CALIFORNIA CENTER FOR INNOVATIVE TRANSPORTATION
INSTITUTE OF TRANSPORTATION STUDIES
UNIVERSITY OF CALIFORNIA, BERKELEY

Innovative Corridors Initiative: Call for Submissions Process and Evaluation

Rachel S. Finson
Cynthia McCormick
Susan A. Shaheen

CCIT Working Paper
UCB-ITS-CWP-2007-10

This work was performed as part of the CCIT Program of the University of California, in cooperation with the State of California Business, Transportation, and Housing Agency, Department of Transportation, and the United States Department of Transportation, Federal Highway Administration.

Report for Task Order 7

March 2007

ISSN 1557-2269

CALIFORNIA CENTER FOR INNOVATIVE TRANSPORTATION
INSTITUTE OF TRANSPORTATION STUDIES
UNIVERSITY OF CALIFORNIA, BERKELEY

Innovative Corridors Initiative:
Call for Submissions Process and Evaluation

Task Order 7 Final Report

Rachel S. Finson
Project Manager, Innovative Mobility Research,
California Partners for Advanced Transit and Highways
1357 S. 46th Street, Building 452, Richmond, CA 94804-4603
510-665-3455 (O); 510-665-3537 (F); E-mail: rfinson@path.berkeley.edu

Cynthia McCormick
Graduate Student Researcher, Innovative Mobility Research,
California Partners for Advanced Transit and Highways
1357 S. 46th Street, Building 452, Richmond, CA 94804-4603

Susan A. Shaheen, Ph.D.
Policy and Behavioral Research, Program Leader
California Partners for Advanced Transit and Highways
1357 S. 46th Street, Building 452, Richmond, CA 94804-4603
510-665-3483 (O); 510-665-3537 (F); E-mail: sashaheen@path.berkeley.edu

March 14, 2007

ACKNOWLEDGEMENTS

This work was performed under Task Order 7 for the California Center for Innovative Transportation (CCIT) of the University of California, with the California Department of Transportation in cooperation with the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area, the Los Angeles Metropolitan Transportation Authority (LA MTA), Intelligent Transportation Society of America (ITSA) and the numerous industry partners that participated in the Innovative Corridors Initiative (ICI). The authors would like to acknowledge the California Partners for Advanced Highways and Transit for their contributions to this study and Virginia Lingham for assistance with the final interviews and formatting the report. The authors would also like to acknowledge Coco Briseno and Srikanth Balasubramanian, the Caltrans ICI project managers.

Abstract

The Innovative Corridors Initiative represents an innovative business model for public agencies to partner with private industry to improve transportation system management and provide real time information to users. The Call for Submissions (CFS) issued by Caltrans, MTC, LA MTA, ITS America, and CCITOffered private industry access to public rights-of-way and data. However, no funds were offered as part of the CFS, meaning the companies that submitted a proposal and participated needed to have the capacity to self-fund their projects. This report provides a summary of the processes to implement the CFS, including public outreach, proposal review, negotiations between the public agencies and private companies, operations, coordination with the 2005 ITS World Congress in San Francisco, and project closure. Researchers chronicled the lessons learned throughout the process through a series of interviews conducted with the parties involved. Especially important were findings related to the public-private partnership for ITS deployment that the ICI project pioneered.

Executive Summary

The California Department of Transportation (Caltrans) in partnership with the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area, the Los Angeles Metropolitan Transportation Authority (LA MTA), and the Intelligent Transportation Society of America (ITS America) embarked on a unique project to test "a new way of doing business" in deploying intelligent transportation system (ITS) technologies and services in conjunction with industry. The Innovative Corridors Initiative (ICI) was a multi-year project (June 2003 to December 2006) designed to encourage the early deployment of innovative technologies for ITS in California. Through the ICI, Caltrans and its partners issued a Call for Submissions (CFS) inviting industry to submit proposals to deploy ITS demonstration projects and to share data and information collected with the public sector in return for access to the rights-of-way and data not normally granted to the private sector. Private industry was required to self-fund the pilot demonstrations. In exchange, they were able to test their products and services in a real-world setting and then showcase them at the 2005 ITS World Congress in San Francisco, California. The CFS resulted in 28 project proposals from 16 private companies that could enhance transportation choice for individuals and overall planning and system management. Ultimately seven companies representing eight projects were selected for agreement with the public agencies.

The key components of the ICI project included:

- CFS Process and Project Management,
- CFS Process Analysis,
- Documenting Lessons Learned, Recommendations and Successes, and
- Business Model Analysis.

CFS Process and Project Management

The ICI CFS project process included proposal review and evaluation, negotiation and development of CFS Agreements, deployment and operation of the CFS projects, coordination with the 2005 ITS World Congress, and project closure. Project management partners included

Caltrans, MTC, LA MTA, ICI project staff at the California Center for Innovative Transportation (CCIT), California Partners for Advanced Transit and Highways (PATH), and ITS America. The benefits that the public agencies expected included improved transportation system management through the deployment of advanced ITS on California roadways and transit; better system use by individuals who can make informed decisions about mode choice, time of travel and route; accelerated deployment of ITS systems in California; and the development of a new business model for how public agencies can work with industry to maximize benefits for all parties involved.

CFS Process Analysis

To capture the benefits and lessons learned of the ICI and the role of the CFS in bringing innovative ITS technologies to California, ICI staff conducted an ongoing assessment of the process. Analysis of the ICI CFS process consisted of a literature review and series of interviews conducted to gain feedback about the CFS process. A review of the literature provided guidelines for carrying out the evaluation and interviews. The literature also provided context for understanding the role of public-private partnerships in providing transportation systems improvements; current public-private partnership practices in the United States; and consideration of the risks, costs, and rewards or benefits of public-private partnerships. Interviews were conducted with several different groups of individuals who were involved with the ICI CFS. The objective of the interviews was to reveal lessons learned from each of these groups during their participation in the ICI CFS. Lessons learned from these interviews may be instrumental in developing guidelines for future similar public-private partnerships.

CFS Process Lessons Learned, Recommendations, and Successes

The following lessons learned, recommendations, and successes were derived from the interviews with agency and industry project participants as well as ICI project staff active in the project.

Workshop: Allow more time for outreach, create a setting for networking and participation, and provide appropriate details on what the agencies want and can supply (e.g., rights-of-way and data). Consider releasing the CFS before the workshop to facilitate discussion at the workshop.

Submission and Evaluation: Allow adequate time for Q&A, submission and proposal review/discussion. Find a balance between an open solicitation that encourages innovation and a more specific solicitation to avoid vague proposals.

Non-Disclosure Issues: Determine the appropriate level of confidentiality for industry submissions with consideration to industry's desire to partner with other industry partners. Consider requiring a non-confidential project description.

Negotiation and Agreement: Allow adequate time for negotiation, encroachment permitting, and resolution of legal matters and adhere to the deadlines, respond in a timely manner to requests and concerns, and allow adequate time for product testing before the live showcase.

Funding: A lack of funding may limit the quality and quantity of proposal submissions. Be clear whether or not there is funding and under what parameters in-kind resources will be provided. Be cognizant of non-monetary agency resources devoted to the project (especially staff time).

Implementation & Operation: Articulate rights-of-way infrastructure requirements, ensure continuous communications, and be aware of contractual delay impacts on overall operations. Align companies early in the process so they have the opportunity to combine resources.

2005 ITS World Congress: The 2005 ITS World Congress was an incentive for industry participation, but the agencies must be clear on the parameters of participation (e.g., financial outlays). Consider a letter of understanding outlining responsibilities, a marketing plan for highlighting the CFS, and a separate "VIP Day" for highlighting the CFS projects to industry VIPs and governmental officials.

Project Closure: Expectations and options for post-demonstration public-private relationship should be clearly articulated at the initiation of the project. A well-defined private sector business model increases the likelihood of successful project completion as well as enhances the post project public-private relationship.

Public-Private Partnership: Understand the business model associated with each proposal. Articulate common goals, associated risks, and mutual benefits. Be clear on which party owns the data that are generated and under what circumstances.

Successes: Key successes articulated by the project partners included that the CFS established the agency's commitment to public-private partnerships and brought multiple jurisdictions together. The CFS also allowed public agencies to be more flexible and entrepreneurial, provided a good model for addressing budget constraints, and allowed industry to access public rights-of-way to test and showcase new ideas and technologies.

Table of Contents

List of Figures

Section I: CFS Project Management

1.1 The Innovative Corridors Initiative (ICI)

The Innovative Corridors Initiative (ICI) was a multi-year project (June 2003 to December 2006) designed to encourage the early deployment of innovative ITS approaches in California. ITS technologies are defined through a broad array of information and vehicle control technologies that are designed to improve traffic and transit management including: safety, user choice, congestion, and incident response. For over a decade, ITS technologies have been gaining acceptance and are now used in every major metropolitan area in the United States to enhance transportation system management.

However, the full potential of ITS technologies to revolutionize transportation system management and enhance individual decisions remains to be fulfilled. A critical impediment to realizing the full potential of ITS is the dichotomy between the public sector owning and operating the roadways and transit systems for the public benefit and the private sector inventing and operating ITS technology and services with a profit motive. The ICI project was designed to address this separation between a public sector mandate and private industry motivation by creating a forum where the mutual benefits to both sectors could be realized.

The premise of the CFS was that significant benefits to Californians could be delivered and experienced by introducing and leveraging innovative technologies into California's transportation system. The demonstration projects resulting from the CFS were expected to deploy current and emerging ITS technologies and to test the benefits to all parties.

Working closely with the California Department of Transportation (Caltrans), the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area, and the Los Angeles Metropolitan Transportation Authority (LA MTA), ICI project staff at the California Center for Innovative Transportation (CCIT) and California Partners for Advanced Transit and Highways (PATH) coordinated a process by which the public agencies opened up access to their rights-of-way and other facilities for the private sector to deploy innovative ITS technologies on a demonstration basis. The benefits that the public agencies expected included: 1) improved

transportation system management through the deployment of advanced ITS on California roadways and transit; 2) better system use by individuals who can make informed decisions about mode choice and time of travel and route; 3) accelerated deployment of ITS systems in California; and 4) the development of a new business model for how public agencies can work with industry to maximize benefits for all parties involved.

An additional partner in the project was the Intelligent Transportation Society of America (ITS America), which hosts the North American ITS World Congress.[1] Through this partnership the private sector was provided with an opportunity to showcase their innovative demonstration projects during the 2005 ITS World Congress in San Francisco.

The CFS was different from a typical request for proposals (RFP) in four significant ways:

1) The CFS did not specify the types of projects to be submitted;
2) The CFS process was designed with a period of time for agency and industry to negotiate project details;
3) No public funding was awarded with the CFS contract(s); and
4) Unlike an RFP where one bidder is generally awarded a contract, the CFS could result in several agreements with the private sector as long as projects fit the CFS requirements and public agency staff resources.

The open solicitation and negotiation period built into the CFS was designed to foster public-private partnerships by allowing the private sector to bring innovative ideas and technologies to the table for collaboration and mutual benefit. The fact that no public funds were awarded as a result of the solicitation required respondents to demonstrate financial self-sufficiency when submitting their proposal(s). And, allowing multiple parties to partner with the public agencies under the CFS created a more competitive approach to bringing ITS solutions than the more typical RFP scenario that awards one contract per solicitation.

[1] The ITS World Congress is held annually, rotating between North America, Europe, and the Asia Pacific. The ITS America hosts the ITS World Congress when it is held in North America. See www.itsa.org for additional information.

The full multi-year ICI project included:

- Partner development,
- Public outreach to solicit industry to deploy innovative demonstration ITS projects,
- Coordination with ITS America to create an opportunity to showcase the pilot demonstration projects during the 2005 ITS World Congress,
- Management and coordination among the partners and industry for the duration of the CFS project,
- A comprehensive literature review on mainstreaming ITS and relevant public-private partnerships,
- Periodic interviews and surveys with project partners and industry partners to identify lessons learned,
- An evaluation of the relevant regulatory arena and current Caltrans business models for allowing industry to access rights-of-way; and
- Completion of a final report detailing the process and the lessons learned.

MOU 4151 encompassed the first year of this multi-year ICI project. Year one included: 1) partner development; 2) the development of the CFS to solicit industry participation; 3) CFS outreach; 4) a report on the initial results of the CFS; 5) coordination with ITS America to create opportunities to showcase the pilot demonstration projects; and 6) ongoing coordination among the partners. See the final report for MOU 4151 for a description of these activities and a copy of the CFS.[i]

This report on Task Order 7 consists of two parts: Section I provides an overview of CFS project management including: proposal review and evaluation, negotiation and development of CFS agreements, deployment and operation of the CFS projects, coordination with the 2005 ITS World Congress, and project closure. Section II focuses on the CFS policy and institutional analysis including: research goals and methodology, a brief literature review, CFS interview summaries, and lessons learned.

The final report for the ICI project, *Innovative Corridors Initiative: Business Model Analysis (Task Order 1010 Final Report),* consists of a broader business model analysis for Caltrans including an overview of Traffic.com, Vehicle Infrastructure Integration (VII), and wireless Internet (WiFi) access at roadside rest stops in relation to public-private partnerships and conventional Caltrans business models. The report concludes with overarching policy recommendations for Caltrans to improve agency/industry business relations as technology evolves and information and real-time data become more important to system management and efficient system use.[ii]

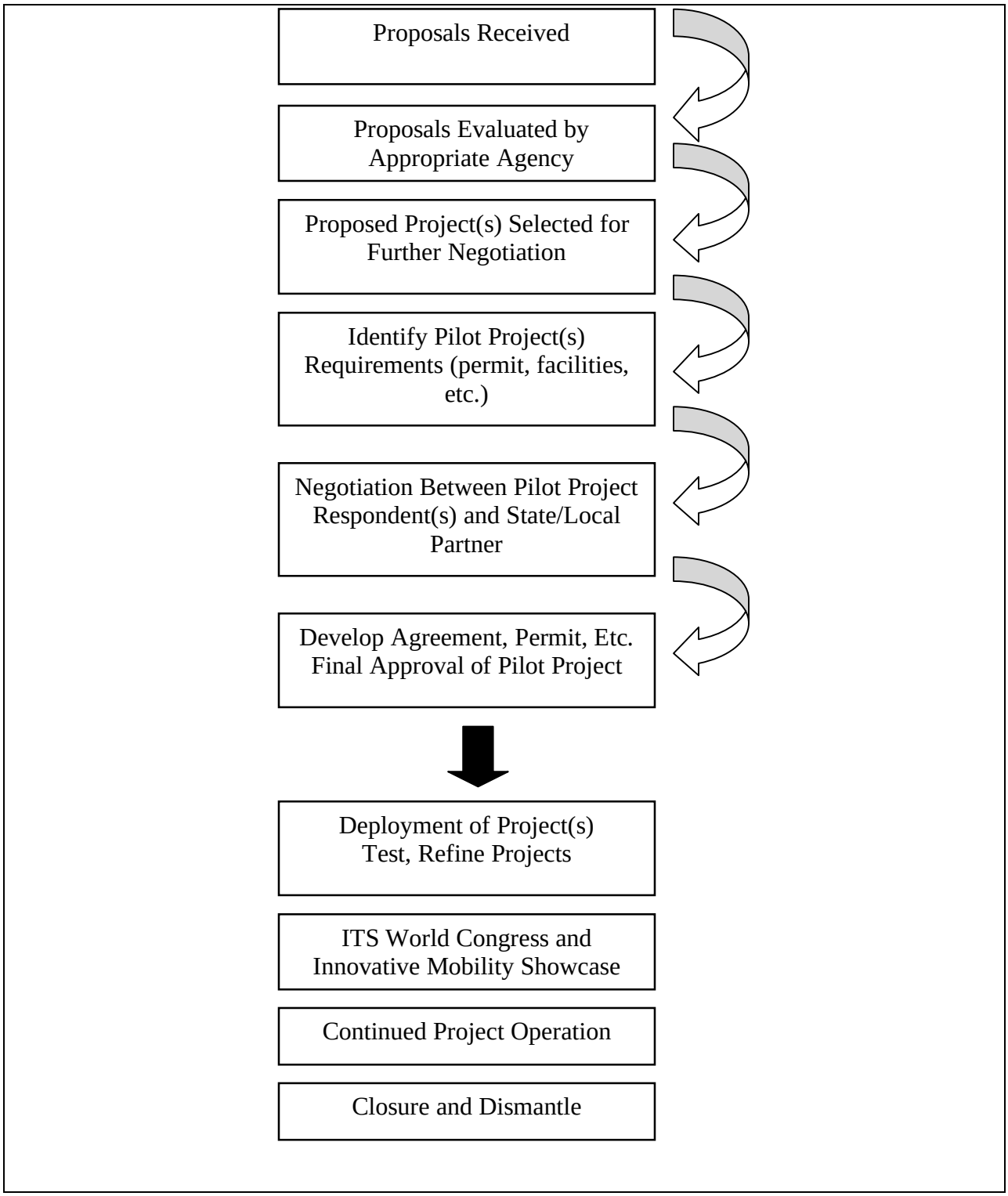
1.2 Management of the CFS Projects

After the receipt of the CFS proposals in January 2004 (see final report for MOU 4151 for project activity prior to January 2004), ICI project staff coordinated the proposal evaluation, the development of the project plans and the negotiation of the CFS agreements among Caltrans, MTC, and LA MTA and the industry partners. ICI project staff continued to work with Caltrans, MTC, and the industry partners through the deployment and operation of the CFS projects, showcasing at the 2005 ITS World Congress Innovative Mobility Showcase, and project closure. See Figure 1 for an overview of the steps of the CFS process from receipt of the proposals through closure and dismantle.

To capture the benefits and lessons learned of the ICI and the role of the CFS in bringing innovative ITS technologies to California, ICI project staff conducted an ongoing process assessment. The primary tool for this assessment was a series of confidential interviews with the agency and industry partners at key intervals during the process. These interviews and the lessons learned and recommendations are detailed in Section II of this report.

In addition to the policy and institutional analysis of the CFS process conducted as part of the ICI project, Caltrans contracted with Kimley-Horn and Associates (Kimley-Horn) to conduct technical evaluations of the CFS projects. Kimley-Horn was brought on board shortly before the 2005 ITS World Congress and worked with both agency staff and CFS industry partners to complete a technical evaluation of each CFS project.[iii]

Figure 1 - CFS Process Flow Chart:



1.3 CFS Proposal Review

All 28 of the proposals received in response to the CFS were reviewed by staff from Caltrans Headquarters and Districts 4 and 7, as well as MTC and LA MTA. Proposals that requested partnership with other public transportation agencies, such as transit, were also reviewed by the appropriate staff at these agencies. While some of the proposals did not specify location or partner agency, other proposals were very specific about these details. A strategic decision was made to circulate all of the proposals to all of the agency partners. This was beneficial since some of the agencies expressed interest in projects that were not targeted to their region (see Section 2.3 for recommendations).

To encourage private sector companies to submit proposals with innovative and possibly proprietary technology all of the proposals were treated as confidential. As such all persons reviewing the proposals were required to sign a non-disclosure agreement as well as a statement that they did not have any conflict of interest with the projects they were reviewing.

Of the 28 projects submitted, 12 had technology that was geared primarily towards automobile travel, eight targeted alternative modes (including carpool, ridesharing, and transit), three were designed to improve transportation management , and five were “other.”

The vast majority of the proposals (23) used some form of wireless technology or sensors for data collection or dissemination.

Sixteen of the proposals did not articulate a business model for how the project would continue beyond the CFS demonstration. Some of these proposals were designed just as demonstrations and for some, although the company clearly had intentions for ongoing activity, they did not articulate the business/financial plans beyond the CFS demonstration. Twelve proposals provided a business model beyond the CFS. Some of these anticipated generating revenue from selling data or information, while others envisioned selling a product to the public sector.

If deployed, five of the projects would charge user fees for the technology, 11 would be paid for by a public agency, and two would generate revenue from selling the technology to another company. For ten of the proposed projects, payment was unclear or not applicable.

For those projects that continued beyond the CFS, the primary beneficiary was private individuals (17), the public agencies (6), or other companies (1). It was unclear who would be the beneficiary for four of the projects. The line between private individual and public agency as the primary beneficiary was not always solid; for example, one project could improve traffic flows for individuals while also reducing costs for a public agency.

Eight of the proposals requested access to Caltrans rights-of-way, and four requested access to other Caltrans facilities. Six of the proposals requested data; four from MTC's 511 system and two from other sources. Finally, ten of the proposals did not specify the agency or resource request directly. These proposals tended to focus on the capability of the technology that was being proposed. For the proposals that did not specify an agency partner or resource request, some targeted an ITS World Congress demonstration only, and for others, the agency/resource request was apparent in follow-up meetings.

The proposals were reviewed on the following criteria:

1) Benefit to the partner agencies and the traveling public including: economic and environmental benefits, reduced congestion, improved safety, incident management and travel time, and enhanced information for trip decision-making and traffic management. In addition Caltrans evaluated the degree to which the project submissions assisted the agency in meeting its five key goals: productivity, reliability, safety, flexibility, and performance;
2) Degree to which the proposed project assisted with data collection, processing, and dissemination, including data quality and integrity;
3) Project feasibility including technical, environmental, and timeframe (i.e. must be deployed in advance of the November 2005 ITS World Congress);
4) Company qualifications;

5) Innovative technology or use, enhancement of an existing technology, or integration of ITS applications;
6) The nature of the request of the public agency (access to rights-of-way, other facilities, and/or data); and
7) Anticipated agency staff time and resources to manage the project.

Of the 28 proposed projects submitted, 16 projects were chosen by the partner agencies to proceed with further discussion. ICI project staff arranged a series of meetings between the appropriate agency staff and industry staff representing the proposed projects.

1.4 Negotiation and Development of CFS Agreements

For the 16 projects that were chosen by the partner agencies, ICI project staff assisted in the coordination of more in-depth discussions about project goals, scope, technology, and the role of the public agencies and the private sector partners. Eight projects did not proceed to contract. Reasons for not proceeding to contract included: incompatible technology or project scope; liability concerns; the project did not need the public facilities being offered (rights-of-way or data); or the negotiating parties determined for other reasons that the project did not meet the agency goals for the CFS.

Eight projects developed to final agreement (See Figure 2). Four of the proposals that reached final agreement were with Caltrans, three were with MTC, and one was joint with Caltrans and MTC. None of the proposed projects reached agreement with LA MTA. For each project, the appropriate agency staff worked with the industry partner to develop an agreed upon scope of work for the project including: tasks, timelines, milestones, agency responsibility, and industry responsibility.

For the five projects with Caltrans, industry requested access to the rights-of-way in order to install one or more devices related to their projects, and some also made use of MTC's 511 data. For the three projects with MTC, industry requested access to 511 traveler information data. In all cases, the agencies worked cooperatively with each other to assist the industry partners.

Two of the projects generated data that both Caltrans and MTC wanted access to. In these cases the industry partners agreed to provide the data in a format requested by both agencies. In return Caltrans and MTC would acknowledge the industry partner as the source of the data.

Although industry partners were promised a streamlined process with access to agency staff to assist them with meeting agency requirements, all projects had to meet all agency safety, environment, and product testing requirements. All of the projects that put devices in Caltrans rights-of-way had to demonstrate that their device met all agency structural and crash safety requirements. An encroachment permit is needed for individuals to enter State highway rights-of-way to construct approved facilities or conduct specified activities. Three of the projects filed for an encroachment permit with Caltrans. Because all of the projects were limited demonstrations, none required an environmental assessment.

1.5 Project Deployment, Operation and ITS World Congress 2005

The CFS process allowed the private sector partners to request specific agency resources (e.g., rights-of-way) in addition to in-kind staff assistance. Two of the projects required access to Caltrans controller boxes, three required access to the rights-of-way by the side of a highway, two required data feeds from MTC's 511 system, and one project required access to MTC's 511 system. Some of the projects generated new data, while others used a mix of existing 511 data with data that the project generated, and other projects did not generate new data but used the existing data in a new application.

The goal for project deployment was September 2005, to allow the companies time refine the projects before the ITS World Congress. Due to delays in completing the CFS agreements, some of the companies were not able to deploy in September as planned. However, all of the CFS projects were deployed before the ITS World Congress. The CFS projects were operating in real-world situations in either the San Francisco Bay Area or Los Angeles during the ITS World Congress. During the World Congress, the companies showcased their technology by bringing in live feeds of their data or taking guests on drives out to their project location. Six of the CFS industry partners showcased their CFS project at the Innovative Mobility Showcase (IMS),

which was a “live” demonstration area set up as a special venue for the ITS World Congress. Two companies showcased their project in the ITS World Congress exhibition hall.

Figure 2: CFS Projects

Industry Partner	Agency Partner	Project Title
Circumnav Networks Inc. (name changed to Dash Navigation, Inc.)	Caltrans District 4 & MTC	Dynamic Route Advisory Navigation System
ENCOM Wireless Data Solutions	Caltrans District 7	Seamless Wireless Integration for Traffic Applications
InfoTek Associates	Caltrans Districts 4 & 7	Intelligent Loop Detector Application
NAVTEQ	MTC	511 Level Two Demonstration
NAVTEQ	Caltrans District 4	Vehicle Infrastructure Cooperation Demonstration
Outreach	MTC	Bay Area Web Congestion Mapping and Traffic Forecasting
SpeedInfo	Caltrans District 4	Speed Sensor Demonstration
Tele Atlas North America, Inc.	MTC	TV511 Demonstration

1.6 Project Closure & Final Outcomes

Seven of the eight projects specified June 30, 2006, as the end date for their CFS agreements. One industry partner requested an end date of December 31, 2006. Actual project closure dates varied from the original CFS agreements (See Figure 3). For all of the CFS projects, the industry partner was required remove any equipment placed in the rights-of-way at the close of the project.

The CFS agreements between Caltrans and industry specified three choices of "business model" or relationship with Caltrans that the industry partner could follow at the close of their CFS projects. If Caltrans and the industry partner mutually agreed to continue their relationship beyond the end date of the CFS demonstration, one of the three options listed below could be followed:

1) The industry partner could continue to have access to the rights-of-way under a new encroachment permit as long as they continued to provide data to the agency at no cost. Under this scenario the company would be providing the data or service for a fee to a subscriber base to sustain their business.
2) The industry partner needed access to rights-of-way for their demonstration but did not want access after the end of the CFS demonstration. However, the industry partner did want to market the product that they demonstrated. In this situation, it would be up to the agency to determine if they wanted to purchase the product. The CFS provides no guarantee that Caltrans would purchase any product.
3) The industry partner did not need access to Caltrans rights-of-way for their demonstration, but they did want to market a product to Caltrans. The CFS provides no guarantee that Caltrans would purchase any product.

Figure 3: CFS Project Closure

Industry Partner	Expected Project End	Actual Project End
Circumnav (Dash)	December 2006	December 2006
ENCOM	June 2006	October 2006
InfoTek	June 2006	November 2006
NAVTEQ 511	June 2006	November 2005
NAVTEQ VIC	June 2006	N/A
Outreach	June 2006	November 2005
SpeedInfo	June 2006	June 2006
Tele Atlas	June 2006	November 2005

For the three projects that ended before the contract end date (NAVTEQ 511, Outreach, and Tele Atlas), the industry partner did not have a business model or a funding mechanism that allowed the project to continue after the ITS World Congress.

SpeedInfo's project was transferred to MTC jurisdiction at the end of the CFS agreement. Under the new contract with MTC, SpeedInfo's equipment is allowed to stay in the rights-of-way under an encroachment permit held by MTC. MTC pays for SpeedInfo data, while Caltrans continues to receive data at no cost for limited use in return for no cost access to the rights-of-way.

The two projects that were extended past the original June 2006 timeline (Infotek and ENCOM) were extended at the request of the industry partners. In both cases the start date of the CFS projects were delayed and additional time was necessary to complete the installation and testing of the equipment.

Circumnav (now called Dash Navigation, Inc.) stopped using their equipment before the end of their CFS demonstration period because the technology focus and goals for their project had changed over the course of the demonstration. However their roadside units (RSUs) have not been removed from the rights-of-way (as of January 2007). Caltrans and MTC are evaluating if the RSUs could be beneficial for additional vehicle infrastructure research projects. If the agencies determine that the RSUs are useful, authority will be transferred to MTC or another entity.

Finally, although NAVTEQ entered into a CFS agreement for their Vehicle Infrastructure Cooperation project, they found that placing their RSUs in San Francisco city streets was more beneficial to their needs, and they did not place any equipment in the Caltrans rights-of-way.

Section II: CFS Process Analysis

2.1 Research Goals and Methodology

The research methodology consisted of a literature review and series of interviews conducted to gain feedback about the CFS process. A review of the literature provided guidelines for carrying out the evaluation and interviews. The literature also provided context for understanding the role of public-private partnerships in providing transportation system improvements; current practice in the United States; and consideration of the risks, costs, and rewards or benefits of public-private partnerships. Caltrans and its partners issued the CFS to foster public-private partnerships that will develop emerging ITS technologies to enhance mobility, traveler choice, and safety. Interviews conducted with the CFS partners, participants of two CFS workshops, CFS respondents, governmental agency partners, and industry partners selected to showcase their technologies at the ITS World Congress reveal early lessons learned from this innovative process. The objective of the interviews was to reveal the strengths and weaknesses of the ICI process as compared with more traditional government solicitations, examine relations between public-public and public-private partners under the ICI process, assess the potential of implementing ITS projects at no cost to the public sector, and gather recommendations for future CFS style solicitations. Lessons learned from the ICI will be instrumental in developing guidelines for future public-private partnerships.

2.2 Literature Review

The ICI evaluation follows US Department of transportation (US DOT) guidelines, which call for providing an evaluation report on the lessons learned in employing innovative financing or procurement and/or public-private partnering techniques.[iv] Interviews were conducted by a graduate student researcher in keeping with USDOT guidelines that state: “evaluations should be performed by an independent party who has had no vested interest or stake in the project itself.”[v] The USDOT ITS Joint Program Office considers evaluation to be an essential part of the project development process with the purpose to bring about changes in order to meet or exceed project goals and objectives. Moreover, a significant goal of evaluation: “is the expansion of the

knowledge base among transportation community professionals, policy makers, planners, engineers, and other influence brokers." [vi] Timely project evaluation reports that capture valuable and recent lessons learned provide experience-based information for newly formed relevant project partnerships. The evaluation should address key components of the project including institutional issues (i.e., non-technical factors) that influence project performance such as: procurement and contracting, organizational structure, and relationships among major participants.

This report offers a descriptive evaluation of the ICI case study in accordance with Government Accountability Office (GAO) guidelines. According to GAO, it may be beneficial to use structured interviews when information must be obtained from program participants. In a structured interview, individuals are asked the same questions in a precise manner, offering each interviewee the same set of possible responses, while an unstructured interview contains many open-ended questions. While open-ended questions do not generally produce uniform data that can be compared, summed, or further analyzed, they can be useful "for a small number of respondents and where analysis may be qualitative, rather than quantitative." Moreover, open-ended questions can elicit answers that contribute to the formulation of more specific questions and response alternatives. The ICI interviews were a hybrid of the structured/unstructured interview process, using a pre-determined set of questions that were asked of all participants in a particular interview group, while allowing some flexibility for further discussion and clarification. Advantages to the telephone interview include: establishes rapport with the respondents; may persuade individuals to answer all of the questions and more truthfully; the interviewer can recognize when a respondent is having a problem understanding or interpreting a question; irrelevant questions may be skipped; and it is a faster method of gathering data. The major disadvantages to telephone interviews are: additional expense due to the need to train interviewers and the time spent contacting and interviewing respondents; the inability to observe the interviewee's reactions (e.g., confusion, uncertainty, or hostility); and the tendency of the interviewer to become monotonous in presentation (e.g., enunciation of questions).

Intelligent Transportation Systems

ITS includes a broad range of wireless and hardwire communications-based information and electronics technologies and are used to relieve congestion, improve safety, and enhance productivity.[vii] ITS technologies show great potential to improve safety, transportation system management, and individual mode choice, route, and travel time. However, there are many challenges to ITS deployment including unclear roles and responsibilities among jurisdictions in ITS policy development and operations, competing priorities for scarce resources, limited private investment in ITS, limited ITS expertise among transportation agencies, lack of understanding of ITS benefits, and poor visibility of ITS projects.[viii] Moreover, institutional questions (e.g., access to public rights-of-way) must be addressed to facilitate ITS deployment. Many ITS experts believe that significant public benefits can result from leveraging new technologies into the statewide transportation system. Since public sector capital projects, including ITS elements, can take several years to implement, decisions based on currently available technology can become outdated prior to implementation. In contrast, the private sector may be able to finance, construct, and operate transportation facilities and services in a timelier, more efficient, and less costly manner.

Public-Private Partnership

A public-private partnership can be defined as "[a]n arrangement of roles and relationships in which two or more public and private entities coordinate/combine complementary resources to achieve their separate objectives through joint pursuit of one or more common objectives."[ix]

While transportation system management and finance has largely been the domain of the public sector, the private sector has been integral in providing major transportation facilities including railways, transit lines, roads, and highways.[x] For example, private toll roads accounted for many of the earliest major roadways in the U.S., and public transportation (e.g., horse and carriage coach services) was first developed by the private sector.[xi] This "user fee" approach to transportation finance gave way to a tax-based approach (e.g., general tax revenues, earmarked fuel taxes, or other dedicated taxes) in the 19th and 20th centuries when the federal and state governments, strengthened by policies such as the Federal Aid Highway Act, took the primary

role of providing the nations highways and transit. Recently, constraints on public funds have prompted a revival of public-private partnerships. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) increased the opportunity for private industry participation by expanding the use of toll roads on Federal-aid facilities and the use of federal funds and other innovative financing for construction projects. While public-private partnerships for larger infrastructure projects such as toll roads are increasingly being looked at, there is little in the way of public-private partnerships for intelligent transportation systems.

However, the efficient deployment of intelligent transportation systems requires cooperation between government and industry to ensure technology and infrastructure work together as an integrated system. “Cooperation between government authorities as owners of the public infrastructure, private entities as suppliers of technology, and vehicle drivers as primary users of a service are essential for the success of any ITS application.”[xii] The Wisconsin Department of Transportation recognizes that “an important way to attract private capital for transportation and undertake operational improvements using advanced technology is to encourage the private sector to participate in ITS public/private partnerships.”[xiii] For cooperation and partnership to occur and be successful, all parties will need to understand the risks, costs, and rewards to individual partners. With mutual rewards, shared risks, and reduced costs, parties have an incentive to cooperate and realize possible gains for all. According to the Public-Private Partnership Office in Canada: “A successful public-private partnership builds on the experience of each partner to meet clearly defined needs and provide a net benefit (or value for money) to the general public through the appropriate allocation of costs, risks and rewards.”[xiv] Clearly, the additional benefits must outweigh the additional costs of cooperation. The private sector will want to earn a profit or receive a fair rate of return on its investment at an acceptable risk, while the public sector must receive 'value for money' from the initiative, “ensuring public investments result in more rapid development, expanded capacity and/or lower prices.”[xv] Public-private partnerships may be able to accelerate development, production, and deployment of ITS technologies if they are successful in sharing benefits, reducing costs, and allocating risks to the partner best suited to efficiently and effectively mitigate such risks.

> [R]isk is greater in the absence of clear laws, regulations, and procedures that are supportive of ITS public/private partnerships. Private sector risk is often unacceptable without clear boundaries between public and private sector roles. Risk also increases with time, complexity, competition and financial and political uncertainty. [Government agencies] can play an important role in reducing private sector risk to an acceptable level by implementing an institutional framework that increases the economic viability of public/private partnerships.[xvi]

As of February 2004, 23 states including Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Massachusetts, Minnesota, Missouri, Nevada, North Carolina, Oregon, South Carolina, Texas, Utah, Virginia, Washington and Wisconsin were identified as having public-private partnership authority.[xvii] Some of these states have been able to translate this legislation into successful public-private partnerships in practice, while other states have struggled with political, institutional, and legal issues and legislation remains idle. Virginia's legislation has proved successful, while other State's legislation such as in Washington has been compromised due to legal barriers. Public-private partnership legislation in New Jersey expired in 2002, while California's legislation has had mixed results and was repealed in 2004. Texas and Oregon have only recently enacted legislation, and it is yet to be seen how successful or unsuccessful their legislation may be. Some states have undertaken public-private partnerships without legislative backing including Minnesota, whose project was terminated due to legal problems, and Florida, whose project is presently in the early stages of development.

2.3 CFS Agency & Industry Interviews

Interviews were conducted with several individuals involved in the CFS including the ICI Working Group[2], workshop attendees who did not submit a proposal, persons who submitted a CFS proposal but did not proceed to agreement with the public agency, persons who did reach

[2] The ICI Working Group consisted of representatives from Caltrans, MTC, CCIT, PATH, ITS America, and the 2005 ITS World Congress Planning Committee. The ICI Working Group provided guidance for the development and implementation of the CFS and coordination with the 2005 ITS World Congress.

agreement with the public agency (industry partners), and public agency staff involved in the CFS process. The objective of the interviews was to evaluate lessons learned from the CFS process. Interviews took place between 2003 and 2006, before and after the ITS World Congress and after project closure. Each interview took approximately 15 minutes to one hour. Interview questions pertained to the development of the CFS; the workshop; submission, evaluation of proposals, negotiation, and agreement; the encroachment permit process; deployment; closure; and overall successes and challenges of the CFS process. Interviewees were given complete confidentiality regarding their individual feedback.

ICI Working Group Goals at the Beginning of the ICI

The project partners hoped that the CFS would be a catalyst for future public-private partnerships and that coordination with the ITS World Congress would promote California and the U.S. as ITS leaders. They indicated the ITS World Congress gave the agencies a targeted timeframe for implementing the process and felt a successful ICI would result in demonstration projects that continue after the ITS World Congress. The project partners hoped to showcase ITS technologies that improved safety, built on and integrated with existing projects, advanced ITS, were deployable and cost effective, and improved mobility without degrading the environment. They wanted to demonstrate projects that people could see, touch, and better understand their traveling options. The partners also wanted to help the public, politicians, decision makers, and the media better understand and support transportation system management and ITS so that people buy and use it.

ICI Working Group Goals at the Close of the ICI

The ICI Working Group indicated that most of their goals were met including: engaging the private sector, gaining lessons learned from the process, and gathering information from industry. Reasons given for not meeting some goals were legal (e.g., issues involved with industry access to rights-of-way and contract laws) and institutional (e.g., bureaucratic structure of government). The ICI Working Group felt that the CFS demonstration is a good concept for avoiding paying for products that are not yet proven to work, but once industry proves their

technology, there should be a system in place to move beyond the demonstration. And while it may be difficult for the public sector to commit funding, the CFS showed the willingness of the public sector to open up the rights-of-way, allocate staff time to evaluate proposals, work towards solutions, and provide valuable in-kind services. There were many successes of the ICI including: discovering the application and feasibility of different technologies, providing a mechanism for public-private partnerships, and gaining lessons learned that may be used by other states. The ICI Working Group representatives pointed to several challenges over the course of the ICI/CFS, including communication, staffing, timeline, funding, contracts, and institutional issues. The biggest challenge conveyed by the ICI Working Group was state laws on procurement and contracting that limit the agencies ability to purchase services and technologies from the CFS partners. Without these next steps in the ICI, one person felt the agencies will revert to the standard approach for working with the private sector.

Workshop Attendees

A set of interviews was conducted with industry individuals who attended one or both of the CFS workshops but did not submit a CFS proposal. The workshops were held in Los Angeles and Oakland, California in Fall 2003 to review a draft of the CFS and solicit questions and feedback prior to the final CFS release. Workshop attendees indicated they attended the workshop to network with potential partners, see how their technologies and those of their colleagues fit into the CFS process, and learn more about Caltrans offering rights-of-way access. Reasons for not submitting a proposal included uncertainty in the types of projects the agencies were seeking, caution about releasing financial/ proprietary information without a contract guarantee, and the lack of funding offered in the solicitation. Attendees understood why the public agencies were not offering funding, but most stated that no funding limited who could submit a proposal and the quality of what would be proposed. While workshop attendees found the lack of specificity in the CFS made it difficult to develop a project idea and led to concern that the agencies would not be interested in a proposed project, they felt the openness of the CFS was innovative and allowed a wider range of proposal ideas to be submitted.

CFS Respondents

Interviews were also conducted with representatives from the nine companies that submitted a CFS proposal, but they did not proceed to an agreement with any of the participating agencies. Reasons for not reaching an agreement included: the company requested funds; the company withdrew their proposal; none of the reviewing agencies wanted to proceed with the project; and/or issues related to the technology and/or the project goals. Respondents indicated reasons for submitting a proposal were the prospect of an innovative and streamlined process; the opportunity to talk to, and partner with, multiple agencies; and the chance to test, showcase, and market their products to the public, potential clients, and governmental agencies. Respondents found the strengths of the CFS to be value in access to rights-of-way, competition among industry, and a good model for dealing with some of the institutional issues facing governmental agencies. Other strengths included bringing multiple jurisdictions together, achieving public goals to put infrastructure along highways, and encouraging entrepreneurship among public agencies. Most of the comments regarding weaknesses of the CFS process concerned issues of intellectual property and limited communication with the public agencies. The respondents also noted that they had expected the agencies to facilitate the formation of partnerships between respondents, but this did not happen.

Industry Partners

Once an agreement had been reached, interviews were conducted with representatives from each of the seven companies (eight projects) selected to partner with a public agency (Caltrans or MTC) to demonstrate their innovative ITS technology, using public rights-or-way, or gaining access to public data. Three sets of interviews were conducted with industry partners. The first interview was conducted after the CFS agreements were signed between the industry partner and the agency. The second interview was conducted after the projects had been deployed and showcased during the ITS World Congress, and the third interview was conducted after the close of the projects. Industry partners were selected because they: 1) met the CFS requirements, 2) demonstrated financial self-sufficiency, and 3) proposed a project that would be beneficial to the agencies or the general public and could be accomplished in time for the ITS World Congress.

Negotiation and Agreement: Industry appreciated the opportunity to negotiate details of their project with the agencies. However, many industry partners felt the negotiation and agreement process should have been more streamlined given the short term of the projects and because there was no public funding. They felt both agency and industry partners would have benefited from adhering to a defined schedule. Industry would have liked more feedback from the agencies regarding the status of their project negotiation and who to contact for more information.

Encroachment: Three of the projects with Caltrans required an encroachment permit (permission from Caltrans to enter and place objects in Caltrans rights-of-way). Separate interviews were conducted regarding this process of obtaining an encroachment permit with the relevant three companies. Most of the industry partners were satisfied with the encroachment process and had good relations with agency staff. They felt the permit process could have been more streamlined by completing the agreement and permit phases in parallel and allowing an addendum to the test permits so that subsequent deployment permits could be more easily obtained. One encroachment applicant expected the encroachment process to be more streamlined, as was indicated during the outreach workshops. Industry found the encroachment fee waiver to be a benefit.

Deployment/Demonstration: Industry felt agency staff was helpful during deployment of the demonstrations, but there needed to be more senior level support and better communication between industry and agency and within the agency itself. Industry also identified a need for more interoperability and ease of installation with agency systems/software and infrastructure.

Seven of the eight projects were also represented at the ITS World Congress Innovative Mobility Showcase (or IMS), and the remaining project was represented at the exhibition hall. Most industry partners felt they had met their goals for a successful demonstration at the ITS World Congress, but they would have liked more time with VIPs and governmental officials. Industry partners also felt there needed to be more visibility of CFS projects at the ITS World Congress, perhaps through a CFS booth at the Moscone Center to “show the world how government can

work with the private sector." Industry would have preferred more time to prepare for the ITS World Congress demonstration.

Project Closure: Industry felt that relations with the governmental agencies were generally good. However, they would have liked to see more streamlined processes, as well as better communication within the agencies. Industry partners were concerned with the time it took to sign the contract, get permits, and secure insurance to begin the project. Most industry partners felt that their goals were met and their expectations were fulfilled for their projects. Most felt they developed good relationships with the agencies, although some felt that communication towards the end was unsatisfactory and did not believe the relationship would continue after the project closed. The projects ran between six months and one year, which most partners felt was enough time to demonstrate their technology. However, some thought that there should have been a procedure in place for the agencies to follow if the technologies were successful in order to continue. Industry partners felt there were many lessons learned about public private partnerships and felt that this was one of the biggest successes of the project. Another success of the project was the opportunity to demonstrate their technology to the agencies as well as the ITS World Congress participants.

Successes and Challenges: Successes of the CFS included collaboration among public-public and public-private partners, the chance to build relationships with other companies and agency staff, access to public rights-of-way, the opportunity to modify their products based on interactions with government, and the chance to develop and deploy technologies at a manageable cost. While many of the industry partners felt the lack of funding may have discouraged beneficial projects, many others felt it gave them an edge over those who needed funding and provided a more equal playing field among those who did not. Challenges noted were agencies not facilitating partnerships between industry participants, uncertainty about agency interest following submissions, risk and uncertainties, short contract length, a lack of familiarity between agency and industry, no procedures in place to continue with successful projects, and the difficulty of including Southern California projects at the ITS World Congress.

Government Agency Partners

Interviews were also conducted with public agency staff involved in the CFS process. As with the industry interviews, there was one set of interviews after conclusion of the CFS agreements, a second set of interviews after deployment and the ITS World Congress, and a final set of interviews after the close of the projects.

Evaluation, Negotiation and Agreement: Agency staff felt that evaluating CFS proposals was difficult because the process was unfamiliar. They were reluctant to reject proposals that did not meet the criteria or were vague because the CFS promised a period for negotiation and project refinement. However, the negotiation process proved to be quite time consuming because many respondents turned in vague proposals that required revision and reevaluation. Agency staff felt that the agreement and encroachment permits needed to be executed sooner, and contracts needed to better lay out a work plan, insurance requirements, data sharing, identify all partners and stakeholders, and better define the project for non-technical staff.

The short timeline for ITS World Congress made it difficult to deal with rights-of-way and other policy issues, involve the appropriate technical and legal personnel for a meaningful agreement, and get necessary approvals. Overall, the CFS could have been better organized. There needed to be clearer goals for each project beyond the demonstration, more input from the agency on project development, better responsiveness between partners, and status updates from industry.

Encroachment: Agency staff indicated that the CFS allowed for acceleration of the encroachment process for several reasons: respondents were required to address encroachment-related issues in their proposal; agency staff helped in the development of the project—ensuring standards were met; the CFS gave companies authority to access the rights-of-way; agency resources were designated in advance; agency staff had more authority to move a project forward; and all permits were sent to one project manager rather than multiple divisions, which reduced the timeline for approvals, made it easier to grant the permit, and provided industry partners with a champion for their project. Staff also felt that the ease of permitting the CFS

projects could be due to their limited-term access, no funding, no fees, fewer procedures, fewer departments involved in review, and that demonstration projects are easier to get permitted.

ITS World Congress: Agency staff thought the IMS was a good showcase and was eye opening to see all the projects in a real-world setting, find out what the auto industry is up to, and learn how transportation management systems can interact with motorists and add value to the customer. However, industry needed to demonstrate real-term deployable technologies rather than futuristic projects that may never get built. Moreover, there was also some concern that some companies just wanted to showcase their project and lost interest after the ITS World Congress. The agencies felt the World Congress was well planned, but the process to get the projects up and running needed to be more efficient.

Project Closure: While several of the agency staff indicated that working with the industry partners on post ITS World Congress project operation had been a good experience, others expressed difficulties with technical issues as well as non-technical issues such as staff time. Overall, the agency staff found it easy to work with the industry partners, although they would have liked more in-person meetings to work though problems. All representatives felt that they were able to complete their project goals and fulfill their expectations. However, there is an ongoing dispute between one agency and an industry partner regarding intellectual property that is causing the agency to re-evaluate the structure of partnerships with the private sector. The agencies reported no trouble with closing out the projects or with removing the equipment and felt that the project length was adequate. A common challenge among the agencies with the projects was a lack of control compared to a usual project where the agency is paying for the product or service. Most agency representatives felt that the biggest success of the projects was the successful collection of data, and one felt that the projects showed how more value can be derived from the existing equipment.

Successes and Challenges: Collaboration among participating agencies, improved relations and trust between industry and agencies, and innovative submissions were found to be a successful outcome of the CFS. The more challenging aspects of the CFS process fell into the categories of lack of agency staff resources; lack of control over submissions, legal, and institutional issues;

issues regarding access to rights-of-way; issues over lack of funding; and an inadequate timeline. "No public funding" was thought to be a misnomer because the agencies expended a lot of staff time to make the projects work and waived the agency fee for the encroachment permit. At the same time, not providing funding created a passive relationship between the partners, limited the type and level of demonstration applications, limited the incentive for companies to match priorities with the public sector, and made it difficult for some companies to participate including one company that ended their contract early due to lack of resources. The CFS was thought to create a paradox because the public agencies wanted to use the data and post it to the public for free, but the private sector want to sell the data as part of their business model. There were limitations on how the data could be sent out to the public and uncertainty on continuing to use the data after the demonstration period. Moreover, simple projects were complicated by legal issues such as intellectual property and liability and the procurement issue was not addressed by the CFS, which makes it difficult to proceed to the next step of acquiring industry products.

2.4 Recommendations and Other Considerations:

The following recommendations and other considerations are based on observations of ICI project staff managing the CFS process and confidential interviews with CFS agency and industry partners at periodic intervals during the process.

Workshop:

Recommendations:

- Allow enough time for outreach before the workshop(s) to bring the right industry players to the table. If the effort encompasses a large area (i.e. the State of California), hold multiple workshops with equal time for outreach for each workshop. Have local agency stakeholders.
- Create a setting for industry participants to network with each other and begin to brainstorm ideas in response to the CFS and information provided during the workshop.

- Companies are there to learn what the public agencies are willing to offer, so include as much detail as possible.
- Develop a clear problem statement. Be as specific as possible.
- Be very clear about what the agencies can offer to industry under the CFS.

Other Considerations:

- Determine if a draft of the CFS should be released in advance of the workshop or at the workshop.
- Determine if the workshop is to educate the public about the opportunities of the CFS or if the workshop is to get input on the CFS draft before finalization and release.
- Determine if agency staff should meet with industry in advance of the workshop, after the workshop, or after submission during negotiation. Be cognizant of treating all potential industry partners equally.
- Set up and articulate procedures for Q and A. Again, be cognizant of treating all potential industry partners equally.

Submission and Evaluation:

Recommendations:

- Allow enough time between release of the final CFS/Q and A and the date for submitting proposals, especially if industry is being encouraged to partner together for the submission.
- Set a date for initial response to the proposals and keep this date.
- Have appropriate agency staff time allocated for proposal review.
- Communicate to industry when they can expect a response to their proposals and keep this date.
- Build in additional time for review, if multiple agencies are involved.

Other Considerations:

- There will be a balance between encouraging innovation and defining a specific problem to be addressed to receive clear proposals. A vague or broad problem

statement leaves more room for innovation, but it also leaves room for proposals that are not well defined. If there is a specific problem to be addressed, state this clearly in the CFS.

- For the ICI CFS, a period of time was specified for discussion about project specific details. If a similar discussion time is allocated, set a timeline for discussion and keep it, and determine go/no-go thresholds for the proposals in the event proposals are submitted that rely too much on the post-submission discussion process.

Non-Disclosure Issues:

Recommendations:

- Determine in advance if the agencies want to provide some level of confidentiality for the industry submissions. If confidentiality will be provided, limit the number of agency staff reviewing the proposals.
- If confidentiality will be provided, require a non-confidential project description with the proposal that can be circulated more widely.
- Determine in advance if the agencies will serve as project integrators, introducing ideas and technologies to other potential partners. For the ICI CFS some of the industry participants were disappointed because they expected the agencies to team them up with other complementary industry and technology, which the agencies could not do due to confidentiality issues.

Other Considerations:

- Providing confidentiality provides industry with more confidence that they can include innovative technologies, uses of technologies, and business models in their proposal without losing their competitive edge. However, managing confidentiality from the agency perspective may be an added burden.

Negotiation and Agreement:

Recommendations:

- Build in enough time and staff resources for the negotiation period. Include agency legal counsel in the negotiation team to expedite resolution of legal matters.
- Respond in a timely manner to industry requests and concerns. This is especially important if no funds are being awarded.
- Set a target date for completion in consultation with the potential industry partner so both parties can strive to meet the deadline. The deadline for project agreement should have sufficient time for deployment, so the system can be tested and modified, if necessary, before the projects are showcased to live audiences.

Other Considerations:

- If the CFS is issued by multiple agencies, determine if each agency will contract separately with the industry or will one project agreement represent all participating agencies.
- Specify what the agencies are providing (rights-of-way, data, other facilities) and under what circumstances.
- If encroachment permits will be necessary, build in enough time so the encroachment permit applications can immediately follow the signing of the CFS agreement. There must be enough time to allow the CFS agreement negotiation and encroachment permit application to occur sequentially (rather than in parallel) to avoid the awkward position of moving forward with a project before the agreement is finalized.
- Recognize that smaller companies have limited resources. Consider developing a way to work with smaller companies that minimizes expenses associated with negotiating an agreement to proceed. For example, legal and insurance costs may be daunting to a smaller company with limited resources.

Funding:

Workshop attendees understood why the public agencies were not offering money, but most stated that lack of funding would limit who would submit a proposal and the quality of what would be proposed. For some, access to rights-of-way and ITS World Congress exposure was not enough to justify the expense and risk.

Recommendations:

- Be clear if there will be funding (or in-kind participation) and under what parameters.
- If there is no funding available to the industry respondents, state this clearly in the CFS.
- Be cognizant of non-monetary agency resources devoted to the project (especially staff time).

Implementation & Operation:

Recommendations:

- Articulate the different requirements for mounting devices within the rights-of-way, depending on the type of infrastructure used.
- Ensure communications continue throughout the operations phase.

Other Considerations:

- Agency staff and industry need to be aware of the impact that contractual and approval delays have on overall operations including: the ability to fix bugs, change software formats, order parts, and collaborate with other partners.
- Align companies early in the process so they have the opportunity to combine resources, rather than overlap infrastructure.

World Congress:

Recommendations:

- If industry partners are being invited to participate in an event, be clear on the parameters of participation (who is responsible for the project operation and interface with the event planners, financial outlays for the event, etc.).
- A letter of understanding that outlines agency, industry partner, and event planner responsibilities might be helpful.
- Execute a marketing plan for highlighting the CFS as a model for public-private partnerships during the ITS World Congress or other public event.

Other Considerations:

- The ITS World Congress was a great motivator for all parties to meet the final deadline.
- The ITS World Congress was a motivator for industry participation, and for many industry partners, the event was considered good compensation for not receiving funding.
- Industry responds well to public showcase events.
- Consider creating a VIP day that consists only of industry VIPs and governmental officials. This would allow more time for governmental staff not directly involved in the CFS to learn about the projects, technologies, and applications.

Project Closure:

Recommendations:

- Industry should be notified of the terms of purchase for goods or services in the event that the agency wants to purchase it during the project initiation phase.
- All parties should understand the terms of a continued mutually beneficial public-private relationship in the event that the partners want to continue the relationship beyond the demonstration, well in advance of the close of the project.

- Regular check-in meetings between industry and agency partners would be beneficial, as well as a project closure meeting to determine project closure procedures and next steps.

Other Considerations:

- The motivation to continue operating after the showcase event may depend on the industry partner having identified a business model. Pre-project evaluation of the business model for each project may help ensure that projects continue to the end of the contract period.

Public-Private Partnership:

Recommendations:

- Understand the business model associated with each proposal in order to realize the business motivation for participation and if this is a business model that the agencies can participate in.
- Articulate the common goals and mutual benefit to enhance the collaborative effort among all the parties.
- More internal communication between upper agency management and individual divisions would help raise awareness of the unique CFS process and how to respond to industry requests.

Other Considerations:

- If there is not a clear business model (i.e., a non-profit or the company is motivated by factors that are not directly related to the technology they will be installing), they may not be a good long-term partner for the agency.
- For any business models pertaining to the acquisition, processing, or dissemination of data, it should be very clear on who owns what data and under what circumstances. Both the industry and the agency may have reason to own the data.
- Industry must see a profit opportunity to participate.

- Industry needs to feel that the project risks are shared among all the participants. Since "risk" is defined differently between private industry and a public agency, it might be worth articulating what each party brings to the table and their associated risks.

Strengths and Weaknesses

CFS Strengths:

- The CFS process showed that the participating agencies were trying to change the way they do business and be more entrepreneurial; established the agency's commitment to developing relations with the private sector; brought multiple jurisdictions together; established cooperation among other public agencies; provided a good model to improve future governmental processes and deal with budget constraints; allowed public agencies to be more flexible, entrepreneurial, and align the procurement process to keep up with current technology; and fostered creativity.

- Benefits to industry included: the opportunity to form valuable partnerships and relations with public agencies; access Caltrans rights-of-way; present new ideas and technologies; test products; gain exposure for and grow their business; showcase results, experiences, research to the public, potential clients, and governmental agencies; and bring a product to market.

CFS Weaknesses:

- CFS process weaknesses included: the lack of specificity in the CFS left industry unsure of what the agencies wanted; industry was reluctant to spend money preparing a proposal given limited guidance, no funding, and no guarantee of return for their effort; too much detail was required in the first round of proposal submissions to protect intellectual property or allow agencies to discuss projects freely; and the CFS may have involved more paperwork than was necessary for CFS partners that wanted access to MTC's 511

data stream[3]. Funding was a major issue for many respondents who felt the lack of public funds limited who submitted and the quality of what they submitted. Moreover, access to rights-of-way and ITS World Congress exposure was not worth the expense or risk to some companies.

- Other weaknesses related to communication and partnership issues. There was a lack of adequate feedback and communication between agency and industry; a lack of effort to facilitate partnerships between industry as promised; a lack of agency contribution in the partnership (e.g., risk taking); and a lack of authority by agency and ICI project staff to move projects forward. Decisions regarding moving projects towards agreement needed to be made sooner in the process to allow companies to cut their losses (time and money) early.

Additional Issues:

Collaboration Among Industry Partners:

Industry partners indicated they had anticipated more active support from the agencies in matching their company/product with other CFS companies/products. Either the agencies should match proposals with other companies in a way that benefits both parties or create a forum for the respondents themselves to choose who they would prefer to partner with and combine resources.

Sharing Risks and Benefits:

The public sector and private sectors perceive and deal with risk and benefit very differently. For the public sector, the risks were in relation to the agencies duties to provide a safe traveling environment for the public. For the private sector, the risk was in lost profit. Respondents stated that public-private partnerships should include investment, value, and risk to both sides, and that both parties should be clear on what they want and expect going into a relationship. Moreover,

[3] MTC already provides access to the 511 data stream.

respondents felt that public agencies need to offer more public-private partnership opportunities in the future and be more flexible if they want innovative ideas from entrepreneurs.

Data Ownership:

Use and ownership of the data that is generated during a project should be clearly defined in advance. This is especially important if the value of the project to the private sector is in the data. For these CFS-style projects the value to the agency is also often in the data.

Flexible Agency Response to Proposals:

A strategic decision was made to circulate all of the proposals to all of the agency partners. This turned out to be beneficial since some of the agencies expressed interest in projects that were not targeted to their region.

Section III: Conclusion

California's ICI and the CFS demonstrated a new way of doing business for Caltrans and MTC. The process showed how public agencies might engage with private industry for the deployment of ITS technologies in a mutually beneficial public-private partnership format.

Interviews with participating public agency staff and industry partners revealed that there is much to be gained from this innovative process. The CFS brought new technologies and applications to the agencies, which was a primary goal, while also enhancing business opportunities for the private sector. The ICI project demonstrated that common ground can be found between the profit motive of the private sector and the pubic safety and mobility goals of a transportation agency.

Interviews with the ICI Working Group revealed that the members of the Working Group hoped the CFS would be a catalyst for future public-private partnerships and would successfully demonstrate ITS technologies. The ICI Working Group had high hopes for the demonstrations in conjunction with the 2005 ITS World Congress. The ICI Working Group indicated that most of their goals were met, with the greatest challenge surrounding state laws on procurement and contracting that limited the agencies ability to purchase services and technologies from the CFS partners.

Interviews regarding the early phase of the project, including outreach, the public workshops, and release of the CFS, were conducted with the CFS respondents, industry partners and agency partners. During this early phase of the project the strengths that were reported included an innovative process, the opportunity for discussions between agency and industry, potential access to the rights-of-way, and the goal to bring multiple jurisdictions together. Challenges included issues pertaining to intellectual property, limited communication, and a short timeline.

The second phase of the project, included proposal evaluation, contract negotiation, and applicable permits. Agency and industry interviews revealed that the opportunity for discussion and negotiation was helpful and that the agency internal encroachment process was streamlined.

Evaluating the proposals was a challenge because the process was new, resulting in a longer timeline and greater staff time than anticipated. Contract negotiations also took more time than anticipated and deadlines were missed. Industry would have appreciated more feedback from the agencies during this phase of the project.

All participants were pleased with the deployment and demonstration phase of the ICI project. There was concern that some industry partners focused primarily on the ITS World Congress demonstration and lost interest in the longer term goals of the project. Most participants felt they were able to complete their project goals and fulfill their expectations. A common challenge among the agencies was the lack of control compared to a project where the agency was paying for the product or service.

Successes of the ICI included collaboration among public-public and public-private partners, the chance to build relationships, and access to rights-of-way. Challenges included the lack of funding, unclear procedures to continue with successful projects, procurement issues, limits on agency staff resources and the timeline.

Recommendations to improve the process of future CFS-style solicitations include extending the timeline for public outreach, allocating additional dedicated staff time, setting and adhering to deadlines during contract negotiation and improving communication between agency and industry partners. Other important considerations for future CFS-style solicitations include finding a balance between encouraging innovation and clarity in the solicitation and resolving procurement issues pertaining to the agency industry relationship after the close of the CFS projects.

The lessons learned during the ICI and with the CFS can be instrumental to improving future CFS-style solicitations, maximizing benefits for the public agencies, the private sector, and the traveling public.

References

[i] Shaheen, Susan, Finson, Rachel, McCormick, Cynthia. *Initial Scoping of Bay Area Smart Mobility Corridors and ITS World Congress.* California PATH working paper UCB-ITS-PWP-2004-9. November 2004.

[ii] Shaheen, Susan, Finson, Rachel, Lingham, Virginia. *Innovative Corridors Initiative: Business Model Analysis.* California PATH working paper. December 2006.

[iii] Durrenberger, Randy and Chang, Elbert. *ITS Project Demonstration: Program Summary Report*. Kimley-Horn and Associates. Oakland, California. Prepared for the California Department of Transportation. December 27, 2007 (Draft).

[iv] USDOT FHWA [4910-22-P] *TEA21; Guidelines for the Evaluation of Operational Tests and Deployment Projects for Intelligent Transportation Systems*
http://www.its.dot.gov/evaluation/eguide_tea21.htm

[v] USDOT *ITS Evaluation Guidelines – ITS Evaluation Resource Guide*,
http://www.its.dot.gov/evaluation/eguide_resource.htm

[vi] ibid

[vii] USDOT ITS website. http://www.its.dot.gov/its_overview.htm. Accessed June 6, 2006.

[viii] Benouar, Hamed. *Deploying the ITS Infrastructure in California*. Intellimotion: Research Updates in Intelligent Transportation Systems. California Partners for Advanced Transit and Highways. Volume 10, No. 1. 2002.

[ix] National Highway Institute 1999. *Intelligent Transportation Systems Public Private Partnerships – participant workbook*. Washington DC: USDOT, FHWA, NHI Course No. 13603.

[x] Elizabeth A. Deakin and William L. Garrison. *Private Sector Funding For Urban Transportation: Some Comments on Public-Private Partnerships*. Berkeley, Calif. Institute of Transportation Studies, University of California, [1985].

[xi] United States Department Of Transportation, *Report To Congress On Public-Private Partnerships*. December 2004.

[xii] Valerie Briggs, Todd Delk, C. Michael Walton. *Public-Private Partnerships for Providing ITS Case Studies in Transportation And Other Industries*. Austin, Texas: Southwest Region University Transportation Center, Center for Transportation Research, University of Texas; [Springfield, Va. Available through the National Technical Information Service, 1999].

[xiii] Booz·Allen & Hamilton Inc. with Miller & Van Eaton, P.L.L.C. and K.L. Engineering, Inc. *Final Report: Guidelines for Enhancing Its Public/Private Partnerships In Wisconsin*. Prepared For Wisconsin Department Of Transportation. May 1, 2000.

[xiv] The Public-Private Partnership (P3) Office. What is a Public Private Partnership? http://strategis.ic.gc.ca/epic/internet/inpupr-bdpr.nsf/en/h_qz01546e.html

[xv] Global Alliance for Vaccines and Immunization. Preliminary Report: *How can public-private partnerships accelerate the availability of vaccines for the developing world?* Produced for the World Bank. July 2001.

[xvi] Booz·Allen & Hamilton.

[xvii] Nossaman Guthner Knox & Elliott, LLP. *States with Public Private Partnership Authority as of February 2004*. 2004.

Appendices

APPENDIX A:

Call for Submissions Solicitation

DEPARTMENT OF TRANSPORTATION
ADMINISTRATION
DIVISION OF PROCUREMENT AND CONTRACTS MS67
1727 30th STREET
SACRAMENTO, CA 95816-7006
PHONE (916) 227-6000
FAX (916) 227-6155
INTERNET http://caltrans-opac.ca.gov

Flex your power!
Be energy efficient!

October 15, 2003

CALL FOR SUBMISSIONS (CFS)
CFS Number 0587A33

Pilot Projects for Demonstration in Conjunction with the 2005 ITS World Congress

- NO FUNDS TO BE AWARDED FROM THIS SOLICITATION. A CONTRACT MAY OR MAY NOT BE AWARDED FROM THIS SOLICITATION.

The California Department of Transportation (Caltrans) in cooperation with the Metropolitan Transportation Commission (MTC), the Los Angeles Metropolitan Transportation Authority (MTA), the Intelligent Transportation Society of America (ITSA), the California Center for Innovative Transportation (CCIT) and other entities is soliciting participation to implement pilot projects to test and illustrate traveler services that facilitate mobility, convenience and safety to travelers. This solicitation is envisioned to attract specific ideas on new technologies and systems and provide value to travelers. This Call for Submissions (CFS) is an opportunity to bring common elements of services to the traveling public by leveraging new technologies into the statewide transportation system.

Caltrans and its partners have issued the enclosed CFS to foster private/public partnerships that will develop emerging intelligent transportation systems (ITS) technologies to enhance mobility, traveler choice and safety. Technologies to collect, process and distribute accurate real-time information are especially welcome. You are invited to review and respond to this **CFS Number 0587A33**, entitled "Pilot Projects for Demonstration in Conjunction with the 2005 ITS World Congress." In submitting your documents, you must comply with the instructions found herein.

Reference the attached CFS for detailed information regarding:

- Background
- Project Description and Purpose
- Project Requirements
- Proposal Format and Content
- Questions and Answers
- Proposal Submission / Evaluation Process
- General Information

If you have questions, the contact person for this CFS is:

Rachel Finson, Innovative Corridors Initiative (ICI) Project
California Center for Innovative Transportation
rfinson@path.berkeley.edu
Fax Number: (510) 642-0910

Interested parties should submit documents to:

California Center for Innovative Transportation (CCIT)
Attention: Rachel Finson
2105 Bancroft Way, 3rd Floor, MC 3830
Berkeley, CA 94720-3830

This CFS contains the entire terms and conditions relating to demonstration program, and no other terms, conditions or representations should be considered unless issued in writing as an addendum to this CFS.

Documents for ICI projects throughout California must be received no later than 5:00 P.S.T. on **December 1, 2003**.

Documents for ICI projects throughout California must be received no later than 5:00 P.S.T. on **December 1, 2003**.

Documents for projects in the Innovative Mobility Showcase/campus-like setting (described on page 8 of this CFS) received by December 1, 2003 will receive priority consideration. Documents will also be accepted and evaluated after December 1, 2003.

Table of Contents

A) Background

The California Department of Transportation (Caltrans) and its partners are interested in enhanced, value-added services that are self-supporting and would be showcased during the 2005 Intelligent Transportation Systems (ITS) World Congress. The ITS World Congress Trade Show is held annually in different locations all over the world. Madrid, Spain sponsors this year's event; Japan plays host in 2004, and in 2005 the event will be held in San Francisco, California, USA. The ITS World Congress Trade Show consists of numerous venues for participants to learn about technologies and share information. The venues include workshops, presentations, an exhibit hall and technical tours.

The objective of this CFS is ITS pilot demonstration projects that can be showcased throughout California during the 2005 ITS World Congress in San Francisco and other parts of the State. Caltrans and its partners believe that significant benefits to Californians can be reaped by leveraging new technologies into the statewide transportation system. The projects resulting from this CFS are expected to demonstrate, on a pilot basis, current and emerging ITS technologies and test the benefits to all parties. Services could include – but are not limited to – more efficient modal connectivity; enabling the full spectrum of mode choice to travelers; en-route advisories; improving safety and faster incident response times; border crossing and weigh-in motion technologies; and enhanced or virtual Transportation Management Centers.

Respondents to this CFS should demonstrate how their participation would benefit the traveling public and what State or local facilities they would require from Caltrans and/or partners for demonstration. Respondents shall identify the State or local facilities they plan to use.

California Department of Transportation (Caltrans):
Caltrans is the manager of interregional transportation services; more specifically, Caltrans has the traditional role of owner and operator of the 15,000 mile State Highway System. Caltrans promotes California's economic vitality and enhances its citizens' quality of life by providing for the movement of people, goods, services and information. Caltrans is responsible for the delivery of the State's Transportation Improvement Program; planning, designing, building, operating and maintaining California's state highway systems. In addition to a changing mix of transportation modes - such as highways, rail, mass transit, bicycle, pedestrian, and aeronautics, Caltrans coordinates the solutions to complex issues such as land use, environmental standards, and the formation of partnerships between private industry and local, State and Federal agencies to promote productivity, reliability, safety, flexibility and performance in the State of California. For more information see: www.dot.ca.gov

Metropolitan Transportation Commission (MTC):
MTC is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area. MTC functions as both the regional transportation planning agency—a State designation—and for federal purposes, as the region's metropolitan planning organization (MPO). As such, it is responsible for the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. MTC is also responsible for regional operating projects, such as TravInfo®/511org, TransLink® and Freeway Service Patrol. MTC is also authoring the Regional ITS Architecture for the San Francisco Bay Area to define long-term priorities, needs and investment strategies for ITS. For more information see: www.mtc.ca.gov.

The Los Angeles County Metropolitan Transportation Authority (MTA):
MTA is unique among the nation's transportation agencies as it serves as transportation planner and coordinator, designer, builder, and operator for one of the country's largest, most populous counties. More than 9.6 million people – nearly one-third of California's residents – live, work, and play within its 1,433-square mile service area. MTA is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles County. For more information see: www.mta.net.

Intelligent Transportation Society of America (ITSA):
The mission of ITS America is to coordinate and foster a public/private partnership to make the U.S. surface transportation system safer and more effective by accelerating the identification, development, integration, and deployment of advanced technology. ITS America membership is approximately 50% private sector companies and 50% academia, government, and associations. These organizations represent more than 60,000 individuals involved in ITS programs. For more information see: www.itsa.org.

California Center for Innovative Transportation:
The California Center for Innovative Transportation (CCIT) is a center within the University of California (UC) at Berkeley Institute of Transportation Studies. The Center was founded by UC with support from Caltrans and industry. The goal at CCIT is to facilitate and accelerate the implementation and commercial deployment of advanced transportation products and services to improve traveler safety, comfort and convenience — all necessary components of a vibrant and

growing economy. CCIT houses the Innovative Mobility Research (IMR) group and is linked to the UC Statewide testbeds such as the Irvine traffic management testbed, as well as Caltrans Transportation Management Centers. CCIT collaborates with industry, academic institutions and other public agencies to develop, test and deploy products that are in their latest phases of research and ready for implementation. CCIT facilitates access to state of the art facilities for testing and refining products. For more information see: www.calccit.org.

The 2005 World Congress on Intelligent Transport Systems

In 2005 in San Francisco, ITS America will host the World Congress on ITS, the largest annual international event focusing on technology solutions for improving surface transportation safety and efficiency. San Francisco was selected as the 2005 venue because of its status as one of the world's great cities, as well its outstanding ability to showcase innovative solutions for moving people and goods. Ten thousand people—world transportation and technology leaders, researchers, businesses and consumers—are expected to visit the 2005 World Congress in an effort to learn more about the systems that improve our daily lives.

B) Project Description and Purpose

Integrated information technologies can improve the efficiency of California's transportation system. Caltrans, MTC, MTA and other partners are interested in accelerating the deployment of ITS technologies, encouraging innovations, and furthering seamless integration of ITS technologies. Areas of interest include, but are not limited to, roadways, public transit, rail, smart parking, mobility services and commercial goods movement.

The purpose of this CFS is to extend an invitation to industry, transportation agencies, the goods movement industry, and local governments that might want to participate in the ITS pilot demonstrations in conjunction with the ITS World Congress in San Francisco in 2005. This CFS solicits proposals for enhanced, value-added ITS services and technology.

In appropriate situations, Caltrans, MTC, MTA and other partners may offer access to State or local facilities. In return Caltrans, MTC, MTA and other partners hope to gain access to better real-time information that will improve transportation options for individual travelers as well as provide for enhanced transportation management. The goal is to maximize throughput on the current transportation infrastructure and increase choices among modes, which will result in reduced congestion and a more efficient system. Another goal is to reduce collisions as well as the severity of incidents.

- Caltrans, MTC, MTA and other partners may provide access to facilities based on identified need. Access to these resources will be determined on a case-by-case basis. Any use of State or local facilities may be subject to successful application for an encroachment permit issuance environmental approval pursuant to the California Environmental Quality Act (CEQA) and any other applicable statutes and regulations.

- No respondent will receive exclusive access to public assets.

- Caltrans, MTC will not advertise on behalf of the respondents.

- Caltrans may, at its discretion, conduct independent evaluations of the projects.

EXAMPLE SERVICES

The examples shown below are not intended to limit the content of responses to the CFS; rather, they are intended to illustrate the types of project proposals of services that could be submitted by respondents:

Traveler Information Services –
- Dynamic Multimodal Routing and Trip Planning
- "Smart Parking," i.e., availability of parking, payment
- Incident / Special Event Reporting
- Location Information: Hydrogen Infrastructure, Tourist Information
- Weather Information Services
- Arterial Travel Time

Personalized Services –
- Dynamic Route Advisory
- Carsharing and Other Shared-Use Vehicle Services (e.g., Segway HTs and e-bikes)
- Public Transportation Trip Itinerary Planning
- Convenience Features: Web Access to Travelers, Transactional Services
- Real-time transit information

Traffic Management –
- TMC Enhancements: "Virtual" TMC, Flow Balancing, Information Routing
- Improvements to Incident Response
- Innovative Ways of Using Traffic Data Currently Collected by Caltrans
- Real-time traffic information, including vehicle speed and volume

Safety –
- Vehicle Position Services
- Roadside-to-Vehicle Communication

Common enabling technologies may include, but are not limited to: use of probe vehicles, wireless communications, message sign displays, and computational/routing mobility equipment in the region where it is implemented.

For examples of existing ITS projects in the San Francisco Bay Area see Appendix A, "Current ITS Developments in the Bay Area". For examples of existing ITS projects in Southern California see Appendix B, "Current ITS Developments in Southern California."

C) Project Requirements

Proposal submittals will be categorized into one of three project forms.

a) **Innovative Corridors Initiative (ICI) in the San Francisco Bay Area**: Caltrans and CCIT, based at the University of California, will manage the ICI in partnership with requisite local agencies.

The ICI refers to the various roadway and railway elements operated by different jurisdictions and various travel modes for goods and people movement. The goal of the ICI deployments is to demonstrate the technologies, systems and ideas on a pilot basis for eventual wide-scale deployment, if appropriate. The ICI projects selected from this CFS must be implemented by July 1, 2005 in preparation for the November 2005 World Congress in San Francisco.

b) **Innovative Corridors Initiative (ICI) Throughout California:** Pilot projects in other regions of the State (e.g. Los Angeles and San Diego) are encouraged to demonstrate ITS across California. These pilot projects could be demonstrated/showcased during the 2005 World Congress event in San Francisco and/or before or after the World Congress as co-venues in regions with high tourist appeal. These projects will be subject to the same goals and selection process as projects in the San Francisco Bay Area.

c) **Innovative Mobility Experience Showcase**. In conjunction with the 2005 ITS World Congress, an "Innovative Mobility Experience Showcase," located in a campus-like setting will demonstrate the future of transportation. The Innovative Mobility Experience Showcase is expected to be the venue for technologies that may not need to be demonstrated as part of the ICI. For example, these projects will include technologies that are not yet ready for deployment, but show future possibilities. This venue could also include smaller scale ITS technologies. This campus-like setting will provide an ideal opportunity to showcase integrated technologies to the public and professional audiences and may serve as a catalyst to future real-world deployments. They may also highlight vehicle control technologies, such as precision docking and advanced vehicle safety systems. These Innovative Mobility Experience Showcase projects may also result in a transportation infrastructure legacy for the campus site, if appropriate.

Technology providers chosen to participate in the ICI and/or Innovative Mobility Experience Showcase must coordinate their participation in the exhibit hall with the World Congress organizers in order to have their company products demonstrated as part of the World Congress.

Proposals for innovative concepts across California, including rural areas, are strongly encouraged. For example, concepts that provide data to enhance the management of Caltrans and partner operations but require minimal use of existing resources (e.g., use of probe vehicles and wireless communications) are encouraged. Proposals that address real-time and archival information for performance measurement and planning are also encouraged.

Additionally, while proposals may be directed toward either the Innovative Mobility Experience Showcase or ICI, Caltrans and partners reserve the right to direct them to one or the other, or both. Moreover, Caltrans or its designee will perform the role of system

architect and coordinator, interacting with respondents to request change and facilitate teaming among respondents. Proposals requiring work on or use of State or local facilities shall be in conformance with the requisite agency's construction and safety policies, guidelines and standards. Any hardware, equipment and/or software will be removed as necessary at the direction of Caltrans and/or its partners who owns the facility in which the equipment or software was installed.

Project Plan

Interested developers must submit a proposal which indicates the type and extent of improvements and services offered to the traveling public or public agency. The plan must define the financial responsibilities of the private developer/operator and the proposed roles of Caltrans or partners in the development and operation of the project. The project plan must describe the type of work, if applicable, needed to be done on State or local facilities along with the type of access needed to State or local facilities.

Resource Plan

All project proposals must include a resource plan indicating what resources the respondent intends to provide the project (financial, hardware, software and personnel) as well as required partner resources, such as Caltrans right of way or access to MTC, MTA or other partner facilities. For projects with multiple partners, each partner's role and contribution must be outlined.

Management and Financial Qualifications of Proposer

The qualifications and experience of each of the participating organizations and key management personnel must be described. If a joint venture arrangement is to be used, each of the joint venture partners must present a description of qualifications and experience relevant to their role in the proposed development and/or operation. Proposals should demonstrate that the respondent understands that they will be solely responsible for funding the project for the specified pilot demonstration and will provide necessary insurance, if applicable.

Technical Experience

Proposals should describe respondents' experience in developing, implementing and operating systems/facilities similar to those being considered for this project. Include experience, if any, on comparable public/private joint development projects or public activities service operations.

Proposal Format and Content
The proposal shall fully describe the commitments of the respondent relative to the initial and long-term development, demonstration, operation, maintenance, and subsequent removal of pilot project.

Proposals submitted in response to this CFS shall conform to the format set forth below and in the order shown

Proposals must at a minimum, address:

- Benefit to the traveling public both in the movement of goods, people and information and safety;
- Operational concept, including requirements on system capacity and workload for Caltrans and other transportation providers;
- Specific technologies;
- Identified partners and contribution;
- Description of pilot implementation; and
- General development, demonstration and operation plan and timeline, to include, at a minimum, a discussion on models showing the economic benefits for all partners.

Proposals shall not exceed 20 pages. Additional information may be requested.

Cover/Transmittal Letter

1. The proposal submittal shall be transmitted with a cover letter signed by a party authorized to represent the company or partner companies.
2. The cover letter must contain the following information:
    (a) The project title;
    (b) the name of the entity submitting the proposal;
    (c) all project partners;
    (d) the technology to be implemented and desired location; and
    (e) the expected outcomes (i.e. reduced congestion, improved mode choice, etc.).
3. The cover letter shall provide the name, title, address, and telephone number of individuals with authority to negotiate and contractually bind the proposing organization. The transmittal letter will constitute certification by the respondent that the respondent complies with State and Federal nondiscrimination requirements. An unsigned proposal or one signed by an individual not authorized to bind the respondent will be rejected. However, the selection by Caltrans and/or partner agency will not be binding until an Agreement has been executed and approved by Caltrans and or/partner agency.
4. The Table of Contents and List of Exhibits shall indicate the page number of each section and exhibit.
5. The following information must be placed on the lower left corner of the submittal shipping package:

CFS#
Project Title
Respondent's/ Name/Firm
Attention: (Rachel Finson)
DO NOT OPEN

6. Proposals may be either mailed or delivered by hand to the office noted on the cover of this CFS. Proposals may not be sent by fax machine. Proposals are not to be submitted to Caltrans, MTC, or MTA and will not be returned to respondent.

Questions and Answers

Respondents with questions about the requirements of this CFS must submit those questions in writing to the address shown below. Question submittal must include the individual's name, the name and address of the firm. All questions must be received no later than **November 7, 2003**. Questions will be answered in writing by November 24, 2003.

MAILED **OR** FAXED TO:
Fax No.: (510) 642-0910
California Center for Innovative Transportation (CCIT)
Attention: Rachel Finson
2105 Bancroft Way, 3rd Floor, MC 3830
Berkeley, CA 94720-3830

After the deadline for question submittal has passed, written responses to questions will be collectively compiled, and e-mailed as an Addendum, to each individual or firm who downloaded this CFS from the Internet or who requested this CFS by calling the recorded bid line: (916) 227-6090. A hard copy of written responses will be provided upon request, and an electronic version will be uploaded to Caltrans's website (see web link below). Refer to Section G, **Time Schedule**, to get this CFS's schedule of events and dates. It is the responsibility of the respondent to inquire about an expected Addendum. Respondents can contact the contact person named above or check Caltrans's website:

http://www.caltrans-opac.ca.gov/contract.htm

Proposal Submission/Evaluation Process

Proposal Submittal, Modification, Resubmittal, and Withdrawal

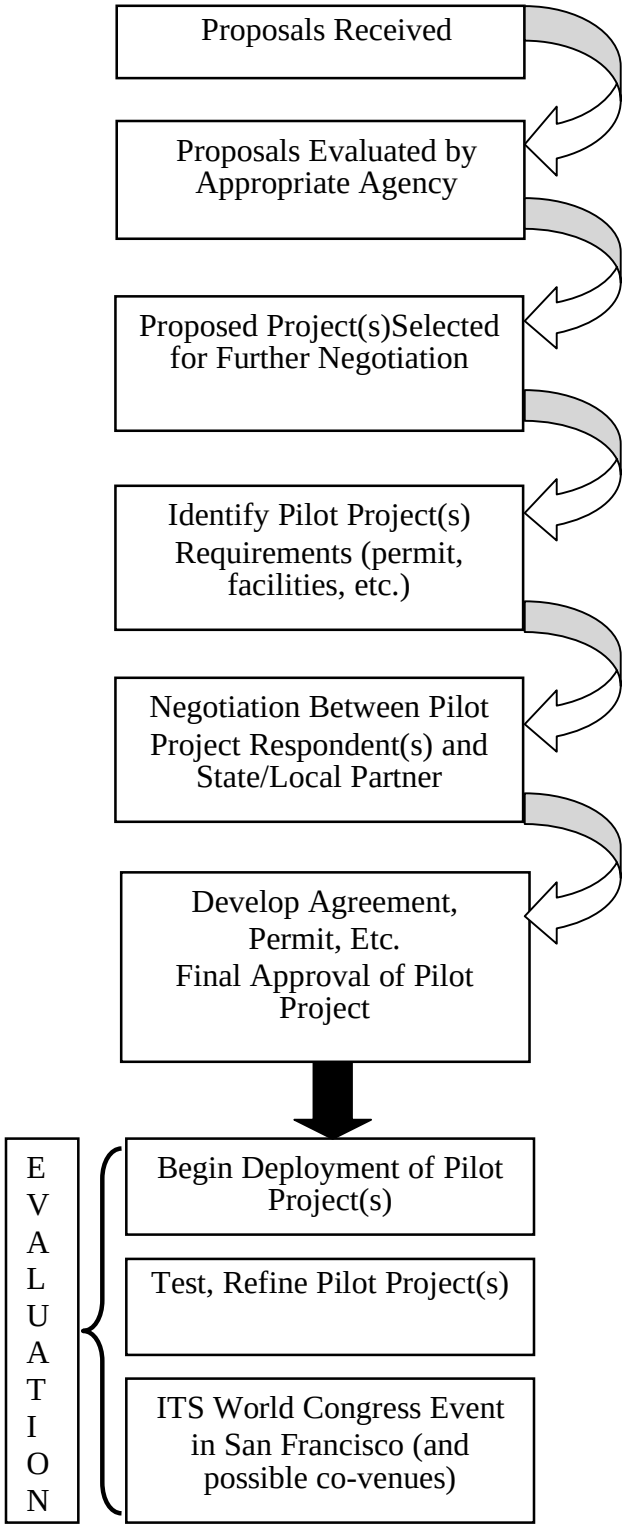
Respondents are to submit an original proposal marked "ORIGINAL " and seven (7) copies of the proposal to:

Rachel Finson, Innovative Corridors Initiative (ICI) Project
California Center for Innovative Transportation (CCIT)
2105 Bancroft Way, 3rd Floor, MC 3830
Berkeley, CA 94720-3830

Respondents submitting proposals may modify or withdraw the proposal at any time prior to the submittal deadline. Such modification or withdrawal of a proposal shall be in writing and signed by the same person signing the original proposal.

If the modification requested is only an addition to a proposal, seven (7) copies of the modification shall be submitted in a sealed package, boldly marked "Addition To (project title)", and signed, and addressed the same as the original proposal.

The following flowchart identifies the process to be used for ICI pilot projects.



Evaluation Process

The selection will consist of representatives, from Caltrans, as well as any local or regional agencies and technical experts. Proposals will be screened against the basic project requirements (see page 7 of this CFS). Proposals that meet the basic project requirements will be evaluated against the evaluation criteria listed below. Proposals that meet the project requirements and are approved based on the evaluation criteria will move into a project development phase which will include all requisite agencies and proposing parties to finalize the details of the project and develop an agreement among the project partners.

Evaluation Criteria

1. Benefit to Caltrans, other partner agencies and the traveling public including economic and environmental benefits, reduced congestion, improved safety, incident management and travel time, and enhanced information for trip decision-making and traffic management. In addition Caltrans will evaluate how the project submissions assist the agency in meeting its five key goals: productivity, reliability, safety, flexibility, and performance.

2. Caltrans and partner agencies will evaluate the project submissions on the degree to which these projects assist with data collection, processing and dissemination, including data quality and integrity.

3. Project feasibility, including technical, environmental, and timeframe. Respondents should demonstrate that their proposed pilot project is technically feasible, can receive environmental approval, and can be implemented by July 1, 2005. Caltrans and partners are interested in pilot demonstration projects that will accommodate evaluations. Pilot demonstrations should operate for sufficient time to test the technology/systems, to gather data and prepare evaluations.

4. Company/Agency Qualifications

5. Innovative Technology: Are the proposed technologies innovative or do they demonstrate an innovative use or enhancement of an existing technology? Does the proposed project assist with integrating ITS applications?

Acceptance and Rejection of Submissions

Caltrans and/or its partners retain the right to disregard a minor deviation from the requirements and may, at its sole discretion, request supplemental information or clarification of that information submitted.

A selection committee will evaluate those proposals that are in conformance with the ”Evaluation Process” noted above. The evaluation criteria used to qualify prospective proposals are described in **Section F**, “Evaluation Process.”

Negotiations with Selected Proposer

Caltrans or its partners may elect to negotiate with the selected respondents, leading to a written Agreement with Caltrans and/or one of its partners about implementing the proposal. Any agreement as a result of this CFS will be subject to all necessary State, Federal and Agency approvals. If an agreement cannot be reached, negotiations will cease and no contractual agreement written or implied will exist. Caltrans and/or its partners reserve the right to reject any proposal for non-compliance.

Selected respondent(s), shall, within ten (10) calendar days after written notification of selection, meet with Caltrans and/or its partners to begin negotiating the Agreement, application for an encroachment permit (if appropriate), and compliance with applicable federal and state statutes and regulations Caltrans and/or its partners will negotiate with the selected respondents the length of the pilot project and evaluation. A sunset date for the pilot project demonstration and evaluation will be included in the Agreement.

Caltrans
Within thirty (30) calendar days from the successful conclusion of negotiations, the selected respondent(s) shall execute and deliver to Caltrans six (6) signed copies of the final negotiated Agreement and a Performance Guarantee as described below. The negotiated final Agreement shall be on forms provided by Caltrans. The successful respondent shall also furnish proof, satisfactory to Caltrans, of the authority of the person or persons executing the Agreement and a Performance Guarantee issued on behalf of their organization.

Partner Agencies
It is expected that partner agencies will incorporate a similar type process for the negotiated agreement as Caltrans. However, due to varying agency requirements and not knowing which agencies will participate in the CFS, the process and possibly the content of the negotiated agreement may differ from the Caltrans process stated above.

Performance Guarantee

All bonds, and written commitments shall be issued by a company registered with the State Insurance Commission to conduct business in the State of California and acceptable to Caltrans. All bonds and written commitments shall be in a form acceptable to Caltrans and shall ensure faithful and full observance and performance by the developer of all terms, conditions, covenants and agreements relating to the construction of the described facility improvements described in the Agreement.

Bonds may not be required in all cases. This requirement shall be assessed on a case by case basis.

Indemnification

This CFS shall not commit Caltrans and/or its partners to negotiate and execute any Agreement. Caltrans and/or partners reserve the right to accept proposals that, in the sole judgment of Caltrans and/or partners are in the best interest of the State and regions. Caltrans and/or partners reserve the right to reject any or all proposals or to modify or cancel, in part or in its entirety, this CFS.

Caltrans and/or partners will not reimburse submitting organizations for any costs incurred in the preparation or submission of Proposals or the negotiation process, or the implementation of any projects.

Intellectual Property Rights/Proprietary Rights

All issues regarding intellectual property rights, including, but not limited to, patents, copyrights, trademarks, collective trade marks, collective membership marks, certification marks and service marks shall remain the responsibility of those submitting proposals. This CFS will not address any issues of or relating to intellectual property. Any agreements entered into subject to this CFS shall be contingent upon a waiver and release and an agreement to defend, indemnify, and hold harmless the State of California, its partners, agents, affiliates and its employees with respect to any issues regarding intellectual property rights.

Confidentiality

Selection committee members shall not discuss any aspect of the evaluation proceedings or content of proposals with anyone not designated as a selection committee member or Chairperson for this CFS. This includes but is not limited to discussing any details regarding project application.

Generally, at the time any “bid” or “submittal” is opened, it becomes public information. There is an exception for proprietary information/trade secrets in the California Public Records Act. Respondents should make this claim at the time the proposal is submitted. Caltrans agrees to not reveal any information voluntarily that is claimed as privileged; however persons submitting a proposal should confer with their own legal counsel to determine whether any information claimed as privileged would be considered privileged under the California Public Records Act (Government Code section 6250 et. Seq.).

Amendments to the Requested Proposal

Caltrans and partners reserve the right to amend this CFS by addendum prior to the final date of proposal submission.

General Information

Schedule
The schedule related to this CFS is as follows:

EVENT	DATE
i. CFS available to prospective Respondents	October 15, 2003
) Written Question Submittal Deadline	November 7, 2003
Responses to Questions	November 24, 2003
Final Date for Proposal Submission	**December 1, 2003**
Completion of Proposal Evaluations*	January 30, 2004
Detailed Discussion, Negotiations, Agreements, Plans, Specifications, Approvals, and Installation	January 30, 2004 – July 1, 2005
Projects must be deployed	July 1, 2005
World Congress 2005	November, 2005

*By this date all respondents will be notified if their proposal has met the project requirements and the selection criteria. Proposals that meet both the project requirements and the selection criteria will move into more detailed discussion that may result in an agreement among the project partners. If the proposal does not meet the basic requirements and selection criteria or does not result in a mutual agreement among the parties the proposed project will not be deployed.

State's Exclusive Discretion

This CFS does not commit Caltrans or partners to execute an Agreement, to pay any costs incurred in the preparation of a proposal to this request, or to procure or contract for services or supplies. Caltrans and partners reserve the right to accept or reject any or all proposals received as a result of this request, to negotiate with any qualified firm, or to modify or cancel in part or in its entirety the CFS.-

No Third-Party Beneficiaries

There are no third-party beneficiaries, intended or unintended, of either this CFS or any agreement arising herefrom.

APPENDIX B:

CFS Project Descriptions

The following project descriptions were provided by the participating industry partners for public distribution October 2005.

Circumnav Networks, Inc. (company name changed to Dash Navigation, Inc.)
Dynamic Route Advisory Navigation System
Circumnav Networks, Inc. is developing a dynamic route advisory navigation system to generate real-time traffic data from probes. The company is integrating accurate, personalized roadway traffic information with a cost-effective navigation solution to inform drivers of the quickest route and estimated time of arrival, whether on their way to a client meeting, for a daily commute, or for metropolitan-wide fleet management. The services leverage an inexpensive in-vehicle navigation system (under $500) with GPS to self-generate optimized roadway traffic data from users as "floating car data" probes. The wireless service makes unique use of Wi-Fi 802.11b hardware and patent-pending software as a pre-cursor to DSRC availability for occasional communication between vehicles and to Wi-Fi access points along the roadway, minimizing communications costs. Traffic data is based primarily on roadway speeds and travel times from the probes and from 511 travel time data, not incidents, and is thus highly differentiated from radio/TV broadcast traffic information.

The service will be launched in the San Francisco Bay Area prior to the 12th World Congress on ITS. Circumnav is participating in the Innovative Corridors Initiative (ICI) to gain access to the roadside right-of-way and existing infrastructure such as Caltrans road signs and MTC call boxes to deploy wireless access points.

ENCOM Wireless Data Solutions
Seamless Wireless Integration for Traffic Applications
ENCOM Wireless is the leading solutions provider in Wireless applications for ITS.
Caltrans is California's agency responsible for highway, bridge, and rail transportation planning, construction, and maintenance; both entities joined forces to create a flexible, cost-effective wireless communications system in Southern California.

The project demonstrates the ease of use of ENCOM's wireless modems in one of today's busiest locations: A California's freeway. Caltrans selected two locations; one for their Traffic Monitoring Stations (TMS) and one for a Ramp Metering System (RMS). ENCOM provided a wireless link from the Ramp Metering System controller to a Telephone Demarcation cabinet and a wireless bridging link between two ramp metering system controllers where one of the controllers is connected to telephone demarcation cabinet. The installation of the radio modems is a simple process: There is minimal disruption of existing traffic flow and all the programming and setting up of the wireless modems is handled entirely by ENCOM's software ControlPakTM which includes predetermined drivers to work with all traffic devices as well as a Spectrum Scan Analyzer and remote configurations and diagnostics for the entire system.

InfoTek Associates

Intelligent Loop Detector Application (ILDA)

InfoTek Associates, a software and communications company based in Oakland, California in cooperation with Cingular Wireless will create a versatile cost effective loop detection application that monitors freeway traffic. The application runs on InfoTek Wizard, the next generation intelligent M2M GSM modem. InfoTek Wizard is a small intelligent modem/computer that integrates GRPS/EDGE wireless modem, 32 Channel Digital I/O, and Java programming.

Two real-time transportation applications of InfoTek technologies will be demonstrated, one calculates volume, speed, occupancy, and length classification; and the second calculates the percentage of cars vs. long vehicles, volume, and occupancy with a single loop. InfoTek Wizard collects all the traffic data from the existing loop detectors and applies algorithms to the collected data in real-time. The post-processed results will be relayed to Traffic Management centers via GSM wireless network.

NAVTEQ

511 Level Two Demonstration - "My 511"

NAVTEQ's Bay Area My 511 pilot is expected to offer a premium set of personalized services accessible through the standard 511 travel information system. My 511 will offer personalized travel and route guidance information to travelers, which may include: 1) door-to-door directions, including alternative routes; 2) parking garage space availability information and reservations; and 3) other location-relevant information. When the pilot is live, travelers in the Bay Area will access My 511 - via regular telephone or cell phone service - by dialing 511. Callers will interact with the existing 511 system, using the automated voice-enabled technology to access the premium My 511 services.

NAVTEQ Maps of the San Francisco Bay Area will serve as the foundation for the pilot solution, and NAVTEQ experts will lead the pilot development team. Together and with the assistance of other organizations, NAVTEQ and MTC hope to deliver a prototype solution that illustrates the potential impact enhanced 511 services can have on traveler safety, efficiency and overall travel experience.

NAVTEQ

Vehicle Infrastructure Cooperation Demonstration

NAVTEQ will serve as the processor of vehicle infrastructure integration (VII) generated probe data for Caltrans through the World Congress and the NAVTEQ map will serve as the location referencing foundation for VII messages communicated by NAVTEQ partners for demonstrations at the 12th World Congress. NAVTEQ will also work with its partners to enable specific VII applications for demonstrations at the 12th World Congress.

VII is a capability that enables vehicles to communicate with each other, as well as with the surrounding infrastructure and benefits public sector, private sector and travelers. NAVTEQ will demonstrate applications illustrating Vehicle Infrastructure Integration working with multiple partners. The applications may include:

Traffic and weather data development through private vehicle probes
Environmental condition monitoring through government fleet vehicle probes
Communication to vehicles of map specific use cases (map, traffic and weather data being sent to cars and displayed to drivers)

Outreach and Silicon Valley Manufacturing Group

Bay Area Web Congestion Mapping and Traffic Forecasting

A public website showing both real time and forecasted roadway speeds will be posted. Both real time and historical data will be used to forecast roadway speeds. Both public and private sources will be aggregated into a single database. Emphasis will be on "Smart Corridors" but will cover the entire Bay area, including down to residential streets. Data from volunteers with in- vehicle "probes", fixed roadway sensors, traffic incidents, etc will be used in the forecast... A software "virtual loop detector" is formed in the database to hold real time and forecasted speeds. Data will be collected anonymously to avoid any data privacy issues.

SpeedInfo

Speed Sensor Demonstration

SpeedInfo has installed approximately 300 hundred of its revolutionary, new speed sensors on existing poles within the Caltrans right of way. The sensor network has been deployed to fill all gaps in the existing Caltrans sensor network to complete traffic flow coverage for over 200sq miles in the San Francisco Bay Area. Average traffic speed is measured once a minute, and the data is backhauled via cellular modem to servers. The speed data from sensors is validated and managed at the servers — enabling SpeedInfo to provide a commercial quality service 24x7. The data is then formatted, and sent to a variety of SpeedInfo partners for delivery to customers over the Web, mobile phone, satellite and radio/TV.

The patented speed sensor is self contained, and solar powered with a battery backup, and a wireless GPRS data connection. With a high-gain antenna and active power management features, it is small and lightweight enough to be mounted on an existing pole. A 500 meter range, very flexible mounting requirements, and its bi-directional, multi-lane measurement capability, dramatically cuts the number of sensors needed to provide complete road coverage. The system uses proven Doppler radar, DSP technology, and engineering design to gather average traffic flow data at the lowest possible cost.

Tele Atlas North America, Inc.
TV511 Demonstration
Tele Atlas and KMTP TV32 have jointly agreed to produce and broadcast TV511, an automated traveler TV program that will provide real- time, multi- modal traveler information to San Francisco Bay Area residents and visitors on TV sets in their homes, offices, and hotel rooms. TV511 will provide travelers throughout the Bay Area a very convenient means to access real-time traffic, transit, road conditions, and road-weather information to assist them in making travel mode, schedule, and route decisions. TV511 will display the locations of traffic and transit problems on maps with details provided using voice and on-screen text.

The TV511 program will be broadcast by KMTP over UHF television channel 32 continuously from 5:00 a.m. to 8:00 a.m. weekdays, and at other times that KMTP scheduling permits. In addition to over-the-air broadcasts, KMTP programming is carried by cable TV throughout the Bay Area. Over 2 million Bay Area households currently can receive KMTP. Unlike conventional television and radio broadcasts, which can report only a fraction of the available traveler information at 10- minute or longer intervals, TV511 will continuously broadcast all the important information that is currently available. Viewers will receive all information relevant to them within a few minutes of turning on their television sets. The TV511 program will employ the same information available to Bay Area travelers by dialing 511 on their telephones and cell phones. However, the TV511 presentation of the information will include maps that display the locations of traffic and transit conditions as well as voice and on-screen text descriptions of those conditions.

APPENDIX C:

Innovative Corridors Initiative Brochure

This brochure was produced for the 2005 ITS World Congress and was distributed at the California Pavilion in the Exhibit Hall.

Innovative Corridors Initiative

Private sector

Public Sector

Public-Private Partnerships in Action

Goals of the Innovative Corridors Initiative

- Innovative Public-Private Partnerships
- Accelerated Deployment of Intelligent Transportation Systems
- Enhanced Safety and Transportation System Management
- Better Real-Time Information
- More Informed Public: Choice of Route, Mode, and Time of Travel

Call for Submissions

The Call for Submissions was a solicitation for demonstration projects that use Intelligent Transportation Systems to facilitate enhanced mobility, convenience, and traveler safety. Twenty-eight self-financed projects were proposed. Eight were selected for public-private partnership and are featured here.

The CFS represents a New Way of Doing Business for Governmental Agencies

- No Public Funds
- Limited Access to Rights-of-Way
- Streamlined Permitting Process
- Multiple Agreements with Private Sector

DEPARTMENT OF TRANSPORTATION
ADMINISTRATION
DIVISION OF PROCUREMENT AND CONTRACTS MS#7
1727 30th STREET
SACRAMENTO, CA 95816-7006
PHONE (916) 227-6000
FAX (916) 227-6155
INTERNET http://caltrans.ogac.ca.gov

Flex your power!
Be energy efficient!

October 15, 2003

CALL FOR SUBMISSIONS (CFS)
CFS Number 0587A33

Pilot Projects for Demonstration in Conjunction with the 2005 ITS World Congress

- NO FUNDS TO BE AWARDED FROM THIS SOLICITATION. A CONTRACT MAY OR MAY NOT BE AWARDED FROM THIS SOLICITATION.

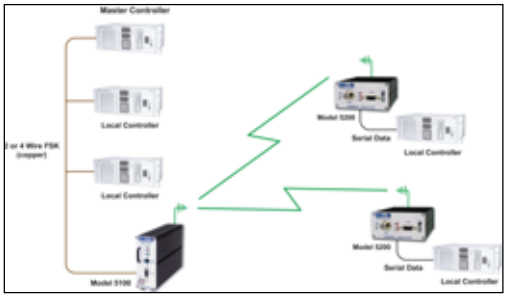
The California Department of Transportation (Caltrans) in cooperation with the Metropolitan Transportation Commission (MTC), the Los Angeles Metropolitan Transportation Authority (MTA), the Intelligent Transportation Society of America (ITSA), the California Center for Innovative Transportation (CCIT) and other entities is soliciting participation to implement pilot projects to test and illustrate traveler services that facilitate mobility, convenience and safety to travelers. This solicitation is envisioned to attract specific ideas on new technologies and systems and provide value to travelers. This Call for Submissions (CFS) is an opportunity to bring common elements of services to the traveling public by leveraging new technologies into the statewide transportation system.

Caltrans and its partners have issued the enclosed CFS to foster private/public partnerships that will develop emerging intelligent transportation systems (ITS) technologies to enhance mobility, traveler choice and safety. Technologies to collect, process and distribute accurate real-time information are especially welcome. You are invited to review and respond to this **CFS Number 0587A33**, entitled "Pilot Projects for Demonstration in Conjunction with the 2005 ITS World Congress." In submitting your documents, you must comply with the instructions found herein.

Circumnav Networks, Inc.
Dynamic Route Advisory Navigation System

Circumnav Networks, Inc. is developing a dynamic route advisory navigation system to generate real-time traffic data from probes to inform drivers of the quickest route and estimated time of arrival. The service leverages an inexpensive in-vehicle navigation system with GPS to self-generate optimized roadway traffic data from users as "floating car data" probes. Wireless technology enables communication between vehicles and Wi-Fi access points along the roadway. By participating in the ICI, Circumnav gains access to the roadside rights-of-way and MTC call boxes to deploy wireless access points.

ENCOM Wireless Data Solutions
Seamless Wireless Integration for Traffic Applications



ENCOM Wireless Data Solutions is demonstrating the use of ENCOM wireless modems at two locations in Southern California; 1) a Traffic Monitoring Station, and 2) a Ramp Metering System. During this demonstration information that is normally collected by a ramp meter or traffic monitoring station will be transmitted via ENCOM's wireless system. The installation of the radio modems is a simple process with minimal disruption of existing traffic flow. All the programming and set-up up of the wireless modems is handled entirely by ENCOM's software ControlPakTM which includes predetermined drivers to work with all traffic devices as well as a Spectrum Scan Analyzer and remote configurations and diagnostics for the entire system.

InfoTek Associates
Intelligent Loop Detector Application

InfoTek Associates, a software and communications company based in Oakland, California in cooperation with Cingular Wireless has created a versatile cost effective loop detection application that monitors freeway traffic. The application runs on InfoTek Wizard, the next generation intelligent M2M GSM modem. Two real-time transportation applications of InfoTek technologies are being demonstrated, one calculates volume, speed, occupancy, and length classification; and the second calculates the percentage of cars vs. long vehicles, volume, and occupancy with a single loop. The Infotek Wizard has been installed in both Northern and Southern California Caltrans' contoller cabinets.

NAVTEQ
511 Level Two Demonstration - "My 511"

NAVTEQ's Bay Area *My 511* pilot offers a premium set of personalized services accessible through the standard 511 traveler information system. *My 511* offers personalized travel and route guidance information to travelers. The demonstration shows how travelers in the Bay Area can access *My 511* by dialing the standard 511 number. NAVTEQ Maps serve as the foundation for the pilot project, and NAVTEQ experts are leading the pilot development team. Together, and with the assistance of other organizations, NAVTEQ and MTC hope to deliver a prototype solution that illustrates the potential impact enhanced 511 services can have on traveler safety, efficiency, and overall travel experience.

NAVTEQ
Vehicle Infrastructure Cooperation Demonstration

Vehicle Infrastructure Integration (VII) is a capability that enables vehicles to communicate with each other, as well as with the surrounding infrastructure. NAVTEQ will serve as the processor of VII generated probe data for the 12th ITS World Congress, with NAVTEQ maps serving as the location referencing foundation. NAVTEQ is working with multiple partners to demonstrate applications illustrating VII. Environmental conditions are monitored utilizing government fleet vehicles and private company vehicles as probes, which will communicate specific use cases, such as traffic and weather data being sent to cars and displayed to drivers.

Outreach and Silicon Valley Leadership Group
Bay Area Web Congestion Mapping and Traffic Forecasting

A public website showing both real-time and forecasted roadway speeds will be posted. Real-time and historical data are used to forecast roadway speeds. Data from both public and private sources are aggregated into a single database. Emphasis is on "Smart Corridors" but will cover the entire Bay area, including local streets. Data from volunteers with in-vehicle "probes", fixed roadway sensors, traffic incidents, etc. are used in the forecast. A software "virtual loop detector" is formed in the database to hold real-time and forecasted speeds. Data are collected anonymously to avoid any data privacy issues.

SpeedInfo
Speed Sensor Demonstration

SpeedInfo has installed approximately 300 speed sensors on existing poles within the Caltrans rights-of-way. The sensor network has been deployed to fill gaps in the existing Caltrans sensor network to complete traffic flow coverage for over 200sq miles in the San Francisco Bay Area. Average traffic speed is measured once a minute, and the data are backhauled via cellular modem to servers. The speed data from sensors are validated and managed at the servers — enabling SpeedInfo to provide a commercial quality service 24x7. The data are then formatted and sent to a variety of SpeedInfo partners for delivery to customers over the Web, mobile phone, satellite, and radio/TV.

Tele Atlas North America, Inc.
TV511 Demonstration

Tele Atlas and KMTP TV32 have jointly agreed to produce and broadcast *TV511*, an automated traveler TV program that provides real-time, multi-modal traveler information to San Francisco Bay Area residents and visitors on TV sets in their homes, offices, and hotel rooms. Tele Atlas is creating traffic maps utilizing 511 data from MTC. KTMP broadcasts the maps and data providing travelers throughout the Bay Area with a convenient means to access real-time traffic, transit, road conditions, and road-weather information to assist them in making travel mode, schedule, and route decisions. *TV511* displays the locations of traffic and transit problems on maps with details provided using voice and on-screen text.

Public-Private Partnerships in Action

For more information:
Srikanth Balasubramanian balasubramanian@dot.ca.gov
Rachel Finson rfinson@path.berkeley.edu