

EXECUTIVE SUMMARY

The American public has entrusted the Department of Transportation (DOT) with many billions of dollars in grant and acquisition funds and rightly expects that the Department will act as an effective steward of these funds to ensure a safe, efficient, secure, accessible and convenient transportation system. As part of its fiduciary duty to the American public, the Department is responsible for ensuring these Federal funds are used responsibly and consistent with legal requirements. The amount of these expenditures and DOT's role in administering projects supported by these funds highlight the need for effective Federal oversight and monitoring of the uses of these investments.

In light of these challenges, Secretary of Transportation Rodney E. Slater established a DOT Infrastructure Task Force to review oversight mechanisms and processes within the Department for large scale transportation infrastructure projects. In a Congressional hearing before Senator John McCain, Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, on May 3, 2000, Secretary Slater described this effort as "a DOT-wide process to enhance our oversight and monitoring of major national and regional projects."

The DOT Infrastructure Task Force performed its work under the direction of Assistant Secretary for Budget and Programs/Chief Financial Officer Peter ("Jack") Basso, Jr. and consisted of representatives from the Office of the Secretary, the United States Coast Guard (USCG), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA). In developing its recommendations, Task Force members met with and interviewed a broad array of experts and stakeholders, including Congressional committee staff members; senior officials in the Department of Transportation and officials at other Federal agencies; project management professionals in the private sector; and officials in transportation organizations.

To ensure effective DOT oversight for large scale transportation infrastructure projects, the Task Force has developed a series of immediate and near-term recommendations that address new internal agency processes, human resource needs and processes that should apply to recipients of DOT grant funds. The Task Force has also developed a series of recommendations for potential legislative changes that would further enhance DOT oversight of these large scale projects. These recommended legislative proposals should be examined as part of the Department's surface and aviation reauthorization proposals that will be developed within the next two years.

Although all the Task Force's recommendations are important tools for ensuring effective DOT oversight of large scale projects, a number of them are particularly critical and deserve to be implemented with alacrity. Three key recommendations involving internal processes that should be implemented immediately are: incorporating oversight of large scale infrastructure projects into the DOT Strategic and Performance Management Plans

pursuant to the Government Performance and Results Act (Recommendation A.1.); establishing a DOT Executive Council comprised of the heads of Operating Administrations to oversee DOT's monitoring of large scale projects (Recommendation A.2.); and requesting the Inspector General to conduct an evaluation of the ONE DOT large infrastructure oversight program within one year of its implementation (Recommendation A.3.). A key recommendation involving human resource requirements calls upon operating administrations to designate a Megaproject Oversight Manager for each large scale project who is accountable to senior operating administration officials and the DOT Executive Council and who possesses professional credentials and demonstrates extensive experience in overseeing large projects (Recommendation B.1). To facilitate this important work, the Task Force also recommends that DOT establish core competencies and a career development training program for Megaproject Oversight Managers (Recommendation B.2.). The Task Force's key recommendation involving recipients of financial assistance would require them to submit a comprehensive Project Management Plan on all large scale projects that includes baseline cost estimates and schedules, a financial plan, change order procedures, a risk management plan and other important components for effective oversight (Recommendation C.1.).

The Task Force recognizes that significant major project oversight efforts are already in place throughout the Department; however it strongly believes that adoption of the recommendations in this report comport with Secretary Slater's charge to develop and implement "a DOT-wide process to enhance our oversight and monitoring of major national and regional projects."

SECTION 1. INTRODUCTION

"Steward -- one called to exercise responsible care over possessions entrusted to him." Webster's Third New International Dictionary

When the U.S. Department of Transportation was established nearly thirty-five years ago, Congress, in the Department of Transportation Act, articulated that the agency "is necessary to the public interest and to assure the coordinated and effective administration of the transportation programs of the United States Government." Pub. L. 89-670, Oct. 15, 1966; 49 U.S.C. §101((b)(1). The American public has entrusted the Department with many billions of dollars in funds and rightly expects that the Department will act as an effective steward of these funds to ensure a safe, efficient, secure, accessible and convenient transportation system. As part of its fiduciary duty to the American public, the Department is responsible for ensuring Federal funds are used responsibly and consistent with legal requirements.

A significant portion of the Department of Transportation's investments in transportation infrastructure is through grants to State and local governments, including state departments of transportation, mass transit agencies, and public airport sponsors. According to the Analytical Perspectives volume of the Budget of the United States Government, Fiscal Year 2001, the total amount of Federal grants to State and local governments for physical investments are estimated to be \$51.7 billion in 2001. Almost two-thirds of these total outlays, or \$33.6 billion, are to assist States and localities with transportation infrastructure. The magnitude of these expenditures and DOT's role in administering these funds highlight the need for effective Federal oversight and monitoring of the uses of these investments.

Recent significant Federal legislation has made unprecedented levels of funding available for investment in transportation infrastructure projects. The Transportation Equity Act for the 21st Century (TEA-21), in the case of highway and mass transit projects, and the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21), in the case of airport infrastructure projects, are landmark pieces of legislation and as well as providing a major infusion of Federal transportation funds, greatly facilitate the increase in the number of complex, high-dollar transportation infrastructure projects.

Although Departmental oversight is obviously important for all projects that it funds, the scope and nature of megaprojects particularly call for qualitative changes in the way the Department of Transportation and its operating administrations conduct oversight. In light of these challenges, Secretary of Transportation Rodney E. Slater established a DOT Infrastructure Task Force to review oversight mechanisms and processes within the Department for large scale projects. In preparing this report, the Task Force used the following criteria in determining whether a major transportation infrastructure project should be subject to enhanced DOT oversight process and mechanisms: whether the

project has an estimated total cost of at least \$1 billion; involves a high level of interest on the part of the public, the Congress, or the Administration; or in the case of a Federal-aid highway and mass transit project, may have a significant effect on the recipient's financially constrained overall transportation program of projects as set forth in transportation improvement plans of metropolitan planning organizations or statewide transportation improvement plans.

In a Congressional hearing before Senator John McCain, Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, on May 3, 2000, Secretary Slater described this effort as "a DOT-wide process to enhance our oversight and monitoring of major national and regional projects." In the same hearing before Chairman McCain, Department of Transportation Inspector General Kenneth M. Mead also stressed the need to apply effective oversight processes to large infrastructure projects across the country. It also should be pointed out that this effort is not limited to megaprojects that are funded under DOT financial assistance programs, but also encompasses oversight mechanisms for projects funded under the Transportation Infrastructure Finance and Innovation Act of 1998 (Subtitle E of Title I of TEA-21) and DOT's own major systems acquisitions.

This Task Force performed its work under the direction of Assistant Secretary for Budget and Programs/Chief Financial Officer Peter ("Jack") Basso, Jr. and consisted of representatives from the Office of the Secretary, the United States Coast Guard (USCG), the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA). In developing its recommendations, Task Force members met with and interviewed a broad array of experts and stakeholders, including Congressional committee staff members; senior officials in the Department of Transportation and officials at other Federal agencies; project management professionals in the private sector; and officials in transportation organizations.

In short, the Task Force concluded that major efforts are necessary for the Department to attain the needed level of major project oversight excellence that the American public expects. The efforts that will be required include greater use of proven project management oversight techniques and planning mechanisms; tools to ensure greater accountability of Department officials and employees responsible for large project oversight; training and recruitment efforts to attract and retain agency employees responsible for project management oversight; funding incentives for recipients to ensure megaprojects are built on time and within budget; and, where necessary, effective tools to avoid poorly-executed large dollar projects. As additional follow-on work to the Task Force's efforts, the Department will make further efforts to address and analyze the threshold factors that cause megaprojects to fall behind schedule and exceed cost estimates and budgets. The Department's ultimate goal is not to have adequate oversight tools in place once a megaproject exceeds technical, scheduling or cost baselines, but to ensure that through effective DOT oversight and project management by the sponsor, the project does not exceed these baselines.

The Task Force is mindful that significant major project oversight efforts are already in place throughout the Department. We also acknowledge that certain recommendations included herein have already been adopted by operating administrations. For example, 23 U.S.C. §106(h), as added by section 1305(b) of TEA-21 requires a recipient of Federal-aid highway funds for a project with an estimated total cost of \$1 billion or more to submit to the Federal Highway Administration an annual finance plan for the project. The finance plan must be based on detailed annual estimates of the cost to complete the remaining elements of the project and on reasonable assumptions of future increases in the cost to complete the project. FHWA has established a Major Projects Team to serve as a focal point for addressing the agency's administration and oversight of major Federal-aid highway projects. Also, on May 23, 2000, the agency issued detailed guidance on recipients' preparation of finance plans and annual updates for federal-aid highway megaprojects and TIFIA projects. FHWA Division Offices have been negotiating project management agreements with project sponsors that spell out the parties' respective roles and responsibilities and necessary approvals. With respect to TIFIA projects administered by the FHWA, the negotiated detailed loan agreement also addresses finance plan requirements and the parties' respective roles and responsibilities.¹

The Task Force is also aware of existing requirements and processes concerning the planning, budgeting and acquisition of capital assets by Federal agencies. See Office of Management and Budget Circular A-11, Part 3. In addition, the Information Technology Management Reform Act of 1996 (also referred to as the "Clinger-Cohen" Act) sets forth requirements for Federal agencies to design and implement capital planning and investment control plans and performance and results-based process in acquiring information technology. Although a number of Task Force recommendations reflect and incorporate processes called for under those authorities, the ONE DOT processes discussed in this report are separate and distinct from the other existing oversight processes either within the Department or governmentwide.

FTA's project management oversight program for the construction of major capital projects incorporates important oversight tools and procedures. Under the program, the agency enters into contracts with competitively selected engineering firms. While a project is being designed, the oversight contractor reviews the grantee's plan for managing and constructing the project. Once FTA approves the plan, the oversight contractor monitors the project to determine whether it is progressing on time, within budget, and according to approved plans and specifications. FTA requires the recipient to submit an annual finance plan for the megaproject and also utilizes contractors to perform financial capacity assessments and ensure that prior to initiating new capital investment grants, recipients' have stable and reliable sources of non-Federal funding and the capacity to operate and maintain the proposed transit system. Documentation for these programs is included in FTA Grant Management Guidelines, Operating Guidance

¹ Negotiated loan agreements for TIFIA projects administered by FTA and the Federal Railroad Administration (current TIFIA projects are identified in Appendix A) similarly address finance plan requirements and the parties' respective roles and responsibilities.

for the Project Management Oversight Program, a Financial Management Oversight Contractors' Guide for Conducting Financial Capacity Assessments, and guidance for Transit Financial Plans.

FAA has well-established procedures for monitoring airport projects funded under its Airport Improvement Program (AIP). Prior to FAA's issuance of a notice to proceed, the agency holds a pre-construction meeting with the airport/grantee. The purpose of this meeting is to discuss various items including operational safety, testing, quality control, security, labor requirements, and environmental factors and establish the specific responsibilities of each of the parties represented. Representatives typically include airport officials, FAA, the airport's consultant, contractor and contractor's subs. After a notice to proceed is authorized by the FAA to the contractor and construction begins, the airport's designated resident engineer is required to file weekly construction progress reports. Also, during the construction period, the airport is required to submit quarterly performance reports to the FAA. These reports usually provide a comparison of actual accomplishments to the goals established for the period and provides reasons for slippage in those cases where established goals are not met; and other pertinent information including, when appropriate, analysis and explanation of cost overruns or high unit costs.

The Coast Guard and the FAA have detailed procedures for the direct acquisition and oversight of large infrastructure projects. Coast Guard major acquisition project management and oversight processes and procedures are prescribed by the Systems Acquisition Manual. A full-time Project Manager, either a Senior Coast Guard officer or GS-15 civilian, supported by a project matrix team, manages all major acquisitions. The Project Manager receives a written charter that details his/her responsibilities, authority and accountability. The Vice Commandant is designated the Coast Guard Acquisition Executive and has overall responsibility for defining major acquisition processes, reviewing project progress, and making key decisions throughout the life of the project. The Vice Commandant is advised by the Coast Guard Acquisition Review Council (CGARC) which is made up of selected top managers at Headquarters, and occasionally augmented by Area or District Commanders. Oversight is also provided through several reporting requirements placed on the Project Manager. The contracting oversight results become a part of project management oversight reporting and are a significant portion of risk assessment and project baseline breach assessment.

FAA's Acquisition Management System (AMS) provides a process for informed acquisition and disciplined oversight.² In general, the agency uses a cross-functional team approach (Integrated Product Teams, IPTs) for providing project/program management for major acquisitions. Within the AMS there are two main program management

² Pursuant to 49 U.S.C. §106(f)(2)(A)(ii), the Federal Aviation Administrator is the final authority for carrying out all functions, powers, and duties of the FAA relating to the acquisition and maintenance of property and equipment of the FAA, among other things. Implementation of recommendations contained in this report with respect to major acquisitions will apply to the FAA to the extent consistent with the Administrator's statutory authority for FAA acquisition matters.

oversight mechanisms: the Joint Resources Council (JRC) and the Acquisition Review (AR). In addition, internal to the agency, there are numerous acquisition baseline and program oversight mechanisms. The JRC is responsible for making investment decisions at the conclusion of a rigorous investment analysis process based on an approved mission need. This process officially establishes the acquisition program and its baseline. Changes to the program's cost, schedule, performance or benefits baseline (at a specific threshold) must be approved by the JRC. The Acquisition Review is conducted by the Federal Acquisition Executive on all major acquisition programs. AR's are conducted on major acquisition programs on a frequent basis and can be requested either by the FAE or by the IPT Lead. Within FAA's acquisition process, there are detailed reports and plans required for program management oversight. They include the identification of roles and responsibilities, particularly across organizational lines, the structure and approach for managing and executing the implementation of acquisition activities. Finally, the FAA is working on the development of a comprehensive curriculum in Project/Program Management incorporating System Engineering principles and supports the implementation of its process improvement effort (ICMM, or the Integrated Capability Maturity Model). Numerous sessions were offered last fiscal year and additional courses are planned for this fiscal year.

As described in this report, effective oversight of megaprojects embraces three fundamental principles:

- ***Create the Right Environment***
- ***Apply the Right Processes***
- ***Position the Right People***

The discussion and recommendations contained in the report apply these principles and set key parameters under which the Department and its funding recipients can operate more successfully in managing and overseeing megaprojects. The report consists of two main sections. The first section sets forth immediate and near-term recommended steps the Department could implement to ensure it is properly carrying out its megaproject management oversight and minimizing the risk of megaproject cost overruns. The second section describes longer-term activities that would also enhance the Department's ability to oversee megaprojects. Included in this section is a set of recommendations for proposed legislative changes. These recommended changes are designed to remove statutory impediments to megaproject oversight and provide additional tools to facilitate this oversight. Finally, the report includes a number of appendices. These appendices are as follows:

Appendix A -- Inventory of Current DOT Megaprojects.

Appendix B -- Implementation Plan for the Recommendations Set Forth in the Report.

Appendix C -- Task Force Members.

Appendix D -- Acknowledgements.

Appendix E -- References.

SECTION 2. IMMEDIATE AND NEAR-TERM RECOMMENDATIONS

A. Internal DOT Processes

RECOMMENDATION A.1. Incorporate oversight of megaprojects into the DOT Strategic and Performance Management Plans. (Immediate Action Warranted)

Discussion: One of the core values articulated in the DOT Strategic Plan for Fiscal Years 2000-2005 is “Excellence.” The values statement for this element is as follows: “We excel as responsible stewards of taxpayers’ resources. We strive to improve our performance and to track our progress. We encourage creativity and innovation through empowerment.”

Addressing the Department's enhanced oversight of large dollar infrastructure projects in the DOT Strategic and Performance Management Plans is the first step in ensuring that the Department’s overall megaproject oversight efforts are subject to Government Performance and Results Act processes. Inclusion of enhanced infrastructure oversight in the DOT Strategic Plan will be followed by the development of performance measures to track and evaluate our efforts. These performance efforts should be articulated in the “Organizational Excellence” section of each Performance Management Plan. Also, as part of this process, and to ensure accountability, senior DOT officials' performance agreements should include enhanced oversight of megaprojects as a measurable element. Also, performance plans for DOT employees at the GS-14 level and above who are actively involved in megaproject oversight should include an appraisal element that deals with their performance in carrying out oversight activities. It is critical that appropriate performance measures be developed and instituted immediately.

RECOMMENDATION A.2. A DOT Executive Council comprised of the heads of Operating Administrations should provide oversight of Operating Administrations’ monitoring of ongoing megaprojects. As part of these activities, the Executive Council will immediately establish a database for reporting on all current DOT megaprojects (including TIFIA projects) and require quarterly reporting updates from Operating Administrations. (Immediate Action Warranted)

Discussion: A DOT Executive Council comprised of the heads of operating administrations is an appropriate mechanism to ensure senior level attention is given to issues concerning large transportation infrastructure projects, including their status and any potential problems that arise. The Assistant Secretary for Budget and Programs/Chief Financial Officer will chair the Executive Council. The Assistant Secretary, as Chair of the Executive Council will regularly brief and provide recommendations to the Deputy Secretary on megaproject issues. To assist the Chair and the Executive Council, the Office of the Assistant Secretary for Budget and

Programs/Chief Financial Officer will assign a professional staff member to carry out all necessary tasks to ensure that the Council effectively performs its oversight activities. Operating Administrations will be responsible for providing the Executive Council with quarterly reports on the status of all megaprojects for which Federal funds have been committed. These reports will serve as the basis for a database to be utilized by the Executive Council. These reports will be followed-up with quarterly meetings of the Executive Council, which will include participation by each official designated by the operating administration with lead overall responsibility for particular megaprojects.

Establishment and operation of the Executive Council will provide a ONE DOT system of accountability and a mechanism for keeping the Secretary and Deputy Secretary informed of issues and potential problems with megaprojects. Although the Council is a critical component of an effective oversight program for large scale transportation infrastructure projects, overall responsibility for the administration of a particular project remains with the Operating Administration concerned. The Executive Council could also facilitate examinations of common oversight problems among Operating Administrations, as well as share lessons learned from other projects. With regard to TIFIA projects, it is expected that the Executive Council and the professional staff member assigned to it will consult with and receive information from the TIFIA Working Group concerning the status of these projects.

RECOMMENDATION A.3. The Assistant Secretary for Budget and Programs/Chief Financial Officer should request the Inspector General to assist DOT by conducting an evaluation of the ONE DOT megaproject oversight program instituted as a result of the recommendations included in this report. This evaluation should be conducted no later than one year after the Department institutes its megaproject oversight program.

Discussion: Clearly, it is necessary but not sufficient that DOT establish enhanced megaproject oversight processes and tools: the American public, its elected representatives in the U.S. Congress, and DOT stakeholders expect that these oversight mechanisms will be effective in controlling costs and delays in constructing these significant projects. Critical to the success of DOT's efforts is the need for a rigorous evaluation of the megaproject oversight program to be instituted. In addition to the oversight/accountability recommendation discussed above concerning incorporating DOT's megaproject oversight management program in the DOT Strategic and Management Plans (Recommendation A.1), an evaluation of the program will identify its strengths and weaknesses and provide critical information on necessary changes and additional tools to ensure program improvements. The Inspector General and his staff have extensive experience in reviewing the oversight undertaken by DOT and recipients in a large number of infrastructure projects and recommending important oversight and programmatic changes. The Office of the Inspector General's assistance in conducting this evaluation is a critical feature in ensuring DOT's success in implementing an effective megaproject oversight management program.

B. Human Resources Requirements

RECOMMENDATION B.1. Designate a dedicated DOT Megaproject Oversight Manager for each megaproject who: is accountable first and foremost to senior Operating Administration officials; serves in a consultative role to the DOT Executive Council; and is responsible for the analysis of all information on the status of the megaproject. The Operating Administration's designee must possess professional credentials and be able to demonstrate extensive experience in overseeing large projects, including technical, fiscal and administrative functions. Appropriate professional credentials(e.g., engineering, financial, project management, etc.) are highly recommended. (Immediate Action Warranted)

Discussion: Megaprojects are increasingly complex, both in construction management and financial management. These challenges call for individuals with particularized expertise. DOT must provide for a cadre of experienced professionals to serve as megaproject oversight managers. The operating administration with responsibility for the particular megaproject will designate each megaproject oversight manager, who may be an agency employee or a contractor. Also, depending upon the size and complexity of the particular megaproject and operating administration's resource levels, a megaproject oversight manager may not need to be fully dedicated to the particular megaproject. With regard to direct major systems acquisitions by DOT operating administrations, the megaproject oversight manager would be the same individual as the dedicated project manager for the acquisition.

RECOMMENDATION B.2. Establish core competencies for DOT Megaproject Oversight Managers. A component of this effort should be to establish a Departmentwide Megaproject Oversight Management career development and training program as part of the DOT Learning and Development Framework. (Immediate Action Warranted)

Discussion: As the complexity and cost of transportation infrastructure projects have increased, the knowledge, skills and abilities of DOT employees responsible for overseeing these projects must not lag behind those necessary for effective federal stewardship. Unless decisive steps are taken to address this concern, DOT's ability to manage megaprojects will erode. Consistent with the Corporate Management Strategies articulated in the Department's Strategic Plan, the skill levels of DOT employees involved in these megaprojects must be addressed. The Task Force recommends that immediate steps be taken to establish core competencies for DOT Megaproject Oversight Managers and other professionals with significant involvement in overseeing transportation megaprojects that stress expertise in project management. As part of these core competencies, DOT personnel must have the requisite skills to understand and

evaluate complex finance plans that are required for megaprojects and fully utilize earned value analysis (see Recommendation C.6., below) and other critical megaproject oversight tools. Although this need is not unique to DOT, with OMB and the Federal interagency Chief Financial Officers Council's Grant Management Committee taking important steps to address recruitment and training of financial management personnel throughout government, concrete steps must be taken by DOT itself, including pursuing special hiring and retention authorities for Megaproject Oversight Managers and financial management personnel.

As part of this effort, it is imperative that the Department commits to providing comprehensive and rigorous training in project management oversight. Consistent with the Organizational Excellence Goal and accompanying human resources strategies articulated in the Department's Strategic Plan for fiscal years 2000-2005, the skill levels of DOT employees involved in these megaprojects must be adequate to accomplish DOT objectives for a forceful and effective megaproject oversight management program. These training efforts should be consistent with the DOT Learning and Development Program. Also, DOT should utilize the services of other Federal agencies that offer such training opportunities, such as the Defense Systems Management College, or professional engineering/construction organizations that have a proven track record in project management oversight training. Such training should be a prerequisite for assigning DOT employees to project oversight duties for megaprojects.

RECOMMENDATION B.3. Establish and charter Integrated Product Teams to perform megaproject oversight under the direction of a Megaproject Oversight Manager. (Immediate Action Warranted)

Discussion: The Integrated Product Team (also frequently referred to as a “matrix team”) approach is an effective way for DOT to harness the diverse talent and expertise needed to oversee megaprojects. Integrated Product Teams facilitate the Megaproject Oversight Manager’s overall responsibility by providing specialized expertise in financial, technical, safety, environmental, management, legal, inspection, and other complex matters. Integrated Product Team members will be designated by the operating administration with responsibility for the particular megaproject and may include contractors. Integrated Product Team staff can be involved in several projects or have other responsibilities within their organizations. A very complex project or a project that has been designated as “At Risk” may require full time Integrated Product Team support to the Megaproject Oversight Manager. FAA and the USCG establish these cross-functional teams for their own direct major systems acquisitions. The Task Force believes that unless an operating administration can demonstrate that an Integrated Product Team will not facilitate the successful completion of a financially-assisted megaproject, it should establish such a team for each megaproject.

The Integrated Product Team charter must define the team’s responsibilities and the extent of authority and accountability for accomplishing project objectives.

RECOMMENDATION B.4. Foster a culture within the Department and with recipients and other stakeholders that promotes sound project management oversight as the norm rather than the exception.

Discussion: Culture encompasses the values an organization holds. It shapes the way the organization performs its mission. Senior level officials within DOT must emphasize that effective project management oversight includes a responsibility for stewardship of the taxpayers' money. Moreover, senior level officials must emphasize the need for full disclosure of material information regarding project status at all levels, including the Department's notification to Congress. Recipients of federal funds and other stakeholders need to work collaboratively to create an atmosphere where all the parties can contribute to improving megaproject delivery. The Department can play an instrumental role in training and developing the internal and external personnel requisite for good project management.

RECOMMENDATION B.5. Establish a Megaproject Management Awards Program to recognize outstanding individuals, teams, and megaprojects.

Discussion: As is the case with any complex undertaking, the effectiveness and professional skills of the team working on a complex public works project are essential to its success. Recognition and awards programs are effective tools to acknowledge publicly outstanding and innovative achievements in planning, designing, constructing, or overseeing the development of transportation megaprojects. These programs are also effective in disseminating "success stories" that other project sponsors and oversight officials can emulate. The Department should develop appropriate criteria for recognizing and honoring recipients and their teams responsible for outstanding megaproject achievements. The Department should also develop criteria for recognizing outstanding megaproject oversight efforts by DOT employees. This recognition should occur as part of the Secretary of Transportation's Annual Awards program and the criteria developed for this type of recognition should be consistent with the criteria for the Secretary's Awards program.

C. Processes to be Applied to DOT Recipients

RECOMMENDATION C.1. Require recipients of DOT financial assistance to submit Project Management Plans on all megaprojects, including TIFIA projects. (Immediate Action Warranted)

Discussion: A credible project management plan is a reliable, systematic process that allows senior managers to understand and trust the schedule and make better management decisions about project tradeoffs. The Project Management Plan must be a living document and must be updated throughout the key stages of a project.

The Plan should include, as a minimum, the following components:

- scope of the project;
- description of the recipient's project staff organization with reporting relationships, functional responsibilities, job descriptions and job qualifications;
- budget which includes the project management organization, appropriate consultants, property acquisition and utility relocation;
- baseline cost estimates which include all financing costs;
- baseline construction schedule;
- financial plan;
- cost, schedule, and change order control procedures;
- plan for reporting requirements including recipient's commitment to make monthly submissions of the project budget and project schedule to DOT;
- risk management plan that includes both actions that can be taken to reduce the probability that risks will occur (preventive actions) and actions that can be taken if the risk occurs (recovery plans);
- value engineering analysis or other cost reduction analysis;
- document record keeping system;
- earned value management system;
- quality control and quality assurance programs;
- materials testing procedures;
- safety oversight program;
- procedures for testing the operational system or its major components; and
- plans for evaluating project effectiveness and impacts.

This Project Management Plan and all updates must be reviewed and approved by DOT prior to any commitment of federal funds for final design and construction. As a related matter, under the surface transportation planning requirements in 23 U.S.C. §§134 and 135, transportation improvement plans (TIPs) and statewide transportation improvement programs (STIPs) subject to approval by FHWA and/or FTA are required to be financially constrained and to include financial plans. Although the TIP and STIP financial plans cover all transportation projects proposed for Federal funding over particular timeframes, relevant information contained in these financial plans should be consistent with baseline cost estimates and other financial information contained in the Project Management Plan. As discussed in the Introduction section, a transportation project that experiences costs increases that could adversely effect recipients' financially constrained programs of transportation projects identified in a TIP or STIP will also be considered as a megaproject subject to enhanced DOT oversight process and mechanisms, including the need to develop a Project Management Plan.

RECOMMENDATION C.2. Enter into written agreements with recipients that address the terms and conditions of Federal participation in a transportation megaproject; the roles and responsibilities of the parties and their working relationship; and the independent duty of third-party experts providing megaproject services to report material information.

(Immediate Action Warranted)

Discussion: These agreements establish the terms and conditions of Federal participation in a project, establish the maximum amount of Federal assistance for the project, cover the period of time to completion of the project, facilitate timely and efficient management of the project, and document the federal oversight role. In addition, where applicable and consistent with an operative TIP and/or STIP, the agreement should address the recipient's ability to ensure that it has a balanced construction program so that Federal financial assistance remains available to other eligible projects.

Given the complexity of megaprojects, DOT recipients frequently hire professional contractors and consultants to provide needed services on these megaprojects. In many cases, in the course of their work, these outside experts acquire intimate knowledge of potentially serious difficulties, including cost overruns and scheduling difficulties. However, this critical information may go unreported to DOT. Specific requirements should be set forth in the written agreement with the recipient to make clear that outside professional experts providing services under a DOT-assisted megaproject have an independent duty to report circumstances that could have a material effect on the scope, cost or schedule of the megaproject.

RECOMMENDATION C.3. Conduct periodic, independent Project Management Oversight reviews under the direction of the Megaproject Oversight Manager to ensure that the recipient has the capability, either in-house or through consultants, to effectively and efficiently complete the megaproject without compromising the investment of the Federal government.

Discussion: The overall purpose of an independent, nonadvocate review should be to determine whether the scope of projects, the underlying assumptions regarding technology and management, the cost and schedule baselines, and contingency provisions are valid and credible within the budgetary and administrative constraints under which the recipient must function. A full, rigorous review must be done before significant federal funds are committed and periodic reviews should be done during the execution phase of the project. The DOT should formalize and institutionalize a process to implement recommendations from these reviews.

RECOMMENDATION C.4. As a best practice and where feasible, Operating Administrations should allow preliminary engineering and design to achieve a 20 to 35 percent level of design before the project can be approved for final design and construction.

Discussion: In general, Federal-aid highway and mass transit recipients establish budget baselines after ten percent or less of the design work has been completed while recipients of Airport Improvement Program funds typically have a higher percentage of design

work completed. There is consensus that setting the baseline at early stages of design is premature. Private industry, the Department of Defense's military construction program, and the Army Corps of Engineers' civil works program have concluded that the optimum point to establish a budget baseline is at the 20 to 35 percent design completion stage. For traditional Design/Bid/Build megaprojects, a 30 to 35 percent level of design is appropriate. For Design/Build megaprojects (where design and construction activities proceed in an integrated manner), preliminary engineering reflecting a 20 to 30 percent level of design is acceptable. These stages of design, together with more rigorous baselining, allow senior level officials to better assess the feasibility of completing the project with available funds; make much-needed Build/No Build (or Fund/No Fund) decisions; or scale back projects to remain within budget. Implementation of this Recommendation will help minimize the risk that cost estimates will rise to a level greater than estimated planned-for contingency amounts.

RECOMMENDATION C.5. Conduct Financial Capacity Assessments prior to any commitment of federal funds for final design and construction of megaprojects.

Discussion: Financial capacity assessments are reviews conducted to assess the recipient's financial capability to meet obligations on major investment projects. Financial condition is the ability of the recipient to continue to operate at its present level of service. It considers historical trends and current financial information contained in audited financial statements and other financial reports. Financial capability refers to the stability and reliability of the recipient's revenue sources to meet future annual capital and operating costs. Financial capability considers the nature of the funds pledged to support operating deficits and capital programs, and considers capital, operating and maintenance costs. Financial capacity assessments ensure that the recipient's major operations including other transportation-related projects are not negatively impacted nor interrupted due to a lack of financial capacity on the part of the recipient.

RECOMMENDATION C.6. Develop oversight processes that incorporate earned value management systems.

Discussion: Earned value analysis is the most commonly used method of performance measurement for a project. Earned value goes beyond the two-dimensional approach of comparing budgeted costs to actual costs. It attempts to compare the value of work accomplished during a given period with the work scheduled for that period. By using the actual cost of work performed as a basis for estimating the cost and time to complete, the earned value concept should alert program managers to potential problems sooner than expenditures alone can. The Office of Management and Budget (OMB) has incorporated the earned value concept in guidance for Federal agencies in their planning, budgeting, and acquisition of capital assets. This guidance is contained in OMB Circular A-11, Part 3 ("Planning, Budgeting, and Acquisition of Capital Assets"). An Earned Value Management System measures:

- How much work should have been done?
- How much work was done?
- How much did the completed work cost?
- How much is the job supposed to cost?
- How much do we expect the job to cost?

Additionally, variances can be identified in real time in the areas of time cost and schedule to indicate time delays, cost overruns and whether a project is behind schedule.

Existing commercial off the shelf (COTS) software can provide senior level officials with the ability to look at summary information on megaproject performance management based on earned value analysis of project activities. The strength of this type of software is that it automates and integrates a great amount of data that Megaproject Oversight Managers use and notifies senior level officials when aspects of the project are outside of defined acceptable parameters.

RECOMMENDATION C.7. Designate as “At Risk” any megaproject identified by the Operating Administration responsible for the project, the DOT Office of Inspector General or the General Accounting Office as having significant deviations from its baseline cost, baseline construction schedule, funding requirements, or that has significant technical or management issues. (Immediate Action Warranted)

Discussion: An “At Risk” designation would trigger certain special conditions or restrictions for that megaproject until the recipient addresses all identified issues in a DOT-approved recovery plan. These special conditions should include:

- Withholding of authority to proceed to the next phase of a project;
- Requiring additional, more-detailed financial reports;
- Requiring the recipient to obtain technical or management assistance;
- Establishing additional prior approvals;
- More direct on-site inspection of the project by DOT; and
- Notification by the Operating Administrator to the Secretary and the Congress within 30 days of the “At Risk” designation and follow-up reporting quarterly on the status of the project until the Operating Administrator removes the designation.

The DOT Office of Inspector General and the U.S. General Accounting Office play important roles in reviewing DOT programs and identifying weaknesses in carrying out these programs and addressing recipients’ compliance with program requirements. They also play an important role in ensuring DOT’s megaproject oversight is effective, continuous and consistent. Their reviews and findings that document significant cost, schedule or management issues concerning a DOT megaproject are important tools for DOT officials to utilize in designating a particular project as “At Risk”.

RECOMMENDATION C.8. Operating Administrations should deny additional Federal funding awards where the recipient fails to correct deficiencies documented in “At Risk” projects or fails to cooperate with DOT oversight officials or other Federal government agencies. In cases of extreme problems, Operating Administrations should consider requiring reimbursement, suspending or terminating the Federal funding award, or other remedies that may be legally available.

Discussion: The regulatory Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments allows the DOT funding agency, among other things, to suspend or terminate an award or withhold further awards where the grantee materially fails to comply with any term of an award. See 49 CFR §18.43(a). The Department, acting in its fiduciary capacity, should be more aggressive in denying megaproject funding to recipients where they have significantly exceeded scope, cost and schedule baselines.

SECTION 3. RECOMMENDATIONS FOR LONGER TERM LEGISLATIVE ACTION

In addition to the various immediate and near-term recommendations set forth in Section 1 of this report, the Task Force identified a number of potential legislative changes that could facilitate enhanced DOT oversight of large infrastructure projects. The Task Force recommends that the Department evaluate the following seven recommended legislative actions in the context of preparing the Administration's reauthorization proposals of the Federal-aid highway, mass transit and TIFIA programs and the airport improvement program. Although the current authorizations for these programs do not expire until the end of fiscal year 2003, initial efforts to develop reauthorization proposals for TEA-21 should commence during the next calendar year and similar efforts for reauthorization of AIR-21 will most likely get underway in calendar year 2002. Full consideration of these recommendations and consultation with stakeholders will be highly beneficial in the course of the reauthorization process for these programs.

RECOMMENDATION L.1. For traditional Design/Bid/Build megaprojects, provide funding for preliminary engineering and design separate and distinct from funding for final design and construction; For Design/Build megaprojects, make funding for preliminary engineering separate from funding for design and construction.

Discussion: Currently, it is somewhat unreasonable to expect that initial cost estimates should be accurate predictors of a megaproject's final cost. This recommendation is consistent with Recommendation C.4: "As a best practice and where feasible, operating administrations should allow preliminary engineering and design to achieve a 20 to 35 percent level of design before the project can be approved for final design and construction," and implementing legislation would provide a dedicated source of funding for preliminary engineering and design. The Task Force anticipates that the availability of dedicated funding for preliminary project work will enhance the validity of initial cost estimates. Separating funding for preliminary engineering and design allows for incremental decision making by key officials on the merits of the project at a specific milestone. This permits the Department to make a Build/No Build (or Fund/No Fund) decision before making substantial federal investments in projects.

RECOMMENDATION L.2. Encourage implementation of comprehensive project management systems by providing financial incentives to recipients.

Discussion: Financial incentives help achieve successful megaprojects by rewarding recipients for superior oversight efforts and management practices. They can be used to reward recipients for implementing highly effective cost containment initiatives and project management practices. Additionally, rewarding recipients for highly effective work in managing large projects rather than bailing out poorly managed projects will

stem taxpayers' skepticism and lack of faith in public officials' ability to spend public funds wisely.

Some financial incentives that can be implemented with, where applicable, legislative change include:

- Establishing as a positive weighing factor for redistribution of unobligated funds and/or unused obligation authority within a given fiscal year to those recipients who have implemented highly effective project management processes.
- Greater recipient use of DOT-funded contract award fees to recognize success of project management activities by contractors.

RECOMMENDATION L.3. Consider authorizing greater use of negotiated procurements on megaprojects.

Discussion: Existing program statutory authorities in FAA and FHWA, with certain limited exceptions, require recipients to let federally-assisted construction procurements by means of sealed bidding. Given the sheer technical and schedule complexity of transportation megaprojects, statutory requirements for sealed bidding may limit FAA and FHWA recipients' flexibility to otherwise utilize best value, negotiated procurements. By using negotiated procurement methods, recipients can take greater advantage of an offeror's past performance on other construction projects, including large-scale projects.

RECOMMENDATION L.4. Provide a dedicated source of funds to Operating Administrations to conduct independent project management oversight reviews, including a review of the recipient's capability to complete the project.

Discussion: In the absence of a dedicated source of funding for a DOT operating administration to conduct independent megaproject oversight reviews, these activities must compete with other programs, projects, and activities for funds that might be available from more general funding sources. (It should be noted that FTA appropriations are specifically made available for these activities). Legislation to dedicate funds for independent oversight reviews would provide other DOT megaproject oversight officials with a predictable funding amount and would enable more effective planning and allocation of funds in carrying out these reviews.

RECOMMENDATION L.5. Amend TEA-21 to make clear that FHWA possesses "full oversight" authority for megaprojects that are not on the National Highway System.

Discussion: Although the Task Force believes the FHWA has adequate authority to ensure the proper expenditure of Federal funds on Federal-aid highway megaprojects, it recognizes that current statutory language can be construed as inconsistent with the objective of full agency oversight authority for highway megaprojects. With respect to projects that are not on the National Highway System (NHS), section 1305(a) of TEA-21 (as codified at 23 U.S.C. §106(c)(2)) states that a State

shall assume the responsibilities of the Secretary under [Title 23, United States Code] for design, plans, specifications, estimates, contract awards, and inspection of projects, unless the State determines that such assumption is not appropriate.
(Emphasis added)

Further, section 1305(a) also specifies that in the case of projects that are on the NHS but not on the Interstate System, the State **may** assume the responsibilities of the Secretary for the various enumerated statutory responsibilities. FHWA indicates that some of Federal-aid highway megaprojects are off of the NHS. To implement this recommendation, the statutory language quoted above should be changed from “shall” to “may”.

RECOMMENDATION L.6. Fund professional certifications (e.g. state licensing of professional engineers, credentialing of megaproject oversight managers and financial managers under recognized industry standards, etc.) for those DOT employees engaged in megaproject management oversight.

Discussion: Under basic principles of Federal appropriations law, expenses necessary to qualify a Federal employee to do his or her job are personal expenses and in the absence of specific legislative authority, agency appropriations cannot be charged for these expenses. For example, licensing fees for a professional engineer employed by the federal government or a federal megaproject oversight manager’s costs to obtain necessary professional credentialing are classified as personal expenses and may not be reimbursed with appropriated funds. In order to recruit and retain qualified professionals to ensure a high level of DOT megaproject oversight, specific legislative authority is needed to enable the agency to reimburse these employees for their costs in remaining qualified to perform their duties.

RECOMMENDATION L.7. Require recipients' project management staff and outside experts involved in megaprojects possess professional credentials and be free from any conflicts of interest.

Discussion: Consistent with the need for DOT to ensure that its Megaproject Oversight Managers possess professional credentials, recipients as well must ensure that their own megaproject management staff and outside consultants possess the requisite professional credentials to perform their duties effectively. In addition, the Megaproject Oversight Manager must ensure that recipients fully comply with ethical standards that apply to their own employees and their contractors and consultants performing under DOT-assisted contracts.

Appendix A -- Inventory of Current DOT Megaprojects

FAA PROJECTS

a. Major Airport Capital Programs *

1. Atlanta
2. Miami
3. Orlando
4. St. Louis
5. Houston
6. Minneapolis St. Paul
7. Detroit Metro
8. Cleveland
9. Seattle

b. Major System Acquisitions

1. Standard Terminal Automation Replacement System
2. Free Flight Phase I
3. Wide Area Augmentation System
4. Local Area Augmentation System

USCG PROJECTS

Major System Acquisitions

1. Deepwater Capability Replacement
2. Great Lakes Icebreaker Replacement
3. National Distress Response System Modernization

* Certain listed airport capital programs include individual project elements that are not eligible for Airport Improvement Program (AIP) funds or otherwise have not sought Airport Improvement Program funds. In addition, the ONE DOT Megaproject Oversight process may have to be tailored for some listed major airport programs to reflect the relative importance of the AIP-funded projects to the overall capital program.

FHWA PROJECTS

1. I-15 Corridor Reconstruction Project, Salt Lake City
2. Woodrow Wilson Bridge
3. Alameda Corridor
4. Central Artery/Tunnel
5. Springfield Interchange

FTA PROJECTS

1. Los Angeles Red Line
2. BART Extension to San Francisco Airport
3. Tren Urbano Transit Project (Puerto Rico)

FHWA/FTA MULTI-MODAL PROJECT

Denver Southeast Corridor

TIFIA PROJECTS TO BE SUBJECT TO DOT MEGAPROJECT OVERSIGHT TRACKING

FHWA PROJECTS

1. SR 125 South Toll Road (San Diego, California)
2. Tacoma Narrows Bridge Project (Tacoma, Washington)
3. Cooper River Bridges Project (Charleston, South Carolina)
4. Miami Intermodal Center (Miami, Florida)

FTA PROJECTS

1. Tren Urbano Transit Project (Puerto Rico)
2. Washington Metrorail Infrastructure Renewal Program (Washington, DC)
3. Staten Island Ferries and Ferry Terminals Project (New York, New York)

FRA PROJECTS

Farley Penn Station Project (New York, New York)

APPENDIX B -- IMPLEMENTATION PLAN FOR THE RECOMMENDATIONS SET FORTH IN THE REPORT

Implementation Plan

A. Short Term Actions

11-13-00: Assistant Secretary for Budget and Programs/Chief Financial Officer to brief DOT Senior Staff on Draft Task Force Report and Recommendations.

11-15-00 to 12-01-00: Formal DOT clearance process for Draft Task Force Report and Recommendations.

Week of 12-11-00: Brief the Secretary, the Deputy Secretary, and the Chief of Staff on the Task Force Report and Recommendations.

Week of 12-18-00: Begin implementation of ONE DOT Megaproject Oversight Management Program.

B. Actual Implementation

Week of 12-18-00: 1. Assistant Secretary for Budget and Programs/Chief Financial Officer to designate a professional staff member as liaison with a DOT Executive Council in providing DOT megaproject oversight management. (Recommendation A.2).

2. DOT Executive Council to convene initial quarterly meeting in order to:

- a. meet with operating administration officials with lead oversight responsibilities for particular megaprojects.
- b. establish framework for a ONE DOT megaproject reporting database.
- c. establish quarterly megaproject reporting requirements for operating administrations.

3. Revise DOT Strategic Plan and Performance Management Plans to address oversight of megaprojects. (Recommendation A.1).

Commencing January 2001 to continuing through the Spring of 2001:

1. Implement remaining approved Task Force recommendations that warrant immediate and near term action.
2. Begin to implement approved Task Force recommendations that directly affect DOT recipients.

Fall of 2001: Assistant Secretary for Budget and Programs/Chief Financial Officer requests the Inspector General to undertake an evaluation of the Department's megaproject oversight program during the preceding 12 months.

Winter of 2001: DOT to make adjustments to megaproject oversight program in light of results of IG evaluation.

C. Longer Term Legislative Efforts

Commencing in January 2001 and continuing:

1. Address Task Force recommendations for legislative changes in developing reauthorization proposals for TEA-21. Consider additional legislative proposals for DOT oversight of Federal-aid highway, mass transit and TIFIA megaprojects.

Commencing in January 2002 and continuing:

1. Address Task Force recommendations for legislative changes in developing reauthorization proposals for AIR-21. Consider additional legislative proposals for DOT oversight of FAA Airport Improvement Program megaprojects.

APPENDIX C -- TASK FORCE MEMBERS

This Task Force was directed by Assistant Secretary for Budget and Programs/Chief Financial Officer Peter “Jack” Basso, Jr. and Deputy Assistant Secretary for Budget and Program Linda Bauer Darr.

The Task Force members and their organizations are as follows:

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APPENDIX D -- ACKNOWLEDGEMENTS

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