Innovative Contracting Practices for ITS

Task E - Final Report

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Innovative Contracting Practices for ITS
Task E - Final Report

FHWA Contract No. DTFH61 -94-C-00164

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1 6. Abstract

This report presents the results of research on procurement-related legal and non-technical issues which may be constraining the deployment of Intelligent Transportation Systems (ITS). The report's focus is on State and local procurement practices when Federal funds are involved. Issues arising in early ITS operational tests were researched, with focus on the following topics: types of contracts, methods of award, combined or coordinated procurements, pricing and cost sharing allowability of costs, cost accounting standards and principles, auditing, intellectual property, organizational conflicts of interest, and liability. The report provides findings on each of the above topics and discusses their effects on implementing ITS. Practical procurement techniques, available under existing law, are provided to remove or mitigate potential barriers to deployment. The report is targeted at program managers, contracting officers, and attorneys, and contains many examples and extensive citations for further research to assist both novice and expert practitioners.

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INNOVATIVE CONTRACTING PRACTICES FOR ITS

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- 49 C.F.R. Part 18 - Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments
- United States Department of Transportation Order No. 4600.17, Grant Management Requirements
- Los Angeles County Metropolitan Transportation Authority - General Cost Guidelines
(6) ITS Transactional Documents
(7) FHWA Chief Counsel Letter Clarifying the Government's Retained License to Inventions and Copyrights, August, 1994

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EXECUTIVE SUMMARY

This Executive Summary presents an overview of the findings and recommendations of the ***"Innovative Contracting Practices for Intelligent Transportation Systems"*** report. This report was prepared under Contract No. DTFH61-94-C-00164, administered by the United States Department of Transportation (U.S. DOT), Federal Highway Administration (FHWA), in cooperation with the Volpe National Transportation Systems Center (Volpe). The views expressed in this report do not necessarily reflect the views of the U.S. Department of Transportation. Persons reading this Executive Summary who desire a copy of the entire report can download a copy by accessing the reading room of U.S. DOT Joint Program office at **http://www.its.dot.gov** or ITS America's World-Wide Web site at ***http://www.itsa.org.***

As part of the Intermodal Surface Transportation Efficiency Act (ISTEA) Institutional Issues evaluation program, U.S. DOT requested that Volpe perform an evaluation of six ITS operational tests and identify institutional barriers to deployment of ITS technologies and systems. The Volpe report identified a lack of flexibility in the procurement practices of State and local transportation agencies as a significant institutional barrier that could constrain the successful deployment of Intelligent Transportation Systems (ITS).

Traditional procurement practices used by State and local transportation agencies were developed to support the design and construction of roads and bridges or to design and construct rail projects. The traditional procurement process for construction of a facility involves the letting of and completion of two separate contracts; one to retain an Architect/Engineer to prepare detailed design specifications for the facility, and, after design is completed, another for construction of the facility. The latter contract is publicly advertised and awarded to the lowest responsive and responsible bidder. This traditional approach utilizing a bifurcated process often lacks the flexibility required when contracting for rapidly evolving technologies and systems such as ITS.

To assist State and local transportation agencies planning to implement ITS projects using federal funds, FHWA contracted with L.S. Gallegos & Associates, Inc. to review State and local contracting rules, regulations, policies and practices, and then to develop a "tool kit" of procurement techniques successfully used by State and local agencies to implement ITS.

Specifically, the objectives of the contract were to:

- Identify and analyze contracting issues which have arisen or are likely to arise in the development and deployment of Intelligent Transportation Systems (ITS) and which may be constraining or hampering the implementation of ITS technologies.

- Develop legally sound, innovative models for contracting for ITS technologies by State and local contracting agencies.

The ultimate objective was to provide streamlined contracting practices that encourage the development and implementation of technologies which meet the goals of the ISTEA for safety, efficiency, enhancement of the environment and United States competitiveness and productivity. Practices developed are directed at obtaining quality ITS products and services which meet the contract requirements at a fair and reasonable price and which protect the public interest in the integrity of the public contracting processes.

In the course of the analysis, ten contracting issues were identified:

- Types of Contracts
- Methods of Award
- Combined or Coordinated Procurements
- Pricing and Cost Sharing
- Allowability of Costs
- Cost Accounting Standards and Principles
- Auditing
- Intellectual Property
- Organizational Conflicts of Interest
- Liability

These contracting issues were thoroughly researched and analyzed based on the workplan developed by FHWA which emphasized interaction with attorneys and other procurement professionals possessing “hands-on” experience gained from initial ITS procurements. The lessons learned in these early applications of ITS provide the foundation and basis for the innovative contracting practices presented in this report.

To research and analyze the contracting issues, the following activities were performed:

- An extensive literature search on each contracting issue
- Interviews with numerous attorneys and ITS procurement professionals
- Review of transactional documents used to implement ITS
- Review of current FHWA & FTA procurement policy

To further the research, a panel of national ITS procurement experts was formed to encourage interactive discussions of these issues. Stakeholders from other organizations and institutions were also solicited for their input.

The panel of experts performed a key role in the analysis by bringing with them many successes which can be repeated in other ITS deployments. They also offered insight regarding costly lessons learned which can be avoided in other procurements of ITS. The panelists, including representatives from both the public and private sectors and academia, met for a two-day Procurement Focus Session in Denver, Colorado. They continued to be involved by reviewing both the draft report and the draft final report presented to FHWA.

DISCUSSION OF ISSUES

A detailed analysis of each contracting issue provided several major findings to consider when developing contracting strategies and practices for development or deployment of ITS projects. By reviewing the following findings, practitioners will increase their knowledge of potential barriers which may arise and understand how those barriers can be avoided or mitigated by using innovative contracting practices.

Types of Contracts & Methods of Award

- The Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, issued by the Office of Management and Budget (OMB) and codified within most Federal agencies' regulations, establish a "Common Rule" governing grants administration. The Common Rule provides that "States will expend and account for grant funds according to their own laws and procedures." This authority includes planning and management of procurement processes regarding contract type, method of award and pricing methodology.

Types of Contracts & Methods of Award (continued)

- Procurement options available to States and local agencies may be limited by federal or State laws, the terms of a grant, or agency regulations or practices. There are very specific rules to be followed when a procurement is solely for architect/engineering services or for construction. Outside of these areas there is contracting flexibility and many procurement options available to obtain ITS goods and services.

- The most common institutional arrangements in the developmental, pre-deployment phase include "cost sharing", "partnering ", "cooperative research and development agreements" and bundled contracts providing for system design, fabrication, installation, demonstration testing, and/or evaluation. Institutional arrangements in the operational deployment phase range from purely private approaches such as franchising to purely public models based on 100% taxpayer financing. The numerous and inconsistent labels attached to innovative procurement methodology can cause confusion.

- Each ITS procurement is unique and is most effective when focused on the transaction's desired end result. Formulating procurement strategies involves the evaluation of the impact of certain "discriminators" which may dictate or eliminate available procurement options. Discriminators include: source(s) of funds, extent of project definition, project phase, and scope of services.

Barrier:	Failure of traditional procurement approaches to be flexible and responsive to the unique deployment needs of ITS. The impact of this barrier is further compounded by the lack of contracting personnel experienced in the nuances of ITS procurements.

Solutions Identified:

(1) Utilize flexibility within existing procurement rules, regulations and practices to maximize lifecycle value of ITS goods and services while maintaining the integrity of the contracting process. Improper matching of contract type or award methodology may result in lessened competition or inability to obtain best value in an ITS procurement. Traditional design-bid-build contracting methodologies should be utilized for scopes of work that involve purely design or construction activities. Outside of these areas there is room for innovation so long as competition is maintained and selection criteria are made known in advance and are consistently applied.

Types of Contracts & Methods of Award (continued)

(2) Critical decisions regarding contract type and award methodology are best made early in the procurement planning process with involvement of the Program Manager, Contracting Officer and, if appropriate, legal counsel. If federal funds are involved, it is desirable for State and local contracting agencies to involve FHWA Division Administrators if innovative contracting practices are contemplated.

(3) Educate and inform contract professionals as to available procurement options which may provide more flexibility in the procurement of ITS goods and services within existing rules and regulations.

Combined or Coordinated Procurements

- Interagency cooperation is critical to obtaining regional compatibility and interoperability of ITS which will foster greater economy and efficiency. The Common Rule encourages State and local agencies to enter into intergovernmental agreements for procurement or use of common goods and services.

- Agencies may be prevented from entering into combined or coordinated procurements due to lack of authority to permit another agency to commit or spend ITS funds, or by incompatible procurement regulations.

- Multi-jurisdictional procurements require sound management by one of the participating entities, an outside consultant, or Metropolitan Planning Organization (MPO) to ensure procurement objectives are clear and any differences in practices, policies or procedures are reconciled.

- Difficulties associated with planning and implementing combined or coordinated procurements are often due to lack of defined roles and responsibilities rather than legal constraints. State and local agencies have been creative and successful in implementing multi-agency procurements.

Combined or Coordinated Procurements (continued)

Barrier:	Concern regarding the authority of one agency to participate in a multi-agency procurement process and have its funds committed by another entity.

Agencies have been very effective at overcoming this barrier if they are committed to working together. The barriers are more often institutional than legal.

Solutions Identified:

(1) Unless expressly prohibited, construe broadly an agency's power to enter into agreements necessary or incidental to the performance of its duties or incidental to the execution of its powers. Broad grants of power to perform activities "necessary and incidental to" the accomplishment of an agency's mission are often included in agency enabling legislation.

(2) Include explicit, broad authority to enter into intergovernmental agreements in State agency enabling legislation. Even if authority to enter into multiagency procurements can be implied, an express grant of authority can clarify the availability of the approach, and provide specific directions to be followed. A clear directive granting authority to enter into combined or coordinated procurements establishes legislative intent and may prevent litigation challenging agency authority.

(3) Invite offerors to make an "irrevocable offer" where delegation of the authority to commit funds is a barrier and other solutions are not available. Even in absence of implied or express grants of authority, agencies can often participate in joint, multi-agency procurements so long as the State has the ultimate power to accept an offer. This is an effective technique where the procurement is conducted by another agency, up to the point of formal acceptance of the offer.

Financial Administration of Grants and Cooperative Agreements

The Common Rule establishes uniform administrative policies for financial administration of federally-funded ITS projects. The rule allows States to account for grant funds in accordance with their own laws and practices. The rule imposes differing grant administration requirements on State agencies as opposed to non-State agencies.

Financial Administration of Grants and Cooperative Agreements (continued)

- Public policy requirements impose allowability-of-cost issues on the private sector in order to exclude certain types of costs from vouchers or invoices requesting reimbursement out of public funds. Grantees are required to establish that they are consistently applying proper accounting standards and are utilizing acceptable cost principles to identify and isolate costs not chargeable to a contract. Applying these principles can be problematic for firms doing business with the public sector for the first time.

- Cost principles come into play when cost is a basis for either contractor selection, for contractor compensation, or for pricing adjustments on an existing contract. The Federal Acquisition Regulation (FAR) establishes cost principles which are utilized on federally funded procurements, but are not directly applicable to State and local procurements. They do, however, often come into play when incorporated into grantee contracts and subcontracts.

- Cost accounting standards refer to how a prospective contractor estimates, accumulates and reports contract costs. Public agencies require strict adherence and consistency in contractors' method of cost accounting from year to year. The private sector, on the other hand, may modify their accounting systems annually to take advantage of tax or accounting rule changes.

- Private sector firms fear disclosure of their propriety information resulting from public agency audits of their records. This can be mitigated by utilizing separate entities to "wall-off' private activities; retaining third party auditors who audit to government standards; or by not accepting public funds.

- As public agencies look to the private sector to supplement and leverage public ITS investments, revenue sharing or cost matching techniques will become more common. New language in the National Highway System Designation Act of 1995 extends and liberalizes rules allowing States to receive and value in kind goods and services. However, these sources of funds may be limited if the public sector utilizes intrusive methods to verify that the contribution was received and properly valued.

- The federal government has significantly reduced grant administration requirements on State and local agencies. State and local agencies are encouraged to work with U.S. DOT to develop alternative cost principles acceptable to the parties which are more responsive to the unique needs of ITS deployment and encourage partnering with the private sector.

Financial Administration of Grants and Cooperative Agreements (continued)

Barrier:	Private sector firms doing business with government entities for the first time may lack knowledge of the concept of unallowable contract costs, or may understand the concepts but lack the accounting systems needed to apply the cost principles,

There are fundamental differences between Generally Accepted Accounting Principles used by the private sector and Fund Accounting utilized by governmental agencies. There is no equivalent to "unallowable costs" in the private sector and excluding such costs may be difficult for some private sector accounting systems.

Solutions Identified:

(1) Comply with the requirements of receiving public funds; negotiate on what constitutes compliance, and how compliance will be measured. The Common Rule allows much flexibility in the methods used to identify, value and exclude costs from an invoice or voucher requesting reimbursement from public funds. In addition there are many "off-the-shelf' accounting programs which are designed to comply with government accounting principles.

(2) Utilize alternative cost principles. Some traditional approaches may be waived by the parties if certain circumstances exist. For example, the existence of a competitive private sector market can establish a market price for supplies or services, allowing use of fixed-price contracts instead of cost-type contracts.

(3) Utilize partnering relationships between public and private sectors. Sometimes it is easier to coordinate public and private investment without commingling public and private funds. This eliminates the need for the public sector to audit the private entity and reduces the risk that trade secrets will be disclosed.

Financial Administration of Grants and Cooperative Agreements (continued)

Barrier:	Private sector firms doing business with public entities for the first time may lack the financial reporting consistency required by public sector cost accounting standards.

Private sector firms often adapt their accounting and reporting practices to take advantage of annual changes in tax law. This may create problems for public entities who require consistent accounting practices from year to year so that costs can be compared on an "apples to apples" basis. Problem areas include accounting for research and development costs and methodologies used to calculate depreciation expense.

Solutions Identified:

(1) Utilize alternative cost accounting standards. There is much flexibility for the parties to agree in advance as to how public and private cost standards can be reconciled to the satisfaction of both parties.

(2) Create a new organization or entity to perform the contract and receive public funds. Due to the inherent differences between the public and private sectors, many private firms create a separate entity formed to be more responsive to public sector cost reporting needs. This eliminates the need to modify the private sector's business practices to accommodate public sector cost standards.

Barrier:	Private sector firms may not pursue publicly-funded ITS work due to fear of public disclosure of their proprietary financial information.

Solutions Identified:

(1) Utilize a third party accounting firm to perform contractor audits to public sector standards. The U.S. DOT has adopted the Single Audit Act encouraging public agencies to utilize a single audit in lieu of performing redundant independent audits by each funding agency.

(2) Do not permit audit working papers to remain in the public agency's files. An audit report can identify audit deficiencies and reference source documents. The public agency can access these documents under existing contractual audit rights and copy them if a need arises.

Financial Administration of Grants and Cooperative Agreements (continued)

Barrier:	The private sector cannot be expected to partner with public agencies by sharing costs without receiving sufficient benefits or opportunities to recoup its investment and make a profit.

Cost sharing requires benefit sharing. To survive in the long run, the private sector must recover its investment and make a profit based on the risk assumed.

Solution Identified:

Establish an environment for success which responds to needs and wants of both the public and private sectors. Public/private partnerships require an understanding of each stakeholder's needs. A shared benefit for a successful outcome and an environment of trust that each party will perform as represented are also essential.

Intellectual Property

- "Intellectual Property" (IP) refers to patentable inventions, copyrights, and trade secrets, as well as compilations of data derived from the operation of ITS technologies, which may or may not be subject to copyright protection. ITS applications raise challenging new questions regarding IP. The allocation of sufficient contractual IP rights to enable the private sector firms to make a profit is critical.

- There is much opportunity for creative procurements involving IP. The private sector is generally in a better position to exploit technological innovations than the public sector. Projects financed in whole or in part by Federal funds require the granting of a limited license to the Federal Government which may constrain exploitation of the IP.

- Institutional issues regarding IP can be an area of tension between the public and private sectors. The opportunity to exclusively apply intellectual property rights over an extended period of time is the private sector's incentive to invest in research and development. The public sector, on the other hand, encourages competition and resists creating monopolies.

Intellectual Property (continued)

Barrier:	The private sector and State and local governments broadly interpret standard Federal Government intellectual property contract clauses, chilling the private sector's willingness to bid on contracts and making contract negotiations difficult.

This barrier may prevent the most qualified vendors from proposing on federally funded projects so that their intellectually property is not subjected to mandatory public sector licensing or public disclosure which might impair future marketability of proprietary products.

Solutions Identified:

(1) With FHWA cooperation, draft contract language to clarify Federal ownership of intellectual property rights. Narrowly construing FHWA's sublicensing rights to specific applications may alleviate private sector concerns.

(2) With FHWA cooperation, the State grantee should modify the standard IP clauses used in its contracts in order to clarify the scope of the Federal Government's retained IP license. The State should obtain necessary IP rights for its purposes; but attempting to get unnecessary rights through a broad State license may diminish the commercial value of IP to the private sector, discouraging firms from participation in ITS procurements.

(3) Instruct prospective contractors to describe steps they will take to ensure commercialization of inventions arising under the project, and to describe the steps they will take to make inventions available to State and local governments, thereby alleviating some uncertainty the contractors may have with respect to Federal "March-in Rights." Clarifying the unknowns and licensing limitations at the outset of the project may prevent later disputes regarding interpretation of the IP rights.

Barrier:	Potential for future disputes regarding the inventions to which the Federal Government's license rights apply.

Critical terms such as "subject invention", "first actually reduced to practice" and "in the performance of the work under,' are critical terms which must be precisely defined.

Intellectual Property (continued)

Solutions Identified:

(1) If the grantee has adequate information, identify in the contract which of the inventions that the private party is bringing to the project are already "reduced to practice," and which will be developed under the contract; specify the technologies to which any government funds are being applied.

(2) Include detailed contract provisions describing any pre-existing IP developed by a party with its own funding ("PARN Intellectual Property").

Barrier:	Conflict between contractor's desire to keep intellectual property proprietary and the traditional view that publicly-funded products should reside in public domain.

The definition of and allocation of IP rights highlight the fundamental differences in mission between public and private entities. Informed decisions and negotiated compromises must be made that are fair and responsive to each others' needs.

Solutions Identified:

(1) Allocate to the contractor ownership of rights in copyright materials that are contractor cost responsibilities or shared cost responsibilities. FHWA and State DOTs are fully licensed to use the material.

(2) Supplement standard contract intellectual property rights clauses to clarify contractor's rights. Documenting in advance how a public entity plans to construe its license can establish limits acceptable to the private sector.

(3) States can initially ask for title to intellectual property, but negotiate royalty arrangement in lieu thereof. This arrangement allows the private sector to exploit intellectual property rights while providing the public entity a potential revenue stream to offset future costs and free up revenue for investment elsewhere.

(4) Negotiate royalty payments to compensate the public agency for its financial contribution to intellectual property development. Ownership can then be ceded to contractor. This is very similar to the previous solution using negotiated royalties to recoup public investment in technology development costs.

Intellectual Property (continued)

(5) Waive delivery of limited rights data and restricted software; clarify limits on government license. This is consistent with Federal Acquisition Regulation Rights in Data-General Clause.

(6) Escrow technology. If the public agency is not going to acquire all rights in Intellectual Property in connection with an ITS deployment, the agency needs to protect itself in the event of system failure or contractor's going out of business, in order to provide ongoing operations and maintenance of the system.

Barrier: Lack of legislative authority for transportation agency to accept intellectual property royalties and/or to earmark such funds.

Although often granted broad authority to conduct business, some State and local transportation agencies may have requirements to turn over royalty proceeds to another State entity that determines how the money will be spent.

Solutions Identified:

(1) Allocate royalties to a participating governmental party with clear authority to accept, retain, and use royalty funds. Some State transportation agencies have utilized State universities to hold and manage intellectual property rights including receipt and reinvestment of royalties.

(2) Enact legislation expressly permitting State agencies to retain royalty income from intellectual property as an incentive to negotiate such arrangements.

(3) Form a special purpose entity to retain royalties and reinvest in ITS. Complex multi-stakeholder projects may require new institutional arrangements such as no-stock, no-dividend corporations to receive, invest or disburse royalties among the stakeholders.

Barrier: Private sector concerns regarding data security.

The best techniques for maintaining data security are to not put private information in databases accessible to the public, limit the data furnished to the public sector entity, and control access to the data held by the public sector.

Intellectual Property (continued)

Solutions Identified:

(1) Hire third party systems integrator to hold and protect data. The third party then can enter into a confidentiality agreement identifying restrictions on transmission and retention of documents.

(2) Carefully label proprietary and confidential information; parties may expressly commit to use reasonable care to prevent disclosure, and to use information only for limited purpose, that data which is properly labeled. This can limit access to the data by third parties as well as limiting how it may be used by them.

(3) Require the contractor to place all source code and other proprietary technology necessary to manufacture and operate systems into third party escrow which may be accessed by the public agency only upon contractor default. This keeps proprietary data out of government's possession through this third party escrow, and ensures access to the data to provide continuous operation of the system. When specified conditions occur, the systems operator can access the source code through the escrow agent.

Barrier: Preserving the traveling public's privacy.

Making personal movement data available to the public may chill the public's acceptance of ITS technologies and their beneficial application due to potential for abuse of this data. Methods to prevent or mitigate privacy concerns should be addressed before collecting personal movement data.

Solution Identified:

Utilize third-party contractors to collect and maintain information to prevent creation of public records. Require parties having access to data to adhere to ITS America Privacy Standards or similar industry standards.

Barrier: Transportation agency fears that early deployment of ITS will result in purchase of obsolete technology or will prevent an integrated system in future.

Traditional contracting approaches to design and construct facilities make it difficult to ensure continuity in contractors or technologies as new technology applications become available.

Intellectual Property (continued)

Solutions Identified:

(1) Procure intellectual property rights which include "Technology Refreshment" clause allowing upward migration of technology. This provides an incentive for a contractor to reinvest to improve and upgrade operational systems after start-up.

(2) Create Technology Review Board to assess new developments in ITS technology, and recommend upgrades which the contractor should be required to incorporate into the ITS project. The distinction between developing and commercially available technologies is often blurred. Input from an objective panel of industry experts can be helpful to all parties responsible for making these difficult investment decisions.

Barrier:	Combined and coordinated procurements, and Statewide systems with multiple operators have special needs for information sharing, which may not be allowable if proprietary information is involved.

This issue is complicated if proprietary processes are involved.

Solution Identified:

Utilize non-proprietary specifications and standards. This encourages competition and accelerates commercialization of products resulting in industry growth.

Organizational Conflicts of Interest

- Organizational Conflicts of Interest (OCI) rules were created to preserve fair and open competition and enable contracting agencies to obtain impartial advice from consultants. Concern has been raised that application of OCI rules when separate design and construction contracts are planned may limit the extent that companies can be both designers and providers of ITS. This may deter the best qualified contractors from participating in a project's early stages including system development and design.

- Characterization of a project can impact application of OCI. Different OCI rules may apply to systems engineering contracts, development contracts, evaluation contracts or planning contracts. OCI issues can be avoided through bundling of activities into a single contract such as a design-build contract.

Organizational Conflicts of interest (continued)

- Lack of certainty as to which rules apply and how they will be applied to ITS is a problem, not the rules themselves. It is the public agency Contracting Officer's responsibility to articulate clear guidelines. Making the rules known at the outset of a project creates a level playing field where contractors, consultants, and vendors can compete for and be awarded work based on merit.

Barrier:	OCI rules may deter the best qualified firms from participating in a project's early stages, including development and design.

Traditional OCI rules separate the design and construction activities to provide fair and open competition. However, utilizing a bifurcated approach may not necessarily result in the best value in an ITS procurement.

Solutions Identified:

(1) Prepare specifications in-house with ample opportunity for private industry to comment (for free) on these specifications. Inviting industry to participate in developing a specification makes it more difficult to challenge the specification when issued.

(2) Involve the ITS design contractor in an oversight role during system implementation. This allows the designer to obtain ongoing fees and provides the contracting agency with continuity as the ITS specifications are implemented.

Barrier:	Traditional Federal highway construction contracting rules require separation of the design contract from the construction contract.

Federal-aid highway program statutes generally require States to award separate contracts for highway design and highway construction. The term "highway construction" is defined to include ITS applications. Applying this bifurcation to ITS is impractical, however, because ITS involves deployment of information systems combining hardware and software where no logical separation of design and construction exists.

Solutions Identified:

(I) Carefully define project roles. A contractor that participates in "planning" (as opposed to "design") may still participate in construction. How a procurement is characterized often dictates whether or not OCI rules apply.

Organizational Conflicts of Interest (continued)

(2) Award a design/build contract if the public agency is authorized to use this type of contract. Design/build has some desirable characteristics for ITS and has been authorized for use by FHWA under Experimental Project No. 14. Agencies contemplating design/build approaches are cautioned that rules in this area may change and FHWA should be contacted for guidance on design/build approaches for projects utilizing Federal funds.

Barrier:	Failure to clearly state guidelines regarding OCI and the division of responsibilities at the outset of a project may threaten the project.

Clarify expectations by making OCI requirements known at the outset of a project to prevent later disputes as to which OCI rules apply.

Solutions Identified:

(1) Project participants should establish a clear understanding regarding the division of responsibilities and limitations imposed by OCI at the outset of the project. This is the best way to prevent later misunderstandings as to the roles and responsibilities of project stakeholders.

(2) Expressly state in design contract solicitation that the successful ITS design firm and its affiliates will be excluded from bidding to supply the resulting system. Agencies may retain the services of the original design firm to oversee implementation and installation.

Liability

- Public and private sector participants in ITS deployment are concerned over becoming or being viewed as “deep pocket” sources of funds to cover accident costs (tort liability) due to ITS operations. Designing safety into all aspects of ITS technology and operations is the most effective strategy to mitigate overall tort liability exposure.

- Parties to ITS deployment contracts can agree in advance to allocate particular tort liability costs to the participating party most appropriate to bear those costs using contract clauses such as waivers, disclaimers, indemnities, releases, and liability limitations.

Liability (continued)

Barrier:	Tort liability for injuries associated with ITS products; allocation of risk between ITS providers and users.

Solutions Identified:

(1) (a) Require driver participants to sign informed consent forms.

(b) Every time the car's engine is started, the data screen warns driver that the system is experimental and that safety is the driver's responsibility.

(c) Each party provides its own insurance for its staff members and for test participants.

(2) Require test participants to execute waivers containing warranty disclaimers and liability limitations.

(3) Require transponder customers to execute release and indemnity in order to pay tolls electronically.

Barrier:	Allocation of liability among ITS participants; multiple project participants may cause "innocent" governmental party to bear loss if separate disputes with contractors produce inconsistent results.

The governmental party may be responsible for coordinating multiple prime contracts which may result in the government entity being responsible for the timely, coordinated performance of all contractors.

Solutions Identified:

(1) Project agreement includes express warranty disclaimer. The disclaimer can disclose the conditions of the agreements and specifically disclaim public agency responsibility for the performance of other parties.

(2) (a) Limit vendor's liability to State or local agencies to the amount of money paid to-date under the contract.

(b) Limit period for bringing claims to two years.

(c) Mutual waiver of liability for consequential damages.

(d) Mutual obligation to notify all parties of any tort claims.

Liability (continued)

These contractual remedies are well established in areas outside of ITS and the solutions should transfer effectively to an ITS context.

(3) Require all contractors involved in a project to participate in joint dispute resolution to avoid inconsistent allocation of liability. This is often the quickest way to resolve disputes.

Barrier:	Potential liability for patent and copyright infringement and anti-trust violations.

New applications of technology and the information produced from those technologies will raise some unique issues which create real or perceived risks due to the unknowns associated with ITS deployment.

Solution Identified:

(1) (a) Agree to mutual indemnification for patent infringement.

(b) Have vendor indemnify agency for anti-trust violations.

(c) Perform due diligence reviews to identify potential patent issues relating to an element of the proposed system. Parties agree in advance on an alternative substitute technology as a back-up.

Barrier:	Potential liability for monetary loss due to system failure in project with debt service funded by user fees.

This is a significant concern when deploying electronic toll collection systems. Inaccuracies or system failures can have significant negative financial impact on the owner/operator who relies on tolls to fund operations and debt service.

Solution Identified:

Contractor assumes responsibility for system accuracy regardless of whether or not contractor is the cause of the failure. This has been successfully applied to major toll road projects. The no fault concept assures the owner/operator that virtually all revenue will be realized for vehicles utilizing the automated toll collection facilities.

MAJOR FINDINGS

Throughout the course of the analysis, several findings cut across all issues as being critical to the success of ITS procurements. These "cross-cutting" issues are summarized in the following paragraphs:

(1) **How A Procurement Is Characterized Is Critical,** Throughout this report the need for ITS procurements to be flexible and adaptable to the facts and circumstances surrounding each procurement has been consistently emphasized. How one classifies an ITS project is important. For example, procurement rules and regulations may provide much more flexibility to procure financial administration systems than to procure ITS design services. It is important to be flexible in the classification of ITS projects early in the procurement planning process in order to preserve a maximum range of procurement options and implementation strategies.

(2) **Flexible Procurement Practices Work Best If Initiated Early!** Innovative contracting practices can be applied to all phases of an ITS project or program, but work best if applied at the outset to incorporate strategic objectives into the procurement planning process and the terms of the resulting contracts. In most cases institutional or legal barriers which were identified in advance by participants in the early operational tests were eliminated or mitigated by innovative contracting practices. There were no "show stoppers".

(3) **ITS Solutions Can Be Implemented At Various Institutional Levels And Project Phases.** State and local transportation agencies implementing federally funded ITS projects or programs have a variety of tools available to them to overcome contracting barriers to ITS. Not all barriers require legislative or regulatory changes; many can be implemented by flexibly restructuring organizational or managerial aspects of a project. The findings and recommendations of this report identify a variety of procurement tools to build in flexibility at various institutional levels, including:

- Partnering with other public and private sector entities
- Enacting new or revised legislation
- Selecting funding sources which allow flexibility
- Leveraging intellectual property rights
- Utilizing private sector cost sharing with reasonable compliance requirements
- Carefully segregating, bundling and drafting contract scopes of work
- Promoting competition among pre-qualified offerors

- Utilizing evaluation and award criteria which are fair and flexible
- Incorporating expedited dispute resolution practices

(4) **ITS Procurements Present Opportunities For Experienced Procurement Professionals To Innovate Within Existing Legal Framework.** Procurement professionals experienced in utilizing innovative contracting practices can assist in removing institutional barriers to ITS deployment. There is however, a shortage of experienced professionals who are knowledgeable in nontraditional public or private procurement models. As a result, innovative procurement solutions allowable under current rules, regulations and practices go unidentified, unused or underutilized. ITS procurements represent opportunities for experienced, creative procurement professionals to develop creative solutions.

The ITS operational tests have shown that involving experienced procurement professionals early in the planning process enhances a project's chance of success. Unfortunately, the pool of experienced procurement professionals in public agencies is limited. In addition to in-house professional capacity building, agencies deploying ITS should consider contracting for external resources to provide innovative procurement expertise. Having experienced contract professionals involved in a procurement enhances its chances for a successful outcome. As stated in the Volpe case studies, "the organization from which a contract professional is from is less important" than ensuring that a project has access to at least one person who knows the procurement rules, regulations and practices and knows how to proactively apply them.

Section I

INTRODUCTION

Section I

INTRODUCTION

The purpose of this report is to identify, analyze and make recommendations regarding "Innovative Contracting Practices for Intelligent Transportation Systems (ITS)." The report focuses specifically on State and local procurement processes as they relate to contracting for ITS goods and services funded in part by the Federal Government."

State and local contracting processes developed for existing Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funded programs have been very successful in creating competition and obtaining successful performance of design and construction activities. Our interstate highway system and operational rail transit projects are testimony to these processes.

The recent introduction of Federally-funded ITS programs and projects requires a review of the existing FHWA and FTA contracting principles and procedures to determine whether they are effective in deploying information technologies, such as ITS. Lack of flexibility in traditional contracting approaches may be a major barrier to ITS deployment. ITS goods and services are technology based. They may utilize hardware or software which can become obsolete in a three to five year time frame. This rapid evolution of technology may not be easily accommodated and deployed by traditional contracting processes.

Traditional Contracting Processes

"Traditional contracting processes" defined for the purposes of this report are: 1) those developed under or formatted after the processes to contract for Architect and Engineering (A/E) services and, 2) processes to contract for construction on U.S. DOT funded projects and programs.*'

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[1]/ Intelligent Vehicle Highway System (IVHS) was changed to Intelligent Transportation System (ITS). This change was made to expand the IVHS program to include non-highway modes of transportation. All further references in this report will use ITS and IVHS interchangeably.

[2]/ The traditional contracting process requires fully designed specifications to be completed prior to issuing a separate contract for construction. Significant amounts of time may be spent preparing detailed specifications describing in great specificity the items a transportation agency wants constructed. A construction contract is then advertised for bid and awarded to the lowest responsible bidder, based on the specifications prepared by the A/E.

Contract Objectives

Recognizing the need for a more flexible contracting process at the State and local levels has prompted FHWA to provide this report to assist State and local agencies in developing innovative contracting practices for their ITS projects. The practices developed in this report respond to the need for flexibility and creativity when contracting for ITS. They are based on sound contracting practices and incorporate lessons learned from numerous State and local ITS procurements.

Three specific activities were undertaken by the Gallegos Team in order to accomplish the development of innovative contracting practices:

- Identify and analyze contracting issues which have arisen or are likely to arise in the development and deployment of Intelligent Vehicle Highway Systems (IVHS) and which may be constraining or hampering the implementation of IVHS technologies.

- Develop legally sound, innovative models for contracting for IVHS technologies by State and local contracting agencies.

- Prepare a written report of the research, legal analysis and recommendations developed under this contract and present the results at a briefing.[3/]

Volpe Case Studies of Institutional Issues

As part of the ITS Institutional Issues Program, the Volpe National Transportation Systems Center (Volpe) evaluated six operational tests under a contract from FHWA to identify institutional issues which may constrain the deployment of ITS.[4/] The Volpe Center evaluated the following institutional issues:

- Organization and management

- Regulatory and legal

- Human and facilities resources

3/ Contract No. DTFH61-94-C-00164 with L.S. Gallegos & Associates, Inc. (LSG&A) at p. 2 of 18

4/ FHWA Contract No. DOT-UNTSC-FHWA-94-10, FHWA-5A-94-056, April 1994

- Financial and market security.[5/]

Because of its broad focus on institutional issues, the Volpe Case Study evaluations did not specifically focus on issues related to the procurement process, but did identify the need for more flexible State and local ITS procurement processes.

The following matrix identifies the contracting issues identified by Volpe which will be further analyzed in this study.

Contracting Issues Matrix

Identification of Contracting Issues Encountered in Volpe Case Studies								
	OPERATIONS TEST							
CONTRACTING ISSUES	TRAVLINK & GENESIS	FAST TRAC	HELP/CRESCENT	TRANSCOM TRANSMIT	ADVANTAGE I-75	WESTCHESTER COMMUTER CTL	TRAVTEK	ADVANCE
TYPES OF CONTRACTS	●	●				●	●	●
METHODS OF AWARD	●			●	●	●	●	●
CONTRACT PRICING ISSUES	●				●		●	
COMBINED/COORDINATED PROCUREMENTS	●	●	●	●	●		●	●
ALLOWABILITY OF COSTS	●			●		●		●
COST ACCOUNTING	●				●		●	●
AUDITS	●	●					●	●
INTELLECTUAL PROPERTY	●	●					●	●
ORGANIZATIONAL CONFLICT OF INTEREST	●	●			●		●	●

Figure 1

5/ IVHS Institutional issues and case studies - Analysis and Lessons Learned - Volpe National Transportation Systems Center, April 1994.

Deployment Stakeholders

Because Federal funds flow through to State and local agencies who are responsible for managing the procurement process, the broad audience of ITS contract practitioners and the number of agencies that could potentially benefit from utilizing Innovative Contracting Practices are extensive.

Deployment Principles

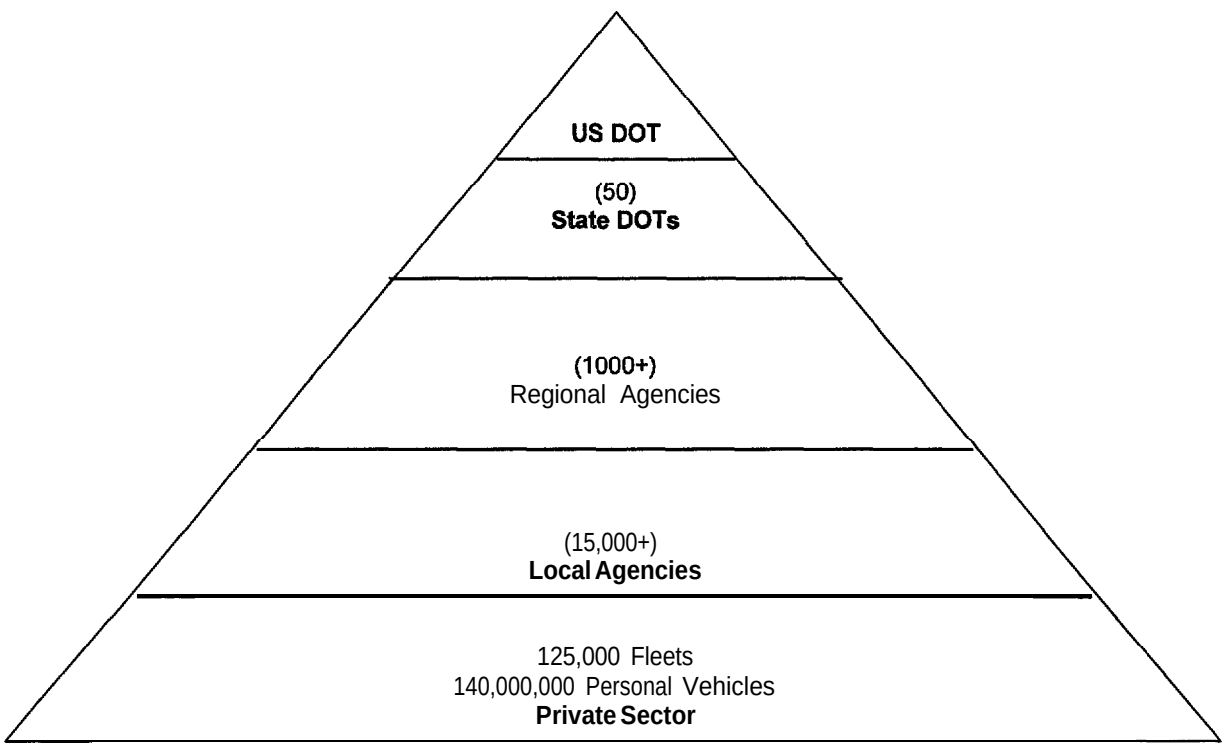

Figure 2

Procurement Tools for Customized Solutions

There is one constant in all ITS procurements . . . one-size does not fit all. Each procurement must be planned and formatted to respond to its specific deployment scenario and funding arrangement. To assist persons responsible for implementing these procurements, this report provides "tools" to assist in formatting effective State or local ITS procurements. These tools include:

1. Brief overviews of major findings for each contracting issue

2. Practical "Innovative Contracting Practices" which serve to remove barriers encountered in procurements of ITS goods and services

3. A decision-making matrix which can be utilized to determine the type of contract and method of award best suited for a planned procurement.

4. Citations and references to other sources of information to assist contract professionals in performing further research on issues discussed in this report.

5. Broad access to the report on FHWA's and ITS America's home pages on the World Wide Web at the the following addresses: **http//www.its.dot.gov** or **http://www.itsa.org.**

Changing Rules, Regulations and Procedures

Readers and users of this report are cautioned that the rules, regulations and procedures related to procurement of ITS goods and services are constantly evolving. Many changes at the Federal level occurred during the course of the research and writing of the report. To the greatest extent possible changes up to December 31, 1995, have been incorporated. Persons implementing an ITS procurement should carefully review current and applicable rules, regulations and practices to ITS procurements to ensure that the most current information for a given jurisdiction is being utilized.

Section II

BACKGROUND

Section II

BACKGROUND

For the purposes of this report, "Innovative Contracting Practices" are defined as those activities associated with State and local procurement processes resulting in contracts which implement advanced technologies to improve the safety and operation of our Nation's surface transportation systems. Innovative contracting practices also encompass the objectives of obtaining quality technology products and services which meet operational requirements at a fair and reasonable price and which protect the public interest by maintaining the integrity of public contracting processes. In short, innovative contracting practices include "whatever it takes" to facilitate State and local government procurements of high technology systems or what is termed "Intelligent Transportation Systems" (ITS). This report will highlight the best practices of State and local agencies implementing ITS programs or facilities.

A Brief Primer On Federal Highway Funding

In order to address State and local contracting issues, an understanding of the Federal-aid highway program and funding process is appropriate because this is where the money trail begins (or at least one major segment of it). The first step, and the most crucial in financing the Federal-aid highway program, is authorizing legislation by the U.S. Congress. Authorizing legislation sets broad policy goals and spending caps for programs. The most recent authorizing legislation for the Federal-aid highway program is the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), referred to as ISTEA. (Pub. L. No. 102-240, 105 Stat. 1914.) The ISTEA is significant because of its policy emphasis on an interconnected transportation system encompassing all modes (e.g., rail, transit and highway) and its requirement that the U.S. DOT develop a "list and description of highways proposed to be designated as the National Highway System? Of course, the ISTEA is also important because it authorized a Federal research, development, operational testing, and planning program for Intelligent Transportation Systems." The ISTEA, like previous highway acts, also amended Title 23 of the United States Code (23 U.S.C.).[8/]

6/ Inter-modal Surface Transportation Effkiency Act of 1991, Pub. L. No. 102-240, 105 Stat. 1914, 1924 (codified at 23 U.S.C. § 103(b)(2)).

7/ Intelligent Vehicle-Highway Systems Act, Title VI, Part B of ISTEA, Pub. L. No. 102-240, 105 Stat. 2189 (as amended by the National Highway System Designation Act of 1995, Pub. L. 104-59, 109 Stat. 568).

8/ The United States Code contains Federal laws "codified" or arranged systematically. Title 23 is designated for "Highways" and includes most of the laws that govern the Federal-aid highway program.

Programs encompassed within Title 23 (or within authorizing language directly linked to Title 23) and funded by the Highway Trust Fund operate with "contract authority." [9] The term "contract authority" means that sums authorized in authorizing acts such as ISTEA are made available for obligation without the need for further Congressional appropriations action. [10] However, the amount set as a "limitation on obligations" in an appropriations act places an overall ceiling on the funds that the Federal Highway Administration can obligate for any given fiscal year. If there happens to be any unused limitation at the close of a fiscal year, it cannot be carried over into the next fiscal year."

Although obligations serve as Federal commitments to reimburse the States for the Federal share of a project's cost, actual cash reimbursements by the Treasury Department cannot be made until funds are appropriated by Congress. Annual appropriations acts provide the cash to liquidate the Federal commitment (i.e., previously made obligations). It should be noted that amounts that have been appropriated but not used during a particular year can be carried over for use in the next fiscal year. An annual appropriations act can also provide additional funding for transportation programs (notably, the ITS program) and can also direct the Secretary of Transportation to designate funds in a particular manner (e.g., for particular projects).

The Highway Trust Fund is the "cash" source to support the Federal-aid highway program. The Trust Fund was set up as a user-supported, pay-as-you-go fund. Simply, the revenues of the Trust Fund were intended for financing highways and transit, with the taxes dedicated to the Fund paid by the users of highways." There must be enough money in the Highway Trust Fund to make reimbursements to the States to cover the cost of obligated projects. The normal sequence of events for reimbursement is:

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[9] Most of the Federal-aid highway programs operate with contract authority. However, there are some programs that must obtain their budget authority through the Federal appropriations process. This group is what is termed "appropriated budget authority" meaning that an authorization act is required to create the program and an appropriations act is required to fund the program. There are very few highway programs funded in this manner. Examples of programs funded through "appropriated budget authority" are research programs sponsored by the National Highway Traffic Safety Administration and the Federal Railroad Administration. Federal Highway Administration, Financing Federal-Aid Highways (1992) (Publication No. FH WA-PL-92-O 16), p. 23.

[10] "Obligation is a key step in Federal-aid highway financing. An obligation is a commitment of the Federal Government to pay, through reimbursement to the States, the Federal share of a project's eligible cost. Obligated funds are considered spent, even though no cash is transferred. Incurring an obligation is similar to the use of a credit card. The holder of the card is obligated to reimburse the credit card company when a purchase is made." *Id.* at 17.

[11] *Id.* at 20.

[12] *Id.* at 28.

1. Work is done by a contractor,

2. Payments are made to the contractor by the State,

3. Vouchers are sent by the State to the Federal Highway Administration division office (one in each State) for review and approval,

4. The Federal Highway Administration certifying officer certifies the State transportation department's claim for payment,

5. Certified schedules are submitted to the Treasury Department, and

6. The Federal share of the project cost (generally, but not always, 80%) is transferred directly from the Treasury Department to the State's bank account by electronic funds transfer?

The Highway Trust Fund is maintained through Federal taxation of motor fuel (along with a number of other highway-related taxes). In 1993, Federal highway receipts accounted for $18.2 billion or 20.9% of all funds collected for surface transportation programs.[14/] These funds are used for Federal-aid highway projects on the Nation's National Highway System (NHS), a roadway network consisting of approximately 160 000 miles.[15/] The NHS includes those highways designated as part of the Interstate system, other principal arterials and highways (including toll facilities) as designated by the States and the Secretary of the U.S. DOT, and a strategic defense highway network.[16/] The NHS represents only about 4 percent of the Nation's total public road mileage but carries over 42 percent of the traffic.[17/] State and local governments collect

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13/ *Id.* at 19. (It should be noted that steps numbered 3-6 may occur on the same day).

14/ Federal Highway Administration, Our Nation's Highways - Selected Facts and Figures (1995) (remaining receipts include $45.3 billion collected directly by State governments or 51.8%, and $23.8 billion collected directly by local governments or 27.3%), p. 39.

15/ *Id.* at 25. It should be noted that Highway Trust Fund monies are not confined for use on the National Highway System. They are generally eligible for Federal-aid roads which comprise about 25% of the Nation's road mileage. Some funds, however, can be used "off) the Federal-aid road system (e.g., bridges and safety).

16/ 23 U.S.C. § 103(b)(2), as revised by the National Highway System Designation Act of 1995, Pub. L. No. 104-59, 109 Stat. 568.

17/ Federal Highway Administration, Our Nation's Highways - Selected Facts and Figures (1995), p. 24.

additional highway user fees to maintain other roads under their control.[18/] Title 23, U.S. Code, and implementing regulations contained in 23 C.F.R. set the requirements for the financial and program relationship between the Federal Government and the *States, only with reference to those funds collected in the Highway Trust Fund to construct, operate and maintain the Federal-aid roadway system (i.e., the National High way Sysfem) .*

ITS and State/Local Transportation Planning

The ISTEA also made significant changes in the U.S. DOT's requirements for State and local transportation planning. The statute promotes comprehensive intermodal transportation planning, and adds a requirement for State-wide transportation planning.'"

The planning process is to be carried out at the local level by "Metropolitan Planning Organizations" (MPOs), and at the State-wide level by State Departments of Transportation (DOTs). MPOs are responsible for development of fiscally and environmentally constrained metropolitan transportation plans; DOTs produce State-wide transportation plans which reflect all metropolitan area plans and also include plans for rural areas. With limited exceptions, to be eligible for U.S. DOT funding, all capital and non-capital transportation projects funded either under the Federal Transit Act (49 U.S.C. §§ 5301 ff.) or under 23 U.S.C. must be reflected in these plans.

Administrative Requirements Applicable to DOT Grantees

Consistent with generally applicable Federal law, the U.S. DOT's two significant ITS funding sources, FHWA and FTA, use grants and cooperative agreements to deliver funds to States and local governments. Under Federal law codified at 31 U.S.C. §§ 6301 et seq., Federal agencies are directed to use either a grant or a cooperative agreement when the purpose of the transaction is to transfer funds to a recipient to carry out a public purpose of financial support authorized by Federal law. Grant agreements are used when the Federal granting agency anticipates less Federal supervision and oversight of the recipient's project activities. Cooperative agreements

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18/ *Id.* at 16. It should be noted that the vast majority (74.9%) of the Nation's roadways are under the jurisdiction of local governments. State governments control and maintain 20.5% of the Nation's roadways including the entire National Highway System. The Federal Government controls only 4.6% of the Nation's roads including those in national forests, parks, other Federal lands, and Indian reservations.

19/ The Federal Highway Administration and the Federal Transit Administration jointly issued a coordinated rule implementing the ISTEA's planning requirements in October, 1993. The FHWA's regulations appear at 23 C.F.R. Part 450; the Federal Transit Administration's regulations appear at 49 C.F.R. Part 613. See Federal Transit Administration, "Intermodal Surface Transportation Efficiency Act - Flexible Funding Opportunities for Transit" (1993).

are used when the Federal granting agency anticipates substantial involvement in the recipient's project activities.[20/]

Establishment of "Common Rule"

To ease the burden on States of complying with Federal agencies' differing rules dealing with the award and management of grants and cooperative agreements, the President directed Executive Branch grant-making agencies in 1987 to issue a common grants management rule containing uniform Government-wide terms and conditions applicable to financial assistance agreements with States and local governments. This Executive Branch guidance was amplified in Office of Management and Budget (OMB) Circular A-l 02, "Grants and Cooperative Agreements with State and Local Governments," issued March 3, 1988. The U.S. DOT's implementation of this "Common Rule" is contained in 49 C.F.R. Part 18 which is included in the Appendix.

The Common Rule states that it applies to all U.S. DOT grants and cooperative agreements to States and local governments unless a specific statute directs otherwise, or unless an exemption has been granted.[21/] The Common Rule provides that with respect to procurements using grant funds, States are to expend and account for grant funds, like those in the Highway Trust Fund, according to their own laws and procedures.[22/] Therefore ITS technologies and services procured directly by a State may be obtained using its own procurement laws. The Common Rule goes on to provide that grantees other than States must employ financial management systems which meet the Rule's requirements in financial reporting, accounting records, internal controls, allocable costs, and other areas.[23/]

Application of the Common Rule as codified in 49 C.F.R. is complicated because there are certain provisions that do not apply to projects funded under Title 23. For example, 49 C.F.R. § 18.22(c) provides that overhead cost principles governing grants to State

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20/ DOT Order #4600.17, "Grant Management Requirements"' App. A ("Use of Contracts, Grants and Cooperative Agreements"), Sept. 5, 1995. Under the Federal statute, 31 U.S.C. § 6303, Federal agencies are to use procurement contracts when the purpose of the transaction is to obtain supplies or services for the direct benefit or use of the United States Government.

21/ 49 C.F.R. § 18.4(a). For example, there is a provision at 23 U.S.C. § 112(b) which requires the States to use competitive bidding requirements for highway construction contracts and to award these contracts to the lowest responsive bidder. The term "construction" is defmed elsewhere in Title 23 to include highway improvements "which directly facilitate and improve traffic flow, such as . . . traffic control systems...." 23 U.S.C. § 101(a). This statutory competitive bidding requirement, which overrides the Common Rule, may limit the use of more flexible procurement practices to accomplish ITS deployment. This issue is discussed in more detail in Section III of this report.

22/ 49 C.F.R. § 18.20(a).

23/ 49 C.F.R. § 18.20(b).

and local governments shall not apply to State highway agencies for FHWA funded grants. Where there is a conflict between the authorizing legislation for the highway program and 49 C.F.R. Part 18, the former prevails.[24/]

The Federal Role in ITS Research and Operational Testing

The ISTEA anticipates that the deployment of ITS infrastructure will primarily be accomplished by State and local governments, not the Federal Government. However, the statute does authorize the Federal Government to implement an ITS research, development, and operational testing program.[25/] The ISTEA further mandates that the Federal Government "promote implementation of ITS," but stops short of placing the responsibility for deployment at the Federal level.[26/] The research and operational testing programs mandated by the ISTEA are expected to result in "lessons learned,, which will assist the U.S. DOT in promoting ITS deployment. In the operational testing program, in particular, the U.S. DOT encourages the States to use innovative partnering arrangements as a means to implement ITS projects and technologies.[27/]

ITS research and operational testing activities undertaken by the U.S. DOT are also subject to the above referenced laws governing the use of grants and cooperative agreements. U.S. DOT funded research projects are generally procured through the use of Federal contracts, which are awarded and administered in accordance with the Federal Acquisition Regulation (FAR, 48 C.F.R.) and the U.S. DOT's supplemental regulations. Operational tests are generally funded through grant agreements between the U.S. DOT and a State or other recipient. The U.S. DOT uses contracts for its research program because these are considered activities undertaken to meet the Federal Government's needs. Grants and cooperative agreements are used for operational tests because these activities implement the ISTEA's public purpose of stimulating ITS deployment. A State is generally the signatory for these operational test grant agreements with the U.S. DOT. Like other projects funded under the Highway Trust Fund, the State is then responsible for the progress of the operational test, and uses its own procurement practices to contract with other participants to conduct the project, subject to Federal oversight. Lessons learned from these operational testing

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24/ 49 C.F.R. § 18.5.

25/ Intelligent Transportation Systems Act, Pub. L. No. 102-240, 105 Stat. 2189 (as amended by the National Highway System Designation Act of 1995, Pub. L. 104-59, 109 Stat. 568 (codified at 23 U.S.C. § 307 Note).

26/ *Id.* at § 6052(a).

27/ The FHWA's FY 1994 invitation to participate in operational tests began as follows: "The DOT seeks offers from the public and private sectors to form partnerships to conduct operational tests in support of the National Intelligent Transportation System (ITS) program." 59 F.R. 60035 (Nov. 21, 1994).

activities provide a useful source of data and experience in identifying and analyzing contracting issues impacting ITS deployment.

Federal Role in Deployment

Mainstream Deployment of ITS. As ITS moves out of the operational test phase and becomes integrated into existing FHWA and FTA programs implemented by State and local agencies, lack of procurement flexibility still exists in many State and local procurement agencies. This report compiles the best practices of those agencies which have been effective at streamlining their procurements.

Contracting Issues. The remainder of this report will present analysis and recommend innovative contracting practices to address contracting barriers associated with the following issues:

- Types of Contracts and Methods of Award
- Combined or Coordinated Procurements
- Financial Administration of Grants and Cooperative Agreements
  - Allowability of Costs
  - Cost Principles
  - Cost Accounting Standards
  - Audits
  - Implication of Cost Sharing or Matching Share Requirements
- Organizational Conflicts of Interests
- Intellectual Property
- Liability

Section III

ANALYSIS OF CONTRACTING ISSUES

Issue Overview

TYPES OF CONTRACTS & METHODS OF AWARD

- The Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, issued by the Office of Management and Budget (OMB) and codified within most Federal agencies' regulations, establish a "Common Rule" governing grants administration. The Common Rule provides that "States will expend and account for grant funds according to their own laws and procedures." This authority includes planning and management of procurement processes regarding contract type, method of award and pricing methodology.

- Procurement options available to States and local agencies may be limited by federal or State laws, the terms of a grant, or agency regulations or practices. There are very specific rules to be followed when a procurement is solely for architect/engineering services or for construction. Outside of these areas there is contracting flexibility and many procurement options available to obtain ITS goods and services.

- The most common institutional arrangements in the developmental, pre-deployment phase include "cost sharing", "partnering", "cooperative research and development agreements" and bundled contracts providing for system design, fabrication, installation, demonstration testing, and/or evaluation. Institutional arrangements in the operational deployment phase range from purely private approaches such as franchising to purely public models based on 100% taxpayer financing. The numerous and inconsistent labels attached to innovative procurement methodology can cause confusion.

- Each ITS procurement is unique and is most effective when focused on the transaction's desired end result. Formulating procurement strategies involves the evaluation of the impact of certain "discriminators" which may dictate or eliminate available procurement options. Discriminators include: source(s) of funds, extent of project definition, project phase, and scope of services.

- The following barrier related to Types of Contracts & Methods of Award issues has been identified as having the potential to constrain or hamper the implementation of ITS:

Issue Overview

Failure of traditional procurement approaches to be flexible and responsive to the unique deployment needs of ITS. The impact of this barrier is further compounded by the alck of contracting personnel experienced in the nuances of ITS procurements. (Page *III-A-30)*

Section A

TYPES OF CONTRACTS & METHODS OF AWARD

A-1. STATEMENT OF ISSUES

- **Types of Contracts.** Analyze and make recommendations for the most effective types of contracting instrument, including fixed-price, cost-reimbursement, design/build, BTO (Build-Transfer-Operate), BOT (Build-Operate-Transfer) for various phases of ITS deployment.

- **Methods of Award.** Analyze and make recommendations for the most effective methods of awarding ITS contracts for various phases of ITS deployment, including sole-source contracts, competitive bidding, low-bid requirements, negotiations, best-value procurements.

A-2. ANALYSIS

The type of contract instrument chosen for an ITS procurement, and the method of awarding that contract, are closely interrelated issues. In many circumstances, the type of contract to be awarded for an ITS project will dictate the method by which that contract will be awarded. Therefore, the research team has elected to discuss these issues together.

For purposes of analysis, a functional distinction may be drawn between two phases of ITS: (a) pre-deployment, in which case the public and private sectors work both independently, and together, for purposes of technology research and development, planning and design, systems architecture development, demonstration and operational testing;[28/] and (b) operational deployment.

In each phase, the type of contract that may be awarded can be described in terms of how the consideration or "profit incentive" is calculated (e.g., firm fixed-price, cost reimbursement or incentive contracts), and in terms of the nature of the goods and services to be provided (e.g., research, development, design, demonstration and evaluation, construction, supervision, operation, maintenance, or combinations thereof).

[28/] The Urban Institute with Miller, Paddock and Stone MTA/EMCI, *Overcoming Barriers to ZVHS -- Lessons From Other Technologies; Draft Task C Report; Models of Public and Private Participation in ATMS/ATIS*, prepared for the Federal Highway Administration under Contract DTFH 61-93-C00025, February 24, 1995, at p. 1.

The public and private sectors can work together in the pre-deployment and deployment of ITS in a myriad of ways. Pre-deployment activities undertaken to date suggest that the most common pre-deployment institutional arrangements include "cost sharing," "partnering," "cooperative research and development" and "design-build-operate" agreements?

In the deployment stage, institutional arrangements for ITS may range from purely public provision, where the public agency owns, designs, builds, operates and maintains the ITS, to purely private provision, where a private firm owns, designs, builds, operates and maintains the ITS, with an unlimited variety of arrangements in between these extremes.[30/] These institutional arrangements may be created with a variety of different types of contracts depending upon the particular circumstances of an ITS project? In most circumstances, the types of contracts available to the procuring agency are limited by applicable Federal, State and local procurement laws and regulations.

The methods by which the appropriate contract type may be awarded typically also are constrained by applicable Federal, State and local procurement laws and regulations. Underlying the methods available for awarding contracts is the public policy goal of

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[29/] "Cost sharing" may be used to refer to any one of several types of arrangements, such as cooperative agreements and memoranda of understanding, that set out cost sharing responsibilities for the public and private sector for pre-deployment activities.

"Partnering" is typically used in the pre-deployment stage to refer to a cooperative arrangement between the public and private sectors in furtherance of pre-deployment goals, but in the context of ITS typically does not refer to a true legal partnership between the public and private sectors.

"Cooperative research and development agreements" are modeled after agreements between national laboratories and private industry that provide incentives for private participation in research and development through the sharing of rights to intellectual property resulting from the research.

"Design-build-operate" contracts can be used for both pre-deployment and deployment activities. Responsibility for designing, building and sometimes in addition, operation and maintenance is given to a single organization, usually a private contractor.

The Urban Institute, supra, at note 1.

[30/] *See, The Urban Institute, supra,* at note 1, pp. 2-4, for a description of 26 possible institutional arrangements for ITS deployment.

[31/] It has been projected, however, that there may not be a significant need for public procurements in the deployment phase of Advanced Traffic Information Systems (ATIS), since the public involvement may become limited to regulatory control, rather than contracting for services, as a more mature consumer market develops. The need for public procurements for ITS deployment is likely to be more significant with respect to Advanced Traffic Management Systems (ATMS). See, Volpe National Transportation System Center, *IVHS Institutional Issues and Case Studies: Analysis and Lessons Learned,* Final Report, April 1994.

promoting "full and open competition" in the acquisition process.[32/] Highway construction contracts traditionally have been awarded by sealed bid, with the contract going to the lowest responsive and responsible bidder. The sealed bid method of award is most desirable in the context of the traditional fixed-price highway construction contract based on 100% design, where sealed bidding has proven effective in promoting competition. However, sealed bidding is less suited to the more innovative types of contracts required in the context of high-technology ITS procurements.

It is difficult to recommend particular "types" of contracts, at different phases of deployment, for different products, in the abstract. Many different models may be suitable for a particular project or set of project types. It may be more productive for the procuring transportation agency to focus on how individual issues should be handled in the contract to meet the needs of a particular situation, than to focus on fitting its procurement into a particular "contract type." To that end, it is desirable that transportation agencies procuring ITS possess flexibility to mold their contracts and procurement methods to the particular ITS project at hand.

A transportation agency contemplating which type of contract and procurement award methodology to utilize might easily be confused by the array of labels employed today to describe different contracting approaches, and consequently be led to believe that its previous procurement experience is irrelevant for ITS. Terminology, such as "public-private partnership," "turn-key," "franchise," "build-transfer-operate" and "privatization" mean different things to different people, and a common set of definitions and contract forms has yet to be developed. In the research team's view, it is possible to simplify the task of building and awarding a contract for a particular ITS deployment by focusing less on the labels and more on the actual allocation of the parties' rights and responsibilities in the project that the contracting parties want the contract to define. With this perspective in mind, the following discussion identifies and defines some of the most commonly used types of contracts and the functions which they serve.[33/]

A-3. DEFINITIONS

A-3.1 Types of Contracts

A-3.1(a) Types of Contracts Classified By Profit Incentive

32/ See, e.g., 48 C.F.R. § 6.003; 49 C.F.R. § 18.36(c).

33/ The research team has gathered and reviewed the contract documents listed in the Appendix as precedent, and has also developed a set of decision-making matrices designed to assist transportation agencies in deciding upon the type of contract and procurement method best suited to their particular ITS projects. The manner in which a transportation agency may use these matrices to assist it in approaching a particular ITS contracting problem is discussed later in Section A-5.

The Federal Acquisition Regulation ("FAR", codified in 48 C.F.R.) provides a detailed analysis of the types of contracts that are available to the Federal Government for use in acquiring the large variety and volume of supplies and services required by Federal agencies.[34/] One of the purposes of the FAR is to provide agencies with needed flexibility in contracting. Therefore, although the FAR does not govern State and local agency procurement activities, the FAR provides an excellent framework for identifying some of the many types of contracting vehicles that may be available to a State or local transportation agency for ITS procurements.

In general, the function of the contract types identified by the FAR is to vary the degree and timing of the contractor's responsibility for the costs of performance, and the profit incentive offered to the contractor for achieving specified standards or goals.[35/] The FAR groups contract types into two general categories: (a) fixed-price contracts, and (b) cost-reimbursement contracts. In selecting the contract type, the objective is to arrive at a contract document that will result in reasonable contractor risk and provide the contractor with the greatest incentive for efficient and economical performance.[36/]

(1) Fixed-Price Contracts. Fixed-price contracts may be either "firm" fixed-price contracts, or fixed-price contracts with an economic price adjustment. Highway construction is traditionally associated with fixed-price contracts, and thus "fixed-price" is the type of contract with which transportation agencies are probably most familiar.

- **Firm Fixed-Price Contracts.** This type of contract is used when risk is minimal or can be predicted with a good degree of certainty. In the context of ITS, procurement of a specific quantity of a specific type of equipment, such as transponders for electronic payment of tolls, is a good candidate for a firm fixed-price contract.[37/] Because ITS technology is evolving, in some circumstances sufficient certainty for a firm fixed-price contract may not exist at the outset of an acquisition program; changing circumstances over the life of a long-term contract however may make a different contract type appropriate in later periods than that used at the outset. For example, if a contractor is being asked to implement a new process in the beginning of an ITS

34/ FAR, 48 C.F.R. Part 16.

35/ FAR, 48 C.F.R. § 16.101(a).

36/ FAR, 48 C.F.R. § 16.103(a).

37/ The Washington State Department of Transportation's "Purchase and Maintenance Agreement" with Sentinel Communications Corporation ("SenCom") pursuant to which SenCom agreed to provide, install and maintain 200 SenCom 2-Way Pager Units for the PUSHME Mayday System is a good example of a straight-forward fixed-price contract for ITS goods and services.

project on a cost-reimbursement or time and materials basis, it may be appropriate to switch to a firm fixed-price contract in a later stage of the project once experience provides a basis for firmer pricing.

- **Fixed-Price Contracts With Economic Price Adjustment.** This type of contract is generally suited to situations in which there is doubt concerning the stability of market or labor conditions over an extended period of contract performance, and the contingencies that would otherwise be included in the contract price can be identified and covered separately in the contract. Price adjustments may be based on established prices for specific items, the actual cost of labor or materials, or cost indexes of labor or materials. The FAR provides that fixed-price contracts with economic price adjustments generally should not be used unless necessary to protect the contractor and/or the government from significant fluctuations in labor or material costs, or in the event of changes in the contractor's established prices. A contract to operate an ITS is one circumstance in which a fixed-price contract with economic price adjustment may be appropriate. For example, the long-term toll facilities **Operating Agreement for the Foothill, Eastern and San Joaquin Hills Transportation Corridors in Orange County, California,** provides the contractor with an economic price adjustment in its management fee every year, based on the change in the Consumer Price Index for Urban Wage Earners and Clerical Workers in the project's metropolitan area?'

- A "most favored customer" clause is a way of achieving an economic price adjustment to allow the procuring agency to benefit from declining costs in a long-term, fixed-price contract. For example, in the Irrevocable Offer for the **E-ZPass** Interagency Procurement of Electronic Toll Collection Equipment, the contractor agreed that: "We warrant and represent that for the duration of this Irrevocable Offer and all options exercised by the Agency, your Agency and the Participating Agencies shall maintain their relative price, discount and/or terms and conditions advantage versus that of any of our customer(s) price discount and/or terms and conditions." [39/] Therefore, if changing market conditions permit the contractor to sell its product at a lower price to

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[38/] Operating Agreement by and between Foothill/Eastern Transportation Corridor Agency, a Joint Powers Agency and San Joaquin Hills Transportation Corridor Agency, a Joint Powers Agency and Lockheed Information Management Services Company, a New York corporation and Lockheed Corporation, a Delaware corporation dated as of February 26, 1993, at page 11.

[39/] "Irrevocable Offer" for the E-ZPass Interagency Procurement of Electronic Toll Collection Equipment, Section 33.a.

others in the future, the offerees under the Irrevocable Offers will get the benefit of the same price adjustments.

- **Fixed-Price Contracts With Prospective Price Redetermination.** This type of contract provides a firm fixed-price for an initial period, and redetermination of the price at a stated time or times during performance for subsequent periods. The contract may provide for a ceiling price based on an evaluation of the uncertainties involved in performance of the contract. This is an appropriate contract type when it is possible to negotiate a fair and reasonable firm fixed-price for an initial period, but not for subsequent periods of contract performance.

- **Fixed-Ceiling-Price Contracts With Retroactive Price Redetermination.** The FAR suggests that this type of contract is appropriate for relatively small research and development contracts ($100,000 or less) when a fair and reasonable firm fixed-price cannot be negotiated at the outset, and a short performance period makes the use of any other fixed-price contract with economic price adjustment impracticable.[40/] The disadvantage of this contract type is that the contractor has no cost control incentive except for the ceiling price.

- **Firm Fixed-Price, Level of Effort Term Contracts.** This type of contract requires the contractor to provide a specified level of effort (e.g., engineering labor-hours) over a stated period of time to perform work that can be stated only in general terms. The contractor is paid a firm fixed-price. This contract type is appropriate for investigation or study in a specific research and development area where the work required cannot be clearly defined, and the contract price is relatively small (e.g., the FAR generally restricts this contract type to contracts of $100,000 or less).[41/] Payment is based on the effort expended rather than the results achieved.

(2) **Cost-Reimbursement Contracts.** Cost-reimbursement contracts are suitable when uncertainties involved in contract performance do not permit costs to be estimated with sufficient accuracy for a fixed-price contract. These types of contracts provide for payment of allowable incurred costs up to a ceiling that may not be exceeded without approval of the government contracting officer.

[40/] FAR, 48 C.F.R. § 16.206-2.

[41/] FAR, 48 C.F.R. § 16.207-3 (higher level approval required for contracts over $100,000).

- **Cost Contracts.** In this type of cost reimbursement contract, the contractor does not receive a fee. The FAR indicates that this type of contract is appropriate for research and development work with non-profit organizations.

- **Cost-Sharing Contracts.** In this case, the contractor receives no fee and is reimbursed only for an agreed-upon portion of its allowable costs. Typically this type of contract is used when the contractor is willing to absorb a portion of the costs, usually in the expectation of substantial compensating benefits. The **ADVANCE** and **TravTek** operational tests are examples of cost-sharing contracts.

- **Cost-Plus Fixed-Fee Contracts.** These contracts provide the contractor with a negotiated fee that is fixed at the inception of the contract, and reimbursement of allowable costs up to a stated ceiling. The drawback is that this type of contract provides the contractor only a minimal incentive to control costs. According to the FAR, this type of contract is suitable when the contract is for performance of research or preliminary exploration or study and the level of effort required is unknown, or the contract is for development and testing, and the cost-plus incentive fee contract (discussed below in paragraph (3)) is not practical. The FAR indicates that this type of contract should not be used in development of major systems once preliminary exploration, studies, and risk reduction have indicated a high probability that the development is achievable, and reasonably firm performance objectives and schedules have been established.[42/] The **Minnesota Guidestar** Program Open Solicitation included this type of contract as one of the options available to proposers.[43/] Another example is the

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[42/] FAR, 48 C.F.R. § 16.306(b)(2).

[43/] The Minnesota Guidestar Program Open Solicitation RPPP provided as follows:

"The basis of payment may be one of the following:

Cost Plus Fixed Fee - The cost will be actual salaries plus applicable overhead rates and appropriate direct costs. Payment will be based upon provisional overhead rates subject to final audit. A fixed fee will be negotiated.

Time and Materials - Hourly rates will be specified in the agreement. Payment will be based upon these hourly rates plus appropriate direct costs or may be made as a lump sum negotiated based upon estimated labor hours, estimated salaries, applicable provisional overhead rates, and estimated direct costs; or estimated labor hours, hourly rates, and estimated direct costs with agreement by the Department and the Partner.

The profit level incorporated in the costs will typically be based upon ten (10) percent of the direct salaries plus overhead. The value of contributions shall not include profit."

1995 Professional Services Consultant Agreement for the **PUSHME** Puget Sound Regional Mayday System Operational Test between the Washington State Department of Transportation and David Evans & Associates, Inc.

(3) **Incentive Contracts.** Incentive contracts are used when a firm fixed-price contract is not appropriate; by relating the amount of profit or fee payable under the contract to the contractor's performance, a lower price or improved delivery or technical performance may be achieved.

- **Fixed-Price Incentive Contracts.** This type of contract provides for adjusting profit and establishing the final contract price by applying a formula based on the relationship of the total final negotiated cost to the total target cost. The final price is subject to a price ceiling negotiated at the outset. This type of contact is appropriate when the contractor% assumption of a degree of cost responsibility will provide a positive profit incentive for effective cost-control and performance.

- **Cost-Reimbursement Incentive Contracts.** These contracts specify a target cost, a target fee, minimum and maximum fees and a fee adjustment formula. The fee may be adjusted up when total allowable costs are less than target costs, and down when total allowable costs exceed target costs. The increase or decrease is intended to incentivize the contractor effectively and economically. This type of contract is appropriate for development and test programs in order to motivate the contractor. A cost-reimbursement incentive may also be based on an award fee that is adjusted periodically based on the contractor's performance. [44/]

- **Award Fees.** The "award fee" concept, which is often used in defense contracting, builds in a monetary incentive for the contractor to perform certain tasks at highest-quality levels of performance. Theoretically, if the contractor knows that some of its compensation is "discretionary," then it will pay more attention to performance quality. It is considered preferable to pay the contractor extra for complying with contract requirements than to assess deductions for failure to comply with contract requirements. Department of Defense experience indicates that, for purposes of making its bid, the contractor will assume that it will receive almost all of the award fees, resulting in a lower contract price. Award fees are useful in creating commonality of goals between the procuring agency and the contractor.

44/ FAR, 48 C.F.R. § 16.404.

(4) **Definite Quantity Contracts.** This type of contract is used when it can be determined in advance that a definite quantity of supplies or services will be required during a contract period, supplies or services are readily available or will be available after a short lead time, but the exact timing and/or quantities of future deliveries is not known at the time of the contract award. This type of contract may be firm fixed-price, or fixed-price with economic price adjustment.

(5) **Requirements Contracts.** In a requirements contract, the government agency agrees to acquire all of its actual requirements for specific supplies or services during a specified contracting period from the contractor; and the contractor is obligated to supply all of the buyer's requirements. Usually, the contract will state a realistic estimated total quantity likely to be purchased over the term, but such statement is not a representation or guaranty that the same will be ordered. A requirements contract may state a maximum limit on the contractor's obligation to deliver. It is an appropriate contract type when the purchaser anticipates recurring requirements but cannot predetermine the precise quantity of supplies or services that it will need during a definite period.[45/] The Special Terms and Conditions for the Utah Department of Transportation's " Project ADVISE Adverse Visibility Information System Evaluation" also created a "requirements" contract. In that project, "[t]he State does not guarantee to purchase any amount under this contract. Estimated contract amounts are for bidding purposes only and are not to be construed as a guaranty to purchase any service."[46/]

(6) **Indefinite Quantity Contracts.** In this type of contract, the contractor is required to furnish an indefinite quantity, within stated limits, of specific items during a fixed period. The purchaser is required to order at least a stated minimum quantity, and the orders cannot exceed a stated maximum. This type of contract is appropriate when the purchaser cannot predetermine its needs above a specified minimum during the contract period, and it is inadvisable for the purchaser to commit itself for more than a certain minimum quantity.[47/]

(7) **Time and Materials Contracts.** This type of contract provides for acquiring supplies or services on the basis of direct labor hours at specified

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45/ FAR, 48 C.F.R. § 16.504.

46/ Request for Proposals for Project ADVISE, May 21, 1994, Utah Department of Transportation Research and Development Divisions Project Number HSR-30-0593-37R-003, Attachment B.

47/ FAR, 48 C.F.R. § 16.504(b).

fixed hourly rates that include wages, overhead, general and administrative expenses and profit, and materials at cost. This type of contract is appropriate when it is not possible at the time of placing the contract to estimate accurately the extent or duration of the work or to anticipate costs with **a** reasonable degree of certainty.[48/] This type of contract is available to **Minnesota Guidestar** participants in addition to the cost-plus fee contracts described above.[49/]

(8) Options Contracts, Options provide the option holder with a unilateral right, for a specified time, to purchase additional supplies or services, or to extend the term of a contract. Options recognize the purchaser's need in certain service contracts for continuity of operations.[50/] For example, the **"Operating Agreement" for the Foothill, Eastern and San Joaquin Hills Transportation Corridors** provides the Transportation Corridor Agency with several options to extend the Operation's performance. Use of option agreements may be affected by tax considerations since the Internal Revenue Code's private activity limitations for tax-exempt bond financing limit the permissible term of operating agreements for public facilities to five years (and the government owning the facility must have the right to terminate the contract without penalty at the end of any three-year period), as well as the duration of extension options."'

A-3.1(b) Types of Contracts Classified By Scope of Services

As discussed above, one way to group the contract types available to government agencies for acquisition of goods and services is by the contractor's responsibility for the costs of performance, and the nature of the contractor's profit incentive. For purposes of analyzing the most effective types of contracting instruments for ITS at various phases of ITS deployment, the types of contracts identified above also can be grouped on the basis of the types of goods and services the transportation agency is procuring. We have classified six general types of contracts based on the scope of services that may be appropriate for use in ITS procurements at various development and deployment stages. These categories correspond to the vertical columns of the matrices discussed below in Section A-6.

48/ FAR, 48 C.F.R. § 16.601(b).

49/ *See, supra* note 43.

50/ FAR, 48 U.S.C. § 17.202(d).

51/ Internal Revenue Code, 26 U.S.C. §141.

(1) Traditional Contracting. For purposes of this report, "traditional contracting" refers to a contract where the contractor is paid to perform a specific scope of services for one of the following individual items listed in a scope of work or scope of services clause: design, other professional services, construction, off-the-shelf supplies, custom equipment, or operations. In the traditional contract model, design services and professional services are not included in the same contract as the performance of construction work, the provision of supplies, or the performance of operations. Utilizing separate contracts minimizes the potential for organizational conflicts of interest. Traditional contracts may be evaluated and priced in a variety of ways. Many contract pricing arrangements are suited to traditional research and development and design contracts, including, but not limited to, fixed-price, fixed-price with retroactive price redeterminations, firm fixed-price, level-of-effort term contracts and cost reimbursement contracts. Time and materials and firm fixed-price level-of-effort term contracts are contract types often used for design and other professional services. For construction, a firm fixed-price contract is generally preferred. However, one can envision limited circumstances in which fixed-price incentive and cost-reimbursement incentive contracts would be appropriate for construction. Performance of operations may best be served by a fixed-price incentive or fixed price with economic price readjustment contract.

(2) Design/Build Contracts. This type of contract breaks with tradition and combines the design function with the construction or installation function under a single contract. In the ITS arena, this type of contract may also be referred to as a "turnkey" or "public turnkey" contract. In the context of high technology ITS projects, variants of these contracts may also be referred to as "Systems Integration" where one contractor is responsible for performing all integration activities resulting in an operational system, or "systems manager" contracts where one firm oversees the implementation of the system by others. The procurement is for the design and building or installation of the project based upon an initial design and performance specification prepared by the procuring agency. Design/build and design/equip contract forms are most successful when they are structured around a preliminary design completed between 20 and 60 percent. The price may be fixed, or there may be provisions for cost reimbursement up to a fixed ceiling. Accordingly, several of the contract pricing arrangements identified above are suitable for design/build contracts, with the choice among the various types depending upon the specific facts and circumstances of the procurement. The Federal Government has recently authorized two design/build ITS projects under **Special Experimental Project No. 14, Innovative Contracting Practices: The North Carolina Congestion**

Avoidance and Reduction for Automobiles and Travelers (CARAT) project in Charlotte, North Carolina, and the **Michigan ADVANCED Traffic Management and Travelers Information System** project in metropolitan Detroit and Wayne, Oakland and Macomb counties. At least 19 States have legislation authorizing design/build contracts.[52/]

It has become typical for design/build contracts to incorporate "value engineering" concepts in which the price may be adjusted downward based upon cost-saving innovations that the contractor develops during the course of performance. As an incentive for these innovations, the contractor may be entitled to a share of any cost savings resulting from the value engineering solutions.[53/]

(3) Design/Build/Operate Contracts. This type of contract differs from the design/build contract discussed above in that it also requires the contractor to operate and maintain the ITS for **a** specified time period. Design/build/operate contracts are sometimes referred to as "build-operate-transfer" contracts. In any event, the public agency may develop an initial design and performance specification for a system, and then contract with a single organization to complete the design of the system and then build, operate and maintain it. For complex high technology procurements like some ITS projects, the public agency may develop only performance specifications and leave responsibility for most, if not all of the design, with the contractor. Generally, the contractor will have considerable latitude in its approach to implementation of the various phases of deployment. Because of the latitude given the developer, cost reimbursement contracts are generally less desirable than fixed-price contracts?

(4) Build/Transfer/Operate-Franchise. In the context of a government procurement, a franchise is the granting of a special privilege to a private party, which is denied as a common right to all citizens, to make use of public property such as highway right-of-way, public street, public park and the like. As discussed in the matrix at the end of Section A, the build/transfer/operate-franchise type of contract creates an incentive for the contractor to perform, but does not require performance. The private contractor assumes the role of

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52/ *See footnotes* 3 17, Section E, discussing "Organizational Conflicts of Interest," *infra.*

53/ See FAR, 48 C.F.R. Part 48, "Value Engineering."

54/ An example is the set of contracts among the Orange County Transportation Corridor Agencies and Lockheed Martin Information Management Systems Company for equipping and operating the Toll Collection and Revenue Management Systems for the Foothill, Eastern and San Joaquin Hills Transportation Corridors in Orange County, California.

project sponsor and, if the private contractor does build the franchised project, the contractor will transfer ownership of the project to the government, but will be entitled to operate the project and retain revenues from such operation up to the contracted-for maximum rate of return on the contractor's investment. Franchises may be exclusive or non-exclusive. Examples of the build/transfer/operate-franchise approach include the private toll lanes built in the median of the **91 Freeway** in Orange County, California, built and operated by California Private Transportation Company, and the contracts negotiated pursuant to the **Washington State Public/Private Partners Initiative.** In these arrangements, the contracting community was asked to submit ideas for projects. The State DOTs then selected projects to be awarded franchise rights. After selection, the winning contractors perform necessary preliminary studies with regard to their proposed projects. In some cases there may be a second State approval process based upon these studies. If the contractor elects to proceed, it may design and build the project. Title to the project will be transferred to the State DOT upon completion. The contractor will operate the projects under a franchise agreement for a period of years until the revenues received from operating the project are sufficient to return to the project developers their investment, plus an agreed upon rate of return on their investment. Essentially then, these contracts are complicated variants of a cost-plus-incentive contract type since the contractor is allowed to keep revenues to reimburse its costs, plus a rate of return that operates as an incentive to efficiently price tolls or other user fees for the project.[55/]

(5) Grants and Cooperative Agreements, The terms "grants" and "cooperative agreements" are usually used to refer to agreements used by **the United States Government to assist recipients in carrying out a public** purpose. Grants are used when the Federal Government is transferring a thing of value to a grantee for the purpose of carrying out the public purpose contemplated in the grant agreement. Cooperative agreements are used when the Federal Government's involvement in performance is expected to be more substantial than in the context of a grant.[56/] A cooperative agreement may be based on cost sharing, with each party agreeing to share a specific percentage of the costs, or to fund its own obligations. Cost sharing can be in the form of direct or indirect payment, in money or in kind. The division of responsibilities may be assigned according to the functions or

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55/ Build/Own/Operate/Transfer is a variant of this type of contract. The contractor retains title to the project during the period of time that it operates the project, and transfers title to the government after it has received its investment.

56/ 31 U.S.C. § 6304-5.

roles of the parties, or according to the traditional responsibilities connected with the ownership of property and equipment.[57/]

The terms "grants" and "cooperative agreements" or "cooperative programs" may also be used in different contexts than Federal-aid projects. For example, the **Minnesota Guidestar** RFPP defined a "cooperative program" as a relationship between **Minnesota Guidestar** and one or more partners to achieve specific program or user service goals and objectives. In the **Minnesota Guidestar** program, the term "Cooperative Program" was intended to refer to deployment, not operational testing. According to the RFPP, a "Cooperative Program" would: Satisfy a public need and generate revenues for the private sector, and possibly the public sector, participant; provide added value and enhance the current transportation system or methods for providing services; and not involve any exchange of money between contracting parties.[58/] In the **"Minnesota Guidestar"** program, a "Public-Private Cost-Sharing Partnership" was identified as appropriate for both development and deployment of ITS technologies. The purpose of the public/private cost-sharing partnership was stated as being to provide a responder an opportunity for **Minnesota Guidestar** to assist in "pushing" its ITS product to market. The successful proposer would fund 80 percent of project costs and **Minnesota Guidestar** would fund 20 percent. The **Minnesota Guidestar** Federal Operational Test was also a cost-sharing arrangement. However, the private participants' minimum share of the cost share was the Federally-required 20 percent match.

(6) **Irrevocable Offers and Requirements Contracts..** This group is as described above in the section describing contract types classified by profit incentive.

A-3.2 Methods of Award

As stated in the FAR and the Common Rule, the public policy underlying the methods that may be used to award contracts is the promotion of "full and open competition" in the acquisition process.[59/] The methods of award that may be available to a transportation agency to ensure full and open competition include the following:

57/ The Urban Institute, *supra,* at note 1, at p. 3.

58/ Minnesota Guidestar Program Open Solicitation, p. 4.

59/ FAR, 48 C.F.R. § 6.003; FAR, 49 C.F.R. § 18.36.

A-3.2(a) Sealed Bids

Sealed (or "competitive") bidding is the method preferred by the Federal Government and the procurement codes of most States for civil construction and off-the-shelf supply contracts. Sealed bidding requires that contracts be awarded only on a lowest cost, responsive and responsible bidder basis: i.e., the owner is required to award the contract to the responsible, lowest price bidder whose bid meets the minimum standards. The rationale is that this approach maximizes the number of private firms competing against each other solely on the basis of price, and results in the "best buy" for the procuring agency.

Because of its objectivity, the sealed bid method of award is easy to defend in a protest. Sealed bidding is appropriate when a complete, adequate and realistic specification or purchase description is available, there are two or more responsible bidders willing to compete, the procurement lends itself to a firm fixed-price contract, and the selection can be made on the basis of price? Sealed bidding requires prescriptive specifications so as to ensure that the low bidder will not be able to sacrifice the quality of the product to cut costs.

The disadvantages of sealed bidding in the context of ITS are: (a) prescriptive specifications may either be unavailable for the emerging technology, or too difficult or time consuming for the public agency to prepare, (b) it discourages (or precludes) innovation in design and construction or installation methods, (c) it does not allow the owner to consider any factors other than price in selecting the contractor (except at a fairly low responsibility prequalification level), (d) the contractor is likely to feel it left too much money on the table and may try to cut costs during design and construction, adversely affecting quality, and, (e) it does not permit a meaningful dialogue between the owner and individual bidders to work out the most appropriate solution to the transportation agency's needs.

Competitive sealed bids with high "responsibility" standards are a variant of the traditional low-bid process, in which the procuring agency may gain a certain level of assurance regarding the contractor's qualifications by setting high threshold standards for technical, management and financial capabilities. Like standard sealed bidding, this approach is easy to defend in a protest, and it permits culling out contractors whose past performance indicates they are likely to produce inferior work.

Prequalification procedures are an excellent tool for overcoming some of the disadvantages of the sealed bidding process. However, for transportation agencies procuring ITS, developing ITS prequalification standards will require departure from the approach used for traditional highway construction, where the focus is on contractor

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[60]/ FAR, 49 C.F.R. § 18.36(d).

"capacity" based on physical assets. With a strong prequalification process, the public agency can assure that the contractor has acceptable experience, and adequate resources, to accomplish tasks relevant to the ITS project, such as developing and executing subsystem and system tests, documenting processes and detailed system designs, training personnel in use of the system, marketing the product, and dealing with customers.

Prequalification procedures can be used to assure quality corporate processes, such as IS0 9000 certification or Software Engineering Institute certification. The public agency may require: (a) that resumes of key personnel be included in the prequalification package, (b) that an oral presentation be made, and/or (c) that references be provided.[61/]

A variation of competitive sealed bidding is "Lifecycle Contracting." Lifecycle contracting is a competitive procurement inviting the selection of the bid that has the lowest lifecycle cost or that gives considerable weight to lifecycle costs in the award of a contract.

A-3.2(b) Two-Step Sealed Bids

Two-step sealed bidding is **a** combination of competitive practices designed to obtain the benefits of sealed bidding when adequate specifications are not available. In step one, there is a request for submission, evaluation and discussion of a technical proposal, which does not include any discussion of pricing. Step two involves the submission of fixed priced bids by those who submitted acceptable technical proposals in step one.[62/] The objective is for the government to be able to make subsequent acquisitions by conventional sealed bidding. An excellent example of how such a process may work, and how the procuring agency may establish and advise bidders of scoring criteria, is provided by the **Michigan Department of Transportation Bureau** of **Highways "Special Provision for Bidding Instructions"** dated 12-12-94 for the design and installation of 148 miles of ITS, ATMS and ATIS components in Wayne, Oakland and Macomb counties, Project CM84909.

A-3.2(c) Competitive Proposals

Requests for Proposals ("RFP's") or Requests for Quotations ("'RFQ's") are used when contract awards are based on price and other factors. RFPs and RFQs may be used in both pre-deployment and deployment stages, with any number of contract types. For example, **Minnesota Guidestar** used an RFP for its cooperative program.

61/ Pearce, Vincent P., *Making the Procurement Process Work For You in ITS*, paper presented to ITS America 1995 Annual Conference, March 15-17, 1995, Washington, D.C.

62/ FAR, 48 C.F.R. § 14.501.

The more design work and other professional services an agency elects to "bundle" into a single contract also containing standard construction and equipment supply, the more procurement professionals favor either an RFP/RFQ or "pre-qualification" approach over a sealed bidding approach. Where the elements are particularly complicated, the public agency may hold one or more pre-proposal conferences to brief prospective offerors after a solicitation has been issued, but before offers are submitted.[63/] Competitive proposals are normally conducted with more than one source submitting an offer, and either a fixed-price or cost reimbursement type contract being awarded. Competitive proposals are generally used when conditions for sealed bidding are not present,[64/] and allow the owner to consider other factors in addition to price in deciding which offer to accept. Although competitive proposal processes allow for some subjectivity in evaluating the proposals, the process is still capable of review by the courts based on objective standards and (assuming the owner followed its own evaluation requirements) is therefore likely to withstand a protest.

As with sealed bids, the disadvantage of competitive proposals is the inability of the owner to have a meaningful dialog with individual proposers. This means the owner must set a mandatory technical level without knowing what types of ideas the proposers will have, making it difficult to establish appropriate specifications. If the performance specifications allow too much flexibility, the contractor may have a contractual right to implement an innovative idea that is not acceptable to the owner. On the other hand, too detailed a specification will discourage ingenuity on the part of the proposers, since they will not be given an opportunity to describe their ideas in advance to learn whether the owner will consider them to be responsive. This approach also faces potential political and public relations issues if the contact is awarded to someone other than the proposer with the lowest price, particularly when the proposer with the low price has strong political connections, or where the "most advantageous" (but more costly) proposal is provided by a non-U.S. firm. A good example of a "price and other factors" RFP is the Utah Department of Transportation's RFP for a fully integrated, installed, functional adverse visibility warning and control system for **"Project ADVISE."**[65/]

A variation on the competitive proposals approach is an award based on price after discussions and submission of a "best and final offer" ("BAFO"). The procurement process for this approach would be as follows: After receipt of the initial proposals, the owner would discuss with each proposer any deficiencies in its initial proposal, enabling the owner to give all proposers information to enable them to achieve the mandatory technical level. The owner would also have the opportunity to revise the contract

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63/ *See, e.g.,* FAR, 48 C.F.R. § 15.409.

64/ *Id.*

65/ Utah Department of Transportation "Request for Proposals for Project ADVISE" dated May 24, 1994, Project Number HSR-30-0593-37R-003, pgs. 5-6.

documents to deal with problems that become apparent based on a review of the initial proposals. The owner then requests BAFO's and awards the contract to the lowest responsible proposer. The advantage of this approach is that it offers the owner a certain amount of flexibility to discuss with offerors any problems that arise during the course of the procurement process. Since award is based on price, it is easy to defend against protests. l-lowever, it does not give the owner the right to award the contract to a higher-cost proposer offering a significantly better product.

A third variant on this approach is award based on price and other factors after discussions and BAFO. This approach is like the one above, except it allows award to be made to the proposer with the overall most advantageous proposal. This is the method of award advocated for use by Federal agencies under the new design-build procedures in the Federal Acquisition Reform Act of 1996 (Pub.L. 104-106, Division D), and is also the approach being used by **New Jersey Transit** for its design-build **Hudson-Bergon Light Rail Transit** procurement. This approach has the advantage that it allows both the contractors and the owner a great deal of flexibility; it allows the contractor to propose innovative ideas based on performance specifications and it gives both parties the opportunity to have a dialog (allowing the owner to communicate to the proposers any problems raised by the proposals), and would allow the owner to award a contract to a proposer offering a significantly better product for a higher price.

A-3.2(d) Competitive Negotiations

In competitive negotiations, the procuring agency conducts an RFQ/RFP procurement, and then chooses one or more of the proposers to negotiate an agreement. This is distinguishable from award based on price and other factors after discussions and BAFO in that the procuring agency may negotiate different contract terms with the selected contractor than those bid on by all of the offerors. The U.S. DOT's manual on contracting for vehicle maintenance services recommends competitive negotiations where any of the following criteria are satisfied: (a) there is significant variation in the method that may be used to deliver a specific service; (b) there are attributes other than price that should be included as criteria for accepting a contractor; (c) there is a need for bidders to have the opportunity to revise their work plans after initial evaluation of proposals (including the price of services); (d) the award should be based on comparative evaluations; and, (e) an RFP would result in a more beneficial contract for the agency.[66/]

[66/] T.H. Maze, et al., *Manual on Contracting for Vehicle Maintenance Services, FTA Contract No. IA 1 l-008-921.*

A-3.2(e) Sole Source Contracting

Sole source contracting is permitted only in limited circumstances. This method involves selection of a contractor for negotiations based on its reputation or prior relationship with the owner, without first going through a competitive selection process. Generally, sole sourcing should be used only when supplies or services required are available from only one responsible source, and no other source of supplies or services will satisfy the procuring agency's requirements. The FAR provides that supplies or services may be considered to be available from only one source if that source has submitted an unsolicited research proposal that demonstrates a unique and innovative concept, or demonstrates a unique capability to provide particular research services, offers a concept or services not otherwise available to the government, and does not resemble the substance of a pending competitive acquisition.[67/]

A-3.2(f) Unsolicited Proposals

Unsolicited proposals are a means for government agencies to obtain innovative or unique methods or approaches to accomplishing agency goals. Contracts based on unsolicited proposals may be awarded only where they do not resemble any pending competitive acquisition requirement, and the facts and circumstances preclude competition. The Illinois Department of Transportation's **ADVANCE** project with Motorola is an example of a public/private partnership that evolved from an unsolicited proposal. The Illinois Universities Transportation Research consortium and Motorola approached the Illinois Department of Transportation with the idea for the project. The procurement was structured as a non-competitive bid for consultant services in order to fall within a "sole source" exemption to the Illinois Purchasing Act, and the parties obtained an FHWA grant under a cooperative agreement. In later phases of the project, the **ADVANCE** parties will face an issue regarding procurement methodology that will likely be faced by many transportation agencies as ITS projects move from pre-deployment to deployment activities; that is, technologies that are unique and therefore qualify for sole-sourcing at the inception of a project may not be so unique in the later, more lucrative deployment phase. Will State law permit the deployment contracts to be sole-sourced with the transportation agency's original pre-deployment "partner"?

A-4. RELEVANT LAW GOVERNING TYPES OF CONTRACTS AND METHODS OF AWARD

ITS deployment will occur most often at the State and local levels, but with the mainstreaming of ITS in the National Highway System Act of 1996, it may be anticipated that both pre-deployment and deployment activities for ITS often will have a Federal-aid funding component. Therefore, examination of both Federal and State laws

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67/ FAR, 48 C.F.R. § 6.302-l.

impacting type of contract and method of award is required in structuring an ITS procurement.

A-4.1 Federal Law Considerations

(1) Overview, As stated earlier, the U.S. DOT's regulations implementing the Common Rule apply to all grants and subgrants to State and local governments, except where such rules are inconsistent with statutes or regulations published in the Federal Register.[68/]

Pursuant to the Common Rule, when a State receiving Federal-aid seeks to acquire property or services under a grant, the State is required to follow the same policies and procedures it uses for procurements with its non-Federal funds, but the State must ensure that every purchase order or other contract includes any clauses required by Federal statutes, executive orders and their supplementary regulations.

With respect to grant recipients other than a State, such as local transportation authorities and metropolitan planning organizations, the Common Rule requires such grantees and subgrantees to follow applicable State and local laws and regulations, provided the procurement conforms to applicable Federal law and the standards identified in § 18.36 of the Common Rule? With regard to the type of contract and method of award, Section 18.36 provides in pertinent part that:

> **(b) (8)** Grantees and subgrantees will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical reasons.
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> **(9)** Grantees and subgrantees will maintain records sufficient to detail the significant history of a procurement. These records will include, but are not necessarily limited to the following: Rationale for the method of procurement, selection of contract type, contractor selection or rejection on the basis for the contract price.
>
> **(10)** Grantees and subgrantees will use time and materials type contracts only (i) after the determination that no other contract is

[68/] 49 C.F.R. Part 18, § 18.4.

[69/] 49 C.F.R. § 18.36(b).

suitable, and (ii) if the contract includes a ceiling price that the contractor exceeds at its own risk.

(12) Grantees and subgrantees will have protest procedures to handle unresolved disputes relating to the procurement.

(c) Competition (i) All procurement transactions will be conducted in a manner providing full and open competition consistent with the standards in § 18.36. [70]

49 C.F.R. § 18.36(c)(3) prohibits grantees and subgrantees from using statutorily or administratively imposed in-state or local geographic preferences in the evaluation of bids or proposals, except in cases where applicable Federal statutes expressly mandate or encourage geographical preference. However, State licensing laws are not preempted. Grantees are required to have written selection procedures for procurement transactions in order to ensure that all solicitations incorporate a clear and accurate description of the technical requirements for the product or service to be procured, which requirements do not unduly restrict competition.[71]

Pursuant to the Common Rule, 49 C.F.R. § 18.36(d)(2), "[t]he **sealed bid** method is the preferred method for procuring construction, if the conditions of § 18.36(d)(2)(i) apply." (Emphasis added.) Section 18.36(d)(2)(i) provides that in order for sealed bidding to be feasible, the following conditions should be present: "(A) a complete, adequate and realistic specification or purchase description is available; (B) two (2) or more responsible bidders are willing and able to compete effectively for the business; and (C) the procurement lends itself to a firm fixed-price contract and the selection of the successful bidder can be made principally on the basis of price."[72]

[70] § 18.36(c) identifies the following situations as "restrictive" of competition: (i) placing unreasonable requirements on firms in order for them to qualify to do business, (ii) requiring unnecessary experience and excessive bonding, (iii) non-competitive pricing practices between firms or between affiliated companies, (iv) non-competitive awards to consultants that are on retainer contracts, (v) organizational conflicts of interest, (vi) specifying only a "brand name" product instead of allowing "an equal" product to be offered in describing the performance of other relevant requirements of the procurement, and (vii) any arbitrary acts in the procurement process. 49 C.F.R. § 18.36 (c).

[71] *49* C.F.R. § 18.36(c)(3).

[72] 49 C.F.R. § 18.36(d)(2)(i).

Procurement by competitive proposals is provided for in the Common Rule, 49 C.F.R. § 18.36(d)(3). That section provides that the technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed-price or a cost-reimbursement type contract being awarded. The method is to be used when conditions are not appropriate for the use of sealed bids. If competitive proposals are used, the following requirements apply: (i) a request for proposals must be publicized which identifies all evaluation factors and their relative importance; (ii) proposals must be solicited from an adequate number of qualified sources; (iii) grantees and subgrantees must have a method for conducting technical evaluations and selecting awardees; (iv) awards are to be made to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and (v) grantees and subgrantees may use competitive proposal procedures for qualification-based procurement of architectural/engineering (A/E) professional services, subject to negotiation of fair and reasonable compensation. "The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort."[73/]

Non-competitive proposals may be used only when the award of a contract is not feasible under small purchase procedures, sealed bids or competitive proposals and one of the following circumstances applies: "(A) the item is available only from a single source; (B) the public exigency or emergency for the procurement will not permit a delay resulting from competitive solicitation; (C) the awarding agency authorizes non-competitive proposals; or (D) after solicitation of a number of sources, competition is determined inadequate." [74/]

Pursuant to 49 C.F.R. § 18.36(e), the grantee and subgrantee are required to take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.[75/]

(2) <u>Title 23 U.S.C. Requirements Applicable to FHWA Grantees.</u> Although the Common Rule provides that State grantees are to use their own procurement procedures reflecting applicable State and local laws, all FHWA Federal-aid grantees are required to comply with the requirements of 23 U.S.C. and 23 C.F.R. concerning the administration of the Federal-aid highway program. 23 U.S.C. § 112(a) directs the U.S. DOT Secretary to

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[73/] *49* C.F.R. § 18.36(d)(3)(v).

[74/] *49* C.F.R. § 18.36(d)(4).

[75/] *See App.* at "Financial Administration"

require recipients of highway construction grants to use bidding methods that are "effective in securing competition." Construction of projects is required to be performed by contractors awarded their contracts by competitive bidding, unless the State highway department demonstrates to the satisfaction of the DOT Secretary that some other method is more cost-effective or that an emergency exists? Pursuant to 23 U.S.C. § 101, "construction" is defined in pertinent part to include traffic control systems, and "improvements which directly facilitate and control traffic flow, such as . . . traffic control systems . . . [and] capital improvements which directly facilitate an effective vehicle weight enforcement program . . . ."[77] Title 23 also defines "highway," in pertinent part, to include signs used in connection with highways. Pursuant to the regulations at 23 C.F.R. § 635.104(a) "Actual construction work shall be performed by contract awarded by competitive bidding; unless as provided in § 635.104(b), the State demonstrates to the satisfaction of the Division Administrator that some other method is more cost-effective or that an emergency exists."

Approval by the Division Administrator for construction by a method other than competitive bidding shall be requested by the State in accordance with subpart b of 23 C.F.R. part 635.[78] Additionally, 23 C.F.R. § 635.114(a) provides that Federal-aid contracts shall be awarded only on the basis of the lowest responsive bid submitted by a bidder meeting the criteria of responsibility as may have been established by the State Highway Administration.

Because the term "construction" as used in 23 U.S.C. § 101 includes "traffic control systems," and the definition of highways includes "signs," Title 23 may mandate competitive bidding of fixed-price contracts for the construction of ITS, to the exclusion of competitive negotiations or competitive proposals which are permitted by at least 39 States.[79] Additionally, other ITS systems requiring capital improvements, such as weigh-in-motion systems and automatic toll collection facilities, may also fall under Title 23's competitive bidding requirement where actual construction is performed.[80]

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[76] 23 U.S.C. § 112(b)(l).

[77] *23* U.S.C. § 101.

[78] 23 C.F.R. § 635.104(b)(b).

[79] See, *e.g.,* Williams, Bradley P. & Schott, Stephen C., *ITS Procurement: Analysis and Recommendations,* page 9.

[80] *Id.*

State and local agencies trying to determine whefher or not the competitive bidding requirements of 23 U.S.C. and 23 C.F.R. apply to their Federal-aid ITS projects are provided little guidance by the statues and regulations, since the relevant provisions do not clearly distinguish between construction and non-construction activities. In a report entitled "ITS Procurement: Analysis and Recommendations," prepared for the Virginia Transportation Council, the authors indicated that in an interview with a FHWA Region Ill representative, they were advised that the FHWA will place emphasis on whether installation takes place in determining whether or not an ITS project constitutes "construction."[81/]

Pursuant to 23 U.S.C. § 112(b)(2), contracts for engineering, architectural and other study and design services must be awarded in the same manner as a contract for architectural and engineering services negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 (popularly called the "Brooks Act"), or an equivalent State qualifications-based requirement.[82/] Thus, by requiring "construction" contracts to be awarded on a competitive-bid basis, and engineering and design services to be awarded in the same manner as a contract for architectural and engineering services negotiated under the Brooks Act, Title 23 arguably has the effect of requiring design and installation services for an ITS project to be awarded in separate contracts, and to two different contractors.[84/]

(3) <u>Suggested Solutions to Title 23 Considerations.</u>

- **Establish an Exemption Procedure.** As noted above, 23 U.S.C. § 112(b) anticipates that a State highway department may demonstrate to the U.S. DOT Secretary that some other method is more cost-effective than competitive bidding for a "construction" procurement. Thus, even under the existing statutory framework, it is conceivable that State highway agencies may apply to the U.S. DOT Secretary for an exemption from the competitive bidding requirements for Federal-aid highway ITS projects. But, there is no procedure set

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81/ *Id.* at note 5.

82/ 23 U.S.C. and 23 C.F.R. impose a laundry list of contract requirements on a state highway agency entering into a construction contract for a Federal-aid highway with any component of Federal funds. Certain additional requirements are imposed by Federal law on all contracts for work on national highways. These requirements are briefly summarized in Appendix #4 to this report.

83/ 23 U.S.C. § 112(b)(2).

84/ Because of rules and policies against Organizational Conflicts of Interest, recipients of a contract may not be awarded the construction contract. See the discussion under Section E, ***infra.***

forth in the law or regulations. FHWA could assist State and local agencies by establishing an expeditious procedure, as well as publishing guidelines describing appropriate circumstances for the issuance of exemptions. This action should provide some relief, but the need to obtain an exemption is cumbersome, and would still foster an environment of uncertainty.

- **Amend statutory definition of "construction" related to ITS.** It would be desirable for the Federal regulations to be revised so that ITS projects may automatically be exempted from the competitive-bidding requirements to the extent that they do not exceed some threshold percentage of construction work. The definition of "construction" in 23 U.S.C. § 101 might be revised by adding the following sentence at the end of the definition of "construction": "Notwithstanding the foregoing, any procurement for ITS goods and services shall not be deemed to be "construction" unless at least [FHWA to provide appropriate number on a case-by-case basis] _____ percent (___%) of the total cost of the contract is for construction costs associated with installation of the ITS." This change would, however, require a statutory amendment, which is a more difficult process than that required for the regulatory change suggested above.

- **Create presumption regarding the desirable procurement method for ITS.** Another option would be to revise 23 U.S.C. § 112(b)(l) to insert the following sentence at the end of the first complete sentence: "In the case of a procurement for ITS goods and services, it shall be conclusively deemed to be more cost-effective to conduct such procurement by a method that takes into account price and other factors."

A corresponding revision would need to be made to 23 C.F.R. § 635.114. Also, both the statute and the regulations would need to include a definition of ITS. To prevent abuse of discretion, regulations should be established requiring the procuring agency to document its reasons for selecting a particular type of contract and method of award. Of course, these changes would also require statutory amendments and therefore would be more difficult to achieve than regulatory changes.

A-4.2 State Law Considerations

Literally thousands of State and local public agencies may be called upon to contract for ITS. Each such agency's legal authority is likely to be unique in some respect from

all the others, and review of all such authority is beyond the scope of this report. However, there are several common threads to the legal authority of public agencies likely to procure ITS. The following discussion addresses these commonalties, and the related impact on ITS deployment.

A-4.2(a) State Law Considerations Regarding Method of Award

As previously noted, over the last several decades, many State legislatures have sought to stamp out graft and corruption in public procurement processes by mandating that all construction work and purchases of off-the-shelf supplies be procured only by fixed-price contracts awarded by a sealed competitive low bid process. Utilizing this type of contract and method of award combination makes sense when construction work or standard commercial equipment comprises substantially the entire scope of work, but it is problematic when, as will increasingly be the case for ITS, innovative forms of contracts like design/build, turnkey and design/build/operate are preferable. In many States, competitive negotiations may be used if the procuring agency determines that competitive bidding is not practicable or fiscally advantageous, so long as the project does not involve any Federal funds. The transportation departments of at least 39 States have the ability to competitively negotiate procurements in the absence of Federal funding.'"

The procurement statutes for the **New Jersey Turnpike Authority (NJTA), the New Jersey Highway Authority (NJHA) and the New Jersey Expressway Authority (NJEA)** provide good examples of how State laws can be written to distinguish between contracts that must be competitively bid, and contracts for which the procuring agency has more discretion. The laws applicable to the **NJTA,** the **NJHA** and the **NJEA** were explained by the New Jersey Attorney General's office in a letter dated September 27, 1991, addressed to Christine Johnson, then Assistant Commissioner for Policy and Planning at the New Jersey Department of Transportation, discussing those authorities' ability to participate in the **E-ZPass** procurement. As explained by the Attorney General, generally each of the authorities is required to advertise and competitively bid contracts over a specified dollar amount, with the contract being awarded to the lowest responsible bidder.[86/] Each of the toll authorities has promulgated detailed regulations governing procurement by competitive bid. However, broad exceptions provide that contracts need not be competitively bid when they are: (i) for professional services, (ii) required for the safety or protection of the authorities or other public property, or (iii) for the public convenience. In such cases other procurement methods are available, including competitive proposals with negotiation. The negotiation process for each

[85/] William, Bradley P. & Schott, Steven C., ***supra,*** note 79.

[86/] See, *e.g.,* N.J.A.C. §§ 19:92.1, *et seq.,* N.J.A.C. §§ 19:8-5.1, *et seq.,* and N.J.A.C. §§ 19:2-7.1, *et seq.*

authority is governed by its own internal procedures.[87] The Attorney General concluded that the electronic toll collection procurement, which involved the purchasing of a system that required scientific skill and professional knowledge, would fit within the "professional services" exception, but would not fit within the "public convenience exception" without a strong showing of the immediate need for such a system:

> The distinction between professional services and other procurement contracts appears to be drawn according to whether the purchase of the skilled services or the purchase of the equipment is the dominant component in the contract. Thus contracts for services which are on the cutting edge of technology, such as solid waste recycling, and which require the rendering of substantial services involving scientific and professional skills are more likely to qualify for this exception than contracts for standard services.[88]

In an interview **conducted for this paper, Ann Christine Monica, Assistant Director of** Law of the NJTA contrasted the general language of the law applicable to the NJTA with the competitive bidding requirements for counties and municipalities in New Jersey. Ms. Monica indicated that laws applicable to counties and municipalities typically specify about fifteen different exceptions from the competitive bidding requirements. A broadly drafted statute like the NJTA's can often be interpreted with more flexibility than more specific laws applicable to counties and municipalities.[89]

The **Virginia Public Procurement Act** provides another good example of a State law that prefers sealed competitive low-bid procurement in public contracting, but recognizes the need for competitive negotiations for technical services. The "Virginia Agency Procurement and Surplus Property Manual" provides for competitive sealed bidding in both the traditional one-step process, and a two-step competitive sealed bid process. In two-step competitive sealed bidding in Virginia, an Invitation for Bid is issued requesting technical proposals without prices. Then, bidders are selected on the basis of having acceptable proposals, and pricing information can be obtained from approved bidders.[90] For professional services, such as engineering and consulting services, Code of Virginia §§ 1 l-37 and 11-41 require competitive negotiations through a Request for Proposal process.

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[87] *See, e.g.,* N.J.A.C. §§ 19:9-2.1, *et seq.,* N.J.A.C. §§ 19:8-5.1, *et seq.,* and N.J.A.C. §§ 19:2-7.1, *et seq.*

[88] State of New Jersey "Department of Law and Public Safety Division of Law Memorandum to Christine Johnson" dated September 27, 1991.

[89] Telephone conversation with Ann Christine Monica conducted for purposes of this project, April, 1995.

[90] Department of General Services, Commonwealth of Virginia, Agency Procurement and Surplus Property Manual (1993).

Some States exempt collaborative research from the competitive procurement laws. One such State is Colorado, which has concluded that by relying on such exemption, partnership arrangements for ITS Operational Tests do not have to be competitively procured.[91/]

In summary, State procurement laws have been designed to prevent graft and favoritism, and favor award of contracts by sealed competitive low bid. Recognizing that low bid procurements are often not optimal for certain scopes of work, most States provide their transportation authorities with some authority to conduct a competitive proposal process. About 75% of the States permit some form of competitive proposals, which may or may not include negotiations.[92/] Usually the context in which competitive negotiations is allowed is for procurement of professional and engineering services. However, as is the case in New Jersey and Virginia, competitive proposals with negotiations may be permitted in other contexts when the circumstances justify the abandonment of sealed low bidding. The statutes and regulations permitting such procurement methods take a variety of forms, from very specific to very general. Most if not all States have provisions similar to the Brooks Act for procurement of professional and engineering services.

Additionally, it can be stated that sole-sourcing is typically disfavored, except under limited circumstances. Similarly, unsolicited proposals generally may not be accepted unless justified by criteria similar to those set forth in the CFR.[93/]

A-4.2(b) State Law Considerations Regarding Type of Contract

Increasingly, design-build is becoming a favored contract type at the State level,[94/] particularly for projects where time is of the essence. Design-build also seems particularly well-suited to a rapidly evolving ITS industry because transportation agencies often lack the sophistication to develop detailed specifications for ITS, and it may be most advantageous to solicit the contracting community's creativity in solving a problem, rather than specifying a solution based on the transportation agency's limited experience. However, because State "Brooks Act" type laws require the separation of design from construction, in many cases special legislative authority may be required in order for a transportation agency to have the authority to enter into this type of contract, unless the agency can justify it as an information systems integration procurement.

91/ April 25, 1995 telephone interview with John Kiljan (Colorado DOT Director of ITS) conducted for this project.

92/ Williams, Bradley P. & Schott, Steven C., *supra,* note 79.

93/ FAR, 48 C.F.R. § 15.500 §, *et seq.*

94/ *See,* footnote in Section E, Organizational Conflicts of Interest, *infra,* for a list of states with design/build authority.

California Public Utilities Code § 130242, permitting design-build contracting for the **Los Angeles County Metropolitan Transit Authority,** provides a useful template for State and local transportation agencies seeking to revise their enabling legislation to provide authority for design-build, design-build-operate and design-build-operate and maintain contracts, both for construction generally and for ITS. It reads in pertinent part as follows:

(a) In addition to other powers it possesses, the authority may enter into contracts with private entities, the scope of which may combine within a single contract all or some of the planning, design, permitting, development, joint development, construction, construction management, acquisition, leasing, installation and warranty of all, or components of (1) transit systems, including, without limitation, passenger loading or intermodal station facilities, and (2) facilities on real property owned or to be owned by the authority.

(b)` The authority may award contracts pursuant to subdivision (a) after a finding, by a two-thirds vote of the members of the authority, that awarding the contract under this section will achieve for the authority, among other things, certain private sector efficiencies in the integration of design, project work and components.

(c) A contract awarded pursuant to this section may include operation and maintenance elements, if the inclusion of those elements (1) is necessary, in the reasonable judgment of the authority, to assess vendor representations and warranties, performance guarantees, or lifecycle efficiencies, and (2) does not conflict with collective bargaining agreements to which the authority is a party. . . .

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(e) A contract under this section shall be let to the lowest responsible bidder whose bid is responsive to the criteria set forth in the invitation for bids . . . .

In addition to design-build, other types of contracts designed to attract private capital to the development of public transportation facilities including ITS, may be a major vehicle for the deployment of ITS in the United States. In most States, "public/private" partnership arrangements necessitate the enactment of special legislation. A recent example is Colorado's **"Public-Private Initiatives Program,"** codified at 43-l -1204 of the Colorado revised statutes. Public-private partnership authorizing legislation has also been enacted in the States of Washington, Minnesota, Virginia, South Carolina, Oregon and California. The first of California's public-private projects under Assembly Bill 680, which provides for private toll operation of high occupancy vehicle lanes in the median of **California State Route 91,** recently opened to traffic. The programs in any

of these States may be referred to as templates for transportation agencies interested in undertaking such programs.

A-5. BARRIERS AND SOLUTIONS

A-5.4 Lessons Learned and Practical Tips from the Operational Tests and Other Projects

The issue discussed most prominently in the literature and by the industry experts who have participated in this project is the unsuitability of traditional construction contract models based on 100 percent design specifications for ITS projects. ITS is an emerging technology and transportation agency personnel are understandably inexperienced in writing specifications for ITS.

(1) San Antonio ATMS When the Texas Department of Transportation ("T DOT") desired to develop an ATMS for the San Antonio area, **T DOT** dealt with its lack of experience in writing specifications for ITS by educating its in-house engineers. The engineers developed a preliminary computer system and control systems design based upon their own research regarding ITS. Then, they asked the aerospace and defense industries to comment on their preliminary design, and modified the original design based on those comments. The process was repeated until agreement was reached on final design requirements.'" The **T DOT** approach obviously required a lengthy learning process. Certainly the speed of deployment would have been increased if the design work were contracted out to specialists. However, **T DOT** was subject to a restrictive low bid method of contractor selection which did not permit competitive negotiations except under very limited circumstances. **T DOT** was also required to separate the design work from construction work, and did not want to disqualify potential systems integrators from the bidding process (based on organizational conflict of interest concerns) by engaging them in the design. **T DOT's** successful procurement of the ATMS, even if not accomplished as speedily as it might have been otherwise, demonstrates that if a public agency desires to procure ITS, the procurement can be successfully implemented even in a very restrictive contracting regime.[96/]

(2) Combining Design and Other Services and Products/Deliverables, Other transportation agencies that have more flexible procurement rules than **T DOT** have combined the design and implementation functions. For

[95/] Bradley P. Williams and Steven C. Schott, *supra*, note 79, pp. 30-31.

[96/] *Id.*

example, in the pre-deployment phase, transportation agencies have avoided this problem by entering into "partnership" arrangements that arguably did not fall within the competitive procurement laws. The **Colorado Department of Transportation** ("CDOT") has acted as the lead agency for a number of operational tests structured as "associations," rather than as procurements. **CDOT** views the operational test partnerships as Federal requests for proposals. Therefore, it concludes there is no need for a State proposal process as well. Instead, the State interprets its legislation permissively, and concludes that there is nothing in State law precluding the formation of partnerships for operational tests, provided that no partner is promised exclusivity.

Other good examples of combining products and services in the deployment phase are (i) the **Orange County California Transportation Corridor Agencies'** contracts with Lockheed Martin Information Management Services Company for an **Integrated Toll Collection and Revenue Management System** for design, implementation and operation of their automated toll collection system, and (ii) the **Michigan ATMS/ATIS** design-build procurement. These documents should be reviewed as precedent by any transportation agency considering its own design-build procurement of such systems.

(3) Exemptions. Some transportation agencies have avoided the constraints of competitive low bid requirements for ITS procurements by working to structure their projects to fit within an exemption to the State's low bid requirements. For example, in the **ADVANCE** Operational Test, the Illinois Department of Transportation ("IDOT") treated the first phase of the project, in which it was only going to purchase a few pieces of navigational equipment, as a consultant service contract. However, in the second phase, millions of dollars of equipment were to be procured. Working within existing laws, IDOT labeled the equipment as "experimental equipment," for which sole sourcing was permitted.

In the **E-ZPass** procurement, the New Jersey Toll Authorities gained comfort with their ability to participate in a negotiated procurement by seeking the advance opinion of the State Attorney General. In other cases, special legislation has been enacted to enable innovative contracting processes.

A-5.2 Additional Lessons Learned and Practical Tips from the Volpe Case Studies

The experiences of the projects studied by the Volpe National Transportation Systems Center in connection with its report on "IVHS Institutional Issues and Case Studies,

Analysis and Lessons Learned," suggest a variety of lessons that should be kept in mind by parties to future projects:

(1) In the pre-deployment stage, public-private partnerships require a clear understanding of the rules, responsibilities and mutual goals of the parties. The joint agreements need to clearly define "partners'" roles and responsibilities, and project agreements should be signed as early in the planning stage as possible. The **TRANSCOM/TRANSMIT** project was the only project among the cases studied that followed this advice, and it experienced the fewest problems as the project progressed."[97] For the **MnDOT/TRAVLINK** project, the agreements clarified that the term "partnership" was used as an equivalent of a cooperative agreement, not a joint venture or other separate legal entity. In the **TRANSCOM/TRANSMIT** cooperative agreement, **TRANSCOM** was defined as a clearinghouse for information, and a forum for communications without operating authority. This abated the fear and lack of trust among members of the project, and presents a good model for the initial phase of an operational test. The Scope of Work for the **PUSHME** Puget Sound Regional Mayday System Operational Test Consultant Agreement with David Evans and Associates provides another excellent example of how carefully defining the project participants' respective roles may enhance the project's likelihood of success.[98]

(2) In addition to the need to clearly define the project and the partners' roles and responsibilities early in the project, many interviewees complained of mistrust and lack of understanding of each party's different perspectives given their positions in government, academia and industry, and a lack of flexibility to deal with unanticipated changes to contract schedules and scopes of work. It was suggested that partnership agreements could be improved by building in expedited processes for handling unanticipated changes." At its simplest, a solution to this problem might be including provisions in the agreements providing for rapid escalation of problems up the project chain of command, so that stand-offs do not fester at the staff level. For example, the parties might provide for a specific period of time for lower level staff members to attempt to solve problems, and a notice process to inform more senior officials of the issues. Then, if the problem is not resolved within the specified period of time, senior project officials are

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97/ Volpe National Transportation System Center, "IVHS Institutional Issues and Case Studies: Analysis and Lessons Learned" Final Report (April 1994) page S-7.

98/ "1995 Professional Services Consultant Agreement Cost Plus Fixed Fee"; Agreement No. 4-6063; PUSHME Puget Sound Regional Mayday System Operational Test, Exhibit B, p. 3.

99/ *Id,* at page I-6.

committed to meeting within a relatively brief period of time, say two to three weeks, to attempt to resolve the issue at a top level. Another, more formal, approach to this problem might be for the parties to be involved in formal partnering at the project's inception and at various phases throughout the project. "Partnering" has proven to be an effective tool for breaking down stereotypes and allowing parties to find common goals among their differing incentives for participating in projects. For example, effective partnering of their toll collection and revenue management system contract helped the **Orange County Transportation Corridor Agencies** to open their first toll road project several months ahead of schedule.

(3) Many participants in the operational test studies by Volpe complained of too much administrative paperwork. For example, in the **ADVANCE** project, the Universities and Motorola complained that the emphasis on free and open competition for component parts necessary for development was too cumbersome. One potential solution to this problem was for the agreements to be structured such that the private parties' matching shares would be allocated to their own procurements. Then, procurements of component parts would not be government procurements at all, and competitive bidding requirements could be avoided.

Participants in the **ADVANCE** tests also commented that there were too many, and duplicative, statutory requirements between the applicable Federal and State laws.[100/] Participants in the **FAST-TRAC** project suggested that as a solution to this problem, the FHWA should publish guidelines for project participants who haven't previously worked with Federal or State transportation agencies to help them understand the laws, regulations and practices involved covering seven areas: Public-private partnerships, contracting practices, intellectual property rights, auditing practices, funding and fund matching, termination clauses and warranties. If FHWA were to approve multiple phases of a project as a unit, and not on an individual work order basis, it could help streamline the procurement process as well. The E-ZPass project participants took a creative approach to solving this problem by hiring a former FHWA employee to work in-house with them to assist in complying with all of the Federal requirements. According to Ann Christine Monica, this approach worked well, but obviously it would be preferable if the process were simplified through the publication of easily understood guidelines and practices.

[100/] Intelligent Vehicle Highway Systems Institutional and Legal Issues Program, "Review of the ADVANCE Operational Test," John A. Volpe National Transportation Systems Center (April 1994), page 15.

A-5.3 Additional Observations

In addition to the solutions suggested by the case studies and other projects referenced herein, the following observations are made:

(1) The definition of "construction" in 23 U.S.C. § 112(b), appears to include many elements of ITS. The restrictions on the type of contract and method of award that may be used for Federal-aid highway "construction" projects appear to be a significant barrier to the contracting flexibility that is desirable for ITS. Title 23 requires that highway construction contracts be awarded on a fixed-price, low-bid basis, with the design contract separated from the construction contract. State law may also require a transportation agency to use a competitive sealed bid process, and to award a fixed-price contract for ITS, whether or not Federal funds are involved. Even in the absence of either Federal funding restrictions or State laws specifically requiring fixed-price contracts awarded by sealed bid, a barrier may result from lack of specific authority to enter into innovative contracting processes, a lack of precedents or procedures for other methods of procurement or non-traditional types of contracts within the transportation agency, and general inflexibility and risk avoidance in the public sector.

Techniques that may be employed to overcome the limitations imposed by Federal regulations and the lack of specific authority for innovative contracting practices at the State and local levels include: (i) structuring projects to fit within an exemption to the sealed, low bid requirements, (ii) participating in joint procurements with other agencies to take advantage of the most flexible set of rules applicable to one of the agencies, (iii) submitting the project in advance to FHWA or the State Attorney General (as appropriate) for advice regarding the "construction" nature of the project, and (iv) enacting legislation to accommodate special needs arising in the context of ITS. The definition of "construction" in 23 U.S.C. should be revised to accommodate more flexibility for ITS projects, and the list of circumstances within which a negotiated procurement might be undertaken for projects with ITS "construction" elements should be expanded.

(2) The impact of delays from bid protests may be lessened by the adoption of regulations requiring that any protest based on the content of specifications be made not later than a specified period of time (e.g., 15 days) after the IFB or RFQ/RFP is issued, and in any event prior to the final bid submission date.

(3) When contemplating design-build (turnkey) projects the procuring agency may wish to consider hiring a systems analyst from a second vendor to provide insight into the contractor's performance and to increase competition.

(4) The FHWA should consider promoting specific suggested long-term system warranties and guarantees that would be acceptable in Federal-aid highway project agreements as they pertain to ITS systems.

(5) The ITS industry has not matured to the point where one or a few sets of contract documents can be prepared to cover one or more generalized fact patterns relating to ITS. Indeed, it would be misleading to suggest that a few forms can be generated to cover all the myriad of highly technical project opportunities ITS is creating. Just as ITS itself is bringing great innovation to the traveling public, a public contracting agency will need to be extremely flexible in creating for each new project a contract form best suited to the facts the project presents.

(6) A contracting agency must endeavor to be as precise as possible in articulating the rights and responsibilities of the parties in light of the facts presented by the ITS project concerned. In the other portions of this report we have sought to provide in-depth guidance on the treatment of critical issues raised by the operational tests to date, by FHWA, by our panel of experts, and by our experience. Reference to those sections should be made in building a contract document.

(7) The agency should review not only the relevant ITS precedent, but also traditional engineering contracts and construction contracts, less typical design-build and design-equip contracts, and even more comprehensive design-build-operate contracts. As discussed infra with respect to particular contract issues, some of the ITS forms utilized for the operational tests to date did not sufficiently define the responsibilities of each of the parties or the schedule for performance, did not adequately describe the remedies to be exercised for failure to perform, and presented other opportunities for improvement. By recognizing the analogy to more familiar documents (used in non-ITS projects) an agency can supplement and enhance the quality and relevance of a form prepared by others for a different ITS project.

(8) Experience has proven that where there is a desire, public agencies and private entities will find a way to accomplish a project, notwithstanding the relevant regulatory environment. Overcoming lack of experience, bureaucratic inertia and fear of the unproven is likely more important to the development and deployment of ITS than is reinventing the law. The FHWA should consider developing a task force of experienced innovators (much like

that created by the FTA for purposes of educating transit agencies) that could be made available for consultation and assistance to State and local agencies in structuring optimal ITS procurements.

A-6. MATRIX APPROACH TO CHOICE OF TYPE OF CONTRACT AND METHOD OF AWARD

A-6.4 Method of Analysis Using Type of Contract and Method of Award Matrices

As discussed above, it would be misleading to suggest that a "one-size fits all" approach can be taken to address the range of contracting issues presented by ITS projects. Yet, experience teaches that there are a number of common threads shared by most if not all ITS projects, and these threads can be woven into a simple analytical framework that transportation agencies can refer to in making decisions regarding types of contracts and methods of award.

Most, if not all, ITS projects will fit into one of two broad categories:

(1) Contracts which require that the contractor provide some combination of goods and/or services meeting specified standards and specifications according to an established schedule, which set forth the conditions under which the contractor will receive public funds, and which allocate between the parties certain liabilities; or

(2) Contracts which grant to the private party certain rights to deploy an ITS project, establish the terms and conditions under which the private party may exercise its rights, allocate between the parties liabilities and risks which may arise, and specify the circumstances, if any, under which the private party may receive public funding or may charge a fee for use of the deployed ITS.

The principal differences between these two categories are: (i) the second contract type does not require the contractor to carry out a specified scope of services, and (ii) the second contract type may not involve direct expenditure of public funds. Rather, the second contract type creates a contractual framework to attract private capital for all or a portion of the ITS services to be provided, to be repaid out of the exploitation of a commercial opportunity. Once the contractor successfully progresses the project to construction and/or manufacturing, from that point on the agreement obligates the contractor to operate the ITS project as though the contract were of the first category. With the distinction between these two broad categories of contracts in mind, the research team has developed a series of matrices designed to aid in selection of the appropriate type of contract and method of award for a particular ITS project.

The first matrix aids a transportation agency in identifying the best type of contract (defined by scope of services) depending upon the level to which the project has been

defined prior to the procurement. The left-hand vertical column lists the range of contract types, while the top horizontal column lists a range of levels to which a project has been defined.

The second matrix aids in identifying the best type of contract depending on the deployment phase of the project. As with the first matrix, the left hand vertical column lists the range of contract options. The top horizontal column lists the various possibilities related to deployment phase, from research and development through long term operation and maintenance. The transportation agency would select the type of contract to use from those in which a "yes" appears in the appropriate box on each matrix.

The third matrix aids in selecting the most desirable procurement method, based upon the scope of services to be included in the contract. The left-hand vertical column identifies the range of procurement options, and the top horizontal column lists the possible services to be acquired. A procurement method is appropriate if **a "yes"** is in the box intersected by the scope of services required.

A-6.2 Hypothetical Procurements Illustrating Matrix Approach

The following discussion describes three hypothetical procurements, and the approach that a public agency might follow using the matrices attached to this Section A to determine the preferred type of contract and method of procurement for successfully completing the project's goals:

A-6.2(a) Hypothetical No. 1 - Integrated Toll Collection System Procurement

For purposes of this example, assume that a special district toll authority desires to procure an integrated toll collection system, and wishes the provider of the system to operate and maintain it. The authority has developed performance specifications, but not a detailed design since it does not know the best solution to its needs, and desires to obtain the most beneficial and creative solution from the market. Additionally, the authority's facility was financed through tax-exempt bond financing, the authority wants a guarantee of system performance, and there is pending State legislation which might dictate specifications that will require the potential for upward migration of the technology.

(1) Contract Type. By reference to the Contract Type By Project Definition (matrix, page Ill-A-43), the authority can conclude that several contract types are suitable. All of the contract type options listed in the vertical columns may be appropriate for procurements based upon performance specifications. Since the authority wishes the contractor to operate and maintain the toll system, design-build-operate is a preferable method to design-build or traditional contracting. Build-transfer-operate is

inappropriate under the circumstances because the agency needs the toll revenues to repay the tax-exempt financing for the facility, and is not asking for private capital to finance the project. Referring to the next Matrix, Contract Type by Deployment Phase (matrix, page 4)' the authority would look at the columns for commercial deployment and long term operation and maintenance. Again, it appears that design-build-operate is an appropriate option in both of those columns. This will be the desired approach if permitted by law and the authority's regulations. The appropriate profit incentive for the contract can be defined/determined using the considerations as previously described in Section A-3.1 (a).

The experience of the authority in this hypothetical example may be compared with that of the agencies involved in the **E-ZPass** combined and coordinated procurement of an automatic toll collection system. In that project, the procurement regulations of multiple authorities had to be reconciled, and the specifications needed to be drafted to meet multiple and differing needs. Each agency had different timing requirements and required different degrees of technological sophistication. Therefore, in that case an irrevocable offer was determined to be the most appropriate contract vehicle because it separated operations from the system, and permitted each agency to follow its own time frame for deployment.

(2) **Choice of Procurement Method** Having decided to enter into a design-build-operate contract, the authority should then refer to the ITS Procurement Methods of Award by Scope of Services (matrix, page 111-A-47). The authority would refer to line (C) for each of the options to determine whether it is an appropriate vehicle. The available options (where "Yes" appears in line (C)) include all of the listed methods except for invitation to bid (fixed-price competitive low bid). Then, the authority should refer to the accompanying notes to determine which of the remaining options is preferable. "Call for projects" is inappropriate in this context. Non-competitive sole source is also an inappropriate method since the authority is seeking input from industry to determine the most appropriate solution to its needs, more than one source is available, and the procurement is not an emergency. Among the RFQ/RFP approaches, the most desirable approach would be a negotiated procurement, since this would give the authority the ability to question bidders about their potential solutions. This procurement method meets most, if not all, of the criteria recommended by the FAR for competitive negotiations. Of course, as with the choice of design-build-operate as a type of contract, the authority's choice of this procurement method will obviously depend upon whether or not it is available under the authority's governing statutes and regulations. If this approach were not available, the authority would go to its next best alternative, seek an

exemption, or attempt to enact legislation or administrative rules authorizing its desired approach, as appropriate.

(3) **Additional Considerations.** A few additional considerations that the authority might address in developing its contract documents include the following:

- To preserve the tax-exempt status of its bonds, the authority will have to limit the term of the operating agreement to five years (with options to extend as permitted by the Internal Revenue Code (IRC)).

- In a design-build-operate contract, inclusion of incentive fee provisions often assists agencies in making a "best value" procurement because contractors will submit low base prices reflecting their belief that they will earn all of the award fees, and the hope of earning award fees encourages high quality performance by the contractor.

- The authority should consider provisions requiring upward migration of the technology to meet the pending State legislation. For a good example of such a provision, the authority may wish to refer to the **Lease Purchase and Installation Agreement among the Foothill/Eastern Transportation Corridor Authority, the San Joaquin Hills Transportation Corridor, Lockheed Information Management Services Company and Lockheed Corporation,** dated February, 1993.

- To the extent that the allocation of intellectual property rights is not constrained by Federal or State law, the authority should refer to Chapter D of this paper concerning intellectual property rights, and consider the appropriate allocation. What legal rights does the authority really need to protect its interest, and how will what it desires affect the willingness of proposers to participate in the procurement, and the contract price?

- How will liability for failure to meet performance specifications be allocated? The authority should refer to Section III-F of this report regarding liability issues in ITS contracting. Since the authority's ability to repay its bonds depends upon system performance and the collection of all tolls, the authority may wish to refer to other toll agencies' experiences in connection with negotiating performance guarantees.

A-6.2(b) Hypothetical No. 2 - State Highway Agency Desires to Encourage ITS Innovation

This hypothetical assumes that a State transportation agency wants to encourage ITS innovation within its jurisdiction, but has limited State funding. The agency has a general idea with regard to development of ATMS and ATIS, but there is no consensus as to the particular project that should be undertaken, and the most appropriate site for it. The agency wants the private sector participant to deploy the ITS and operate and maintain it.

(1) Contract Type. Review of the matrix for Contract Type Decision Making With Extent of Project Definition as Discriminating Factor,, (Matrix, Page 111-A-44) indicates that build-transfer-operate-franchise and cooperative cost sharing agreements are the most appropriate contract types. However, in this case the State highway agency desires for its "partner" to develop and build the system, and to operate and maintain it on a long-term basis. Therefore, the second chart (Matrix, Page Ill-A-46), with deployment phase as the discriminating factor, indicates that build-transfer-operate franchise is the preferred contract type. Of course, the State agency's choice must be available under its authorizing legislation. Reference to the types of contracts classified by profit incentive, above, indicates that a variant of a cost reimbursement incentive contract would be desirable.

(2) Type of Procurement. By reference to the third matrix concerning "ITS Procurement Options With Scope of Services as a Discriminating Factor," a "call for projects" appears to be the most appropriate procurement method, assuming it is available under State law. Although a "Yes" appears in line (C) of the RFQ/RFP cost reimbursement and competitive negotiation options, both of these options would require the State to stipulate the project definition and location. The call for projects, on the other hand, encourages contractor innovation and private capital, which was the State's intended source of funding.

(3) Additional Considerations. In developing a template for the build/operate/franchise transfer agreement, the agency should keep the following important issues in mind.

- It is extremely important to clearly define the ongoing rights and obligations of the parties with respect to any infrastructure provided by either party. The same infrastructure used for one ITS application may have potential for other ITS applications, either funded by the State or implemented through additional projects awarded on a call for projects basis.

- The agency will need to think ahead to ensure that the project awarded will be coordinated with other projects implemented by the State and the State's overall ITS plans;

- To that end, it will be extremely important to ensure that the State obtains any intellectual property rights necessary to enable it to integrate the franchise project with the transportation agency's overall traffic, management scheme.

A-6.2(c) Hypothetical No. 3 - Remote Testing of Vehicle Emissions

Assume an air quality district desires to test a remote vehicle emissions system. The district is not sure whether an air sensing method, or a Light Detection and Ranging (LIDAR) method, is the best approach. The technology exists in the lab, but no one yet knows whether it will perform on the street. The district's performance specification requires the contractor to identify whether each vehicle passing a certain point on the road is emitting carbon monoxide in excess of Federal and State standards. The district has not developed a technical specification. There is the potential of Federal funding for this project.

(1) **Type of Contract.** The project has been defined by performance specifications. Therefore reference to the "Extent of Project Definition as Discriminating Factor" Decision Making Matrix indicates that most of the listed contract types are available for this project. However, the specifications are not sufficiently well defined for an irrevocable offer or requirements contract, and the project does not fit the build/transfer/operate franchise model. Because the contract will combine more than one service by incorporating design and operation, traditional contracting also appears less appropriate to the project than the design-build contract type or the cooperative agreement contract. Referring to the "Deployment Phase as a Discriminating Factor Matrix," it is apparent that a cooperative/cost-savings agreement is the best vehicle for this project, since cooperative agreements are best utilized in the context of research and development through an operational test. Additionally, because the parties desire to obtain Federal funding, they might chose to model their agreement after a Federal Cooperative Research & Development Agreement (CRADA).

(2) **Method of Procurement.** By reference to the Procurement Options Matrix and accompanying notes, the district would likely conclude that an RFQ/RFP process with negotiations would be the preferable method of procurement. The contract bundles design work and other professional services plus some prototype equipment into one contract. Therefore, the RFQ/RFP process is favored over an invitation to bid. An invitation to bid is also inappropriate because the specifications rely upon performance criteria.

CONTRACT TYPE AND PROCUREMENT METHOD

DECISION MAKING MATRIX

CONTRACT TYPE BY PROJECT DEFINITION

	Preliminary Design	Performance Specifications	Project Identified But No Definition	General Ideas But No Consensus
Traditional Contracting [1/]	Yes.	Yes.	Yes.	Yes.
Design/Build Fixed Price, Guaranteed Maximum and/or Cost Reimbursement with Ceiling [2/]	Yes.	Under limited circumstances.	Under limited circumstances.	No.
Design/Build/Operate Contract [3/]	Yes.	Under limited circumstances.	Under limited circumstances.	No.
Build-Transfer-Operate Franchise [4/]	Yes.	Yes.	Yes.	Yes.
Cooperative Agreement [5/]	Yes.	Yes.	Yes.	Yes.
Irrevocable Offer and Requirements Contract [6/]	Under limited circumstances.	Under limited circumstances.	No.	No.

CONTRACT TYPE BY PROJECT DEFINITION

NOTES

1. Sealed bid procurement resulting in award of a firm fixed-price contract to the lowest price, responsive, responsible bidder.

2. Design-build and design-equip contract forms are most successful when they are structured around preliminary design completed to between 20 and 60%, depending upon the particular project. Research and development projects generally have not reached this point of definition. By their terms these contracts exclude operations. In certain circumstances a design-build contract might be awarded with only performance specifications, so long as performance was clearly articulated and the contracting agency was in a position not to care about the method by which the specifications are met, a position atypical of many transportation agencies historically.

3. Including operations in a contract raises an important funding question. To the extent an ITS project or related infrastructure has been or is anticipated to be funded with bonds the interest on which is exempt from federal taxation, Federal tax law generally restricts the use of related management contracts exceeding five years of duration. If the contracting agency is willing to use taxable debt, the operating term is unaffected by the IRS. An agency considering this approach in the context of tax exempt bond financing should refer to the discussion of this topic in Part C page 1-11, Section 3.h.

4. The build-transfer-operate franchise offers a "carrot" to the private sector rather than a "stick". In other words it seeks to create an incentive to perform without requiring performance. With this understood it can be used at almost any stage in a project's development to authorize a private contractor essentially to assume the role of project proponent so long as the project represents a source of potential revenue to repay the portion of the project costs not publicly funded. Inasmuch as this contract vehicle is appropriate at all phases, it may be used for all levels of project definition.

5. Cooperative cost sharing agreements may be used at any stage of project definition. In fact, a cooperative agreement may even be entered into for the express purpose of defining a project for which there is a general idea, but no consensus as to how to best bring the idea to fruition.

6. Irrevocable offers and requirements contracts are not suitable unless the specifications are sufficiently well defined to enable award based on price or best value.

CONTRACT TYPE BY DEPLOYMENT PHASE

	Research and Development	Operational Test	Commercial Deployment	Long Term Operation/ Maintenance
Traditional Contracting [1/]	Yes.	Yes.	Yes.	Yes.
Design/Build Fixed-Price, Guaranteed Maximum and/or Design/Build Cost Reimbursement with Ceiling [2/]	No.	Yes.	Yes.	No.
Design/Build Operate Contract [3/]	No.	Under limited circumstances.	Yes.	Yes.
Build-Transfer-Operate Franchise [4/]	No.	Yes.	Yes.	Yes.
Cooperative Agreement [5/]	Yes.	Yes.	Under limited circumstances.	No.
Irrevocable Offer and Requirements Contract [6/]	No.	Under limited circumstances.	Yes.	Yes.

CONTRACT TYPE PROJECT DEPLOYMENT PHASE

NOTES

1. Sealed bid procurement resulting in award of a firm fixed-price contract to the lowest price, responsive, responsible bidder.

2. Design-build and design-equip contract forms are most successful when they are structured around preliminary design completed to between 20% and 60%, depending upon the particular project. Research and development projects generally have not reached this point of development. By their terms these contracts exclude operations.

3. Design-build-operate contracts are similar to design-build in the sense that they are prudently used only when agency requirements have been adequately defined. While R&D does not present this opportunity, subsequent phases may, depending on the level of engineering design completed at the time of contracting.

4. The build-transfer-operate franchise offers a "carrot" to the private sector rather than a "stick". In other words it seeks to create an incentive to perform without requiring performance. With this understood it can be used at almost any time in a project's development to authorize a private contractor essentially to assume the role of project proponent so long as the project represents a source of potential revenue to repay the portion of the project costs not publicly funded.

5. Cooperative agreements are best utilized to spur a project concept through R&D and an operational test. A cooperative agreement might involve commercial deployment to the extent that it results in allocation of intellectual property rights for technology developed during the project through the commercial deployment phase.

6. Irrevocable offers and requirements contracts are similar vehicles for allowing the procuring agency to gain comfort that a supplier will be available to meet its needs, without the procuring agency being presently obligated to purchase a specific amount of services or equipment. In a requirements contract, the contractor promises to fill the procuring agency's need for a product, up to a specified amount, over a specified period, and the procuring agency agrees to make all of its purchases of that product from the contractor. A requirements contract may also specify multiple phases over which requirements are to be met. An irrevocable offer may be for an unlimited quantity, or it may specify the exact amount offered, and/or the exact period for accepting the offer. The **EZ-PASS** procurement provides excellent documentation of an irrevocable offer in the context of commercial deployment. The **ADVANCE** Operational Test, which extends to commercial deployment, is a good example of a situation in which phasing the procurement was a wise decision, since if the public agency had been obligated to buy 50,000 units at the outset of the procurement, it would have unnecessarily expended a significant amount of money for equipment it was not yet in a position to use. See the discussion of these projects, *Supra,* pg. III-A-33.

ITS PROCUREMENT METHODS OF AWARD BY SCOPE OF SERVICES

* (A) = contracts for a scope of work limited to individual goods or services
* (B) = design/build and design/equip contracts
* (C) = design-build-operate and design-equip-operate contracts

		Design	Other Professional	Construction	Off-Shelf Supplies	Custom Equipment	Operations
Invitation to Bid (Fixed price low bid)	(A)*	No. 1/	No. 1/	Yes. 2/	Yes. 2/	Under limited circumstances. 2/	Under limited circumstances. 1/ 4/
	(B)*	Under limited circumstances. 3/					
	(C)*	No. 4/					
RFQ/RFP - Fixed Price	(A)	Under limited circumstances. 1/	Under limited circumstances. 1/	Under limited circumstances. 2/	Under limited circumstances. 2/	Yes. 2/	Yes. 1/ 4/
	(B)	Yes. 3/					
	(C)	Yes. 4/					
RFQ/RFP - Cost Reimbursement	(A)	Yes. 1/	Yes. 1/	Under limited circumstances. 5/	No. 2/	Yes. 2/	Yes. 1/ 4/
	(B)	Yes. 3/					
	(C)	Yes. 4/					

ITS PROCUREMENT METHODS OF AWARD BY SCOPE OF SERVICES

NOTES

1. Some members of the expert panel concluded that any fixed-price procurement would be inappropriate for an ITS contract to perform design, operations or other professional services, suggesting that it might reduce product quality or innovation. Our analysis supports this conclusion, except in the circumstance where: (a) the private sector interest in undertaking the scope of work is relatively high, and (b) the parties agree that the agency's cost share is being fixed and the contractor will bear the balance of the costs. Due to the intangibles the agency is seeking to capture such as reputation for quality and innovation in awarding a contract for design or other professional services, an IFB or lowest responsible bidder approach would not be advisable. An RFP/RFQ procurement method resulting in a fixed-price contract or cost reimbursement contract up to a fixed cap, might well be appropriate, however, because private sector motivation is present and capable of evaluation, notwithstanding fixed-price. We have seen these circumstances present in a variety of ITS deployments and expect to see more. For example, Barbara Hayes, the Administrator of Finance Operations Division for the Michigan Attorney General's Office, advises that this approach has worked well for the state's procurement of a design/build contract for installation of an ATIS, ATMS System serving 148 miles in the Detroit area.

2. State/local government agency procurement codes typically require that civil construction and off-the-shelf supply contracts be awarded only on a lowest responsible bidder basis. The rationale is that this approach maximizes the number of private firms competing against each other solely on the basis of price and results in the "best buy" for the procuring agency. The Authors and our panel of experts agree with this rationale, except where the construction or supplies/services being sought are of a unique or specialized type which very few firms can provide. In such a case the "responsibility" criteria that would need to be drafted for the IFB would be so stringent as to constrain the market in the same way pre-qualification or a "price and other factors" evaluation methodology does. Responsibilities in ITS contracts being prepared for procurement should be reviewed carefully for the presence of such circumstances.

3. The more design work and other professional services an agency elects to "bundle" into a contract also containing standard construction and equipment supply, the more procurement professionals favor either an RFP/RFQ or "prequalification" approach over an IFB. The concern is that contractor selection based on minimal qualifications and low price is a high risk method for obtaining such services as engineering, construction management and operations, a conclusion that does not change just because construction is being awarded as well. If concern exists that an agency may not receive the lowest price possible from among well qualified firms, the agency should consider "best value" and price-and-other-factors evaluation approaches and competitive negotiation to address this concern. Alternatively design-build or design-manufacture-install teams should be subject to stringent, carefully articulated prequalification guidelines before fixed-price bids are opened.

4. The "bundling" of operations into a design-build or a design-manufacture-install scope of work is increasingly being considered by agencies for public projects for which they lack staffing or expertise or for which they seek competition based upon life-cycle efficiency. This approach is not amenable, in our view, to an IFB procurement due to the contract's long-term and the effort's complexity. The bundling approach would, however, fit well with an RFP/RFQ methodology. Agencies may consider utilizing a fixed-price component to the pricing of the construction and off-the-shelf supply portions of the project, applying cost-reimbursable pricing to the other elements of the work if legal authority exists to do so. It may also be appropriate to incorporate fixed-price costing for the operations component, depending on the complexity of the operating services to be performed and how well the private sector can price them in advance. To the extent there are certain operating costs that can be accurately anticipated and others that cannot, the agency may employ both a fixed and variable component of the operating fee.

5. A cost-reimbursable approach to an ITS contract for construction would be advisable only in certain limited circumstances. Among them might be where design is complete but there remains substantial uncertainty about physical conditions and neither side feels comfortable with the contingency that would need to be built into a fixed-price or relying on an unknown conditions contract provision. Such contracts certainly are used in private sector transactions and we can anticipate ITS deployments that might fall into this category. If they were of sufficient importance that the agency wanted to go forward on such a basis, special contract provisions should be used to ensure disallowance of unnecessary work and agreement to unit pricing in substantial detail.

6. The Authors and the expert panelists agree with the extensive commentary in the academic and industry literature that proposes the use of competitive negotiations as a more appropriate tool than sealed bids for awarding ITS contracts involving high technology items such as communications systems. The Council of State Governments has recommended the use of competitive negotiations when: (a) it is difficult to construct appropriate descriptive specifications for bidders to compete on a common and equal basis; (b) the award will likely be made on the basis of non price-related factors; and (c) it is necessary to conduct discussions with the offerors.[1]/ The Federal Transit Agency's report on contracting for vehicle maintenance services recommends competitive negotiations wherever any of the following five criteria are satisfied: (a) there is significant variation in the method that may be used to deliver a specific service; (b) there are attributes other than price that should be included as criteria for selecting a contractor; (c) there is a need for bidders to have the opportunity to revise their work plans after initial evaluation of proposals (including the price of services); (d) the award should be based on comparative evaluation; and (e) an RFP would result in a more beneficial contract for the agency.[2]/ Many agencies that are authorized to conduct RFQ/RFP procurements for ITS are <u>not</u> authorized by their enabling legislation to conduct competitive negotiations. The desirability of negotiations has been borne out by those agencies' ITS contracting experiences. For example, the Colorado Department of Transportation (CDOT) was authorized to conduct an RFP for its fiber optics project, but lacked authority to negotiate with the proposers. Therefore, since each

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1/ The Council of State Governments, <u>State and Local Government Purchasing</u> (3rd ed. 1988); *See*, also, John Cibinic, Jr., and Ralph C. Nash, Jr., <u>Formation of Government Contracts</u> 289, 291 (1986).

2/ T.H. Maze, *et al.*, "Manual on Contracting for Vehicle Maintenance Services", FTA Contract No. 1A 11-008-921

proposal was unique, the CDOT was left with comparing apples and oranges. CDOT's ITS Program Manager, John Kiljan, suggests that negotiations in this context would be highly appropriate and desirable. The Michigan DOT has flexibility in designing its procurement approach for ATIS and ATMS systems, but it is not permitted to conduct negotiations. The Michigan DOT uses a two-step process, in which it receives proposals in two parts: (i) technical, and (ii) price. It scores the technical proposals separate from the price. Although the Michigan DOT has been generally satisfied with its two-step proposal process, in which a scored technical proposal is used to weight the bid price, the approach requires the public agency to draft a sufficiently specific RFP to avoid Colorado's "apples vs. oranges" problem.[3]/ A transportation agency may not be equipped to do so without incurring significant additional costs and delay.

7. It is well known that sole sourcing is a disfavored procurement approach, the use of which is limited to very unusual circumstances. The actual circumstances permitting sole sourcing vary widely from jurisdiction to jurisdiction. They might include emergency design and construction consultants or contractors offering demonstrably unique skills and unanticipated time-sensitive staffing requirements. ITS contractors frequently seek from agencies the opportunities to develop and present ideas to public agencies in a way that preserves their "ownership" of the business opportunity. If sole sourcing is unavailable, a similar, but distinct, approach is the unsolicited proposal methodology. This is used to accept private sector proposals where the agency is able to find that: (a) the proposal demonstrates unique and innovative methods, approaches or concepts; (b) the proposal has overall scientific, technical or socioeconomic merit; (c) the proposal will make a potential contribution to the agency's specific mission; (d) the offeror is uniquely capable of achieving the proposal's objectives; and (e) the proposal does not resemble a pending competitive acquisition.[4]/ The "call for projects" procurement methodology is another alternative being used in a manner to offer the private sector source exclusivity protection.

8. While a relatively new methodology for state and local government, agencies at this level that have authority to use calls for projects are finding significant value in the call for projects procurement approach. Many states have enacted special legislation authorizing a call for projects approach. It is suited best to the circumstance in which the agency desires the private sector to identify for the agency the project opportunities the private sector is willing to invest its own resources in whole or in part. Minnesota is among the state DOTs using a call for projects to identify ITS candidates; other states, including California and Washington, have employed it to attract AVI-equipped toll road developers; Missouri has used it to attract fiber optics projects; and several other states are planning to follow Missouri's lead, albeit with some differences. Our panel of experts saw this tool as offering substantial benefits to public agencies and contractors alike under

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3/ Telephone interviews were conducted with John Kiljan, ITS Program Manager for CDOT, and Barbara Hayes, Administrator of Finance Operations Division for the Michigan Attorney General's Office, as part of this project. Note that our research indicates that Colo. Rev. Stat. 24-103-203 (1995) does provide for competitive sealed proposals with negotiations under circumstances where competitive sealed bidding is neither practicable nor advantageous to the state. Therefore, the prohibition against negotiations in some context may be due to an agency specific regulation.

4/ *See, e.g.,* 48 C.F.R. § 15.500, *et seq.*

appropriate circumstances. Several cautions, however, must be kept in mind. First, it is important to discuss with those states that have tried the approach what they felt worked and what did not; there are numerous lessons to be learned for future applications. Second, the more prepared the public agency is to act on the private sector's proposals, the more interest the private sector will have in responding; the private sector wants to know that, if it comes up with a good project, it will get a contract. Third, it is important to recognize that contracts resulting from a call for projects may well include within the scope of the work civil construction and equipment supply -- elements otherwise required to be low bid; special enabling legislation may be necessary as a result. Fourth, drafting a call for projects requires the agency to develop evaluation criteria unlike any others it has used; it must focus on long-term policy goals and resources as the keys for project selection. The approach is not a panacea, however, and should not be used simply to award traditional scopes of work.

TYPE OF CONTRACTS & METHODS OF AWARD

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Issue Overview

COMBINED OR COORDINATED PROCUREMENTS

- Interagency cooperation is critical to obtaining regional compatibility and interoperability of ITS which will foster greater economy and efficiency. The Common Rule encourages State and local agencies to enter into intergovernmental agreements for procurement or use of common goods and services.

- Agencies may be prevented from entering into combined or coordinated procurements due to lack of authority to permit another agency to commit or spend ITS funds, or by incompatible procurement regulations.

- Multi-jurisdictional procurements require sound management by one of the participating entities, an outside consultant, or Metropolitan Planning Organization (MPO) to ensure procurement objectives are clear and any differences in practices, policies or procedures are reconciled.

- Difficulties associated with planning and implementing combined or coordinated procurements are often due to lack of defined roles and responsibilities rather than legal constraints. State and local agencies have been creative and successful in implementing multi-agency procurements.

- The following barrier related to Combined or Coordinated Procurements has been identified as having the potential to constrain or hamper the implementation of ITS:

  > Concern regarding the authority of one agency to participate in a multi-agency procurement process and have its funds committed by another entity. (Page II-B-11)

Section B

COMBINED OR COORDINATED PROCUREMENTS

B-I. STATEMENT OF ISSUE

Address the extent to which multi-jurisdictional procurements may be used to purchase ITS technologies with region-wide applicability (e.g., electronic toll collection systems, electronic purchase of trucking credentials).

B-2. ANALYSIS

The Common Rule clearly establishes the Federal position on the desirability of combined or coordinated procurements among State and local agencies:

> To foster greater economy and efficiency, grantees and subgrantees are encouraged to enter into State and local intergovernmental agreements for procurement or use of common goods and services.[101/]

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101 / 49 C.F.R. §18.36(b)(5). The Compact Clause of the U.S. Constitution, Art. I, § 10, cl. 3, provides that "No State shall, without the Consent of Congress, . . . enter into any Agreement or Compact with another State . . . ." The U.S. Supreme Court has explained this clause as follows:

"The requirement of congressional consent is at the heart of the Compact Clause. By vesting in Congress the power to grant or withhold consent, or to condition consent on the States' compliance with specified conditions, the Framers sought to ensure that Congress would maintain ultimate supervisory power over cooperative state action that might otherwise interfere with the full and free exercise of federal authority. [citations omitted] Congressional consent is not required for interstate agreements that fall outside the scope of the Compact Clause. Where an agreement is not 'directed to the formation of any combination tending to the increase of political power in the States, which may encroach upon or interfere with the just supremacy of the United States,' it does not fall within the scope of the Clause and will not be invalidated for lack of congressional consent." Cuyler v. Adams, 449 U.S. 443 at 939 (1981).

Detailed analysis of this Constitutional provision is beyond the scope of this report. For a fuller discussion, see, *Libonati, "The Law of Intergovernmental Relations: IVHS Opportunities and Constraints,"* 22 Transp. L. J. 225 at 244-5 (1994); F. Simmerman and M. Wendell, *The Law and Use of Interstate Compacts* (1961).

Whether or not interstate agreements implementing ITS may be exempt from Congressional scrutiny, it may be advantageous for the participating States to submit such agreements for Congressional approval both to immunize the deal from Constitutional attack and to strengthen the deal - Congressionally-sanctioned compacts have the weight of being recognized as Federal law. Libonati, *supra,* at 244. States may also encounter situations where it is advantageous for both the Federal government and the States to include the U.S. DOT as a signatory to the compact. Federal participation may enhance the likelihood of obtaining Congressional consent, provide an advocate for the project at the Federal level, and provide informal access to Federal personnel, equipment and data resources. Federal participation may also benefit Federal interests, for example, by promoting interstate ITS interoperability or by facilitating commercial vehicle operations in interstate commerce.

B-2.1 Types of Combined or Coordinated Procurements

State and local agencies have a variety of models that they can utilize to undertake combined or coordinated procurements. Potential forms of multi-agency collaboration that can be utilized to jointly procure ITS technologies include the following types:

B-2.1(a) Joint Strategic Planning

This approach demands that multiple agencies agree on a common mission and develop combined or coordinated business plans to support the mission of the group.

An example of interagency joint strategic planning can be found in the **E-ZPass InterAgency Group (IAG)** which was one of the earliest and most successful examples of combined or coordinated ITS procurements. **E-ZPass** was formed by several operating toll agencies in response to the virtual mandate from toll road users that if consumers were expected to embrace the use of ITS technologies, Electronic Traffic and Toll Management (ETTM) equipment must be compatible and inter-operable among agencies. Having a different Automated Vehicle Identification (AVI) technology reader for each agency was not a practical or desirable option. The **IAG** is currently comprised of eight toll entities in the tri-state New York metropolitan area.[102/] Together, these agencies to-date represent almost forty percent of the toll transactions and two-thirds of the total toll revenues in the U.S. To ensure procurement of compatible and interoperable equipment, the IAG collectively undertook a joint procurement to select a vendor for their AVI technology. The combined procurement was effective in utilizing the operating agency's collective leverage to negotiate a favorable irrevocable offer for ETTM.

B-2.1(b) Interagency Contracts for Goods and Services

This is a common activity among public agencies. It involves creation of contractual agreements whereby one agency contracts with another State or local government agency to provide a service to the purchasing agency's citizens, similar to local government contracting with a private firm. Municipalities often contract with neighboring cities for trash pick-up, for example. For a transportation example, consider the arrangement where several municipalities individually contract with an area-wide transportation planning agency to purchase traffic signal management services along a corridor running through all of the municipalities.

102/ Initially, the group included seven implementing toll agencies in the New York, New Jersey, and Pennsylvania area, The New Jersey Highway Authority, the New Jersey Turnpike Authority, New York State Thruway Authority, Pennsylvania Turnpike Commission, Port Authority of New York and New Jersey, South Jersey Transportation Authority, and Triborough Bridge and Tunnel Authority. (An eighth agency, Delaware River Port Authority, joined the group after completion of the technology selection process.)

B-2.1(c) Form a Mission-Dedicated Organization or Entity

A separate organization is jointly created which lends its services to aid all jurisdictions that are party to the agreement. An example would be **HELP, Inc. HELP, Inc.** was formed as a separate corporate entity by the parties to a previous Federally-funded operational test. The parties which included several State DOTs and private sector stakeholders, desired to continue Commercial Vehicle Operations (CVO) after the operational test funds were expended.[103/]

B-2.1(d) Utilization of Technical Standards

The emergence of the ITS Architecture and Technical Standards for ITS reduces the need to coordinate procurements for technical compatibility and interoperability as widely accepted industry standards are incorporated into specifications.“”

B-2.1(e) Partnering

Partnering is a broad term generally used to describe a range of combined or coordinated affiliations which involve multiple parties (Private to Private, Public to Private, Public to Public) teaming to accomplish an objective while sharing resources, benefits or risks. Partnering does not require a legal partnership as any teaming approach to accomplish mutually beneficial goals and objectives can be characterized as partnering. An example of partnering would be any of the ITS operational tests in which FHWA, State and local agencies and private parties entered into cooperative agreements to perform operational tests to prove the technical feasibility and benefits of ITS technologies. FHWA’s proactive role in facilitating these alliances and agreements is a form of partnering.

B-2.2 Advantages of Entering into Multi-Agency Combined or Coordinated Procurements

When faced with a decision whether or not to enter into a combined or coordinated procurement, public agencies must weigh the advantages versus the disadvantages of entering into a collaborative decision-making process. The advantages include:

103/ IVHS Institutional Issues and Case Studies - Analysis and Lessons Learned, United States Department of Transportation, Volpe National Transportation Systems Center, April 1994, at page 1-5.

104/ FHWA has recently awarded five contracts to five organizations; American Association of State Highway & Transportation Officials (AASHTO), Institute of Electrical and Electronics Engineers, Inc. (IEEE), Institute of Transportation Engineers (ITE), American Society of Transportation Managers (ASTM), and Society of Automotive Engineers (SAE) to develop various technical standards for ITS. Commerce Business Daily (CBD), January 15, 1995, page 27.

B-2.2(a) Ability to Implement Regional Solutions Utilizing ITS Technologies

Examples are the **E-ZPass IAG** implementing a region-wide toll collection system or Metropolitan Planning Organization (MPO) performing regional signalization coordination among multiple municipalities.

B-2.2(b) Ability to Share Resources

Shared resources can be in the form of funds or personnel. If an agency has little experience in performing ITS procurements, affiliation with another more experienced agency may provide savings by avoiding costly errors and providing an opportunity to understudy more experienced ITS contract practitioners.

B-2.246) Ability to Foster Technical Interoperability

Multiple agencies' use of products and services from the same vendor can ensure compatibility. The **E-ZPass** vendor (Mark IV Industries) extended the same irrevocable offer to all member agencies to provide AVI equipment to each agency. The offer which remains open to acceptance for a period of five years assures equipment compatibility including technology upgrades.

B-2.2(d) Ability to Obtain Economies of Scale and Negotiating Leverage with Suppliers

Combining procurement needs creates opportunities for economies of scale. Economies of scale are a proven method to reduce unit costs by spreading overhead costs over more units of production. **E-ZPass'** collective market share of toll collection equipment was a significant inducement to leverage beneficial contract terms and conditions for all member agencies.

B-2.2(e) Ability to Encourage Innovation

When multiple agencies collaborate there is an opportunity to share ideas with people from other agencies who might bring novel solutions or different approaches to problems. Innovative approaches which have been successful in deploying ITS are proven models to be followed.

B-2.3 Disadvantages of Entering into Multi-Agency Combined or Coordinated Procurements

There are several disadvantages associated with participating in combined or coordinated procurements. They are:

B-2.3(a) Added Complexity

Coordinating procurement processes among several agencies often requires new processes which may be complex and time consuming. The parties must first define a joint scope of work or mission and establish an organization and process for group decision-making and administration. This is particularly true when agencies collaborate for the first time without benefit of a prior working relationship. This disadvantage due to administrative complexity can be overcome or mitigated with careful planning. Proven models of collaboration (e.g., **E-ZPass IAG)** should be utilized as a framework to plan and implement other combined or coordinated procurements.

B-2.3(b) Loss of Control

Combined or coordinated procurements require willingness and the ability to compromise by all agencies to reconcile differences in agency procedures, policies, and practices. This may result in agencies fearing or perceiving loss of individual agency prerogative/autonomy. It is important that multi-agency procurements have strong leadership which constantly keeps focus throughout the procurement planning process on the common mission and team benefits shared by each agency as a result of their collaboration.

B-2.4 Elements of Success for Implementing ITS

The efficiencies and other benefits of implementing regional ITS solutions through combined or coordinated procurements can be significant. The administrative and coordination complexity of conducting a multiple agency procurement can be overcome by planning, sound management and leadership.

The following institutional lessons learned identified by the Volpe National Transportation Systems Center provide excellent guidance for agencies anticipating entering into multi-agency combined or coordinated procurements:

(1) Public or private partnerships require building trust, understanding, commitment, and communications.

(2) Partners' roles and responsibilities need to be clearly defined early in the planning stage.

(3) Good leadership and full-time commitment is essential.

(4) Systems integrators should be brought on-board early.

(5) An evaluation process should be initiated during the planning phase.

(6) Complex projects require flexibility by all parties.

(7) Contracting flexibility is important.

(8) ITS programs need a buy-in at two management levels: upper and mid-level.

(9) Interagency cooperation is facilitated by having an advocate in each key agency.

(10) Demonstrable benefits are critical to participants and participation by all is critical to success.

(11) Keep the process moving through strong leadership, the right people making the right decisions and establishing an efficient decision-making process.[105/]

B-2.5 Successful Organizational and Management Models from Operational Tests

Multi-jurisdictional procurements require sound management by one of the participating entities, an outside consultant or Metropolitan Planning Organization (MPO) to ensure procurement objectives are clear and any differences in procedures, policies or practices are reconciled. There is no one organizational or managerial model to guide participants in structuring customized multi-jurisdictional procurements as to the means and methods to attain strategic objectives. Having a common objective and mission was cited by many of the persons implementing successful multi-jurisdictional models utilized by State and local transportation agencies to deploy ITS. Three models, **E-ZPass IAG, Minnesota Guidestar,** and **HELP, Inc.,** share this element. Their decision-making process deployed to achieve a common objective and mission are described in more detail below.

B-2.5(a) Committee Driven Process

As previously mentioned, the **E-ZPass Interagency Group** entered into a combined procurement utilizing an irrevoccable offer to jointly select a vendor to provide AVI equipment for the member agencies.

E-ZPass shared decision-making through extensive use of committees involving member agencies making decisions for the group. **E-ZPass** committees include:

105/ IVHS Institutional Issues and Case Studies, *supra*, note 4 at page III-B-3.

- Executive
- Policy
- Technical
- Procurement
- Finance
- Operations
- Legal
- Marketing and Public Relations

Extensive use of committees for first time ITS procurements may be time consuming as there are many start-up governance and procedural issues to resolve. However, by having all agencies represented, each agency has input and the additional benefit of having its staff learn how other agencies approach ITS procurement policies, procedures, and practices which they take back to their respective agencies.

B-2.5(b) Strategic Planning Model

A very different organization and decision-making approach was employed by the State of Minnesota in the **Guidestar Program.** It is a simple and existing model for deploying ITS in the context of a State Department of Transportation. **Minnesota Guidestar** is a program founded on partnerships encompassing a wide range of constituencies and stakeholders including:

- (Minnesota Department of Transportation (MinnDOT), the University of Minnesota (U of M), numerous local and regional governmental agencies and the Federal Highway Administration (FHWA))
- Private sector
- ITS community
- Citizens of Minnesota

MinnDOT desired to partner with the private sector and other State and local agencies to compete for FHWA and FTA funding for Intelligent Transportation Systems. To expedite the formation of these “partnerships,” MinnDOT issued a Request for Partnership Proposal (RFPP) requesting proposals in three areas:

- Public-Private Cost-Sharing Partnerships[106/]
- Cooperative Program[107/]
- Federal Operational Test[108/]

The overall objective of the solicitation was to seek new and innovative partnership projects and arrangements between MinnDOT and the private sector to further the program and user service goals and objectives of the **Minnesota Guidestar** strategic plan.[109/]

Proposed projects were evaluated and selected based on the following evaluation criteria which are closely tied to the **Minnesota Guidestar** strategic plan:

106/ Minnesota Guidestar Strategic Plan and Request for Partnership Proposals, June 1994 § §

107/ ***Id § 6.03.***

108/ ***Id. § 6.04.***

109/ ***Id. § 2.0.***

EvaluationCriteria

Appropriateness of Proposed Project or Program (25 points)

- Consistency with the Minnesota Guidestar Strategic Plan;
- Consistency with the intent and requirements of the option being responded to; and,
- Applicability of proposed services to Minnesota Guidestar goals for this RFP.

Feasibility of Proposed Project or Program (25 points)

- Proposed hardware, software, and/or services are proven;
- Theoretical basis for project is proven;
- Clear plan for providing hardware, software, and services; and
- Detailed, realistic time schedule.

Technical Capabilities (15 points)

- Personnel qualified for the type of services being provided;
- Sufficient available tools and computer resources to perform the proposed services; and
- Location and accessibility to services in Minnesota.

Management Plan (15 points)

- The number of people to be made available;
- Capability of managing costs, schedule, and quality; and
- DBE and TGB provisions.

Cost (10 points)

- Realistic funding plan; and
- Cost to the Department

Experience (10 points)

- Experience in providing the proposed services; and
- Experience in other government work, including work for the Department.

The **Minnesota Guidestar** model has been very successful and has over sixty partnership arrangements.“”

110/ Report by Minnesota State Assistant Attorney General, Don Mueting, Esq. - ITS America Legal Issues Committee, April 17, 1996.

B-2.5(c) Dedicated Entity Model

As multi-jurisdictional projects evolve and a long-term operational need is established, it may be beneficial to form a separate legal entity to perform multi-agency operations. An example of an entity being created to operate a viable system is **HELP, Inc.** which is a 501 (c)(3) nonprofit corporation.[111]

HELP Inc. was formed as a separate entity in October 1993 with the intent of facilitating the accomplishment of the **Crescent** operational test vision, mission, goals and objectives. **HELP, Inc.** is controlled by a Board of Directors, to which each participating State appointed a government representative and a motor carrier representative. Furthermore, States have the option to rotate Board membership between different agencies if desired. The Board has the responsibility for electing the Chair, Vice-Chair, and Secretary/Treasurer from the official representatives.

Day-to-day control of **HELP, Inc.** is the responsibility of a full-time Executive Director supported by a full-time Technical Program Management Consultant.

Management of **HELP, Inc.** is conducted in accordance with its bylaws which establish the corporate structure, membership, Board of Directors, committees, Corporate Officers, and the Executive Director. The Executive Director is empowered to make most decisions and is given broad discretion in the bylaws to carry out its responsibility through its prime consultant.

The main advantage that **HELP, Inc.** has over other combined/coordinated procurements is its simple organizational and administrative structure. Participants in **HELP, Inc.** are represented as voting members of the Board of Directors. **HELP,** Inc. is incorporated under laws of the State of Arizona to operate as a nonprofit, no stock, no-dividend corporation.

The **HELP, Inc.** model of using a stand-alone entity to maximize performance and minimize administration costs is highly desirable. However, in the early stages of a project, it may be difficult to initiate as State legislators who often must pass enabling legislation may be reluctant to endorse stand-alone projects with no proven track record of performance. The approach is more easily "sold" to legislators and other policy makers at a later date when the project has established itself as a viable stand-alone entity. At this stage, incorporating a stand-alone entity may be sound business management.

The following section illustrates how participants in the operational tests overcame barriers to implementing successful combined or coordinated procurements.

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[111] Internal Revenue Code, § 501 (c)(3).

B-3. BARRIERS AND SOLUTIONS

Barrier No. 1	**Concern regarding the authority of one agency to participate in a multi-agency procurement process and have its funds committed by another entity**

Solution No. 1(a)	**Unless expressly prohibited, construe broadly an agency's power to enter into agreements necessary or incidental to the performance of its duties or incidental to the execution of its powers**

State and local agencies may be granted broad powers to enter into agreements which are necessary or incidental to the performance of their duties and execution of their powers. The **E-ZPass IAG** Procurement involved several regional tollroad operators. In reviewing the New Jersey member agencies' ability to enter into the procurement, the New Jersey Attorney General found:

> The procurement authority of the New Jersey toll authorities is contained in basically identical statutes. Each authority is authorized to make and enter into all contracts and agreements necessary or incidental to the performance of its duties and execution of its powers. [112/]

The ability of each agency to enter into agreements with the others can be interpreted to be necessary and incidental to implementing regional solutions to ensure interoperable systems in the absence of an express prohibition at the State or local level prohibiting such partnerships.[113/]

112/ Letter to Christine Johnson, New Jersey Assistant Commissioner for Policy and Planning, from Richard J. Harcar, Deputy Attorney General, dated September 21, 1991. (NJTA - N.J.S.A. 27:23-5(l); NJHA - N.J.S.A. 27:12B-5(0); NJEA - N.J.S.A. 27:12C-1 l(q).

113/ Federal support for multi-agency solutions is stated in the Common Rule at 49 C.F.R. § 18.36(b)(5).

Solution No. 1(b)	include explicit, broad authority to enter into inter-governmental agreements in State agency enabling legislation

Rather than rely on interpretations of existing statutes, some State and local transportation or other contracting agencies have sought express legislative authorization to enter into intergovernmental agreements. Recent examples of express legislative authority being obtained through legislative processes include the following:

Minnesota Guidestar

> 174.02 COMMISSIONERS POWERS AND DUTIES.
>
> Subd. 6. Agreements, receipts, appropriation. To facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation, and to promote and encourage economic and technological development in transportation matters within and between governmental and non-governmental entities:
>
> (a) The commissioner may enter into agreements with other governmental or non-governmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for the benefit of the citizens of Minnesota.[114/]

City and County of Los Angeles Charter Amendment No. 1

Another example of express authorization for entering into multi-agency agreements is found in **City and County of Los Angeles** Charter Amendment No. 1, enacted April 11, 1995. This amendment authorized the City and County to enter into:

> . . . cooperative arrangements with other governmental agencies, for the utilization of purchasing contracts of such agencies even though any such agency has not entered into the particular purchase contract through a competitive bid process and as to the utilization of such purchasing contracts any implementation agreement with the other party to the contract.[115/]

114/ Minnesota Statutes, Volume 4, Chapter 174.02, 1993.

115/ Charter of the City of Los Angeles, § 11, § 386(a)(7), 1995.

State agencies possessing the authority to commit funds to programs and projects procured by another entity may have some flexibility in choice of procurement rules by proactively choosing which agency takes the lead in contracting. Examples and variations of this technique include:

(1) **Use the Most Restrictive Procurement Practices,** This was the approach of the **E-ZPass IAG.** Utilization of the most restrictive practices was seen as a way to minimize the risk of a successful bid protest from unsuccessful bidders.

(2) Utilize the State which has Experience and/or Broad Contracting Authority to Apply Innovative Contracting Approaches for ITS, For example, the I-95 corridor coalition utilized Delaware because of its less restrictive procurement regulations.

(3) Rotate the Contracting Responsibility Among Participants, Although an equitable approach from an agency decision-sharing point of view, this approach has two distinct disadvantages:

- Each agency has a new learning curve and may not benefit from the experience gained by the predecessor agency.
- Lack of continuity and differing procurement requirements for each procurement might inhibit the private sector's participation due to the costs of learning and entering into multiple procurement processes among multiple agencies for essentially the same project.

Solution No. 1(c)	**Invite offerors to make an "irrevocable offer" where delegation of the authority to commit funds is a barrier and other solutions are not available**

E-ZPass' use of an irrevocable offer made by a single vendor to each member agency avoided issues which may arise when one agency attempts to delegate its contracting authority and its authority to commit funds to another agency. By soliciting a common offer, each member agency benefited from the terms and conditions collectively negotiated by the IAG. Yet each agency was not individually bound until it accepted the irrevocable offer by entering into a separate contract with the successful proposer.

B-4. ADDITIONAL FINDINGS AND RECOMMENDATIONS

Our research of ITS operational tests has consistently reinforced the following major findings regarding combined or coordinated procurements:

(1) Overcoming the administrative requirements of coordinating multiple public agencies is essential to the deployment of regional ITS solutions. State and local public agencies have been very creative in finding solutions to the administrative difficulties of conducting combined or coordinated procurements. The perceived inability to enter into multi-agency procurements can be resolved early in the procurement process. No other barriers were identified.

(2) Failure to provide seamless interoperable Intelligent Transportation Systems across jurisdictional boundaries of State and local transportation agencies could severely limit the effectiveness, speed, and degree of ITS deployment. Institutional models to accomplish seamless interagency activities exist but are underutilized.

As proven in **E Z PASS, Minnesota Guidestar** and **HELP Inc.,** there is no one way to successfully implement combined or coordinated procurements. The ISTEA, with its focus on intermodal solutions, has put a premium on interagency cooperation.

As established in the VOLPE case studies of institutional issues, it is not the rules, regulations or procedures that lead to a successful multi-agency procurement. It is instead the people from the various entities who must coalesce into a team focused on common mission and shared benefits. Partnering of ideas, resources and benefits is a new paradigm to many State and local agencies. Partnering requires a change in the way agencies have traditionally conducted business with the private sector. Both the public and private sector must take the time to understand each others' needs and wants to function effectively as a team. Key to the understanding is building trust and belief in your partner or teammate's ability to accomplish their role and support the team win.

COMBINED OR COORDINATED PROCUREMENTS

TABLE OF AUTHORITIES

CASES

Cuyler V. Adams 449 U.S. 443 AT 939 (1981) 1

STATUTES

Minnesota Statutes
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Charter of the City of Los Angeles, Section 11, Section 386(a)(7), 1995 12
IVHS Institutional Issues and Case Studies - Analysis and Lessons Learned, United States Department of Transportation, Volpe National Transportation Systems Center, April 1994 at page l-5 3
Minnesota Guidestar Strategic Plan and Request for Partnership Proposals, June 1994 8

INTERNAL REVENUE CODE

Section 501 10

U.S. CONSTITUTION

Art. 1, Sec. 10, C1.3 11

CODE OF FEDERAL REGULATIONS

49 C.F.R. Section 18.36 ..... 1, 11

Issue Overview

FINANCIAL ADMINISTRATION OF GRANTS AND COOPERATIVE AGREEMENTS

- Public policy requirements impose allowability-of-cost issues on the private sector in order to exclude certain types of costs from vouchers or invoices requesting reimbursement out of public funds. Grantees are required to establish that they are consistently applying proper accounting standards and are utilizing acceptable cost principles to identify and isolate costs not chargeable to a contract. Applying these principles can be problematic for firms doing business with the public sector for the first time.

- Cost principles come into play when cost is a basis for either contractor selection, for contractor compensation, or for pricing adjustments on an existing contract. The Federal Acquisition Regulation (FAR) establishes cost principles which are utilized on federally funded procurements, but are not directly applicable to State and local procurements. They do, however, often come into play when incorporated into grantee contracts and subcontracts.

- Cost accounting standards refer to how a prospective contractor estimates, accumulates and reports contract costs. Public agencies require strict adherence and consistency in contractors' method of cost accounting from year to year. The private sector, on the other hand, may modify their accounting systems annually to take advantage of tax or accounting rule changes.

- Private sector firms fear disclosure of their propriety information resulting from public agency audits of their records. This can be mitigated by utilizing separate entities to "wall-off" private activities; retaining third party auditors who audit to government standards; or by not accepting public funds.

- As public agencies look to the private sector to supplement and leverage public ITS investments, revenue sharing or cost matching techniques will become more common. New language in the National Highway System Designation Act of 1995 extends and liberalizes rules allowing States to receive and value in kind goods and services. However, these sources of funds may be limited if the public sector utilizes intrusive methods to verify that the contribution was received and properly valued.

Issue Overview

- The federal government has significantly reduced grant administration requirements on State and local agencies. State and local agencies are encouraged to work with U.S. DOT to develop alternative cost principles acceptable to the parties which are more responsive to the unique needs of ITS deployment and encourage partnering with the private sector.

- The following barriers related to Financial Administration of Grants and Cooperative Agreements have been identified as having the potential to constrain or hamper the implementation of ITS:

  (1) Private sector firms doing business with governmental entities for the first time may lack knowledge of the concept of unallowable contract costs, or may understand the concepts but lack the accounting systems needed to apply the cost principles. *(Page III-C-78)*

  (2) Private sector firms doing business with public entities for the first time may lack the financial reporting consistency required by public sector cost accounting standards. *(Page III-C-22)*

  (3) Private sector firms may not pursue publicly-funded ITS work due to fear of public disclosure of their proprietary financial information. (*Page III-C-24)*

  (4) The private sector cannot be expected to partner with public agencies by sharing costs without receiving sufficient benefits or opportunities to recoup its investment and make a profit. (Page *III-C-25)*

Section C

FINANCIAL ADMINISTRATION OF GRANTS AND COOPERATIVE AGREEMENTS

C-1. STATEMENT OF ISSUE

Comprehensive cost accounting, cost allowability, and audit requirements apply to State and local government contracts awarded using Federal grant funds. Commercial firms that do not regularly do business with States or other public sector entities find these requirements burdensome and costly to comply with. This section reviews the rules and regulations governing the financial administration of grants and grantee or subgrantee procurements. After summarizing the legal framework, this section addresses the following issues:

- The effect of mandatory application of the cost allowability principles contained in FAR Part 31;
- The availability of alternative cost allowability principles which reduce compliance costs for contractors while still meeting the needs of the Federal government and the grantee;
- The effect of application of Federal cost accounting standards on contractors of Federal grantees;
- The need for pre-award, post-award, and contract closeout audits to establish contractor compliance; the availability of alternatives to reduce the burdens associated with audits performed by grantee personnel;
- The implications of including a cost matching or sharing component as related to verification of and valuation of the cost matching element.

C-2. ANALYSIS

Federal requirements are imposed on State and local grantees to establish that contracts are awarded and administered in accordance with the terms of the grant or other funding instrument, and that Federal funds are expended consistent with Federal law and any grantee requirements. For this discussion it is critical to distinguish between procurements made under grant programs and direct Federal procurements. The Federal Acquisition Regulation (FAR), which governs most direct Federal procurements or acquisitions generally is not directly applicable to grantee procurements. An exception to this principle may be created, however, when a grantee requires its contractor to follow specific FAR requirements, either because Federal regulation directs the grantee to impose FAR compliance, because the terms of the

grant agreement direct FAR compliance, or because the grantee has made a choice to require FAR compliance.

C-2.4 Common Rule

To reduce the burden on grantees of complying with differing Federal agency requirements, in 1971 the Office of Management and Budget (OMB) promulgated Circular A-102, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments."[116/] The last significant revision to Circular A-102 occurred in 1988. This revision directed Federal grant-making agencies to promulgate a standard, "Common Rule" to govern the administration of their grants to State and local governments.

Requirements for State Grantees. For financial administration, the Common Rule at 49 C.F.R. § 18.20(a) distinguishes between State grantees and other government agency grantees. A State must account for grant funds in accordance with State law and procedures governing expenditure and accounting of the State's own funds.

Requirements of Other Grantees. Financial reporting requirements imposed on other grantees at 49 C.F.R. § 18.20(b) are more detailed. These include requirements for financial reports, accounting records, internal controls, budget controls, and cash management. The Common Rule also sets forth certain standard forms to be used in making financial status reports."[117/]

To date, at least 26 Federal departments or agencies have adopted the "Common Rule" governing their grant programs to State and local governments. The U.S. DOT's implementation of the "Common Rule" appears at Part 18 of 49 C.F.R., Subtitle A, "Uniform Administrative Requirements for Grants and Cooperative Agreements To State and Local Governments," supplemented by DOT Order No. 4600.17. Copies of both regulations have been included as an Appendix to this report.[119/]

116/ Federal Grant Programs to State and Local Governments - David J. Cantelme - Public Contract Law Journal, Volume 25, No. 2, Winter, 1996 at page 335. Since its promulgation, Circular A-102 has gone through several revisions and refinements. A major change occurred in 1979 when Attachment 0, adopting procurement standards for contracts awarded by grantees using Federal grant funds, was added.

117/ *Id.* at page 339. While OMB Circular A-102 and the "Common Rule" provide the main architecture of the regulations governing federal grants to State and local governments. The OMB has promulgated two significant supplemental sets of regulations: Accounting Principles for State and Local Grants, and audit requirements. In addition, OMB Circular A-102 section 5 permits-but discourages-agency deviations.

118/ *Id.* at 341.

119/ A complete copy of 49 C.F.R. Part 18 - Uniform Administrative Requirements for Grants and Cooperative Agreements, is included as an attachment to this Section. In addition to Part 18, the Department of Transportation recently issued DOT Order No. 4600.17, entitled "Grant Management Requirements" (Sept. 5, 1995), which revamped DOT's internal administrative guidance for grantees, their subgrantees and their

The following illustrations provide a broad overview of the flow of funds as they are committed, incurred, and reimbursed through a U.S. DOT program or grant:

Flow of Grant Funds

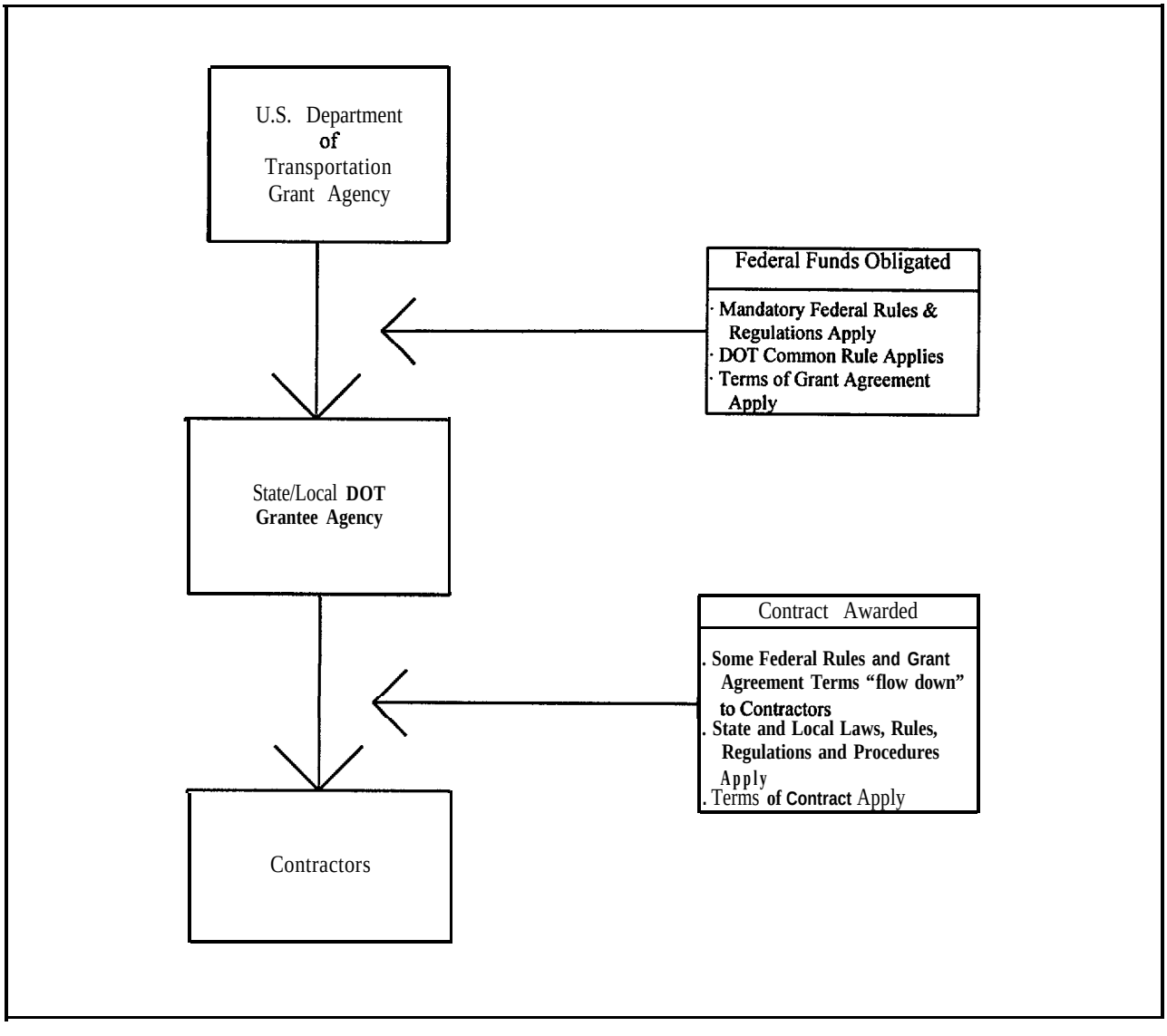

Figure 3

5, 1995), which revamped DOT's internal administrative guidance for grantees, their subgrantees and their contractors. DOT made the changes in response to Executive Order 12861 (September 12, 1993), which required that all executive branch departments and agencies eliminate at least 50 percent of their internal regulations by September 11, 1996. On October 18, 1993, OMB defined internal regulations to include grant management requirements.

Flow of Reimbursement Requests

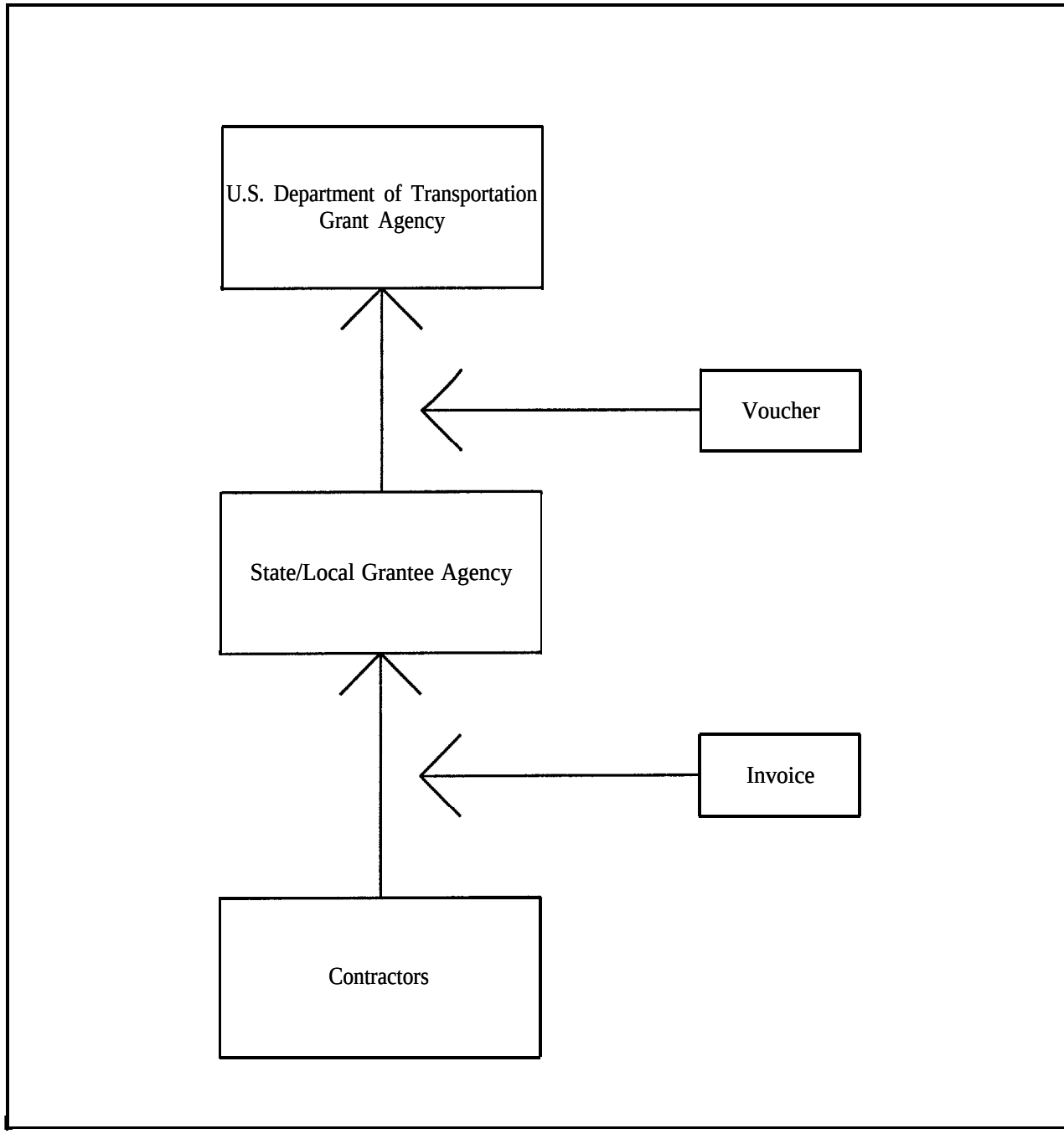

Figure 4

C-2.2 Common Rule Procurement Requirements

In addition to the grant management requirements discussed in the previous section, contracts awarded under funds from grants or cooperative agreements must be administered to ensure that the cost of the work performed has been incurred in accordance with the terms and conditions of the contract awarded. Although contract administration and compliance activities occur after contract award, decisions impacting contract post-award administration and compliance are made during the contract planning and formation process when the type of contract, method of award and pricing terms are established.

The Common Rule contains specific requirements for grantee or sub-grantee procurements. These rules are set forth in 49 C.F.R. § 18.36. Two critical procurement issues impacting financial and contract administration are addressed. Specifically,

- Methods of Procurement[174]
- Contract Cost and Price[121/]

In addition, the Common Rule vests responsibility in a non-State grantee or subgrantee for resolution of source valuation issues, protests, disputes, and claims. The rule specifically prohibits Federal agencies from substituting their judgment for that of the grantee or subgrantee unless the matter is primarily a Federal concern.'**'

C-2.3 Contracting Issues in Financial Administration

The Common Rule governs the financial administration of grants which includes the management of the procurement process utilized by State and local transportation agencies to obtain ITS goods and services. Financial administration related contracting issues may be encountered during the planning, contract formation, contract administration and contract closeout phases of the procurement process.

It is important that financial administration issues be addressed prior to contract award when some flexibility is available to grantees, subgrantees and contractors at this stage to negotiate more flexible terms and conditions acceptable to both parties. Once the

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120/ 49 C.F.R. § 18.36(d).

121/ 49 C.F.R. § 18.36(f).

122/ 49 C.F.R. § 18(a)(11); Federal Grants Programs to State and Local Governments, *supra* note 1, at page 345.

contact or grant is awarded, the parties for the most part, have to live with what was negotiated.[123/]

Terminology. For a successful negotiation on financial administration issues, it is important for both the public and private participants to understand the purpose and differences among the terms **"allowability of costs", "cost principles"** and "cost **standards."** These terms are defined in the context of direct Federal Government procurements as follows:

> **Allowability of** costs reflects FAR 31.201-I which states, with respect to contracts with commercial organizations, "While the total cost of a contract includes all costs allocable to the contract, allowable costs to the government are limited to those costs which are allowable pursuant to FAR Part 31 and applicable agency supplements."
>
> **Cost Principles** reflect the requirements (applicable to commercial organizations) of FAR 31.201-2 which states: "Certain cost principles in this subpart incorporate the measurement, assignment, and allocability rules of selected Cost Accounting Standards (CAS) and limit the allowability of costs to the amounts determined using the criteria in those selected standards. Business units that are not otherwise subject to these standards under a CAS clause are subject to the selected standards for the purpose of determining allowability of costs on governments contracts." (emphasis added)
>
> **Cost accounting standards** refer to the accounting practices a prospective contractor uses to estimate, accumulate and report contract costs. As a condition to receiving public funds through a contract, contractors must disclose their accounting practices in writing to enable a public agency to (1) establish a clear understanding of the cost accounting practices the contractor intends to follow, (2) define costs charged directly to contracts and disclose methods used to make such allocations, and (3) delineating the contractor's methods for distinguishing direct costs from indirect costs and the basis for allocating indirect costs to the contract.

123/ It is in the interest of both the grantee and contractor to streamline financial administration of contracts in a manner acceptable to both parties. Each party will enjoy reduced administrative and oversight costs as a result of successful negotiations on these issues.

C-2.3(a) Allowability of Costs

The Common Rule establishes the following limitation on use of funds: "Grant funds may only be used for:

(1) The allowable costs of grantees, subgrantees and cost-type contractors including allowable costs in the form of payments to fixed-price contractors; and

(2) Reasonable fees or profit to cost-type contractors but not any fee or profit (or increment above allowable costs) to the grantee or subgrantee."[124/]

To exclude certain costs from a contractor's invoice submitted to a public transportation agency it is necessary that policies and procedures exist which provide for the identification, capture and exclusion of such unallowable costs. Part 31 of the Federal Acquisition Regulation (FAR) is used in direct Federal procurements to define categories of unallowable costs. The regulation states: "Certain costs are rendered unallowable by provisions of pertinent laws and regulations."

Examples of costs declared expressly unallowable by Federal statute or regulations (including the FAR) are:

- contingent fees[125/]
- entertainment expenses[126/]
- fines and penalties[127/]
- costs of organizing or reorganizing a business enterprise'*"
- contributions[129/]
- interest[130/]
- losses on other contracts [131/]
- certain types of advertising and business meetings[132/]

124/ 49 C.F.R. § 18.22.

125/ FAR 3 1.205-7.

126/ FAR 3 1.205-14.

127/ FAR 31.205-15.

128/ FAR 3 1.205-27.

129/ FAR 3 1.205-g.

130/ FAR 3 1.205-20.

131/ FAR 3 1.205-23.

132/ FAR 3 1.205- 1.

- bad debts[133/]
- Federal income taxes[134/]

A description of these and other unallowable contract costs and the criteria for a determination of allowability are provided in FAR Part 31.

In addition to the above categories, other costs may be specifically identified in the contract as being unallowable and the contract terms may also provide specific criteria that must be met before a cost is considered allowable (i.e. after invoice approval) or there may be ceiling limitations on certain types of costs or on total contract costs.[135/]

C-2.3(b) Applicable Cost Principles

Cost considerations only come into play when cost is a basis for:

- Contractor selection
- Compensation
- Scope changes or claims

The Common Rule states: "For each kind of organization, there is a set of Federal principles for determining allowable costs. Allowable costs will be determined in accordance with the cost principles applicable to the organization incurring the cost".[136/] For-profit corporations are required to utilize FAR Part 31 cost principles and procedures, or uniform cost principles that comply with cost principles acceptable to the Federal agency.[137/]

Utilization of FAR by State and Local Contracting Agencies. Although only applicable in direct Federal procurements, the FAR is often adopted by State and local transportation agencies to establish and define allowability standards for their contracts on an individual contract or agency-wide basis. An example of an agency utilizing these standards is **Los Angeles County Metropolitan Transportation Authority's** (LACMTA) guide prepared for use by LACMTA staff contractors, consultants and auditors to determine allowability, allocability and reasonableness of contract costs. The guide specifically states that FAR 31.205 contains cost principles which "are to be

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133/ FAR 3 1.205-3.

134/ FAR 3 1.205-4 1.

135/ Defense Contract Audit Agency Manual (January 1996), § 5-1009.

136/ 49 C.F.R. § 18.22(b).

131/ *Id.*

used by both contractors and auditors."[138/] A matrix cross referencing FAR to categories of allowable and unallowable costs has been included in the Appendix.[139/]

C-2.3(c) Cost Accounting Standards

In order to receive public funds under a grant or contract, the entity receiving the funds must establish that its financial administration accounting system has integrity and the ability to exclude costs not legally chargeable. Integrity is established by (1) achieving consistency in the cost accounting practices utilized by a contractor in estimating costs for its proposals with those practices used in accumulating and reporting costs during contract performance, and (2) to provide a basis for comparing such costs.[140/]

(1) Comparability Requires Consistency. Cost accounting practices should be applied consistently so that comparable transactions are treated alike. The consistent application of cost accounting practices will facilitate the preparation of reliable cost estimates used in pricing a proposal and the comparison of those cost estimates with the actual costs of contract performance. Such comparisons of estimated and incurred costs provide (1) an important basis for financial control over costs during contract performance, (2) means for establishing accountability for costs in a manner agreed to by both parties at the time of contracting, and (3) an improved basis for evaluating estimating capabilities.[141/]

(2) Consistency Between Estimating and Accumulating Costs. The consistency requirement between estimating and accumulating costs is a two-part requirement. First, the contractor's practices used to estimate costs in pricing proposals must be consistent with practices used in accumulating actual costs. Second, the contractor's practices used in accumulating costs must be consistent with practices used to estimate costs in pricing the related proposal.[142/]

138/ Los Angeles Metropolitan Transportation Authority Contract No. EN027, Amendment No. 1.

139/ The matrix appears in the Appendix entitled, "Financial Administration." LACMTA's approach to utilizing FAR to determine allowable costs appears to be in compliance with U.S. DOT Order 4600.17, Appendix C, which requires "The cost principles established by subpart 3 1.2 of the FAR shall be used for for-profit organizations." (emphasis added) This is somewhat in conflict with the Common Rule which requires that grantee's rules, regulations and procedures shall apply unless there is an overriding federal interest. 49 C.F.R. § 18.2.

140/ Defense Contract Audit Agency (DCAA) Audit Manual, § S-401. The DCAA conducts audits of Federal Government contractors on behalf of both military and civilian Federal agencies.

141/ *Id.*

142/ *Id.* § 8-40 1.1(a).

One of the primary problems involved in the implementation of the consistency standard related to the level of detail provided in estimating contract costs and accumulating contract costs.[143/] Negotiating broader cost accounting categories which require lesser levels of detail may provide an opportunity to increase grantee flexibility and reduce the administration costs of both the grantee and contractor. However, any negotiated agreement must meet the minimum Federal requirements contained in the Common Rule.[144/]

(3) Consistency in Reporting Costs. Reporting costs refers to (1) data presented in reports required by the contract such as budget and management reports for cost control purposes, and (2) the data contained on public vouchers or any other request for payment. The primary interest is to ascertain whether the accounting practices used to determine the costs presented in those reports are consistent with the accounting practices used to estimate and accumulate the costs.[145/]

C.2.3(d) Audits

The fundamental basis establishing the need for audits arises from grantees' responsibility to expend and account for Federal grant funds in accord with their own State and local laws and procedures. The Common Rule provides further definition of this requirement which imposes different rules on State agencies versus non-State agencies.

(1) Requirements for State Systems, State systems must be sufficient to. . .

- Permit preparation of reports required by the [the Common Rule], and the statutes authorizing the grants,
- Permit the tracing of funds to a level of expenditure adequate to establish that the funds have not been used in violation of restrictions and limitations of applicable statutes.[146/]

(2) Requirements for Other Grantees, "Other grantees" are required to comply with the following requirements:

143/ *Id.*

144/ 49 C.F.R. § 18.22.

145/ § 8-40 1.2, DCAA Audit Manual, *supra,* at note 25.

146/ 49 C.F.R. § 18.20(a).

- ***Financial Reporting.*** Accurate, current, and complete disclosure of the financial results of financially assisted activities must be made in accordance with the financial reporting requirements of the grant or subgrant.

- ***Accounting Records.*** Grantees and subgrantees must maintain records which adequately identify the source and application of funds. . . . .

- ***Internal Control.*** Effective control and accountability must be maintained for all grant and subgrant cash, real and personal property, and other assets. . . . .

- ***Budget Control.*** Actual expenditures or outlays must be compared with budgeted amounts for each grant or subgrant. . . ,

- ***Allowable Cost.*** Applicable OMB cost principles, agency program regulations, and the terms of grant and subgrant agreements will be followed in determining the reasonableness, applicability, and allowability of costs.

- ***Source Documentation.*** Accounting records must be supported by such source documentation as canceled checks, paid bills, payrolls, time and attendance records, contracts, subgrant documents, etc.

- ***Cash Management.*** Procedures for minimizing the time elapsing between the transfer of funds from the U.S. Treasury and disbursement by grantees and subgrantees must be followed whenever advance payment procedures are used. . . .[147/]

(3) **Types of Audits,** In order to comply with the above requirements associated with receiving public funds, grantees may require one or more contractor audits based on the verification needs and standards. Typical public sector audits may include the following types:

- **Pre-award Audits.** After receiving an offer from a contractor, the grantee will conduct a preaward evaluation to determine if the offeror's accounting system is adequate to accumulate and segregate costs as detailed in the previous section, and to determine if the proposed costs are reasonable.

- **Interim Audits.** An interim audit is generally performed to ensure that billed costs are supported, and any previous deficiencies have been corrected.

1471 49 C.F.R. §18.20(a).

- **Annual General Cost Audits.** Performance of long-term contracts normally will cross several contractor fiscal years. Since the contracts provide for provisional overhead billing rates, the overhead must be audited each year, and the actual rates must be compared to the provisional rates. An adjustment is then made to the contract billings to reflect the difference between the actual and provisional rate; and a new provisional rate for the coming year is set. Contractors should perform the audit on a "self determination basis" so as not to (1) harm their cash flow by having a provisional rate which is lower than the actual rate, or (2) build up a liability when the provisional billing rate is larger than the actual rate, which might harm the financial health of the contractor when the liability is paid. Generally, overhead should be audited only once each year for all contracts.

- **Close-out Audits.** Close-out audits of contracts are performed after project completion. Such audits are performed routinely to determine whether the contract costs claimed are 1) allowable, 2) allocable, 3) reasonable, 4) in compliance with Federal and State laws and regulations, and in compliance with the fiscal provisions required by the contract. Audit tests, and other auditing procedures considered necessary in the circumstances will be made of the contractor's accounting records. The close-out audit will include an audit of any unaudited overhead years and will determine the payment of final amounts for overhead adjustments and fee withholds.[148/]

(4) **Single Audit Act.** Audit requirements for State and local grantees are based on the Single Audit Act of 1984.[149/] These requirements have been implemented in OMB Circular A-128, Audits of State and Local Governments.[150/]

148/ Amendment to Contract No. ENO 27 - Los Angeles County Metropolitan Transportation Commission and Enviro-Rail, April 12, 1996.

149/ 3 1 U.S.C. 7501-7507.

150/ Audit requirements have been implemented in U.S. DOT in 49 C.F.R. part 18 and in 49 C.F.R. part 90, Audits of State and Local Governments. Part 90 is merely a re-publication of OMB Circular A-128. The Department has determined that part 90 is unnecessary, and has decided to rescind part 90 and add a reference to OMB Circular A- 128 in § 26, Non-Federal Audits, of part 18.

The Single Audit Act of 1984 established audit requirements for State and local government recipients of Federal financial assistance, and is implemented by OMB Circular A-128.[151/]

(5) **U.S. DOT Grant Management Requirements,** U.S. DOT Order No. 4600.17 states:

> When . . . additional audits are necessary, such audits shall build on the results of independent auditors if the audits meet the criteria contained in OMB Circular A- 128 or A- 133. Recipients receiving less than $25,000 a year in Federal assistance funds are exempt from audit requirements; however, they must retain appropriate records to document their compliance with the requirements of their Federal assistance awards. Recipients receiving $25,000 or more but less than $100,000 who do not obtain audits in accordance with A-128 or A-133 shall follow procedures prescribed by the Operating Administrations (OAs) and Secretarial Offices (SOs) and shall ensure that Federal funds were spent in accordance with applicable laws and regulations governing the program in which they participate.

(6) Audits Acceptable to Establish Federal Compliance, The following can be used to determine recipient compliance with Federal requirements:

- Recipient obtained audits made in accordance with "Government Auditing Standards" (GAS) issued by GAO.
- Previous audits of recipient operations.
- Desk reviews by Federal program officials of project documentation.
- Federal/non-Federal audits obtained by recipients.
- Evaluation of recipient operations by Federal program officials.[152/]

151/ OMB Circular A-128 extends the provisions of the Single Audit Act to public hospitals, colleges and universities, but governments may exclude these entitles from single audits provided that the audits comply with, and are conducted, in accordance with OMB Circular A-133. OMB Circular A-133 provides audit requirements for institutions of higher education and other nonprofit organizations, and closely parallels the requirements of A-128. The requirements for audit coverage for recipients, not covered under either A-128 or A-133, are included in the Appendix.

152/ 3 1 U.S.C. 7501-7507.

The final U.S. DOT rule adopting the Single Audit Act was published in the Federal Register on May 10, 1996, effective June 10, 1996.

The rule states:

> (d) Governmental recipients and sub-recipients are subject to the Single Audit Act of 1984, and OMB Circular A-128, "Audits of State and Local Governments."[153/]

As a result, U.S. DOT has formally adopted the Common Rule position regarding the Single Audit Act.

C-2.3(e) Implications of Cost Sharing or Matching Share Requirements

Definitions

> Cost sharing or matching means the value of the third-party in-kind contributions and the portion of the costs of a Federally-assisted project or program not borne by the Federal Government.[154/]
>
> Third party in-kind contributions mean property or services which benefit a Federally-assisted project or program and which are contributed by non-Federal third parties without change to the grantee or a cost-type contractor under the grant agreement.[155/]

Issues Raised by Cost Sharing. The introduction of third-party cost matching into public funded ITS projects and programs may give rise to the following issues regarding methods of valuation, authority to receive funds, and need for a public purpose.

(1) Methods of Valuation. The Federal rules regarding grants and cooperative agreements set forth clear guidelines for State and local agencies regarding the valuation and satisfaction of cost sharing or matching share requirements. The rule states:

> ***Costs and contribution acceptable.*** With the qualifications and exceptions listed in paragraph (b) of this section, a matching or cost sharing requirement may be satisfied by either or both of the following:

153/ 49 C.F.R. 18.26(d).

154/ 49 C.F.R. § 18.3.

155/ *Id.*

(1) Allowable costs incurred by the grantee, subgrantee or a cost type contractor under the assistance agreement. This includes allowable costs borne by non-Federal grants or by other cash donations from non-Federal third parties.

(2) The value of third party in-kind contributions applicable to the period to which the cost sharing or matching requirements applies.[156/]

- **In Kind Contributions.** The Common Rule presents special standards for third party in-kind contributions for the following situations:

  - Contributions count only if the contribution would be an allowable cost under a grant or contract

  - Fixed price contract valuation can be utilized if there is an increase in service or decrease in cost

  - All other third party contributions shall be valued to be a fair and reasonable value[157/]

- **NHS Expands Eligibility for In-Kind Contributions.** Valuation of cost sharing or matching share contributions for Title 23 deployment was recently expanded by the National Highway System (NHS) Designation Act of 1995. Section 323 of Title 23 U.S.C., entitled *Donations,* addresses procedures for property being acquired and credit for donated lands.[158/]

  The NHS added the following language to expand and modify § 323 to include:

  > "(c) Credit for Donations of Funds, Materials, or Services.— Nothing in this title or any other law shall prevent a person from offering to donate funds, materials, or services in connection with a project eligible for assistance under this title. In the case of such a project with respect to which the Federal Government and the State share in paying the cost, any donated funds, or the fair market value of any donated materials or services, that are accepted and incorporated into the project by

156/ 49 C.F.R. § 18.24.

157/ 49 C.F.R. § 18.24(7).

158/ 23 U.S.C. § 323(a),(b).

> the State highway department shall be credited against the State share.[159/]

(2) **Authority to Receive Funds, -** In addition to valuation issues, another common problem encountered by agencies adopting innovative contracting techniques involving cost sharing is the inability to apply any funds received from other transportation projects in the cost sharing arrangement to the public contract. In many cases, funds received are payable only to the State treasury and subject to reappropriation by the State legislature. In addition, State transportation agencies may not have the authority or staff with adequate internal controls to receive and reinvest funds received from cost matching/sharing agreements.

Some State agencies have resolved this issue by including in their contracts an express reference to the agency's statutory authority to accept third-party matches. For example, **Minnesota Guidestar** included the following declaration:

> WHEREAS, MinnDOT, pursuant to Minnesota Statutes 174.02, Subdivision 5, is empowered to accept gifts, grants, or contributions pertaining to the activities of the Department.[160/]

(3) Need for Public Purpose, Critical to the ability to cost share funds with private industry is the requirement that public funds being matched be spent for a public purpose. The public sector cannot make a gift of public funds and in some instances, may not lend the State's credit for private purposes. For example, there is little benefit for the public sector to fund activities to develop a technology which only serves to provide one firm with an unfair advantage over another. Additionally, it is not the role of the public sector to engage in commercial exploitation of a product or service in direct competition with the private sector.

The public purpose doctrine has been established through State court decisions over the years. An example of its application to municipal corporations is described as follows:

> It is generally held, in some cases under express constitutional or statutory provisions, that public funds can be appropriated and expended by a municipal corporation only for public purposes (and) a

159/ PL 104-59, § 322 - Donations of Funds, Materials or Services for Federally Assisted Projects, November 28, 1995.

160/ Contract between Minnesota and Westinghouse, see Contract No. M-8124, November 1994.

municipal corporation cannot expend or be authorized to expend its public funds for private purposes.[161/]

There has been considerable litigation centering on what activities can be considered to have public purposes.[162/]

- **Legislative Solutions.** To avert such litigation, it is possible for a State to include in a statute enabling an agency to commit public funds for a specific activity a clear statement regarding expected public benefits of the cost sharing arrangements for a public/private partnership.

  In an ITS context, **Minnesota Guidestar** has had included in its legislative grant of authority to the Commissioner of the Department of Transportation the following powers which include public purposes:

  - To facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation

  - To promote and encourage economic and technological development in transportation matters within and between governmental and non-governmental entities

  - For sharing facilities, equipment, staff, data, or other means of providing transportation-related services

  - For other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for the benefit of the citizens of Minnesota. [163/]

This statutory listing assures that these items constitute legitimate government functions conveying public benefit.

- **Contractual Declarations.** A clear declaration of public purpose can also be asserted in contractual declarations, as reflected in the **Seattle**

161/ 64 C.J.S. Municipal Corporations Sec. 1835 (1955).

162/ Katz v. Brandon, 245 A.2d 579, 156 Conn. 521 (1968), Port Authority of City of St. Paul v. Fisher, 145 N.W.2d 560,275 Minn. 157 (1966), Ferch v. Housing Authority of Cass County, 59 N.W.2d 849, 79 N.D. 764 (1953).

163/ Minn. Rev. Statues 174.02 Subd. 6a effective July 1, 1993.

Wide-Area Information for Travelers (SWIFT) Agreement between the State of Washington and the project participants:

> The Parties expect the project will provide to Washington State and the U.S. Federal Highway Administration (the "FHWA") useful information of local and national significance.[164/]

The above example illustrates that establishing a public purpose by contract reduces the significance of this barrier to State operational tests of ITS, provided a bona fide public purpose does in fact exist.

C-3, BARRIERS AND SOLUTIONS

Barrier No. 1	**Private sector firms doing business with government entities for the first time may lack knowledge of the concept of unallowable contract costs, or may understand the concepts but lack the accounting systems needed to apply the cost principles**

This barrier was encountered in early operational tests. Private sector firms doing business with the public sector for the first time sometimes lacked the accounting systems to exclude unallowable costs from their invoices and vouchers submitted for reimbursement out of public funds. These costs were otherwise legitimately incurred as a cost of performing the contract scope of work. To revamp their corporate accounting system for a single public sector contract would have been costly, disruptive, and hard to justify to corporate management. Additionally, private sector firms may fear that allowing the public sector to verify compliance with the governments cost allowability principles could put the confidential cost and profit structure of their commercial products in the public domain where competitors might obtain access to this proprietary information.

164/ Agreement for the Seattle Wide-Area Information for Travelers (SWIFT) Project between the following parties: State of Washington, acting through the Washington Department of Transportation and the Secretary of Transportation; King County, acting through its Department of Metropolitan Services; SEIKO Communications Systems, Inc.; Metro Traffic Control, Inc.; International Business Machines Corporation, acting through its Thomas J. Watson Research Center; Delco Electronics Corp.; Etak, Inc., dated December 20, 1994.

Solution No. l(a)	Comply with the requirements of receiving public funds; negotiate on what constitutes compliance, and how compliance will be measured

There is much flexibility in the existing rules and regulations for the parties to mutually agree as to what constitutes compliance. Agencies may differ on what constitutes compliance in these areas. Expectations between the parties must be clarified at the outset. As previously discussed, the Common Rule allows much flexibility in the methods used to identify, value and exclude costs from an invoice or voucher requesting reimbursement from public funds. It may not be practical to review all of a corporation's accounting system and accumulated costs if the publicly-funded contracts represent an insignificant portion of the company's operations.

In lieu of reviewing all of the company's operations to exclude unallowable costs, the parties can agree in advance that unallowable costs will be individually identified as they are incurred on the government contract and excluded from the cost centers where those costs are captured. The public agency can still verify that the system is working with integrity by identifying the fact that such costs are being systematically excluded. Once this process is established and verified, the public agency no longer has need to go through the company's entire accounting system looking for instances where unallowable costs might have been charged to government entities as it can rely on the integrity of the contractor's system and the final closeout audit.

Another method to build in flexibility without sacrificing compliance is to negotiate on the level of detail required to meet the government agency's objectives. The utilization of market- or competition-based pricing to establish fully-loaded rates which are fair and reasonable can avoid the intrusiveness associated with the public sector's attempt to verify separate elements of direct costs, overhead multipliers and profit. This solution however may be restricted when A/E services are being procured under a qualifications-based requirement. Qualifications based awards may not be required when the true intent of a contract is to plan . . . not design.

Another method of complying with the public sector's need to verify that unallowable costs are not being charged to a contract is for the private sector to form a new organization or entity solely to receive and perform publicly-funded contracts. This concept is often referred to as "walling off" or "double breasting" because there are now two separate entities. One is set up to be responsive to the contract compliance needs of public funding agencies; the other entity is purely private in that it does not accept public funds and is therefore not subject to compliance verification or audit by a governmental contracting agency.

Solution No. 1(b)	Utilize alternative cost principles

An example of utilizing alternative cost principles acceptable to the parties can be found in the **SWIFT** operational test between the State of Washington (WSDOT) and several private sector entities. The parties acknowledged that traditional public accounting practices would not be appropriate for their contract in which the parties were sharing risk and costs. In order to remove the barrier created by these traditional practices the parties agreed that the following alternative cost principles would be acceptable:

- Waive the requirement for pre-award audits. For billing purposes parties will: 1) use overhead amounts based on an existing FAR-based audit; 2) in lieu of the above, use a provisional overhead rate of 165 percent.

- WSDOT will suspend our 165 percent overhead cap policy. Profit (fee) is disallowed on these projects. Due to the nature of the public-private projects, we will not impose overhead limits on parties to the agreement (however, in no event will the maximum amount payable be exceeded.)

- Allow pre-contract expenses. Pursuant to 48 C.F.R. 31.205-32 and the project Memorandum of Understanding, expenses incurred in the pre-contracting phase (from the effective date of WSDOT's Cooperative Agreement with FHWA, August 4, 1994, through to execution of the Agreement by all parties) may be counted by a party as part of its contribution amount. Parties will ensure that records are maintained for those amounts and that the same expenses do not also appear in their overhead.

- No Certification of Current Cost and Pricing Data. In lieu of the certification, parties to the agreement will commit to delete FAR-disallowable costs from their overhead for the purposes of this agreement.

- Invoices will be submitted on Standard Form 270. No detail of hours, rates ar other direct non-salary reimbursable will be provided with quarterly invokes. A separate monthly project status report will be provided by each party. General categories of information will be provided, including hours expended and direct non-salary expenses charged to tbe project (a breakdown of direct non-salary details and/or wage rates may not be provided.) WSDOT expects to receive enough

information in status reports or under separate cover to generally verify that invoices are reasonable (including overhead rates).

- Direct and indirect costs inconsistent with 48 C.F.R. 31. Parties are seeking an exception to the allowable costs for travel, recruiting and employee relocation. These would be submitted using the Party's standard commercial practice.

- Fair Market Rates will be allowed. Hardware/software or services contributed or loaned by parties to the project will be valued as part of a party's contribution at the "fair market rate" for such. Such rates may contain an established "mark-up." In advance of crediting the contribution, the State will require parties to provide details regarding the method used to establish the rate. The methodology will be subject to WSDOT approval.[165/]

These alternative cost principles allowed the parties to comply with the Common Rule while minimizing the intrusion associated with the application of traditional cost principles utilized on projects funded with public funds. However, this approach may conflict with U.S. DOT Order No. 4600.17 which mandates use of the FAR's cost principles for Federally-funded projects implemented by State and local transportation agencies. As previously discussed, U.S. DOT Order No. 4600.17 appears to conflict with the Common Rule, in that the Order directs commercial firms to use the FAR's cost allowability principles (FAR Part 31), while § 18.22(b) of the Common Rule allows use of FAR Part 31 cost principles "or uniform cost accounting standards that comply with cost principles acceptable to the Federal agency." This is an open issue which should be addressed with the SWIFT funding and contracting participants (i.e. FHWA & WSDOT) prior to issuing Requests for Proposals which require private sector cost and risk sharing.

165/ Letter from S.A. Moon, Deputy Secretary of Operations, WSDOT, to H.R. Bennetts, FHWA Acting Division Administrator, December 12, 1994.

Solution No. 1(c)	Utilize partnering relationships between pubttc and private sectors

As discussed in the section on Combined or Coordinated Procurements, "partnering" means different things to different people. For the purposes of this analysis "partnering" refers to a sharing of costs or risks among the public and private sectors to achieve a shared benefit without establishing a formal legal partnership or the comingling of public and private funds under a contract let by the public sector.

The key to the success of partnering in this context is to prevent the private sector firm from receiving public funds. The public/private benefit is accomplished by coordinating the separate expenditures of the public and private sectors to be mutually supportive. The **ADVANCE** operational test between FHWA, the State of Illinois and Motorola Corporation, utilized this methodology when Motorola objected to disclosing its proprietary costs data to the public agency as a result of receiving public funds. The parties agreed to a coordinated investment approach. Motorola continued to internally fund the hardware and software development which would be compatible with infrastructure development funded by FHWA and Illinois DOT. As a result of partnering, compatibility between Motorola's hardware and the highway infrastructure was assured without public funds being utilized by Motorola for its private development effort. This partnering or shared benefit approach will work only if there are separate and distinct public and private benefits to justify the respective investments of public and private sector funds. In this case, the application of ITS to potentially reduce traffic congestion on public roads sufficed to justify the public sectors investment, and the prospect of potential hardware/software sales apparently justified Motorola's investment.

Barrier No. 2	Private sector firms doing business with public entities for the first time may lack the financial reporting consistency required by public sector cost accounting standards

When private sector organizations adopt cost accounting standards they may be constrained from changing accounting practices at a later date because governmental agencies may require that once such standards are implemented, the standards cannot be changed without prior approval of the government contracting agency. This prior approval requirement limits the flexibility otherwise available to private sector firms

under Generally Accepted Accounting Principles (GAAP). Problems are most often encountered when cost accounting standards are introduced though application of the FAR in the areas of accounting for research and development costs[166/] and depreciation methodology.[167/]

Solution No, 2(a)	**Utilize alternative cost accounting standards**

The solutions to provide more flexibility in Cost Accounting Standards are similar to those discussed above in the **SWIFT** operational test regarding allowability of costs and cost principles utilized to account for unallowable costs.

Solution No. 2(b)	**Create a new organization or entity to perform the contract and receive public funds**

Should a new participant to public sector contracting anticipate continuing business with the public sector for an extended period of time, the private sector firm may want to consider to forming a permanent entity which is created specifically to comply with government cost accounting standards and which maintains the consistency required by applying these standards in the same manner over an extended period of time. Again, the concept is to keep public funds out of the private sector organization or entity which may have different accounting methodology. This method of segregating organizational units, sometimes is referred to as "walling off' the private sector organization. This can be accomplished in several ways:

(1) By proactively selecting or creating new funding sources which do not require FAR compliance. Utilization of techniques such as franchising allows the private sector entity to receive and reinvest non-Federal project revenues per the terms and conditions of the franchise agreement. This technique has been utilized in telecommunications and in attempts to privately fund high speed rail projects. It is most successful when there is a self-sustaining business which can operate profitably out of project revenues, without public sector operating subsidies. This is usually not the case for transportation projects but may be the case for select projects involving information systems.

166/ FAR § 3 1.205-18(b)

167/ FAR§ 31.205-11(n)

(2) By creating a separate legal entity which complies with government cost accounting standards, Many large domestic corporations create separate companies to pursue work in the Federal sector and account for public contract funds in a manner acceptable to the public entity. New legal entities can also be used to accept funds from multiple sources. **HELP, Inc.** is a good example of this technique. A nonprofit 501(C)(3), corporation was formed to accept funds from multiple States and the private sector. The formation of a 501(C)(3) corporation may be an effective tool to provide "seamless boundaries" when implementing regional ITS solutions.

(3) By implementing coordinated activities without co-mingling funds. The **ADVANCE** operational test discussed in Barrier No. 2 is a good example of this technique.

Barrier No. 3	**Private sector firms may not pursue publicly-funded ITS work due to fear of public disclosure of their proprietary financial information.**

Private sector firms in high-tech industries are very protective of their proprietary financial information including their cost structure and profitability. Substantial investments must be recouped from products which might only be state-of-the-art for a few years. These products often have rates of return that are orders of magnitude beyond those allowed in public contracting (usually between 5-15%). These high rates of return may be normal and often are necessary for financial survival in the private sector. Even a perception of excessive profits can heighten lack of trust between the public and private sectors. Even worse, private sector firms fear that their proprietary cost information may, through public sector compliance or close-out audits, be discoverable by their competitors through Freedom of Information Act requests or through bid protest procedures.

Solution No. 3(a)	**Utilize a third party accounting firm to perform contractor audits to public sector standards**

168/ Organizations described in I.R.C. § 501(C)(3) are exempt from Federal income taxation.

To avoid public sector auditors bringing proprietary information into the public domain the parties may agree to utilize third party auditors **auditing to government standards,** These auditors can be retained by either party under a nondisclosure agreement. The public agency can approve the audit program in advance to ensure its purposes are met. If noncompliance is identified in the audit report, further actions can be taken to address each instance on noncompliance to the public agency's satisfaction- The Single Audit Act adopted by U.S. DOT in Order No. 4600.17 encourages all public agencies to utilize a single audit in lieu of each agency performing its own audit. Utilization of a third party auditor agreeable to the parties is extremely helpful in reducing the risks of disclosure and the costs associated with performing multiple audits of the same issues (i.e. allowability of costs, cost accounting principles and cost accounting standards) when there are multiple funding sources. This is a beneficial technique, since ITS technologies must often be implemented by multiple jurisdictions in order to address regional problems.

Solution No. 3(b)	**Do not permit audit working papers to remain in the public agency's files**

Regardless of who performs the audit, it is the audit report and any instances of noncompliance documented in the report that is important. Without restricting the scope of the audit, auditors can utilize contractor records to perform their analysis and form their objective opinions. As long as public sector auditors do not take contractor documents or notes back to their files, the risk of detrimental disclosure to the private sector is significantly reduced. Keep in mind that not taking copies or working documents back to the auditor's office or files in no way affects the auditor's or funding agency's right to have access to those records at a later date as the contractor is usually obligated under the terms and conditions of the contract to retain its records for a period of time even after the contract is closed.

Barrier No. 4	**The private sector cannot be expected to partner with public agencies by sharing costs without receiving sufficient benefits or opportunities to recoup its investment and make a profit**

As discussed in this section, the public and private sectors have very different motivators in financial administration. The private sector must be profitable in the long run. The public sector is accountable for funds and fairness of the procurement process.

In the past, the private sector has had little incentive to enter into cost matching/sharing relationships. Deviations from traditional practices can be seen as **a** perceived risk.

Solution No. 4	**Establish an environment for success which responds to needs and wants of both the public and private sectors**

This environment is more a function of people interacting than a function of procurement. **E-ZPass, Guidestar,** and **HELP, Inc.** all used different approaches. All were successful in implementing new rules and roles for the public and private sector working together. Activities to support a partnering policy would include:

- a clear statement in the law allowing agencies to retain and reinvest funds[169/]
- a clear statement of public benefit
- a clear statement of public purpose

C-4. ADDITIONAL FINDINGS AND RECOMMENDATIONS

The Common Rule provides for extensive flexibility for the parties to a grant or contract to negotiate flexible financial administration terms and conditions which are acceptable to the parties and which do not compromise the public sector's objectives. Many of these institutional solutions are available under current rules, regulations and procedures but must be developed early in the grant negotiation and contract formation process. Once a contract is awarded, it is difficult to change its terms and conditions as material changes might impact the consistency and therefore the integrity of the financial administration of the grant or contract. Material contract changes after award may also raise questions as to the fairness of the contract award process.

169/ States should familiarize themselves with ISTEA and National Highway System Designation Act of 1995 (NHS). In a pilot program of State Infrastructure Banks (SIB) which established clear rules and regulations allowing State DOTs to receive and reinvest loan repayments and which "defederalizes"§ 350 funds once repaid through the SIB (Public Law 104-59, November 28, 1995).

c-4.1 Involve Experienced Contract Professionals

As discussed throughout this report, it is important to involve contract professionals early in the process who have extensive knowledge of the applicable rules, regulations and procedures associated with public sector funding and procurement. In today's environment of strained public sector resources, reducing the costs of compliance for both the public and private sector parties will free up additional funds for investment in additional ITS goods and services. Blindly following traditional public sector financial administration practices designed for construction of roads and bridges may not be a prudent use of public funds when applied to the acquisition of ITS goods and services.

c-4.2 Other Recommendations

Other recommendations to reduce the administrative costs of financial administration for grants, subgrants, and procurements without sacrificing accountability include:

(1) State and non-State public agencies may want to review and revise their rules, regulations, and procedures to reduce administrative procedures which do not support the basic principles contained in the Common Rule without compromising internal controls. Review procedures which add costs and exceed Federal requirements.

(2) Utilize the contracting officer to control cost and scheduled deliverables in lieu of adding additional staff to control cost and schedule activities. The contract is an effective tool for cost and schedule control activities; utilization of the contract to establish enforceable reasonable milestones is much more cost effective than staff performing that function through a separate reporting mechanism.

(3) The cost of compliance with government accounting requirements has been greatly reduced by the ease and cost effectiveness of off-the-shelf accounting programs which are capable of performing activities necessary to meet government cost accounting standards. The cost of complying with reasonable government requirements should not be a barrier to new participants entering into public contracts.

(4) Throughout this report and repeated in the financial administration analysis, recruitment and training of contract professionals knowledgeable in financial administration activities to negotiate more effective terms for grants and contracts is essential to implement innovative streamlined contracting procedures for ITS. Due to travel restrictions on State and local agencies, U.S. DOT or FHWA/FTA should initiate professional training workshops to be presented at State and local agencies for both public and private sector entities to educate and train staff. To expedite delivery of the education and training programs, existing organizations and entities should be utilized to the greatest extent to access experienced attorneys, program managers and contract professionals.

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Issue Overview

INTELLECTUAL PROPERTY

- "Intellectual Property" (IP) refers to patentable inventions, copyrights, and trade secrets, as well as compilations of data derived from the operation of ITS technologies, which may or may not be subject to copyright protection. ITS applications raise challenging new questions regarding IP. The allocation of sufficient contractual IP rights to enable the private sector firms to make a profit is critical.

- There is much opportunity for creative procurements involving IP. The private sector is generally in a better position to exploit technological innovations than the public sector. Projects financed in whole or in part by Federal funds require the granting of a limited license to the Federal Government which may constrain exploitation of the IP.

- Institutional issues regarding IP can be an area of tension between the public and private sectors. The opportunity to exclusively apply intellectual property rights over an extended period of time is the private sector's incentive to invest in research and development. The public sector, on the other hand, encourages competition and resists creating monopolies.

- The following barriers related to Intellectual Property have been identified as having the potential to constrain or hamper the implementation of ITS:

  (1) The private sector and State and local governments broadly interpret standard Federal Government IP contract clauses, chilling the private sector's willingness to bid on contracts and making contract negotiations difficult. *(Page II-D-18)*

  (2) Potential for future disputes regarding the inventions to which the Federal Government's license rights apply. *(Page III-D-25)*

  (3) Conflict between contractor's desire to keep IP proprietary and the traditional view that publicly-funded products should reside in public domain. *(Page III-D-30)*

Issue Overview

(4) Lack of legislative authority for transportation agency to accept IP royalties and/or to earmark such funds. *(Page III-D-34)*

(5) Private sector concerns regarding data security. *(Page III-D-37)*

(6) Preserving the traveling public's privacy. (*Page III-D-47)*

(7) Transportation agency fears that early deployment of ITS will result in purchase of obsolete technology or will prevent an integrated system in future. (*Page III-D-43)*

(8) Combined and coordinated procurements, and Statewide systems with multiple operators have special needs for information sharing, which may not be allowable if proprietary information is involved. (*Page III-D-45)*

Section D

INTELLECTUAL PROPERTY

D-1. STATEMENT OF ISSUE

Analyze contractual issues associated with the allocation of Intellectual Property (IP) rights among contracting parties.

D-2. ANALYSIS

For purposes of this report, "intellectual property" refers to patentable inventions, copyrights, and trade secrets, as well as compilations of data derived from the operation of ITS technologies, which may or may not be subject to copyright protection.

IP issues are of particular importance in contracts dealing with emerging technologies such as ITS. Perhaps no other institutional barrier more clearly illustrates the tension between public sector interests and private sector interests in the development and deployment of ITS. Private sector firms must invest heavily in research and development, without the expectation that their investment will be recouped with a single contract. Firms therefore are reluctant to have their technology disclosed. These firms fear that a lack of public sector recognition of the private sector's need to protect its IP will cause them to lose their IP, which may, in turn, be a disincentive to the achievement of the stated national public policy goals of rapid development and deployment of ITS. On the other hand, the public sector wishes to avoid taxpayer financing of the development of new technology by a selected firm resulting in a monopoly in the technology, to the disadvantage of both the public sector and the marketplace as a whole.

When State and local transportation agencies implement ITS projects with a Federal funds component, Federal patent law and the Common Rule require the reservation to the United States of certain rights in IP arising from the project. Uncertainty in the application of Federal law pertaining to IP developed in Federally funded research and development projects and operational tests has been a barrier to private sector participation in these projects and has required additional negotiation to clarify the requirements, thereby slowing down the contracting process. The Federal patent policy deals with experimental development and research work. It is not yet clear how the policy will carry over to development of ITS. Where the Federal rules are not applicable, a lack of State or local statutory or regulatory guidance may cause State and local governments to rely on standard IP language used in Federal contracts for ITS research, development and deployment, whether or not such language is optimal for the State or local project at hand. By formally adopting a policy clarifying the scope

of its retained licenses in IP arising from ITS projects, the FHWA may reduce this barrier. Such a policy would address the scope of the Federal license, and help State and local agencies to clarify or develop their own policies and procedures.

Bidding on and performing ITS contracts may require a contractor to disclose its trade secrets to the procuring public transportation agency. Uncertainty in the application of laws protecting trade secrets from disclosure, including freedom of information laws, has been a barrier in the ITS contracting process. Although the Federal Acquisition Regulation ("FAR") is generally applicable only to Federal procurements, its provisions offer some guidance to State and local agencies procuring ITS. Additionally, the operational tests and case studies suggest that various innovative contract practices may help alleviate private sector concerns over loss of trade secrets.

The deployment of ITS technology will result in the creation of whole new bodies of IP over and above the actual technological innovations -- that is, the traffic and customer data generated from operating CVO, ATIS and other ITS technologies. Private sector developers or vendors of ITS products and services may anticipate realizing significant commercial value from the sale of such data.

D-2.1 Definition of Intellectual Property

D-2.1 (a) Patents

Any invention may be patented only if it fits within one of the statutory classes of eligible subject matters, which include: "Any new and useful process, machine, manufacture or composition of matter or any new and useful improvement thereof . . ."[170/] Computer software is eligible for patent protection, but not programs that embody only mathematical algorithms.[171/] The computer software patent protects the actual process performed by the computer using the software, as opposed to the expression of that process in computer source code or screen display. The patent protection for a particular piece of software is distinct from copyright protection.[172/]

170/ 35 U.S.C. § 101.

171/ Arrhythmia Research Technology. Inc. v. Corazonix Corp., 958 F.2d 1053, 1058-59 (Fed. Cir. 1992).

172/ See, Atari Games Corp. v. Nintendo of America. Inc,, 975 F.2d 832 (Fed. Cir. 1992).

D-2.1(b) Copyright

A Federal copyright may be obtained for "original works of authorship fixed in any tangible medium of expression. . . ."[173/] It can be expected that ITS research and development will result in many "literary works" of authorship eligible for copyright protection. "Literary works" encompass all original expressions of ideas in writing, including technical papers and computer programs.[174/] Copyright protection does not extend to the ideas, procedures, methods of operation, systems, processes, concepts, principles or discoveries expressed in a work of authorship, but only to the expression itself.[175/] The exclusive right to reproduce the copyrighted work, prepare derivative works based on the copyrighted work and distribute copies of the copyrighted work by sales or transfers attaches to ownership of a copyright[176/] for a period extending 50 years after the death of the author.[177/] Presumably, databases collected by the deployment of ITS technology are subject to copyright protection.

D-2.1(c) Trade Secrets

A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business and which gives the owner an opportunity to obtain an advantage over competitors who do not know or use it.[178/] In order to maintain the right to claim a trade secret, the owner of a trade secret is required to take reasonable precautions to preserve the secret.""[179/] Trade secret status is forfeited by the unprotected disclosure of a trade secret.

D-2.2 Federal Laws and Regulations Related to Allocation of Intellectual Property Rights

The allocation of IP rights in an ITS project depends in part on the source and purpose of the funding for the ITS project. The IVHS Act authorizes the Secretary of Transportation to use several different mechanisms to finance IVHS research, development and implementation, including procurement contracts, grants and

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173/ 17 U.S.C. § 102(a).

174/ 17 U.S.C. § 101.

175/ 17 U.S.C. § 102(b).

176/ 17 U.S.C. §§ 101-l 18, et seq.

177/ 17 U.S.C. § 302(b).

178/ Rest. Torts (1st) § 757, comment (b).

179/ 1 R. Milgrim, Milgrim on Trade Secrets § 2.04 (1993).

cooperative agreements.[180/] Whichever mechanism is used, the allocation of IP rights in ITS projects financed in whole or in part by Federal funds is constrained by Federal policy.

In the absence of Federal funding, State and local procurement policies are generally more flexible than Federal policies with regard to acquisition and disposition of IP rights. However, the availability of funding for ITS deployment from the National Highway System Trust Fund[181/] requires that State and local transportation agencies be familiar with the constraints that Federal policy imposes on the allocation of IP rights.

D-2.2(a) Federal Patent Policy

The FHWA's activities, including both direct Federal procurements and grants and cooperative agreements, are subject to the Federal statutory policy governing rights to inventions created in the course of any funding agreement for the performance of experimental, developmental or research work funded in whole or in part by the Federal government. This policy is set forth in Chapter 18 of Title 35, U.S.C. ("Patent Rights In Inventions Made With Federal Assistance").[182/] It is Federal policy that non-Federal participants in Federally-funded projects retain title to "subject inventions" (hereinafter defined) as an incentive to develop technological innovations.[183/] For purposes of Chapter 18, "Funding agreement" refers to any "contract, grant, or cooperative agreement for performance of experimental, developmental or research work" and "any assignment, substitution of parties, or subcontract" for such work.[184/] Under Chapter 18, at a minimum, "all funding agreements. . . shall include the requirements established in paragraph 202(c)(4) and § 203 of [Chapter 18]."[185/] The term "invention" includes any discovery that may be patentable or protectable under Title 35, and the term "subject invention" refers to "any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement."[186/]

180/ See 3 1 U.S.C. Ch.63.

181/ The National Highway System Designation Act of 1995 amended 23 U.S.C. 103(i) by adding "[c]apital and operating costs for traffic monitoring, management and control facilities and programs" to the list of projects eligible for Federal-aid from the National Highway System Trust Fund. Pub.L. 104-106, Section 301(a).

182/ 35 U.S.C. §§ 200 et *seq*.

183/ J.Dingle, "Intellectual Property Rights in FHWA - Funded IVHS Projects," Prepared for the Workshop on IVHS and Intellectual Property, January 25, 1994, at p.10.

184/ 35 U.S.C. § 201(b).

185/ 35 U.S.C. § 210(c).

186/ 35 U.S.C. $201(d)-(e).

Pursuant to paragraph 202(c)(4), if a contractor elects to retain ownership of a subject invention, "the Federal agency shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world. . . ."[187] Paragraph 202(c)(4) further provides that if provided in the funding agreement, the agency may have additional rights to sublicense any foreign government or international organization pursuant to existing or future treaty or agreement.

In addition to its retained license, the Federal agency under whose funding agreement a subject invention was made has "March-in rights" under Section 203 of Chapter 18. These rights permit the Federal agency to require the recipient of Federal funds to grant a license to a responsible applicant upon terms reasonable under the circumstances.[188]

Additional procedural requirements include invention disclosure procedures, time limits with respect to elections to retain title to a subject invention, and periodic reporting on the realization of rights to retained inventions, limitations on the power to assign rights to an invention without agency approval, and restrictions on the power to license inventions to non-U.S. manufacturers.[189] A contractor's failure to comply with these requirements can result in the funding agency obtaining title to the subject invention.[190] Upon making a determination of exceptional circumstances, a Federal agency is

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187/ 35 U.S.C. § 202(c)(4).

188/ 35 U.S.C. § 203(a) authorizes the Federal agency "[t]o require the contractor, an assignee or exclusive licensee of a subject invention to grant a non-exclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the contractor, assignee or exclusive licensee refuses such requests, to grant such license itself, if the Federal agency determines that --

(a) [A]ction is necessary because the contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(b) [A]ction is necessary to alleviate health or safety needs which are not reasonably satisfied by the contractor, assignee, or their licensees;

(c) [A]ction is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the contractor, assignee, or licensees; or

(d) [A]ction is not necessary because the agreement required by § 204 has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of its agreement obtained pursuant to § 204."

189/ 35 U.S.C. § 202(c).

190/ 35 U.S.C. § 202(c)(2)-(3).

permitted to restrict the right of the contractor to retain title to any subject invention in order to better promote policies and objectives of 35 U.S.C. Ch. 18.[191]

The regulations implementing 35 U.S.C. Chapter 18 are at 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts, and Cooperative Agreements). The regulations provide that an invention will not be subject to the ownership provisions if it is made in the performance of a "non-government sponsored project" which "although closely related, falls outside the planned and committed activities of a government-funded project and does not diminish or distract from the performance of such activities. . . ."[192] The "time relationship" between the two projects and the "use of new fundamental knowledge from one in the performance of the other are not important determinants" in deciding whether an invention was made "in the performance of the Federally-supported project."[193]

The implementing regulations also contain a standard patent rights clause granting the Federal Government an irrevocable, non-exclusive license. The standard clause requires the recipient of Federal funds to include the clause, suitably modified, in all subcontracts for experimental, developmental or research work.[194]

The Federal Acquisition Regulation (FAR) contains similar implementing regulations with respect to rights in inventions developed under Federal procurement contracts.[195] "Acquisition" refers to acquiring contract supplies or services by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated.[196] The term "contract" does not include grants or cooperative agreements.[197]

The FAR applies only to direct Federal procurements. However, most ITS will be procured by State and local government recipients of Federal grant money under grants and cooperative agreements. Pursuant to the Common Rule set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and local

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191/ 35 U.S.C. §202(a)(ii).

192/ *37* C.F.R. § 401.1(a)(l).

193/ *Id.*

194/ *37* C.F.R §401.14(a).

195/ *48* C.F.R. Part 27.

196/ *Id.* §2.101.

197/ *Id.* § 2.101.

governments,"[198] grantees and subgrantees other than States (e.g., local transportation authorities) are required to include in their contracts notice of the Federal granting agency's requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.

There is a significant body of case law interpreting the scope and effect of the retained Federal patent license in Federal government contracts. While an analysis of all the relevant case law interpreting the standard patent rights clause is beyond the scope of this paper, Stern et al. has provided such analysis in their manuscript, Intellectual *Property Rights In The National ITS Program.""*[199] The source of most of the disputes that have arisen with regard to the standard patent rights clause (and that can be expected to arise in the context of ITS) is the meaning of the phrases "subject invention,"[200] "first actually reduced to practice,"[201] and "in the performance of work under".[202]

D-2.2(b) Federal Policy Pertaining to Copyrights and Data

(1) Copyrights Under the Common Rule, Pursuant to the Common Rule set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments,[203] whenever a State or local government procures property or services under "an award of financial assistance, including cooperative agreements" from a Federal agency, the Federal awarding agency reserves a royalty-free non-exclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal government purposes: (a) the copyright

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198/ 49 C.F.R. Part 18 (the "Common Rule") controls grants and cooperative agreements to State and local governments for the implementation of ITS.

199/ Claude Stem et al., *Intellectual Property Rights International ITS Program* (Dec. 1, 1993) (unpublished manuscript prepared for the Workshop on ITS Intellectual Property co-sponsored by ITS America and the FHWA).

200/ 3 D. Chisum § 10.03, "Conception"; 3 D. Chisum § 10.04; Amgen, Inc. v. Chugai Pharmaceutical Co., 927 F.2d 1200, 1206 (Fed. Cir. 1991), cert. denied 502 U.S. 856, 112 S.Ct. 169, 116 L.Ed.2d 132 (1991); Filmtec Cornoration v. Hydranautics, 982 F.2d 1546 (Fed. Cir. 1992).

201/ Farrand Optical Co. v. United States, 325 F.2d 328 (2d Cir. N.Y. 1963); Bendix Corp. v. United States, 600 F.2d 1364 (Ct. Cl. 1979); Eastern Rotorcraft Corp. v. United States 384 F.2d 429 (Ct. Cl. 1967); McDonnell Douglas Corp. v. United States, 670 F.2d 156,163 (1982).

202/ Mine Safety Appliances Co, v. United States, 364 F.2d 385 (Ct. Cl. 1966); Lockheed Aircraft Corp. v. United States, 553 F.2d 69 (Ct. Cl. 1977).

203/ 49 C.F.R. Part 18 (the "Common Rule", note 29, *supra).*

in any work developed under a grant, subgrant, or contract under **a** grant or subgrant; and (b) any rights of copyright to which a grantee, subgrantee or a contractor under a grant purchases ownership with grant support.[204/] Pursuant to § 18.34 of the Common Rule, a State or local government grantee from the U.S. DOT must provide for the Federal license in its procurement contracts. Section 18.36(i) further specifically provides that a local agency grantee must include in its contracts "[a]warding agency requirements and regulations pertaining to copyrights and rights in data."[205/] The scope of the Federal Government's rights under its retained license to copyrighted works depends on the interpretation of the terms "developed under" and "purchases ownership with grant support."

The Common Rule does not contain data rights provisions. "Presumably data rights provisions for data that are not copyrighted may be negotiated on a case-by-case basis taking into account particular program or project needs."[206/]

(2) Copyrights and Data Under the FAR, Federal acquisition policy respecting rights retained by the Federal Government in data developed under Federal contracts, whether or not copyrighted, is set forth in Subpart 27.4 of the FAR, and applies to all executive agencies including the U.S. DOT.[207/] As used in the FAR, the term "data" refers to all recorded information, including technical data, computer software, computer databases and related documentation.[208/] Subpart 27.4 provides that "the government recognizes that its contractors may have a legitimate property interest . . . in data resulting from private investment," that "[p]rotection of such data from unauthorized use and disclosure is necessary in order to prevent the compromise of such property right or economic interest," and that protection of contractors' rights in data is "necessary to encourage qualified contractors to participate in government programs and apply innovative concepts to such programs."[209/]

204/ 49 C.F.R. § 18.34.

205/ 49 C.F.R. § 18.36(i)(9).

206/ J. Dingle, "Intellectual Property Rights in FHWA - Funded IVHS Projects" (Unpublished manuscript prepared for Workshop on IVHS and Intellectual Property, January 25, 1994.)

207/ The Department of Defense is exempt from certain specific provisions under this subpart. See, 48 C.F.R. § 27.400(a).

208/ 48 C.F.R. § 27.401.

209/ 48 C.F.R. § 27.402(b).

Subpart 27.4 defines three basic levels of rights to data produced under a government contract: "limited rights," "restricted rights," and "unlimited rights." There are two alternative definitions of "limited rights data" that agencies may adopt. Under the broader definition, the term includes any "data developed at private expense that embody trade secrets or are commercial or financial and confidential or privileged [citation omitted]."[210/] Computer software is excluded from the narrower definition.[211/] "Restricted computer software" is defined as software that is: (A) developed at private expense and is a trade secret; (B) is commercial or financial and confidential or privileged; or (C) is published and copyrighted.[212/] The term "unlimited rights" is defined as "the rights of the government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so."[213/]

The respective rights and obligations of the government and the contractor must be delineated in any Federal agency contract requiring data to be produced, furnished, acquired or used.[214/] Pursuant to the basic FAR rights in data clause, in general the government acquires unlimited rights in data first produced in the performance of a Federal Government contract.[215/] However, by obtaining the prior written approval of the government agency's contracting officer, the contractor may under certain conditions claim a copyright in data first produced under the contract.[216/] The government and others acting on its behalf are granted a paid-up, non-exclusive, irrevocable, worldwide license in any computer software produced in performance of the contract to reproduce, prepare derivative works and perform publicly and display publicly.[217/]

210/ *48* C.F.R. § 27.401.

211/ *Id.*

212/ *Id.*

213/ *Id.*

214/ *48* C.F.R. § 27.403.

215/ *48* C.F.R. § 52.227-14; 48 C.F.R. § 27.404(a).

216/ *48* C.F.R. § 52.227-14(c)(l).

217/ *Id.*

Under specified conditions, the basic FAR rights in data clause may be modified by contracting officers by using one or more of the alternate provisions provided at 48 C.F.R. § 52.227-14. Pursuant to alternate 2, the government can require a contractor to affix a "limited rights notice" to data.[218/]

Under alternate 3, the contractor may affix a "restricted rights notice" to any data meeting the definition of "restricted computer software." This notice states that the software may only be used with the computer or computers for which it was acquired and for other internal government uses.[219/]

Where a contractor has developed technology to a point of "workability" prior to receiving any funds under its Federal contract, the Federal Government will not be entitled to obtain more than "limited rights" to the data and drawings revealing the trade secret. The test is based on physical and economic reality, not contract language.[220/]

Agencies may also adopt alternatives to the basic rights in data clause for contracts involving "cosponsored research and development." [221/] The agency may acquire less than unlimited rights where the contractor's and the government's respective contributions are "not readily severable."[222/] Where the contributions of each party are readily severable, data produced under the contract may be treated by the agency as "limited rights data" or "restricted computer software," or the agency may adopt other provisions consistent with provisions of the contract.[223/]

218/ The limited rights notice reads as follows:

> "These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any, provided that the Government makes such disclosures subject to prohibition against further use or disclosure: [List of permitted uses specified by the agency]."

219/ *48* C.F.R. § 52.227-14(g)(3)(I).

220/ Dowty Decoto, Inc. v. Dept. of the Navy 883 F.2d 774 (9th Cir. Wash. 1989). ". . . [O]ur review of the record must focus on the realities of do invested the money that transformed the holdback bar (the technology at issue) from an uncertain idea into a workable device for its intended application." Id. at 779.

221/ *48* C.F.R. §27.408.

222/ *Id.*

223/ *48* C.F.R. § 27.408(b).

(3) The Federal Freedom of Information Act and the Federal Trade Secrete Act

- **Freedom of Information.** Pursuant to the Freedom of Information Act, Federal agencies must disclose their records, but there is an exemption for trade secrets and privileged or confidential commercial or financial information obtained from a person.[224/]

- **Withholding of Information.** Under 35 U.S.C. § 205, Federal agencies are authorized to withhold information disclosing any invention in which the Federal Government owns or may own a right, title or interest, including a non-exclusive license, for a reasonable time in order for a patent application to be filed. Federal agencies are also authorized under 35 U.S.C. § 205 to withhold any document which is part of a patent application filed in the United States or abroad. [225/]

- **Trade Secrets.** Pursuant to the Trade Secrets Act,[226/] unauthorized disclosure of any confidential information submitted to the government, including information that relates to "trade secrets, processes, operations, style of work, or apparatus" is punishable by fine and imprisonment.[227/] It has been held that the Trade Secrets Act and the trade secrets exemption under the Freedom of Information Act are complementary, so the release of information exempted from disclosure under the Federal Freedom of Information Act is a violation of the Federal Trade Secrets Act.[228/]

- **Organizational Conflicts of Interest and Proprietary Information Under the FAR.** The FAR contains some specific exclusions regarding proprietary information in its subpart on organizational and

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224/ 5 U.S.C. § 552(b)(4).

225/ The Department of Transportation's regulations implementing the Freedom of Information Act are at 49 C.F.R. Part 7.

226/ 18 U.S.C. § 1905.

227/ "Inventions or works that a creator or owner cannot (or does not wish to) patent or copyright may be protected as trade secrets. Generally, an invention or work loses its status as a 'trade secret' when the mandatory public disclosures required by the Patent Act and the Copyright Act are made. It should be noted, however, that copyright registration of computer software does not require the entire source code associated with the work to be submitted." Stem, et al., *supra*, at note, p. 32.

228/ AT&T Information Systems, Inc. v. General Services Administration 627 F.Supp. 1396, 1401 (D.D.C. 1986), rev'd on other grounds, 810 F.2d 1233 (D.C. Cir. 1987).

consultant conflicts of interest at 48 C.F.R. Chapter 1, subpart 9.5. Section 9.5054 acknowledges that when a contractor requires proprietary information from others to perform a government contract and can use the leverage of the contract to obtain it, the contractor may gain an unfair competitive advantage. Therefore, the FAR imposes certain restrictions on the contractor's uses of the proprietary information in order to protect the information and encourage other companies to provide the data when necessary. Pursuant to § 9.505-4(b), a contractor that gains access to proprietary information of other companies in performing advisory and assistance services for the Federal Government must protect the information from unauthorized use or disclosure. A contractor obtaining the proprietary information of another company must refrain from using the information for any purpose other than that for which it was furnished. Additionally, § 9.505-4(c) requires the contractor to ensure that any marketing consultant providing it with services does not provide an unfair competitive advantage by improperly using proprietary and confidential information.[229/]

(4) The Impact of Federal Funding for ITS Projects

Federal Government Procurement Contracts. When the FHWA directly procures[230/] research and development for ITS, such as pursuant to the IVHS Systems Architecture development program, the FHWA uses the basic patent and data clauses of the FAR.[231/] As stated above, rights in data, whether or not copyrighted, are subject to the basic FAR rights in data clause at 48 C.F.R. 52.227-14.

ITS Projects through Federal Grants or Cooperative Agreements. When the FHWA is not acquiring ITS goods or services for the direct benefit of the United States Government, it may finance ITS projects through the use of grants and cooperative agreements. Both grants and cooperative agreements are used to provide financial assistance to recipients to carry out a public purpose, but the Federal awarding

229/ 48 C.F.R. § 9.505-4(c).

230/ 3 1 U.S.C. Chapter 63 provides that a procurement contract will be used "as the legal instrument reflecting a relationship between the United States government" and a contractor when the principle purpose of the contract is to acquire property or services for the direct benefit or use of the United States government, or when an agency decides in a specific instance that the use of a procurement contract is appropriate. 31 U.S.C. $6303.

231/ J.Dingle, *supra,* at note 37, pp. 8-9.

benefit of the United States Government, it may finance ITS projects through the use of grants and cooperative agreements. Both grants and cooperative agreements are used to provide financial assistance to recipients to carry out a public purpose, but the Federal awarding agency is more involved in the funded activity when a cooperative agreement is used than when a grant is used as the funding mechanism.[232/]

- ITS projects in whole or in part funded by FHWA through the use of grants and cooperative agreements, such as the ITS operational tests, are subject to the Common Rule. As described in § C.2(b)(i), above, § 18.34 of the Common Rule provides for the reservation to the Federal awarding agency of a nonexclusive license in copyrights. With regard to patents, § 18.36 of the Common Rule requires a State to ensure that every purchase order or other contract that it enters into with grant or cooperative agreement funds "includes any clauses required by Federal statutes and executive orders and their implementing regulations."[233/] Thus, all ITS projects that are Federally-funded in whole or in part through grants or cooperative agreements, including the operational tests, are subject to the Federal Patent Policy set forth in 35 U.S.C. Chapter 18, and must, at a minimum, include a provision for retention by the FHWA of a license to practice any "subject invention" arising under the Agreement.

- The FHWA's practice for ITS operational test agreements, where the recipient of Federal funds is usually a State transportation agency, has been to incorporate by reference the standard patent rights clause implementing the Federal Patent Policy at 37 C.F.R. § 401.14(a), with a modification applying the clause to all subcontractors.[234/] The FHWA has narrowly construed the scope of its retained license to include use of the subject invention for "(1) Research and development and support services performed under a Federal procurement

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232/ 31 U.S.C. § 6304 provides that a grant agreement shall be used by an executive agency when the principle purpose of the relationship between the Federal government and the grantee is to transfer a thing of value to the recipient "to carry out a public purpose of support or stimulation authorized by the law of the United States' and "substantial involvement is not expected between the executive agency and the state, local government, or other recipient when carrying out the activity contemplated in the agreement." A cooperative agreement is to be used when substantial involvement is expected between the executive agency and the state, local government, or other recipient. 31 U.S.C. §6305.

233/ 49 C.F.R. § 18.36.

234/ J. Dingle, *supra,* at note 37, at p. 10.

contract," and "(2) [u]se of the subject invention on a Federally-owned road."[235] The FHWA has not construed its license to include sublicensing the technology to a non-Federal Government or private entity for uses unrelated to (1) and (2) above.[236]

- An interesting issue will arise for the first time as a result of the fact that the National Highway System Designation Act of 1995 ("1995 Act") adds ITS deployment projects to the list of projects eligible for funding from the Highway Trust Fund as part of the Federal-Aid National Highways System. It appears that, as a result of the 1995 Act, ITS deployment projects have been brought under the umbrella of Federally-assisted construction, even though they most certainly will include significant non-construction developmental components. The FHWA's project agreement form for Federal-aid construction projects at 23 C.F.R. Part 630, Subpart C, "Project Agreement," Appendix C (form PA-2), does not provide for the reservation to the FHWA of intellectual property rights, presumably because such issues historically have not arisen in the context of highway construction. Because the same public policies regarding intellectual property rights in Federally-funded projects should apply regardless of whether the intellectual property is developed under a "construction" project or a "research and development" project, it appears that the Federal regulations should be revised so that language implementing the Federal patent and data rights clauses are included in contracts for Federally-assisted ITS deployment. At the time of this writing FHWA had not yet processed any State program applications for ITS deployment projects through the State's allocation of Title 23 Federal-aid construction funds[237] and therefore it remains to be seen how the Federal policies with respect to intellectual property will be implemented in connection with Federal aid ITS deployments by State and local agencies under Title 23.

- In contrast, the requirements set forth in 23 C.F.R. Part 420 for State activities undertaken with FHWA planning and research funds do include provisions for reservation of the Federal patent and copyright licenses.[238]

235/ *Id.*

236/ *Id*

237/ Telephone conference with Beverly Russell, Attorney Advisor FHWA General Law Branch, 2/19/96.

238/ 23 C.F.R. Part 420,§ 420.12 l(f) and (j).

D-2.3 State Laws, Regulations and Practices Related to Intellectual Property Rights

D-2.3(a) Laws Governing Allocation of Intellectual Property Rights

There is a relative lack of State statutory guidance or decisional law with regard to intellectual property rights under State contracts, and our research has not revealed any State statutory or regulatory scheme comparable to the Federal Government's respecting treatment of intellectual property rights. Some States grant State-run institutions of higher learning the right to obtain intellectual property rights and retain income therefrom.[239/] Further, in some States individual quasi-governmental State agencies have the power to obtain and exploit intellectual property rights.[240/] In some States, the power to secure and exploit State-owned intellectual property rests in specific State agencies,[241/] and a few States recognize expressly that State and local agencies have the power to secure intellectual property rights in computer software.[242/]

While the lack of legal authority in most States may suggest that, where an ITS project does not have a Federal-funding component, the States are free to cede all intellectual property rights to a private contractor, this approach could be viewed as resulting in a "gift" of public funds to the contractor. Therefore, the laws and policies of individual States or State agencies must be examined at an early stage of project development to determine the degree of flexibility available to the agency.[243/]

Where an ITS-related research, development or procurement contract requires the private party to submit trade secret information to State or local governmental authorities, at least 37 States have enacted some version of the Uniform Trade Secrets

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239/ See, e.g., Ill. Ann. Stat. Chapter 30 § 105/6(d); N.D. Cent. Code § 47-28-0 1; Ohio Rev. Code Ann. § 3345.14; Tex. Ed. Code Ann. §5 1.680.

240/ See, e.g., Haw. Rev. Stat. § 206(N-34); Kan. Stat. Ann. § 74-8104; Mass. Ann. L aws Chapter 40(k) § 1.

241/ See, e.g., Fla. Stat. Ann. § 286.031; Mich. Stat. Ann. § 3.407(l).

242/ See, e.g., Haw. Rev. Stat. § 206(N-34(c)); Minn. Stat. Ann. § 13.03(5).

243/ Compare *California School Employees Association v. Sunnyvale EIementary School Dist.,* 36 Cal.App.3d 46, I I I Cal.Rptr. 433 (1973) [upholding research and development contract between State agency and private company in which private party retained all intellectual property rights arising thereunder] and S-P *Drug Co., Inc. et al. v. Smith, et* al., 409 N.Y.S.2d. 161, 96 Misc.2d 305 (1978) [striking down agreement by State agency granting a private company the exclusive right to distribute information gathered by the State as a 'bargaining away of public property without proper compensation'].

Act that preserves the confidentiality of that information.[244/] Additionally, State "freedom of information" or "public records" acts generally exempt trade secret information from mandatory disclosure.[245/]

D-2.3(b) Impact of State Disclosure Laws

The impact of State disclosure laws on ITS may become more significant as the trends toward privatization and public'private partnerships in ITS continues. Increasingly, States are welcoming unsolicited proposals for ITS projects, and soliciting creative solutions to their transportation problems through "calls for projects," which permit the private development community to suggest innovative solutions without being constrained by detailed specifications provided by the agencies. However, to the extent that information included in such proposals may be made publicly available under disclosure laws, there is a disincentive for firms to take the risk. For example, in Krull v. Washington Department of Transportation[246/] the petitioner sought disclosure of the DOT's Technical Evaluation Reports prepared for the 14 proposals submitted in connection with the Washington DOT's Public Private Initiative. The DOT claimed an exemption from the requirement that it disclose the reports based upon trade secret protection for the private entity participants. The DOT argued that if it were required to disclose the evaluation reports, private entities would be discouraged from participating in the Public Private Initiative and similar future DOT projects. Nonetheless, the court ordered disclosure, subject to the court's redaction of what it determined to be protected trade secrets.

D-2.3(c) Ability to Retain and/or Earmark Funds

If the State or local transportation agency is prohibited by law from retaining any income it derives from exploitation of intellectual property rights in ITS for its own purposes, it lacks incentive to negotiate to obtain such rights. In some cases State and local transportation agencies are not expressly prohibited by law from retaining or earmarking income, but their authority is nonetheless unclear. This lack of clarity in statutory authority is often functionally equivalent to a prohibition, since it discourages such transportation agencies from negotiating to obtain the right to exploit intellectual property.

244/ See, e.g., Calif. Civil Code §§ 3426, et *seq.*

245/ See, e.g., Calif. Government Code § 6254; Col. Rev. Stat. §24-72-204.

246/ Krull v. Washington Department of Transportation. Unpublished opinion No. 94-2-02764-3 of the Superior Court of Washington in and for Thurston County (12/29/94).

Our research suggests that a State agency's ability to receive or earmark compensation is principally dependent on the enabling legislation of the particular agency involved. In the context of ITS, the likely State agency players can be separated into (i) special purpose transportation agencies (e.g., turnpike authorities), and (ii) State highway departments. Typically, turnpike or toll road agencies receive compensation for the use of their facilities for transportation, and control the use of the funds received from tolls or other sources for operations or debt repayment. Such self-financed agencies are given wide latitude to retain almost any type of revenue available to support their public purposes. Revenue retention authority is typically built into the organic statutes of special purpose transportation agencies and is often quite broad. For example, the statute establishing the Ohio Turnpike Commission authorizes it to:

> "[f]ix, revise, change, and collect tolls for each turnpike project, and contract in the manner provided by this section with any person desiring the use of any part thereof, including the right-of-way adjoining the paved portion, for placing thereon telephone, electric light, or power lines, service facilities, or for any other purpose, and fix the terms, conditions, rents, and rates of charge for such use . . ."[247/]

Arguably, payments received for use of ITS intellectual property would be for use of "part" of a turnpike project. The Turnpike Commission has authority to retain and earmark any revenue it receives.[248/] Similarly, in California, the Orange County Transportation Corridor Agencies have broad revenue retention authority.[249/] In Maryland, the State DOT includes both the traditional State Highway Agency, and the Maryland Transportation Authority, which, like the Ohio Turnpike Commission, has toll collection authority and the related authority to retain revenue it receives by charging for the use of its facilities.[250/]

Unlike special purpose transportation agencies such as turnpikes and toll authorities, State DOTs are generally more limited in their authority to retain revenues. Even when compensation can be accepted, the compensation so received may enter the State's general fund accounts unrelated to the project producing the revenue.

247/ Ohio Rev. Code AM.§ 5537.13(A). This provision goes on to prohibit the imposition of a toll, charge, or rental for the installation of purely public utility equipment or facilities.

248/ Ohio Rev. Code Ann. § 5537.04. "Revenues" include, among other sources, rentals and all other monies coming into the possession of the Turnpike Commission except bonds and state tax monies. (Revised Code Annotated, § 5537.01(E).).

249/ First Amended and Restated Joint Exercise of Powers Agreement Creating the Foothill/Eastern Transportation Corridor Agency, Section 2.2.

250/ Maryland Transportation Code AM. §4-3 12.

D-3. BARRIERS AND SOLUTIONS

Barrier No. 1	**The private sector and State and local governments broadly interpret standard Federal Government intellectual property contract clauses, chilling the private sector's willingness to bid on contracts and making contract negotiations difficult**

Private parties may perceive even the minimum rights retained by the Federal Government under the standard patent rights clause as a threat to their profitable exploitation of IP rights in ITS, and therefore may avoid involvement in Federally-funded research and development, operational testing and deployment agreements. Unfortunately, although Federal policy promotes the retention of ownership rights by private inventors working under government funding agreements, there appears to be a perception in private industry and among State and local governments that certain conditions and restrictions imposed under the standard patent (and data rights clauses as well) are more severe than is actually intended by the Federal Government.

For example, it has been reported that in the **TRAVLINK** and **GENESIS** Operational Tests, conflicts over IP rights threatened agreements and made memoranda of understanding difficult to write. "This issue was particularly acute for the **GENESIS** project in which disputes over the [personal communications devices] PCD software rights threatened to paralyze the project."[251/]

Similarly, because Federal funds were earmarked for the E-ZPass Interjurisdictional Toll Collection Project, the standard Federal government contract clauses for the allocation of intellectual property rights were required, and they became a significant issue in that project. The State agencies involved in the procurement felt that the standard Federal government contract clauses were too broad, and that the rights provided to the Federal government were too extensive and would limit the potential vendors' ability and willingness to bid on the procurement.[252/] In fact, it has been reported that in a letter to a project participant in an ITS Operational Test, the FHWA

251/ Intelligent Vehicle-Highway Systems Institutional and Legal Issues Program, "Review of the TRAVLINK & GENESIS Operational Tests," John A. Volpe National Transportation Systems Center, Page 13 (June 1994).

252/ Telephone interview with Ann Christine Monica, Acting Director of Law, New Jersey Turnpike Authority.

Chief Counsel clarified the FHWA's policy regarding the government retained license to inventions developed under an IVHS Partnership Agreement for an Operational Test. In that letter, the FHWA Chief Counsel stated that the FHWA construes the scope of its license under paragraph 202(c)(4) and § 203 of 35 U.S.C., Chapter 18, to include the following: (i) research and development and support services performed under a Federal procurement contract, and (ii) use of the subject invention on Federally-owned land:

> FHWA does not construe the scope of its license to include sublicensing the technology to a State or local government, bridge, tunnel or turnpike authority, or private entity for uses unrelated to the two described above . . . . Consistent with the Federal patent policy, private sector participants in operational tests retain title to the subject inventions as an incentive to develop technological innovations. FHWA retains the minimum license necessary to meet FHWA's needs, leaving contractors with the rights necessary to encourage private sector investment in the development of commercial applications.[253/]

Given this explication of FHWA's policy regarding its retained license to patented inventions, private sector firms' reluctance to participate in FHWA-funded projects may be due more to their perception of overreaching by the Federal Government rather than to reality. It would help to dispel such misplaced fears if the policy stated in the Chief Counsel's letter was disseminated more widely as a published FHWA regulation.

Additionally, confusion, or at least anxiety, over how to determine whether an invention was made "in the performance of the Federally-supported project," or whether it preceded the project and can be retained by the private party, is reportedly the source of some difficulty in ITS contracting. There is also concern that the Federal government might interpret its "March-in" rights broadly to usurp a contractor's invention before it has had adequate opportunity to exploit it. The meanings of the phrases "subject invention," "first actually reduced to practice" and "in the performance of work under' also raise concern. It appears that the private sector may, out of necessity, interpret these phrases more broadly than the Federal Government intends. However, as reported by Stern, et al. in their analysis of Intellectual Property Rights *and the National IVHS Program,* the concern may be based more on institutional memory of past disputes with regard to military research and procurement contracts, than on current Federal policy with regard to these provisions.[254/]

253/ "IVHS Legal Issues - Newsletter of the IVHS America Legal Issues Committee," Volume 2, November 1, Page 8 (Winter 1994). A copy of the FHWA Chief Counsel's letter has been supplied by FHWA, and is included in the Appendix.

254/ Stem, et al, *supra,* at note 30.

Interestingly, even though there has been much comment that the Federal clauses allocating intellectual property rights are (or are at least perceived to be) too restrictive, given the apparent dearth of State law concerning allocation of intellectual property rights in government contracts where Federal clauses do not apply, some of the problems related to intellectual property may be caused by the lack of State and local statutory guidance. As a result, State and local agencies have a tendency to fall back on the Federal clauses even if they are not optimal for the particular ITS project. The Assistant Chief Counsel to the Illinois Department of Transportation, John A. Milano, reported in an interview conducted as part of this project that where there is a lack of State law on a contracting issue, even if there is no Federal funding for a project, the State of Illinois tends to fall back on FAR provisions.[255/] Similarly, John Kiljan, the ITS Program Manager for the Colorado Department of Transportation, reports that Colorado also relies on the FAR provisions (though, according to Mr. Killan, this has never raised much concern or been an issue challenged by contractors).[256/] The fall back position is easy for the State to justify since there is such extensive development history behind the Federal provisions, and since the State might desire to obtain Federal funding for its project in the future.

Solution No. 1(a)	**With FHWA cooperation, draft contract language to clarify Federal ownership of intellectual property rights**

In the **GENESIS** project, the FHWA ultimately proposed wording that specified the ownership of intellectual property rights in a manner acceptable to all parties. The wording made the parties more comfortable without, in FHWA's view, changing the meaning.

255/ Telephone interview with John A. Milano, Assistant Attorney General, Illinois Department of Transportation, Winter 1995.

256/ Telephone interview with John Kiljan, ITS Program Manager, Colorado Department of Transportation.

Solution No. 1(b)	**With FHWA cooperation, the State grantee should modify the standard IP clauses used in its contracts in order to clarify the scope of the Federal Government's retained IP license**

The **E-ZPass** parties felt that they needed to revise the standard government contract clauses to clarify that the Federal Government does not retain a license in patentable technology if that technology is fully developed at the contractor's private expense. According to Ann Christine Monica, the Acting Director of Law at the New Jersey Turnpike Authority, it was not difficult to gain the FHWA's cooperation in supplementing standard IP clauses to clarify the scope of the Federal retained license to meet the **E-ZPass** agencies' concern. The FHWA was apparently willing to accept these clarifications because it maintained that the **E-ZPass** agencies were reading the language of FHWA's standard Federal grant agreement clauses too broadly. This approach would also enable a grantee to respond to its contractor's concerns regarding the intent and scope of the Federal Government's retained IP licenses.

Thereafter the **E-ZPass** agencies modified their contract clauses as follows:

19. Proprietary Rights

a) We hereby acknowledge and agree that your Agency retains all right, title and interest in and to all data, documentation and copies thereof furnished by your Agency hereunder, including all copyright and other proprietary rights therein, which documents ourselves as well as our employees, agents, subcontractors and suppliers may use only in connection with the work. We shall not, without the prior written consent of your Agency, use such documentation on any other project in which we or our employees, agents, subcontractors or suppliers are or may become engaged. Submission or distribution by us to meet official regulatory requirements or for other purposes in connection with the work shall not be construed as publication in derogation of your Agency's copyrights or other proprietary rights.

b) Your Agency and the Participating Agencies shall also obtain all right, title and interest in and to certain security-related inventions, ideas, designs and methods developed by ourselves and subcontractors specifically for your Agency and the Participating Agencies in the event your Agency purchases Equipment and/or Software. ("Agency/Participating Agencies Owned Inventions"). Such Agency/Participating Agencies Owned Inventions, shall include all specifications and other documentation related thereto.

c) With respect to Agency/Participating Agency Owned Inventions, your Agency in conjunction with the Participating Agencies shall acquire all patent, copyright, trade secret and other proprietary rights in such developments. Accordingly, neither ourselves nor our employees, agents, subcontractors or suppliers shall have any proprietary interest in such Agency/Participating Agency Owned Inventions. The Agency/Participating Agency Owned Inventions may not be utilized, reproduced or distributed by or on behalf of ourselves, or any employee, agent, subcontractor or supplier thereof, without the prior written consent of both your Agency and the Participating Agencies, except as required for our performance hereunder.

d) Except as otherwise provided in subsections (a), (b) and (c) above, or elsewhere herein, we and our subcontractors and suppliers hereunder shall retain all proprietary rights in and to all Equipment and Licensed Software provided hereunder, that have not been customized to satisfy the performance criteria set forth in the Technical Specifications and our Proposal dated _____. Notwithstanding the foregoing, we hereby grant, and shall require that our subcontractors and suppliers grant, to your Agency a perpetual irrevocable and unrestricted right and license to use, duplicate, disclose and/or permit any other person(s) or entity(ies) to use all such equipment and Licensed Software and the associated specifications, technical data and other documentation for the operations of your Agency or entries controlling, controlled by, under common control with, or affiliated with your Agency, or organizations which may hereafter be formed by or become affiliated with your Agency, as well as for such parties' future development. Such license specifically includes, but is not limited to, the right of your Agency to use and/or disclose, in whole or in part, the technical documentation and Software, including source code provided hereunder, to any person or entity outside your Agency for such person's or entity's use in manufacturing and furnishing any and/or all of the deliverable provided hereunder exclusively for your Agency or entities controlling, controlled by, under common control with, or affiliated with your Agency, or organizations which may hereafter be formed by or become affiliated with your Agency. No such Equipment, Licensed Software, specifications, data, documentation or related information shall be deemed to have been given in confidence and any statement or legend to the contrary shall be void and of no effect.

e) Notwithstanding our ownership of certain proprietary rights in the Equipment, your Agency shall own all Equipment, excluding the Imbedded Software for which such parties shall have a perpetual, irrevocable license pursuant to paragraph 4 herein, and shall have the right to use such

Equipment and Imbedded Software for any purpose and at any time without compensation other than as specifically provided herein.

f) Nothing in this Irrevocable Offer shall preclude your Agency from providing to any other person(s) or entity(ies), nor any such person(s) or entity(ies) from using, any of the Equipment and/or Software provided hereunder, and the associated specifications, technical data and other documentation relating thereto, in connection with providing goods or services **to your** Agency.

20. Confidentiality

a) All Agency/Participating Agency Owned Inventions and other materials, data, documentation, inventions, ideas, designs and methods in which your Agency and/or the Participating Agency holds the proprietary rights, including but not limited to the tag Encoding Methodology used by your Agency, constitute Confidential Information and may not, without the prior written consent of both the Participating Agencies and your Agency, be used by us or our employees, agents, subcontractors or suppliers for any purpose other than for the benefit of the Participating Agencies and your Agency. Neither ourselves nor our employees, agents, subcontractors or suppliers may sell, transfer, publish, disclose, display, license or otherwise make available to others any part of such Confidential Information without the prior written consent of both the Participating Agencies and your Agency.

b) We shall advise each of our employees, agents, subcontractors and suppliers who may be exposed to such Confidential Information of their obligation to keep such information confidential and shall promptly advise your Agency in writing if it learns of any unauthorized use or disclosure of the Confidential Information by any of our employees or agents, or subcontractor's or supplier's employees, present or former. In addition, we agree to cooperate fully and provide any assistance necessary to ensure the confidentiality of the Confidential Information.

c) It is understood and agreed that in the event of a breach of paragraph 20 and 21, damages may not be an adequate remedy and your Agency shall be entitled to injunctive relief to restrain any such breach or threatened breach. Unless otherwise requested by the Participating Agencies or your Agency, upon the completion of the services to be performed hereunder, we shall immediately turn over to the Participating Agencies and your Agency all such Confidential Information existing in tangible form, and no copies thereof shall be retained by ourselves or our employees, agents, subcontractors or suppliers without the prior written consent of the

Participating Agencies and your Agency. A certificate evidencing compliance with this provision and signed by an officer of our company shall accompany such materials.

d) We agree to be bound by the provisions of the New York State Personal Privacy Act with respect to any data created under this Irrevocable Offer where applicable and the applicable laws of the State of New Jersey. Accordingly, we agree that the provisions of the Personal Privacy Protection Act are incorporated by reference into this Irrevocable Offer and the applicable laws of the State of New Jersey.

In the Washington State Department of Transportation's **SWIFT** Project, the parties followed the same approach as **E-ZPass.** With FHWA's consent, the WSDOT' s **SWIFT** contract with its contractor included language clarifying that the Federal Government's right to use the technology would be "solely for non-commercial use."[257/]

Solution No. 1(c)	**Instruct prospective contractors to describe steps they will take to ensure commercialization of inventions arising under the project, and to describe the steps they will take to make inventions available to State and local governments, thereby alleviating some uncertainty the contractors may have with respect to Federal "March-in Rights"**

The FHWA's procurement to develop a prototype for the Automated Highway System was subject to the Federal Patent Policy. The FHWA overcame the private sector's apprehension over the possibility that the FHWA might unreasonably exercise its "March-in Rights" by asking applicants to help refine the circumstances in which such event might occur. In its Request for Applications, FHWA instructed applicants to describe the steps they will take to ensure public use of the inventions, and steps the applicants will take to make inventions available to State and local governments.[258/] Since the FHWA implicitly approved the successful applicant's description of its plan of action, the successful applicant thus had some assurance with regard to how the FHWA will construe these intellectual property rights.

257/ Agreement for Cooperative Demonstration Project to Design, Develop, Implement and Evaluate an Intelligent Vehicle Highway System Known as Seattle Wide-Area Information for Travelers ("SWIFT"), FHWA Project No.: IVHS-9453 (94E-2), State Agreement No.: UC3147, Section 9.3, Page 19.

258/ J.Dingle, *supra,* note 37.

Barrier No. 2	Potential for future disputes regarding the inventions to which the Federal Government's license rights apply

As discussed above in the Section on Federal Patent Policy, most of the concerns that have arisen with regard to the language of the standard Federal patent rights clause relate to the meaning of the phrases "subject invention," "first actually reduced to practice," and "in the performance of work under." In the context of ITS, often much of the development of a project may occur in the private sector, and the government financial involvement may be limited to providing a formula for testing. Thus, with significant up-front investment by private industry, lack of certainty regarding the government's interpretation of these clauses may impede contracting.

Solution No. 2(a)	**If the grantee has adequate information, identify in the contract which of the inventions that the private party is bringing to the project are already *'reduced to practice," and which will be developed under the contract; specify the technologies to which any government funds are being appiied**

In the **E-ZPass** project, the contracts between the grantee and its contractor carefully detailed which of the inventions that the private party was bringing to the project had already been "reduced to practice," and which would be developed under the contract. A grantee should not, of course, agree precipitously with its contractor that the contractor has previously reduced an invention to practice prior to the parties' contract. "Reduction to practice" is a complicated question of both patent law and specific facts, and the grantee may not have adequate information during pre-contract negotiations to determine whether a particular invention qualifies. Hasty agreement could result in the grantee's loss of a potentially valuable interest in the technology if it is eventually marketed commercially. Also, the effect which such an advance agreement between a grantee and its contractor would have on the Federal Government's retained license rights has not been determined.

On the other hand, the parties' advance agreement as to the technologies to be developed with government funds will avoid later debates as to the government's

interest in these technologies. The E-ZPass contract identified the technologies to which government funds were being applied and kept them separate.

Solution No. 2(b)	**Include detailed contract provisions describing any pre-existing IP developed by a party with its own funding ("PARTY Intellectual Property")**

In the ADVANCE operational test, the parties developed detailed contract provisions defining "PARTY Intellectual Property."

The ADVANCE Operational Test agreement is a good example of the type of detailed provisions that can result when intellectual property issues are addressed early on. It has been suggested that the ADVANCE agreement could be readily used in other projects as a starting template for addressing intellectual property issues.[259/] The ADVANCE agreement does several things right:

In the recitals, the ADVANCE agreement takes steps to recognize that the individual patties are bringing preexisting proprietary information to the project without intending to lose their rights therein:

> WHEREAS, the PARTIES understand that **ADVANCE** contains proprietary information of individual PARTIES or suppliers of individual PARTIES, and this Agreement shall not be construed to transfer any of such proprietary information to the other PARTIES.

The Agreement requires that the Parties label information that they intend to identify as preexisting "Party Intellectual Property," and anticipates that the parties will continue to evaluate and modify Party Intellectual Property with their own funding during the course of the Agreement without losing their rights in the Party Intellectual Project.

> PARTY Intellectual Property consists of copyrights, patents, trade secrets and any other forms of intellectual property rights covering any data bases, products, software, inventions or other proprietary information of any form or medium developed by any one or more of the PARTIES to this Agreement under their own funding, including any separate evaluations funded by a PARTY or PARTIES with respect to such information and any modifications to any of the foregoing.

259/ *Id.*

> Information identified as PARTY Intellectual Property shall be the property of that PARTY and shall be so labeled by that PARTY. This Agreement does not purport to transfer any PARTY Intellectual Property to any of the other PARTIES to this Agreement.

The Agreement specifically provides for each party to retain all rights to any inventions that are "Privately Funded Developments" during the course of the Agreement. It would have been useful if the Agreement had provided for an ongoing list of such matters so that records could be kept during the course of the Agreement and methods or provisions for expanding upon the list;

The Agreement contains an additional paragraph obligating all of the PARTIES to use reasonable care to prevent the disclosure of written information that is clearly labeled "PARTY Intellectual Property" or "PARTY Confidential," and to use this information only in fulfillment of its obligations per the Agreement.

Additional Solutions to Barriers 1and 2

As noted above, and as experienced in the Federally-funded **ADVANCE** Operational Test and the **E-ZPass** project, the perceived problems raised by standard Federal government contract clauses regarding intellectual property may be more a function of a lack of certainty within the private sector and State agencies regarding how broadly the Federal government will interpret these provisions, than it is a lack of flexibility in the law or over-zealousness of the Federal government. Despite this perception, it appears that the reasonable expectations of most private participants in government-funded ITS projects can be accommodated within current Federal patent policy. Generally, current Federal patent policy promotes private inventors' retention of ownership rights working under government funding agreements. While an inventor may lose title to rights through inadvertence or neglect, such as by failing to timely disclose inventions or file patent applications, these consequences stem from a long standing public policy to encourage thorough and timely disclosure of new inventions in exchange for a limited patent "monopoly." When appropriate in an ITS project where the Federal intellectual property clauses will be required or form the basis for the agreement, a private participant can take affirmative steps to avoid the unintended application of conditions and restrictions imposed under the standard patent rights clause. In this regard, private sector parties to ITS contracts should take the following steps:

(a) Thoroughly document the conception and reduction to practice of the inventions made prior to contract award.

(b) Wherever practical, file patent applications for any pre-existing inventions and register copyrights for pre-existing works before entering into contracts on government-funded projects;

(c) In negotiating a contract on government-funded projects, the parties should expressly except from the scope of the contract's patent rights clause any invention that the parties can knowledgeably agree has been "heretofore actually reduced to practice." [260/] Works which the grantee knows to have been prepared in the course of non-government funded projects may also be excluded. It would be helpful to the parties' negotiations for the private party to include detailed exhibits listing inventions that the private party is bringing to the table, along with the funding history of each invention;

(d) The scope of work for government-funded projects should be carefully drafted so as to exclude any of a company's ongoing, independent research activities that may be related to the subject matter of the government-funded project but which are not being governmentally funded;

(e) Personnel, funding and other resources devoted to government funded projects should be segregated as best as possible from those devoted to the private party's privately funded ITS projects. By taking these precautions, the private party can ensure that potentially patentable technology and data can be demonstrated to have been produced at "private expense," and that subject works are "limited rights data" or "restricted computer software" (if the FAR's standard data rights clause is used in the agreement);

(f) The scope of the government's retained license should be more precisely defined in the contract than simply "a non-exclusive, non-transferable license to practice or have practiced any subject invention for or on behalf of the United States." Concerns that this license might allow the government to compete with the private sector may be addressed by clarifying the term "for or on behalf of the United States,, in individual contracts under which a license is retained by the government. The FHWA Chief Counsel's letter (reproduced in the Appendix to this section) provides a good beginning for such a clarification;

(g) Another solution would be for the scope of the Federal government's retained license in patents to be more precisely defined by statute, regulation

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260/ See Bendix v. United States, *supra,* 600 F.2d at 1364, 1371-1372.

or publication of an administrative bulletin. FHWA should consider publishing its position set forth in the above-referenced Chief Counsel's letter[261/] in a statement of more general application;

(h) Under the FAR, for works "first produced in the performance of Federally supported research and development projects, Federal agencies have flexibility to allocate rights in data and copyrights in a manner broadly consistent with project goals. The Federal government may require the proprietary data and software to be advanced to it subject to the appropriate limited rights notice or restricted rights notice as the case may be.[262/] If appropriate, the Federal procuring agency may require delivery of only "form, fit, and function data." Therefore, where concerns about data rights allocation appear to limit the private sector's willingness to participate in a State or local ITS project, the parties should consider whether delivery of proprietary data is absolutely necessary or whether form, fit and function data (perhaps with an appropriate escrow of proprietary data) would be sufficient;

(i) If Federal funds are not involved in a project, the State or local agencies should not simply "fall-back,, on the Federal patent and copyright clauses. Instead, they should draft language based on their precise needs and desires, on a case-by-case basis. In other words, it may take flexibility on the part of all of the parties to achieve acceptable working agreements;

(j) With regard to protecting trade secrets, private participants in ITS projects should carefully document the status of any pre-existing or independently developed trade secrets prior to entering into the project, and should carefully mark all proprietary information in order to protect that data; and

(k) Intellectual property issues need to be addressed very early in the contracting process. The more specific and detailed contract provisions are with regard to intellectual property, the more likely that future disputes can be avoided. As expressed by one of the expert panelists at the focus group meeting, "My IP lawyers always tell me to say 'I'm not competent to discuss it."[263/] In other words, the issues need to be taken seriously, and competent legal counsel must be included in the process as early as possible. Public contracting agencies considering entering into advance agreement that

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261/ See Appendix.

262/ 48 C.F.R. $63.337-14 *et seq.*

263/ FHWA Contract No. DTFH6 1-94-C-00 164, Transcript of meeting of Expert Panelists on March 28, 1995.

specific technologies have been "reduced to practice" by the private sector contractor prior to the contract under negotiation are particularly cautioned to obtain legal input. "To avoid potential misunderstandings in the Deployment Phase, it is recommended that aspects of partnership agreements that concern intellectual property and proprietary rights be periodically reviewed and changed as necessary. This review process could be included as part of the Agreement." [264/]

Barrier No. 3	Conflict between contractor's desire to keep intellectual property proprietary and the traditional view that publicly-funded products should reside in public domain

There are four important public policies underlying the public sector position:

(a) The government should own what it pays for;

(b) Where the government has financed a particular firm's development of technology, it is inappropriate for that firm to obtain a monopoly on such technology to the disadvantage of others as a result of the government's sponsorship;

(c) Without access to the intellectual property resulting from the contract, the government runs the risk of being in a position where it must sole source any future contracts for the maintenance or enhancement of the underlying technology; the government is also at risk that it may have to pay monopoly prices for needed support or start all over again if the original firm goes bankrupt, ceases to operate its business, or dissolves; and

(d) If a government agency has financed the development of technology, it should be able to pass on that technology to the benefit of other government agencies so that the public does not pay to develop the same technology more than once.

The private sector has several legitimate concerns with regard to the impact of these public policies:

264/ IVHS Institutional Issues and Case Studies, Analysis and Lessons Learned, Volpe National Transportation Systems Center, Final Report, April 1994.

(a) Private sector firms believe that even though public funds may pay for the development of a technology, it is the private sector's accumulated background and experience, plus its ingenuity and creativeness, that produces the tangible result - a useful product embodying new technology; the public sector is entitled to the product (e.g., pieces of equipment), but not to the underlying intellectual property rights in that product;

(b) Even to the extent that the standard clauses vest in the government intellectual property rights to which all can agree it is entitled, "trade secrets" and other proprietary information developed from research efforts give a private company its business advantage; public record disclosure laws may force the dissemination of contract-related records that would dilute the value of the technology privately developed by the private entity;

(c) The private sector does not trust a public agency to adequately protect its proprietary information even if the public agency has agreed to do so.

Solution No. 3(a)	**Allocate to the contractor ownership of rights in copyright materiafs that are contractor cost responsibifities or shared cost responsibifities. FHWA and State DOTs are fuffy licensed to use the material**

In the **GENESIS** operational test, the parties overcame this barrier by analyzing what each party was contributing, identifying each party's real needs, and crafting language to allocate the intellectual property rights accordingly. Ultimately, the State of Minnesota assigned to the contractor all ownership rights in copyright materials that were contractor cost responsibilities or shared cost responsibilities. FHWA and MinnDOT were licensed to use the material.

Solution No. 3(b)	**Supplement standard contract intellectual property rights clauses to clarify contractor's rights**

A similar approach was taken in the **FAST-TMC** Operational Test. Because the parties interpreted the FAR differently, some participants did not realize that private

parties would, under federal law, actually retain ownership of intellectual property and gain from it. Therefore, the FAR clauses were supplemented to describe the parties' rights in clearer terms. (The parties indicated that in future contract negotiations, intellectual property rights will be used as a bargaining tool.)

Solution No. 3(e)	**States can initially ask for title to intellectual property, but negotiate royafty arrangement in lieu thereof**

In Minnesota, existing State statutes and regulations do not require the State or its agencies to retain title or licenses to intellectual property developed under State contracts, but nonetheless the State typically asks for such rights in the course of contract negotiations. Then, if a contractor prefers to retain title to the intellectual property, generally it can negotiate a royalty arrangement, license agreement or comparable arrangement whereby the State receives fair compensation for its contributions toward the creation of such intellectual property.[265/]

Solution No, 3(d)	**Negotiate royalty payments to compensate the public agency for its financial contribution to intellectual property development, Ownership can then be ceded to contractor**

Similarly, when the **Orange County Transportation Corridor Agencies** were negotiating to procure an automatic toll collection system for three new toll roads in Orange County, California, they recognized that their projects would be the first to deploy AVI technology consistent with the new California specifications for AVI technology set forth in Chapter 16 of Title 23 of the California Administrative Code. As a result, it was clear to the Agencies that they would necessarily be funding in part the development of new technology. Rather than insisting on owning all of the rights in the new technology, the Corridor Agencies negotiated licenses that provided them with sufficient rights to meet their needs, and fully relinquished to their contractor the right to

265/ Telephone interview with Minnesota Assistant Attorney General Michael Norton (Nov. 30, 1995, as reported in Stem, et al, *supra* at note 30, at p, 34.

exploit the technology in return for a royalty on that future exploitation by the contractor.[266/]

Solution No. 3(e)	**Waive delivery of limited rights data and restricted software; clarify limits on government license**

The FHWA balanced needs by making data developed under the agreement subject to the FAR Rights in Data-General clause permitting recipient to withhold from delivery to the government limited rights data or restricted computer software, and to deliver form, fit and function data in lieu thereof. The federal government could inspect data at the contractor's facility. In addition, the FHWA can clarify in the grant agreement, in a letter from FHWA to the contractor that it does not intend to license "subject inventions" to State or local governments.

Solution No. 3(f)	**Escrow twechnology**

If the public agency is not going to acquire all rights in intellectual property in connection with an ITS deployment, then it needs a way to protect itself in the event of system failure, or the contractor's going out of business and resultant unavailability of maintenance or spare parts. The **E-ZPass** agency solved this problem by requiring the ndor to escrow all technology necessary to manufacture and operate the system. It has been suggested by the expert panelists that it is often difficult to find a qualified escrow holder for technology, and that therefore public agencies might be forced to forego this protection in order to consummate transactions. It might be advisable for **ITS America** to assemble a list of qualified technology escrow holders and make that list available to the State and local transportation agencies, as well as to provide a template for a model ITS technology escrow agreement.

266/ "TCARMS Installation and Lease Purchase Agreement, *supra* at note 27.

Barrier No. 4	Lack of legislative authority for transportation agency to accept intellectual property royalties and/or to earmark such funds

Participants in the focus group panel of experts for this project, as well as the industry experts interviewed for this project, generally agreed that the private sector is in the better position to market intellectual property developed during the course of any cooperative ITS research and development or operational testing projects. In their view, where the government gains ownership of technology, it tends to grow obsolete on a shelf, rather than being put to its best use. However, focus group members indicated concerns that negotiating to obtain less than all intellectual property rights for patentable inventions or data created with public funds might appear to be a gift of valuable public rights. They also indicated that a lack of guidance with regard to the public agency's ability to accept royalties in return for allocating intellectual property rights to the private party may impede the logical allocation of intellectual property rights to the private party. Additionally, there was disagreement with regard to the propriety of one government agency obtaining a profit from the sale of a product to other governmental units.[267/]

Even if the State or local transportation agency is secure in its ability to receive a royalty, lack of guidance with regard to the earmarking of royalty revenues is a disincentive to negotiating royalties.

It was reported in the review of the TRAVLINK and GENESIS Operational Tests that the parties had difficulty handling royalty rights because MinnDOT lacked specific authority to receive royalties, no formal or informal guidelines existed for the receipt of royalties, and there was no system to track royalties.[268/]

267/ Intelligent Vehicle-Highway Systems Institutional and Legal Issues Program, "Review of the TRAVLINK & GENESIS Operational Tests," John A. Volpe National Transportation Systems Center, Page 13 (June 1994).

268/ *Id.* at page 14.

Solution No. 4(a)	Allocate royalties to a participating governmental party with clear authority to accept, retain, and use royalty funds

In the **GENESIS** operational test, the parties addressed MinnDOT's difficulty in retaining royalties actually received by having the royalties for the **AUTOSCOPE** camera dedicated directly to the University of Minnesota. The University was required to agree, as a condition to the dedication, that royalty revenues would be spent only on transportation-related research.

Potential solutions to State agencies' lack of certainty regarding the boundaries of their ability to negotiate compensation in return for intellectual property rights was discussed previously in this section. As noted, many States have specific legislation granting State-run institutions of higher learning and individual quasi-governmental State agencies the power to obtain and exploit intellectual property rights, including generating and retaining income therefrom. For example, Chapter 30 of the Illinois State Finance Act provides that the University of Illinois may retain in its own treasury "funds received in connection with the retention, receipt, assignment, license, sale or transfer of interests in, rights to, or income from discoveries, inventions, patents, or copyrightable works. . .[269/] The State of Kansas has created the Kansas Technology Enterprise Corporation, which has the following express power to:

> Negotiate royalty payments to the corporation on patents and licenses for innovations or inventions arising in the course of research sponsored by the corporation at educational institutions under the jurisdiction of the Kansas board of regents; such negotiated royalty arrangements should reflect an appropriate sharing of legal risk as well as financial return between the corporation and educational institution; such patents and licenses shall be in keeping with the patent policies of the Kansas board of regents.[270/]

In Hawaii, the Hawaii Software Service Center is expressly authorized to receive revenues from the license and sale or distribution of copyrighted software, but such

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269/ 30 ILCS 105/6D(2).

270/ Kan. Stat. Ann. § 74-8104(a)(22). Interestingly, the statute also provides that the corporation is not subject to purchasing laws.

revenues must be deposited into the general fund unless otherwise stipulated in a licensing agreement.[271/]

Solution No. 4(b)	**Enact legislation expressly permitting State agencies to retain royalty income from intellectual property as an incentive to negotiate such arrangements**

It is unrealistic to expect that, in States where transportation departments are precluded from earmarking funds, legislation can be easily revised with regard to the transportation departments' general powers. However, enacting legislation expressly authorizing the receipt and earmarking of royalties is a direct approach that at least **MinnDOT** intends to take. It has been reported that the Attorney General of Minnesota intends to draft legislation that will further define the powers of State agencies to negotiate for intellectual property rights under State contracts and will incentivize these agencies by permitting them to retain some or all of the income derived form the exploitation of these rights.[272/]

Solution No. 4(c)	**Form a special purpose entity to retain royalties and reinvest in ITS**

It was suggested by the panel of experts for this project that special purpose entities could be formed for the purpose of conducting and coordinating all ITS procurements. The rationale behind such a suggestion was that the special purpose entity could be granted broader discretion in its procurement methodologies than the State DOTs, and that the entity could also be granted the ability to receive royalties and earmark funds. Many members of the expert panel thought that this idea was theoretically attractive and interesting, but unlikely to be adopted, particularly in an era of government cutbacks.

271/ Haw. Rev. Stat. § 206M-34.

272/ Minnesota Revised Statutes § 174.02(b), 1993.

Barrier No. 5	Private sector concerns regarding data security

Concern over the loss of proprietary data and trade secrets due to the impact of State public record disclosure laws has been a significant concern in operational testing of ITS. For instance, in the **TravTek** Operational Tests, the parties were constrained by the fact that the Florida Freedom of Information Law required that any document in a public official's file is part of the public record and must be available for public access. Therefore, the parties were constrained to set up their procedures to try to avoid the impact of this law on records containing proprietary information.[273/]

Solution No. 5(a)	Hire third party systems integrator to hold and protect data

The parties' solution in the **TravTek** project was to keep the data library developed during the project out of the State's possession. This necessitated drafting tight contract procedures regarding the transmission and retention of documents.[274/]

Solution No. 5(b)	Carefully label proprietary and confidential information; parties may expressly commit to use reasonable care to prevent disclosure, and to use information only for limited purpose, that data which is properly labeled

Similarly, it has been reported that concerns with regard to the general public's ability to obtain documents also created barriers in connection with the **ADVANCE** Operational Test. In that case, Motorola wanted to ensure that its investment was not jeopardized

273/ IVHS Institutional Issues and Case Studies, Analysis and Lessons Learned, Volpe National Transportation Systems Center, Final Report (April 1994), page 2-57.

274/ "IVHS Institutional Issues and Case Studies: Travtek Case Study," Volpe National Transportation Systems Center, Final Report, April 1994.

by having proprietary data regarding hardware and software made publicly available. This issue was significant.[275/]

Solution No. 5(c)	**Require the contractor to place all source code and other proprietary technology necessary to manufacture and operate systems into third party escrow which may be accessed by the public agency only upon contractor default**

It has been reported that inability to find qualified escrow holders for technology source code has operated as a barrier to the successful deployment of ITS.[276/]

Handling public records requests may be particularly problematic in the case of combined or coordinated procurements, such as the **E-ZPass** toll collection technology procurement. In that case, the members of the **E-ZPass** project were being subjected to multiple requests for public records disclosures. Each agency had its own files, but the Triborough Bridge and Tunnel Authority had the most information in its files because it had two individuals heading different committees. Therefore, the **E-ZPass** agencies handled the post-procurement public records and disclosure issues by directing all requests to the Triborough Bridge and Tunnel Authority. The Authority handled all such requests under New York law. This approach deterred persons seeking public records information from "agency shopping" for information.

In a procurement situation, bidders or proposers, as the case may be, should be advised that it is their responsibility to clearly identify any information they consider proprietary or a trade secret, but that such designation is not determinative under State law, and the procuring agency will be forced to follow State law in case of a public records request. In the event of a request for information that the bidder/proposer has marked as proprietary, or that a party to an ITS contact has marked as proprietary, the procurement rules, or the contract provisions, should identify the procedure that the transportation agency will follow in determining whether or not to release the information. An approach that will give all parties some certainty and sense of control is for the agency to advise the bidder/proposer that there has been a public records request, and then to give that party an opportunity to advise the agency precisely what

275/ *Id.*, at page 2-56.

276/ Interview with John Kiljan, *supra.*

it considers to be proprietary, and to explain why.[277] The U.S. DOT's regulations implementing the Freedom of Information Act take this approach.[278] The practices

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277/ Such a provision might read as follows:

Section ___- State Public Records.

(a) Any copies of work product prepared by Private Party, its agents, contractors or consultants that are delivered to State DOT, any work product State DOT owns pursuant to Section ___ and any document of which State DOT obtains a copy pursuant to Section ___, may be considered public records under the state public records law, and as such may be subject to public disclosure. DOT recognizes that certain work product State DOT owns pursuant to Section ___ and certain documents of which State DOT obtains a copy pursuant to Section ___ may contain "proprietary information" as defined in state law and may include confidential information which is otherwise subject to protection from misappropriation or disclosure. Should such records become the subject of a request for public disclosure, the following provisions shall apply:

(i) State DOT shall use its best efforts to immediately notify Private Party of such request and the date by which it anticipates responding.

(ii) Private Party must then assert in writing to State DOT any claim that such records contain proprietary information that is exempt from disclosure under state law provision or is subject to protection pursuant to state law provision or other state law so that State DOT may consider such assertion in responding to the requester.

(iii) If Private Party failure to make such assertion within ___ days after the date State DOT notifies Private Party of its intended response, State DOT shall make such disclosure.

(iv) If Private Party makes a timely assertion and State DOT in its sole discretion believes Private party has a valid claim that records contain proprietary information, trade secrets or confidential information, State DOT will deny the request for disclosure of such records or, upon consultation with Private Party to agree upon a reasonable effort and legal cost, at Private Party's expense, seek judicial declaration of the rights of the parties.

(v) If State DOT's denial of a request for disclosure of records is challenged in court and DOT agrees to a Private Party request to defend its position, Private Party agrees that it will both assist State DOT in its defense and shall indemnify State DOT for any and all damages assessed and costs (including the fees and costs of State DOT's attorneys) State DOT incurs in such defense, including any attorneys' fees assessed against State DOT under state law.

(vi) If prior to. during or after judicial consideration State DOT, in its sole discretion believes Private Party does not have a valid claim, it shall so notify Private Party no less than ___ days prior to the date State DOT intends to make the disclosure to allow Private Party to take such action as it deems appropriate prior to disclosure.

(b) In the event Private Party believes that any Work Product subject to transmittal to or review by State DOT under the terms of this Agreement, and any work product State DOT owns pursuant to Section ___, contains proprietary or confidential infonnation or trade secrets that are exempt or protectable from disclosure pursuant to state law, Private Party shall use its best efforts to identify such information prior to such transmittal or review and Private party and State DOT shall confer on appropriate means of ensuring compliance with applicable laws prior to transmittal or review. Upon the written request of either party. Private Party and State DOT shall mutually develop a protocol for the transmittal, review and disclosure of Work Product or other information secured by Private Party so as to avoid violations of State Law Provisions ___.

established by the bid process or the contract should provide adequate time for the submitter of the data to attempt to enjoin the release of the information should the public agency determine that it is required to release the information notwithstanding the submitter's claim that the information is exempt from disclosure.

Earlier in this project, the focus group of experts was asked to comment on draft model code provisions relating to public access to procurement information.[278/] The focus group was asked to make suggestions regarding the best way to protect the public's interest in receiving information, while providing an environment that encouraged participation in projects by the most technologically innovative firms. Our draft model code suggested that procurement information be classified as "public record" except to the extent provided in Section (b), which would list exceptions. The expert panelists generally agreed that a specific rule would be appropriate in order to encourage unsolicited proposals and cooperative arrangements for development of innovative technologies and projects, and that transportation agencies need some ability to keep unsolicited information concerning innovations out of the public domain, at least until an agreement to implement the project is actually reached. Some of the suggestions were as follows:

(a) In partnering arrangements, governmental agency employees need to be thoroughly trained and briefed on steps necessary to maintain the security of information, or data should be held with third party escrow agents. The contract should contain explicit provisions on handling information.

(b) Information concerning ITS procurements and/or unsolicited bids should be available to the public to the extent necessary for the public to determine that the agency has followed its guidelines and statutes in carrying out the selection process. However, State law and agency policies should clearly express that proprietary information is excludable from the information available to the public. The agency should develop express language, such as that set forth in the FAR regarding unsolicited proposals, that potential ITS providers may use to protect their proprietary data to the greatest extent possible. It would also be helpful to define the circumstances in which

278/ 49 C.F.R. § 7.57.

279/ § l-30 1. Public Access to Procurement Information.

a) Procurement information is public record to the extent provided in (applicable State statute), except as provided in (b).

b) List exceptions.

evaluation reports written by an agency may be withheld from public view.[280/] As privatization projects become more prevalent, this issue will take on increasing importance.

(c) It would be helpful to include, either by statute or administrative rule making (if the transportation agency has authority to make such a policy), a policy stating that no information with regard to procurements or proposals will be made available for at least a certain minimum amount of time or until the proposer has been selected and contract has been executed.

Contract provisions should be carefully drafted requiring the participants to agree in advance upon the nature and type of data that may be disclosed and protected (subject to the limitations on the agency's authority), and they should specify the time period of the protection.

Barrier No. 6	Preserving the traveling public's privacy

Many ITS products and services will collect data that could compromise the traveling public's privacy. Privacy concerns have been expressed with regard to the fact that statutes governing public access to government documentation may provide general access to databases of information that may be compiled with regard to "historical information," such as information concerning where someone has been or what someone has purchased, and "surveillance information" concerning where someone is and where he or she will be going on a "real-time" and "future time" basis. Private sector developers and operators of ITS technology may perceive significant commercial value in the historical and surveillance information, while the public sector may feel an obligation to protect individuals' privacy.

The public sector could use some of this data for law enforcement and other public purposes. Individual consumers of the technology may have significant fears that exploitation of the data derived from ITS technologies will compromise their rights to privacy. The operational tests and case studies suggest that these concerns should be addressed early in the contracting process by the adoption and implementation of

280/ See, Krull v. Washington Department of Transportation *supra,* at note 77, for an example of how a state public records law may be broadly interpreted by a court to make available technical evaluations reports that the agency would have previously assumed would be protected.

privacy policies and the precise contractual allocation of rights and duties with respect to data operated by ITS operations.

Solution No. 6(a)	Utilize third-party contractors to collect and maintain information to prevent creation of public records

A good approach is for the State agency to be granted third party audit rights to the data that is held outside the State's files. The State might further require that the data be held subject to well-defined disclosure restrictions by an independent escrow. This approach was taken by the **State of Washington** in its Public Private Partners Initiative.

As discussed above, the Federal Freedom of Information Act, and many State laws concerning the disclosure of public records, provide exemptions for "trade secrets" and "proprietary data." To obtain the best protection possible under these exemptions, it is suggested that the parties follow the suggestions regarding clearly identifying proprietary work product suggested under Solutions to Barrier 2, above. This may be particularly important in the context of unsolicited proposals and responses to calls for projects. The FAR's provisions on Unsolicited Proposals provide some good suggestions on language for this purpose.[281/]

With regard to protecting the traveling public's privacy interest in historical and surveillance information, a variety of contract approaches may be taken. First, the parties may wish to provide that to the extent reasonably possible, such data should be kept out of the government's hands so that it is not subject to the public records request. Additionally, restrictions on the private parties' ability to exploit that data should be negotiated by the parties and included in the contract documents. One approach would be to preclude the commercial exploitation of any data whatsoever received from operating an ITS system by any project participant. Another option might be to delineate certain uses that would be permitted, but to require anonymity with regard to the actual identification of vehicles or persons from which or whom the information was collected. For example, in an electronic toll project, the transportation agency might be authorized to share certain aggregated traffic data with local radio stations for use in connection with traffic information broadcasts.

281/ 48 C.F.R.§§ 15.500, *et seq.*

To address privacy concerns in a consistent and systematic way, an agency responsible for implementing ITS should consider adopting express policy statements with regard to the protection of privacy interests, for use as guidelines in negotiating agreements. This action would demonstrate to the public the transportation agency's concern, and perhaps improve public acceptance of the ITS technologies. ITS America Legal Issues Committee has prepared privacy principles which make recommendations as to how privacy issues should be addressed when deploying ITS.[282/]

Barrier No. 7	**Transportation agency fears that early deployment of ITS will result in purchase of obsolete technology or will prevent an integrated system in future**

An issue related to intellectual property that is faced in the deployment phase is the public agency's interest in protecting itself in light of expected upward migration of ITS technologies.

Solution No. 7(a)	**Procure intellectual property rights which include Technology Refreshment" clause allowing upward migration of technology**

Transportation agencies should negotiate intellectual property rights adequate to enable them to accommodate potential upward migration. The **E-ZPass** agency solved this problem by providing for technology with upgrade migration ("technology refreshment clauses") possibilities to accommodate participating agencies' respective needs. This approach provided the flexibility to consider various levels of technology (read-only versus read-write capabilities) while expressing a strong preference for the most advanced capabilities.[283/] This was presented as a solution allowing the group to function with members from seven agencies in three States, each with a different time table for implementation, procurement processes and operating environments.

282/ Draft Privacy Principles, ITS America 1996.

283/ I-95 Corridor Coalition Case Study No. 2 - E-ZPass System Development Presentation by Linda M. Spock, Page 19.

Solution No. 7(b)	**Create Technology Review Board to assess new developments in ITS technology, and recommend upgrades which the contractor should be required to incorporate into the ITS project**

Orange County Transportation Corridor Agencies reached another solution to this problem in their procurement of a toll collection system. The Agencies provided in their contracts for a technology review board to meet periodically to assess developments in the industry. The Board was authorized to require the contractor, within reasonable bounds, to implement "state-of-the-art,, technology during the course of the contract. The contract provides guidance on the parties' respective cost responsibilities under various circumstances.[284/]

Another solution to this issue would be to include a "most favored customer" clause in the contract, whereby the contractor agrees to provide the public agency with upgrades and updates to its system as they are implemented elsewhere, on terms no less favorable than those offered to other customers of the contractor.

284/ The "TCARMS Installation and Lease Purchase Agreement among Foothill/Eastern Transportation Corridor Agency, a joint powers agency and San Joaquin Hills Transportation Corridor Agency, a joint powers agency and Lockheed Information Management Services Company, a New York corporation and Lockheed Corporation, a Delaware corporation," dated as of February 26, 1993, provides in pertinent part as follows:

> 11.2.2 Agency agrees that it will not require Contractor to supply updates and upgrades for which the costs significantly outweigh the benefits. In this regard, any upgrade or update which does not have a material impact on customer service or satisfaction or on the cost of operating the system shall generally not be required unless it can be provided at relatively little expense to Contractor.
>
> 11.2.3 The parties shall establish a six-person panel to review technological developments at least once per year, commencing one year from the date hereof, and determine whether they are required to be provided by Contractor hereunder. Either party may call for a meeting of the panel at any time. Agency and Contractor shall each appoint a three-person team to the technical panel. Each team shall include at least one financial and one technical representative. Each team shall bear its own expenses. In the event the panel is unable to agree upon required updates and upgrades, the matter shall be submitted to the Disputes Board established under the Operating Agreement. The Disputes Board shall have authority to make a final determination in the event of a challenge regardless of the cost involved.

Barrier No. 8	Combined and coordinated procurements, and Statewide systems with multiple operators have special needs for information sharing, which may not be allowable if proprietary information is involved

In the **E-ZPass** procurement, the parties determined it best to use a proprietary specification for off-the-shelf technology. In contrast, a non-proprietary specification was selected for the California AVI specification. There are pros and cons associated with each method. A non-proprietary specification should encourage competition, while a proprietary specification may assure the procuring agency of the availability of existing off the shelf technology.

Solution No, 8	Utilize nonproprietary specifications and standards

Transportation agencies whose projects will need to interface with other agencies' projects need to be careful to obtain adequate intellectual property rights for this purpose. In States where a specification has not been adopted, in order to save time and money, procurement agencies might consider incorporating, by reference, the specifications that have been adopted elsewhere.

D-4. ADDITIONAL FINDINGS AND RECOMMENDATIONS

Where State or local agencies are not constrained by statutory or regulatory requirements regarding intellectual property, they should keep in mind that the private sector generally is in a better position to exploit technological innovations, even if public funds contributed to their development. Therefore, instead of insisting on being allocated rights broader than are necessary for their purposes, State and local agencies should consider negotiating an allocation of intellectual property rights that meets the agency's operational needs, perhaps with royalty payments to appropriately compensate the agency for its contribution to the development of the technology.

In situations where the State or local transportation agency believes that retaining government licenses like those required by the Federal patent policy and the FAR's data provisions is best even when not required, it would be useful for such transportation agency to adopt policies affirmatively stating the rules or guidelines it will

follow in applying these clauses. This would at least provide some guidance to industry and those working within the transportation agency.

By working closely with the technical staff in the State Department of Transportation's traffic management department, it should be possible to craft very precise and explicit definitions of license requirements that meet the transportation agency's needs while protecting the private entity's ability to exploit its technologies. In doing so it is important to have qualified public agency staff members who can look beyond the current procurement and forecast how the technology involved in the current procurement might come into play in future expansions of the State's transportation management systems and ITS generally. Negotiated provisions should contemplate these future needs, while not being confiscatory of private investment. It is anticipated that the intellectual property licensing provisions that will be drafted in connection with some of the new public/private transportation initiatives being undertaken across the country in places such as Washington, Virginia, Minnesota, Delaware, Colorado and the like will set a new standard for creative and careful approaches to this issue. Unfortunately, at the time of this writing, the documents created for any of those programs are not yet available for public dissemination. However, it is suggested that upon consummation those transactions may be reviewed for further guidance with regard to handling these issues.

D-4.1 Suggested Approach

A State or local transportation agency planning contemplating an ITS project should consider intellectual property issues early in the process. The following steps might be followed to assist the agency in focusing on intellectual property issues:

(1) Form a core team of "technology experts" within the agency to address intellectual property issues. A legal consultant should be included in the team.

(2) The team should inventory the intellectual property likely to be associated with the project, and whether it will be "brought to the table" by the contractor or the transportation agency, or whether it will be created as part of the ITS project.

(3) Legal counsel should assist the team in identifying the applicable statutory and regulatory constraints on the transportation agency's ability to negotiate the allocation of rights in the various items of intellectual property associated with the project.

- Is there a Federal funding component? If so, any concerns regarding reserved Federal licenses should be discussed with FHWA as soon as possible.

- If the lead transportation agency for the project is subject to unworkable restrictions, consider bringing in other governmental "partners" that may have greater flexibility.

Within the constraints imposed by applicable law, the team should analyze agency needs with regard to the various items of intellectual property associated with the project.

(1) What intellectual property is the transportation agency bringing to the project? Does it possess sufficient rights in that intellectual property to accomplish the project, or does it need to expand its existing license rights?

(2) What are the minimum rights the transportation agency needs in the intellectual property that the contractor will bring to the project?

- Will other departments or agencies within the State or local jurisdiction need to use, or have an interest in using, the intellectual property, either now or in the future as part of the long-term ITS deployment plan? Consider including "technology expert" representatives from these agencies in preliminary planning discussions as appropriate.

- What are the minimum rights in this project's intellectual property that will be necessary to accomplish the long-term ITS deployment plan, (e.g., for technology maintenance and repair, upgrades, to accomplish interfaces with other systems) and can these rights be obtained now?

- Will the technology need to interface with other systems, and who will be responsible for accomplishing the interface?

- Will the contractor agree to cooperate in future integration of its system with other ITS projects, including participating, as requested, on a technology committee to deal with these issues, and what, if any, additional compensation will be required?

(3) What precedents are available to help the transportation agency formulate its proposed intellectual property contract provisions?

What will be the parties' relative technical and financial contributions to any intellectual property created by the project?

(1) Do these contributions suggest an equitable distribution of the intellectual property rights?

(2) Is there a future market for the inventions? If so, which party is in the best position to exploit that market, and does the transportation agency have authority to negotiate allocation of the intellectual property rights to achieve market exploitation?

- May the transportation agency receive royalties?

- May the transportation agency earmark funds it receives from the contractor, or from ITS operations?

To the extent the transportation agency does not obtain intellectual property rights now, how will the transportation agency protect itself against future performance problems?

(1) What technologies should be escrowed?

(2) Can provisions for upward migration of technology be obtained?

(3) Is a “most favored customer” clause appropriate?

(4) What kind of training will the transportation agency need to be able to use the technology, and will the training require additional intellectual property rights?

What data will the technology generate during project performance and which parties should own and control the data?

Should some data be held by a third party to keep it out of the public domain?

With respect to data generated by the operation of the ITS, what privacy concerns are raised, and what are the transportation agency’s policies with respect thereto?

(1) If the transportation agency does not already have one, it should consider adopting an ITS privacy policy to address public concerns.

(2) The contractor should be required to provide mechanisms protecting personal data to ensure the privacy policy will be maintained.

Approached in a strategic and organized manner, the intellectual property issues arising from an ITS contract may present an opportunity, rather than a barrier, to

efficiently deploy a regional, Statewide or nationally integrated ITS system. Intellectual property issues may require State and local transportation agencies to form a network of experts within different departments to examine near and long-term needs and goals for an integrated ITS system, and to determine how the contract at hand fits within those goals? With an understanding of how the ITS contract will fit within the broader goals for an integrated ITS system, the transportation agency may best evaluate the optimal allocation of intellectual property rights arising from the ITS contract.

285/ For example, in the State of Washington's public/private partners initiative, the Department of Transportion ("WSDOT") established a Project Review Board to rank proposals utilizing evaluation criteria which prioritizes projects to be selected based on how effectively the proposed projects meet the State's goals and program requirements.

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