

**Exhibit 12-A****DEFENSE ACCESS ROADS EVALUATION REPORT**

- a. The narrative report should include as appropriate, but not be restricted to information on:
- (1) volume and character of present and future traffic anticipated on the recommended project, as well as a peak-hour turning movement diagram for any major intersection involved,
  - (2) the percentage of installation traffic compared to total traffic,
  - (3) personnel strength,
  - (4) number of shifts worked or to be worked,
  - (5) a recommended project if warranted or, if no project is warranted, the report should so indicate,
  - (6) a description of the recommended improvement including a sketch map showing location,
  - (7) a realistic cost estimate updated to the year of anticipated construction,
  - (8) a statement to indicate whether similar designs are being used under similar conditions on regular federal-aid, state or local projects in the area. Highway engineering economic analysis should be used as appropriate in evaluating alternatives and justification of the recommended improvements,
  - (9) discussion of state and/or local plans for improvements in the area including:
    - (a) priority that the state or local agency has placed on a proposed improvement,
    - (b) appropriate comments relative to the priority rating furnished by the state or local highway agency,
    - (c) extent of state or local commitment for participation in need improvements,
    - (d) an estimate of the date when the work could be accomplished, providing funds were available, and
    - (e) an estimate of the time (in months) that may be required to accomplish each of the following phases of the recommended project: preliminary engineering, environmental clearance, final design, right-of-way acquisition, and construction including advertisement and award, and
  - (10) need for control of access to protect the project from obsolescence, especially where a four-lane facility is proposed or will be required at a later date. A determination should be based primarily on the economic justification and desirability of this type of design.
- b. Three copies of the narrative report and sketch map are to be submitted to MTMC. If the decision has been made that the project is to be handled by a Federal Lands Highway Division, two additional copies of the report should be furnished to the Federal Lands Highway Division.

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**Exhibit 12-B****MILITARY TRAFFIC MANAGEMENT COMMAND  
ELIGIBILITY CRITERIA**1. Defense Access Roads

- a. Military Installations. The Department of Defense has the responsibility for determining the eligibility of proposed improvements for financing with defense access road funds. Generally, projects meeting the following requirements will be considered appropriate for such financing.
- (1) Access roads providing new connections between either old or new military installations and main highways may be considered eligible for 100 percent financing with defense access road funds, providing that in urban areas where a new entrance is established and access to a main thoroughfare is via existing city streets, the 100 percent defense access financing extends outward from the reservation only so far as the traffic generated by the installation is greater than other traffic.
  - (2) Urgently needed improvements of existing highways that are neither a part of nor qualified for inclusion in the federal-aid urban system, but upon which traffic is suddenly doubled (or more than doubled) by reason of the establishment or expansion of a permanent military installation may be considered eligible for financing in whole or in part with defense access road funds. One hundred percent defense access road financing will be considered only on the lightly traveled portion of these highways which are a part of the federal-aid rural system, or which are of insufficient importance to qualify for such designation. The more heavily traveled federal-aid rural highways (upon which traffic is suddenly doubled or more than doubled), generally regarded as being self-supporting from their earnings of road-user revenues, are eligible for only partial defense access road financing.
  - (3) Urgent improvements needed to avoid intolerable congestion or critical structural failure of any highway serving a temporary surge of defense-generated traffic (such as that which results from the establishment and operation of a temporary military installation, or from large-scale construction activity) may be considered eligible for financing to the extent necessary to provide the minimum essential facility to accommodate the temporary surge of traffic. A temporary surge of traffic is defined as one of several months duration, at least, but very short in duration as compared to the total life of a normal highway improvement.
  - (4) Alteration of a public road in the immediate vicinity of a military installation to accommodate regular and frequent movements of special military vehicles such as tank transporters or heavy ammunition carriers may be financed with defense access road funds, provided it is impractical or uneconomical to acquire right-of-way and develop such roads for exclusive military use. However, highway funds from other sources should finance any improvement that may be needed to bring the highway to a stage satisfactory for accommodation of all traffic except the special military vehicles.

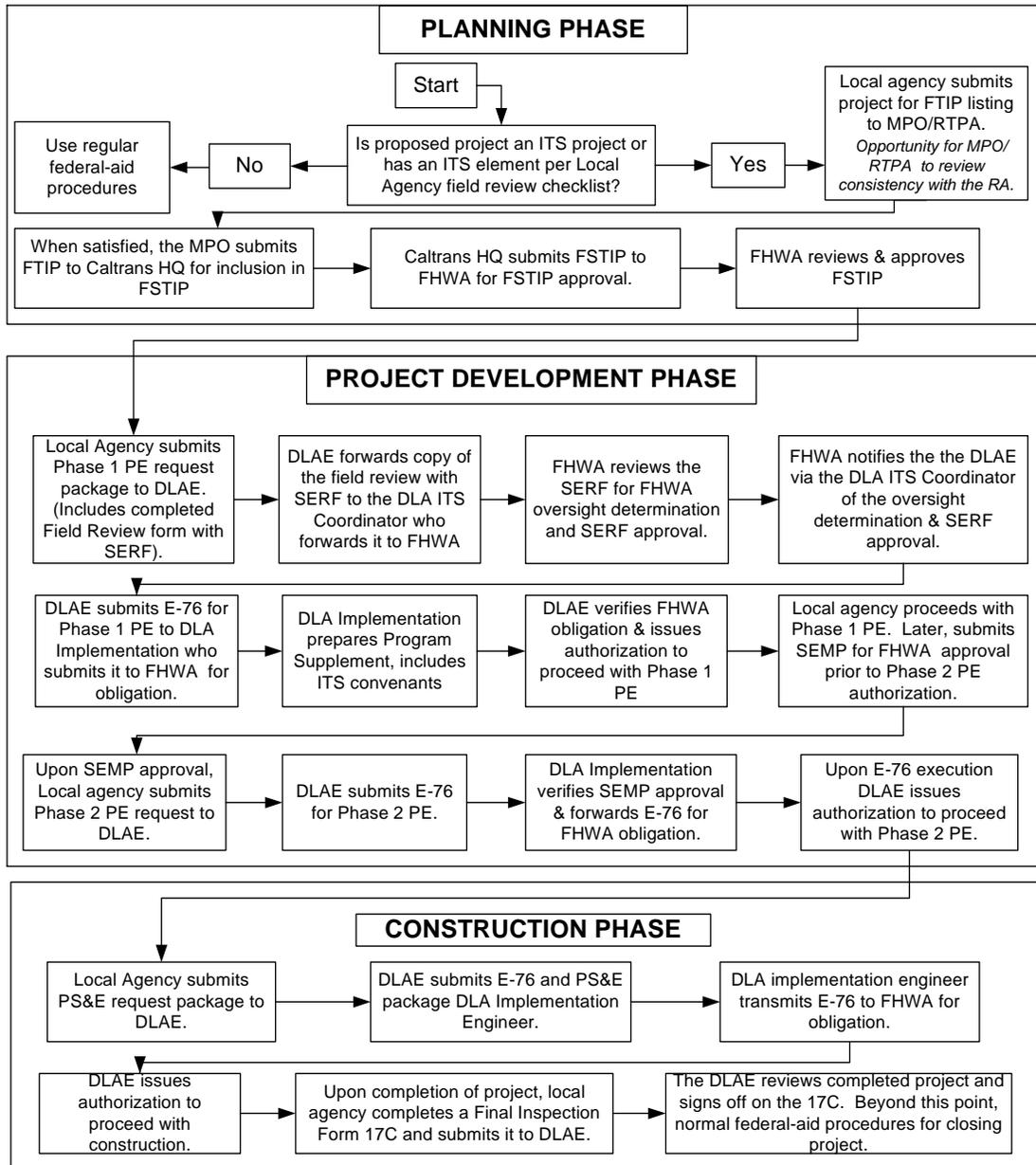
- (5) Access roads serving State National Guard facilities which are federally owned are eligible under paragraphs 1a (2) and (4). Roads serving federally owned National Guard facilities, which are of appreciable non-military local benefit, are eligible for only partial defense access road financing. Roads serving state-owned National Guard facilities are ineligible.
  - (6) No highway located within the boundaries of a military reservation is eligible for financing from defense access road funds. This prohibition does not apply to a highway through a military reservation on public rights-of-way open to free use of the public with no military restrictions or to a highway located along and partly within the installation boundaries but not subject to closure by military authorities.
  - (7) Projects on the NHS are not generally considered eligible for financing with defense access road funds.
  - (8) Traffic signal installations when justified may be financed as part of a new construction project.
- b. Defense Industries. Criteria governing eligibility of access roads for military installations also apply to any defense industry as defined in current joint Army-Navy-Air Force regulations.
2. Replacement Roads (Military). Highways constructed to replace those closed by establishment of new military installations or the expansion of old ones are considered eligible for financing with defense access road funds to the extent of 100 percent of the cost of constructing the replacement road to current standards for current traffic.

**EXHIBIT 12-C**  
**ITS ARCHITECTURE MATRIX**

<b>National ITS Architecture</b>	<b>Regional ITS Architecture</b>
User Services & User Services Requirements	<p>Description of the Region</p> <p>Identification of participating agencies and other stakeholders</p> <p>An Operational Concept that identifies the roles and responsibilities of participating agencies and stakeholders in the operation and implementation of the systems included in the RIA</p> <p>Any agreements for ITS operation, interoperability, use of ITS Standards and operation of ITS projects in the RIA</p>
Logical Architecture	System functional requirements
Physical Architecture	<p>Interface requirements and information exchanges with planned and existing systems and subsystems</p> <p>The sequence of projects required for implementation</p>
ITS Standards	Identification of ITS Standards supporting regional and national interoperability
Equipment Packages Market Packages	ITS inventory
	Develop and implement procedures and responsibilities for maintaining the RIA as needs evolve in the region

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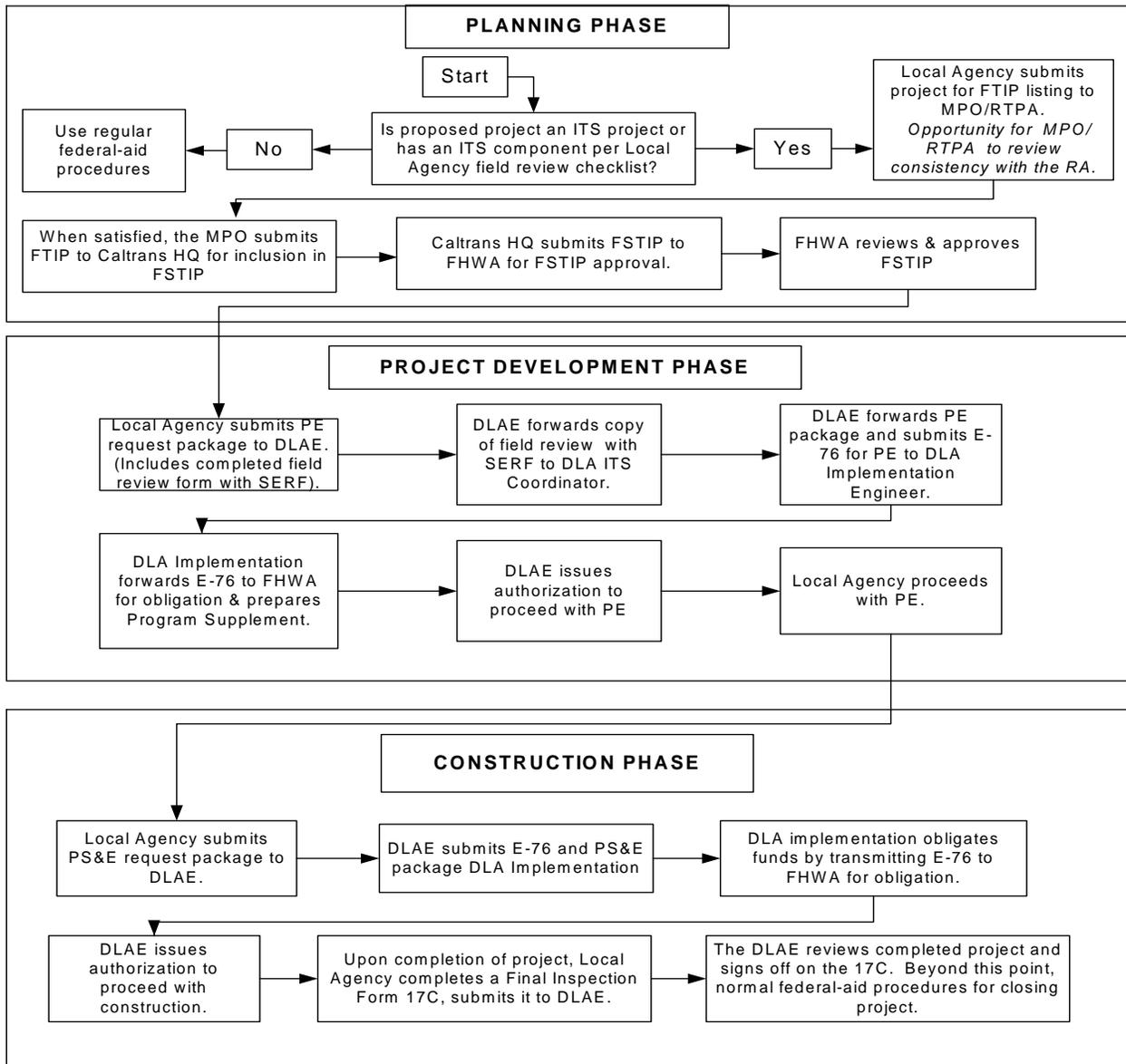
**Exhibit 12-D1**  
**MAJOR ITS PROJECTS**  
(FHWA Full Oversight Projects)



- Note:
- This flow chart process does not apply to the earmarked ITS Deployment Projects (QT80 projects).
  - This 2-phased PE procedure requires FHWA review of the SERF and approval of the SEMP.
  - FHWA Full Oversight for PE phases on all major ITS projects.
  - FHWA Full Oversight for E-76 purposes.
  - For simplicity, the right of way phase is not shown in this chart. If right of way is involved, refer to Chapter 13, "Right of Way," of the LAPM for information and procedures.
  - For FHWA list of criteria for full oversight projects, refer to Section 2.4 for Chapter 2 of the LAPM

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**Exhibit 12-D2**  
**MINOR ITS PROJECTS**  
(State-Authorized Projects)



**Note:**

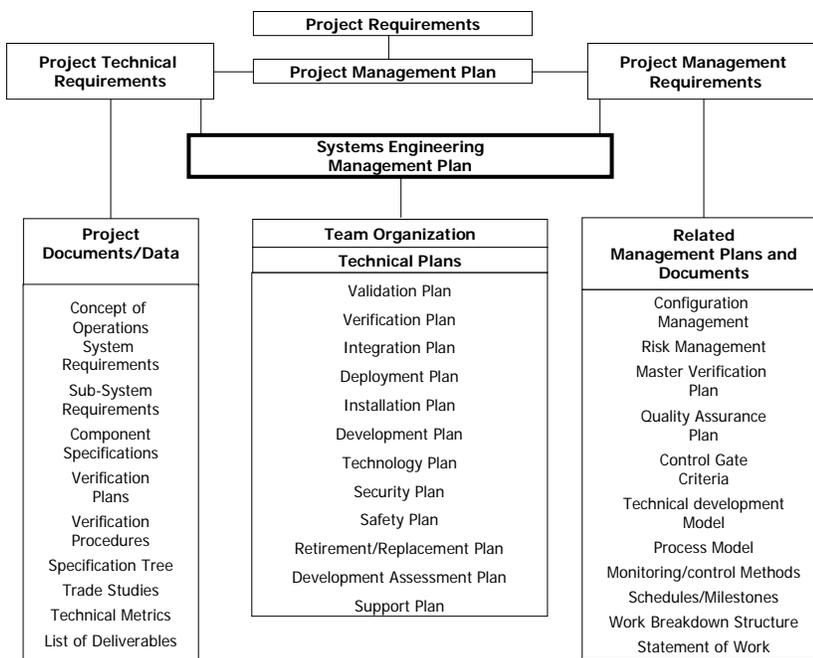
- This flow chart process does not apply to the earmarked ITS Deployment Projects (QT80 projects).
- Minor ITS projects will follow the above traditional single phased PE procedures.
- No FHWA oversight for procedure shown on this flowchart (SERF review and SEMP approval not required).
- State-Authorized for E-76.
- For simplicity, the right of way phase is not shown in this chart. If right of way is involved, refer to Chapter 13, "Right of Way," of the LAPM for information and procedures.

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## Exhibit 12-E Systems Engineering Management Plan (SEMP) Guidelines

### INTRODUCTION

The Systems Engineering Management Plan (SEMP) is the primary, top-level technical management document that defines and describes the systems engineering management, the tailored systems engineering process, and how the technical disciplines will be integrated for the life of a transportation project. This document establishes the technical program organization, direction, and control mechanisms for the project to meet its cost, schedule, and performance objectives. The SEMP is the foundation for all engineering activities during the entire project.



The SEMP applies to all team personnel and all technical activities conducted in the fulfillment of the project. It applies to all processes and products that are deemed necessary for accomplishing the project, whether or not they are required under contract.

A SEMP should be developed for every project that includes software development or software/hardware integration. The SEMP should be tailored to project size and complexity, yet cover all development phases. The SEMP is not necessarily a long document. For some projects, it could be few pages long and for others it could be hundreds of pages long. The plan needs to be specific to the needs of the particular project.

The SEMP is a living document and as a result additions, deletions, and modifications will occur as it is utilized. It will be updated as the development work proceeds and systems engineering process products are produced. All updates must be reviewed and approved by the Transportation Agency project manager.

The SEMP will be prepared in two stages. The first stage is a framework (or scope) for the SEMP established by the Transportation Agency. The second stage is the completion of the SEMP by the Developer (system manager and/or integrator) before software detailed design and software/hardware integration begin.

The Transportation Agency, in conjunction with any directed systems engineering management working group(s), establishes a framework for the SEMP by stating project goals and organizational management and establishing requirements for what should be in it. This takes the form of a *Draft Scope* (typically the first section of the SEMP) and can be useful for project management decisions and contract RFP scope developments.

The Developer will provide complete SEMP content in the second stage. This content will be addressed as a part of the contract proposal and finalized in technical documents that are approved before software component detailed design begins. With the Developer's input, the SEMP becomes the control document for work to be performed for the life of the project.

In the sections that follow, an example format and description of the SEMP is presented.

## *Format and Description of SEMP:*

### **Title Page**

The title page should follow the Transportation Agency procedures or style guide as applicable. It shall contain the following information (not in order):

- SYSTEMS ENGINEERING MANAGEMENT PLAN FOR THE *Name of Project*,  
AND *Transportation Agency*
- Contract Number
- Date the document was formally approved
- The organization responsible for 'preparing' the document
- Internal Document Control Number, if available
- Revision version

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## 1. SCOPE

Transportation Agency - “*What is the project goal and what is expected from the Developer?*”

Developer - “*What is proposed and how will it be delivered?*”

The *Scope* shall identify the specific project and its purpose, to include complexities and challenges that will be addressed by the technical development effort. It will specify the systems engineering process (see Fig. 1 next page) to be used for the system’s design, development, test, and evaluation. Overall organizational structure and technical, direction and control for the project should be summarized. This includes management work groups and multi-disciplinary technical teams that are critical to reaching successful system deployment.

The *Scope* will summarize all associated planning, technical, and management activities described in the SEMF sections that follow. This information will be provided from two perspectives, the Transportation Agency in the form of a *Draft Scope*, and the Developer as a part of the contract proposal and completed in the final SEMF delivered for approval.

From the perspective of the Transportation Agency, the *Draft Scope* will state project goals and organizational management and summarize the minimum requirements expected of the Developer. Drawing upon the details presented in the following Sections of this SEMF guidance, these agency expectations can be documented. This will be useful for project management decisions and contract RFP scope developments.

The Developer completes the *Scope* content in stages, as a part of the contract proposal and as technical documents are finalized and approved before the Component Detailed Design phase begins (see Figure 1). The Developer will provide the necessary details in the other sections of this SEMF guidance. The content of the *Scope* has similarity to an Executive Summary.

The VEE life-cycle technical development model should be specified by the Transportation Agency in the *Draft Scope* to represent the overlying systems engineering process for analysis. See Figure 1. Other models may be used to supplement the analysis.

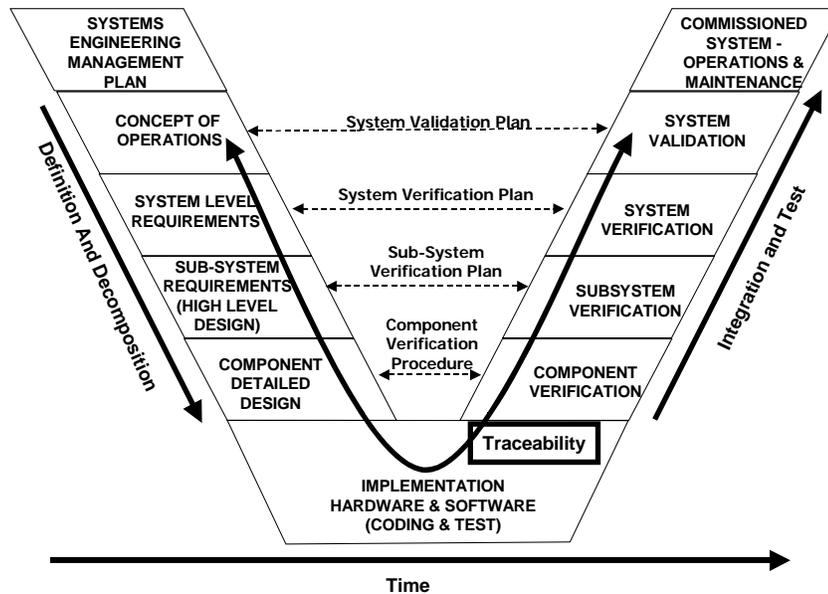


Figure 1. VEE Systems Engineering Technical Model

The level of detail at each of the phases of the analysis should be on a scale commensurate with the project scope. The details of this tailoring will be summarized in the *Scope* by the Developer and described in full in SEMP Section 3 entitled *Systems Engineering Process*.

The Transportation Agency shall state in the *Scope* that the Federal Regulation 23 CFR 940, *Intelligent Transportation Systems (ITS) Architecture and Standards, Final Rule* will be satisfied. 23 CFR 940 states, “All ITS projects funded with highway trust funds shall be based on a systems engineering analysis.” The project implementation requirements specified in 23 CFR 940.11 are as follows:

- Identification of portions of the Regional ITS Architecture being implemented or if a Regional ITS Architecture does not exist, the applicable portions of the National ITS Architecture,
- Identification of participating agencies and their roles and responsibilities,
- Requirements definitions,
- Analysis of alternative system configurations and technology options to meet requirements,
- Procurement options,
- Identification of applicable ITS standards and testing procedures, and
- Procedures and resources necessary for operation and management of the system.

The relationships of these seven bullets from 23 CFR 940 to the recommended VEE technical model phases are depicted in Figure 2. In the process phases leading up to Component Detailed Design, these seven regulatory requirements will be addressed. The Developer shall acknowledge in the *Scope*, as a part of the contract proposal that these will be addressed in the systems engineering analysis and any associated process tailoring detailed in Section 3, *Systems Engineering Process*.

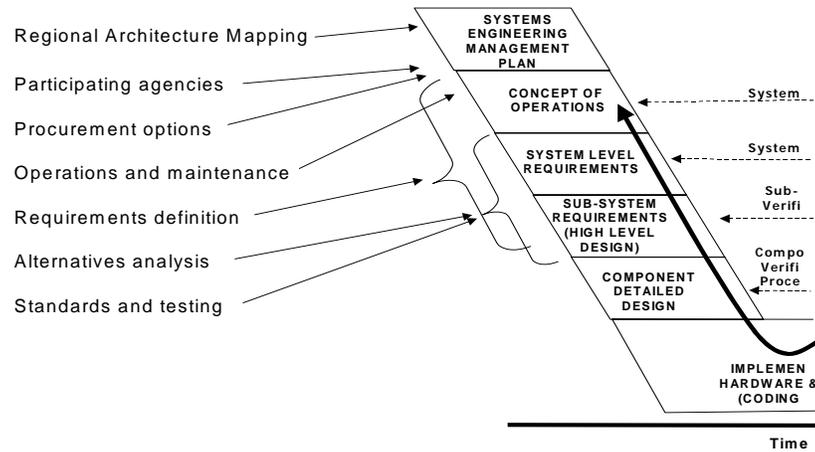


Figure 2. Relationship between 23 CFR 940.11 and the VEE

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## **2. TECHNICAL PLANNING AND CONTROL**

“What needs to be documented, and how will the development be managed?”

*Technical Planning and Control* contains the core systems engineering planning information that the Developer will convey within a contract proposal and provide during the system design development. *Technical Planning and Control* identifies overall organizational structure and responsibilities for systems engineering activities during the total system life cycle. The section will detail the technical direction and control of contracted, and subcontracted engineering tasks. It applies to all technical activities conducted, and to all processes and products that are deemed necessary for accomplishing the project.

*Technical Planning and Control* defines the project’s interaction with all internal and external organizations involved in performing technical work (i.e., teammates, subcontractors, and vendors). Multi-disciplinary teams that are critical to reaching successful system deployment will be formed. Multi-disciplinary teams will be discussed in detail in Section 4, *Integration of the Systems Engineering Effort*.

The Transportation Agency should specify in the *Draft Scope* the planning activities important to the success of the project. A final decision will be made through consultation with the Developer at time of contract proposal approval. The planning activities important to most system developments consist of the following:

- Major decision deliverables – produce the requirements databases, specifications, and baselines.
- Process inputs - identify source material for the deliverables noted above, which includes the SOW and the specification from the RFP, and previously developed specifications for similar systems.

- Technical objectives – include success criteria defining when the design is done. May be a source document for deliverables noted above. Could be part of a Concept of Operations.
- Contract Work Breakdown Structure (WBS) - defines the tasks in the Systems Engineering Master Schedule and the milestones of the Systems Engineering Detailed Schedule. The Detailed Schedule may or may not be an expectation at the contract proposal phase.
- Training – planned for agency staff to operate the system and for contract staff on the basis of the requirements of the RFP/SOW, with associated scheduling.
- Standards and procedures – identify within the Developer company those that are applicable, such as workmanship, quality assurance, engineering policies and procedures, and time charging practices, etc.
- Resource allocation – identifies resource requirements (capital equipment, software, personnel, agency-furnished equipment and information, and time-phased needs), procedures for resource control, and reallocation procedures (workarounds).
- Constraints - identify source, e.g., RFP, system concept, technology availability, availability of required resources, funding, facilities, etc.
- Work authorization – describes process for handling requests for work (e.g., task orders), or changes to existing tasking; especially important with subcontractors.
- Test and Evaluation – acknowledge that a Testability Plan be prepared. See description of Testability Plan below.

As part of *Technical Planning and Control*, (1) technical documents, and (2) related project management plans applicable to the project, are identified. The Transportation Agency will give initial indication in the *Draft Scope* of those technical documents they desire to see developed, and specify project management plan requirements that relate to this development that they already have in place. A final decision will be made through consultation with the Developer at time of contract proposal approval. The Developer will describe the associated technical management aspects for this development in the final SEMP.

The technical documents include both schedules and plans. Each schedule and plan is designed to interact with other project plans to provide complete coverage of the engineering effort and ensure continuity of management control. Typical technical documents (schedules and plans) include:

- Systems Engineering Master Schedule – top-level process control and progress measurement tool to ensure completion of identified accomplishments.
- Systems Engineering Detailed Schedule – reflects the detailed work efforts required to support critical events and tasks. May be required by the RFP.
  - Software Development Plan – describes organizational structure of the effort, facilities and engineering environment, management techniques to maintain control over development activities.
  - Hardware Development Plan – describes organizational structure of the effort, procedures, facilities and engineering environment, management techniques to maintain control over development activities.

- Interface Control Plan – Identifies and defines physical, electronic, content characteristics of all system internal and external interfaces, and communications links. Includes interfaces with people as well as hardware and software.
- System Installation Plan – describes in detail planned step-by-step activities on site-by-site basis for the release, both physical installation as well as electronic updating, also organizational structure.
- System Integration Plan – identifies organizational structure, optimal sequence for incremental delivery, assembly, and activation of the various components into operational system. Addresses factors to minimize assembly difficulties and cost/schedule impact.
- Testability Plan – basic tool to establish and execute a test program. Emphasizes: integration with other design requirements, consistency with end product requirements, identifies guides, analysis models, and procedures, planning for review and use of data submissions, how/when tasks to be done and how results are to be used, physical and personnel resources and overall testing schedule.
- Technical Review Plan – lists technical reviews to be conducted and describes associated tasks for each contract phase, methods to solve problems during reviews, information needed as prerequisite, and schedule. A listing of life cycle phase technical reviews can be found in EIA/IS 632, Annex E.
- Technology Plan – describes evolution to identify, assess, and applies emerging technology, activities and criteria for transitioning from development and demonstration, addresses selection criteria for alternative technologies.

The above list is not meant to be exhaustive. Other test plans will be called for in transportation projects, such as Verification Plans, Validation Plans, and Test Plans for which much of the information in the Testability Plan would be included. Other technical plans that may be appropriate include: Quality Assurance Plan, Maintenance Plan, and Human Factors Plan. For smaller, less complex projects, several of these plans could be combined and some may not be necessary at all.

In addition to the technical plans, certain project management plans will be prescribed for the development. Project management plans include at a minimum

Configuration Management Plan – describes Developer approach and methods to manage configuration of system products and processes. Describes change control procedures and baseline management.

- Data Management Plan – describe how and which data will be controlled, method of documentation, and responsibilities. Describes control systems in place, company procedures, and recent practices on similar programs.
- Risk Management Plan – addresses risk identification, assessment, mitigation, and monitoring activities associated with development, test and evaluation requirements. Also addresses roles and responsibilities of all organizations.

For small, less complex projects, the configuration and data management plans could be combined. Other management plans that may be appropriate include: System Safety Plan, System Security Plan, and Resource Management Plan.

A complete list of enabling content that the Developer should consider for these plans, which are applicable, follows:

- Statement of Work
- Work Breakdown Structure
- Activity Breakdown Structure
- Computerized Resource Tracking (Resources Loaded Network)
- Glossary of terms
- Schedule
- Technical milestones
- Project team organization
- Project control method
- Process models
- Management plans (configuration management, interface, risk, training, etc)
- List all deliverables
- Technical metrics
- Systems Engineering life cycle model
- Gate and exit criteria (decision points)
- Technical plans (integration, installation, etc.)
- System description
- Specification tree
- Trade studies

A final decision by the Transportation Agency project manager on selected documentation will occur with contract proposal approval. Plans, as they are completed during development, must be reviewed and approved by the Transportation Agency project manager.

### **3. SYSTEMS ENGINEERING PROCESS**

*How will the development be done?"*

*Systems Engineering Process* will convey how the Developer executes the development of the system. The VEE life-cycle technical development model will be specified by the Transportation Agency in the *Draft Scope* to represent the overlying systems engineering process for analysis. See Figure 1. Other models may be used to supplement the analysis, e.g., the Spiral risk-mitigation model.

*Systems Engineering Process* will describe all tailoring of the systems engineering process requirements. Tailoring is the modification of any process requirements – managerial or technical. The details of this tailoring will be summarized in the *Scope* by the Developer and described in full in this Section. To further describe these tailoring activities, they are categorized as:

- System Requirements Analysis
- Sub-System (Functional) Analysis
- Design Synthesis
- System Analysis

#### **System Requirements Analysis**

Describes approach and methods for analyzing and defining the concept of operation and top-level system requirements. These evolve iteratively. The concept of operations approval results from peer reviews, working groups, scenario studies, simulation, and/or demonstrations, as necessary. Requirements are analyzed for development, deployment, verification, operations, support, and training.

#### **Sub-System (Functional) Analysis**

Describes approach and methods to allocate requirements to lower-level functions; defines functional interfaces; and defines the functional architecture. This is not practical during a proposal effort for each and every system requirement. This can be managed through the use of risk analysis, with high-risk requirements in terms of likelihood and severity being defined in some detail, while low-risk requirements are included in an overall general scope of analysis. For items defined in detail, the SEMB should include consideration of type of analysis, tools, schedule and budget constraints, and the completion criterion. From the systems engineering perspective, address the “illities”.

#### **Design Synthesis**

Describe approach and methods to transform the functional architecture into a physical architecture; to define alternative system concepts; to define physical interfaces, and to select preferred product and process solutions. Also describe how requirements are transformed into detailed system design specifications.

### System Analysis

Describe approach and methods to undertake trade-off studies, system/cost effectiveness analysis, and risk analysis. The results of these analyses should provide: (1) rigorous basis for technical decision-making, (2) quantifiable basis for decision-making ensuring that cost, schedule, and performance are addressed, and (3) support for risk strategy development and management.

Developers (systems managers and integrators) are accustomed to these processes and should be able to scale the tailoring for small, less complex, projects. Each process of the VEE technical model should be addressed, though, whether categorized as above or in another format.

As a part of the tailoring discussion, the Developer should explain the established relationship of the requirements from 23 CFR 940 with the tailored processes of the VEE technical model. The project implementation requirements specified in 23 CFR 940.11 are as follows: (See also Figure 2)

- Identification of portions of the Regional ITS Architecture being implemented or if a Regional ITS Architecture does not exist, the applicable portions of the National ITS Architecture,
- Identification of participating agencies and their roles and responsibilities,
- Requirements definitions,
- Analysis of alternative system configurations and technology options to meet requirements,
- Identification of applicable ITS standards and testing procedures, and
- Procedures and resources necessary for operation and management of the system.

## **4. Transitional Critical Technologies**

*“How do I avoid obsolescence?”*

This section describes key technologies, the approach for transitioning those technologies into the project system development, and their associated risk. This includes the activities and criteria for assessing and transitioning critical technologies from their development and demonstration programs into the project system development.

Transitioning critical technologies should be done as a part of the risk management. It is called separately here for special emphasis. Identify what technologies are critical and follow the steps outlined for risk management. This will establish which alternative and when an alternative is incorporated into the project to meet performance and functional requirements. As a separate section of the SEM, reference to the work that will be done to address critical technologies will be incorporated here as a part of the proposal submittal.

The ability to evolve the technologies employed in a system hinges on several factors: knowledge of the technologies, knowledge of technology status (e.g., mature, leading edge, bleeding edge, etc.), and use of an open architecture strategy in the system design. A system design based upon an open architecture is necessary to be able to easily take advantage of newer and better technologies.

The result of this activity is to establish and maintain a viable technological baseline during project development.

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## **5. Integration of the Systems Engineering Effort**

*“How will the process activities be brought together to assure an operational system?”*

This section describes the planned integration activities leading to final project implementation. In illustration, this Section concentrates on what is needed to climb the right side of the VEE methodology (See Figure 1).

Integration is planned for and supported from the early concept phase of the systems engineering process with the formation of multi-disciplinary teams, described below. Application of the schedules and integration technical plans described in 2. *Technical Planning and Control* will be described here.

An integrated team approach is critical to successful integration of products and other inputs (e.g., test plans) into a coordinated systems engineering effort that meets cost, schedule, and performance objectives. The steps toward ultimate system implementation include:

- Multi-disciplinary team organization
- Technology verifications
- Development test and evaluation
- Implementation of software designs for system end items
- Operations & maintenance sustainability and user training development

### **Multi-disciplinary team organization**

Teamwork is the key! Multi-disciplinary teams are an integrated set of cross-functional teams (an overall team comprised of many smaller teams) given the appropriate resources and charged with the responsibility to define, develop, produce, and support a product and/or service. A basic principle is to get all disciplines involved at the beginning of the development process to ensure that requirements are completely stated and understood for the full life cycle. By using multi-disciplinary teams, the systems engineers still lead the requirements development process, but now more (all) disciplines participate in it. This includes the software designers and software/hardware component integrators if contracted separately by the Transportation Agency.

The Developer will describe how their organizational structure will support team formation, the composition of functional and subsystem teams, and the products each subsystem and higher-level team will support (e.g., teams organized to support a specific product in the Work Breakdown Structure). This team approach will address assessment and review of progress, traceability of technical changes, integration of data, configuration management, and risk management. Depending on the complexity of the project, this can mean a hierarchy of teams to address product development, product integration, and umbrella system integration and program issues.

The multi-disciplinary teams are partnerships between the agency stakeholders, the Developer and any sub-contractors or other contractors, and key areas of experts. They should be end-item oriented. In other words team members must focus on the overall project performance as well as the performance of their particular team.

For small, less complex projects, the entire staff constitutes a single team. In such cases, tailor this section to reflect that there is only one team for the project. The Developer's organizational structure should be able to bring together representatives from all relevant disciplines to one or more teams for the duration of their need.

#### **Technology verifications**

Technology solutions are verified using design analysis, design simulation, inspection, demonstration, and/or test. Required performance of all critical characteristics is verified by demonstration and test. Design analysis and simulation are used to complement, not replace demonstration and test.

#### **Development test and evaluation**

After completion of the total system, a formal system verification review is held by the agency stakeholders. The purpose of this review is to demonstrate that the total system has been verified to be compliant with the requirements in the configuration baselines. System verification testing is conducted following completion of integration testing.

#### **Operations & maintenance sustainability and user training development**

Consideration should be given to ongoing support to an existing system, preplanned system improvement, evolutionary development, or to support the developed system after it has been fielded. Describe how system faults will be addressed, user requests for support, and the level of support and resources to be provided.

## **6. Applicable Documents**

This section will identify all the applicable and referenced documents that are required for the specific project. Referenced documents are those standards, specifications, and technical documents that are external to the project statement of work.

List by title, version number, and issue date. The order of precedence and availability of the documents should be stated. For example:

- *EIA Standard 632, Processes for Engineering a System, Version 1.0, April 28, 1998.*
- *In the event of conflict between this document and the contents of the project SOW, SOW shall be considered a superseding requirement. The document is available for purchase on the Internet at <http://www.global.ihs.com>.*

This will include the list of documents from the Request for Proposal. Identify any contractual and noncontractual provisions. This includes any international or American national standards, and government and industry directive documents applicable to the conduct of the tasks within the SEM. P.

When the rest of the SEM. P. has been completed, go back to this section and cross off the documents that are not referenced in your SEM. P., and add any documents referenced in your SEM. P. that weren't already on the list.

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## 7. Notes

(Background Information, Acronyms, abbreviations, glossary)

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**Exhibit 12-F**  
**ITS WEBSITES**

AASHTO:	<a href="http://www.aashto.org">http://www.aashto.org</a>
ANSI:	<a href="http://www.ansi.org">http://www.ansi.org</a>
ASTM:	<a href="http://www.astm.org/">http://www.astm.org/</a>
CALTRANS:	<a href="http://www.dot.ca.gov/">http://www.dot.ca.gov/</a>
CVISN:	<a href="http://www.jhuapl.edu/cvisn/index.html">http://www.jhuapl.edu/cvisn/index.html</a>
FHWA:	<a href="http://www.fhwa.dot.gov">http://www.fhwa.dot.gov</a>
FRA:	<a href="http://www.fra.dot.gov/">http://www.fra.dot.gov/</a>
FTA:	<a href="http://www.fta.dot.gov/index.html">http://www.fta.dot.gov/index.html</a>
IEEE:	<a href="http://www.ieee.org/index.html">http://www.ieee.org/index.html</a>
ITE:	<a href="http://www.ite.org">http://www.ite.org</a>
ITS Conformity Rule	<a href="http://www.its.dot.gov/aconform/aconform.htm">http://www.its.dot.gov/aconform/aconform.htm</a>
ITS Integration Program	<a href="http://www.fhwa.dot.gov/discretionary/">http://www.fhwa.dot.gov/discretionary/</a>
ITS Standards:	<a href="http://www.its-standards.net">http://www.its-standards.net</a>
ITS Standards Training:	<a href="http://www.its-standards.net/train.htm">http://www.its-standards.net/train.htm</a>
ITS Training Site:	<a href="http://www.pcb.its.dot.gov/">http://www.pcb.its.dot.gov/</a>
McTrans:	<a href="http://www-mctrans.ce.ufl.edu">http://www-mctrans.ce.ufl.edu</a>
NTCIP:	<a href="http://www.ntcip.org">http://www.ntcip.org</a>
National ITS Architecture:	<a href="http://www.iteris.com/itsarch">http://www.iteris.com/itsarch</a>
SAE:	<a href="http://www.sae.org/servlets/index">http://www.sae.org/servlets/index</a>
EDL:	<a href="http://www.its.dot.gov/welcome.htm">http://www.its.dot.gov/welcome.htm</a>
JPO:	<a href="http://www.its.dot.gov/home.htm">http://www.its.dot.gov/home.htm</a>
NHI:	<a href="http://nhi.fhwa.dot.gov/index.html">http://nhi.fhwa.dot.gov/index.html</a>

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