

**DEPARTMENT OF TRANSPORTATION****Federal Highway Administration****23 CFR Parts 655 and 940**

[FHWA Docket No. FHWA-99-5899]

RIN 2125-AE65

**Intelligent Transportation System Architecture and Standards**

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Notice of proposed rulemaking (NPRM); request for comments.

**SUMMARY:** The FHWA proposes to implement section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21), enacted on June 9, 1998, requiring Intelligent Transportation System (ITS) projects funded through the highway trust fund to conform to the National ITS Architecture and applicable standards. Because it is highly unlikely that the entire National ITS Architecture would be fully implemented by any single metropolitan area or State, the FHWA proposes in this NPRM (the ITS Architecture NPRM) that the National ITS Architecture be used to develop a local implementation of the National ITS Architecture, which is referred to as an "ITS regional architecture." Therefore, conformance with the National ITS Architecture is defined under this proposal as development of an ITS regional architecture based on the National ITS Architecture, and the subsequent adherence of ITS projects to the ITS regional architecture. The ITS regional architecture would consist of a concept of operations and a conceptual design, which would draw from the National ITS Architecture, but would be tailored to address the local situation and ITS investment needs. The ITS regional architecture follows from the ITS integration strategy developed in another NPRM entitled "Statewide Transportation Planning; Metropolitan Transportation Planning" also published in today's **Federal Register**. In this NPRM, the FHWA proposes the use of the system engineering process and applicable standards and interoperability tests adopted by the DOT.

**DATES:** Written comments must be received on or before August 23, 2000. For dates of public information meetings see **SUPPLEMENTARY INFORMATION**.

**ADDRESSES:** Signed, written comments should refer to the docket number that appears at the top of this document and

must be submitted to the Docket Clerk, U.S. DOT Dockets, Room PL-40, 400 Seventh Street, SW, Washington, D.C. 20590-0001. All comments received will be available for examination at the above address between 9 a.m. and 5 p.m. e.t., Monday through Friday, except Federal holidays. Those desiring notification of receipt of comments must include a self-addressed, stamped envelope or postcard. For addresses of public information meetings see **SUPPLEMENTARY INFORMATION**.

**FOR FURTHER INFORMATION CONTACT:** *For technical information:* Mr. Bob Rupert, (202) 366-2194, Office of Travel Management (HOTM-1) and Mr. Mike Freitas, (202) 366-9292, ITS Joint Program Office. *For legal information:* Mr. Wilbert Baccus, Office of the Chief Counsel (HCC-32), (202) 366-1346, Federal Highway Administration, 400 Seventh Street, SW., Washington, D.C. 20590. Office hours are from 8 a.m. to 4:30 p.m., e.t., Monday through Friday, except Federal holidays.

**SUPPLEMENTARY INFORMATION:****Electronic Access**

Internet users may access all comments received by the US DOT Dockets, Room PL-401, by using the universal resource locator (URL): <http://dms.dot.gov>. It is available 24 hours each day, 365 days each year. Please follow the instructions online for more information and help.

An electronic copy of this document may be downloaded by using a computer, modem, and suitable communications software from the Government Printing Office's Electronic Bulletin Board Service at (202) 512-1661. Internet users may reach the Office of the **Federal Register**'s home page at <http://www.nara.gov/fedreg> and the Government Printing Office's web page at: <http://www.access.gpo.gov/nara>.

The document may also be viewed at the DOT's ITS home page at <http://www.its.dot.gov>.

**Public Information Meetings**

The DOT will hold a series of seven public briefings within the comment period for the NPRM. The purposes of these briefings is to explain the content of the NPRM and encourage public input to the final rulemaking. The meetings will address this NPRM, a companion NPRM on the metropolitan and statewide planning process (FHWA RIN 2125-AE62; FTA RIN 2132-AA66), and the NPRM entitled, "NEPA [National Environmental Policy Act of 1969] and Related Procedures for Transportation Decisionmaking,

Protection of Public Parks, Wildlife and Waterfowl Refuges, and Historic Sites" (NEPA/NPRM; FHWA RIN 2125-AE64; FTA RIN 2132-AA43). The meetings will be scheduled from approximately 8:00 a.m. to 5:00 p.m. at the locations listed below. Changes in the information below will be made available after the publication of this NPRM through the FHWA and the FTA websites, other public announcement avenues and the newsletters and websites of major stakeholder groups. Individuals wishing information but without access to these sources may contact the individuals listed above.

The structure of the meetings will emphasize brief presentations by the DOT staff regarding the content of the NPRMs. A period for clarifying questions will be provided. Under current statutory and regulatory provisions, the DOT staff will not be permitted to engage in a substantive dialog regarding what the content of the NPRMs and the final regulations should be. Attendees wishing to express ideas and thoughts regarding the final content of the rules should direct those comments to the docket. Briefing sites will include: Boston, MA, Auditorium, Volpe National Transportation Systems Center, 55 Broadway, June 9, 2000; Atlanta, GA, Westin Peachtree Plaza Hotel, 210 Peachtree Street, June 20, 2000; Washington, D.C., Marriott Metro Center, 775 12th Street NW, June 23, 2000; Chicago, IL, Holiday Inn Mart Plaza, 350 North Orleans Street, June 27, 2000; Denver, CO, Marriott City Center, 1701 California Street, June 30, 2000; Dallas, TX, Hyatt Regency Dallas, 300 Reunion Boulevard, July 11, 2000; and San Francisco, CA, Radisson Miyako, 1625 Post Street, July 19, 2000.

As part of the outreach process planned for these proposed rules, the FHWA/FTA will be conducting a national teleconference on June 15, 2000 from 1-4 p.m. eastern time, through the auspices of the Center for Transportation and the Environment at North Carolina State University. The teleconference will be accessible through numerous downlink locations nationwide and further information can be obtained from Katie McDermott at [kpm@unity.ncsu.edu](mailto:kpm@unity.ncsu.edu). The purpose of the teleconference is to describe the proposed new statewide and metropolitan planning, National Environmental Policy Act (NEPA) implementation, and Intelligent Transportation Systems (ITS) rules. An overview of each of the three Notices of Proposed Rulemaking (NPRMs) will be presented and the audience (remote and local) will have opportunities to ask questions and seek clarification of

FHWA/FTA proposals. By sponsoring this teleconference it is hoped that interest in the NPRMs is generated, that stakeholders will be well informed about FHWA/FTA proposals, and that interested parties will participate in the rulemaking process by submitting written suggestions, comments and concerns to the docket.

### Introduction

Section 5206(e) of the TEA-21, Public Law 105-178, 112 Stat. 107, at 457, requires ITS projects funded through the highway trust fund to conform to the National ITS Architecture, applicable or provisional standards, and protocols.

The proposed implementing regulations for this provision of law are contained in two NPRMs. The first NPRM for revisions to the Statewide and Metropolitan transportation planning processes, 23 CFR part 1410, published separately in today's **Federal Register**, contains language specific to ITS projects pertaining to implementation of section 5206(e)—§§ 1410.104 (Definition of ITS Integration Strategy), 1410.310(g) (Agreements), 1410.322(b)(11) (Plan and Integration Strategy Content), 1410.214 (a)(3), and 1410.216(c)(8) (State Transportation Improvement Program Content). The second NPRM concerning the ITS Architecture would add part 940 to subchapter K to implement section 5206(e) of TEA-21. The FHWA believes the proposed rules, 23 CFR parts 1410 and 940, would implement the legislative requirement for conforming to the national architecture and standards.

### Background

Intelligent transportation systems represent the application of information processing, communications technologies, advanced control strategies, and electronics to the field of transportation. Information technology in general is most effective and cost beneficial when systems are integrated and interoperable. The greatest benefits in terms of safety, efficiency, and costs are realized when electronic systems are systematically integrated to form a whole in which information is shared with all and systems are interoperable.

In the transportation sector, successful ITS integration and interoperability require addressing two different and yet fundamental issues; that of technical and institutional integration. "Technical integration" of electronic systems is a complex issue that requires considerable up-front planning and meticulous execution for electronic information to be stored and accessed by various parts of a system.

"Institutional integration" involves coordination between various agencies and jurisdictions to achieve seamless operations and/or interoperability. In order to achieve effective institutional integration of systems, agencies and jurisdictions must agree on the benefits of ITS and the value of being part of an integrated system. They must agree on roles, responsibilities, and shared operational strategies. Finally, they must agree on standards and, in some cases, technologies and operating procedures to ensure interoperability. In some instances, there may be multiple standards that could be implemented for a single interface. In this case, agencies will need to agree on a common standard or agree to implement a technical translator that will allow dissimilar standards to interoperate. This coordination effort is a considerable task that will happen over time, not all at once. Transportation organizations, such as, transit properties, State and local transportation agencies, and metropolitan planning organizations must be fully committed to achieving institutional integration in order for integration to be successful. The transportation agencies must also coordinate with agencies for which transportation is a key, but not a primary part of their business, such as, emergency management and law enforcement agencies.

Successfully dealing with both the technical and institutional issues requires a high-level conceptual view of the future system and careful, comprehensive planning. The framework for the system is referred to as the "architecture." The architecture defines the system components, key functions, the organizations involved, and the type of information shared between organizations and parts of the system. The architecture is, therefore, fundamental to successful system implementation, integration, and interoperability.

### The National ITS Architecture

The Intermodal Surface Transportation Efficiency Act of 1991, Public Law 102-240, 105 Stat. 1914, initiated Federal funding for the ITS program. The program at that time was largely focused on research and development and operational tests of technologies. A key part of the program was the development of the "National ITS Architecture." The National ITS Architecture provides a common structure for the design of ITS systems. The architecture defines the functions that could be performed to satisfy user requirements and how the various

elements of the system might connect to share information. It is not a system design, nor is it a design concept. However, it does define the framework around which multiple design approaches can be developed, each one specifically tailored to meet the needs of the user, while maintaining the benefits of a common approach. The National ITS Architecture, Version 3.0 can be obtained from the ITS Joint Program Office of the DOT in CD-ROM format and on the ITS web site <http://www.its.dot.gov>. The effort to develop a common national system architecture to guide the evolution of ITS in the United States over the next 20 years and beyond has been managed since September 1993 by the FHWA. The National ITS Architecture describes in detail what types of interfaces should exist between ITS components and how they will exchange information and work together to deliver the given ITS user service requirements. The National ITS Architecture and standards can be used to guide multi-level government and private-sector business planners in developing and deploying nationally compatible systems. By ensuring system compatibility, the DOT hopes to accelerate ITS integration nationwide and develop a strong, diverse marketplace for related products and services.

It is highly unlikely that the entire National ITS Architecture will be fully implemented by any single metropolitan area or State. For example, the National ITS Architecture contains information flows for an Automated Highway System that is unlikely to be part of most regional implementations. However, the architecture has considerable value as a framework for local governments in the development of regional architectures by identifying the many functions and information sharing opportunities that may be desired. It can assist local governments with both of the key elements—technical interoperability and institutional coordination.

The National ITS Architecture, because it aids in the development of a high-level conceptual view of a future system, can assist local governments in identifying applications that will support their future transportation needs. From an institutional coordination perspective, the National ITS Architecture helps local transportation planners to identify other stakeholders who may need to be involved and to identify potential integration opportunities. From a technical interoperability perspective, the National ITS Architecture provides a logical and physical architecture and

process specifications to guide the design of a system. The National ITS Architecture also identifies interfaces where standards may apply, further supporting interoperability.

### Transportation Equity Act for the 21st Century

As noted above, section 5206(e) of the TEA-21 requires ITS projects funded from the highway trust fund to conform to the National ITS Architecture, applicable or provisional standards, and protocols. The purpose of the statute is to accelerate the deployment of interoperable ITS systems. Use of the National ITS Architecture provides significant benefits to local transportation planners and deployers as follows:

1. The National ITS Architecture provides assistance with technical design. It saves considerable design time because physical and logical architectures are already defined.
2. Information flows and process specifications are defined in the National ITS Architecture, allowing local governments to accelerate the process of defining system functionality.
3. The architecture identifies standards that will support interoperability now and into the future, but it leaves selection of technologies to local decisionmakers.
4. The architecture provides a sound engineering framework for integrating multiple applications and services in a region.

### Transportation Planning Process

The existing transportation planning processes under titles 23 and 49, U.S.C., require a continuing, comprehensive, and coordinated approach to assessing transportation needs, evaluating a range of solutions, and providing a coordinated response through transportation investments. The TEA-21 further emphasizes operations and management of the transportation network as a key consideration in transportation planning. The transportation planning process is currently institutionalized through statewide and metropolitan planning.

Effective implementation of ITS requires careful and comprehensive planning. This notice of proposed rulemaking and the accompanying NPRM on Statewide and Metropolitan Transportation Planning, published separately in today's **Federal Register**, propose changes to 23 CFR part 1410 and explains how ITS would be integrated into the planning process. The ITS would become part of the transportation planning process through the locally defined ITS Integration

Strategy. This ITS integration strategy would guide future investment decisions and foster integration and interoperability. Developing the strategy as part of the overall transportation planning process would ensure that ITS is given appropriate consideration as a solution for future transportation needs and services.

Consequently, the DOT is issuing an NPRM (23 CFR part 1410), published separately in today's **Federal Register**, that proposes to incorporate ITS into the transportation planning process for both metropolitan and statewide planning (in addition to other changes needed to implement the TEA-21). The proposed provisions specific to ITS are set forth in 23 CFR 1410.104, 1410.214(a)(3), 1410.310(g), and 1410.322(b)(11). A summary of the proposed revisions follows:

During the development of the metropolitan and/or statewide transportation plan, if ITS applications are envisioned, the transportation plan shall address an ITS integration strategy. Provision shall be made to include participation of key operating agencies in the development of the integration strategy. The ITS integration strategy shall clearly assess existing and future ITS systems, including their functions and information sharing expectations. Planning for ITS shall produce an agreement among the Metropolitan Planning Organizations (MPOs), State DOTs, transit operators and other agencies which addresses policy and operational issues affecting the successful implementation of the ITS integration strategy. The policy statement shall address provisions to ensure ITS project interoperability, utilization of ITS related standards, and the routine operation of the projects. Further, as provided in proposed 23 CFR 1410.322 (b)(11), the transportation plan shall identify:

- (1) Major regional ITS initiatives (a program of related projects that are multi-jurisdictional and/or multi-modal),
- (2) ITS projects of a scale to affect regional integration of ITS systems, and
- (3) ITS projects that directly support national interoperability.

### Project Development Process

The ITS integration strategy that is part of the transportation plan would be general in content, articulating key policies and a vision for the planning area. More detailed conceptual designs and operational procedures, as agreed upon by key stakeholders, are necessary to support project development. This proposed rule seeks to implement this approach as part of the project

development process. There are two distinct sections to the proposal. The first deals with development of an ITS regional architecture that lays the foundation for integration in a metropolitan planning area or State. The second deals with final project design and ensuring conformance to both the ITS integration strategy and the ITS regional architecture.

### Summary of Proposed Requirements

#### I. The ITS Regional Architecture

This NPRM on the ITS Architecture and Standards would require development of a local implementation of the National ITS Architecture referred to as an ITS regional architecture that is consistent with the ITS integration strategy. The ITS regional architecture would be tailored to meet local needs, meaning that it may not address the entire National ITS Architecture and may also address services not included by the National ITS Architecture. The ITS regional architecture may be developed either through an initial regional development effort or incrementally as major ITS investments are anticipated. In either case, the ITS regional architecture should contain a concept of operations and a conceptual design that addresses the integration of new ITS projects as they are advanced. In this context, a "region" is a geographical area that is based on local needs for sharing information and coordinating operational strategies among multiple projects. A region can be specified at a metropolitan, statewide, multi-State, or corridor level. While "regions" for ITS development may be at any geographic scale, responsibility for planning rests with either the MPO or State planning process. For ITS purposes, a region is any geographic area designated by the planning process. The responsible planning entity (MPO or State) will address the ITS region and ITS planning. Where ITS regions cross planning boundaries, they should be coordinated by the appropriate planning entities (MPOs or States). For ITS Commercial Vehicle Operation projects, the size of the region should not be smaller than a State, with consideration for multi-State, national, and international applications. A regional approach promotes integration of transportation systems. The size of the region should reflect the breadth of the integration of transportation systems and may be at a metropolitan, statewide, multi-State or corridor level.

## II. Project Development

Additionally, the proposed regulations would require that all ITS projects be developed using a system engineering process, again recommending the use of the National ITS Architecture as a resource. Project development would be based on the relevant portions of the ITS integration strategy and the ITS regional architecture which the project implements. ITS projects would be required to use applicable ITS standards that have been officially adopted by the DOT and applicable interoperability tests officially adopted by the DOT. Where multiple standards exist, it will be the responsibility of the stakeholders to determine how best to achieve the interoperability they desire.

## III. FHWA Project Oversight Procedures

The FHWA project oversight procedures would remain consistent with routine Federal-aid project oversight. Documentation of the proposed ITS requirements would be required to be included in project documents. Any changes made in project design that impact either the ITS integration strategy or the ITS regional architecture would be documented and the appropriate revisions made and agreed to in the ITS integration strategy and/or the ITS regional architecture. All ITS projects that advance to design or preliminary engineering would be required to conform to the system engineering and conformity requirements immediately upon the effective date of a final rule on the National ITS Architecture and Standards. In the event that an applicable ITS regional architecture or ITS integration strategy does not exist, the applicable portions of the National ITS Architecture would be identified and used as the basis for analysis. All requirements of this proposal would apply for two years from the effective date of a final rule. Replacement of existing systems would not be required.

## IV. Outreach Process

In the spring of 1998, the FHWA held ten nationwide outreach meetings on a proposed conceptual approach for ensuring consistency with the National ITS Architecture. These meetings were intended to generate discussion and solicit input from the perspective of many different transportation stakeholders on the feasibility of the proposed FHWA approach. Meetings were attended by representatives of Federal, State, local and regional transportation agencies, public sector agencies that rely on Federal-aid funds

for projects with ITS components, and interested parties from universities and the private sector. In general, stakeholders expressed the opinion that the interim guidance and the use of system engineering principles represent good practice. Stakeholders expressed a requirement for straightforward, unambiguous guidance that could be implemented with a minimum of additional paperwork, and largely agreed that the interim guidance met this requirement. For more information please see "National ITS Architecture Consistency Outreach Meetings: Summary Findings (1998)" which is included as part of this docket.

## Rulemaking Analyses and Notices

All comments received before the close of business on the comment closing date shown above will be considered and will be available for examination in the docket at the above address. Comments received after the comment closing date will be filed in the FHWA docket identified above and will be considered to the extent practicable, but the FHWA may issue a final rule at any time after the close of the comment closing period. In addition to late comments, the FHWA will also continue to file in the docket relevant information that becomes available after the comment closing date, and interested persons should continue to examine the docket for new material.

## Executive Order 12866 (Regulatory Planning and Review) and DOT Regulatory Policies and Procedures

The FHWA has preliminarily determined that this proposed action is not a significant regulatory action under Executive Order 12866 and within the meaning of the Department of Transportation regulatory policies and procedures. This determination is based upon the regulatory assessment of the proposed rule that indicates that the annual impact of the rule would not exceed \$100 million nor would it adversely affect the economy, a sector of the economy, productivity, jobs, the environment, public health, safety, or State, local, or tribal governments.

The FHWA has prepared a preliminary regulatory evaluation (PRE) to accompany the NPRM. A copy of the PRE is included in the docket. The FHWA believes that this proposed action would implement the requirements of section 5206(e) of the TEA-21. Although this law requires ITS projects funded through the highway trust fund to conform to the National ITS Architecture, the FHWA would require development of a regional architecture consisting of a concept of

operations and a conceptual design, and would require use of the system engineering process, applicable or provisional standards, and protocols, and interoperability tests developed by the DOT. In developing the proposed rule, the FHWA has sought to allow broad discretion to those entities impacted by the rule, in levels of response and approach, that are appropriate to particular plans and projects while conforming to the requirements of TEA-21. The FHWA has considered the costs and benefits of effective implementation of ITS through careful and comprehensive planning. ITS becomes part of the transportation planning process through the locally defined ITS Integration Strategy. This ITS strategy would guide future investment decisions and foster the benefits of integration and interoperability. Developing the strategy as part of the overall transportation planning process would ensure that ITS is given appropriate consideration as a solution for future transportation needs and services.

## Costs

The total costs of this NPRM over 10 years is estimated between \$38.1 million and \$44.4 million (the net present value over 10 years is between \$22.3 million and \$31.2 million). The annual constant dollar impact is estimated to range between \$3.2 million and \$4.4 million. These 10-year cost estimates include transportation planning cost increases, to MPOs ranging from \$10.8 million to \$13.5 million, and to States from \$5.2 million to \$7.8 million. Estimated costs to implementing agencies for the development of regional architectures range between \$15.8 million and \$23.2 million.

These costs do not include additional implementation costs for individual projects as commenters found the additional cost extremely difficult to estimate. Those who responded suggested that the increased cost of project implementation over current good practice would be minimal. However, because of the limited amount of data available on the additional implementation costs for individual projects, the FHWA is seeking additional data on this issue from commenters to this NPRM.

## Benefits

The anticipated non-monetary benefits derived include savings from the avoidance of duplicative development, reduced overall development time, and earlier detection of potential incompatibilities. As with

project implementation impacts, the benefits of the NPRM are very difficult to quantify in monetary terms. It is estimated that the coordination guidance provided through implementation of the NPRM can provide savings of approximately \$150,000 to any potential entity seeking to comply with the requirements of section 5206(e) of the TEA-21 as compared with an entity having to undertake compliance individually. The costs may be offset by benefits derived from the reduction of duplicative deployments, reduced overall development time, and earlier detection of potential incompatibilities.

In order to assist the FHWA's analysis of costs and benefits for the final rule stage, the FHWA requests that commenters provide additional information on the following questions:

(1) Are there implementation costs to project designers and operators not properly represented in the present data?

(2) Are there updating and maintenance costs to any of the impacted entities not properly reflected in the present data?

A detailed discussion of how the FHWA prepared its estimates is provided in this NPRM for interested parties that are not able to review the PRE.

#### **Regulatory Flexibility Act**

In compliance with the Regulatory Flexibility Act (5 U.S.C. 601-612), the FHWA has evaluated, through the regulatory assessment, the effects of this action on small entities (small businesses, small organizations, and local governments) and determined that this action will not have a significant impact on small entities. Small businesses and small organizations are not subject to this NPRM, which applies to government entities only. The rule accommodates small governmental entities in two significant ways. First, the planning component of the NPRM would apply to MPOs and States. An MPO is the required transportation planning organization for an urbanized area (23 CFR part 1410). An urbanized area, as defined in 23 U.S.C. 101, has a population of 50,000 or more. Therefore small government agencies for areas having populations of less than 50,000 would not be affected. Secondly, the self-scaling aspect of the ITS Architecture NPRM would permit the compliance requirements to vary with the magnitude of the ITS requirements of the entity (small ITS projects have correspondingly small compliance documentation requirements). Small entities, primarily transit agencies,

coming within the project implementation component of the proposed rule would be accommodated through this self-scaling feature that imposes only limited requirements on small ITS activities. This same feature would also provide accommodation to MPOs that, while larger than the small entity definition of the Regulatory Flexibility Act, have only small ITS planning requirements. Accordingly, the FHWA preliminarily certifies that this proposed action would not have a significant impact on a substantial number of small entities. A copy of the analysis on the small entity impact is provided in the docket file.

#### **Unfunded Mandates Reform Act of 1995**

This rule would not impose a Federal mandate resulting in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any one year. (2 U.S.C. 1531 *et seq.*)

#### **Executive Order 13132 (Federalism)**

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 13132, dated August 4, 1999, and it has been determined that this action does not have a substantial direct effect or sufficient federalism implications on States that would limit the policymaking discretion of the States. Nothing in this document directly preempts any State law or regulation.

#### **Executive Order 12372 (Intergovernmental Review)**

Catalog of Federal Domestic Assistance Program Number 20.205, Highway planning and construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.

#### **Executive Order 12988 (Civil Justice Reform)**

This proposed action would meet applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

#### **Executive Order 13045 (Protection of Children)**

We have analyzed this action under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. This proposed rule is not economically significant and does not concern an environmental risk

to health or safety that may disproportionately affect children.

#### **Executive Order 12630 (Taking of Private Property)**

This proposed rule would not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

#### **Paperwork Reduction Act**

This proposed action does not contain information collection requirements for the purposes of the Paperwork Reduction Act of 1995, 44 U.S.C. 3501-3520.

#### **National Environmental Policy Act**

The agency has analyzed this proposed action for the purposes of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321), and has preliminarily determined that this proposed action would not have any effect on the quality of the environment.

#### **Regulation Identification Number**

A regulation identification number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN contained in the heading of this document can be used to cross reference this proposed action with the Unified Agenda.

#### **List of Subjects**

23 CFR Part 655

Design standards, Grant programs-transportation, Highways and roads, Incorporation by reference, Signs and symbols, Traffic regulations.

23 CFR Part 940

Design standards, Grant programs-transportation, Highways and roads, Intelligent transportation systems.

Issued on: May 18, 2000.

**Vincent F. Schimmoller,**  
*Acting Executive Director, Federal Highway Administration.*

In consideration of the foregoing, the FHWA proposes to amend Chapter I of title 23, Code of Federal Regulations, as set forth below:

#### **PART 655—[AMENDED]**

1. Revise the authority citation for part 655 to read as follows:

**Authority:** 23 U.S.C. 101(a), 104, 105, 109, 114, 135, 217, 315, and 402; and 49 CFR 1.48.

**Subpart D—[Removed]**

2. Remove subpart D of part 655, consisting of §§ 655.401, 655.403, 655.407, 655.409, 655.411.

3. Add a new subchapter K, consisting of part 940, to read as follows:

**SUBCHAPTER K—INTELLIGENT TRANSPORTATION SYSTEMS****PART 940—INTELLIGENT TRANSPORTATION SYSTEM ARCHITECTURE AND STANDARDS**

Sec.

940.1 Purpose.

940.3 Definitions.

940.5 Policy.

940.7 Applicability.

940.9 ITS regional architecture.

940.11 Systems engineering analysis.

940.13 Project implementation.

940.15 Project administration.

**Authority:** 23 U.S.C. 101, 109, 315, and 508; sec 5206(e), Pub. L. 105-178, 112 Stat. 457 (23 U.S.C. 502 note); and 49 CFR 1.48.

**§ 940.1 Purpose.**

The purpose of this regulation is to provide policies and procedures relating to the Federal-aid requirements for intelligent transportation systems (ITS) projects funded through the highway trust fund.

**§ 940.3 Definitions.**

*ITS integration strategy* means a systematic plan for coordinating and implementing ITS investments funded with highway trust funds to achieve an integrated regional transportation system.

*ITS project* means any project that in whole or in part funds the acquisition of technologies or systems of technologies (e.g. computer hardware or software, traffic control devices, communications link, fare payment system, automatic vehicle location system, etc.) that provide or contribute to the provision of one or more ITS user services as defined in the National ITS Architecture.

*ITS regional architecture* means a regional framework for ensuring institutional agreement and technical integration for the implementation of projects or groups of projects under an ITS integration strategy.

*National ITS Architecture* (also “national architecture”) means a common framework for ITS interoperability. The National ITS Architecture comprises the logical architecture and physical architecture which satisfy a defined set of user services. All of these documents are controlled by the FHWA, and are updated on an as-needed basis. New versions of the documents, when they

are issued, will be available from the FHWA in hard copy and electronic format on the DOT web site at <http://www.its.dot.gov>.

*Region* is the geographical area that is based on local needs for sharing information and coordinating operational strategies in order to address transportation problems. The size of the region should be chosen to optimize integration of transportation systems by fostering the exchange of information on operating conditions across ITS systems and across a number of agencies and jurisdictions.

*Systems engineering* is the process to arrive at a final design of a system which is selected from a number of alternatives that would accomplish the same objectives. As in most disciplines, there are usually a number of technical solutions to a set of requirements. This process considers the total life cycle of the project in the evaluation of alternatives including not only the technical merit of potential solutions, but also the costs and relative value of the alternatives that are responsive to the needs of the customer.

**§ 940.5 Policy.**

The ITS projects shall conform to the National ITS Architecture and standards in accordance with the regulations contained in 23 CFR part 1410. Conformance with the National ITS Architecture is interpreted to mean the use of the National ITS Architecture in developing a local implementation of the National ITS Architecture, referred to as an ITS regional architecture, and the subsequent adherence of all ITS projects to that ITS regional architecture. Development of the ITS regional architecture begins with the transportation planning process and the development of an ITS integration strategy for Statewide and Metropolitan Transportation Planning.

**§ 940.7 Applicability.**

All ITS projects that are funded in whole or in part with the highway trust fund are subject to these provisions.

**§ 940.9 ITS regional architecture.**

(a) An ITS regional architecture shall be developed for implementing the ITS integration strategy as provided in 23 CFR 1410.214(a)(3) and 1410.322(b)(11) to guide the development of specific projects and programs. The ITS regional architecture shall conform with the applicable ITS integration strategy. The National ITS Architecture shall be used as a resource in the development of the ITS regional architecture.

(b) The ITS regional architecture may be developed either as an initial project

development effort and updated as projects are initiated, or the ITS regional architecture may be developed incrementally as major ITS investments are initiated and updated with subsequent projects. In either case, provision shall be made to include participation from all agencies with which information-sharing is planned as specified in the ITS integration strategy.

(c) The ITS regional architecture shall include, at a minimum, the following:

(1) A “concept of operations” that addresses the roles and responsibilities of participating agencies, existing or required agreements for operations, and resources required to support the project, in order to implement the ITS integration strategy;

(2) A “conceptual design” sufficient to support subsequent project design regarding the following:

(i) System functional requirements;

(ii) Interface requirements and information exchanges with planned and existing systems and subsystems (for example, subsystems and architecture flows as defined in the National ITS Architecture);

(iii) Identification of key standards supporting regional and national interoperability, including uniformity and compatibility of equipment, practices and procedures to deliver ITS services; and

(iv) A prioritization of phases or steps required in implementation.

(d) The ITS regional architecture may be developed either as an initial project development effort and updated as projects are initiated, or the ITS regional architecture may be developed incrementally as major ITS investments are initiated and updated with subsequent projects. If the ITS regional architecture is developed incrementally, the ITS projects meeting the criteria specified in 23 CFR 1410.322(b)(11) shall have an ITS architecture at the project level in order to advance to design or preliminary engineering. The ITS architectures developed for specific individual projects or initiatives that meet these criteria shall be coordinated with each other to form an ITS regional architecture.

**§ 940.11 Systems engineering analysis.**

(a) All ITS projects shall be based on a systems engineering analysis. The National ITS Architecture is a resource that should be used in the development of ITS projects.

(b) The analysis should be on a scale commensurate with the project scope. The basic elements of the analysis are as follows:

(1) Identification of applicable parts of the ITS regional architecture or ITS integration strategy;

(2) Preliminary analysis, including project objectives, existing systems resources, existing and future personnel and budget resources for operations, management and maintenance of systems;

(3) Analysis of alternative system configurations and technology options;

(4) Analysis of procurement options; and

(5) Identification of applicable standards and testing procedures, particularly those that support national interoperability.

#### § 940.13 Project implementation.

(a) The project specifications shall ensure that the project accommodates the sharing of electronic information and provides for the functionality and operation (both at the time of project implementation and in the future) between the agencies and jurisdictions as indicated in the ITS integration strategy and/or the ITS regional architecture.

(b) All ITS projects funded with highway trust funds shall use applicable ITS standards that have been officially adopted by the United States Department of Transportation (US DOT).

(c) The ITS standards that are pertinent to the project should be used as they become available, prior to adoption by the US DOT.

(d) All ITS projects funded with highway trust funds shall conduct the applicable interoperability tests that have been officially adopted by the US DOT.

(e) Interoperability tests that are pertinent to the project should be used as they become available, prior to adoption by the US DOT.

#### § 940.15 Project administration.

(a) Prior to authorization of highway trust funds for construction or implementation, there shall be a demonstrated linkage to the ITS regional architecture or to the ITS integration strategy, and a commitment to the operations, management and maintenance of the overall system.

(b) Documentation of compliance with the provisions of §§ 940.11 and 940.13 shall be developed by project sponsors. The documentation shall include identification of the portions of the ITS regional architecture and/or ITS integration strategy which are implemented through the project, and the identification of applicable ITS standards and/or interoperability tests that were considered or are specified in the project. Documentation of the rationale and interagency coordination strategies that were carried out to agree upon certain changes shall be provided in the event that any changes are made in the implementation of projects contrary to the ITS regional architecture and/or the ITS integration strategy. In addition, the ITS regional architecture and/or ITS integration strategy shall be updated to reflect the changes.

(c) ITS projects shall be monitored for compliance with this part under normal Federal-aid project oversight procedures.

(d) Prior to *(two years after date of final rule publication in the Federal Register)*, the ITS architectures are not required for projects that meet any of

the criteria as specified in 23 CFR 1410.322(b)(11). The criteria identify major regional ITS initiatives, ITS projects that affect regional integration of ITS systems, and projects which directly support national interoperability.

(e) In order to ensure that each project identified in 23 CFR 1410.322(b)(11) is coordinated with the evolving regional architecture provided in § 940.9(b), these projects shall be evaluated for institutional and technical integration with transportation systems and services within the region. Based upon this evaluation of the project(s), highway trust fund recipients shall immediately take the appropriate actions to ensure that the project(s) perform the following functions:

(1) Engages a wide range of stakeholders;

(2) Enables the appropriate electronic information sharing between stakeholders;

(3) Facilitates future ITS expansion; and

(4) Uses the applicable ITS standards provided in § 940.13(b).

(f) All ITS projects that advance to design or preliminary engineering must conform with the system engineering and conformity requirements provided in §§ 940.11 on or before *(Insert effective date of final rule)*. In the event that an applicable ITS regional architecture or ITS integration strategy does not exist, the applicable portions of the National ITS Architecture shall be identified and used as the basis for analysis.

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