Title

California's Innovative Corridors Initiative: A New Model for Public-Private Partnerships in Transportation

Authors

Shaheen, Susan
McCormick, Cynthia
Finson, Rachel S.

Publication Date

2004-08-01

Peer reviewed

CALIFORNIA'S INNOVATIVE CORRIDORS INITIATIVE: A NEW MODEL FOR PUBLIC-PRIVATE PARTNERSHIPS IN TRANSPORTATION

Susan Shaheen, Cynthia McCormick, and Rachel Finson

Susan A. Shaheen, Ph.D.
Honda Distinguished Scholar in Transportation, University of California, Davis &
Policy & Behavioral Research Program Leader, California PATH
University of California, Berkeley
1357 S. 46th Street. Bldg 452; Richmond, CA 94804-4648
510-231-9409 (O); 510-231-9565 (F); sashaheen@path.berkeley.edu

Cynthia McCormick
Graduate Student Researcher, California PATH
University of California, Berkeley
1357 S. 46th Street, Bldg. 452; Richmond, CA 94804-4648
510-231-9511 (O); 510-231-9565 (F); cmccormick@path.berkeley.edu

Rachel Finson
Researcher Specialist, California PATH
University of California, Berkeley
1357 S. 46th Street. Bldg 452; Richmond, CA 94804-4648
510-231-9460 (O); 510-231-9565 (F); rfinson@path.berkeley.edu

ABSTRACT

California's Innovative Corridors Initiative (ICI) is a multi-year project to test a new approach for accelerating the deployment of Intelligent Transportation Systems (ITS) technologies, products, and services along major California corridors. As part of the effort, ICI governmental partners developed a Call for Submissions (CFS) to solicit proposals for pilot demonstration projects to be showcased in conjunction with the forthcoming 2005 ITS World Congress in San Francisco, California. The unique nature of the project is that no public funds will be awarded as part of the solicitation. In this paper, the authors explore public-private partnerships as a means to accelerate ITS deployment, including legislative and initiative-based approaches to partnership. A review of the public-private partnership literature in transportation reveals several case studies that involve access to public rights-of-way or other public facilities. The authors present lessons learned from three relevant case studies (upon which the ICI builds), an overview of the ICI planning process, a discussion of four possible business models for future ITS deployment resulting from the CFS, and ICI lessons learned to date. Early findings from the ICI reveal that the CFS resulted in: 1) 28 project proposals intended to improve mobility and safety for California travelers; 2) inter-agency cooperation among ICI partners; 3) additional expertise brought on by multiple-agency participation during proposal evaluation; 4) a broader perspective at the table by engaging in negotiation with the private sector; and 5) an opportunity for industry and government to work together beyond the initial demonstration period, if appropriate.

Key Words: Public-Private Partnerships, Policy, Planning, Intelligent Transportation Systems, Innovative Corridors Initiative
Word Count: 7,500 words

INTRODUCTION

Intelligent Transportation Systems (ITS) show great potential to improve safety; transportation system management; and individual choice of mode, route, and travel time. However, there are still 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 *(1)*.

In Spring 2003, staff from the California Department of Transportation (Caltrans), the Metropolitan Transportation Commission in the San Francisco Bay Area (MTC), the Los Angeles Metropolitan Transportation Authority (MTA), the Intelligent Transportation Society of America (ITSA), and the California Center for Innovative Transportation (CCIT) launched a multi-year project to test a new approach for accelerating the deployment of ITS technologies, products, and services along major California corridors. This new approach is called California's Innovative Corridors Initiative (ICI). As part of the effort, ICI partners developed a Call for Submissions (CFS) to solicit proposals for ICI pilot demonstration projects in conjunction with the forthcoming 2005 ITS World Congress in San Francisco, California (USA). The goal was to test the viability of soliciting industry partners to implement innovative ITS demonstration projects at no cost to participating public agencies. In return, the agencies are offering possible access to public rights-of-way and data and a streamlined process during the required normal permitting period. The high visibility of the ITS World Congress event is also an incentive for industry participation.

In this paper, the authors explore public-private partnerships as a means to accelerate ITS deployment, including legislative and initiative-based approaches to partnership. A review of the literature revealed several case studies that involve access to public rights-of-way or other public facilities. Three such case studies are presented to explore the institutional, political, and legal barriers to public-private partnerships.

Building on lessons learned from the related case studies, the authors present an overview of California's ICI—an initiative-based approach to public-private partnerships—and the CFS planning process, including a discussion of four possible business models, reflected in the CFS project proposals received. The authors also review lessons learned from the first ICI project year, which included partner development, CFS creation, public outreach, CFS release, and proposal evaluation.

PUBLIC-PRIVATE PARTNERSHIPS AND ITS

Many ITS experts believe that significant public benefits can result from leveraging new technologies into the statewide transportation system. Since public sector capitol 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.

In addition to leveraging funding for transportation system improvements, public-private partnerships "economize resources, speed up the innovation process, and establish a culture of cooperation that can have long-lasting benefits to the agencies and to society" *(2)*. Historically, government has been responsible for developing and maintaining transportation infrastructure while industry has provided technology *(3)*. But, the efficient deployment of 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" *(4*, p. 7*)*. However, for partnerships to be successful, all parties must understand the risks, resource requirements, and benefits to individual partners. Often, this requires a formal partnership agreement among the parties regarding objectives, responsibilities, resources, risks, and benefits. As such, a number of public-private partnership agreements have been formalized. While no single agreement will apply in every case, franchise and resource agreements are most applicable to right-of-way access issues.

A franchise agreement is granted by the government to a private contractor to build, own (or lease), and operate a project for a stated number of years at which time the franchisee may be required to transfer the franchise back to the State. The franchisee will typically be allowed to earn a pre-determined rate of return on their investment *(5)*. In contrast, private companies or public agencies use a shared resource agreement to install telecommunications hardware in rights-of-way. Compensation to the right-of-way owner may be in the form of cash or in-kind (barter) arrangements. In-kind arrangements may include fiber-optic conduit strands, towers/poles, antennas, electronic equipment, software, or the provision of telecommunications capacity to the public agency *(6)*. Under either approach, legal authority to enter into public-private partnership agreements is required. To grant this authority and remove some partnership barriers, several States have enacted legislation to enable such public-private partnerships. In the following section, the authors describe the legislative approach to public-private partnerships, including a case study of enabling legislation in California.

Legislative Approaches to Public-Private Partnerships

As of February 2004, 23 states were identified as having current public-private partnership legislative authority*,* while at least two additional States have either repealed their legislation (California) or allowed it to expire (New Jersey) *(7)*. In 2004, the Government Accountability Office identified only six major highway and transit public-private partnership projects that had been started or completed in the last 15 years: 1) Dulles Greenway in Washington/Virginia; 2) the Pocahontas Parkway in Virginia; 3) Southern Connector in South Carolina; 4) Las Vegas Monorail in Nevada; 5) State Route 91 Express Lanes in California; and 6) State Route 125 in California. In all six cases, the States had previously enacted enabling State legislation authorizing private sector participation *(8)*.

While some States with public-private partnership legislation have had much success, others have struggled to produce a single project using private funding. Lessons learned from previous State legislation may have prompted Texas and Oregon, for example, to adopt new legislation that removes some of the impediments to public-private partnerships and increases new project funding mechanisms. If successful, the new public-private partnership legislation in Texas and Oregon may serve as a model for other States who lack any formal legislation or whose legislation has not produced the results lawmakers originally intended. California, for example, has had mixed results with its legislation, which was repealed in 2004. Following the conclusion of the ICI demonstration, project partners might recommend new public-private partnership legislation in California, drawing on lessons learned from the ICI and other States. California's experience with public-private partnership legislation is discussed next.

Assembly Bill 680 (AB 680) is relevant to the ICI due to outreach, solicitation, and proposal requirement similarities and the provision that demonstration projects be privately funded. AB 680 authorized Caltrans to "enter into agreements with private entities for the construction by, and lease to, private entities of four transportation demonstration projects" (*9*). AB 680 authorized the Department to lease rights-of-way, grant necessary easements, and issue permits or other authorizations that would enable the private sector to construct transportation facilities and lease those facilities for up to 35 years *(9)*.

Beyond allowing private firms to finance, design, construct and operate toll road facilities within the State, "the declared intent of AB 680 legislation [was] to test the feasibility of building privately funded transportation facilities at no cost to the state or federal government" *(10*, p. 1*)*. Likewise, the CFS explicitly stated no funds would be awarded as a result of the CFS solicitation, ensuring pilot demonstration projects would be fully funded by the private sector.

The four projects selected included: State Route 91 Express Lanes in Orange County, Route 125 in San Diego County, Route 57 in Orange County, and the Mid-State Tollway in Alameda and Contra Costa Counties. However, Route 57 and Mid-State Tollway were terminated due to political opposition or delays. Route 125 is currently under construction and Route 91 is discussed next.

State Route 91 (SR91) Caltrans awarded a franchise agreement to the California Private Transportation Company (CPTC) to develop, finance, construct and operate the SR91 Express Lanes. CPTC financed the $126 million project through private equity and two long-term loans *(11)*. CPTC was authorized to collect tolls for 35 years and allowed a maximum 17 percent rate of return. After 35 years or in the event of financial failure, the tollway would revert back to the State. The facility was opened to traffic on December 27, 1995, ahead of schedule.

SR91 is the world's first fully automated toll facility (OCTA) and represents the first U.S. variable congestion pricing application *(12)*. Tolls are assessed using a vehicle-mounted transponder that transmits the vehicle's identity to a central database via a scanning device at the toll entrance.

As part of the initial agreement, Caltrans agreed to a non-compete clause that precluded the Department from making improvements or adding capacity to SR91 general-purpose lanes. The non-compete clause became litigious in 1999 when Caltrans moved "to add general-purpose lanes in strategic locations on SR91 to improve on and off ramp movements" on the highway *(12)*. Caltrans withdrew the plans after CPTC sued to stop the project *(12)*. In September 2002, State legislation authorized the Orange County Transportation Authority (OCTA) to purchase the toll road from CPTC for $207.5 million *(9)*. OCTA acquired the franchise rights (eliminating the non-compete clause) in January 2003.

The Federal Highway Administration (FHWA) documented the following SR91 lessons learned. First, public involvement during the planning process is critical to a new transportation option's success. Second, fostering public understanding of a "public good" to be operated by a private entity that is returning a profit may be challenging. Ultimately, project success depends on user demand and service value. Moreover, projects must evolve with demand over time. Such was the lesson learned when the non-compete clause, which served to protect the private developer's investment, lead to public resentment when Caltrans was unable to improve system capacity *(12)*.

While some may view SR91's ownership transfer back to the public sector as a set back, others look to the project's success (e.g., winning 10 major industry and government awards for innovation, design, and overall achievement) *(9)*. Moreover, SR91 "would likely not have been

built until 2001 without private sector involvement" *(8,* p. 16*)*. In fact, SR91 generated enough revenue in its third year of private operation to cover operating costs and debt service *(13)*. Furthermore, in the first six years of private operation CPTC provided $6.8 million in tax revenues to the county *(9)*. Despite the early successes of SR91 under private ownership, the legislature moved to repeal AB 680, ranking California amongst the majority of States without public-private partnership legislation. However, public-private partnerships can and do exist without legislation as the authors discuss next.

Initiative-Based Approaches to Public-Private Partnerships

Many public-private partnerships in transportation are initiated by governmental agencies rather than legislation. In this section, the authors examine two projects, one successful and one less so in deploying ITS technologies onto State transportation systems through private funding. Similar to the ICI, HELP, Inc. and Connecting Minnesota are initiative-based partnerships that were fully funded by the private sector and included formal access agreements to State rights-of-way. Lessons learned from the HELP, Inc. and Connecting Minnesota case studies provide valuable insight into the institutional, legal, and political issues that may arise within a public-private partnership.

Heavy Vehicle Electronic License Plate Program (HELP), Inc.

HELP, Inc. "was the first major partnership between the trucking industry and state regulatory agencies and the first program to test an integrated, multi-state intelligent vehicle highway system for commercial vehicle operations" *(4*, p. 7*)*. HELP, Inc. is a self-supporting non-profit 501(c)(3) organization and an intermediary institution that allows government and industry to contract services, via a franchise, to develop, operate, and maintain ITS technologies for commercial vehicle operations *(14)*. A Board of Directors manages HELP, Inc. and includes one government and one motor carrier industry representative from each Member State. Each Member State is responsible for appointing an industry representative and must abide by their individual State laws with regard to the partnership (James Gentner, unpublished data). At the time of this writing, HELP, Inc. included 17 Member State partners (Gail Peters, unpublished data).

HELP, Inc. evolved through three development stages beginning with two concept papers submitted to FHWA in 1981, which led to FHWA grants to study program feasibility and to perform a proof-of-concept demonstration. The second phase began in 1985 with a series of technical studies to test and develop HELP's automated vehicle identification, automated vehicle classification, and weigh-in-motion technology elements. The third stage was a FHWA-sponsored operational field test and technology demonstration. The Crescent Demonstration began in 1991 *(4)*. At the demonstration's conclusion, in September 1993, HELP, Inc. took over official program management through its Board of Directors. The Board later decided that a single franchisee would help standardize system operations throughout the Member States. In 1993, Lockheed Martin (the Crescent Demonstration contractor) was awarded the franchise agreement to operate and maintain the HELP, Inc. system for seven years. However, the Board discovered that the project needed a longer deployment period to recoup its private debt (James Gentner, unpublished data). Thus, in 1997, the agreement was extended until 2020.

A study by Volpe National Transportation Systems Center documented the following lessons learned during the HELP/Crescent Demonstration:

Staff and Decision Maker Involvement The time needed for operational tests and demonstration projects was underestimated. Full-time involvement and leadership is necessary to monitor and coordinate activities, while a realistic managerial, technical, and administrative staff is necessary to support day-to-day operations. Multiple leadership responsibilities among different States and organizations for various HELP elements created project voids, hindered progress, and resulted in a lack of clarity about roles and responsibilities. Furthermore, insufficient staff expertise, involvement, and authority hampered participants' credibility and created project delays. Finally, high-level decision maker commitment was compromised by a lack of industry champions, poor member selection and assignment of responsibilities *(15)*.

Industry and Governmental Relationships Continued support and industry recruitment was viewed as crucial to HELP Inc.'s future success. However, a lack of trust between government and industry inhibited partnership. Early stakeholder identification, participation, and involvement could have helped build trust. Industry became engaged only after gaining leadership roles and committee involvement. Intra-agency coordination was found to be just as challenging as inter-agency coordination *(15)*.

Goals and Project Plans Disagreements over goals caused apprehension and distrust between the participating Crescent demonstration States and the federal government. Project plans and activities should be developed and re-visited to help guide a project from inception to completion. An evaluation plan should be developed early to guide the planning process and support project success *(15)*.

Technology and Data Confidentiality Issues A lack of interoperability standards among State participants—each with unique regulatory requirements—was a challenge. There may be reluctance to commit and invest in technologies that may soon be obsolete. Furthermore, there were concerns about how States would share and use data for disparate purposes. Partners resolved concerns over data confidentiality by delegating data collection, storage, and reporting requirements to a third-party contractor *(15)*.

While HELP, Inc. brought many intangible State benefits, such as increased facility efficiency, incentives for carriers to comply with safety regulations and credential requirements, and positive environmental impacts (i.e., reduced emissions and fuel consumption) *(15),* the Connecting Minnesota agreement intended to bring millions of telecommunication dollars to Minnesota.

Connecting Minnesota

Connecting Minnesota was a planned Statewide fiber-optic communication network along Minnesota's interstate highway system. Following a flexible request for proposal (RFP) issued in Spring 1996, resulting in three proposals, the Minnesota Department of Transportation (MinDOT) and the State Department of Administration formed a public-private partnership with ICS/UCN—a Denver-based utility developer to finance, build, and maintain the $195 million project.

ICS/UCN would have one-time access (for 10 years) to the State's rights-of-way to lay fiber-optic cable along nearly 2,000 miles (3219 kilometers) of freeway and State highway, connecting rural and urban areas. ICS/UCN would be able to lease 80 percent of network capacity to telephone companies, long-distance carriers, Internet Service Providers, and other

service providers. After a 30-year term, under which ICS/UCN would operate and maintain the project, the infrastructure would revert back to the State (16). In exchange for access to Minnesota rights-of-way, State and local governments would have access to the remaining 20 percent of capacity for telecommunications use and 20 percent capacity of any future additions to the base network. Minnesota would also receive a 20 percent discount on ICS/UCN's best customer rate for additional access and 10 dark (reserve) fibers on all loops. The agreement was estimated to save the State $5 million in annual telecommunication costs. The project would also "support new technologies used to manage traffic, monitor road surfaces and protect the public" *(17)*.

Construction started in Fall 1998, and the project was to operate in segments through final completion. However, MEANS Telecom (one of the three initial proposers for Connecting Minnesota, now known as Onvoy) and the Minnesota Telephone Association (of which MEANS is a member) filed a suit challenging the State's legal authority to grant exclusive project rights to a single telecommunications provider. A County District Court dismissed the lawsuit in May 1999, rejecting all arguments against the project, allowing the State to take full advantage of the agreement. The Minnesota Supreme Court denied an appeal to review the District Court's decision *(18)*. Also at issue was the State's right to place utilities within the interstate freeway right-of-ways, which has historically been prohibited along high-speed roads due to dangerous driver and transportation worker distraction during utility construction and maintenance *(17)*.

The State anticipated that incumbent telecos (private telecommunications companies) would object to the Connecting Minnesota agreement and filed a petition with the Federal Communications Commission (FCC) for declaratory ruling as a preemptive measure on grounds of consistency with the 1996 Telecommunications Act. The FCC denied the Minnesota Telephone Association petition to preempt Connecting Minnesota, but it did not endorse the partnership agreement. Despite overcoming several legal issues, the State terminated the agreement in February 2001, after 250 miles (402 kilometers) of an operable point-to-point network had already been installed, citing project delays due to legal and regulatory issues and market erosion *(18)*.

The project manager for Connecting Minnesota identified the following lessons learned:

Industry and Governmental Relationships Inter-agency partnering requires winning over entrenched interests, establishing trust, clearly defining agency roles, establishing strong project management, determining authority, and responding to the changing political environment. This type of project involves two-way communication. The agency must engage support and dissent, involve non-traditional stakeholders, and inform lawmakers early and often. Internal interests requires securing high-level leadership, gaining management buy-in, establishing clear objectives that are reflected in the RFP, recognizing competing interests of individual offices and divisions, and joining with other (sister) agencies *(19)*.

Partnership Issues Agencies need to plan ahead for public-private ventures and keep agency/State RFP objectives in focus. Agencies must recognize that risks and rewards go both ways. The agency cannot expect the private sector to manage the public's best interest. The private sector must be allowed to earn a profit. The agency must make it easier for the private sector to do business with government or risk losing their investment. Other critical observations include confirming or obtaining the authority to pursue partnerships, heading off (or at least ameliorating) industry objections, being forthcoming about implications for winners and losers, and identifying and retaining political will *(19)*.

Lessons learned from Connecting Minnesota and the two other case studies presented in this paper provided valuable insights into the ICI, an initiative-based approach to public-private partnerships.

CALIFORNIA'S INNOVATIVE CORRIDORS INITIATIVE

In this section, the authors examine the ICI as a means to overcome some ITS barriers to deployment and consider whether projects like the ICI can define public and private partner roles and encourage ITS private-sector investments. ICI project partners anticipate this initiative will further goals for a safe, reliable, and efficient transportation system by accelerating the development, testing, commercialization, and deployment of promising transportation technologies and systems through partnership with the private sector. Key sections include: an overview of the CFS and process, CFS business models, and ICI lessons learned.

Call For Submissions (CFS): An Overview

The CFS is a unique solicitation mechanism to attract the private sector to deploy demonstration projects that illustrate traveler services that facilitate mobility, convenience, and traveler safety. The CFS is different from a typical RFP in that no public funds will be awarded as a result of the solicitation. Thus, respondents were required to demonstrate financial self-sufficiency when submitting their proposal(s). In return, Caltrans and its partners offered possible access to State rights-of-way and data, as well as assistance in streamlining project deployment. Unlike an RFP where one bidder is generally awarded a contract, the CFS may result in several agreements with the private sector as long as each project fits the CFS requirements and can be overseen by public agency staff resources. The non-exclusivity of the CFS is an important factor for project success as noted in the Connecting Minnesota case study.

CFS Proposal Requirements and Evaluation

Caltrans, MTC, and MTA collaborated in the CFS development, with Caltrans' contracts and legal divisions playing a leading role. The goal of the CFS was to gather necessary information about possible projects, while encouraging innovative ideas. Caltrans and its partners held two CFS Review Sessions to provide information about the CFS and the ICI project to the public. To increase the level of outreach, several local, State, and National interest groups published announcements about the ICI project in their newsletters. In early Fall 2003, sessions were held in Oakland and Los Angeles, California. Drafts of the CFS were distributed for review, comment, and questions during the review sessions to gain feedback from industry and public agencies prior to the final CFS release. Approximately 150 persons attended the two sessions including representatives from the auto industry, transportation sector, business community, trade consultants, engineering firms, information technology sector, communications sector, University of California, State and local government, and non-profit organizations.

The CFS was released to the public on October 15, 2003, and included a formal process for submitting questions. A total of 39 questions were received and answered. CFS respondents were required to submit a project plan indicating:

1) Type and extent of improvements and services offered to the traveling public or public agency;

2) Proposed public partner roles in project development and operation, including oversight and any access requirements needed along State or local facilities;
3) Deployment, operation, maintenance plans and subsequent pilot project removal;
4) Private developer/operator tasks and financial responsibilities;
5) Qualifications and experience of each of the project's participating organizations and key management personnel; and
6) Respondents' experience in developing, implementing, and operating systems/facilities similar to those being considered for their project.

The CFS submission deadline was January 2, 2004. Technical experts from many of Caltrans' divisions and districts along with MTC, MTA, and CCIT staff were involved in various proposal review phases. As announced in the CFS, all persons reviewing the proposals were asked to sign a non-disclosure agreement as well as a statement indicating they had no conflict of interest with the project to be reviewed. Proposals were screened for basic CFS requirements and then assessed using the CFS evaluation criteria, which included:

1) Project benefits to Caltrans, other partner agencies, and the traveling public;
2) Degree to which the project assists with data collection, processing, and dissemination, including data quality and integrity;
3) Project's technical and environmental feasibility;
4) Company/agency qualifications;
5) Project innovation; and
6) Deployment Timeframe. (Projects must be deployed by July 1, 2005, and continue operating through the ITS World Congress in November 2005.)

ITS World Congress Coordination

Coordination with the highly visible 2005 ITS World Congress event was identified as an added incentive for industry CFS response. Moreover, this event will draw an international audience of transportation professionals, business leaders, elected officials, media, and the general public, calling attention to ITS benefits and California's commitment to providing transportation system improvements for its citizens.

In addition to the customary business sessions, formal presentations, social functions, exhibit halls, and networking opportunities for government, industry, buyers, and sellers of ITS technologies, the 2005 ITS World Congress sets itself apart from past events by including the ICI. For the World Congress, ICI technologies will be demonstrated in the San Francisco Bay Area and throughout California (e.g., Los Angeles). ICI projects that are located outside of the San Francisco Bay Area may be shown through co-venue tours that will be arranged by ITSA. Live video feeds from the ICI projects into the exhibit hall could expose a broader audience to off-site venues.

Current Status and Expectations

The CFS resulted in 28 proposed project ideas from the private sector to test and self-finance pilot projects in Northern and Southern California. Approximately one-third of the initial project proposals met the submission requirements and were approved based on the evaluation criteria and moved into a project negotiation phase involving all requisite agencies and proposing

parties. For projects that are advancing, partner agencies envision a multi-phased process that includes:

1) Negotiation and agreement on roles and responsibilities, requested agency resources, and project plan and design specifications;
2) Environmental/encroachment permitting;
3) Project installation;
4) Operation and demonstration during the 2005 ITS World Congress;
5) Dismantling and project removal; and
6) Comprehensive, independent evaluation of the ICI project, including key outcomes and lessons learned.

While only one-third of the proposals have progressed to negotiation and agreement, all 28 submissions may be suitable for future ITS deployment. In the next section, the authors discuss four possible business models for future ITS deployment, which were reflected in CFS submissions.

CFS Business Models

The CFS was designed to encourage innovation, both in terms of the types and applications of ITS technologies, as well as the business models that industries would rely on to sustain their technologies/services beyond the pilot demonstration. From the 28 proposed projects, four categories of business models resulted:

1) Self-Sustaining/No Cost,
2) Infrastructure Modification,
3) Procurement, and
4) Data Reciprocation.

Next the authors describe each model and its applicability to the original ICI vision and implications for a sustainable business practice.

Self-Sustaining/No Cost Model

As part of the *self-sustaining/no cost* approach, industries proposed to take advantage of access to public rights-of-way offered by the CFS to deploy devices, which would collect information about road and traffic conditions that the company could then sell to the broader public on a membership/subscription basis. These industries also proposed providing data to public agencies at no cost. The benefit to public agencies was access to better transportation system management data, as well as a more informed public that could make better travel decisions based on real-time information. Under this business model, there are no direct costs to public agencies, beyond the lost opportunity of selling/renting access to public rights-of-way. The benefit to industry partners is access to rights-of-way from which to collect data that they can then process and sell.

Infrastructure Modification Model

Under the *infrastructure modification* approach, industry partners proposed to implement, at their own cost, the necessary equipment for a vehicle to communicate with the surrounding

environment through Direct Short Range Communication (DSRC) or other short distance wireless methods. However, for vehicles to communicate with the infrastructure, there would need to be matching equipment along the roadside, perhaps within public rights-of-way. Such industry proposals requested that public agencies take responsibility for installing this roadside infrastructure. While this could be at considerable agency cost, the infrastructure would be available for a range of applications beyond just that of the industry partner. Agency benefits might include: a strong working relationship with vehicle communication providers to align for the best technologies, access to improved real-time data, a safer and more informed driving public, and the ability to use infrastructure for other purposes. Although no funds would be transferred to industry partners under this model, the agencies would need to expend some resources installing and maintaining the communication infrastructure. Industry benefits include the ability to communicate with their vehicles and to provide customers with for-fee services, such as information and e-mail access.

Procurement Model

Under the *procurement* model, CFS respondents requested access to public rights-of-way to demonstrate technology to public agencies, which the agencies might ultimately want to purchase. Although the initial project would be at no cost to public agencies, there would be a cost if an agency decided to purchase the technology after the demonstration. Agency benefits include the opportunity to view the technology operating under real-world conditions for six to 12 months and to provide feedback in customizing the technology for their needs. Industry could benefit through the potential sale of their product to public agencies. Risk includes that a company is unsuccessful in demonstrating product benefits to the traveling public.

Data Reciprocation Model

Under the *data reciprocation* model, industry partners proposed receiving and processing data from public agencies (sometimes augmenting these data with their own data) for presentation in a user-friendly manner directly to the public or via an intermediate source. In each case, the industry partner's long-term business model is to sell the data or gain sponsorship for processed data made available to the public. This business model has no costs to public agencies, and benefits might include a better-informed public and access to enhanced data.

Each of these business models suggests a unique relationship between the industry proposer and public agency. While the CFS may not have been the most appropriate mechanism to initiate projects falling under particular models listed above, each will be investigated in the ICI evaluation. For example, the *infrastructure modification* model may be desirable for large infrastructure or system-wide projects, such as Vehicle Infrastructure Integration, that require a close relationship between vehicles (e.g., automobile manufacturers) and the roadway (public agencies). However, such projects cannot be supported by the CFS, as they require public funds.

Following the ICI evaluation, policy recommendations will be made that could best support each model. Early ICI lessons learned are important to next steps and future policy and planning recommendations that could aid in streamlining the business models discussed above (as appropriate). In the next section, the authors discuss early lessons learned.

ICI LESSONS LEARNED

The ICI and the CFS represent a new way for public agencies and the private sector to collaborate, potentially resulting in mutual benefits. For participating agencies (Caltrans, MTC, and MTA), the CFS represents a new way of doing business. Thus, there are many lessons to be learned from this innovative process. To understand the benefits, challenges, and lessons learned from this new business/policy model, researchers are conducting surveys and interviews with CFS governmental partners and private sector respondents at various intervals throughout the partnership, solicitation, and demonstration. The first interview phase was conducted in June 2004. In this section, the authors present the initial interview results with CFS public sector partners, including: partnership and CFS development, outreach, CFS release, and ongoing proposal evaluation. Early successes, challenges, and lessons learned are presented below.

Early Successes

The first year of the ICI project focused on building the multi-agency partnership, outreach, and CFS development. It is not surprising that early project successes reflect the value of creating a strong partnership and communication among participating agencies. This innovative process also gave public agencies an opportunity to conduct private sector outreach, which resulted in strong interest from industry to participate in the ICI and ITS World Congress. Furthermore, the CFS negotiation period facilitated a dialogue between the public and private sectors. Each partner now better understands each other's needs and operational strategies so that technology and infrastructure might work together to benefit each sector. Early ICI evaluation results indicate that the process has enabled the public sector to support public-private partnerships, identify institutional partnership barriers, work through many of those obstacles, and institute more streamlined practices in the future.

The ICI has created a forum for agencies to come together across a wide geographical distribution to test this new business/policy model. Recurrent meetings have allowed agencies to realize common needs and goals, build trust, improve relations, share information, and witness cooperation on both sides of the table. High-level ICI management support among all partner agencies has been critical to the project's success to date. In addition, anticipation of the 2005 ITS World Congress appears to have improved the process by encouraging all participants to establish deadline-driven objectives and contribute to an innovative collaborative process.

Challenges and Lessons Learned

Several challenges and lessons learned have been identified over the course of this project (to date) and can be categorized as follows: 1) rapid project submission, evaluation, negotiation, and deployment; 2) lack of CFS specificity; 3) need for dedicated staff resources; and 4) confidentiality. While some of the challenges necessarily come as a result of change, others are more controllable and may be overcome by applying lessons learned during this process to future endeavors.

Timeline

The ICI project began in Spring 2003, which left little time for planning and outreach before proposals were to be submitted on January 2, 2004—a date that was extended by one month to

provide interested parties additional time to draft proposals. Overall, the CFS development, proposal evaluation, and industry respondent negotiations were more time consuming than anticipated (in part because of the large number of proposals received). Agency partners indicated that more time should have been allocated to proposal evaluation and detailed project negotiations due to the need to engage technical staff on many proposals. Furthermore, meeting scheduling among multiple agencies proved to be challenging.

The CFS timeline has been ambitious, but for the most part, project partners have kept to the schedule. Scheduling is crucial given the upcoming 2005 ITS World Congress. A recommendation for future CFS-style solicitations is to build-in more time for private-sector outreach and project scope and agreement development.

Specificity

When agency partners crafted the CFS, the goal was to encourage innovation and to not limit the imagination of prospective proposers. Unlike a traditional RFP, the CFS did not specify a location, technology, or desired outcome. Without a specific problem to solve, several respondents submitted vague proposals, which increased the evaluation timeframe.

Many agency participants interviewed felt that more CFS specificity would have resulted in stronger proposals. However, they also recognized the need to create a process that encouraged innovative proposals. The challenge of requiring enough proposal details for proper evaluation, while still encouraging innovation, may be a necessary corollary of CFS-style solicitations.

Staff Resources

Although no public funds were allocated to this project, all participating agencies have found the ICI required greater staff time than anticipated. This type of project requires dedicated staff from the beginning to ensure that tasks are completed; ideas are communicated; all of the necessary departments are involved; staff is not pulled away from their full-time duties; and the agency achieves a successful business/policy model. A tremendous amount of coordination among partner agencies and within each agency has occurred to reach consensus on each partnership agreement. While the CFS has facilitated cooperation among Caltrans' districts and their respective regional MPO, a mechanism to involve cities, local agencies, and other concerned stakeholders must be put in place to ensure a broad consensus in project development so that products can have Statewide application.

Confidentiality

To encourage technology or business plan discussion, which might be proprietary, the CFS partners felt it was important to offer industry proposers confidentiality through the CFS process. However, providing confidentiality (i.e., all evaluators were required to sign non-disclosure agreements and non-conflict of interest statements) was time consuming and limited the number of staff who could review proposals. In the future, it might be beneficial to ask for a non-confidential project description as part of the application process to avoid proprietary conflicts and to allow concerned staff participation during the proposal evaluation process.

Lessons learned from California's ICI and the three case studies presented in this paper elucidate issues related to confidentiality and other institutional, legal, and political barriers to public-

public and public-private partnerships that exist and must be eliminated or at least minimized for ITS to be fully integrated into the transportation system. In the conclusion, the authors identify the major lessons learned from the three case studies and expound upon their ICI relevancy.

CONCLUSION

California's ICI is a new way of doing business for Caltrans and its regional partners. Interviews with participating public agency representatives reveal that there is much to be gained and learned from this innovative process. If successful, the ICI and CFS may serve as a business/policy model for public-private partnerships and regional cooperation. Early findings from the ICI reveal that the CFS resulted in: 1) 28 project proposals intended to improve mobility and safety for California travelers; 2) inter-agency cooperation among ICI partners; 3) additional expertise brought on by multiple-agency participation during proposal evaluation; 4) a broader perspective at the table by engaging in negotiation with the private sector; and 5) an opportunity for industry and government to work together beyond the initial demonstration period, if appropriate.

In this paper, the authors identified both legislative and initiative-based approaches to public-private partnerships, including three case studies that provide valuable insights into the institutional, legal, and political issues that may arise with a public-private partnership. The major lessons learned from the three case studies include:

- Government must be careful not to contract away services that may become a necessity during a long-term agreement. Furthermore, political opposition may arise when the public is required to pay for services it has historically received for free;
- Short-term agreements may be insufficient to adequately deploy a project or secure enough revenue to repay initial investment costs; and
- Government must take care not to engage in what may be construed as anti-competitive behavior (e.g., granting exclusive access to State rights-of-way to a single provider).

Of direct ICI relevance, the authors found that:

- ICI partners should take heed to lessons learned from AB680 regarding services offered to the public by the private sector. At present, Bay Area travelers have access to free traveler information via MTC's 511.org website. Where traveler information supplied by industry is sold to the public, these data will need to offer travelers a value-added service, which is unavailable to the general public for free.
- Similar to the HELP, Inc. project, ICI partners found that intra-agency coordination was just as challenging as inter-agency coordination among Caltrans and MPOs. Furthermore, lessons learned during the HELP demonstration and the ICI evaluations point to the fact that full-time staff resources and additional time are needed to support this type of endeavor. ICI partners could learn from HELP, Inc.'s resolution regarding data confidentiality. Moreover, the successful operation of HELP, Inc. offers promise that one or more ICI projects may progress as a value-added service to transportation agencies and the traveling public;

- Similar to Connecting Minnesota, ICI partners found the need to establish clear CFS objectives. Moreover, the ICI has effectively realized many of the lessons learned identified in the Connecting Minnesota project, including: 1) making it easier for the private sector to do business with government; 2) being forthcoming about implications for those involved; 3) joining with other (sister) agencies; 3) establishing trust; 4) establishing two-way communication between public-public partners and public-private partners; and 6) clearly defining agency roles.

The authors will continue to document ICI lessons learned through additional interviews with CFS partners and industry respondents as the ICI progresses from negotiation of detailed project plans; to agreements to proceed; and finally to project installation, operation, and dismantling. Continued documentation of ICI lessons learned is important to next steps and future policy and planning recommendations that could aid in streamlining the business models resulting from the CFS, if appropriate. Policy recommendations may also be made in support of new legislation in California. Research and documentation of legislative and initiative-based partnerships, such as the ICI, should be very useful for practitioners and researchers interested in public-private partnerships as a means to accelerate transportation system improvements.

ACKNOWLEDGMENTS

The authors would like to thank Coco Briseno, James Chai, Larry Orcutt, and Frank Quon of Caltrans; Pierce Gould of MTC; Narasimha Murthy of MTA; Neil Schuster of ITS America; and Gail Peters and James Gentner from HELP, Inc for their vital interview input. Sri Balasubramanian and Asif Haq of Caltrans provided invaluable advice in reviewing this paper. The authors would also like to acknowledge Hamed Benouar of CCIT. Additional thanks go to Caltrans—who is funding this ICI policy/planning evaluation—and to MTC, MTA, and industry participants overall. This paper builds on an earlier version of a 2004 ITS World Congress conference paper.

REFERENCES

1. Benouar, H. *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

2. Rossetti, M. *Public/Private Partnerships III Implementing Successful Public/Private Partnerships in Transportation*. U.S. Department of Transportation Research and Special Programs Administration. Volpe National Transportation Systems Center Transportation Strategic Planning and Analysis Division. February 2002. http://www.volpe.dot.gov/infosrc/strtplns/nstc/ppp3/index.htm Accessed July 31, 2004.

3. Deakin, E.., Garrison W. *Private Sector Funding For Urban Transportation: Some Comments on Public-Private Partnerships.* Working Paper UCB-ITS-WP-85-9. Institute of Transportation Studies. University of California, Berkeley. June 1985.

4. Briggs, V., Delk, T., and Walton, C. *Public-Private Partnerships for Providing ITS: Case Studies in Transportation and Other Industries*. Center for Transportation Research. The University of Texas at Austin. January 1999.

5. Yarema, G. *Transportation Project Delivery:Options, Public-Private Roles And Suitability Criteria.* Washington State / Legislative Oversight Committee on Public Private Partnerships. Nossaman Guthner Knox & Elliott, LLP. June 24, 2002.

6. United States Department of Transportation. *Shared Resources: Sharing Right-of-Way for Telecommunications Guidance on Legal and Institutional Issues Final Report*. Report #FHWA-JPO-96-0015. April 1996.

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

8. United States General Accounting Office. *Highways and Transit - Private Sector Sponsorship of and Investment in Major Projects Has Been Limited*. GAO 04-419. Report to Congressional Requestors. March 2004.

9. Caltrans Division of Innovative Finance. *Assembly Bill No. 680, Chapter 107, Legislative Counsel's Digest.* 1989. http://www.dot.ca.gov/hq/paffairs/about/toll/ab680.htm. Accessed July 31, 2004.

10. United States Department of Transportation. *$140 Million SR125 South Toll Road Loan Closes May 22.* TIFIA Times. May 2003. Issue No. 7.

11. Congressional Budget Office. *Innovative Financing of Highways: An Analysis of Proposals*. The Congress of the United States. January 1998

12. U.S. Department of Transportation Federal Highway Administration. *A Guide for Hot Lane Development.* March 2003.

13. Boarnet, M.G., DiMento, J.F., and Macey, G.P. *Toll-Highway Finance in California: Lessons from Orange County*. California Policy Research Center, University of California Berkeley. 2002.

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

15. John A. Volpe National Transportation Systems Center. Economic Analysis Division. *IVHS Institutional Issues and Case Studies: Help/Cresent Case Study Final Report*. U.S. Department of Transportation Research and Special Programs Administration. Prepared for Federal Highway Administration Office of Traffic Management and ITS Applications. April 1994

16. The National Council for Public-Private Partnerships. *Case Studies Connecting Minnesota*. http://ncppp.org/cases/minnesota.html. Accessed July 31, 2004

17. State of Minnesota Official Web Site. *Connecting Minnesota FAQ*. http://www.mainserver.state.mn.us/connectingmn/_faq.html. Accessed July 31, 2004.

18. Neudorff, L. *Institutional Challenges, Barriers & Opportunities: Institutional Integration. White Paper for ITMS Conference*. Siemens – Gardner Transportation Systems. July, 2001.

19. Lari, A. *Shared Resources: Minnesota Experience and Lessons Learned*. I-95 Corridor Coalition Information Exchange Forum. September 11, 2000.