a significant and highly variable traffic management challenge for the City.

In 2008, the City implemented their overall traffic signal control system (TCS) to provide their residents with smoother traffic flow. Recently, the City started expanding its TCS system by bringing more of its traffic signals, CCTV cameras, and vehicle detection stations (VDS) under TCS control. With this latest expansion, the City wanted to add performance measuring and monitoring into their traffic management program, leveraging their existing system to provide a more robust data output. City staff requested a system that would continuously and automatically monitor and graphically report on congestion levels along the city’s busy arterials. Equipping the city with a dense network of standard detection systems at the intersections to achieve this monitoring system proved to be too expensive, and the accuracy of data was too low for the City’s requirements.

City staff decided that a Bluetooth-based data collection system would provide the most cost effective means of gathering the large amount of raw data needed to characterize real-time congestion. Iteris’ Vantage Velocity™ Bluetooth Data Collection System was the selected system, working in conjunction with Post Oak Traffic Systems from the Texas Transportation Institute. Data is ingested into this new special-purpose system, creating travel time and speed profiles on a congestion map interface as well as feeding to an iOS- or Android-compatible tablet / smartphone application. The combined output would provide the residents of Arcadia with real-time travel time information to guide their local route decision making. Fifteen (15) Vantage Velocity field processing units were installed in existing traffic signal cabinets, communicating via Ethernet to the host software operating on a City-owned server. No additional communication infrastructure or poles were required. The system was installed in early 2012 and is providing travel time information to the City’s traffic control system via its XML interface.

“Vantage Velocity has done exactly what we wanted,” says Kevin Merrill, the City’s traffic engineer. “The system helps me identify where coordinated signal timing will balance out delays. This bluetooth arterial performance monitoring tool highlights trouble spots far easier than in the past. It is also very easy to setup travel-time segments and requires very little staff time keeping the automated system up and running. We are extremely happy with the results.”
**Vantage® SmartSpan™ Video Detection for Span Wire Intersections**

Iteris has launched SmartSpan™, a new product addition to its Vantage® video detection product suite. Using proprietary Dynamic Zone Stabilization (DZS) algorithms, SmartSpan provides accurate and effective advance detection and stop-bar detection of vehicles at intersections equipped with span wire mounted signal lights.

The new solution addresses the unmet needs of many traffic management agencies that have not been able to cost-effectively deploy video vehicle detection. This has traditionally required stable camera mounts that are only possible with rigid traffic signal mast arms; however, SmartSpan can be mounted on the same span wires holding the traffic signal without sacrificing detection accuracy.

“SmartSpan finally provides traffic engineers a seamless way to combine the benefits of video vehicle detection, traffic data collection, and intersection surveillance for span wire equipped intersections,” said Abbas Mohaddes, president and CEO of Iteris. “This product also creates opportunities for cost effective video detection to an additional 55,000 signalized intersections – primarily in Eastern and Southern U.S. states – where span wire intersections are routinely installed. Further, using our proprietary DZS algorithms, we can provide video detection in locations that are subject to high winds or vibration which can result in unwanted camera movement.”

SmartSpan builds on Iteris’ proven Vantage video vehicle detection technology, and is the industry’s first video detection system designed specifically for span wire applications.

**Upcoming Events:**

- **TexITE Spring Meeting 2013**
  - Richardson, TX
  - April 10-12, 2013

- **APWA Show**
  - Grand Rapids, MI
  - April 7-10, 2013

- **Southern District of ITE SDITE**
  - Charlotte, NC
  - April 7-10, 2013

- **CITE - Canada ITE**
  - Calgary, AB
  - April 7-9, 2013

- **IMSA -Canadian Prairie Annual Conference and Trade Show**
  - St Albert, AB
  - April 16-18, 3013

- **ITE Great Lakes District Annual Meeting and ITS Michigan**
  - Grand Rapids, Michigan
  - April 15-16, 2013

- **ITS America**
  - Nashville, TN
  - Booth 421
  - April 22-24, 2013
Iteris Adds New Talent

Dustin Salentiny
Senior Software Developer, iPerform

Dustin looks young...because he is! However, he brings over 10 years of experience in the tech industry, including the development of web, desktop, and mobile applications. He has spent the past seven years managing software developers in both the public and private sectors. Dustin has consulted on a variety of projects ranging from startups to university-wide infrastructures. Working from the Grand Forks, North Dakota location, Dustin will manage the development of software services. Dustin earned his B.S. and M.S. from the University of North Dakota, and is currently pursuing a doctorate in Scientific Computing from the university.

Fourteen software developers and engineers have been added to the iPerform group over the last year, building a crew focused on predictive weather and traffic applications.

Steve Gaddy, PMP
Program Manager, Transportation Systems

Steve re-joined Iteris in January of 2013. He returns to project management for the firm, a role he held previously when employed for nine years at Meridian, which was purchased by Iteris in 2010. As a project manager, Steve was involved with numerous weather and transportation projects on the East Coast, including the design/build, deployment and operations of the Georgia 511 Advanced Traveler Information System. For the past two years, Steve worked as a meteorological data manager, providing weather risk management services to energy, commodity and weather derivatives traders. Steve is assigned the role of project manager for the Virginia DOT Transportation, Video & Data (TV&D) Services contract, which fuses traffic and video data to provide information through 511, websites and mobile apps.

James Drake
Senior Project Engineering Specialist, Roadway Sensors

James is an IMSA level 3 technician with 22 years of traffic signal experience. He worked for the Texas Department of Transportation (TxDOT) for 12 years as a signal technician and shop supervisor, and nine years as a sales and product support technician for various traffic signal products, Iteris products among them. Finding the robust functionality and ease-of-use with the Iteris systems, James wanted to make a career of it and came to Iteris in 2013. James will be based in Iteris’ briskly growing Texas office and will aid in its expansion.
Iteris at ITS America!

April 22-24, 2013
Nashville, TN - Exhibit #421

Make a pit stop at the Iteris exhibit #421

Learn about our transportation solutions that measure, manage, and inform – to guide users.

511 / ATIS
Performance monitoring and managing
New Vantage® Video Detection sensors:

[Vantage® SmartCycle™] [Vantage® SmartSpan™] [Vantage® Next]

Join us for some down home hospitality including cocktails and hors d’oeuvres

Iteris is giving away iPad® minis and a Fender® Stratocaster

Monday, April 22
3:00-5:00 pm