AMENDMENT NO. 1 – RFA DTFH61-06-RA-00004

Amendment No. 1 Issue Date April 12, 2006

RFA Issue Date March 15, 2006

The purpose of this amendment is to revise the following:

1) **SECTION I – FUNDING OPPORTUNITY DESCRIPTION,** paragraph B. LEGISLATIVE AUTHORITY, delete the last sentence:

"Per Section 5306, paragraph (b) Priority Area, "…the Secretary shall give higher priority to funding projects that … (1) enhance mobility and productivity through improved traffic management, incident management, transit management, freight management, road weather management, toll collection, traveler information, or highway operation systems and remote sensing products."

Add the following in lieu thereof:

"Section 5306(a) directs Secretary to…'carry out a comprehensive program of intelligent transportation system research, development, and operational tests of intelligent vehicles and intelligent infrastructure systems and other similar activities that are necessary to carry out this subtitle.'"

2) **SECTION V – APPLICATION REVIEW INFORMATION,** paragraph A. EVALUATION CRITERIA, **STAGE ONE, Cost,** add the following after the last sentence:

Under the cost evaluation factor, FHWA will consider the extent to which proposed cost share exceeds the minimum required cost share.

3) SECTION V – APPLICATION REVIEW INFORMATION, paragraph A. EVALUATION CRITERIA, STAGE ONE, add the following additional factor after **Cost:**

Geographic Diversity

Geographic Diversity of applicants will be considered in the award selection.

SECTION VI – APPLICATION AND SUBMISSION INFORMATION, paragraph B. CONTENT AND FORM OF APPLICATION SUBMISSION, **Part II – Stage One Pioneer Site Technical Application**, TECHNICAL & MANAGEMENT APPROACH, delete the last sentence:

"The Technical Application must provide proof of such tentative agreements or contracts."

Add the following in lieu thereof:

"The U.S. DOT encourages, but does not require, identification of specific consultants by name in the proposals for Stage One. If an applicant is unable to identify specific consultants by name at the time of proposal submittal, applicants shall: (1) state the type of consultant planned (i.e., system engineer or other such title); (2) explain how planned consultants will be procured and managed; (3) explain what roles and responsibilities the consultants will have; and (4) provide evidence to demonstrate that the applicant has taken or plans to take steps to identify specific consultants by name, including a schedule of activities to select consultants and establish tentative agreements or contracts with selected consultants."

All other information provided in the RFA remains unchanged. The following is the original RFA posted March 15, 2006. The application due date remains unchanged, May 15, 2006.

Federal Funding Opportunity

Request for Applications (RFA)

Executive Summary

Federal Agency Name:	U.S. Department of Transportation Federal Highway Administration Office of Acquisition Management 400 Seventh Street, SW, Room 4410 Washington, DC 20590 Attn: Carl Rodriguez, HAAM-40F
Funding Opportunity Title:	***"Discretionary Cooperative Agreement for Integrated Corridor Management"***
Announcement Type:	This is the initial announcement of this funding opportunity.
Funding Opportunity Number:	***RFA Number DTFH61-06-RA-00007***

Catalog of Federal Domestic Assistance (CFDA) Number: 20.200

Dates:	RFA Issue Date is March 15, 2006. Application Due Date is May 15, 2006.
Direct Questions to:	Carl Rodriguez, (202) 366-4240, Carl.Rodriguez@fhwa.dot.gov

TABLE OF CONTENTS

Section Title	Page
SECTION I - FUNDING OPPORTUNITY DESCRIPTION	3
SECTION II - AWARD INFORMATION	12
SECTION III - ELIGIBILITY INFORMATION	15
SECTION IV - APPLICATION AND SUBMISSION INFORMATION	16
SECTION V - APPLICATION REVIEW INFORMATION	28
SECTION VI - AWARD ADMINISTRATION INFORMATION	30
SECTION VII - AGENCY CONTACT	39
APPENDIX A - DEFINITION OF TERMS	40

SECTION I – FUNDING OPPORTUNITY DESCRIPTION

A. STATEMENT OF PURPOSE

The purpose of this solicitation is to select up to eight (8) Sites for assessment of their capability to demonstrate integrated corridor management. The Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the U.S. Department of Transportation's (DOT's) Intelligent Transportation Systems (ITS) Joint Program Office (JPO) hereby request applications to result in the award of up to eight (8) cooperative agreements for participation in the Integrated Corridor Management (ICM) initiative.

The initiative consists of the following stages:

- Stage One - Pioneer Sites
- Stage Two - Pioneer Analysis, Modeling and Simulation (AMS) Sites
- Stage Three - Pioneer Demonstration Sites

B. LEGISLATIVE AUTHORITY

The authority to award a cooperative agreement for this effort is found in SAFETEA-LU, Section 5201, Research, Technology, and Education and Section 5306, Research and Development. Per Section 5201 paragraph (c)(3) Cooperation, Grants, And Contracts, "The Secretary may carry out research, development, and technology transfer activities related to transportation … (C) by making grants to, or entering into contracts and cooperative agreements with one or more of the following: the National Academy of Sciences, the American Association of State Highway and Transportation Officials, any Federal laboratory, Federal agency, State agency, authority, association, institution, for-profit or nonprofit corporation, organization, foreign country, or any other person." Per Section 5306, paragraph (b) Priority Area, "…the Secretary shall give higher priority to funding projects that … (1) enhance mobility and productivity through improved traffic management, incident management, transit management, freight management, road weather management, toll collection, traveler information, or highway operation systems and remote sensing products."

C. BACKGROUND

Traffic congestion is a serious and growing problem in the U.S., particularly in major metropolitan areas. Much of the congestion is in critical metropolitan corridors that link activity centers and carry high volumes of people and goods. These corridors are typically comprised of several independent transportation networks, such as freeways, arterials, bus routes, and rail transit lines. Freeway and arterial networks are often subject to unrestrained demands significantly greater than available capacity. Capacity is often reduced at bottleneck locations, such as major interchanges and bridges. Transit buses operating on congested arterials and freeways are typically delayed in traffic along with other vehicles on the roadway.

The current state-of-the-practice in corridor management is highly disaggregated. To date, efforts to reduce congestion have focused on managing transportation networks within corridors

individually. The ability to shift travel demands between facilities and modes (networks) during traffic incidents, roadway work zone activity, adverse weather, or simply unusually large traffic demands is severely hampered by lack of information about current conditions and lack of standardized technical means for sharing that information. The lack of institutional collaboration and coordination and the lack of integrated operational strategies and procedures further impede optimizing the performance of the corridor. It is envisioned that integrating the management and control of the individual transportation networks and optimizing the corridor transportation system as a whole would greatly improve the movement of people and goods through corridors, resulting in reduced delays and increased travel time reliability.

The U.S. DOT ITS JPO began the ICM Initiative to improve safety and mobility within corridors, and to advance the development and deployment of ICM systems throughout the United States. The goal of the initiative is to develop and provide the organizational guidance, operational capabilities, and ITS technical methods needed for effective integrated corridor management. The U.S. DOT will conduct one or more demonstration projects in selected metropolitan corridors to demonstrate the coordination of operations among separate corridor networks, using proven and emerging ITS technologies, to increase the effective use of the total corridor capacity.

D. OBJECTIVES

STAGE ONE: In Stage One, the Recipient shall develop its own site-specific Concept of Operations and requirements for its site-specific integrated corridor management (ICM) system. The Recipient shall develop its Concept of Operations document using the generic Concept of Operations document provided by the U.S. DOT as its starting point.

The U.S. DOT expects to select up to four (4) Stage One Pioneer Sites to proceed to Stage Two, Pioneer AMS Sites. See Section V of this document for Stage Two selection criteria.

> NOTE: Stage Two and Stage Three will be designated in the resulting cooperative agreements as separate "Options." Award of a cooperative agreement resulting from this RFA does not guarantee funds for participation in Stage Two and/or Stage Three. Rather, the Government reserves the unilateral right to exercise the option for the Recipient's participation in Stage Two and/or Stage Three. If selected for Stage 2 and/or Stage 3, the Government will exercise the options by execution of separate amendments to the cooperative agreements.

STAGE TWO: In Stage Two, the U.S. DOT will analyze the ICM systems proposed by the Stage Two Pioneer AMS Sites in more detail and will evaluate the expected benefits to be derived from implementing those ICM systems. Each Stage Two Pioneer AMS Site shall support the analysis of its proposed ICM system through provision of data and assistance to the U.S. DOT's AMS Team.

The U.S. DOT expects to select up to four (4) Recipients to proceed to Stage Three, Pioneer Demonstration Sites. See Section V of this document for Stage Three selection criteria.

All Pioneer Sites (including those sites not chosen for Stage Two) will be eligible to be selected to conduct an ICM demonstration project as a Stage Three Pioneer Demonstration Site.

STAGE THREE: In Stage Three, selected Recipients shall each conduct an ICM demonstration project as a Stage Three Pioneer Demonstration Site. In addition to demonstrating ICM, each Recipient selected as a Stage Three Pioneer Demonstration Site shall be required to cooperate with the U.S. DOT's evaluation efforts.

E. STATEMENT OF WORK

The Recipients shall perform technical work under this agreement in accordance with the following three Stages.

Introduction / Timeline

STAGE ONE: Stage One is the initial process, which shall be performed by all Pioneer Sites selected. The U.S. DOT anticipates that Stage One will take approximately 14 months.

STAGE TWO: Stage Two is a more detailed effort, in which only those Pioneer Sites selected as Pioneer AMS Sites will be asked to perform work funded by the U.S. DOT. The U.S. DOT anticipates that Stage Two will take about 10 months. Pioneer Sites not selected for AMS evaluations may be invited to continue as ICM Stakeholders. They will also be eligible to be selected as Pioneer Demonstration Sites.

STAGE THREE: Stage Three is the demonstration stage. Only those Pioneer Sites selected as Pioneer Demonstration Sites will be asked to perform work funded by the U.S. DOT. All of the Pioneer Sites that have continued with the program, whether selected as Pioneer AMS Sites or not, may be invited to submit Demonstration Plans. Pioneer Sites (including Pioneer AMS Sites) that have continued participation in the program but are not selected as Pioneer Demonstration Sites may be invited to continue as ICM Stakeholders. The U.S.DOT anticipates that Stage Three will take about 36 months.

Participation in Pioneer Site Workshops and Stakeholder Meetings

STAGE ONE: The Recipient shall participate in at least three Pioneer Site workshops and Stakeholder meetings called by the U.S. DOT to discuss issues and concepts related to integrated corridor management. The U.S.DOT anticipates that the combination of a Pioneer Site Workshop and a Stakeholder meeting will occur as either a three-day or a two-day event. The first one or two days will be the Pioneer Site workshop, consisting of full one-day session(s), followed on the last (second or third) day by a one-day Stakeholder meeting. While only Pioneer Site representatives will attend the workshop (along with U.S.DOT representatives), the U.S.DOT anticipates that the Stakeholder meetings will include representatives from organizations and locales that are not Pioneer Sites.

STAGE TWO: If selected for Stage Two, the Recipient shall participate in workshops and Stakeholder meetings called by the U.S. DOT—currently estimated to be a total of three workshops and/or Stakeholder meetings.

> **CONTINUED ICM STAKEHOLDER PARTICIPATION:** The U.S. DOT may ask Stage One Pioneer Sites that are not selected for Stage Two AMS evaluations to continue to participate as Stakeholders in the ICM initiative. The U.S. DOT will determine whether any and how many of the Pioneer Sites not selected as Stage Two Pioneer AMS Sites will be offered this opportunity. Pioneer Sites not selected for Stage Two may opt not to participate as ICM Stakeholders. If they opt not to participate, their involvement in this effort shall end once they are not selected as a Pioneer AMS Site. ICM Stakeholders will be expected to continue to attend ICM initiative meetings called by the Government, to send observers to one or more Pioneer AMS and Pioneer Demonstration Sites to participate in briefings and demonstrations presented by the selected sites, and to provide input on the overall efforts of the ICM initiative. Under a separate award, the U.S. DOT intends to reimburse travel costs for continued ICM Stakeholder participation by public sector personnel.

STAGE THREE: If selected for Stage Three, the Recipient shall participate in workshops and Stakeholder meetings called by the U.S. DOT—currently estimated to be a total of three workshops and/or Stakeholder meetings.

> **CONTINUED ICM STAKEHOLDER PARTICIPATION:** The U.S. DOT may ask Pioneer Sites (including Pioneer AMS Sites) that are not selected as Stage Three Pioneer Demonstration Sites to continue to participate as ICM Stakeholders in the ICM initiative. Pioneer Sites (including Pioneer AMS Sites) may opt not to participate as ICM Stakeholders. If they opt not to participate, their involvement in this effort shall end once they are not selected as a Stage Three Pioneer Demonstration Site. ICM Stakeholders will be expected to continue to attend ICM initiative meetings called by the Government, to send observers to one or more Pioneer Demonstration Sites to participate in briefings and demonstrations presented by the selected sites, and to provide comments and suggestions on the overall efforts of the ICM initiative. Under a separate award, the U.S. DOT intends to reimburse travel costs for continued ICM Stakeholder participation by public sector personnel.

The details of the three stages are discussed below.

Delineation of Tasks

Stage One – Pioneer Site Concepts of Operations and ICMS Requirements

In Stage One, the U.S. DOT will provide the Recipient with a generic Concept of Operations document and a generic Requirements document to provide an example of how the Recipient should format its own versions. (Applicants shall contact Mr. John Harding at John. Harding@ fhwa.dot.gov for an advance copy of the generic Concept of Operations document). These generic documents will also illustrate the content that the U.S. DOT expects to see in the

Recipient's versions of the documents and be used to facilitate joint U.S. DOT and industry review. The U.S. DOT will also provide an Implementation Guide that discusses what the Recipient should do to prepare the Recipient's version of these documents. The Recipient shall work with the U.S. DOT to accomplish the following tasks.

Task 1 – Kickoff Meeting and Initial Workshop.

This first workshop and kickoff meeting will provide the opportunity for all Stage One Pioneer Sites selected by the Government to meet with the other sites and with the U.S. DOT ICM team to discuss the U.S. DOT's vision of integrated corridor management and to engage in a dialogue with the U.S. DOT on the work to be done during the period of performance of this effort. This workshop will serve as the formal "kickoff" meeting for this effort and is expected to last one day.

Task 2 – Develop an Integrated Corridor Management Concept of Operations

The Recipient shall develop a Concept of Operations document, using the generic Concept of Operations document provided by the U.S. DOT as its starting point. The Recipient shall tailor this document for the specific capabilities and operational needs that the Recipient believes should be in the Recipient Corridor. The Recipient's Concept of Operations shall describe what the Recipient believes are the integrated corridor management capabilities needed to address existing problems and issues in the Recipient Corridor. The U.S. DOT will provide technical assistance to the Stage One Pioneer Sites in the development of a site-specific Concept of Operations. The first version of this document shall be delivered to the U.S. DOT prior to the second workshop and stakeholder meeting scheduled as part of this Stage.

The second workshop will give each Stage One Pioneer Site the opportunity to present its thinking, as embodied in the draft Concept of Operations for their site, on how they would approach the implementation of integrated corridor management. It will provide each Stage One Pioneer Site with the opportunity to measure its own approach against the approaches of other Stage One Pioneer Sites. Each Pioneer Site shall, after the workshop, revise and refine its Concept of Operations incorporating, should it choose to do so, the best practices of other Pioneer Sites. This workshop is expected to last two days. After the workshop, the U.S. DOT will provide comments on the Pioneer Site's draft Concept of Operations. The U.S. DOT expects each Pioneer Site to address those comments, as appropriate, finalize its Concept of Operations, and deliver the final version to the U.S.DOT.

Task 3 – Document Requirements for Integrated Corridor Management

Each Pioneer Site shall develop requirements documentation that expands on the needs identified in the Pioneer Site's Concept of Operations document. The requirements documentation shall provide the basis for the capabilities that the Pioneer Site plans to implement, should it be selected as a Stage Three ICM demonstration site. The U.S. DOT will provide technical assistance to the Pioneer Sites in the documentation of requirements for their proposed ICM system. The types of requirements that the Recipient shall document include, but are not limited to: functional requirements, performance requirements, and system requirements. The Recipient

shall deliver the first version of this documentation to the U.S. DOT prior to the third workshop and stakeholder meeting scheduled as part of this Stage.

The third workshop will give each Pioneer Site the opportunity to present its thinking, as embodied in the draft requirements documentation for its Site, on what specific integrated corridor management capabilities would be implemented. It will provide each Pioneer Site with the opportunity to measure its own approach against the approaches of other Pioneer Sites. Each Pioneer Site shall, after the workshop, revise and refine its requirements documentation incorporating, should it choose to do so, the best practices of other Pioneer Sites. This workshop is expected to last two days. After the workshop, the U.S. DOT will provide comments on the Pioneer Site's draft requirements documentation. The U.S. DOT expects each Pioneer Site to address those comments, as appropriate, finalize its requirements documentation, and deliver the final version to the U.S. DOT.

Task 4 – Collect and Deliver Sample Data

The U.S. DOT plans to select up to four (4) of the Stage One Pioneer Sites as Stage Two AMS sites. One of the factors the U.S. DOT plans to use to determine which Stage One Pioneer Sites are selected for Stage Two AMS evaluations is the availability of quality data that can be used to analyze, model, and/or simulate the Site's proposed ICM system. The type of data that the U.S. DOT may request from the Stage One Pioneer sites includes:

- Electronic files containing roadway-specific data on traffic volumes and speeds and/or travel times.

- Electronic files containing transit-specific data, such as automated vehicle location (AVL) of transit vehicles, transit vehicle speeds, transit vehicle schedule adherence data, automated passenger counts for vehicles, electronic payment system information.

- Detailed descriptions of corridor characteristics, such as roadway segments, geometric characteristics of roadways (e.g., presence of grade, curvature, length of merge lanes), number of signalized and non-signalized intersections, dynamic message signs and their placement on roadway segments, presence of work zones, use of ramp meters, existence of high occupancy vehicle/high occupancy toll (HOV/HOT) lanes pricing strategies for transit, roadways (tolls), HOT lanes, and parking.

- Detailed descriptions of transit capabilities, such as routes, station locations, passenger capacity, ridership by transit route/line, degree of use of automated vehicle location (AVL) technology, automated passenger counting (APC) systems, electronic payment systems (EPS) by the transit system(s).

The U.S. DOT will provide all Stage One Pioneer Sites with a definitive list of the data required no later than **20 weeks** after the effective date of the agreement. The Stage One Pioneer Sites will have sixteen (16) weeks to collect and provide their available network data for U.S. DOT assessment, as part of the process of selecting those sites that will become Stage Two Pioneer AMS Sites.

OPTION ITEM Stage Two – Analysis, Modeling, and Simulation Process for Selected Sites

NOTE: The Recipient is NOT authorized to proceed with any effort in Stage Two without written approval from the Agreement Officer. Stage Two is hereby designated as an "Option" under this agreement. Award of a cooperative agreement resulting from this RFA does not guarantee funds for participation in Stage Two. Rather, the Government reserves the unilateral right to exercise the option for the Recipient's participation in Stage Two. If selected for Stage Two, the Government will exercise the option by execution of an amendment to the cooperative agreement.

The U.S. DOT anticipates using the following criteria for selection of Stage Two Pioneer AMS Sites. The U.S. DOT will provide final criteria to Stage One Pioneer Sites at the same time as the definitive list of required data.

The FHWA expects that Stage One Pioneer Sites will be selected as Stage Two Pioneer AMS Sites based on the following three criteria:

- Quality of the documents submitted during Stage One (Concept of Operations, Requirements Documentation);
- Quality and availability of the Site's data for analysis, modeling, and simulation purposes; and
- Potential benefit to the Government of the proposed ICM system.

The details of the evaluation criteria are discussed below.

<u>Quality of the Documents Submitted During Stage One</u>

Subfactors to be considered:

- Consistency of Content between the Concept of Operations and Requirements Documentation.
- Accuracy, clarity, and completeness of written requirements.

<u>Quality and Availability of Site Data</u>

Subfactors to be considered:

- Number of networks having real-time or near real-time data collection capability.
- Accuracy and completeness of the real-time or near-real-time data available.
- Availability of performance measures and existing data collection tools.

Potential Benefits of Proposed ICM System

Subfactors to be considered:

- A list of the potential operational approaches that will show benefits by reducing demand and improving capacity
- A list of the potential performance measures that will be used to show improved movement through corridors by reducing travel times and increasing predictability of travel
- An estimation of the significant cost saving factors, such as volume, delay, and accidents

Cost

This evaluation factor will not be numerically scored. Candidates must, however, provide matching funds as indicated in Section III., paragraph B of this RFA.

NOTE: This RFA does not require a proposed budget for performance of Stage Two at this time. Rather, the U.S. DOT will request detailed budgets only from those Stage One Pioneer Sites that have been selected for participation under Stage Two. Prior to exercise of the Stage Two option, the Government will request and negotiate with the Recipient a detailed budget for participation in Stage Two.

The U.S. DOT plans to use its own AMS team to perform the analysis, modeling, and/or simulation assessment of the Recipient's proposed ICM systems. The primary role for the Recipient in this Stage is to collect the data that the U.S. DOT's AMS team requires in its efforts. The U.S. DOT will provide funding under this Stage Two to support the data collection effort performed by the Recipient. In addition, the U.S. DOT will provide funding under this Stage Two to support at least one staff resource to participate in the analysis, modeling, and simulation effort as a resource to the U.S. DOT's AMS team. This Site representative shall help identify the data needed to perform a realistic assessment of their proposed system and shall identify the Recipient's capability to provide those data within the timeframe of this effort. The site-provided staff resource shall also serve as the liaison between the Pioneer AMS Site and the U.S. DOT AMS Team and as "institutional memory" for the work done in evaluating the proposed system. Any analysis, modeling, or simulation done by the U.S. DOT AMS team may use different tools at each site and may involve research performed by the U.S. DOT to determine how existing tools need to be enhanced or expanded to meet the needs of evaluating ICM systems.

During Stage Two, the U.S. DOT will invite some or all of the Stage One Pioneer Sites (including Stage Two Pioneer AMS Sites) to prepare and submit Demonstration Plans. These Demonstration Plans, which must be submitted three (3) months prior to the end of Stage Two, shall describe how the Recipient proposes to implement those elements of its conceptual ICM system that it believes can demonstrate effective, integrated corridor management. The proposed demonstration project need not encompass the Site's complete conceptual ICM system.

NOTE: Costs for development of the Demonstration Plans are not allowable as direct costs under this agreement. The Demonstration Plans are considered proposals for Stage Three.

OPTION ITEM Stage Three – Pioneer Demonstration Projects

NOTE: The Recipient is NOT authorized to proceed with any effort in Stage Three without written approval from the Agreement Officer. Stage Three is hereby designated as an "Option" under this agreement. Award of a cooperative agreement resulting from this RFA does not guarantee funds for participation in Stage Three. Rather, the Government reserves the unilateral right to exercise the option for the Recipient's participation in Stage Three. If selected for Stage Three, the Government will exercise the option by execution of an amendment to the cooperative agreement.

U.S. DOT will select demonstration sites based on the ability of sites to demonstrate and measure the benefits of the proposed integrated corridor management system. The criteria will be based on the site's performance during Stage 1 and/or 2 and the management, technical, and cost proposal in a Pioneer Site's Demonstration Plan. Specific criteria will be provided to Pioneer Sites interested in submitting Demonstration Plans no later than 18 months after the award of the cooperative agreements.

NOTE: This RFA does not require a proposed budget for performance of Stage Three at this time. Rather, the U.S. DOT will request a detailed budget for participation in Stage Three at a later date. Prior to exercise of the Stage Three option, the Government will negotiate with the Recipient a detailed budget for participation in Stage Three.

This Stage consists of the development and implementation of those demonstration projects selected by the U.S. DOT. The specific work to be performed depends on the details of the approved Demonstration Plans of selected Stage Three Pioneer Demonstration Sites.

While each demonstration project may have its own timeline and duration, it is anticipated that this Stage will last about three years in total. It will include evaluations, by a U.S. DOT contractor, under a separate contract, of all demonstration projects.

Section 508

All electronic documents prepared under this agreement must meet the requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The act requires that all electronic products prepared for the Federal Government be accessible to persons with disabilities, including those with vision, hearing, cognitive, and mobility impairments. View Section 508 of the Rehabilitation Act (http://www.access-board.gov/508/508standards.htm - PART 1194) and the Federal IT Accessibility Initiative Home Page (http://section508.gov/) for detailed information. The following paragraphs summarize the requirements for preparing FHWA reports in conformance with Section 508 for eventual posting by FHWA to an FHWA-sponsored website.

a. Electronic documents with images
Provide a text equivalent for every non-text element (including photographs, charts and equations) in all publications prepared in electronic format. Use descriptions such as "alt" and "longdesc" for all non-text images or place them in element content. For all documents prepared, vendors must prepare one standard HTML format as described in this statement of work AND one text format that includes descriptions for all non-text images. "Text equivalent" means text sufficient to reasonably describe the image. Images that are merely decorative require only a very brief "text equivalent" description. However, images that convey information that is important to the content of the report require text sufficient to reasonably describe that image and its purpose within the context of the report.

b. Electronic documents with complex charts or data tables
When preparing tables that are heavily designed, prepare adequate alternate information so that assistive technologies can read them out. Identify row and column headers for data tables. Provide the information in a non-linear form. Markups shall be used to associate data cells and header cells for data tables that have two or more logical levels of row and column headers.

c. Electronic documents with forms
When electronic forms are designed to be completed on-line, the form shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.

SECTION II – AWARD INFORMATION

A. FUNDING

STAGE ONE: Funds up to **$195,000** for each Stage One Pioneer Site may be obligated to the Cooperative Agreements. The U.S. DOT anticipates that these funds will support the cost of engaging the services of a consultant, including consultant travel, to assist in the development of the Stage One Pioneer Site's Concept of Operations and Requirements documentation and to support the costs of providing the initial set of data required by the U.S. DOT. In addition, the U.S. DOT will reimburse travel costs for public sector personnel to travel to Pioneer Site and Stakeholder meetings and workshops. The U.S. DOT will administer the reimbursement of public sector travel costs under a separate award. Public sector travel costs will not count against the Stage One funds cited herein.

STAGE TWO: Funds up to **$245,000** for each Stage Two Pioneer AMS Site may be obligated to the Cooperative Agreements for those sites selected as Stage Two Pioneer AMS Sites. The U.S. DOT anticipates that these funds will support the cost of data collection for the AMS effort and the cost of the site staff resource(s) provided to work with the U.S. DOT's AMS Team. In addition, the U.S. DOT will reimburse travel costs for public sector personnel to travel to Pioneer Site and Stakeholder meetings and workshops. The U.S. DOT will administer the reimbursement of public sector travel costs under a separate award. Public sector travel costs will not count against the Stage Two funds cited herein.

STAGE THREE: Funds up to **$10,000,000** may be obligated to the Cooperative Agreements for those sites selected as Stage Three Pioneer Demonstration Sites. These funds will be shared among ALL demonstration projects selected by the U.S. DOT. Specific amounts of funding available per site may vary. These funds can be used for the development of the software required by the Site's proposed ICM system and for the acquisition of computer hardware needed to augment existing data processing capability at the Sites. They may be also used to pay for the services of an integration contractor who will assist the Site in implementing the ICM system. However, these funds may not be used to install additional devices (including sensors) within the corridors or on the corridor's networks. Sites selected as Pioneer Demonstration Sites are not guaranteed an equal share of these funds. Each Site that submits a Demonstration Plan shall indicate the amount of Government funds that it believes it will need to develop and implement its proposed ICM system successfully. In addition, the U.S. DOT will reimburse travel costs for public sector personnel to travel to Pioneer Site and Stakeholder meetings and workshops. The U.S. DOT will administer the reimbursement of public sector travel costs under a separate award. Public sector travel costs will not count against the Stage Three funds cited herein.

The U.S. DOT may agree to fund supplemental or continuation projects following mutual agreement of the parties. The U.S. DOT is obligated to fund only those activities that have been agreed to as part of an approved budget, up to but not exceeding the total available funds under the Cooperative Agreement.

B. NUMBER OF AWARDS ANTICIPATED

STAGE ONE: The U.S. DOT anticipates making up to eight (8) awards for Stage One of this initiative.

STAGE TWO: The U.S. DOT anticipates selecting up to four (4) Recipients to participate in Stage Two of this initiative.

STAGE THREE: The U.S. DOT anticipates selecting up to four (4) Recipients to participate in Stage Three of this initiative.

C. PERIOD OF PERFORMANCE

STAGE ONE: The period of performance of this Cooperative Agreement (Stage One) is fourteen (14) months, commencing on the effective date stated on the Agreement except as otherwise provided under 49 CRF Part 18, Sections 18.43-18.44 " Enforcement" and "Termination for Convenience."

STAGE TWO: If the option is exercised, the period of performance of Stage Two is ten (10) months.

STAGE THREE: If the option is exercised, the period of performance for Stage Three is thirty six (36) months.

If the options for Stages Two and Three are exercised the total period of performance shall not exceed sixty (60) months.

If a Recipient believes that the level of effort required to complete Stage One will exceed the amount of time allotted for it, the Recipient should reflect this additional time to complete the Stage in its cost proposal. The allotment of additional time for completion of a Stage is solely at the discretion of the U.S. DOT.

The U.S. DOT anticipates the effective date of this agreement will be on or about August 1, 2006.

OPTION TO EXTEND THE TERM OF THE AGREEMENT

The Government may require the delivery of Stage Two and Stage Three of the Statement of Work of this Agreement at the price(s) specified. The Agreement Officer may exercise these options by written notification to the Recipient within 30 days of the expiration date of this Agreement. The Government shall give the Recipient a preliminary notice of its intent to exercise the option at least 60 days before the Agreement expires. The preliminary notice does not commit the Government to exercise the option.

D. TYPE OF AWARD

FHWA intends to award up to eight (8) Cooperative Agreements as a result of this RFA.

E. DEGREE OF FEDERAL INVOLVEMENT

FHWA anticipates substantial Federal involvement between FHWA and the Recipient during the course of this project. FHWA anticipates the Federal involvement will include:

- Technical assistance and guidance;
- Close monitoring during performance;
- Involvement in technical decisions; and
- Participation in status meetings including kick off meeting and annual budget reviews.

The U.S. DOT will partner with the successful Recipients and provide the necessary guidance to help complete all work under the agreement. The Agreement Officer's Technical Representative (AOTR) will participate in the planning and management of this Cooperative Agreement and will coordinate activities between the Recipient and its Partner Agencies and the Government. The AOTR will work with the Recipient and its partner public and private sector organizations to further the goals and objectives of the Program.

In addition, the U.S. DOT will provide each Pioneer Site with technical assistance in developing the necessary documentation to describe the Site's proposed ICM system. The U.S. DOT will

also provide the resources needed to perform the analysis, modeling, and simulation of the proposed ICM systems for the AMS Sites.

SECTION III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

This section describes the minimum qualifications that an Applicant and its Site must have to be considered for participation in this effort. Satisfying the minimum qualification criteria does not guarantee that the Applicant will have its Site selected as a Pioneer Site. Failing to meet the minimum qualifications, however, disqualifies the Applicant from further consideration as a Pioneer Site.

The Applicant must be a public sector agency, such as a state DOT, a transit agency, a metropolitan planning organization (MPO), or other such public sector agency. It is desirable that the public sector agency be one that deals with transportation issues on a regular basis.

The minimum qualifications that a specific corridor must have to be considered as a Stage One Pioneer Site include:

- A corridor that includes a freeway network, an arterial network capable of handling some diversion from the other networks, and a transit network, consisting of, at a minimum, bus transit. The transit system may include rail, bus rapid transit (BRT), or express bus service.

- Transportation management systems to support the management of existing freeways, arterials in the defined corridor, and the transit system in the defined corridor. Note: it is expected that the transportation management systems will not be integrated, although any integration that exists may lead to higher scores for the Applicant.

- Real-time or near real-time data collection on all three types of networks (arterial, freeway, and transit).

- An urban environment within a metropolitan planning area.

B. COST SHARING OR MATCHING

In Stages One and Two, the recipient must contribute a minimum **thirty percent (30%)** of the project's total costs. In Stage Three, the recipient must contribute a minimum **twenty percent (20 %)** of the project's total costs. **Contributions shall not be derived from Federal funds.** The resource contribution requirements shall be monitored by FHWA over the life of this effort. At the conclusion of each Agreement, FHWA will determine whether the cost sharing percent matching requirement has been achieved. The recipient must ensure a clear audit trail of the matching share costs and in-kind services for each project over the life of the Cooperative Agreement.

NOTE: See Section IV for the documentation necessary to support the proposed cost-share.

SECTION IV – APPLICATION AND SUBMISSION INFORMATION

A. APPLICATION FORMS

Applicants shall complete all forms included in the Application Package for this RFA as contained at www.grants.gov. Applicants shall submit the Application Package online at www.grants.gov. The FHWA encourages applicants to register in advance of the application due date at www.grants.gov. Approval of registration may take many days.

B. CONTENT AND FORM OF APPLICATION SUBMISSION

1. The application package shall consist of the following:

- SF424
- SF424A
- SF424B
- SFLLL
- Grants. gov Lobbying Form
- Attachments Form
  1) Part I Qualifications of the Stage One Pioneer Site*- 75 page limit
  2) Part II Stage One Pioneer Technical Application*- 25 page limit
  3) Part III Budget Application Detail*-no page limit

*Applicants may attach as many files as necessary to provide information requested below.

Note: Applications under this RFA are not subject to the State review under E.O. 12372.

B. CONTENT AND FORM OF APPLICATION SUBMISSION

Submit your application in the following format. The Government will not evaluate pages that exceed the page limitations specified above. Resumes do not count against the page limitations.

1. Proposals shall be prepared on 8½ x 11 inch paper except for foldouts used for charts, tables or figures, which shall not exceed 11 x 17 inches. Foldouts shall not be used for text, and shall count as two pages.
2. A page is defined as one side of an 8 ½ by 11inch paper. Therefore, a piece of paper with printing on both sides is considered two pages.
3. Text shall be printed using a font size no less than 12 cpi.
4. Page margins shall be a minimum of 1inch top, bottom and each side.

5. No cost/price data shall be included in Part I or II.

Part I - Qualifications of the Stage One Pioneer Site

NOTE: The Qualifications section cannot exceed 75 pages.

The qualifications section shall provide the U.S. DOT with sufficient information to select the most promising sites for further consideration as candidates for demonstrating integrated corridor management. The selected Pioneer Sites shall include facilities, networks, institutional capabilities, and existing network and corridor management tactics that can facilitate an effective demonstration of the benefits of integrated corridor management. Since the U.S. DOT's purpose is to demonstrate the benefits of integrated corridor management, the selected Sites must have existing problems and issues with the movement of people and goods in the corridor that can effectively be addressed with integrated corridor management. The Applicant must describe the corridor itself and the available resources that can facilitate corridor management.

Part I shall consist of the following:

Description of the Applicant Corridor (Page limit 10-15 pages)

At a minimum, the Applicant shall provide the following information:

- A high level description of the proposed corridor, the preliminary boundaries, current travel patterns and the existing operational characteristics of the corridor.

- A discussion of the problems and issues in the movement of people and goods within the corridor and how the Applicant believes that integrated corridor management will help resolve these problems and issues. The description shall address in detail what problems currently exist and the possibility to address these problems with effective corridor management. The Applicant shall be specific as to the severity and frequency of the issues, and how they might be addressed with corridor management. Both recurrent and non-recurrent congestion shall be discussed.

- A description of the political jurisdictions, institutions, and agencies within the corridor, discussing what each institution's current role and responsibilities are in the corridor, focusing in particular on corridor management. This information shall include all such relevant institutions, even if those institutions are not party to this response. This information will allow the U.S. DOT to determine if corridor stakeholder participation will be sufficient to implement successful integrated corridor management. Multi-state and multi-jurisdictional proposals are acceptable but not required.

- A description of the types of facilities (e.g., transportation management centers, rail stations and yards, bus stops and garage facilities, bike paths, toll roads, park and ride lots and garages, and any other facilities) within the corridor. The Applicant shall provide a one-page summary of the facilities in the corridor, followed by a detailed description for each type of facility. This description shall focus on the facilities that can be used to

support the ICM system. The inventory shall include some measure of coverage, e.g. lane miles by road type, number of intersections covered by existing signal systems, lane miles of high-occupancy vehicle (HOV) lanes, lane miles of bus rapid transit (BRT) lanes, and any other measures of coverage for facilities.

- A description of the types of networks (arterial, freeway, bus transit, rail transit, pedestrian/bike, etc) contained within the corridor. The Applicant shall provide a one page summary of all the networks in the corridor, followed by a detailed description of each network. If the Applicant does not intend to include portions of a network in the corridor as part of its integrated corridor management demonstration project (if the Applicant is selected as one of these demonstration sites), the Applicant shall explain why this decision is being made. (For example, "there are 15 arterial roads in the corridor, but only two provide a significant opportunity for transfers from the freeway or transit network.") Questions to be answered include: What kinds of traffic travel on each network, by time of day and day of week? What are the current capacity utilization characteristics for each network (e.g., transit network, freeway network)? What opportunities exist to transfer between networks? Are these transfer points already at capacity? If not, what are the current capacities? Are there existing signal coordination or demand management strategies in place?

- A description of the agencies and any other entities, such as information service providers, partnering to respond to this RFA and their institutional structure, including a 1-2 page description of their current structure and role in corridor management. This description shall include public, private, and non-profit organizations as appropriate, including, for example, traffic management agencies, transit agencies, advanced traveler information system (ATIS) providers, paratransit providers, parking management organizations, public safety, and managers of special event sites. The inclusion of private partners is encouraged if it can be demonstrated that using such partners will enhance the potential for demonstrating effective management of the movement of people and goods in the corridor. However, the involvement of private partners is neither a requirement nor one of the minimum qualifications for this RFA.

<u>Institutional Capabilities within the Applicant Corridor (Page limit 10-15 pages)</u>

The Applicant shall describe the institutional agreements that currently exist between or among Applicant Corridor Partner Agencies responsible for network management. The Applicant Corridor shall have in place sufficient institutional capabilities to support integrated corridor management. The Applicant shall provide a one page executive summary of existing institutional agreements, followed by a detailed description of each relevant agreement. The description of each agreement shall discuss:

- Purpose of the agreement(s). The Applicant shall explain how the institutional agreement facilitates or hinders effective corridor management. These agreements shall include any in-process institutional agreements (i.e., agreements that may be in place within the next two years). Agreements shall be clearly designated as ***existing*** or ***in-process***.

- Indication of how long each agreement has been in place.

- Examples of how the agreement(s) has (have) facilitated operations between or among Partner Agencies. These examples shall be no more than 5 pages. One or two examples shall be sufficient. The Applicant shall describe how the institutional agreements have facilitated the effective movement of people and/or goods through the corridor. If there have been measurable benefits, the Applicant shall discuss how the benefits were measured.

- Applicant analysis of missing institutional integration. What additional institutional coordination/integration would help the Applicant (and Partner Agencies) effectively manage the corridor? The Applicant shall consider coordination with both public sector and private sector partners as appropriate for the Applicant's Corridor. Relevant private sector institutional partners could include traveler information service providers, local major employers, or managers of special event sites.

Technical Capabilities within the Applicant Corridor (Page limit 10-15 pages)

The Applicant shall describe the technical capabilities of each network in the proposed corridor, specifying the following elements:

- The infrastructure, including the transportation management system (if any) for the network and where the transportation management system is housed (e.g., TMC, Transit Operation Centers). The Applicant shall identify the type(s) and number(s) of devices (e.g., ramp meters, automatic vehicle locator devices on buses) deployed on each network and include, in its description, the reliability and availability information for each of the deployed device types. The information provided shall address the following types of questions: What capability for monitoring devices exists and from where, i.e. locally, centrally, or both are they monitored? How does each network deal with malfunctioning/out-of-service devices? How often is preventive maintenance performed? The Applicant shall also describe any upgrades or improvements to the network infrastructure that it or its Partner Agencies plan to complete within the next two years.

- The data collection process and technologies currently employed for each network. The information provided shall address the following questions: What data are currently used for monitoring transit system operations? What types of all real-time or near real-time data are collected for each network? How frequently are the data collected? The Applicant shall discuss its approach for checking for data availability, data reliability and data quality, addressing such questions as the following: What is the strategy for dealing with erroneous data or missing data? The Applicant shall describe any upgrades or improvements to its data collection systems and process that it or its Partner Agencies plan to complete within the next two years. Are the data generated from the system(s) collected by a service provider of the agency(s)? Who owns the data? Do agency(s) within the corridor currently exchange data? If so, what is the process? Are the agencies using standards?

- Data archiving, if any data are archived. If data are archived, the Applicant shall describe the data archiving process, identifying the types of data archived for each network and the criteria used for making the determination to archive the data. The Applicant shall include in its description the granularity of the archived data, and the duration for which the data are archived. The information provided shall answer such questions as: What data mining tools are used by the Applicant and its Partner Agencies for the data archiving process? What metadata methodology is used to ensure that data can be re-used or analyzed over time? The Applicant shall identify what data are considered sensitive for security or privacy reasons, and thus would not be made available and shared with other agencies.

- The Applicant shall describe the type of intra-network or center-to-field standards deployed within each network. More specifically, the Applicant shall describe what ITS information and protocol level standards are deployed (if any), when those ITS standards were deployed, and where they are deployed. The Applicant shall describe the number of devices using each standard. If proprietary interfaces are deployed, the Applicant shall describe what proprietary information and protocol level interfaces are deployed (if any), when those interfaces were deployed, and where they are deployed. Examples of center-to-field connections are: Central System to devices, such as Dynamic Message Sign, Closed Circuit Television, Traffic Signal Controller, Ramp Meter, Transit Vehicle Automatic Vehicle Location Unit, Transit Vehicle Mobile Terminal, Fare Card Reader, or Toll Transponder.

- The Applicant shall describe any cross-network or center-to-center ITS standards deployed between networks. More specifically, the Applicant shall describe what ITS information and protocol level standards are deployed (if any), when those ITS standards were deployed and where they are deployed. If proprietary interfaces are deployed, the Applicant shall describe what proprietary information and protocol level interfaces are deployed (if any), when those interfaces were deployed, and where they are deployed. Examples of cross network connections are: freeway to freeway, freeway to arterial, freeway to computer aided dispatch, freeway to transit, arterial to transit, transit to transit, freeway to data archive, freeway to advanced traveler information networks, transit to financial clearinghouse, or toll to financial clearinghouse.

<u>Operational Capabilities within the Applicant Corridor (Page limit 10-15 pages)</u>

The Applicant shall describe the operational capabilities of individual networks within the proposed corridor and how each network's operational capabilities translate to integrated corridor management capabilities.

- The Applicant shall describe network management tactics employed in each network, both existing and those planned to be deployed completely within the next two years. Network management tactics can include such things as adaptive signal control; ramp metering; transit, roadway, and parking pricing strategies; HOV occupancy requirements and hours of operation; electronic toll collection; and network based traveler information.

The Applicant shall provide a minimum of two but no more than four examples on how existing network management tactics have been used to assist in network management.

- The Applicant shall describe corridor management tactics currently deployed, both existing and those expected to be deployed completely within the next two years. Corridor management tactics can include such things as adjacent signal/ramp meter coordination; transit signal priority; universal toll/fare/parking collection; coordinated transit, roadway, and parking pricing strategies; and corridor based traveler information. The Applicant shall provide no more than four examples on how existing corridor management tactics have been used to assist in network management. If the Applicant has no existing corridor management tactics in use, the Applicant shall explicitly state this.

- The Applicant shall describe performance measures used to determine the effectiveness of network or corridor management tactics, as well as those performance measures that the Applicant expects to begin using within the next two years. This description shall also include a discussion of the methodologies and tools used to calculate performance measures and shall describe the performance baseline currently in existence.

- The Applicant shall describe its approach for using the collected data and or the information derived from those data to make operational decisions. The Applicant shall describe its procedure for determining the efficacy of the implemented network or corridor management tactics. The information provided shall address what modeling or analysis tools (e.g., highway capacity software (HCS), traffic simulation tools, planning tools), if any, the Applicant uses to assist in the decision making process. The description shall include specific examples of the decisions made using the data (or information) collected both within a network (if applicable) and cross-network (if applicable).

- The Applicant shall describe information sharing capabilities for each network. The information provided shall answer such questions as: What information is shared between networks? With whom the information is shared? Who provides shared information? What traveler information is provided and by whom? What operational uses are made of shared information? By what methods (e.g. voice, data, video) are information shared? If the Applicant has no existing information sharing capabilities in use, the Applicant shall explicitly state this.

<u>Agency Staff Capabilities within the Applicant Corridor (Page limit 10-15 pages)</u>

This section applies to staff associated with each network, i.e. transit, freeway, arterial, etc., not staff assigned to the Applicant's Integrated Corridor Management (ICM) Team. This does not preclude the Applicant from including staff from a particular network as part of ICM Team staff. The Applicant shall provide summaries of staff capabilities, identifying qualifications and experience of staff in the following areas:

- Transportation Management
- Transportation Planning

- Construction Management
- Emergency Management
- Systems Engineering
- Software Engineering
- Telecommunications Systems Engineering
- Traffic Engineering
- Transit Management
- Transit Engineering
- Bus Operations
- Rail Operations
- Arterial Management
- Freeway Management
- ITS Standards
- Regional ITS Architecture
- Archived Data Management
- Analysis, Modeling, and Simulation

The summaries must provide information on:

- Number of staff with each of the above qualifications
- Years of experience in their current position
- Educational level of the staff, to include:
  - Number with no college
  - Number with only undergraduate degrees (and type of undergraduate degrees)
  - Number with graduate degrees (and type of graduate degrees)
- Certifications held by staff, listing:
  - Type of certification
  - Names of individuals holding each type of certification
  - Relevance of certification(s) to current position
- Other relevant experience and qualifications, as necessary.

If Applicant or any of its Partner Agencies employs contractor staff to supplement (or function in lieu of) an agency's planning and/or Operations and Maintenance (O&M) staff for individual networks, the same type of information must be provided for all such Contractor staff.

Summaries can include tables.

Part II - Stage One Pioneer Site Technical Application

NOTE: The Technical Application cannot exceed 25 pages.

Attention: The Technical application is for STAGE ONE. No Technical Applications are being requested at this time for Stage Two or Stage Three. The Stage Two Technical Application will include the Corridor Concept of Operations and Requirements documents being developed during Stage One, and the Collection and Deliver of Sample Data (Section E. Statement of

Work, Task 4) based on the definitive list of data requirements U.S. DOT will provide no later than 20 weeks after the effective date of the agreement. The Stage Three Technical Application will be the Demonstration Plans that U.S. DOT may request toward the end of Stage Two.

Technical application must contain:

1. TECHNICAL & MANAGEMENT APPROACH:

The Applicant's technical and management approach must provide sufficient evidence that the Applicant has the appropriate personnel, from the appropriate organizations in the corridor, to take on the responsibilities of being a Pioneer Site. It must also provide clear evidence that the Applicant understands the responsibilities of being a Pioneer Site and agrees to deliver the required documents and data products. The technical and management approach section shall also provide evidence that the Applicant, if selected as a Stage Two Pioneer AMS Site, can ensure that it will provide the data needed to perform the necessary analysis, modeling, and/or simulation assessment of its proposed ICM system successfully. The Applicant shall include information related to:

- What organization will serve as the lead agency.
- How the lead agency will facilitate decision-making with its partners, answering questions such as: Who will have decision-making authority at what level? To whom will the project team report? Is there a conflict resolution process in place?
- Which Partner Agencies will provide staff to participate in the activities described in Section I., Paragraph E. of this document. The Applicant should provide the estimated number of hours per month by staff position.
- How the lead agency will coordinate the participation of Partner Agencies in Pioneer Site Process activities, including participation in the Pioneer Site Working Group and the Stakeholder Working Group.
- What type of oversight or coordination group (if any) will be established to direct the team performing the Pioneer Site Process activities.
- How staff working on the Pioneer Site Process activities will interact with staff working on the individual networks – identify institutional relationships and hierarchy.
- How consultants or contractors working with the Partner Agencies on Pioneer Site Process activities will be managed.

The Applicant shall also describe any formal agreement or memorandum of understanding (MOU) that it has or will put in place demonstrating the commitment of Partner Agencies and any other key stakeholders to carry out the Pioneer Site Process activities and, if selected, the subsequent Stage Two and Stage Three activities.

To facilitate the rapid start of Stage One, the U.S. DOT expects that Applicants shall negotiate, *prior* to the award of the actual agreements described herein, tentative agreements or contracts with those organizations or contractors that the Applicant expects to use as technical support. This will enable the Applicant to initiate its effort as soon after award as is feasible. The Technical Application must provide proof of such tentative agreements or contracts.

2. STAFFING APPROACH:

The Applicant shall describe how the Applicant and its Partner Agencies plan to staff the team conducting the activities of the Pioneer Site Process. The information provided shall discuss:

- Experience of the proposed team leader
- Experience of the proposed team members
- Affiliation of each proposed team member, i.e., organization to which the proposed team member belongs
- Decision-making authority of each proposed team member, with respect to the Applicant's project management approach and any reporting hierarchy on the effort
- Percentage of time allocated by each proposed team member (including the team leader)
- Roles and responsibilities of each proposed team member, including the team leader, contractors, and consultants
- Prior relevant experience in similar efforts
- Actual experience with systems engineering practices

It is expected that the Pioneer Site Team Leader shall be a public sector employee from the Applicant's organization. Other staff on the Pioneer Site Team may be either public sector employees, representing the Applicant's Partner Agencies, or private sector personnel, representing either the Applicant's private sector Partner Agencies (if any) or consultants/contractors hired by the Applicant to assist in the Pioneer Site work effort. Whether the team members are public or private sector employees, the information listed above (in the bullets) shall be provided for them. In addition to role of staff and in coordination with the project management approach, the respondents shall indicate the affiliation of each of the staff and each staff's decision-making authority. This needs to correspond with the project management approach and any reporting hierarchy.

The Applicant shall also provide its plan for ensuring that the Pioneer Site Team has access to the necessary knowledge and skills in the following areas, whether present in the Pioneer Site Team members, or available through resources from the organizations working on this effort. The skill areas for which the U.S. DOT anticipates that the Pioneer Site Team will need to have access to knowledge available are the following:

- Transportation Management
- Transportation Planning
- Construction Management
- Emergency Management
- Systems Engineering

- Software Engineering
- Telecommunications Systems Engineering
- Traffic engineering
- Transit management
- Transit engineering
- Bus Operations
- Rail Operations
- Arterial Management
- Freeway Management
- ITS Standards
- Regional ITS Architecture
- Archived Data Management

In addition, at least one proposed project team member must have analysis, modeling, and simulation knowledge and skills and be familiar with at least one analysis, modeling, or simulation tool regularly used by transportation professionals.

The Applicant shall provide short-form resumes (i.e., one-page) of all proposed staff, including consultants and contractors. Resumes will not count against page limits.

3. SYSTEMS ENGINEERING APPROACH:

The Applicant shall describe the systems engineering approach that it will use, both in performing the work of the Pioneer Site Process and if its Pioneer Site is selected as a Stage Three Pioneer Demonstration Site. The Applicant's systems engineering approach for this effort must conform to the requirements of 23 CFR 940.11. The information provided shall include:

- Discussion of the Applicant's understanding of the use of Concept of Operations and Functional Requirements documents in the Systems Engineering process

- Discussion of when the Applicant would prepare a Systems Engineering Management Plan (SEMP) and the following elements of a SEMP, as it applies to corridor management:

  - Risk management approaches planned for use
  - Systems engineering tools planned for use
  - Change control processes planned for use, to include a discussion of specific configuration management processes, procedures, and tools
  - Verification and validation activities to be implemented
  - System configuration and alternative analysis tools and activities
  - Procurement options and their relationship to overall project success

Part III - Budget Application

There is no page limit on budget applications.

The Budget Application shall include details for performance of STAGE ONE only, with a maximum value of $195,000. The budget detail shall include the applicant's estimated value of public sector travel costs (air fare, hotel, per diem, etc., but not staff time) for participation in Stage One. However, public sector travel costs do NOT count against the Stage One maximum value of $195,000. The U.S. DOT intends to fund public sector travel costs through an existing separate award.

If selected for participation in Stage Two, Recipients will be required to submit a detailed budget for Stage Two. Accordingly, Stage Two cost detail is not required at this time. Further, Stage Three costs are not required at this time and will be requested of eligible Recipients at a later date.

Budget applications must contain:

1. Detailed spreadsheet and supporting information clearly delineating and supporting all estimated costs as follows.

   - Provide labor categories, labor hours or percentage of time, labor rates.
   - Provide indirect rates and bases, include any audit information to support rates.
   - Provide supporting information to justify estimates for Other Direct Costs such as equipment, travel, etc.
   - Provide detail and support for cost share as part of overall project budget. Clearly delineate cost share versus Federal share.

   NOTE: Travel will be reimbursed at cost. Only travel by the Applicant's contractors should be priced into the proposal.

2. If sub-recipients (lower-tiered organizations and/or individual consultants) will be used in carrying out this project, the following minimum information concerning such should be furnished:

   - Name, address and tax identification number of the organization or consultant.
   - Description of the portion of work to be conducted by the organization or consultant.
   - Cost details for that portion of work.
   - Letter of commitment from sub-recipient.

3. The use of a Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number is required on all applications for Federal grants or cooperative agreements. Please provide your organization's DUNS number in your budget application. In addition, please also provide your tax identification number.

4. A statement to indicate whether your organization has previously completed an A-133 Single Audit and, if so, the date that the last A-133 Single Audit was completed.

C. SUBMISSION DATES AND TIMES

Applications must be received electronically through www.Grants.gov by 4:15 pm local time on May 15, 2006.

The deadline cited herein is the date and time by which the agency must receive the application.

Late applications will not be reviewed or considered unless the Agreement Officer determines it is in the Government's best interest to consider the late application.

D. FUNDING RESTRICTIONS

FHWA will not provide reimbursement of pre-award costs under this proposed agreement.

E. OTHER SUBMISSION REQUIREMENTS

FHWA uses www.Grants.gov for receipt of all application. Applicants must register with www.Grants.gov and use the system to submit applications electronically.

In the event of system problems or technical difficulties with the application submittal, applicants should contact the FHWA point of contact designated on page 1. If applicants are unable to use the www.Grants.gov system due to technical difficulties, applicants must e-mail applications to the FHWA point of contact listed on page 1 no later than the application deadline cited above.

SECTION V – APPLICATION REVIEW INFORMATION

A. EVALUATION CRITERIA

General

The Government may make up to eight (8) awards to acceptable Applicant(s) offering the best overall value. The Government will base its source selection decision for Stage One on three major evaluation factors: Qualifications of the Pioneer Site; Technical Approach, and Budgeting and Cost. To be considered for an award, the U.S. DOT must find an Application acceptable on all three evaluation factors. The details of the evaluation factors for Stage One are found below.

STAGE ONE

Qualifications of the Pioneer Site

Subfactors to be considered:	Weight
• Description of the Applicant Corridor	10
• Institutional Capabilities within the Applicant Corridor	10
• Technical Capabilities within the Applicant Corridor	20
• Operational Capabilities within the Applicant Corridor	15
• Agency Staff Capabilities within the Applicant Corridor	10

Technical Approach

Subfactors to be considered:

• Applicant's Technical and Management Approach	10
• Applicant's Staffing Approach	15
• Applicant's Systems Engineering Approach	10

Cost

In addition to the criteria listed above, relative cost will be considered in the ultimate award decision. The budget application will be analyzed to assess cost reasonableness and conformance to applicable cost principles. This evaluation factor will not be numerically scored. Candidates must, however, provide matching funds, and supporting detail for the matching funds, as indicated in Section III., paragraph B of this RFA.

B. REVIEW AND SELECTION PROCESS

The Government will accept the applications that are considered the most advantageous to the Government using the criteria cited above.

The Agreement Officer is the official responsible for final award selections.

The Government is not obligated to make any award as a result of this announcement.

C. ANTICIPATED ANNOUNCEMENT AND AWARD DATES

FHWA anticipates making award on or about August 1, 2006.

D. AWARD NOTICES

If your application is selected for award, you will be notified and sent an award document for signature. Applicants not selected for award will be notified in writing by the Government.

Only the Agreement Officer can commit the Government. The award document, signed by the Agreement Officer, is the authorizing document.

Notice that an organization has been selected as a Recipient does not constitute approval of the application as submitted. Before the actual award, FHWA will enter into negotiations concerning such items as program components, staffing and funding levels, and administrative systems. If the negotiations do not result in an acceptable submittal, the FHWA reserves the right to terminate the negotiation and decline to fund the applicant.

SECTION VI – AWARD ADMINISTRATION INFORMATION

A. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

1. GOVERNING REGULATIONS

Performance under this cooperative agreement shall be governed by and in compliance with the following regulations applicable to State and Local Governments:

- "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (49 CFR 18)," [located at: http://www.dot.gov/ost/m60/grant/49cfr18.htm];

- 2 CFR Part 225 (OMB Circular A-87), "Cost Principles For State and Local Governments," [located at: http://a257.g.akamaitech.net/7/257/2422/01jan20061500/edocket.access.gpo.gov/cfr_2006/janqtr/pdf/2cfr215.29.pdf];

- "New Restrictions On Lobbying (49 CFR Part 20)," [located at http://www.dot.gov/ost/m60/grant/49cfr20.htm];

- OMB Circular A-102, "Grants and Cooperative Agreements With State and Local Governments"[located at: http://www.whitehouse.gov/omb/circulars/a102/a102.html];

- OMB Circular A-133, "Audits of States, Local Governments, and Non-Profits" [http://www.whitehouse.gov/omb/circulars/a133/a133.html];

- Any other applicable Federal regulation.

2. RESPONSIBILITIES OF THE RECIPIENT

The Recipient shall provide overall program management. Specifically, the Recipient shall be responsible for the following, as a minimum:

- Performing the Statement of Work as described in Section I, Funding Opportunity Description.
- Coordinating and managing work, including issuing and managing subcontracts/sub awards and consulting arrangements, as necessary.
- Submitting all required reports including Quarterly Progress Reports and Annual Budget Reviews. (See Paragraph C of this Section, entitled Reporting.)
- Meeting with the U.S. DOT Agreement Officer's Technical Representative (AOTR) as necessary.
- Participating in a kick-off meeting with the AO and/or the AOTR to discuss agreement expectations and procedures.
- Participating in Annual Budget Review meetings with the AO and/or AOTR.

3. TRAVEL AND PER DIEM

Travel and per diem authorized under this cooperative agreement shall be reimbursed in accordance with Federal Travel Regulations in effect at the time of travel. In addition, all non-domestic travel shall be approved by the AO prior to incurring costs. Travel requirements under this cooperative agreement shall be met using the most economical form of transportation available. If economy class transportation is not available, the request for payment vouchers must be submitted with justification for use of higher class travel indicating dates, times, and flight numbers.

4. AMENDMENTS

Amendments to this cooperative agreement may only be made in writing, signed by both parties for bilateral actions and by the AO for unilateral actions, and specifically referred to as an amendment to this cooperative agreement.

5. AGREEMENT OFFICER'S TECHNICAL REPRESENTATIVE (AOTR)

The AO has designated John Harding, FHWA, as Technical Representative to assist in monitoring the work under this agreement. John is supported by a multimodal ICM team consisting of Brian Cronin (U.S. DOT JPO), Dale Thompson (FHWA), Sean Ricketson (FTA), and Sebastien Renaud (FTA). Any of these individuals maybe assigned as an AOTR for 1 or more of the agreements, up to the maximum 8 agreements. The AOTR will oversee the technical administration of this agreement and act as technical liaison with the performing organization. The AOTR is not authorized to change the scope of work or specifications as stated in the agreement, to make any commitments or otherwise obligate the Government or authorize any changes which affect the agreement funding, delivery schedule, period of performance or other terms or conditions.

The AO is the only individual who can legally commit or obligate the Government for the expenditure of public funds. The technical administration of this agreement shall not be construed to authorize the revision of the terms and conditions of performance. The Agreement Officer shall authorize any such revision in writing.

6. INDIRECT COSTS

Indirect costs are allowable under this agreement as follows:

Indirect Rate Type	***Rate (%)***	***Base***
(Information to be filled in at award)		

In the event the recipient determines the need to adjust the above listed rates, the recipient shall notify the FHWA of the planned adjustment and provide rationale for such

adjustment. In the event such adjustment rates have not been audited by a Federal agency, the adjustment of rates must be pre-approved in writing by the Agreement Officer.

This Indirect Cost provision does not operate to waive the limitations on Federal funding provided in this document. The Recipient's audited final indirect costs are allowable only insofar as they do not cause the Recipient to exceed the total program funding available.

7. DATA RIGHTS

The Recipient shall make available to the Government copies of all work developed in performance with this cooperative agreement, including but not limited to software and data. The Government and others acting on its behalf shall have unlimited rights to obtain, reproduce, publish or otherwise use the data developed in the performance of this cooperative agreement pursuant to 49 CFR Part 18 or 19 as applicable.

8. PAYMENT

The Recipient may request advances or reimbursement of costs incurred in the performance hereof as are allowable under the applicable cost provisions [see 49 CFR Part 18] not-to-exceed the funds currently available as stated herein. The Recipient shall submit an original and one copy of the SF 270, Request for Advance or Reimbursement, no more frequently than monthly, to the AO address, and one additional copy to the AOTR address.

Advance Payments: The Recipient may be paid in advance, provided the Recipient maintains or demonstrates the willingness to maintain the following in accordance with 49 CFR Part 18: (1) written procedures that minimize the time elapsing between transfer of funds and disbursement by Recipient, and (2) financial management systems that meet the standards for fund control and accountability. When these items are met, reimbursement will be the method of payment.

Payment for Reimbursement: When requesting reimbursement of costs incurred, the Recipient shall submit supporting cost detail with the SF 270 to clearly document costs incurred including the cost share portion. Cost detail includes a breakout of all costs incurred including direct labor, indirect costs, other direct costs, travel, etc.

The Agreement Specialist and the AO reserve the right to withhold processing requests for advance or reimbursement until sufficient detail is received. In addition, reimbursement will not be made without AOTR review and approval to ensure that progress on the Agreement is sufficient to substantiate payment. After AOTR approval, the Agreement Specialist will certify and forward the advance or request for reimbursement to the payment office. *Note: Standard Forms may be located at http://fhwa.dot.gov/aaa/hamhome.htm.*

9. ACKNOWLEDGEMENT OF SUPPORT AND DISCLAIMER

An acknowledgment of FHWA support and a disclaimer must appear in any publication of any material, whether copyrighted or not, based on or developed under the cooperative agreement, in the following terms:

“This material is based upon work supported by the Federal Highway Administration under cooperative agreement No. DTFH61-06-(to be filled in at award)

All materials must also contain the following:

"Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the view of the Federal Highway Administration or the Federal Transit Administration."

10. SITE VISITS

The Federal Government, through its authorized representatives, has the right, at all reasonable times, to make site visits to review project accomplishments and management control systems and to provide such technical assistance as may be required. If any site visit is made by the Federal Government on the premises of the Performing Organization or a subrecipient under this cooperative agreement, the Performing Organization shall provide and shall require their subrecipients to provide all reasonable facilities and assistance for the safety and convenience of the Government representative in the performance of their duties. All site visits and evaluations shall be performed in such a manner as will not duly delay work.

11. TERMINATION AND SUSPENSION

The Government may terminate this agreement in whole or in part, upon providing written notification to the Recipient, if the AO determines that a Recipient has failed to complete the technical or administrative terms and conditions of the award.

The Government reserves the right to terminate the Agreements of any or all Pioneer Sites should funding cease to be available or should the decision be made that further work on this major initiative is not required.

12. BUDGET REVISION/REALLOCATION OF AMOUNTS

The Recipient is required to report deviations from budget and program plans, and request prior approval for budget and program plan revisions in accordance with 49 CFR Part 18.30.

Note: The Recipient must obtain prior written approval from the Agreement Officer to transfer amounts budgeted for direct cost categories when the cumulative value of such

transfers will exceed 10% of the value of Federal share of this agreement. When requesting such approval, a letter request suffices.

13. FINANCIAL MANAGEMENT SYSTEM

By signing this agreement, the Recipient verifies that is has, or will implement, a financial management system adequate for monitoring the accumulation of costs and in compliance with the financial management system requirements of 49 CFR Part 18. The Recipient's failure to comply with these requirements may result in agreement termination.

14. ALLOWABILITY OF COSTS

Allowability of costs shall be determined in accordance with 2 CFR Part 225 (OMB Circular A-87), "Cost Principles For State and Local Governments."

15. COST SHARING OR MATCHING

In Stages One and Two, the Recipient must contribute a minimum **thirty percent (30%)** of the project's total costs. In Stage Three, the Recipient must contribute a minimum **twenty percent (20 %)** of the project's total costs. The Applicant's 30 or 20 percent match requirement can be met through direct financial contribution or through "in-kind" services. The Recipient shall contribute cost share throughout the agreement. By the completion date of the agreement, the Recipient must have met the cost-sharing requirement. All cost share contributions must be submitted with sufficient detail and/or documentation to support the value of the contribution. If additional detail and/or documentation are determined necessary in order to verify the contribution, the Recipient shall provide the requested information in a timely fashion.

16. AVAILABLE FUNDING

The total not-to-exceed amount of Federal funding that may be provided under this cooperative agreement is $_____(to be filled in at award) for the entire period of performance, subject to the limitations shown below:

(1) Currently, Federal funds in the amount of $_____ (to be filled in at award), are obligated to this agreement.

(2) Subject to availability of funds, and an executed document by the Agreement Officer, $_____ (to be filled in at award) may be obligated to this agreement.

(3) Stage One limit is $195,000.

(4) Stage Two limit is an additional $245,000.

The Government's liability to make payments to the Recipient is limited to those funds obligated under this agreement as indicated above and any subsequent amendments.

17. CENTRAL CONTRACT REGISTRY (CCR)

The Recipient must be registered in the CCR in order to receive payments under this agreement. Use of the CCR is to provide one location for applicants and Recipients to change information about their organization and enter information on where government payments should be made. The registry will enable Recipients to make a change in one place and one time for all Federal agencies to use. Information for registering in the CCR and online documents can be found at www.ccr.gov.

18. KEY PERSONNEL

The Recipient shall request prior written approval from the AO for any change in key personnel specified in the award.

19. PROGRAM INCOME

Program Income earned during the project period shall be retained by the Recipient and added to funds committed to the project by the Federal awarding agency and the Recipient and used to further eligible project or program objectives.

20. SUBAWARDS

Unless described in the application and funded in the approved award, the Recipient shall obtain prior written approval from the AO for the subrecipient, transfer, or contracting out of any work under this award. This provision does not apply to the purchase of supplies, material, equipment, or general support services.

21. DEBARMENT AND SUSPENSION REQUIREMENTS

The Recipient shall comply with the Subpart C of 49 CFR Part 29, Government Debarment and Suspension (Nonprocurement). Further, the Recipient shall flow down this requirement to applicable subawards by including a similar terms or condition in lower-tier covered transactions. See 49 CFR Part 29 for detail of the requirement. (Note: 49 CFR Part 29 is available online at http://www.dot.gov/ost/m60/grant/regs.htm).

22. DRUG FREE WORKPLACE

The Recipient shall comply with Subpart B of 49 CFR Part 32, Government wide Requirements for a Drug-Free Workplace (Financial Assistance). See 49 CFR Part 32 for details of the requirement. (Note: 49 CFR Part 32 is available online at http://www.dot.gov/ost/m60/grant/regs.htm).

B. REPORTING

1. ADDRESSES FOR SUBMITTAL OF REPORTS AND DOCUMENTS

The Recipient shall submit all required reports and documents, under transmittal letter referencing the cooperative agreement number, as follows:

Submit one hard copy to the Agreement Specialist at the following address:

Federal Highway Administration
Office of Acquisition Management
400 Seventh Street, SW, Room 4410
Washington, DC 20590

Attention: (to be filled in at award)

Submit two hard copies and one electronic copy to the AOTR at the following address:

(to be filled in at award) either

Federal Highway Administration
Office of Operations
400 Seventh Street, SW, Room 3401
Washington, DC 20590

Federal Transit Administration
Office of Research, Demonstration, and Innovation
400 Seventh Street, SW, Room 9401
Washington, DC 20590

Attention: (to be filled in at award)

2. QUARTERLY PROGRESS REPORT

The Recipient shall submit two copies of the quarterly progress report to the AOTR and one copy to the Agreement Specialist on or before the 30th of the month following the calendar quarter being reported. Calendar quarters are:

(1) January- March
(2) April-June
(3) July-September
(4) October-December

Final progress reports are due 90 calendar days after expiration of the award. Each report shall contain concise statements covering the research activities relevant to the project, including:

(a) A clear and complete account of the work performed each quarter.

(b) An outline of the work to be accomplished during the next report period.

(c) A description of any problem encountered or anticipated that will affect the completion of the work within the time and fiscal constraints as set forth in the cooperative agreement, together with recommended solutions to such problems; or, a statement that no problems were encountered.

(d) A section addressing how the results of the work performed supports one or more of the FHWA, FTA, and Department of Transportation (DOT) strategic goals of safety, mobility, global connectivity, environmental stewardship, security, and organizational excellence.

(e) A tabulation of the current and cumulative costs expended by quarter versus budgeted costs, including cost share.

(f) SF269 or SF 269A, Financial Status Report.

(g) If advance payments are used, SF 272, Report of Federal Cash Transactions.

3. ANNUAL BUDGET REVIEW AND PROGRAM PLAN - FOR STAGE THREE ONLY

The Recipient shall submit two copies of the Annual Budget Review and Program Plan to the AOTR and one copy to the Agreement Specialist 60 days prior to the end of each agreement year during Stage Three. The Annual Budget Review and Program Plan shall provide a detailed schedule of research activities, estimate of specific performance objectives, include forecasted expenditures, and schedule of milestones for the upcoming agreement year. If there are no proposed deviations from the Approved Project Budget, the Annual Budget Review shall contain a statement stating such. The Recipient will meet with U.S. DOT to discuss the Annual Budget Review and Program Plan. Work proposed under the Annual Budget Review and Program Plan shall not commence until AO written approval is received.

4. DELIVERABLES

In addition to the reports noted above, the following deliverables shall be submitted as indicated:

Deliverable	Due Date
Stage 1 Deliverables:	
Workshop briefings	At each scheduled workshop
Draft Concept of Operations Document Final Concept of Operations Document	21 weeks after Agreement Effective Date 5 weeks after receipt of comments from AOTR
Draft Functional Requirements Document Draft System Requirements Document Draft Performance Requirements Document Final Functional Requirements Document Final System Requirements Document Final Performance Requirements Document *Note: If the Applicant wishes to combine any or all of these documents into a fewer number of documents, the Applicant should discuss this in the Applicant's Technical Approach*	45 weeks after Agreement Effective Date 45 weeks after Agreement Effective Date 45 weeks after Agreement Effective Date 5 weeks after receipt of comments from AOTR 5 weeks after receipt of comments from AOTR 5 weeks after receipt of comments from AOTR
Initial network data	16 weeks after receipt of Definitive Sample Data List from AOTR
Stage 2 Deliverables:	
Network data suitable for analyzing, modeling, and/or simulating the proposed ICM system	18 weeks after Notice to Proceed as Pioneer AMS Site
Demonstration Plan (Optional)	3 months prior to the end of Stage 2
Stage 3 Deliverables	
These deliverables will depend on each Pioneer Demonstration Site's Demonstration Plan. Their due dates will also depend on the Pioneer Demonstration Site's Demonstration Plan. The deliverables and due dates for this Stage will be defined at the time that the Government accepts and funds a selected Pioneer Site as a Pioneer Demonstration Site.	*Due dates for deliverables will be defined at the time that the Government accepts and funds a selected Pioneer Site as a Pioneer Demonstration Site.*

SECTION VII - AGENCY CONTACT

Address any questions to:

Carl Rodriguez
Agreement Specialist
Federal Highway Administration
Office of Acquisition Management
400 Seventh Street SW, Room 4410
Washington, DC 20590

Carl.Rodriguez@fhwa.dot.gov; (202) 366-4240

Secondary point of contact is Sarah Tarpgaard, Agreement Officer, (202) 366-5750, Email Sarah.Tarpgaard@fhwa.dot.gov.

APPENDIX A
DEFINITION OF TERMS

Construction management – the overall management of the processes required to bring the site operations of a project to a satisfactory conclusion, typically carried out either by a private consultant or an employee of the project client.

Corridor – a largely linear geographic band defined by existing and forecasted travel patterns involving both people and goods which serves a particular travel market or markets that are affected by similar transportation needs and mobility issues.

Cross-network protocol – a set of syntactic and semantic rules for exchanging information among two or more networks.

Data archiving – the systematic retention and re-use of transportation data that is typically collected to fulfill transportation operation and management needs.

Data mining – 1. the nontrivial extraction of implicit, previously unknown, and potentially useful information from data. 2. data processing using sophisticated data search capabilities and statistical algorithms to discover patterns and correlations in large preexisting databases; a way to discover new meaning in data.

Device – a contrivance or an invention serving a particular purpose, especially a machine used to perform one or more relatively simple tasks.

Effectiveness – the capability of, or success in, achieving a given goal. Contrary to *efficiency*, the focus of effectiveness is the achievement as such, not the resources spent, so not anything that is effective has to be efficient, but anything that is efficient also has to be effective.

Emergency management – organized analysis, planning, decision making, and assignment of available resources to mitigate, prepare for, respond to, and recover from the effects of all hazards.

Facility – a physical entity created to serve a particular function, action, or process, e.g., a highway.

Granularity – the degree of modularity of a system. More granularity implies more flexibility in customizing a system, because there are more, smaller increments (granules) from which to choose.

Infrastructure – the basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons. USAGE NOTE: The term *infrastructure* has been used since 1927 to refer collectively to the roads, bridges, rail lines, and similar public works that are required for an industrial economy, or a portion of it, to function.

Integrated corridor management – the operational coordination of multiple transportation networks and cross-network connections comprising a corridor, and the coordination of institutions responsible for corridor mobility.

Intra-network protocol – a set of syntactic and semantic rules for exchanging information within a network.

Metadata methodology – a body of practices, procedures, and rules used to define and create information that describes another set of data.

Mode – a particular form, variety, or manner of transportation. Examples of transportation modes are: foot, bicycle, car/light utility vehicle, truck, motorcycle, bus (public transit), coach (long-distance), light rail, heavy rail, commuter rail, freight rail, ferry.

Near real-time data collection – the acquisition of data about a process that occurs with a delay introduced by automated data processing between the occurrence of the actual event and the use of the processed data.

Network – a connected set of facilities that serve the travel needs of a corridor.

Non-recurrent congestion – a breakdown in highway operations that is generally unexpected.

Performance measure –generic term used to describe a particular value or characteristic designated to measure input, output, outcome, efficiency, or effectiveness. Performance Measures are composed of a number and a unit of measure. The number provides the magnitude (how much) and the unit is what gives the number its meaning (what).

Real-time data collection – the acquisition of data about a process that occurs during the actual time that the process is taking place.

Recurrent congestion – congestion that occurs when demand increases beyond the available capacity. It usually is associated with the morning and afternoon work commutes, when demand reaches such a level that the freeway is overwhelmed and traffic flow deteriorates to unstable stop-and-go conditions.

Software engineering – The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software; that is, the application of engineering to software.

Strategy – a long-term plan of action designed to achieve a particular goal, as differentiated from tactics or immediate actions with resources at hand. Originally confined to military matters, the word has become commonly used in many disparate fields.

Systems engineering – an engineering discipline whose responsibility is creating and executing an interdisciplinary process to ensure that the customer's and stakeholders' needs are satisfied throughout a system's entire lifecycle.

Tactics[1] – specific techniques or actions developed by the stakeholders used to achieve a planned strategy, i.e., how the strategies are to be achieved.

Telecommunications systems engineering – deals with the joining of the two basic disciplines of transmission and switching such that a reliable communication path can economically placed into service as a single link or as a complex network of links to carry out a meaningful communication function.

Throughput – the volume of vehicles or passengers passing a specific point during a predetermined period of time.

Transfer point – a location at which riders can move from one transit route or transit system to another transit route or transit system.

Transportation management – the set of construction, operational, and institutional actions, policies, and procedures that seek to influence the users of the surface transportation system.

Transportation management system – a collection of components organized to support the construction, operational, and institutional actions, policies, and procedures that seek to influence the users of the surface transportation system.

Transportation planning – the practice of collecting and analyzing information pertaining to present and future transportation needs.

Travel pattern – a repeated sequence of natural occurrences in the movement of people and/or goods in an area or between areas.

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1 Tactics is the collective name for methods of winning a small-scale conflict, performing an optimization, etc. This applies specifically to warfare, but also to economics, trade, games, and a host of other fields such as negotiation. Tactics and strategy are often confused. Tactics are the actual means used to gain a goal. Strategy is the overall plan.