

Idaho Transportation Department Performance Audit

January 2009

Office of Performance Evaluations
Idaho Legislature



Report 09-03

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January 14, 2009

Members
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Last March you directed us to manage an independent, objective performance audit of the Idaho Transportation Department (ITD). Your directive was in response to House Concurrent Resolution 50, which was overwhelmingly adopted by the 2008 Idaho Legislature. The audit focused on ITD's highway division.

An objective of conducting an independent performance audit is to give policymakers an unvarnished, fact-based picture of the decisions confronting them. That is what this report does. Idaho is truly at a crossroads where important choices must be made. The nature of those choices is reflected in the following bottom-line messages of this report:

- **The current revenue structure is not sufficient to protect our investments in Idaho's highway infrastructure. This presents a situation where "you can pay me now, or you can pay me later," with the clear implication that costs will be much more later.**
- **In combination with addressing funding issues, the Idaho Transportation Department must begin to work toward long-term solutions by focusing on a "preservation first" strategy, and setting goals and objectives for improved efficiency and effectiveness.**
- **Idaho should consider adopting explicit policies that do not allow new capacity projects to siphon funding from basic highway operating, maintenance, and preservation programs.**

The report identified an estimated **\$30.6 million in one-time savings** within the first five years and **\$6.6 million in savings annually** thereafter if the report recommendations are implemented.

Both Governor Butch Otter and ITD Director Pamela Lowe generally agree with the report's findings and recommendations. Their responses to the audit are included at the end of the report.

*Joint Legislative Oversight Committee
January 14, 2009*

This large and complex study would not have been possible without the full cooperation and assistance of ITD and its board. We also appreciate the assistance we received from the Office of the Governor and the Division of Financial Management, Legislative Leadership, the Senate and House Transportation Committee members, legislative Budget and Policy Analysis, the Office of the Attorney General, the Office of the State Treasurer, and the Office of the State Controller.

Finally, I extend my sincere thanks to the consultants Jim Brock and his Avant IMC team and Bob Williams for conducting a thorough audit and completing such a large study in a short amount of time, and to Mike Huddleston and Bob Thomas for assisting me with managing the study.

Sincerely,



Rakesh Mohan

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We acknowledge and appreciate the excellent cooperation and assistance provided by the Idaho Transportation Department and its staff during the audit. Appreciation is extended especially to Pamela Lowe, Executive Director, Thomas Cole, Chief Engineer, all District Engineers, and, in particular, David Tolman, Director of Administration, for their support in responding to our many requests for information, and in facilitating our efforts to meet with key personnel throughout the state.

We also appreciate the cooperation extended by the Departments of Transportation in the states of Arizona, Colorado, Montana, Nevada, Oregon, Utah, Virginia, Washington, and Wyoming. The individuals interviewed provided valuable comparative information that contributed to the development of the report.

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EXECUTIVE SUMMARY

The Idaho Transportation Department (ITD) has responsibility for almost 5,000 miles of highway (or nearly 12,000 lane miles), 1,761 bridges, and 29 rest areas. ITD employs more than 1,800 employees statewide within its eight budgeted programs, including Highways (the subject of this performance audit), Transportation Planning, Contract Construction, and Right-of-Way Acquisitions. The fiscal year 2009 appropriation for the Department was \$494 million. A seven-member Idaho Transportation Board has the oversight responsibility for the Department's administration.

This performance audit found that ITD funding is insufficient to catch up and to match the expected growth in capital program costs for maintaining and preserving state highways and bridges. Idaho roads are deteriorating at a rate exceeding available resources while road construction costs are increasing faster than the general rate of inflation. ITD has worked hard to do more with less, but Departmental programs and plans are generally reactive in nature, lacking a cohesive strategic vision and a coordinated long-term infrastructure management plan. Capital project plans could be improved by establishing uniform project selection criteria and enhancing the integration of the planning process.

Management is district-centered and decentralized, with outcomes that are measured against a select but limited set of performance measures. Generally, ITD does not use currently available technology, nor does it follow consistent project management and consultant management best practices and processes to manage the highway program in the most cost-effective manner. The performance of the GARVEE program could be improved through a more flexible finance strategy and institutionalizing certain generally accepted project management practices within ITD.

Implementation of the performance audit recommendations would yield significant benefits that are described within the report. **Near-term benefits are conservatively estimated at up to \$19.6 million in one-time savings and more than \$11 million in savings during the first five years of implementing the report recommendations. Thereafter, an estimated \$6.6 million in savings would be realized annually.** Capturing these savings could help address, but will not solve, the funding shortage currently being faced by the highway program.

More significant long-term benefits will accrue over time by implementing the recommendations to acquire comprehensive asset management and system preservation technologies. The recommendations from this report, together with enhanced funding for the highways program, could help Idaho avoid future highway reconstruction costs in the hundreds of millions of dollars. In order to achieve a greater return on investment in terms of extended highway life, future ITD funding should include resources for strategic investments in fully integrated Pavement, Maintenance, and Financial Management systems.

For the near term, this performance audit finds that the \$137 million to be allocated to the highway program within the proposed revenue enhancement of \$240 million is merited and may even be understated. Any funding enhancement, however, should be accompanied by an explicit policy decision and actions to focus on maintenance, preservation, and restoration first, and to bring the existing infrastructure to an acceptable and cost-effective level. Idaho should consider adopting explicit policies that do not allow new capacity projects to siphon funding from basic highway operating, maintenance, and preservation programs. New capacity projects should be rigorously and independently evaluated for cost effectiveness, with consideration also given to additional long-term maintenance costs. Such an evaluation should also include specific consideration of whether future proceeds from GARVEE can be directed to projects that reduce ongoing maintenance costs and support preservation and restoration priorities.

Some of the savings this report identifies can be used in conjunction with the \$137 million for addressing funding shortfalls. These savings can also be directed to investing in the pavement and maintenance systems that are required for achieving long-term savings and efficiencies. Failing to invest in necessary management tools will only exacerbate the current highway maintenance backlog, creating larger unfunded liabilities in the future.

Legislative Directive

The 2008 Idaho Legislature overwhelmingly adopted House Concurrent Resolution No. 50, requiring a comprehensive review of the Idaho Transportation Department (ITD). The legislation includes a series of specific questions and information requests, intended to guide future policy decisions regarding funding, project prioritization, oversight, and management of Idaho's transportation program. In order to obtain objective, factual information, the legislature requested an independent, third-party performance audit from qualified consultant(s) without current contractual relationships with ITD, and without any other conflict of interest with Idaho state agencies.

In framing their requirements for the Performance Audit, the legislature asked a series of questions in HCR 50, from which the audit scope of work was formed. The text of HCR 50 is included in the appendices of this report.

Focus of this Performance Audit

The purpose of the Performance Audit, as commissioned by the legislature, is to assess ITD's highway construction, preservation, and maintenance program performance in four topic areas:

- Management and Performance
- Contractor Selection and Oversight
- Outsourcing
- Cross-Cutting Issues and Conclusions

This Performance Audit provides a comprehensive assessment and comparison to industry benchmarks and practices of the overall performance of the Idaho Transportation Department by evaluating:

- ITD management and governance, program cost estimates, financing, and project prioritization.
- Effectiveness in reducing program life cycle costs.
- Use of appropriate performance benchmarks.
- Overall program coordination and integration of planning and budgeting among programs and with financial plans.
- Formulas used to schedule work.
- Metrics used to evaluate success.

The audit also studied the processes used by ITD to select and retain consultants and contractors to ensure competition and share project performance risk with contractors, and examines the merits of outsourcing professional services and efficient use of both agency and contracted expertise resources.

The Joint Legislative Oversight Committee directed the Office of Performance Evaluations (OPE) to oversee the conduct of the Performance Audit. In August 2008, the OPE contracted separately with the consulting firms Avant IMC, LLC and Robert M. Williams and Associates to conduct the performance audit. This report presents the combined findings and recommendations of that work.

During the course of this audit, approximately 200 interviews and meetings were held, including multiple interviews and sessions with ITD executive management, senior divisional managers at central office; and with District Engineers and senior staff in all six districts. Other interviews were held with key stakeholders, including legislators, legislative Budget and Policy staff, federal agency executives, contractor associations, Metropolitan Planning Organizations, Local Highway Organizations, Connecting Idaho Partners (CIP), and approximately 40 interviews with personnel from peer states' transportation departments.

For the financial planning and budgeting components of this performance audit, in addition to extensive interviews and exchanges with ITD staff, interviews were conducted with the State's Chief Economist and the State Financial Officer, staff of the State Controller's and Attorney General's Offices, and with the State Treasurer and members of his staff.

Over 1,000 data files and 400 separate relevant documents were received from ITD and reviewed. Idaho Title 40 statutes, ITD Board policies, department rules and regulations, all available policy manuals that govern design, construction, and maintenance activities were also reviewed as they related to specific aspects of the audit. In addition, extensive research on best practices and benchmarks in the transportation industry were pursued, resulting in a reference library of close to 100 articles, papers, and other material, supporting findings and recommendations.

A detailed discussion of the audit criteria, findings, and recommendations can be found in the body of the report.

Overview of the Idaho Transportation Department

The Idaho Transportation Department is responsible for planning, designing, maintaining, and operating a safe and efficient highway and bridge transportation system. The ITD mission statement published in September 2008 is: “Our mission. Your mobility.” The department’s vision statement is: “We will be an industry leader in providing transportation systems and services that are safe, efficient, promote economic vitality, and use innovative technology.” Subordinate goals and objectives identified should serve to advance the mission and vision of the Department.

ITD’s state funding comes primarily from the 25-cent per gallon state motor gasoline tax, which was last adjusted in 1996, and from federal funding sources. The department receives no state general funds.

For FY09, the proposed budget for the Idaho Transportation Department was approximately \$490 million. Of that, 49%¹ is derived from gasoline and diesel fuel taxes and 22% is from vehicle registration and license fees. Revenues for the remaining budget come from miscellaneous state, federal, and local matching funds. About \$334 million from gasoline and diesel fuel taxes and vehicle registration fees go into the Highway Distribution Account, of which 38% is distributed to local jurisdictions, 5% to State Police, and 57% to the State Highway Account.

ITD plans to use about 55% of its budget for contract construction and right-of-way acquisition (about \$270 million), and allocate the 45% balance (about \$219 million) to cover operating, capital and facility expenses, personnel, and other items. Considering the relatively low level of revenue available to the ITD for the highway system in relation to documented demands on the system, Idaho’s resources to maintain and improve the state’s road system are limited.

¹ 49% translates into approximately \$240 million, which coincidentally is the same as the proposed revenue enhancement, of which \$137 million would be available for ITD highways.

Key Audit Findings

Public accountability was a central criterion applied to ITD throughout the performance audit and in developing findings. Since the Idaho Transportation Department is entrusted with public resources, the audit team expected a high degree of efficiency and effectiveness in achieving its expected outcomes.

During the course of the review, the audit team found several cross-cutting issues that impact ITD's performance. The overall high-level findings are listed below.

Current funding cannot keep pace with the growth in costs to meet Idaho's basic transportation needs of preserving and restoring its highways and bridges.

Even with the implementation of best practices identified in this performance audit, it will become increasingly difficult for ITD to catch

up on needed improvements while maintaining adequate levels of performance without additional infusion of new resources to fund operations, maintenance, and preservation of the state highway system. ITD's increased cost of doing business at current service levels is increasing faster than revenue growth. The rate of increase in construction and maintenance costs is outpacing the rate of increase of the budget appropriations. Moreover, the rate of deterioration of the highways is greater than the rate of budget increases. The best efforts of the Highway Division to find innovative ways to make every dollar count will be insufficient over time, given current funding conditions.

Prior to the recent sharp economic downturn, Idaho leaders and transportation officials held public meetings to discuss new highway revenues. The \$240 million proposed revenue increase included a \$137 million increase for ITD. A finding of this report is that the \$137 million will not reasonably sustain the department's

"High gas prices have Americans driving less, and that could mean less money for road and bridge projects..."

"Recently released federal data shows Americans drove 9.6 billion fewer miles in May 2008 than in May 2007. It was the seventh straight such drop in year-to-year driving miles."

"As a result, less money is being collected from the federal tax on motor fuel, which is 18.4 cents a gallon on gasoline and 24.4 cents a gallon on diesel."

"Those taxes go into the national Highway Trust Fund for road and bridge projects around the country. The fund faces a multibillion dollar shortfall next year, down from a surplus of more than \$10 billion just three years ago."

July 30, 2008 StarTribune.com
Minneapolis-St. Paul Minnesota

highest priorities of preservation and restoration beyond the first year and over the financial planning period.

The reason why \$137 million would not provide sufficient funding is because the current plan does not address long-term preservation and restoration needs from capacity projects that are already programmed. The estimated 4-year shortfall is at least \$55 million. This shortfall is caused by a growing need for preservation and restoration, and the department's "worst-first" focus instead of "preservation-first."

An example of the benefits of the preservation-first strategy would be to set targets for moving from a backlog reduction posture in the shorter term 5-10 years to an asset management approach covering 7-25 years, which would position Idaho to spend increasingly more funds on early preventative maintenance. This will help prevent the recurrence of the current situation wherein the improvement needs so exceed existing resources that there is no way of making progress without additional resources.

The Department lacks a comprehensive statewide strategy for capital improvements and operations.

Although a strategic planning effort has been underway for about a year, and given that a long-term policy document exists, there is no integrated statewide long-term transportation plan that considers capital and maintenance and preservation projects upon which to base future departmental planning and forecasting. Strategic planning must shift to becoming an ongoing business and financial planning process, which will enable more effective budget allocations according to need rather than allocation by historical data. It is essential that any large organization dedicate some reasonable level of effort to strategic planning, planned implementation, and evaluation of progress.

There are no current operational goals linking the day-to-day operations to overarching strategies or goals. Management is activity driven, not performance driven. Districts are responsible for most of the highway related activities, but consistent and transparent performance measures are not used to set goals and hold districts accountable. The absence of measurable objectives linked to broad goals is a barrier to being a productive and efficient enterprise.

ITD lacks an integrated mid-term business and financial planning process to address challenges such as revenue shortfalls and to implement ITD's strategic vision.

ITD has not developed an adequate mid to long-term business and financial plan for the operating and construction programs. As a result, decision-makers do not have sufficient information to make informed decisions about sustaining the state's transportation program. ITD's financial planning documents project revenues and expenditures over a limited time period (5 years for Statewide Transportation Improvement Program or STIP, 8 years for financial planning), but they do not offer strategies and alternatives for addressing potential funding shortfalls. Other financial documents simply take the current budget and extend into future years, but are not based on demand. In addition, projects identified in the department's long-term planning (Horizons) are listed without identifiable funding sources. Unless funding is identified, these projects stay in Horizons. This finding can be fundamentally addressed through a combination of top-down statewide strategic direction and bottom-up district planning from which each district would respond with a multi-year district business plan.

ITD is reliant on district-centered methods of operation, with insufficient uniform direction regarding centralized performance management, asset management, and project and consultant management programs.

While ITD is comparable to other peer transportation departments in terms of its challenges, basic structure, and overall performance, ITD leadership needs to be more forward-looking and require stronger proactive management at all levels. ITD's distinct district-centered method of operation results in the Highway Division being more focused on day-to-day operations. As a result, ITD is reactive rather than proactive. Innovations that have been identified are generally a necessary short-term response to reduce costs and stretch the maintenance budget.

The districts operate autonomously and diligently, but do so with a lack of central strategic direction and standard operational and performance measures. The uniform ingenuity and efforts of staff to reduce costs within existing budget allocations would be enhanced through strategic guidance, goal setting, and the use of consistent operational measures statewide.

Because reporting is inconsistent, varied, and not easily aggregated, formal communication across functions is limited and labor-intensive. Information-sharing is informal and meeting-dependent. As a result, information sharing is inefficient, and organizational memory is lost.

There is no documented performance management process. The department recognizes that it should be doing a better job in evaluating its own performance, and has begun taking steps towards improving performance measurement, reporting, and evaluation. Although during fiscal year 2008 the Department's director formed a new organizational unit, Office of Performance Management, to address performance measurement, there is no current performance measurement responsibility assigned in the organization. This unit has not yet been staffed. To maintain an organization's morale and performance, it is important for all employees to understand the overall direction of the department and progress achieved in meeting statewide strategic goals.

Department does not have necessary systems, processes, and tools to run a cost-effective highway program.

Exacerbating the financial challenges is the fact that ITD lacks many of the tools and methods to effectively plan future operations, particularly long-term needs, and communicate the conditions of the state highway system to its stakeholders. Districts are responsible for most of the highway related activities but there are no transparent statewide performance measures in place to set goals and hold districts accountable.

Other Major Areas of Concern

Coordination of Planning and Programming Efforts

The department's short- and long-term transportation planning and programming efforts need to be better coordinated, and must link strongly with an adequate financial plan. Important assumptions and choices embedded within the decision process are unclear. Decisions about project prioritization are made without adequate criteria or data; and multiple planning processes are not adequately coordinated to assess both short-term and long-term transportation program needs. For example, informal policies promote funding preference for

maintenance and preservation² of existing highways, but evidence indicates that these programs are chronically under-funded even as substantial resources are allocated to new highway capacity³ projects.

Bond Financing Policies

ITD, together with other involved state agencies, should improve policies and procedures related to the issuance of bonds to fund highway projects. In the context of the adopted policy decision to issue bonds for capital projects, the process could have been improved by: (1) analyzing the tradeoffs of borrowing to fund projects, such as potential impacts to preservation and maintenance, and, (2) having better procedures to ensure that alternative financing structures are considered and shared with key decision-makers through the Idaho Credit Enhancement Committee.

STIP Project Selection Guidance and Criteria

The department's Statewide Transportation Improvement Program (STIP) meets minimum federal guidelines. However, the process for determining how projects are selected for inclusion in the proposed STIP could be improved. The department does not consistently demonstrate which specific criteria or data, such as safety, user benefits, and congestion relief are used to prioritize projects at the districts. A more transparent process would enhance accountability and improve public support. It is recommended that project selection should be flexible and not strictly dictated by formula, but Idaho would benefit from some core criteria to guide priority setting for project investment.

Maintenance and Preservation Project Selection

Preservation projects do not have sufficient, sustained funding and ITD does not have a consistent, well-documented process for prioritizing projects using objective criteria such as pavement condition, safety data, and traffic volume. Appropriate use of engineering, management, and planning tools commonly used in other states would provide better documentation and would also make the process more open and transparent. The multi-year financial plan only

² Pavement preservation projects include major maintenance work such as reconstruction or overlaying a roadway.

³ Capacity projects include constructing a new roadway or interchange, as well as adding lanes to an existing roadway.

identifies the net funds (revenues after maintenance and operations) available for contract construction, without separately identifying the amount available for the highest priorities of preservation and restoration.

Project Management

ITD is in the project management business. There is an observed inconsistency among districts in their capability and capacity to manage projects with respect to staff skills and management tools. There is a lack of familiarity of project management plans and an inconsistent use of Work Breakdown Structures. The department does not use a common project management methodology and toolset to monitor and track all projects statewide. Each district uses its own process, which is incompatible with others, making aggregation of information very difficult.

Project management should be a core skill-set throughout the department. There is a lack of project-management and consultant-management training. Regardless of how each district manages its own state-funded projects, Grant Anticipation Revenue Vehicle (GARVEE)-funded projects are managed differently because of the involvement of the Connecting Idaho Partners (CIP) consultants. Although CIP has sophisticated tools and methodologies, the department, in most districts and the central office, has opted to use them only on a limited basis. CIP's ConstructWare software is being piloted by District 5, and the CIP project scheduling system is being evaluated for potential ITD use. Establishing a department-wide project management initiative will improve project delivery and project cost effectiveness – it should also have some indirect benefit by promoting staff retention through better staff development.

Asset Management

Best practice asset management processes have adopted preservation-first strategies and moved away from worst-first investment strategies in favor of life-cycle cost principles that result in the most cost-effective preservation and maintenance. A worst-first strategy moves the most critical roadway deficiencies into the highest priority as these problems occur. In effect, ITD follows a worst-first strategy, which is in contradiction to their preferred policy of preservation-first.

This worst-first approach is not considered to be a best practice as it is not cost-

effective and may lead to significant long-term deterioration of the roadway infrastructure and exposes the public to potentially serious safety hazards. Worst-first does not allow the department to keep pace with growing need for highway improvement. In contrast, the preservation-first strategy bases the transportation program upon a foundation of appropriate preventive maintenance treatments to keep good pavements and structures in serviceable condition for longer periods of time. Doing so helps to maximize the life cycle of the investment.

ITD districts do not have the tools or resources to address the most effective life cycle pavement treatments, resulting in accelerated deterioration of non-deficient highway segments caused by deferred maintenance. The rate of deterioration of Idaho roadways is estimated at 8% to 12.5% per year. The current road maintenance resource shortfall has resulted in a system decline in which at least 35% of Idaho roads, based on Federal Highway Administration (FHWA) statistics, are ready for immediate rehabilitation or reconstruction.

Consultant Management and Oversight

ITD retains the services of a program management consultant, Connecting Idaho Partners (CIP), to co-manage GARVEE-funded projects. Management, delegation of authority and supervisory control of GARVEE-funded projects, particularly during construction, are not clearly defined between the CIP consultant, the districts, and the GARVEE Office.

In addition, project management tools used by the Connecting Idaho Partners would benefit other ITD projects if institutionalized and consistently used within ITD. Project delivery would improve and project cost-effectiveness would increase if ITD were to establish a department-wide capital project management initiative in the form of a Project Management Office (PMO) responsible for continued oversight of the GARVEE program; institutionalize project management tools; and establish department-wide project management standards of practice.

Regarding the use and management of consultants for other construction projects, there is no systematic comparison or cost-benefit analyses to determine the optimal mix of in-house and outsourcing professional services. ITD does not possess the decision-support systems in-house to regularly perform cost-benefit analyses because the essential data is not systematically available. The basic

ability to compare in-house vs. consultant (or contractor) unit costs for professional service or maintenance activities would be a significant starting point.

Best Practices Would Improve GARVEE Project Planning and Execution

The GARVEE program lacks an adequate financial plan. The GARVEE plan does not have essential elements of a complete financial plan such as: projected post-construction operating, maintenance, and preservation costs; the updated forecasted reinvestment rates reflecting the \$22 million negative arbitrage; and full integration into the overall ITD financial plan.

The current financing plan includes five staggered bond sales (two of them have already occurred) of approximately \$998 million for road capacity projects through 2012. Repayment is to be from federal highway revenues, with total debt service over the life of repayment estimated at \$1.54 billion. Debt service will consume about 30% of Idaho's future federal highway revenues until the bonds are retired. The GARVEE financing plan, as proposed, will result in approximately \$22 million in negative arbitrage⁴ costs. A more flexible financing strategy could eliminate this negative arbitrage problem in future bond issuances, potentially saving Idaho \$19.6 million in financing costs.

ITD Efficiency Efforts

Over the last several years, in response to the growing fiscal challenge, and as a result of the department's Practical Design initiative, each of ITD's districts has developed methods of operation that attempt to do more with less. The Practical Design initiative expects that all approved future construction projects are designed to save costs according to practical design standards. In order to ensure that these are real savings, however, the use of a cost analysis or value engineering analysis on the effect of the changes that reduce the cost of the bid should be required.

⁴ The opportunity lost when bond issuers assume proceeds from debt offerings and then invest that money for a period of time until the money is used to fund a project, or to repay investors. The lost opportunity occurs when the money is reinvested and the debt issuer earns a rate of return that is lower than what must actually be paid back to the debt holders.

In other areas, the districts have been able to demonstrate some modest real cost savings (e.g., District 1 in-house vehicle repair). In other instances, we found that ITD staff has cut costs by doing less (e.g. narrower shoulders, steeper grades). Districts have also transferred some specific maintenance costs to the private sector (e.g., District 2 has a program to flatten slopes along highways to make them farmable). In one case, a district manufactures its own salt brine to mitigate the rapidly increasing costs of road salt.

In other efforts throughout the Highway Division, measures have been put in place to limit outsourcing design work and to maximize the utilization of ITD engineers. The current outsourcing of professional services (for non-GARVEE-funded projects) to in-house is a ratio of 60-40. Our analysis has determined that continued outsourcing at the current ratio is necessary to the department, given the rate of turnover of professional staff. However, retaining professional work in-house is more cost-effective, and productivity is greater, when ITD is fully staffed and utilizing existing ITD technical resources at full capacity.

Despite these efforts, without making significant changes to governance policies, operations, and perhaps most importantly the funding structure of the department, as elaborated further in Chapter 2 Section 1B, ITD's Highway Division will not be able to sustain even current levels of service, which are increasingly showing signs of deferred maintenance and repair.

While we agree with the overall thrust of the ITD Efficiency Report, the bigger issue now is that no efficiency efforts alone will solve current problems. Efficiency should be linked with additional investment in order to realize steady, cost-effective improvements to the roadway network.

Identified Savings

We identified opportunities for quantifiable, near-term savings as well as changes which could provide significant long-term savings in transportation capital and operating budgets. These changes alone, however, will not address the immediate financial challenges facing the department. The key to the department's long-term success will be how it transforms itself *from* merely performing necessary day-to-day activities without the tools it needs, *to* a department that is performing those activities with systematic planning precision

in pursuit of overall department strategic goals and objectives. Accomplishing this transition will provide demonstrable improvement in efficiency and effectiveness.

Near-term (5 year) savings are estimated to include:

- A potential one-time savings of up to \$19.6 million achieved by using short-term debt to avoid significant negative arbitrage costs in the capital program supported by bond sales.
- Establishing an internal Project Management Office (PMO) under the Highway Division, with responsibility to track all statewide highway construction projects, will improve project delivery and increase project cost-effectiveness. An estimated savings of \$5.3 million in the first five years from efficiencies gained by using best practice project management coupled with consultant management techniques. An estimated savings of \$3.1 million would be realized every year after the internal PMO is in place and operational.
- Estimated savings of \$6.1 million in the first five years from improved productivity from more effective use of consultants to offset turnover and staffing shortfalls. Thereafter, an estimated \$3.5 million in savings would be realized annually. In addition, a potential annual savings of \$385,000 accomplished by reducing turnover as discussed in Section 1A.
- Significant savings of as much as 3% on selected projects in the capital program, by amending state procurement policy and Contract Construction practices by using Design-Build. Design-Build pilot projects should be implemented to gain invaluable experience with this American Association of State Highway and Transportation Officials (AASHTO) best practice.

Long-term savings opportunities include:

- Those transportation agencies that use performance-based management have credited measuring and reporting on performance as a means to achieve cost savings, garner public support for transportation investment, and deliver projects more quickly. Ensuring that the performance standards are a part of the day-to-day operation, and are linked to the overall strategy, is essential. Comprehensive performance management programs have demonstrated savings in terms of increased productivity (efficiency), reduction in time to achieve goals (effectiveness), and in turn, a reduction in costs

- Integrating existing life-cycle cost analysis process is an essential component of strategic asset management, which is considered an indispensable practice if the sustainability of its infrastructure systems is to be realized. Best practice models compare alternative highway investment strategies by comparing user benefits with life-cycle capital, operating, and maintenance costs under different strategies. Best practice pavement modeling can compare optimal miles of maintenance needed by assumed deficiency levels. National studies indicate that long-term savings can be realized through better use of funds on investments that have higher rates of return. The implementation of an integrated set of technology systems would give ITD the capability to make the most efficient decisions related to prioritizing, scheduling, and budgeting pavement maintenance and preservation projects with significant long-term savings to the roadway network.
- ITD has the opportunity to develop a statewide procedure to document, evaluate, and share various innovations, process changes, and implementation of new technology. While each item may not be applicable in every district, a formal process can be put in place to review applicability. Technology transfer is increasingly important as research results and practical applied implementation experience occur more rapidly. This will promote a culture that embraces learning, innovation, and change.
- ITD should continue to track actual district cost savings from the Practical Design Efficiency Report and evaluate those efficiencies. For all Practical Design projects, the use of a cost analysis or value engineering analysis on the effect of the changes that reduce the cost of the bid should be required.

Key Recommendations

Given current conditions it will become increasingly difficult for ITD to improve or even maintain “average” levels of performance without fundamental change. Part of this change will involve addressing funding needs. As noted, the \$137 million proposed to be allocated to the highway program is merited and may even be understated. We recommend, however, that any funding enhancements be accompanied by an explicit policy decision and actions to focus on maintenance,

preservation, and restoration first, and to bring the existing infrastructure to an acceptable and cost-effective level. Idaho should consider adopting explicit policies which do not allow new capacity projects to siphon funding from basic highway operating, maintenance, and preservation programs. New capacity projects should be rigorously and independently evaluated for cost effectiveness, with consideration also given to additional long-term maintenance costs. Such an evaluation should also include specific consideration of whether future proceeds from GARVEE can be directed to projects that reduce on-going maintenance costs and support preservation and restoration priorities.

Further, to be able to meet the challenges of the coming decade, ITD should:

- Develop a comprehensive strategy and vision, linked to operational goals and objectives, to address long-term statewide capital program and operational demands.
- Develop an integrated mid-term (8 to 20-year) business and financial planning process to address the challenges of the revenue shortfalls and the implementation of ITD's strategic vision.
 - Use a more flexible financing strategy to reduce negative arbitrage in future bond issuances, potentially saving Idaho \$19.6 million in financing costs.
- Provide stronger direction from central office to the districts through centralized performance management, asset management, practical design, and project management programs.
 - Adopt a preservation-first strategy to keep good pavements and structures in serviceable condition for longer periods of time.
 - Establish formal training programs emphasizing project and consultant management.
- Acquire or develop enhanced operational technology, decision-support tools, and standard performance metrics needed to promote performance effectiveness, measure performance results, and provide management accountability.
 - Idaho Legislature appropriate up to \$6 million for acquisition of key technological tools, for a pavement management system, maintenance management system, integration of systems with financial management systems.

The key to the department's success will be how it transforms itself from performing necessary day-to-day activities to meet short-term needs, to a forward-looking organization that is performing those activities in pursuit of overall strategic goals and objectives.

Chapter 1

BACKGROUND

Chapter 1 presents a background to the economic trends, ITD's mandate, and the current governance and management structure under which ITD operates. The chapter then describes how the Performance Audit was commissioned, the Audit Objectives, and the methodology and approach used to conduct the Audit.

Idaho Transportation Department Mandate

The responsibilities for the Idaho Transportation Department (ITD) are to:

1. Provide cost-effective transportation systems that are safe, reliable and responsive to the economical and efficient movement of people and products.
2. Support the department's mission and meet the needs and expectations of motor vehicle customers.
3. Ensure the effective use of federal, state, and local public transportation funds and enhance the mobility of Idaho citizens. Provide the highest quality, effective, and efficient and safe aviation system.

The new mission statement for the Idaho Department of Transportation is: "Our Mission. Your Mobility." The supporting ITD vision statement is: "To be a leader in providing transportation systems and services that are safe, efficient, promote economic vitality, and use innovative technology. ITD will achieve quality through: investing in our people, expanding and enhancing partnerships, leading through agency performance, and improving our customer service culture."⁵

Further, the stated purpose of the department is to provide the people of Idaho with a transportation system that includes various means of travel. The state transportation network includes approximately 5,000 centerline miles of highways (about 12,000 lane-miles), 1,761 bridges, 7 commercial and 61 municipal airports, and 30 state backcountry airstrips. The highway system also includes 29 rest areas and 10 fixed ports of entry.

⁵ www.itd.idaho.gov

Trends

Idaho, according to the US Census Bureau, was the fourth fastest-growing state in the country in 2007. From 1990 to 2000, the state increased its population by approximately 28% (from 1,006,749 to 1,293,953), an average of 2.8% per year, and higher than the US rate of 1.01% per year. Between 2000 and 2007 the state population increased at a slightly lower rate than the prior decade (about 2.3% per year), still higher than the US rate which remained about 1% per year. According to census projections, Idaho's population growth is expected to stabilize at an average population growth rate of about 2% per year to 2030, still double the projected growth rate of the US.

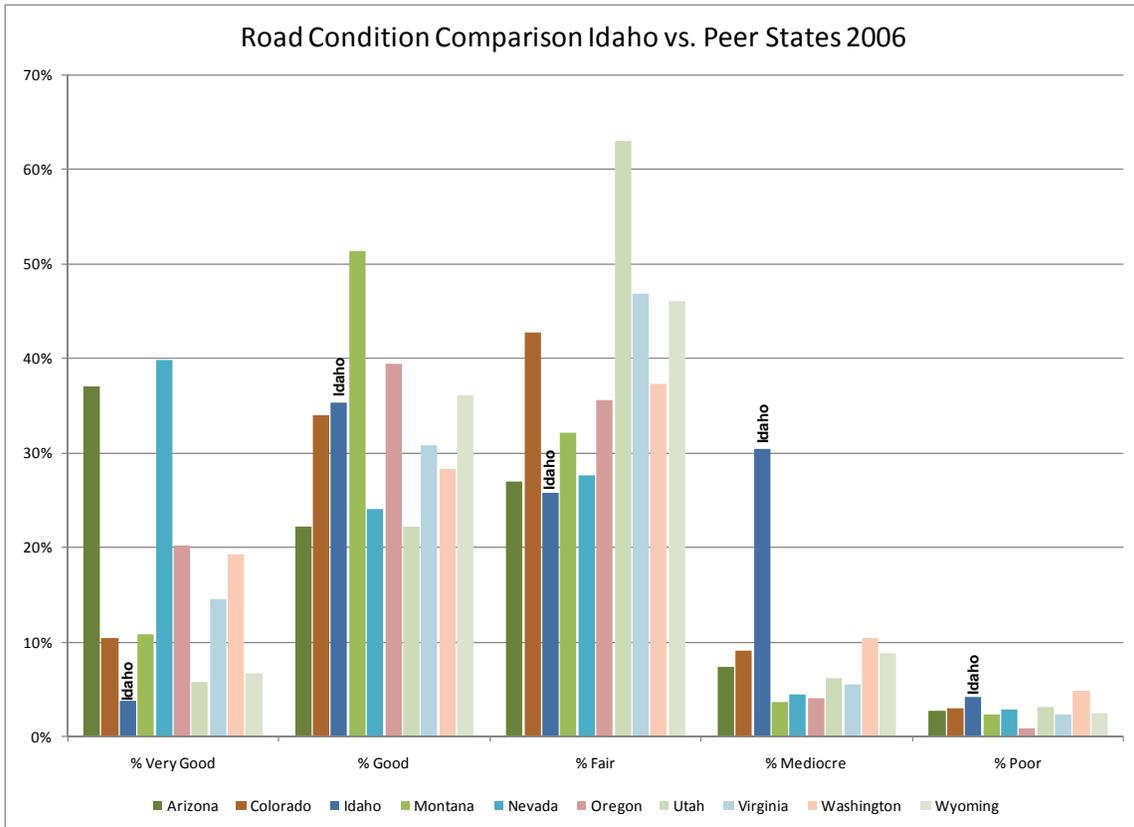
In 2008, Idaho ranked 14th in the nation (based on 2006 data) in overall performance rankings of state highway systems, according to weighting criteria developed by the Reason Foundation⁶.

When ranked from least to most on several other factors, Idaho is 14th in urban interstate congestion, with 35.96% congested. The state ranks 24th in rural interstate condition and 41st in urban interstate condition. Idaho ranks 14th in deficient bridges at 19.05% of the state's bridges deemed structurally deficient or functionally obsolete. Idaho is 36th in the nation in fatality rates. Idaho generally falls in the middle of the group in these factors.

Idaho is experiencing national transportation and economic trends. The state is faced with maintaining an aging infrastructure and adding new capacity. Idaho's roads are deteriorating and generally are in worse condition than those in peer states. The following chart illustrates that Idaho has a higher percentage of mediocre and poor roads compared to peer states⁷.

⁶ 17th Annual Report on the Performance of State Highway Systems (1984-2006).

⁷ U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2006, Washington, DC: 2008, tables HM-63 and HM-64.

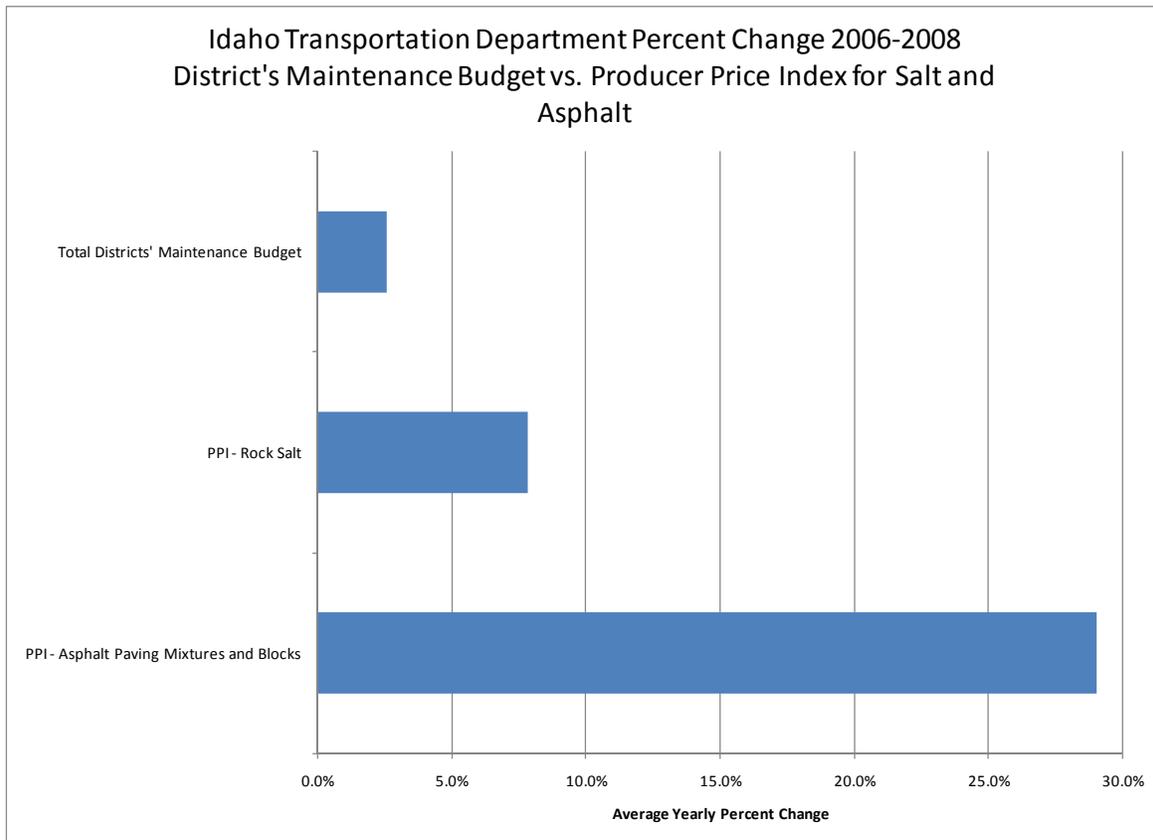


State-generated revenue from fuel taxes, registration fees, and other sources have declined, and according to the state’s projections⁸, state gasoline and special fuel tax revenues will continue to decline, given the recent economic downturn. In addition, for ITD fiscal year 2010, Idaho estimates FHWA funding to be flat extensions of fiscal year 2009 funding levels. Accordingly, revenue allocations to ITD are not expected to keep pace with increased construction, materials, and commodities prices.

The following chart shows a comparison of the average percentage of district maintenance budget increase rates between 2006 through 2008 to the rate of increase in the producer price index of key maintenance commodities⁹.

⁸ ITD FY10 Proposed Budget Request.

⁹ Bureau of Labor Statistics Data. Producer Price Index Industry Data.
<http://data.bls.gov/PDQ/outside.jsp?survey=pc>.



While the districts have received about a 3.5% average budget increase, they are not keeping pace with the cost of materials such as rock salt, which has increased about 8%, and asphalt paving materials, which has increased by about 29% during the same three-year period. Clearly the cost of materials is growing considerably faster than the cost of critical maintenance materials, which portends either an inability for ITD to continue to purchase sufficient maintenance materials in the future to cover the needed workload, or alternatively, would require ITD to reduce the work being performed.

Economic trends that are relevant to the department indicate that:

- ITD's increased cost of doing business at current service levels is increasing faster than revenue growth.
- Idaho state fuel tax, ITD's primary source of revenue, has remained at 25 cents per gallon since 1996. The economic impact (buying power) of the static tax per gallon has been eroded by inflation over time.¹⁰

¹⁰ Moving Idaho, www.itd.idaho.gov

- The revenue from the tax has recently been decreasing from reduced consumption.
- The economic impact (buying power) of the static tax per gallon has been eroded by inflation over time.¹¹

The costs of construction are expected to increase at 12.5%¹² annually, although this number may be reduced marginally due to the current economic slow-down, unless the National Stimulus Package upsets the predicted slow-down and restarts the construction material inflation indexing at the 12.5% rate.

Background – Transportation Demand

In 2004, the Idaho Transportation Board commissioned a study, comprised of 57 individuals representing a diverse group of public agencies, transportation service providers, stakeholders, elected officials, and citizens, to establish the needs and demands for current and future transportation improvements, evaluate financing and funding options, and recommend future investment options in the transportation system for the period 2005 - 2035. After 17 months of continuous effort, the study was published in 2006. The study included a list of capital projects, in all modes, needed over a 30-year period with associated costs. The study also projected revenue sources and the costs over time to produce a current need (in 2005 dollars), which amounted to about \$203 million dollars per year (adjusted for inflation to \$240 million).

The study listed a series of policies, proposals and recommendations that are still relevant. However, the current proposed revenue enhancement figure of \$240 million is only marginally related to the Transportation Board Study. Whereas the original study focused on the entire transportation system, the current revenue enhancement proposal would provide ITD highways with only \$137 million and is based on historic allocation formulas.

About the same time, a list of major corridor expansions were identified with proposed funding of \$998 million through the issuance of “GARVEE” bonds. In early 2006, a consultant was hired to oversee the GARVEE funded projects. Shortly thereafter the first bond issue was for \$200 million, and with interest

¹¹ Moving Idaho, www.itd.idaho.gov

¹² US Bureau of Labor Statistics, Price Performance Index

proceeds, it funded approximately \$213 million in eligible GARVEE project costs, and work on the funded corridors commenced.

Governance

A seven-member Idaho Transportation Board is legislatively vested with the authority, control, supervision, and administration of the Idaho Transportation Department. The Idaho Transportation Board meets monthly and establishes state transportation policy and guides the planning, development and management of the Idaho transportation network. The Idaho Transportation Board normally meets six times in Boise and six times across the state annually.

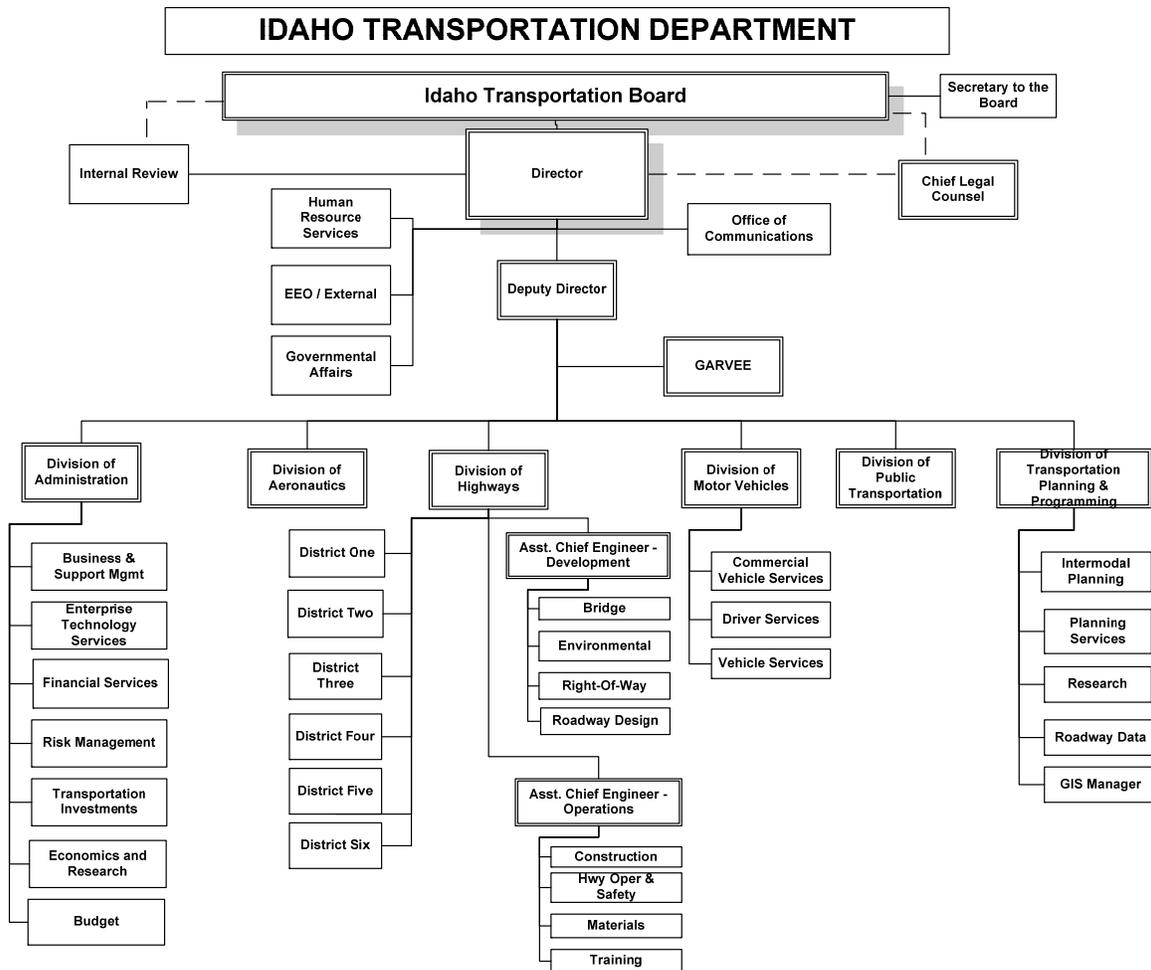
The Governor appoints the board members, who are confirmed by the Idaho Senate. Six members represent each of ITD's administrative districts and the seventh member is selected by the governor to serve as chairman. No more than four members may be of the same political party.

District	Counties
District 1	Benewah, Bonner, Boundary, Kootenai, Shoshone
District 2	Clearwater, Idaho, Latah, Lewis, Nez Perce
District 3	Ada, Adams, Boise, Canyon, Elmore, Gem, Owyhee, Payette, Valley, Washington
District 4	Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, Twin Falls
District 5	Bannock, Bear Lake, Bingham, Caribou, Franklin, Oneida, Power
District 6	Bonneville, Butte, Clark, Custer, Fremont, Jefferson, Lemhi, Madison, Teton

Each board member (exclusive of the Chair) is associated with one district. Six of the seven board members are appointed to six-year staggered terms, beginning February 1st, and one member's term expires each year. The seventh member serves at the pleasure of the governor, acts as chair, and casts a ballot only in the case of a tie vote.

Management Structure

The entire department is legislatively restricted to 1,833.5 full-time-equivalent positions, and is funded entirely through dedicated federal and state fuel taxes, and fees. The department's organizational chart is shown below.

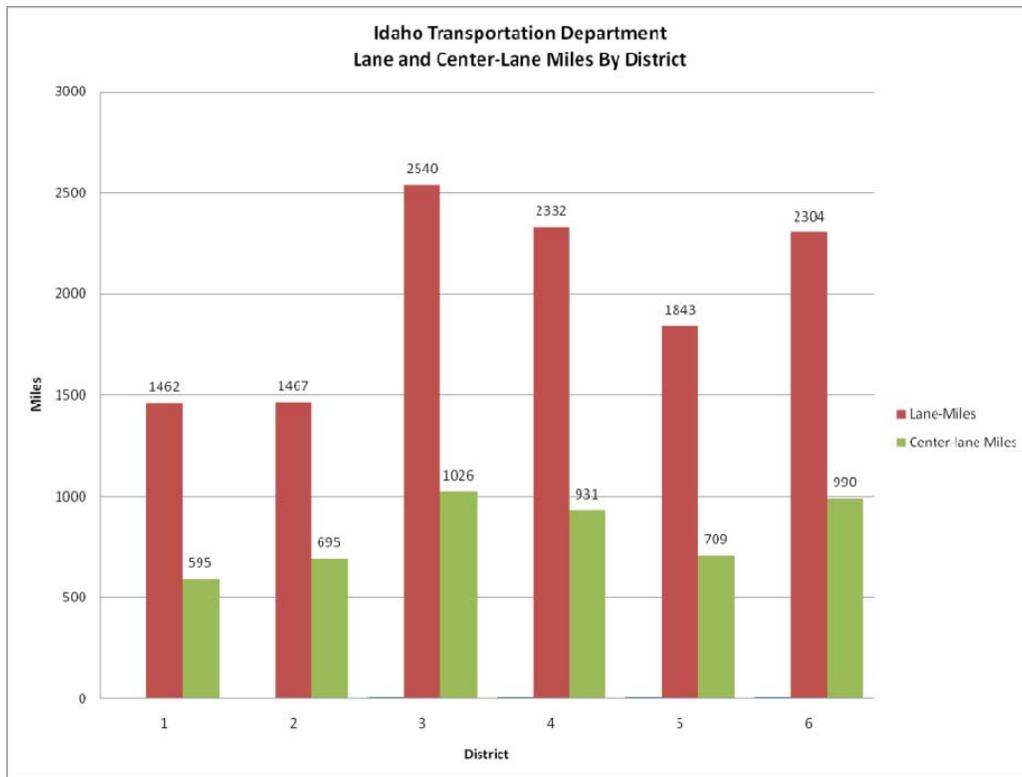


The divisions shown in the organizational chart are described as follows:

1. Administration – Develops long-range budgets, develops legislation and operates information systems; provides employee services, financial services, and facilities management.
2. Aeronautics – Assists municipalities in developing their airports and operates the state's air fleet.
3. Highways – Maintains and improves the state highway system.

4. Motor Vehicles – Manages drivers’ licenses, vehicle registration and license plates, and titles.
5. Public Transportation – Manages federal transit grant programs and oversees rail, bike, and pedestrian modes.
6. Planning and Programming – Coordinates strategic plan development, transportation research efforts, and other planning activities, including assisting local governments with transportation planning.

ITD’s highway division has a central office located in Boise and six district offices, located in Coeur d’Alene (1), Lewiston (2), Boise (3), Shoshone (4), Pocatello (5), and Rigby (6). ITD has a separate GARVEE Office responsible for overseeing the GARVEE-funded projects. The following chart, based on information provided by ITD, shows the distribution of lane miles and center-lane miles by district, which are the primary cost drivers.



The highway division has operated with a full-time complement of 1,329 FTPs for the past three years. During the same time, the division has operated at a 94% staffing level. Of the 1,329 Highway Division employees, about 1,100 are located in the districts, and the balance in central office. The number of employees per district has been in place since 1998.

PERFORMANCE AUDIT

Commissioning the Audit

The Idaho Legislature requested the Joint Legislative Oversight Committee to direct the Office of Performance Evaluations (OPE) to manage an independent, objective, performance audit of the Idaho Transportation Department, and to answer specific questions regarding the Highway Division operations.

In August 2008, the OPE contracted with the consulting firm Avant IMC, LLC to conduct the performance audit, with the exception of Audit Scope Section 1.B – Schedule, Finance, and Prioritization of Projects. The OPE separately contracted with the consulting firm Robert M Williams and Associates to conduct the performance audit for Audit Section 1.B.

The department's Division of Highways, governed by Title 40, Idaho Code, is the focus of this audit. The scope of the audit does not include a financial audit of departmental or district budgets, a recommendation of required budgets, or an evaluation of alternative funding and financing sources for the department. The audit Scope of Work (Appendix C) is limited to the Highway Division, with the exception of certain aspects of Executive Management, the Administration and Planning Divisions, and the GARVEE office in those cases when findings are directly relevant to the Highway Division and defined audit questions.

Audit Purpose and Methodology

The purpose of the Performance Audit is to assess performance of ITD's highway construction, preservation, and maintenance program in four topic areas:

1. Management and Performance
2. Contractor Selection and Oversight
3. Outsourcing
4. Cross-Cutting Issues

A performance audit is an assessment of an organization's actual results compared to its intended results—which are typically sourced from authorizing legislation and department policy. Performance audit practices dictate that

organizational efficiency, effectiveness, and economy are evaluated based on comparisons of actual practices to relevant criteria.

Audit Standards

This performance audit followed the methodology defined in the Government Auditing Standards, the “Yellow Book,” published by the United States Government Accountability Office. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for findings and conclusions based on audit objectives. The audit team believes that the evidence obtained is sufficient and that it provides a reasonable basis for our findings and conclusions based on the audit objectives.

Public accountability was a primary criterion applied to the department throughout the audit. That is, since the Idaho Transportation Department is entrusted with public resources, the audit team expected a high degree of efficiency and effectiveness in achieving its expected outcomes.

In some audit areas, standards of efficiency and effectiveness were not provided by the department or did not exist. In other cases, data to compare results to a standard did not exist. In either case, to serve the best interests of the citizens of Idaho, the highest standard of excellence, based on performance of similar organizations, or transportation industry best practices, was applied. This report primarily focuses on audit findings that require improvement relative to the standard of excellence applied.

Approach

Fieldwork for this audit was conducted over a three-month period, between mid-August and mid-November 2008. Our approach to the audit was divided into four audit stages:

1. Audit Planning
2. Data Gathering and Review
3. Comparable States and Benchmark Analysis
4. Audit Interviews and Workshops

Audit Planning

The overall Performance Audit began with a series of opening meetings to present the objectives of the Performance Audit to the Governor's Office and the Idaho Transportation Department (ITD). An Audit Work Plan was developed and provided to the Office of Performance Evaluations.

Data Gathering, Audit Interviews, Workshops, and Review

Because of the relatively short and intensive nature of this audit, the findings and recommendations relied heavily on existing documented information from the department. The audit team collected and evaluated ITD's current levels and standards of performance based on data requested directly from ITD and gathered from other sources.

During the course of the audit, approximately 200 interviews and meetings were held, including multiple interviews and sessions with ITD executive management, senior divisional managers at central office; and with District Engineers and senior staff in all six districts. Other interviews were held with key stakeholders, including legislators, federal agency executives, contractor associations, Metropolitan Planning Organizations, Local Highway Organizations, Connecting Idaho Partners (CIP), and approximately 40 interviews with personnel from peer-states' transportation departments.

Over 1,000 data files and about 400 related and relevant documents were received from ITD, and reviewed. In addition, Idaho Title 40 statutes, all ITD Board policies, department rules and regulations, and all policy manuals available that govern design, construction, and maintenance activities, were reviewed as they related to specific aspects of the audit.

Comparable States and Benchmark Analysis

In order to assess the performance of Idaho in selected areas, the performance and criteria used by selected comparable states provided a reasonable comparison of the efficiency, effectiveness, and economy of ITD results. The comparable states selected were: Arizona, Colorado, Nevada, Oregon, Utah, Wyoming, and Montana.

Of these, Arizona, Colorado, Nevada, Oregon, and Utah are based on peer groupings identified by the University of California, Davis in “Measuring Performance among State DOTs”, AASHTO, March 2006. Wyoming, an adjacent state, has a similar-sized highway system and organizational structure and staffing similar to Idaho. The Montana selection was based on an ITD document “Legislative Outreach to Idaho Legislature”, 2007, in which Montana was specifically cited by ITD as a comparable state to Idaho.

The table below provides an overview of the selected comparable states¹³:

State	Miles	Lane Miles	# Highway Employees	State Gasoline Tax/Gal.	Lane Miles per Employee
Idaho	4,959	12,083	1,329	\$0.25	9.1
Arizona	6,813	18,737	2,255	\$0.19	8.3
Colorado	9,110	22,993	3,050	\$0.22	7.5
Montana	10,780	24,461	1,947	\$0.278	12.6
Nevada	5,381	13,051	1,751	\$0.325	7.5
Oregon	7,532	18,279	2,400	\$0.25	7.6
Utah	5,848	15,237	1,650	\$0.245	9.2
Wyoming	6,753	15,594	1,550	\$0.14	10.1

Washington and Virginia were additionally used as sources of best practices because they are nationally recognized as high-performing departments of transportation.

For the financial planning and budgeting components of this performance audit, in addition to extensive interviews and exchanges with ITD staff, interviews were conducted with the State’s Chief Economist and the State Financial Officer, staff of the State Controller’s and Attorney General’s Offices, and with the State Treasurer and members of his staff. The methodological approach to this part of the audit began with the delineation and description of the intermediate and long-term financial plans for ITD highways program, and with evaluating the assumptions embedded in ITD budget decision-making including:

- Forecasted economic assumptions on growth of base expenditures and revenues;

¹³ Source: FHWA Oct 2007; ITD; American Petroleum Institute, Individual states’ interviews

- Relative priorities in maintaining baseline programs (e.g., ongoing road operations and general maintenance vs. periodic repair and replacement requirements on transportation infrastructure, vs. major capital projects, vs. program administration and planning);
- Relative frequency of activities, including repair and replacement cycles on major maintenance vs. general maintenance vs. major capital project alternatives as well as understanding the economic and programmatic consequences of changes in cycle;
- Scoping, selection and prioritization of major capital projects including cost avoidance and delivery benefits (safety, traffic mobility) vs. costs. This includes the methods for quantifying all relevant costs and benefits in an economic context (e.g., cost/benefit analysis in a discounted cash or benefit analysis over time).

The performance audit also included an examination of the ITD-assumed base that would be “fundable“ in the current revenue environment, the prioritization of the activities and projects would not be financed without additional resources and ITD’s determination of what could be expected from increments of additional revenues. This approach allowed not only for an examination of the “base funding” expenditures to evaluate relative priorities but also an examination of opportunities for cost efficiencies that might allow for inclusion of additional priority projects with existing funding or with lesser required revenue increases.

Chapter 2

MANAGEMENT AND PERFORMANCE AUDIT CRITERIA, FINDINGS, AND RECOMMENDATIONS

Chapter 2 presents the Audit's criteria, findings, and recommendations concerning ITD's management and performance with respect to: management and governance; schedule, finance, and prioritization of projects; integration of program plans, adequacy of formulas for scheduling and budgeting highway work; and metrics used to evaluate highway programs. (Section 1.B. contains the audit criteria, findings and recommendations submitted by Robert M. Williams and Associates.)

SECTION 1.A. MANAGEMENT AND GOVERNANCE

Audit Objective – Assess how the management and governance structure of ITD, particularly in relation to the performance of the state's highway programs, compares to transportation industry benchmarks and best practices.

ITD governance is a timely subject. Many state transportation departments across the country are structured similarly to their original organizational setup. However, these departments face an unprecedented degree of internal and external change that impacts management and governance.

Organization

Criteria

The national trend in the last several decades has been to decentralize highway functions as much as possible to put them closer to the customer. All state transportation departments have field regions (or districts) for the purpose of maintaining, rehabilitating, and constructing the respective state roadway systems.

In a decentralized structure, functions are either shared between the central office and field offices, or delegated entirely to the field (or district) offices. Some examples of decentralized functions include project design, maintenance, construction, training, and equipment management. The coordination across functional departments is better because employees typically are grouped

together in a single location and committed to the needs and goals of that region. However, while coordination across functional areas within each region or district is enhanced, coordination across districts tends to be poor. In a highly centralized operation, activities such as roadway and bridge design, environmental analysis, right-of-way, and project programming are generally performed solely at the central office because of the need for specialized coordination. Benchmark practices, based on comparable states, indicate that, the key to effective decentralization is to balance it with basic centralized oversight, standards, and systems for evaluating and comparing performance.

As a best practice, the central office of a DOT typically sets broad goals and objectives, agency priorities, and selection criteria to uniformly guide project prioritization. Central office sets the maintenance criteria and quality standards, procurement rules, criteria for outsourcing services, and standard work breakdown structures. Districts are held accountable for results set by central office and are delegated the authority and flexibility to use their ingenuity, local knowledge, and expertise to achieve the expected results.

Span of control describes the dimension of organizational design measured by the number of subordinates that a manager can supervise effectively. The relationship between this concept and the most appropriate design and structure of an organization is primarily driven by degree of control and communication required in the organization. It drives reporting relationships and administrative overhead. There is no benchmark standard, although research suggests that six to eight direct reports is an upper limit, and the effective management of more than eight depends on the skills of the manager and the demands of the organization.

Findings

ITD Division of Highways functions as a decentralized organization consistent with structures in comparable states.

From a strategic point of view, only a few governance policies are currently in place that coordinates central office and district activities. Although the board solicits capital projects based on district nomination, districts operate independently with minimal accountability to central headquarters with respect to the following:

- Project prioritization
- Project delivery and management
- Setting and reviewing maintenance levels of service
- Department-wide use of programs and techniques such as a standard consultant services and Work Breakdown Structures
- Establishing department-wide criteria for outsourcing services and for the review of outsourced contracted services

There are inconsistencies in practices and performance results between districts, reducing opportunities to leverage efficiencies statewide. There is no standard regular reporting process, other than informal meetings and periodic formal meetings (such as quarterly construction meetings and right of way supervisors meetings) for central office to capture and regularly disseminate best practices to all districts.

The administrative structure of ITD is divisionally organized; that is, divisions address specific modes of transportation, including highways, aeronautics, and public transportation. However, the Highway Division is organized internally with a central administrative group, and a decentralized and geographically-differentiated district structure that focuses strictly on highways. The districts are functionally-based due to the highly specialized and repetitive day-to-day nature of short-term maintenance and preservation work.

Each board member (exclusive of the Chair) is associated with one district. When board members are appointed, they remain in place regardless of the incumbent governor's wishes. Board members, in turn, hire ITD's leadership. This structure avoids pressure being placed on board members by a governor to promote certain highway projects for political purposes. Although the ITD board represents statewide interests, this structure has not produced consistent, statewide performance measurements for accountability of highway projects and programs. Several District Engineers provide their local board member a monthly project progress report, independent of the department. A report on construction, design, and maintenance projects status is provided by ITD staff to the board and executive management monthly.

Districts are the key organizational component of the division because virtually all of the road work is controlled and executed at the district level. District Engineers exhibit a large degree of autonomy and independence over how the business is conducted, and are ultimately responsible for the efficient and effective completion of the projects within their districts.

Some innovative practices were observed by the audit team, such as District 4 foreman's use of laptop weather reports to efficiently deploy equipment, and District 6's pilot of a local needs database. These innovations result from the necessity to keep costs down and are part of the Practical Design initiative, discussed later in the report.

The management of GARVEE-funded projects, with respect to the observed interaction between the districts, the CIP (Connecting Idaho Partners) consultants, and the central GARVEE administration organization, are inconsistent. Roles and responsibilities on GARVEE projects during project construction are unclear, resulting in a lack of project accountability. The disparity in the oversight process among these three groups raises potential project risks. Otherwise, management levels and spans of control in headquarters and districts appear to be acceptable and within accepted management practices.

Recommendations

Establish strategic and operational goals for ITD that flow from the board, through ITD central office, to the districts:

- Board should establish the department's criteria for success for ITD divisions through endorsing strategic performance measures that reflect board policy decisions.
- Board should link strategic performance measures and outcomes to investments.
- ITD central office should translate strategic measures into division operational measures and expectations for all districts.
- Board and ITD should review department and system goals for effectiveness and modify accordingly.

- ITD should set central office performance priorities, allowing the districts to select the projects accordingly to achieve the priorities.

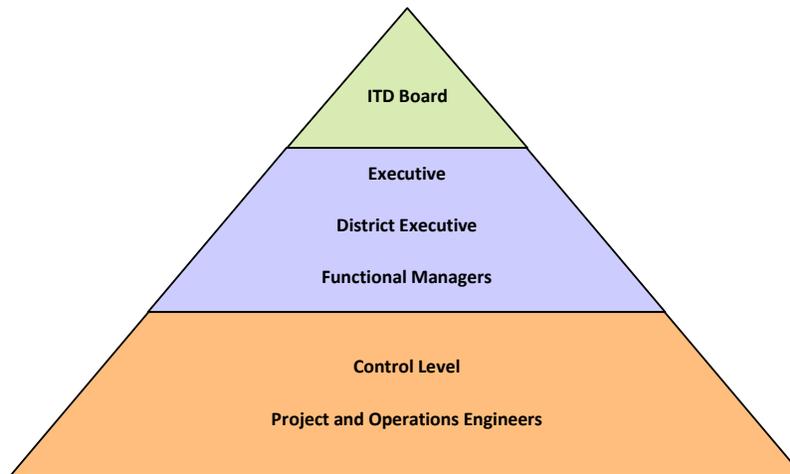
Adopt board-driven department-wide policies that define the roles and responsibilities between the central office and the districts, and the relationship between the board members and the districts.

- This will strengthen central office policy direction, goal setting, performance measurement, and accountability. Establish a supporting District Business Planning Process with a generally uniform approach from central office with input from the districts for its development. The District Business Plans would provide an opportunity for each district to:
 - Identify key issues,
 - Propose a 5-year strategy for addressing key issues,
 - Identify resource needs, and
 - Identify the district's strategy for transitioning to an asset management approach for managing their respective programs.

Communication and Performance Reporting

Criteria

In a model reporting environment, the detailed information used by project and operations engineers to control resources, determine the specific status of activities and deliverables, and produce forecasts of schedule and cost performance would serve as the foundation for higher level reporting. The figure below illustrates the model reporting environment in pyramid form.



The pyramid above suggests that the details developed by the project and operations engineers should be rolled-up into summary level reports for District Engineers, and then further summarized to provide executive management, board, and external stakeholders with key performance status reports.

Through this chain of reporting levels, budget, schedule and operational outcomes should be consistent and traceable. Ideally, data used to generate all three levels of reports would be automatically linked. Reports should:

- Provide a current perspective of project status and plans.
- Be sufficiently flexible to furnish necessary information to a variety of intended audiences.
- Be standardized to ensure that information is timely, transparent, accurate, and consistent.
- Use clearly defined and easily understood metrics that reflect organizational goals.
- Provide accurate values for progress, analysis, and plans for maintaining schedules and budgets.
- Offer insight into the future as well as a snap shot of the present.
- Provide information that is valuable for purposes of accountability and decision-making.

Peer states, such as Wyoming, Nevada, and Utah publish an annual performance report listing a wide range of key indicators intended to demonstrate that the taxpayer is receiving value for the taxes paid. Virginia maintains a robust dashboard on its website that is recognized as one of the best in the country.

Findings

Strategic performance measures reported to the board are not linked to operational measures, and quantitative district performance is not included in departmental or board-level performance reporting.

Reporting is focused on operational conditions and recent activity, rather than on overall departmental or divisional performance results linked to department objectives.

The department consistently communicates qualitative information on a variety of topics to the board on a monthly basis, including departmental activities, policy reviews, requests for project approvals, contracts, and other items related to the ongoing business. Formal communications to the legislature involve annual departmental reports and presentations during the legislative session. ITD involves legislative membership in a variety of outreach meetings, board meeting invitations, and other informal meetings outside of the legislative sessions.

Although ITD reports qualitative project activity and budget “snapshot” status to the board, ITD does not use standard statewide monthly project management system trend reports with quantitative information on all projects underway, including project forecasting and cost performance indices, to monitor the status of projects. These projects should include budget, schedule, and quality data to intercept potential cost overruns. Best practices foster statewide transparency to keep districts accountable for project costs and schedules.

ITD performance data regarding maintenance and preservation trends is tracked at each district.

Operational performance results from the districts are not easily linked to department performance results or strategy objectives, nor easily aggregated and summarized at the divisional or departmental level.

Although there are many meetings among district staff and management-level meetings in districts and central office, the flow of information tends to be informal and oral. Formal consolidated district operations reporting for the department is infrequent. There are varying degrees of involvement between board members and district staff; for example, some board members request a monthly status report from their district, independent of department reporting. This increases risk because accountability is not documented. The absence of documentation results in a lack of traceable, formal comparisons of current condition to performance results. In other words, it is difficult to determine if there is improvement or not over time at ITD without formal documentation.

The audit team observed standard CIP-created monthly project-status reports, the use of project management software, and an electronic document management system for project document tracking and storage for the GARVEE-funded projects. However, with the exception of District 5, ITD has not opted to use these kinds of tools for a variety of reasons, one of which is perceived complexity. The lack of using consistent tools impedes fluid communication between CIP and ITD, and requires frequent oral communications and informal meetings.

Recommendations

We are not recommending additional reporting or data-generation unless it fits with an organizational philosophy that seeks such information for reasons of sound management, strategic planning, and public accountability. Our general recommendation is that ITD would be well served by a formal and consistent system of performance measures that relate to key organizational objectives.

ITD should report performance against strategic and operational goals:

- Provide regular quarterly ITD-to-board communications on performance against the strategic goals and objectives.
- Divisions should report, aggregate, and share common operational results and processes that relate to significant department activity.
- ITD should complete organization and staffing of Performance Management Office proposed by the department in fiscal year 2008.

ITD should develop better communication tools so that successes and challenges can be effectively shared throughout the department, particularly among districts, and then communicated externally to the Legislature, Governor, and other stakeholders:

- Establish a mechanism to engage the legislature more frequently in performance goals, financial status, and the needs going forward. The annual budget review process would be ideal for such a structured dialogue.
- Strive for flexible and widely-accessible public data and information and reporting, since all stakeholders do not benefit from the same level of information. Also, correlate the information furnished to the intended audience.
- Provide timely reports, presented on a regular basis, using standardized formats and established metrics reflective of ITD values.
- Implement three basic levels of reporting:
 1. Operational and Project reporting by program
 2. District Performance reporting
 3. Overall departmental performance

ITD should develop standard statewide monthly project management reports with quantitative information to reinforce district accountability for project cost and schedule progress on an ongoing basis.

- Use standardized progress reports to focus attention on any projects that are slipping behind milestones or beginning to forecast overruns.

Staff Growth, Turnover, and Succession Planning

Criteria

In response to workforce challenges, high performing states are focusing efforts in three areas: recruitment and retention, succession planning, and professional development. Example workforce challenges include: significant numbers of retirements in senior ranks, increased competition with the private sector for skilled employees, increased needs for skill sets to meet new technology demands, and increased workloads with limited resources. The emphasis on recruiting varies by state relative to use of consultant support.

Findings

The staff size of the department is legislatively limited, based on Idaho Code, to 1,833.5 full-time positions (FTPs).

Of the 1,833.5 total positions, the highway division number of authorized of 1,329 has remained the same for the past several years. The department has operated with an overall vacancy rate of 6% for the past two years. The workload backlog, based on unfunded projects in the Near-Horizons document, has grown over the past five years. The staff is insufficient to complete the backlog within existing resources and budget constraints.

ITD is experiencing high professional and technical employee turnover and is facing an engineer shortage, potentially resulting in increased costs.

The ITD engineering series of occupational groups has experienced an average turnover rate of 10.7% over the past three fiscal years, which is higher than the ITD Highway Division overall. The highest turnover was exhibited in Engineer-in-Training, Associate Engineer, and Staff Engineer positions. In addition, of the 144 engineers in the Highway Division, 29 will be eligible for retirement in the next six years.

On a yearly basis, of full-time positions of 144 engineers at ITD¹⁴, there will be a turnover of 15 engineers a year plus an additional 5 engineers a year from retirement. The 5 engineers calculated annually for the retirement impact is based on the 29 engineers eligible for retirement over the next six years. This equates to an additional impact of 3.3% estimated annually for a total expected annual turnover rate of 14% for technical staff; or an expected man hour loss of 2080 hours per year times 20 engineers. We calculated a loss of over 41,600 man-hours a year.

ITD is essentially operating at a deficiency of 14% for the normal construction program of \$270 million. GARVEE-funded projects double the size of the construction program for a short time. Actual manpower deficiency would then be an additional staffing need equivalent of an entire second construction program in the same year. In addition, the GARVEE program's increased funding further strains staff capacity. The loss of staff and the increase in ITD projects reduces the ability of the remaining engineering staff to complete their assigned engineering work, manage projects, estimate and control budgets, or improve their own technical skills.

The effect on resource usage of having a more fully staffed in-house technical area would generate a savings to ITD by reducing the need for consultant outsourcing. The outsourcing is used by ITD to fill the gap of unfilled positions.

The average cost to replace a non-professional worker in ITD is \$12,000¹⁵, which is consistent with comparative states' ranges of \$8,000 to \$12,000. The average cost to replace an ITD professional employee (including recruitment and training costs) is \$35,000. The impending retirements, continual turnover in technical positions, and pay grade compression issues will require attention in the near future. Estimated overall turnover costs to the Highway Division, based on historical turnover at non-professional rates (not including engineers), equates to a conservative

¹⁴ As of 12/2008, there are currently 129 engineers. Calculations are based on full complement of 144.

¹⁵ Replacement costs based on ITD internal Human Resource document, 2/2008.

annual cost of \$1,379,340¹⁶. Turnover costs for engineers are estimated at \$539,280.

The following table indicates that ITD's overall average salary levels are lower than the average of the benchmarked states¹⁷.

State DOT	Annual Weighted Average Salary
Arizona	\$39,492
Idaho	\$39,632
Utah	\$43,496
Montana	\$44,204
Wyoming	\$44,622
Oregon	\$46,200

Compared to the FHWA weighted-average salary for engineers of \$70,000, the ITD engineer weighted-average salary is \$68,000. However, compared to the private sector, the ITD weighted-average salary is about 15% lower than comparable positions.

There is no management succession plan in place to guide recruitment and retention strategies.

The department has taken steps to address the retention and recruitment of the engineering series, first by strengthening the hiring process in central office and second by addressing persistent vacancies in the districts through the central office development of the Targeted Pay and Compression Program that has shown success in the past year. Retention and recruitment, however, are not substitutes for a succession plan that

¹⁶ $1185 \times .097 \times \$12,000 = \$1,379,340$. This does not include the additional turnover costs for professional level staff. If professional-level turnover at \$35,000 cost for each engineer is included, the annual total turnover cost would be as high as \$1,918,620.

¹⁷ 2007 AASHTO Salary Survey (Colorado and Nevada weighted averages unavailable)

develops future leaders and leadership tracts to provide incentives to employees and improve morale.

Recommendations

ITD must create and implement a management succession and leadership development process, and continue to develop retention and recruitment strategies to reduce turnover.

- This recommendation addresses the large turnover percentage coupled with the future retirement of experienced engineering staff. The department should also strive for an overall turnover reduction rate of 8% overall (which is the midpoint between the current reported turnovers of two peer states). The turnover costs for engineering series occupational groups, using the 10.7% historical average, equates to about \$540,000 in annual expense. A 2% reduction goal in the turnover of this engineering occupational group would result in an annual savings of \$100,000. An additional 2% reduction in the non-professional ranks overall would result in an additional savings of approximately \$285,000, for a total of \$385,000.

Central office should develop targeted district and central office training for needed knowledge and skills, such as project management techniques, contractor and consultant management, and performance-based management.

- ITD should examine the types of skills that the Highway Division will need to replace as experienced personnel retire and develop centralized training programs to support professional project management, consultant management, and performance management programs to advance the goals of the department and improve its effectiveness overall.
- This should be implemented in conjunction with a management succession process that will realize significant benefits, such as improved leadership “bench strength,” improvement in recruitment and retention, and overall employee satisfaction.

SECTION 1.B SCHEDULE, FINANCE, AND PRIORITIZATION OF PROJECTS

Audit Objective – As measured over an appropriate timeframe, is planning and budgeting for highway maintenance, preservation, and improvement programs adequately integrated and coordinated, both among programs and with the short- and long-term financial plan?

Financial Planning and Management Criteria

In financial planning and management, the best practice is to develop coordinated, multi-year financial plans (short and long term) that address revenues and expenditures, and provide alternative analyses to evaluate the means of achieving the plans. Desirable components of the plans are:

Revenues

- Plans should include all revenue sources (and alternatives such as debt vs. cash).
- All major revenue sources should include basis for collection and forecasting.
- Revenues that are expenditure dependent should be identified, including the nature of the dependency relationship.
- Revenues that are restricted for specific purposes should be identified.
- Planning should include a feedback mechanism for evaluating the effectiveness of revenue forecasting.
- Alternatives to the sizes, term, and timing of borrowing should be evaluated, and the costs and benefits of alternatives should be measurable.
- Standard assumptions relative to volumes and future price adjustments should be identified and monitored to ensure consistency with corresponding assumptions on expenditures.
- Revenue increases, both discretionary and activity dependent, should be identified.

Expenditures

- Plans should include all relevant expenditure categories of operating and capital programs.
- The basis for operating program expenditures should be identifiable and quantifiable relative to workload measures and programmatic priorities.
- The imports of capital projects should be reflected in operational terms such as the effects on staffing and resource requirements.
- Expenditures that have revenue dependencies should be identified (see Revenues above).
- The basis for expenditure forecasts should be identified (e.g., volumes, frequency, intensity, cost indices), and should be consistent where there are common factors with revenue forecasts.
- Expenditures should include alternatives, such as adjusting or choosing different programmatic structures, or substituting capital investment in return for reduced operating costs, current and future.
- Plans should include proposed measures for evaluating the efficacy of expenditures.

Alternatives Analysis

- The related costs and benefits of alternatives should be identified, including the timing of the costs and benefits.
- Analyses must include valuation of costs and benefits relative to a discount rate (opportunity cost), which will allow for measuring project benefits and costs over extended time periods.
- Analyses should include sensitivity analyses of major variables and a risk analysis of results, either better or worse than those forecasted.
- Analyses should portray all pertinent economic values (resulting revenues and expenditures, both one-time and ongoing).

Findings Related to Current Conditions

The Idaho Transportation Department has:

- A 5-year Statewide Transportation Improvement Plan (STIP),
- An 8-year Overall Revenue and Expenditure Forecast, and
- A multi-year Grant Anticipation Revenue Vehicle (GARVEE) forecast that outlines the projected expenditure cash flow, planned borrowing, and debt service through the entire forecasted debt service repayment duration, the year 2029.

Supplementing available information in the STIP and the department's 8-year financial forecast, ITD has advanced a \$240 million revenue increase package for transportation projects. Out of this amount, ITD would receive \$137 million under existing allocation formulas that divide revenues between local and state.¹⁸ The original derivation of the \$240 was based on the outcome of a Forum on Transportation Planning led by the Idaho Transportation Board, beginning in 2004 and lasting 17 months that identified a varied list of state and local highway capital projects. These projects were estimated to cost \$6 billion more than forecasted revenues over the next thirty years. This \$6 billion translated into \$200 million more per year, which has been escalated to a current cost of \$240 million. Although ITD's proposed revenue package does not reflect the original work of the Forum, the \$240 million figure has remained the target for revenue enhancement.

ITD has proposed to use the \$137 million as follows: \$85 million added to the annual budget (first year) for preservation and restoration of roads and bridges; \$10 million for operations; and \$42 million in the first year for capacity projects. ITD's order of priority funding is stated as operations, preservation, restoration, and lastly, capacity.

The GARVEE financing plan includes debt issuance of approximately \$998 million for a series of capacity projects that are forecast for completion by the fall of 2012. Debt is currently planned as five total issuances, two of which have

¹⁸ Allocation formulas distribute 38% to local, 5% to State Patrol and 57% to the State Highways Account. This performance audit did not review needs for local jurisdictions and the State Patrol.

already occurred. Repayment is to be from federal revenue sources with total debt service over the life of repayment estimated to total approximately \$1.54 billion. Debt service on these bonds is estimated to consume approximately 30% of future federal highway revenues.

The current ITD financing policy is to issue GARVEE bonds at times and in sufficient amounts to ensure that permanent financing is in place in advance of signing contracts. This results in significant cash balances that are reinvested until project cash flow requirements exhaust these balances. These cash balances can become quite large. For example, with the issuance of the planned fourth out of five total issuances in May 2009, the aggregate forecasted cash balances from this issuance and balances remaining from two earlier issuances will total over \$493 million. Reinvestment rates have declined relative to the rates paid on debt. The initial debt had a reinvestment rate higher than that for borrowing and, consequently, no net cost of carrying a construction fund balance. The current situation is different. Forecasted reinvestment rates have significantly dropped and the forecasted “loss” on the cash balances (difference between debt rate and reinvestment of cash) is now estimated to total approximately \$22 million. This GARVEE plan showing the impact of reinvestment rates lower than the borrowing rate is summarized below:

GARVEE Financing Plan			Total Proceeds	Negative Carry Cost Projected
Issued	1st	Series 2006	\$212,321,732	none ¹
Issued	2nd	2008 Series A	\$179,000,000	\$2,500,000 ^{2,3}
Pending	3rd	2008 Series B	\$205,000,000	\$4,905,630 ⁴
Planned	4th	Series 2009	\$299,500,000	\$10,644,081 ⁴
Planned	5th	Series 2010	\$102,000,000	\$4,083,076 ⁴
			\$997,821,732	\$22,132,787 ⁵

¹ Reinvestment rate higher than borrowing rate; no net cost
² Original estimate was \$3,634,197 but contract renegotiated effective July 2008 to reduce cost impact
³ Corrected revised estimate as Citigroup revision estimate was as of date of issuance
⁴ Borrowing rates for issuances 3 thru 5 assumed at 4.6%, 5.0% and 5.4% respectively; reinvestment at 2.5%
⁵ Negative carry is difference between interest rate paid and interest rate earned on cash balances

Approximately \$19.6 million of the forecasted negative arbitrage is in the three remaining forecasted debt issuances planned through 2010. These debt issuances total \$607 million. Although this forecast of cost is a result of

assumptions about relative long-term borrowing and short-term reinvestment rates in the future (as noted in footnote 4), alternatives that would reduce these borrowing costs during construction (e.g., shorter term borrowing at lower rates) or reduction in the amounts requiring reinvestment (e.g., structuring borrowing more closely to cash flow requirements by borrowing in smaller amounts more frequently) could significantly increase the funds available to deliver projects or reduce future debt service costs.

A possible concern related to a change in the current policy of debt structuring is that it would expose the department to long-term interest rate risk if permanent financing were not finalized prior to the time of contract signing. The estimated cost of negative arbitrage (the \$19.6 million estimate above) is equivalent to the cost to the state of raising the permanent financing rate by 0.4% to 0.5%. Eliminating the negative arbitrage is therefore equivalent to saving up to half of a percent on the financing rate of the remaining three issuances.

Additional savings might be also available by financing of the construction draw¹⁹s only as they occur with lower-cost interim financing provided through bond anticipation notes (BAN). Other jurisdictions have successfully employed this as a capital financing strategy, and Idaho has employed a variant of this in its annual tax anticipation notes (TAN) offerings. Given the potential significance of this cost, the formal written evaluation of alternative financing structures should be considered and shared with key decision-makers through the Idaho Credit Enhancement Committee.

Findings Related to ITD's Financial Planning

Revenues

- Revenue forecasting is the strongest element of the ITD financial plans. The basis for forecasts is identified and generally reasonable, and major revenue sources are identified.
- The revenues that are expenditure dependent or restricted to specific types of expenditures are not adequately identified in the STIP and 8-year expenditure forecast. This limits the understanding of the total availability of revenues for use on priority projects. For example, the STIP, and

¹⁹ Construction draws are periodic payments for progressive work completed by the financing entity.

consequently the multi-year financial plan, do not identify the net funds available (revenues after maintenance and operations) for the highest priority of contract construction related to preservation and restoration. Furthermore, some funds that are limited to specific purposes other than preservation or restoration are not specifically identified, thereby obscuring the amount of funds available for preservation and restoration.

- The implications of the structure of planned borrowing should be identifiable. Although the information is available and rather significant, none of the financial planning documents has included the forecasted cost of the \$22 million negative carry.
- The \$137 million of proposed revenue increases were nowhere included in a financial plan construct. In addition to the limitations noted below under our expenditure findings, the nature of how that annual amount increases over the financial planning period is a critical element of a balanced financial plan. In response to our requests, adequate information was made available from ITD sufficient to integrate the implications of the Preservation and Restoration initiative at least through the year 2013 STIP planning period.

Expenditures

The expenditure forecasts in the financial plans have the following shortcomings:

- The stated prioritization of operations, preservation, restoration and then capacity is not evidenced in the adopted GARVEE project selection plan.
- The inability to finance the necessary level of expenditure to properly preserve and restore existing infrastructure, before adding additional capacity and attendant ongoing commitments, is not included in the financial plan (although the categories of costs related to preserving existing infrastructure are the most significant elements used to justify the \$137 million requested revenue increase.
- While there is some description of the cost basis for a “fully funded” necessary preservation and restoration expenditure plan, it is necessary to rely on a tax increase addendum, not integral to the plan, to derive these costs. Further, the revenue implications of fully funding this plan over the

financial planning period are not provided. For example: The \$137 million includes a total of \$85 million, as a supplement to current available funds, to adequately finance preservation and restoration requirements for roads and bridges. When added to the imbedded assumptions in the ITD cost estimates of future 5% escalation in construction costs over the planning period, the result is a near term funding deficit:

Preservation and Restoration Capital Planning

(Values in \$1,000's)

2009-2013 STIP

Current Shortfall	Requirement	Programmed	Programmed w/ escalation	Shortfall	Revenue Increase	Available after Operations	Balance
	\$157,000			=Requirement vs Programmed	³		
	85,000						
2009 Base	242,000	\$154,883	\$154,883	\$87,117			
2010	254,100 ¹	124,957	131,205 ²	\$122,895 ⁴	\$137,000	\$127,000 ⁵	\$4,105
2011	266,805	103,089	113,656	153,149	138,680	128,180	(\$24,970)
2012	280,145	124,759	144,424	135,721	146,626	135,601	(\$120)
2013	294,153	107,705	130,916	163,236	140,684	129,108	(\$34,128)
							(\$55,113)

¹ Annual amounts in 2010 and beyond are escalated at 5%, the ITD cost assumption

² Programmed amounts in STIP require a 5% annual escalator to time of programmed expenditure

³ Revenue increase is assumed to follow the same forecast of increases as ITD State revenue forecast-delay till 2010

⁴ Impact of 1 year delay in implementing P&R funding till 2010 and resulting backlog not reflected in forecast

⁵ ITD forecasts need of \$10 million in operations deficit, escalated at 5% annual in outyears

- Nothing in the available plans quantifies the benefits to be expected from fully funding preservation and restoration. We found no descriptions of either the qualitative or quantitative impacts on the driving public relative to safety or driving costs, or offsetting cost impacts in ITD operations and maintenance.
- The impacts of the GARVEE and other capacity projects have not been included in any of the financial plan forecasts. For example, the operating and capital program nexus has not been identified (e.g., completion of a capital project and resulting operating impacts including staffing or maintenance requirements increased or reduced either in frequency or intensity). The relationship here is that GARVEE will result in systemic expansion, thus more lane miles for preservation and maintenance. These future costs are currently unaccounted for in addition to the needs for the existing lane miles.

- Expenditures that have revenue dependencies are not identified (see comment above under Revenues).
- The expenditure plan does not include proposed measures for evaluating the efficacy of expenditures.
- Although noted above under revenues, the net financing cost of planned borrowing should be identifiable in the plans. While the rationale for the structure and timing of the GARVEE financing could be fully supportable, the cost implications of construction period financing (e.g., the \$22 million negative carrying cost) should be identifiable in the financial plans.

Overall Findings

The GARVEE program lacks an adequate financial plan. While there is a GARVEE financing plan that incorporates the elements of planned borrowing to balance to forecasted revenues for debt service payment, this plan lacks the essential elements of a complete financial plan including:

- An adequate identification of the financial implications for the planned structure and timing of borrowing. The plan as proposed has an estimated cost of approximately \$22 million in negative arbitrage costs, which have neither been adequately identified nor justified to key decision-makers.
- A description of the financial and operating implications of the planned GARVEE capital projects have not been identified and incorporated into an overall ITD financial plan; the prioritization of the selected projects and the operating and financial implications of the selection and completion of these projects have not been incorporated into an overall ITD financial plan to ensure the capacity to operate, preserve, and restore the entire ITD infrastructure.

ITD does complete a multi-year financial forecast of revenues and projected expenditures for operations and with a forecast of capital expenditures that balances to annual remaining revenues available after operations. This does not, however, constitute an adequate financial plan. This multi-year forecast describes neither the operational service levels that would result from this projected operational spending nor the adequacy or prioritization of the allocated revenues for capital infrastructure relative to the priorities of preservation,

restoration, and capacity investments. Further, as noted in the GARVEE findings, the implications of completed major projects are not incorporated into the overall financial plan. Further, the forecast of expenditures for capital purposes merely balances to the projected total revenues less the estimated operations cost and fixed obligations without the benefit of relative prioritization of various activities (general operations, preservation, and restoration of roads and/or bridges vs. capacity projects).

The implications of these findings are as follows:

- Lack of an adequate financial plan hinders the ability of decision-makers to evaluate proposals for additional resources. For example, ITD has provided a summary of how the \$137 million resulting from proposed \$240 million revenue package (ITD share under existing formulas), would be allocated to various operating and capital accounts. This summary provided an estimated cost of current annual total requirements to fully fund contract construction for preservation and restoration of infrastructure, *but only for one year*. Absent both a projection of this ongoing cost into a multi-year financing plan and a corresponding justification for this level of annual spending, it is not possible to ensure that adoption of this revenue increase could have a measurable and economically sustainable impact.
- Even without an adequate multi-year financing plan, but based on available ITD information, it is apparent that the proposed \$137 million ITD revenue increase could not reasonably sustain the preservation and restoration plan justification over the financial planning period. Based on information provided by ITD during the audit period, it appears that this revenue increase would not provide sufficient funding to maintain the plan beyond the first year, and that the 4-year shortfall could be approximately \$55 million or more.

Recommendations

- New capacity projects should be rigorously and independently evaluated for cost effectiveness, with consideration also given to additional long-term maintenance costs. Such an evaluation should also include specific consideration of whether future proceeds from GARVEE can be directed

to projects that reduce on-going maintenance costs and support preservation and restoration priorities.

- Develop a complete financial plan that includes:
 - A description of the selection of the proposed capital projects as compared to alternative capital project candidates, including preservation and restoration.
 - A forecast of the financial implications of the completion of these projects on the overall ITD financial plan and the ability of ITD to adequately operate, maintain, preserve, and restore transportation infrastructure.
 - Integration of the GARVEE financing plan into the overall ITD multi-year financial plan.
 - Development of a formal written evaluation of alternative financing structures to be considered and shared with key decision-makers through the Idaho Credit Enhancement Committee.

SECTIONC 1.C. INTEGRATION OF PROGRAM PLANS

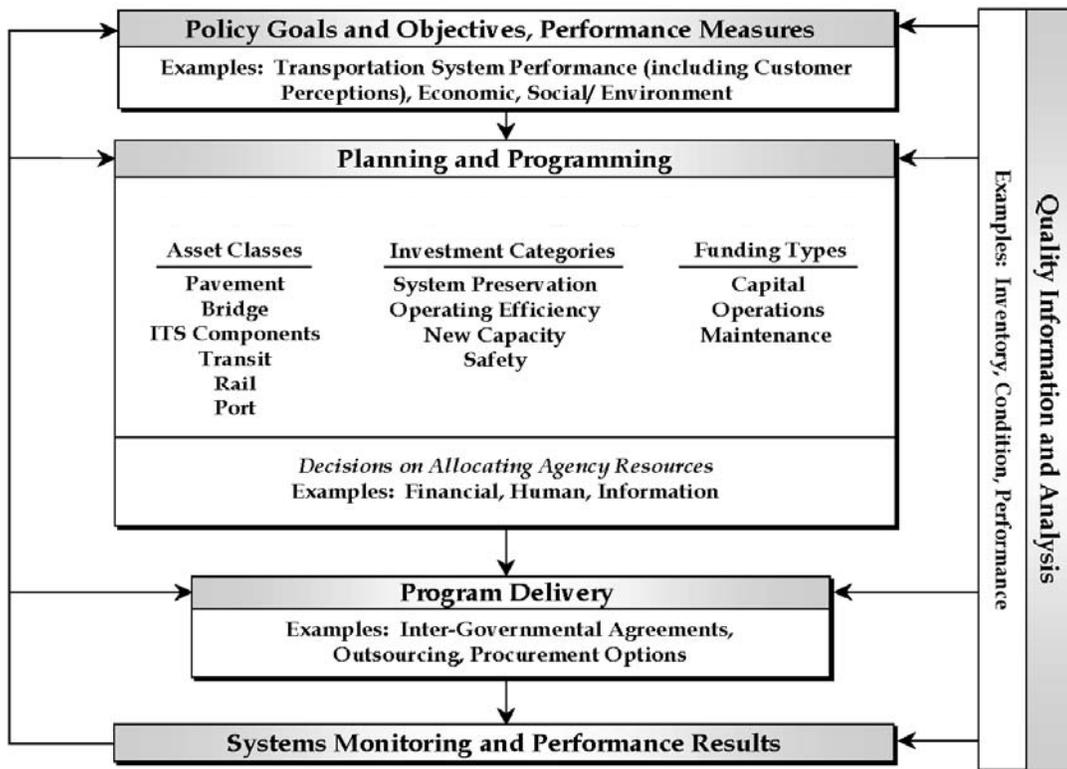
Audit Objective – Assess the integration and coordination of planning and budgeting for highway maintenance, preservation, and improvement among the programs and with the short and long-term financial plans.

ITD, like all state transportation agencies, manages various transportation improvement and maintenance programs. From an investment standpoint, it is essential that the “total package” of department highway expenditures optimize the limited resources available. Planning, prioritization, implementation, and evaluation of programs and projects cannot be done in isolated organizational silos. The department must be able to demonstrate how program planning and project selection support resource optimization across long-term and short-term plans, capital improvements, rehabilitation projects, etc. In short, this audit objective is intended to assess how well the department is positioned to maximize the return on investment for the transportation dollar. The existing transportation system represents a multi-billion dollar investment made over decades. An integrated approach to the preservation and improvement of this asset is essential.

Criteria

The *Transportation Asset Management Guide*, published by the American Association of State Highway Transportation Officials (AASHTO), defines a comprehensive approach to asset management as a broad-based business approach to managing assets that clearly links the actions of the transportation agency to specific measurable goals and objectives documented and published in the agency’s strategic transportation plan.

The *Transportation Asset Management Guide*, page 2-2, provides a comprehensive “best-practice benchmark” view of transportation asset management and defines the following five major areas that, used together, comprise a disciplined and structured asset management approach, as shown in the following figure.



Source: Transportation Asset Management Guide, AASHTO, p.2-2

The literature emphasizes that asset management is much more than computer software tools for the economic analysis of assets. Asset management is an organizational policy and a way of doing business. This requires a strong institutional linkage between planning and programming that is integrated with financial planning. The following are five characteristics of asset management best practices among state transportation departments:

- Establish a clear and systematic link between outcome-based policy goals and project selection through performance-based planning.
- Develop and maintain an intermediate-range plan forming a bridge between short-range programming—such as the STIP (5 years)—and long-range planning—25-year time horizons associated with long range transportation plans.
- Involve political leaders and local stakeholders in ways that steadily promote an understanding of, and support for, the department’s planning-programming process.

- Support a shared vision, including broad goals and measurable objectives across the organization.
- Mandate strong technical and analytical justifications for project prioritization and selection.

The essential components for strategic asset management are a combination of business processes, planning tools, program delivery, analytical capabilities, and quality information. Using these elements as an integrated system helps to determine whether policy goals are being achieved.

Findings

Formulas are not used for scheduling and budgeting highway preservation and maintenance services. There is not a current formula in use to allocate budgets to districts. The data to support district planning is not sufficient nor readily available for level of services, life-cycle costing, unit cost of components, and overhead.

ITD has developed several planning documents through separate processes that provide high-level policy, planning, and program expectations for the department. Each plan is summarized below.

The plans are not integrated under a unified planning and investment umbrella. Planning that fails to span and connect the organization can hinder performance.

- **“Idaho’s Transportation Vision”** is a policy level plan that fulfills the federal requirement for a statewide transportation plan, but it does not include project investments with a supporting financial plan.
- The **“ITD 2009 Strategic Plan”** establishes high level goals for the highway system, but is not linked to the strategic, operational, or tactical goals and objectives of ITD.

- ITD uses a Long Range Capital Improvement Process (LRCIP) called “**Horizons in Transportation**” in which proposed highway projects and other recommended improvements are assessed prior to inclusion in the Capital Investment Program. Horizons has three time-frames – Near Horizons, constituting years 6 through 10, Mid Horizons is years 11 through 15, and Far-Horizons is 16 years and beyond. Feasibility studies and early environmental studies are undertaken for Near Horizon projects to establish “purpose and need” and to develop a supporting funding plan. There are no clear criteria for how Near-Horizons projects are selected for early environmental work or STIP inclusion. Horizons projects have a total cost in the range of \$2 billion to \$4 billion.
- **The State Transportation Improvement Program (STIP).** The purpose of the STIP is to provide a five year capital improvement plan for the state’s surface transportation program. The STIP is updated annually and is developed through a coordinated and cooperative process, involving citizens, elected officials, tribal governments, other state and federal agencies, each of Idaho’s six Metropolitan Planning Organizations, the Local Highway Technical Assistance Council (LHTAC), and other stakeholders. The current STIP contains the state’s multi-modal transportation preservation and improvement programs, listing transportation projects for FY 2009 – 2013. The STIP is available from the Idaho State Transportation Department at www.itd.idaho.gov/projects/stip.htm. For highways, approximately \$2.2 billion is anticipated to be available for the 2009-1013 STIP project list, including \$635 million of GARVEE projects.
- **The “Capital Investment Program.”** The annual Capital Investment Program update is a well-documented process. In June of each year, the draft Capital Investment Program and the draft STIP are presented to the Idaho Transportation Board. The Capital Investment Program and the STIP mirror each other. The only difference is that the Capital Investment Program is organized by program and the STIP by district.

The Capital Investment Program Update Packet documents the general process and responsibilities for project selection, specific performance

based program eligibility guidance, as well as deficient location data/criteria provided for justifying the funding priority and the benefits of projects. However, specific and documented criteria do not exist for many programs, and general consistency across districts in project selection and prioritization is lacking. While district knowledge about their highway network and specific conditions in their regions is an intangible organizational asset, the selection processes lack technical and analytical justification. This represents an opportunity for improved inter-agency coordination and an improved general prioritization process that each district would follow, with flexibility, because of varied needs and conditions.

While each of these plans and associated programs serve a useful purpose, they are not integrated. There is no process that links the ongoing ITD Strategic Plan performance objectives, nor a process to coordinate the development of the following: Transportation Visions, Horizons in Transportation, the Capital Investment Program, and State Transportation Improvement Program (STIP), with a business and financial plan.

ITD has also implemented a “Practical Design” initiative. The basic goal of this initiative is to customize projects to fit specific needs rather than using a more expensive “one size fits all” approach. In other words, transportation investments are tailored to address only the specific critical needs of each project. ITD District Engineers accomplish this by being sensitive to project locations; implementing designs that are appropriate to the context of the project surroundings; and therefore, achieving the best value for the least cost. The financial goal of the Practical Design initiative is for ITD District Engineers to implement solutions that reduce low bid project costs by 10% below authorized costs. Practical Design is intended to improve the cost-effectiveness of project designs without sacrificing roadway safety.

Design changes under the Practical Design initiative have included less pavement depth, various pavement treatments, and rehabilitation of travel lanes only, use of alternate materials, increased recycling, and the use of rehabilitation rather than replacement. The ability to sustain project design cost reductions over the long-term will be a significant challenge. In the future, all project scopes of work will be subject to practical design

standards before being programmed. The challenge in achieving a ten-percent reduction may require modifying specifications or project requirements without sacrificing safety, design intent, and construction quality. Practical Design is an effort to modify up-front capital costs for new construction projects. Some modifications in standards may have long-term implications such as the requirement for higher levels of future maintenance; ITD already faces a significant maintenance backlog.

Despite growing improvement needs, funding for ITD road maintenance has been essentially flat since 2005.

Incremental annual funding increases have been more than offset by rising costs and a growing need for road repair. Year-to-year funding increases reflect incremental adjustments from 2005 (base year) when a Maintenance Management System was last used.

As road conditions worsen, the department finds itself in the precarious position of having to address more repair needs with relatively fewer resources to combat the problem. In addition to added funding, this needs-funding gap underscores the absolute need for the focus on maintenance and preservation over capacity building.

Maintenance resources are not sufficiently targeted on the basis of need.

ITD lacks a needs-based formula or criteria for optimizing resource allocation. Maintenance funding allocation formulas are currently part of ITD's administrative policy. The formulas are not being used currently because they lack the internal systems upon which the formulas are calculated. The use of formula ceased in 2006 when the maintenance management system was discontinued. Budget allocations should be based on a defensible formula that directs limited resources on the basis of need to the greatest extent practicable.

The annual maintenance program is on the order of \$153 million a year. An expenditure of that magnitude must be guided by a strong decision support system that includes:

- Reliable system condition data, such as statewide pavement and bridge condition data

- Needs-based planning and programming processes
- A maintenance management system that integrates with pavement management and bridge conditions and links to fiscal expenditure of preservation dollars
- Quantifiable goals by district for maintenance backlog reduction that is part of a broader ongoing District Business Planning process that results in district business plans that are periodically updated

Local road improvement funding lacks basic oversight.

Idaho's funding for local roads is provided directly to local governments. This allocation represents 38% of the user tax portion of the annual transportation revenue. This is a significant investment-over \$127 million annually. Clearly, it is in the best interest of Idaho to ensure a reasonable level of accountability for these funds. This should occur and can occur without being overly burdensome on Idaho's local governments.

Recommendations

ITD should implement a maintenance management system (discontinued in 2006) to support a needs-based approach to allocating resources.

- The Maintenance Management System should be developed to systematically support and calculate items such as the following:
 - Annual work program development and prioritization
 - More effective use of available resources
 - Staff time spent by maintenance activity
 - Unit cost analysis of various maintenance activities. For example, the system can automatically calculate the following (not readily available currently):
 1. Define maintenance activity unit of measure

2. Determine the number of units required
 3. Calculate the direct cost
 4. Calculate the indirect cost
 5. Determine full cost of activity unit
- Comparisons of contractor vs. In-house cost and productivity
 - Trend analysis statewide and by district
 - Generation of uniform needs and backlog reports—district by district and statewide summaries
 - Development of alternative investment scenarios such as comparing a needs-based allocation to the current historical allocation approach for comparison purposes

ITD should develop a maintenance allocation formula that reflects key need criteria in conjunction with a Maintenance Management System.

- A maintenance allocation formula would provide a more equitable distribution of maintenance funds across the state. This in turn would promote greater consistency of roadway conditions and services throughout the state. In addition, it would result in a greater return for investment on ITD's maintenance program because of a more equitable distribution of budgets based on need and roadway network.
- The formula should include factors such as Vehicle Miles Travelled (VMT), average daily truck traffic (ADTT), weather, miles of road, roadway conditions, numbers of bridges, and bridge conditions. It should include a rationale for the criteria used and an assessment of the impact and benefits of a few key alternative approaches. In addition, it should establish the base level needed to provide basic winter services and other routine maintenance activities. This established base level should provide for funding to meet these winter and routine maintenance needs and to prevent formula fluctuations from year to year.

The Planning and Budgeting process should be improved to develop better estimates of project costs and priority for the STIP.

- ITD should partner with the MPOs to establish improved methods for prioritizing capital improvements for each program. The Regional Long Range Transportation Plans and the Statewide Transportation Improvement Program (STIP) should be structured to:
 - Identify and quantify need over a 25 year time horizon in 5 year increments.
 - Establish the funding levels necessary to close the gap between available and existing resources.
 - Set targets for backlog reduction.
 - Set targets for moving from a backlog reduction posture in the shorter term 5-10 years to an asset management approach 7-25 years that positions Idaho to spend increasingly more funds on early preventative maintenance. This will help prevent the recurrence of the current situation wherein the improvement needs so exceed existing resources that there is no way of making significant progress without additional resources.

ITD should implement asset management as a strategic initiative.

- Used in conjunction with Practical Design, decision-support system improvements, and performance management, asset management will foster the best use of resources and enhance department performance to initiate the strategic asset management process:
 - Establish and document objective criteria and an integrated process for project selection.
 - Use asset management tools to select the best mix of preservation, restoration, and reconstruction projects for pavements and bridges.
 - Incorporate current Visions and Horizons documents into a longer range, fiscally-constrained plan with a realistic estimate of safety and expansion projects that can be afforded over the longer term.

- Use objective scoring criteria for project inclusion in STIP.
- Use a 20+ year horizon in the plan and integrate long-term financial forecasts.
- Link programs to statewide goals and performance measures.

Continue to expand the use of Practical Design for all applicable projects.

- Savings from the program and the process should be included in performance management goals. ITD should review the past work in this area, document the best practices and procedures, and provide overall direction to the districts. Care should be taken to ensure that the efficiency initiatives will not sacrifice safety or long-term benefits of the project improvements. While it is possible to reduce standards in construction to save on initial capital cost, there might be long-term ramifications with increased maintenance.

The Legislature should revise Idaho Code to allow the ITD Board to develop a proposed policy to guide the oversight of funding for local roads.

- The policy should be developed with local input at least at an association level, such as local highway districts, association of counties, and association of cities. The policy should also be developed following a basic review of the oversight for state funded local roads and bridges in other states. The policy should include:
 - Stated objectives or performance goals
 - General priorities to guide the use of the funds
 - A process for achieving the necessary oversight
 - General standards for the use of the funds
 - Basic reporting by municipalities to ITD on an annual basis in a uniform format
- ITD should compile the results of the municipal reporting and provide an annual report to the board and the legislature. The report should highlight

key trends and a summary of the general impact of the investment. ITD should also do a few spot reviews of local funding each year. Consideration should be given to establishing a basic audit cycle in which ITD district staff review the local use of funds. This would be one way to promote inter-governmental cooperation as well.

SECTION 1.D. ADEQUACY OF FORMULAS FOR SCHEDULING AND BUDGETING HIGHWAY WORK

Audit Objective – Assess the formulas used for scheduling and budgeting highway preservation and maintenance work.

This audit area focuses on ITD's current approach to scheduling and budgeting for highway preservation and maintenance work and how the prioritization approaches compare to industry practices. The management of Idaho's state highway network is a monumental responsibility.

Criteria

Asset management is a generally accepted best practice for state transportation departments. Used as an overarching strategy with strategic business planning, asset management can help preserve infrastructure life, lower life-cycle costs, and improve service delivery. Many states have leveraged advances in information technology to develop management systems or similar tools to support a more methodical approach to managing highway system assets. Integrated decision support tools, such as a Maintenance Management System (MMS), Pavement Management System (PMS), Bridge Management System (BMS), and a Financial Management System (FMS) help improve highway system efficiency.

Investment in integrating these decision support tools should be made relative to the degree that benefits of integration outweigh the costs of implementation. Typically the cost benefit ratios of such investments are considerably favorable.

Agencies that follow asset management processes have adopted preservation-first strategies and moved away from worst-first strategies (addressing deficient pavements) in favor of life-cycle cost principles that result in the most cost-effective preservation and maintenance strategies to keep pavements in good condition longer.

Use of life-cycle cost analysis is an integral component of asset management and is considered an indispensable practice. Best practice models evaluate alternative highway investment strategies by comparing user benefits with life-

cycle capital, operating, and maintenance costs under different strategies. Best practice pavement modeling can compare optimal miles of maintenance needed by assumed deficiency levels. For example, it can develop a process for determining the most cost-effective approach to bring a 12,000 lane-mile system to a 15% deficiency level over a five-year period. Best practice models are used to assess tradeoffs and evaluate the relative benefits of different overall levels of investment. For example, Oregon has adopted the federal Highway Economic Requirements System (HERS) into a state-level version, called HERS/ST to analyze statewide investment strategies and compare alternative improvements to highways.

Findings

The department does not have decision-support tools upon which to systematically evaluate the optimal choice for a variety of planning and level-of-service options given funding scenarios.

ITD has completed a research report²⁰ that recommends using best practices in PMS to better analyze alternative treatment strategies, and using a MMS as the core component of an asset management strategy. The recommendations provided in the research report are sound. According to the study, completed by a consultant for the department in August 2008 on a scale of 1 to 5, with 5 being the highest, ITD PMS ranks as a 2; and for manual processes that attempt to replicate limited MMS-type functions, ITD ranks 1, the lowest. The study compares ITD to best practices, and recommends alternative implementation priorities.

The ITD research report also recommends that an MMS with functionality that will allow ITD to perform historical cost comparisons, evaluate productivity rates, and conduct performance based budgeting. A new MMS would also allow ITD to evaluate level of service, evaluate services that would be best contracted out, and many other functions.

²⁰ ITD Research Project RP183, August 2008.

ITD’s worst-first strategy for pavement rehabilitation and reconstruction leads to inefficient pavement management as compared to asset management techniques.

ITD does not use optimization tools currently available in today’s pavement management systems. The current ITD Pavement Management System (PMS) provides an assessment of pavement needs based on annual pavement condition surveys. Needs are defined in terms of deficient pavements, which are identified when the results of the condition surveys indicate that conditions are below a certain level. The existing system inventories deficient pavements, and contains a simple-ranking function. A listing of deficient sections is provided to the districts, and they are expected to develop pavement improvement projects to address these deficient sections first.

This worst-first strategy is not compatible to ITD’s stated preservation-first strategy; moreover, it may lead to worse long-term conditions than an alternative strategy that includes an appropriate level of preventive maintenance treatments to keep good pavements in good condition longer.

“Worst-First” Focus	“Preservation-First” Strategy
<ul style="list-style-type: none"> • Primary focus on “poor” conditions. • Address pavements and bridges that have deteriorated the most. • Require immediate short-term costly rehabilitation or reconstruction. • Reactive day-to-day decision-making. • Disconnected or stand-alone systems. 	<ul style="list-style-type: none"> • Focus on good, fair, and mediocre conditions to keep good pavements and bridges in good condition longer. • Use an optimization approach that looks at both current and forecasted conditions. • Use investment and cost strategies that maximize condition and minimize costs over entire system. • Realistic performance targets. • Organized data and integrated Maintenance Management, Pavement Management, and Financial Management systems.

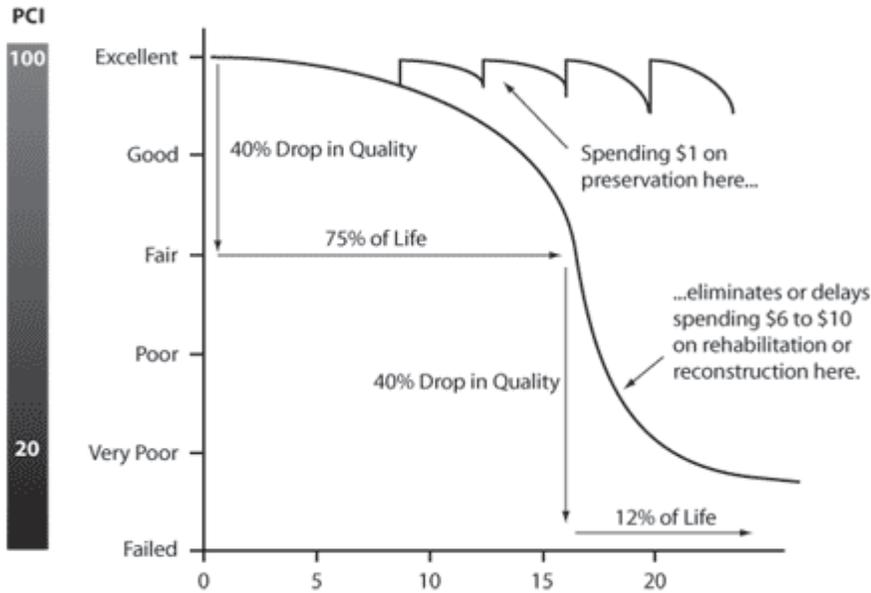
District personnel indicate a desire to use preventative strategies to maintain pavements overall, but since these types of projects do not eliminate reported deficiencies, there is little incentive to do so. Therefore, the districts do not currently address the most effective life cycle pavement treatments, resulting

in accelerated deterioration of non-deficient highway segments with deferred maintenance. Current average costs to rebuild one mile of highway is approximately \$1.2 million. According to research, a lack of preventative maintenance can reduce the life cycle of a highway by 10 years or more.

District 6 has piloted the use of PavementView Plus software which is capable of analyzing the impacts of different treatment strategies over a multi-year period. This pilot has been successful in that the system was populated with existing data, allowed the user to define budgets and allocations among different pavement strategies, and provided results of how different scenarios affected the overall condition of the road network over time. Major challenges involved the difficulty in data acquisition due to the lack of access to a statewide road characteristics database.

The graphic below clearly shows the importance of asset management as it relates to highway pavement life cycles. The horizontal axis shows time and traffic in years while the vertical axis shows pavement condition from excellent to failed with a corresponding pavement condition index (PCI). Preservation investments made earlier in time help to extend the expected service life. The sequence of curved lines at the top shows periodic deterioration from initial good condition to the point of rehabilitation. In the absence of rehabilitation, over time, highway pavement performance worsens. As noted in the graph, spending \$1 on preservation while pavements are still in good condition “eliminates or delays” spending six to ten times that much on rehabilitation or complete reconstruction less than ten years later. This is shown by the long curved line that extends down to the right, showing a 40% drop in pavement quality over 75% of its life and further declining to another 40% drop in quality approaching a failed condition over the final 12% of its life.

Preventative Maintenance Applied to Pavement Life Cycle²¹



The graphic also demonstrates the benefits of “maintaining what we have.” Currently, 4% of ITD roads are rated Very Good to Excellent, 35% are rated Good, 25% are rated Fair, 30% are rated Poor (Mediocre), and 6% are rated Very Poor. Idaho has more roads in poor and mediocre categories than peer states. The current maintenance strategy does not bode well for Idaho’s future.

Preventive maintenance applies the right **treatment** to the right **pavement** at the right **time**. Idaho will get longer use of a pavement at a higher quality for less cost by maintaining the roadway at a higher level earlier in the lifecycle. In addition, a significant savings realized from early preventative maintenance is estimated at least \$6.00 for every \$1.00 spent²². By maintaining good pavement, ITD will realize lower costs to reconstruct in 12 to 16 years from the time of the \$1.00 investment.

²¹ <http://www.fhwa.dot.gov/pavement/preservation/ppc0621.cfm>

²² *ibid.*

The lack of a Maintenance Management System leaves District Management without proper tools and impacts efficient highway maintenance budgeting and repair.

In scheduling maintenance work, the districts have not had a Maintenance Management System (MMS) since 2005. At that time, the Financial Management System (FMS) was implemented which, together with new process capabilities and technology advances, rendered the MMS mainframe application obsolete. The MMS was not replaced. The current manual process of recording information in diaries, as a makeshift replacement of the former MMS, makes information difficult to find and report on.

The lack of a MMS at the district level forces managers to budget and schedule work without the ability to properly manage district crews, materials and equipment. District managers have requested restoration of the MMS to be able to plan and schedule maintenance work, track the work accomplished for the money spent, evaluate changes in work crew efficiency, compare current work levels with historical values, and track material and equipment use throughout the year.

District maintenance budgets were at one time based on the Administration's maintenance allocation formula, which was discontinued after the maintenance management system (MMS) was terminated in 2005. The lack of an MMS has resulted in a process which uses FY06 maintenance numbers as the baseline, using historical and anticipated needs for personnel, materials, equipment, and contracts. Without valid integrated systems and a base of recent costs and sound projections, future district allocations could result in unrealistic and underfunded budgets.

Resource allocation should be based on a wide range of defensible factors that take into account condition, system size, weather, usage, and any other relevant variable. ITD should not continue to allocate maintenance resources year-to-year in an incremental fashion. This can perpetuate sub-optimal resource allocation, particularly if the base year of allocation was skewed in any way. The point is that historical application does not relate to physical deterioration of the roads and bridges.

Bridge programming is accomplished at the Headquarters level with district consultation. ITD's Bridge Management System, Pontis, is used as an effective management tool.

Bridge management appears to be the one area that ITD has advanced to an efficient decision support tool. The ITD Bridge Section uses a bridge management system, Pontis, to maintain an inventory of bridge inspection data and analyze bridge deficiencies. Pontis has been developed by AASHTO and is the accepted industry standard. In addition, AASHTO assisted ITD in adjusting Pontis to account for the unique characteristics of Idaho bridges and weather. Pontis appears to be a useful tool to assist in bridge management. It can formulate network-wide preservation, improvement projects and can assist in determining which projects should be included in the Capital Investment Program, and can identify which projects should have certain maintenance applied.

Recommendations

ITD should adopt an asset management approach to manage Idaho's highways and bridges. The department should first develop:

- An asset management strategy and implementation plan to address the asset management needs of the agency prior to seeking a set of decision support tools
- A strategic approach that encompasses multiple business processes
- Reliable and accurate information and analytical capabilities from tools such as Pontis, Maintenance Management System, and Pavement Management System to complement decision making processes

The department should acquire and implement a Maintenance Management System.

- Highest priority is to use an MMS with full functionality, such as workforce time entry by maintenance activity, trend analyses, and tracking of equipment and materials usage. This functionality is enhanced with an interface with the financial management system.

- Restore cost accounting functionality to allow ITD to evaluate productivity rates and establish the functionality to conduct performance based budgeting.
- Allow the districts to evaluate funding necessary to meet alternative level of service targets.
- Allow for the systematic evaluation of services to be contracted out.
- Provide information to more effectively distribute maintenance budgets to the districts. Over the long run, underfunded maintenance programs contribute to overall higher costs of providing a transportation system.
- Develop a formal Maintenance Quality Assurance Plan to collect condition information and access feature inventories for key assets such as pavements, signs, bridges, drainage features, and guardrails.
- Outline an MMS implementation within the agency's asset management strategy and implementation plan.

The department should implement a new or enhanced Pavement Management System.

- New management systems should be integrated with the existing Financial Management System—this applies as well for the Maintenance Management System.
 - At a minimum, expand the District 6 pilot PMS to the other districts.
 - Provide for predictive capabilities to evaluate alternative strategies for most efficient mix of pavement treatments.
 - Allow users to develop long-term plans through the analyses of different treatment strategies over a multi-year period.
 - Provide a distributed database structure that enables separate databases to be linked transparently so that anyone (central office or districts) has access to the databases.

The Idaho Legislature should consider appropriating \$6 million for acquisition of recommended systems:

- Maintenance Management System - approximately \$4 million – to enable:
 - Reporting maintenance accomplishments and true costs with historical comparisons of productivity rates.
 - Defining customer-oriented maintenance quality conditions.
 - Assessing competing program needs and funding impacts with limited budgets.
 - Linking desired customer expectations and outcomes to resource and budget needs.
- Pavement Management System - approximately \$1.5 million to enable:
 - Providing more accurate and accessible information on roadway system.
 - Selecting more effective maintenance and rehabilitation strategies.
 - Analyzing more efficient use of available resources.
- Interface with Financial Management System and training – approximately \$0.5 million for the purpose of:
 - Linking time, material, and equipment details to maintenance activity type and location.
 - Customizing interface with financial system for accurate payroll and maintenance costs.
 - Providing essential training for statewide users for maximum return on investment.

- Overall benefits:

Studies have documented the benefits associated with use of integrated decisions-support systems. One study indicates a benefit to cost ratio of approximately 30 to 1²³ in savings in rehabilitation needs through the use of more cost-effective preservation strategies over the life of the study.

²³ Hudson, WR, SW Hudson, G. Way, and J. Delton, "Benefits of Arizona DOT Pavement Management System After 16 Years Experience," Transportation Research Board, Washington DC, 2000.

Another analysis shows a benefit-cost ratio of 100 to 1²⁴. These studies also indicate that even if a portion of the benefits are attributed to the use of integrated management systems, the benefits exceed the acquisition and implementation costs. Assuming ITD realizes a 30 to 1 cost benefit ratio as indicated in the study, the savings from a \$6 million integrated systems investment as recommended, could lead to at least \$180 million in savings to the Department over 20 years through the use of a more effective asset management program. The associated savings of avoiding higher re-construction costs of highways from more effective preventative investment strategies to the citizens and users of Idaho would be even more substantial.

²⁴ Hudson, WR, and Ralph CG Haas, "What Are the True Costs and Benefits of Pavement Management?" *Proceedings*, Third International Conference on Managing Pavements., San Antonio, TX., May 1994.

SECTION 1.E. METRICS USED TO EVALUATE HIGHWAY PROGRAMS

Audit Objective – Assess the program evaluation methodology used and the extent to which the evaluations of past programs improve the success of future maintenance and preservation programs.

Criteria

Performance measurement is the industry standard for evaluating program effectiveness. Public agencies that are driven by performance-based management provide visible and reliable results. Therefore, taxpayers can access information that allows them to better understand expenditures and results. It enables the public to hold departments accountable for their performance. Performance-based management programs also help to ensure that resources are allocated efficiently, which is becoming increasingly important for ITD. Also, performance measures are critical tools for developing and justifying budgets and project proposals. Perhaps most importantly, a strong performance-based management program fosters a culture of self-assessment and continuous improvement that leads to optimal operational efficiencies.

AASHTO and FHWA have embraced comprehensive performance management as an industry best practice. Over the last decade, many transportation agencies have become increasingly sophisticated in using performance measurements. Leading performers with regard to performance measures have been identified by AASHTO and the National Cooperative Highway Research Program (NCHRP) “20-24” as “best-in-class practices.” These leaders include Florida, Virginia and Washington. Strong performing transportation departments use performance measures to foster accountability for cost and schedule, monitor and detect the causes of problems, and demonstrate that improvements have been accomplished. ASSHTO recognizes that to be effective, performance measures should be an integral part of the department’s business planning, operations, and project delivery.

Measured outcomes should be linked to overarching policy objectives, supported by reliable data, and provide the means for a continuous cycle of self-assessment. These best practice approaches include the use of sophisticated asset management tools, as described in Section 1.D. NCHRP identified the following core best practice self-assessment principles.

- Policy-driven resource allocations which are based on well-defined policy objectives that reflect desired system conditions, levels of service, etc.
- Policy objectives are translated into performance measures.
- Decisions on how to allocate funds are based on analysis of how different allocations will impact achieving policy objectives.
- Decisions are based on quality information.
- Performance results are monitored and reported for both impact and effectiveness.

Those transportation agencies that use performance-based management have credited measuring and reporting on performance as a means to achieve cost savings, garner public support for transportation investment and deliver projects more quickly. Performance measurement also plays a key part in resource allocation and budgeting decisions.

Measuring project delivery performance has helped high performing states improve delivery. For example, Virginia has reported that by measuring on-budget project performance trends, it learned to better define contract scopes of work for small to medium bridge maintenance projects and improve overall budget performance. The Michigan Department of Transportation reported that measurement-driven performance programs reduced project overruns by 3% and delivered projects faster.²⁵

For fiscal year 2008, comparing contract final amount to contract bid amount, ITD experienced a 108% cost overrun. Historically, ITD has had cost overruns of 8% over initial contractor bid. By reducing this percentage to 5%, closer to the industry average, ITD will save approximately 3% annually. If Idaho adopted the 3% project delivery performance improvement goal for its capital program, ITD could save about \$3.1 million annually in capital project delivery improvements.

Some of the peer transportation departments surveyed developed meaningful measures that demonstrate accountability. The Utah Department of Transportation (UDOT), for example, represents a best-in-class practitioner. It has adopted an asset management approach and has developed key

²⁵ AASHTO ISBN Number: 978-1-56051-403-9 Pub Code: RP-PBHP-1.

performance indicators that are linked to strategic goals. It is a best practice example because its assessment philosophy is integrated throughout the agency at the central office and at the regional level. Within our survey group there are other excellent examples of performance-based management and reporting programs. Utah has the following performance metrics linked to the strategic goal of “take care of what we have.”

- Maintain 90% of interstate and 50% of pavements in fair or better condition based on roughness of pavements.
- Evaluate and use a pavement serviceability index developed within ITD to monitor pavement conditions in terms of remaining service life.
- Maintain a maximum 10% of statewide bridge system in poor condition.

UDOT policy calls for a preservation-first investment strategy. UDOT’s asset management system and enabling technology provide UDOT with reliable data collection, database management and analysis tools that have begun to allow for an analysis-driven systematic preservation program²⁶. (See Section 1C, page 52 for a detailed discussion of asset management.) According to the NCHRP, asset management has allowed UDOT to align investment funding with the agency’s strategic goals and the performance plan.

UDOT has also adopted a more transparent project selection process. UDOT’s asset group has used condition and performance monitoring and design standards to determine the life cycle of assets. The Asset Management System provides capability to conduct scenario analyses to determine the effects of different funding levels on highway network system performance so that the system can support optimum distribution between preservation and rehabilitation needs. UDOT investigates the impacts of operational changes on performance measures for the asset, providing the department with an analytical tool in evaluating preferred treatments.

Wyoming and Illinois have implemented the “Balanced Scorecard” methodology to translate the long-term top-down strategy that provides a framework for understanding and measuring performance. The strategy is mapped and communicated to the operational levels with the aid of “scorecards” developed for each level and district. The scorecards ideally balance short-term and long-term

²⁶ NCHRP 20-68 Domestic Scan Program.

financial, business process, customer satisfaction, and employee learning and growth measures.

While each state offers slightly different metrics, performance-based programs are the norm. The best performance reports are simple, clear and concise, and provide meaningful information about the department's focus on a limited number of key measures. ITD should benefit from other states' experience and adopt some of these key measures as its own. Utah's measures offer a good starting point.

This audit focuses primarily on highway planning, operations and project delivery. The peer states measure performance for highway divisions in the following general categories.

- Asset Management:
 - Pavement condition
 - Bridge conditions
 - Ride quality
- Project Delivery: There are several good examples of budget and schedule gauges and report formats that are appropriate for consideration. Peer states like Utah and Oregon measure and manage toward project delivery schedule and budget delivery performance targets, including
 - Number of project studies
 - Number of projects under design
 - Cost estimates for projects in design
 - Number or percentage of projects delivered to bid on schedule
 - Percentage of construction projects completed on time
 - Completion of environmental compliance within schedule
 - Percentage of cost overruns projects on completed projects

- Programming and Budgeting: Some examples of performance indicators for programming and budgeting are listed below.
 - Percentage of program dollars awarded versus planned
 - Ratio of annual program costs awarded versus annual program costs estimate
 - Percentage of projects delivered as programmed
 - Percentage of dollars spent on completed projects delivered within budget
 - Number of program projects let
 - Percentage of project phase within budget
 - Ratio of operations budget to admin budget
 - Percentage of capital programs delivered each year
 - Percentage of highway capacity increased
- Safety:
 - Number of fatalities
 - Number of injuries
 - Seat belt usage
 - Work zone accidents
- Congestion/Mobility:
 - Average time to clear traffic incidents
 - Percentage of crashes on highway system where road conditions were a contributing cause
 - Number of miles of road by urban and rural congestion
 - Percentage of extra time needed to reach destination on urban and rural roads

- Number of backlogged miles of road by type
- Number of miles of state highways under congested conditions
- Percentage of Idaho driver satisfaction for traffic flow
- Rate of traveler delay
- Operations:
 - Snow and Ice control

Findings

ITD, like many other transportation departments, is reporting on activities for which data is readily available and there are federally driven reporting requirements, but which may have limited usefulness for assessing system performance.

These measures do not necessarily provide information on outcomes over which the department has control. Although captured with good intentions, inaccurate and poorly specified measures will not improve planning and performance.

Among the metrics ITD does use to measure performance are:

- Total contracts awarded for highway construction (state fiscal year)
- Total dollar value of awarded highway construction project (state fiscal year)
- Lanes of seal coats (calendar year)
- Lane miles of road rehabilitated
- Total vehicles miles traveled on state system highways (calendar year)
- Percentage of pavement at a condition of fair or greater
- Number of weight restricted bridges

- Highway projects bid on time
- Number of final contract total that are no more than 4% higher than the total award per federal fiscal year.

Examples of departmental performance measures reported are:

Performance Measure	03/04	04/05	05/06	06/07	07/08	Benchmark
1. Maintain at least 82% of pavement at a condition of fair or greater (CY)	84%	81%	81%	80%	81%	82%
2. Reduce the five-year highway fatality rate (CY)	1.93	1.89	1.86	1.84	1.79	1.73
3. Increase seat belt usage rate (CY)	72%	74%	76%	80%	78.5	90%
4. Highway projects ready to bid on time (FFY)	70%	82%	88%	72%	76%	95%
5. Highway projects completed within allowable range of engineers estimate (FFY)	79%	73%	76%	75%	80%	90%
6. Final contract totals are within 104% of detailed estimates(FFY)	108%	109%	108%	109%	105%	104%

The audit team was unable to verify the source of the above figures. Overall, the audit found that there is an absence of standard performance measures by which to set goals that align with ITD's mission and assess district performance in the areas of:

- Maintenance delivery
- Project delivery
- Operational efficiency
- Communications

With respect to the validity and reliability of data used for ITD's current performance measures, the audit found that some data is reliable and obtained through inspections. Other data is less reliable. During the district interviews there were direct observations by the audit team in which data used for decision making were considered by staff to be unreliable unless tempered by professional judgments.

For example, district staff reported that they are regularly engaged in meetings to reconsider pavement condition data that is viewed to be out-of-date, imprecise, and inaccurate. District staff reported that budget and accounting data collected within the department is difficult to use resulting in extra time manipulating data outside the system. Staff reported conducting laborious evaluations of data to report current conditions. District staff has developed ad hoc reports to support and evaluate their own performance.

Some measures such as the ITD on-time delivery is inexact because on-time is measured as within the year currently scheduled for funding appropriation within the STIP. Since projects are often put on hold due to funding limitations and pulled in and out of the STIP, this on-time delivery measure is not a useful measure of the efficiency of project delivery.

ITD recognizes that it should be doing a better job evaluating its own performance, and it has taken some initial steps toward a more advanced performance measurement approach.

ITD has undertaken a major strategic planning initiative. In September 2008 ITD reported a new mission and vision for the department, and the first stages of a strategic plan that "would transform the department from a reactionary to anticipatory agency." The ITD strategic planning team identified four areas to direct the department's focus:

1. Investing in our people
2. Expanding and enhancing partnerships
3. Leading through agency performance
4. Improving our customer service culture

Preparation of strategic goals and objectives is currently under way for each of these focus areas. With regard to the focus area, leading through agency

performance, the department identified three initiatives to address regarding performance measures:

1. Develop a department-wide training and education program.
2. Assess DOT models from other states; assess internal performance management systems, investigate/identify performance model choice (internal and external); inventory and assess performance management; apply performance results; identify tools needed to measure and report.
3. Correlate strategic measures with a core set of department operational outcomes; analyze current and future data; develop external grant performance standards; identify and validate the measures annually, determine what needs to be measured (old and new) and include external stakeholders; evaluate which performance measures are important.

The strategic plan forecasts that ITD will establish key performance measures in February 2009 and a performance management implementation plan in March 2009. The department provided the audit team with evidence for the establishment of a Performance Management Office that will be the champion for establishing an integrated performance model into the ITD culture. ITD is beginning to take steps to advance the department toward a model that would provide more accountability and communication.

In addition to considering the validity and reliability of the data used by ITD discussed above, the auditors examined whether or not ITD's current measures lead to innovations. With respect to whether ITD's assessment process leads to innovative techniques, we observed that innovation, while present in the department, did not appear to be a product of the current measurements and ITD assessment process.

Recommendations

ITD should adopt performance management accountability practices throughout the organization.

- It should hasten its current effort to manage through performance measures and move to ensure that this initiative is a high priority. ITD

should move immediately to improve highway and bridge performance measurement and evaluation by taking the following steps:

- Using peer states as models, ITD should immediately select 5-10 key operational targets and begin to measure them consistently at the district and program levels. These first performance measures should be linked to tangible results for Idaho taxpayers and should be aimed at improving processes. Good candidates would be those used by Utah, Wyoming, Colorado, and Oregon. Initial measures are:
 - Percent of environmental clearances completed on time
 - Percent of pavement in good condition
 - Overall maintenance levels
 - Snow and ice control of total miles plowed and cost per plow mile
 - Trends of number of customer complaints by district

ITD should continue enhancing its strategic planning process in order to translate strategy into operational goals with the supporting tracking and monitoring system.

- This should include a business and financial planning process and use district and department-wide business plans as a tool to communicate both goals and current levels of performance. Develop measurable objectives and performance metrics with tactical and operational plans.
 - For the longer term, ITD should continue its effort to identify specific performance targets linked to strategic goals.
 - ITD should hold programs and districts accountable for meeting performance goals linked to departmental objectives.
 - ITD should move toward standardizing what is measured within each program and among the six districts by establishing required measures.
 - ITD should work to develop cost-effective tools to measure performance, by looking both inward to the districts to expand some successful measurement tools and outward to peer states.

- ITD should consider requiring that significant projects and operational initiatives are supported by “business case” analysis that demonstrates the need and cost effectiveness.
- ITD should realign operations and funding formulas to support asset management objectives and longer-term strategic goals.

ITD should set monthly project progress reports to keep districts accountable for project cost and schedule progress on an ongoing basis.

- Use progress reports to focus attention on any projects that are slipping behind milestones or beginning to forecast overruns so that the appropriate resources can be brought to resolve issues.

ITD should track and report on the causes for schedule delays and cost overruns as part of the program to measure schedule performance:

- Identify the cause each time a delay occurs.
- Use report summaries of causes to address recurring problems.
- The impact on tracking and reporting through a statewide project management approach would reduce cost overruns by 3% on project delivery within the first five years. Assuming a 25% savings beginning in the third year, 50% in the fourth, and 100% in the fifth, a \$5.3 million savings is conservatively estimated. ITD could save about \$3.1 million annually in capital project delivery improvements thereafter.

ITD should create a formal mechanism for reporting problems that occurred in construction back to the development teams.

ITD should provide more frequent performance reports to the Legislature.

Chapter 3

CONTRACTOR SELECTION AND OVERSIGHT AUDIT CRITERIA, FINDINGS, AND RECOMMENDATIONS

Chapter 3 presents the Audit's criteria, findings, and recommendations concerning ITD's contractor selection and supervision compared to best practices, and strategies used by ITD to share project performance risk with contractors.

SECTION 2.A. COMPARISON OF ITD'S CONTRACTOR SELECTION AND SUPERVISION TO BEST PRACTICES

Audit Objective – Assess the extent to which ITD's contracting process and supervision of consultant contracts compare to transportation industry best practices.

Criteria

Key management principles that govern effective consultant procurement include:

- Transparency in the consultant selection process
- Competitive selection based on quality and value for an equitable price
- A clearly defined procurement process in terms of requirements, procedures, and time frames, consistently applied to all consultants on all projects
- Independence from the political environment

High performing departments responsible for managing project delivery follow key management principles by adopting the following best practices:

- *Procurement planning:* Develop and maintain a procurement plan for consultant services to be procured and when such procurement should occur relative to the project schedule.

- *Procurement procedures:* Develop and comply with procurement procedures that reflect governance policy and regulations and key management requirements.
- *Work Breakdown Structure (WBS) Scope Definition:* A WBS format is used to define the scope of services required. (WBS is discussed later in the chapter.)
- *Standard general terms and conditions:* Standard general terms and conditions are used in preparing solicitations.
- *Proposal evaluation system:* Consultant proposal evaluation is administered fairly and consistently using predefined selection criteria.

Term contractors, in the context of ITD, are companies that perform highway and bridge construction. All construction contracts are based on low bid per the specifications in the bid documents. In this regard, it would be extremely difficult for administrative costs to be excessive as all terms of the contract are established per the executed low bid contract.

Consultant contracts, especially those that include federal funds, are jointly negotiated by ITD and the selected consultant. No contract is executed without ITD's express authorization. Therefore, ITD has the ability and leverage to effectively keep all administrative costs in check. ITD has the authority to establish the cost structure of every contract, effectively removing any concern of excessive administrative costs being charged through the conduct of the contracted work. This also applies to ITD's oversight of Connecting Idaho Partners and the terms of their agreement. ITD has all the necessary tools to ensure appropriate control over administrative costs.

Supervision of consultants requires departments to effectively perform the following roles:

- Provide for and coordinate design reviews.
- Review and approve, within the design review process, consultant submissions of conceptual, preliminary engineering, and final designs.
- Participate in Value Engineering, Constructability Reviews and Risk Assessment studies.

- Oversee the design effort of the design consultants.
- Monitor and control design costs and schedule.
- Oversee design quality assurance.
- Approve the capital cost and schedule.
- Approve the final plans, specifications, and estimating package.

To fulfill these consultant oversight roles, high performing departments adopt the following standards of best practice:

- *Design standards*: Develop, maintain, and provide consultants with design standards and directives.
- *Third-party coordination*: Identify the project's third-party interfaces and clearly define responsibilities for managing them (these parties include, among others, environmental resource agencies and the communities in which projects are constructed).
- *Design reviews*: Establish clear criteria for the review and acceptance of the design submissions, and document the review comments and their resolution.
- *Updated capital cost estimate*: Require updates of the capital cost estimates with the design submittals and address variances against the baseline capital cost budget.
- *Consultant cost control*: Use earned value and associated cost control methodologies to monitor and control the cost of design work within budget.
- *Stakeholder communication*: Maintain regular communication with project stakeholders to confirm that the evolving design continues to meet stakeholder expectations.
- *Peer and industry reviews*: Take advantage of experience and lessons learned from department peer organizations by conducting clearly defined, targeted peer reviews.

- *Value Engineering and constructability studies:* Perform value engineering studies early in the design process to develop cost-saving design concepts and follow up with constructability studies to avoid construction problems and costs.

Findings

ITD consultant selection procedures and practices are generally consistent with industry standards and provide for adequate competition.

Between June 2007 and September 2008 the department issued 20 consultant agreements through the competitive RFP selection process. We found that it took six months (an average of 183 days for each of the ten agreements) from the close of the advertisement period to the execution of an agreement. Given the high escalation rate of construction costs (recent rates are as high as 2% per month), shortening the duration between selection, evaluation, and contract execution would produce direct cost savings. Each month of reduction in cycle time from advertisement to agreement execution could reduce project costs by 2%.

The majority of consultant agreements are procured through a term agreement process, which allows for selection of a consultant from a pre-qualified consultant list for contract values less than \$250,000. Since June 2007 ITD executed 90 term agreements at a total value of \$6.8 million. Over the last three years approximately 50% of the pre-qualified firms were awarded contracts. This process is consistent with industry practice of accelerating the project delivery process by shortening the procurement period. However, this practice allows districts to select firms without comparing prequalified consultants, and therefore reduces opportunities to boost competition and ensure transparency in selection.

Dependence on term agreement selections makes it difficult to objectively ensure that the consultant with the highest quality, capability and capacity is procured to perform the work. Moreover, term agreement consultants commonly assist ITD in developing the scopes of work on which they propose. While this practice offers advantages in time and effort, and is carried out in other states as well, caution is advised. As project owner,

ITD must ultimately remain in control of the scope initiation process to ensure that ITD's intended concept is delivered by the consultant.

ITD procedures and practices for the oversight and supervision of consultants are generally consistent with industry standards; however, the audit team found that staff did not have sufficient oversight tools or training to effectively oversee large, complex projects.

ITD staff noted that consultant agreement/project management training has been held in the past, but the training has not been offered recently.

The audit team also observed that agreement managers (contract managers) may change, depending on the type of effort (environmental, materials, etc.) being completed on the agreement. This can lead to inconsistencies in agreement management. Taken in conjunction with the fact that the *Professional Service Agreement Procedures* do not provide consultant management details other than contractual requirements, there is no guidance or standard procedure for ITD staff for managing consultant contracts.

We found that the procedures for executing and administering consultant contracts, such as progress reports, progress payments, post reviews, and final-completion of contracts or agreements as part of the district visits to be consistent with ITD Policy and Procedures, as well as within standard practice. However, ITD's consultant program management lacks an organizational structure with clearly defined consultant responsibilities and work monitoring processes for ongoing consultant supervision.

Many state transportation departments have a Consultant Management and Procedures Manual that details the processes and procedures governing consultant selection and oversight. Although the Professional Services Agreement manual has references and procedures based on the Qualification Based Selection (QBS) procurement and contract award, ITD has neither a standardized process nor a procedures manual designated specifically for consultant management standard practices. ITD should develop such a manual with references or links to the relevant state procurement statutes for QBS and contract awards for professional engineering and surveying services. ITD could prepare its own manual by using manuals of other state transportation agencies as a guide, or hire a consultant to develop the manual. The cost of outsourcing a manual would

be approximately \$100,000. Additionally, ITD needs professional staff trained in QBS contract negotiations to effectively manage a consultant program.

Work Breakdown Structures (WBS) are not commonly used by ITD.

The use of a work breakdown structure (WBS) is not a standard practice among ITD districts. One district has developed a standard WBS that is not used by any others. Many state transportation agencies employ a standardized WBS to enhance cost estimating, tracking and control. Similar to an organizational chart in appearance, a WBS groups cost elements into a rational and straightforward framework for easy reference as a scope of work is developed. This framework remains relatively stable over time, though it easily incorporates additions, changes, and deletions of items. The use of a standard WBS enforces consistency in scope-of-work development and enables effective cost tracking. A suitable WBS serves as a tool for the cost estimating of consultant agreements and for making comparisons of department and consultant effort.

ITD demonstrated that value engineering is sometimes employed in final design as a method to reduce costs.

Design Manual Section 155.00 requires value engineering for Federal-aid projects over \$25 million or other projects with high potential savings. Beyond this requirement, however, there is no formal guidance for what other project types or criteria should be considered for a VE study. Districts reported savings from their VE efforts, but noted that VE was not performed in most cases. Naturally, the quality of the VE study itself must be validated to ensure that the proper components of the project are analyzed and evaluated.

As part of the district visits, we performed interviews/walkthroughs on two projects that had gone through design and were in construction. As part of the discussion, we asked for the Scope of Work/Technical Proposal/Agreement Scope of Work and some (typical 2 or 3) invoices and associated backup submitted by the consultants.

A sample review of invoices and billings did not identify concerns to warrant a broader review. Contract specifications are being met and the

various policies, processes, and controls are appropriate. However, the invoice and billing process is labor intensive and does not readily support more detailed historical data collection. It could be made more efficient through a standard and automated approach.

ITD uses supplements as a means to initiate phases of work on a multi-phase contract as well as to add additional scope of work to contracts. The number of supplements issued by ITD does not provide a good indication of whether or not scopes of work were well conceived at the outset.

ITD retains the services of a program management consultant, Connecting Idaho Partners (CIP), to manage the GARVEE Transportation Program projects. ITD has established a four-person GARVEE Office to facilitate the delivery of the overall GARVEE Transportation Program, oversee the CIP, and fulfill ITD's program responsibilities in compliance with state, federal, and ITD statutes, rules and policies.

- Project management performance, through the Connecting Idaho Partners' scope of work, is consistent with generally accepted project management practices for the environmental, preliminary engineering, and final design phases of GARVEE projects. CIP manages design and associated study approvals, design reviews, value engineering, and submission of design documents.
- Connecting Idaho Partners is supported by various management practices and tools for scheduling, performance measurement, document control, and configuration management. These tools, such as ConstructWare and Primavera systems, are not applied on all GARVEE-funded projects across the districts. The audit team observed that Districts 1, 3, and 5 had varying degrees of interaction with CIP in the monitoring and support of project delivery. CIP only provides as much support and oversight of the GARVEE projects as each district allows.
- During project construction, there is a division of project management responsibilities between Connecting Idaho Partners and district staff. There are different drivers for CIP and ITD. CIP is responsible for the financial aspects of the projects and is incented in their contract to maintain costs within the bid prices and

associated change orders. The ITD Resident Engineer is in responsible charge, but unlike non-GARVEE projects, the Resident Engineer is not ultimately responsible for cost, so CIP does have the opportunity to reject charges forwarded by the Resident Engineer. The Resident Engineer, responsible for overseeing the contractor on behalf of ITD per FHWA requirement, is district based. Construction inspectors may be district staff or other third party consultants, depending on district staff availability. Both contractor payment and change control authorization must be coordinated with CIP because of the use of GARVEE funds.

- Connecting Idaho Partners is focused on managing projects and monitoring the delivery of projects with budget. The Connecting Idaho Partners contract provides incentives for project delivery and budget adherence as established by the GARVEE Office.

Right-of-Way (ROW) Purchase—Legislator Inquiry

- The 10% bonus is allowed only on GARVEE projects as allowed by the GARVEE Experimental Program (GEP-11), ROW Offer Incentive Payment Program which "allows implementation of an acquisition incentive payment after an offer has been made to a landowner."
- GARVEE Experimental Programs (GEPs) are allowed under FHWA SEP-15 (Special Experimental Program). However, SEP-15 is an experimental process for FHWA to identify for trial evaluation new public-private partnership approaches to project delivery. It is anticipated that these new approaches will allow the efficient delivery of transportation projects without impairing FHWA's ability to carry out its stewardship responsibilities to protect both the environment and taxpayers. SEP-15 addresses, but is not limited to, four major components of project delivery - contracting, compliance with environmental requirements, right-of-way acquisition, and project finance. Therefore, SEP-15 enabled ITD in conjunction with ITD to develop the GEPs. ITD and FHWA did agree upon the use of the GEPs in this way.
- Connecting Idaho Partners has the authority as ITD's GARVEE consultant to exercise its professional judgment in establishing the acquisition price considering legitimate factors in addition to the land's

fair market value. This would include, for example, the benefits of securing acquisition in comparison to the cost of project delay associated with not securing the property—even at the higher cost. ITD Right of Way Office reviews all offers before they are presented to the property owners.

- The FHWA monitors acquisitions because federal dollars are involved. This provides still another level of management control and accountability over the appropriateness of each land acquisition.

Accurate Billing and Payment

This topic is substantial in scope and is generally best addressed through a detailed financial audit rather than a broadly scoped performance audit. As one item in this broader performance audit, however, the following basic steps were taken to satisfy the desire for a review:

- As part of each district visit, the audit team conducted interviews/walk-throughs for two sample projects that had been designed and were currently in the construction phase.
- For each sample project, the audit team requested:
 - The proposed scope of work from the technical proposal
 - The final scope of work as contained in the final agreement
 - Typical invoices for work performed under the terms of the agreement
 - The associated invoice backup submitted by the consultants
- The audit team examined the invoices to determine if each was submitted correctly (e.g., all required elements of the invoice provided, sufficient documentation, etc.). The team then determined if the stated activities in the backup documentation were consistent with the project scope of work.
- The records person in each ITD district examines all of the charges and makes corrections (allowable versus non-allowable charges) and performs a check to ensure mathematical accuracy. The audit team did not do arithmetic checks, but did review staff compliance with the established procedures. Based on this review, it was clear that the

process is being performed by ITD district staff consistent with the established procedures.

- Based on the sampling of invoices for two projects in each district, it is reasonable to conclude that ITD is performing the billing and payment review process in accord with the established procedures. Should this subject be an area of continued interest for the Legislature, guidance should be provided to make this a priority in the future for an external financial audit.

Recommendations

Strengthen ITD's management of consultant contract procurement by implementing the following practices for consultant agreements:

- Establish procedures that ensure scopes of work for services are developed by ITD staff. ITD staff should develop the initial scopes of work.
- Streamline the contract execution process and set performance targets for reducing the time it takes to execute agreements. Even a one-month reduction in time could result in significant cost savings if projects are delivered faster.
- Standardize the consultant procurement process, and enhance discipline by using standard scopes of work and a supporting work breakdown structure.
- Improve project cost estimation and budgeting by capturing actual historical man-hour data. This data (historic averages) can be most helpful for estimating future contract levels of effort. Also, examine automating the consultant invoice submittal and approval process to enhance the capture of historical data and increase payment-processing efficiency.
- Enhance the transparency of the term agreement process by reporting monthly on all term agreements awarded by consultant, and the dollar value.
- Require that consultant evaluation forms be completed yearly for agreements that are longer than one year, and revise the procurement procedures to ensure that current evaluations are considered in the consultant selection process. Establish a procedure to ensure evaluation feedback is acted upon.

Strengthen ITD's supervision of consultant contracts by implementing the following practices:

- Develop a district-wide consultant supervision process that is more standardized and disciplined by using standard project schedule templates, and standard cost management tools.
- Provide project management training to staff responsible for more complex consultant contracts.
- Establish criteria and departmental guidelines for assigning ITD staff to support the agreement administrator in overseeing significant large consultant contracts. This will help to ensure that expertise and management are appropriately matched to managing the complexity of the consultant assignment.
- Central office should conduct periodic quality reviews of term agreement based work, comparing the quality of providers. Central office should provide these evaluations to the districts and the board.
- Use agreement "supplements" for planned additions to agreements on multi-phase contracts and agreement "amendments" for unplanned changes to agreements in order to better track the management of contracts.

Expand the GARVEE Office as a division-wide Project Management Office (PMO) responsible for:

- Managing GARVEE and other major capital expansion projects
- Establishing project management practice standards to be followed on all projects whether managed through the PMO or the districts
- Assembling project performance results, for projects managed by the PMO and the districts, and summarizing the results in relation to overall department/district objectives
- Establishing an internal Project Management Office (PMO) under the Highway Division, with responsibility to track all statewide highway construction projects, will improve project delivery and increase project cost effectiveness. As discussed earlier, an estimated savings of \$5.3

million in the first five years from efficiencies gained by using best practice project management coupled with consultant management techniques. An estimated savings of \$3.1 million would be realized every year after the internal PMO is in place and operational.

Assign the management of the Connecting Idaho Partners consultant contract to the Project Management Office (PMO).

- Direct PMO staff to act as project management champions. The champion role is to standardize successful project management practices and tools within the department for district-wide use and for consultant contract procurement and supervision.
- Assign a qualified manager in each district as the liaison to the PMO in order to establish greater coordination and a higher performing highway program.
- As discussed earlier, the PMO is expected to significantly contribute to the project delivery improvement reduction of cost overruns by 3% annually.

Provide for a technology transfer of project management capability in terms of expertise and tools from the GARVEE program to the PMO:

- Adopt professional project management practices²⁷ as the basis for establishing ITD's project management standards and performance measures.
- Implement the CIP methodologies and tools consistently across the districts and GARVEE projects.
- Institutionalize core project management practices and tools as used by the CIP into ITD.

Clarify and resolve the delegation of authority during the GARVEE project construction phase between the District Engineer, Connecting Idaho Partners, and the GARVEE Office:

- The GARVEE Office should be formally designated and charged with the responsibility of resolving conflicts between the resident engineer and CIP

²⁷ As defined by Project Management Institute (PMI) in the Project Management Body of Knowledge.

over contractor management decisions such as approvals of contractor payments or changes.

ITD should consider having Connecting Idaho Partners expand its reporting related to right-of-way acquisition as beneficial.

- Connecting Idaho Partners should develop a fact sheet for ITD to communicate to the Legislature that covers the provisions and their authority related to GARVEE projects in general and right-of-way acquisition in particular. This fact sheet should also be made available to the contracting community and the general public.

The basic rationale for this recommendation reflects the fact that GARVEE financing is a significant departure from traditional transportation financing approaches. As such, it is important to be more proactive in terms of informing elected official and others.

- Right-of-way acquisitions should be included in overall annual report or progress reporting between Connecting Idaho Partners and ITD to emphasize transparency and to provide exception reporting to justify right-of-way actions. Right-of-way acquisition can be both controversial and misunderstood. Selective and proactive reporting on an exception basis bolsters agency accountability.

SECTION 2.B. STRATEGIES USED BY ITD TO SHARE PROJECT PERFORMANCE RISK WITH CONTRACTORS

Audit Objective – Assess the procedures and procurement strategies used by ITD to share the risk of project performance with private contractors.

Risk sharing is fundamentally an issue of fairness and balance. This audit area is particularly important and relevant at this time with the rapid escalation of costs for materials used in highway construction. Balanced risk sharing also must consider the various management and administrative processes that can have a significant bearing on the ultimate cost of a project. To the extent that ITD and the contractor can each be consistently efficient and effective in administration and contract/project management, this risk factor will lessen.

Criteria

Comparable department risk sharing practices are limited to the use of contract provisions to allocate certain project risks between departments of transportation and contractors. This includes items such as:

- Asphalt price adjustments
- Diesel fuel adjustment
- A + Bx bidding²⁸
- Incentive/Disincentive Clauses

Best practices for the management of risk in capital projects use processes to:

- Evaluate project risks through project risk workshops that engage the project team members to identify high risk areas.
- Create a risk register of the identified project risks that estimate each risk's likelihood of occurrence and impact. The risk register can be developed as a simple matrix for reference purposes. It can easily be developed and refined over time to reflect risk likelihood, financial and non-financial risks,

²⁸ The A + Bx bidding procurement strategy is a tool to accelerate the project process. It places a monetary value on time in the bid process.

sources of additional information (web links), and points of contact in the department. Through wide use across ITD, this will promote a common approach to risk identification, impact assessment, and risk mitigation/prevention.

- Plan for risk response measures for each risk through a mix of the following strategies:
 - *Avoidance*: Modify the project management plan to eliminate the threat posed by the risk.
 - *Transfer*: Shift the negative impact of the risk along with the ownership of the response to another party, such as a contractor or insurer.
 - *Mitigation*: Reduce the probability and/or impact of the risk to an acceptable threshold.
- Monitor and control risks through the project cycle to identify which risks remain, assess if risk assumptions remain valid, and update risk provisions such as the dollar value of project contingency in relationship to the current risk level and the project's overall status.

Findings

With respect to risk mitigation measures adopted by ITD to address project cost overruns, project delays, and other project risks:

Procedures and procurement strategies used by ITD to share the risk of project performance with private contractors are consistent with generally accepted practices with regard to risk sharing contractual provisions.

Avant investigated the use of risk management approaches, but proactive risk management approaches such as the use of project risk registers and risk management planning were not observed.

With respect to processes employed to assure that the cost of project changes fairly reflect the value of the impact on the project when a risk occurs:

ITD's internal change orders review process, including the process for confirming change order costs, is consistent with industry practice.

The audit team compared the use of change order process and associated approval levels through sample projects at each district. We found that the procedures as defined in the Contract Administration Manual, based on our sample review, were followed.

A Dispute Resolution Board is used for construction projects in excess of \$2 million and generally serves as a fair process for resolving disputes. The Dispute Resolution Board is typically composed of a department member, a contracting member, and an independent third party, all of whom are acceptable to the department and the contractor.

Because of limitations in state law, ITD does not use design-build and other alternative procurement strategies to design-bid-build.

Design-build is a best practice that enables agencies to quickly and cost-effectively advance projects to construction. In this delivery method the owner contracts with a single entity to provide both design and construction services. Design-build shortens the project delivery cycle. The design-build contractor also assumes responsibility for most of the design work and the construction activities. Therefore, the contractor assumes the bulk of the project risks for a fixed fee. With the current construction inflation nationwide on the order of 25% (may decline with the cost of oil and general decline of the economy), even a one month savings in project delivery time can have significant cost impact.

Summary of Estimated Impacts of Design-Build

Duration Dimension	Value	Cost Dimension	Value	Quality Dimension	Value
Responses	62	Responses	48	Responses	61
Average	-14.1%	Average	-2.6%	Average	0.0%
Median	-10.0%	Median	0.0%	Median	0.0%
Mode	-0.1%	Mode	0.0%	Mode	.0%
Maximum	50.0%	Maximum	65.0%	Maximum	10.0%
Minimum	-63.0%	Minimum	-61.8%	Minimum	-10.0%
Standard Deviation	24.4%	Standard Deviation	20.5%	Standard Deviation	2.1%

The above table shows results from a survey conducted as part of the *Design-Build Effectiveness Study, As Required by TEA-21 Section 1307(f)*

Final Report Prepared for USDOT - Federal Highway Administration, January 2006. The table shows that design-build saves on time and cost for the same quality as design-bid-build, which is ITD's traditional method for project delivery. This is a method in which the agency or owner contracts with separate entities for the design and construction of a project.

The results of the study indicated, on average, design-build project delivery reduced overall project duration by 14%; reduced the total cost of projects by 3%; and maintained the same level of quality as compared to design-bid-build project delivery. The study indicated a potential savings of \$30,000 for every \$1 million of cost, and a reduction of about 7 1/3 weeks for every project-year.

Recommendations

- Use the Project Management Office to define and help implement formal risk management practices on projects that are tailored to fit the specific project.
- Document identified risks and potential impact(s) using risk management tools (e.g. risk registers); integrate these risks into schedule and cost forecasting procedures.
- Establish a process that would ensure that cost-incentive based contracting is considered systematically.
- Adopt a contractor pre-qualification system for large and complex construction contracts in order to provide ITD with the ability to ensure that contractors are able and qualified to perform the complex construction projects:
 - Over \$5 million
 - Significant bridge work
 - Specialty Contract/Items
- Pursue legislation that would provide ITD with the authority to use a wider range of project delivery options, in particular design-build, which can both shorten the project delivery period and provide earlier assurance the budget will be achieved.

- Upon legislation having been enacted to allow ITD the ability to use design-build as a project delivery method, ITD should develop design-build policy and procedures piloted on 3 to 5 projects within a two year timeframe.

Chapter 4

OUTSOURCING, AND PRESERVATION AND MAINTENANCE CRITERIA, FINDINGS, AND RECOMMENDATIONS

Chapter 4 presents the Audit's criteria, findings, and recommendations concerning the comparative merits of outsourcing versus in-house work performance, and ITD's provision of preservation and maintenance services.

SECTION 3.A. OUTSOURCING

Audit Objective – Assess whether professional service work currently outsourced would be better performed in-house and vice versa; the adequacy of staff to perform work that is outsourced; potential cost-savings and increased quality improvement.

This audit area addresses the important subject of capacity to deliver a transportation program. Capacity is satisfied with a mix of contractors/consultants and department staff. This mix is dictated by a range of factors including timing, expertise, and workloads.

Criteria

Outsourcing activities range from routine or seasonal maintenance tasks to capital project delivery functions. The audit team found substantial variation among state DOTs in terms of the particular activities outsourced, the type of consultants and contractors utilized, methods of procurement, and the basis of payment, depending in part on the unique characteristics of the outsourced activities.

The extent of activities outsourced varies considerably from state to state. The variations that exist underscore the unique needs of each state's transportation department. Generally, states maintain a minimum level of in-house staff to perform core functions, and contract out these and other functions to cover peaks in workload, acquire specialized skills, or meet legal or policy requirements.

Because of the variation among states, there is no discernable best practice identified for outsourcing decisions. Given the lack of best practice, the standard is to consider the benchmarked practices of states surveyed.

Comparable states surveyed indicated consistently outsourcing the following professional services: Planning/Preliminary Engineering, Design (Bridge, Roadway, and Major Hydraulics), Environmental Studies, Right-of-Way Acquisition and Appraisal, Hazmat, and Land Surveying.

Decisions to outsource are often driven by constraints on staffing, specialty skills required, time-of-year constraints, equipment requirements, and contractor availability. According to the audit team research, there are few common approaches to assessing the effectiveness of outsourcing DOT activities. On-time completion of outsourced tasks, compliance with particular legal requirements, and quality of work on complex or particularly challenging projects are considered as the key criteria associated with successful outsourcing. Cost-effectiveness of an outsourced activity (relative to estimated costs of doing the work in-house) is often not a principal criterion for assessing effectiveness. Most comparable states interviewed assumed that they could conduct many outsourced activities cheaper in-house, but rigorous analysis of that assumption using burdened rates for overhead and fringe benefits had not been done. It would not be prudent to assume that in-house work is less costly. The opposite may be the case because of the private sector's relatively greater need for efficiency and cost control.

In terms of cost savings and quality improvement for outsourcing, industry research indicates that returns on investment are mixed. Cost effectiveness depends on project-specific needs and the degree that the organization consistently measures the quality of results achieved, and how the results are used to influence future decisions.

Findings

For capital projects, districts are following a policy where design engineering work is done in-house when the capability and capacity to perform exists.

Responses from comparable states indicated that in-house resource costs compare favorably to consultants at lower-level positions, but the cost differential increases as the position becomes more senior. In other words, it is more cost-effective for ITD to perform higher-level, more expensive tasks in-house. This assumes, however, the availability of comparable personnel in-

house at these higher levels. Only when these possibilities are exhausted is outsourcing of consultant services considered. A primary example is design engineering, including use of in-house staff from other districts. ITD, on GARVEE-funded projects, has consultants available for design work, but retains the option of doing the work in-house first. If no resources are available, then the work is outsourced. The intended effect is to ensure that all fixed-cost internal ITD resources are fully utilized. Outside services are available as needed.

ITD has outsourced preliminary design, final design through plan specifications and estimates (PS&E), project development through PS&E, sampling and testing during construction, construction inspection, and materials functions, when existing staff are unavailable.

ITD has outsourced the following areas when specialized expertise is needed, because these skills are not available in-house:

- Specialized Engineering Support during construction
- Archaeological Studies
- Project Management Support during construction
- Surveying Support during construction
- Environmental Studies
- Architectural Services
- Planning
- Geotechnical
- Bridge Inspection
- Information Systems
- Traffic Studies

The data to compare the costs and quality of similar work performed in-house versus outsourced is lacking and difficult to assemble both at ITD and peer states.

ITD does not possess the internal systems and processes to systematically track and compare in-house to outsourced services. Although there have

been intermittent attempts to develop an internal burdened-overhead cost rate for in-house resources, the department does not have the systems that can calculate a burdened-overhead cost for internal resources, cost-benefit scenario, or sensitivity analyses to facilitate comparisons statewide.

Although there is a policy for evaluating the quality and performance of consultants, there is inconsistent use of this process and no evidence that the evaluations are considered in consultant selections.

The technical staff turnover rate affects staff capacity and efficiency by reducing man-power effort.

ITD suffers from a high technical staff turnover percentage causing efficiency problems. The technical staff turn-over rate affects staff capacity by reducing internal man-power effort. ITD outsources professional services (consultants) to fill gaps in available resources and to augment staff with specialized skills.

Data analysis indicates ITD is outsourcing 60% of the development and design work for the state-funded construction program, and is developing 40% of the construction program with internal staff resources. This ratio has remained relatively constant with some slight variation since 2005.

The ratio of outsourcing for GARVEE-funded projects is significantly higher because of the increase in project workload and the necessary use of third party consultants to assist in the design activities. There is insufficient historical trend data for a thorough comparative in-house vs. outsourcing analysis of GARVEE projects. However, ITD has followed a policy to increase the amount of in-house work on GARVEE-funded projects where appropriate and resource capacity is available.

An analysis of the effectiveness of both in-house and consultants for state-funded projects over the past four years indicates that the productivity ratios for each are very similar, about 7.5 to 1. This equates to \$7.50 of construction output for every \$1.00 spent on resources. Given the trade-off, ITD should endeavor to increase the utilization of in-house resources when resources are available. The use of lower grade-level consultants is more cost-effective. ITD should retain the work of higher-level positions in-house.

A savings in future consultant outsourcing needs can be made based on the historical relationship provided by ITD, and based on the actual fiscally-constrained elements of the expected construction program for ITD. Outsourcing can be adjusted year to year based on the amount of construction work being developed by outsourcing or in-house development and design and be within 2 years of any construction related inflationary index.

Outsourcing needs can be developed based on a percentage of construction relationship for the outsourced amount spent in previous years as well as a commonly applied rule of thumb for development and design costs. The variation in costs is expected as lower level scope projects (e.g., construction engineering-type construction projects) do not require the level of development for more complicated projects (e.g., environmental analysis and environmental impact-study type projects).

A savings can be realized from reducing the projected outsourcing costs for state-funded projects in future years. The savings in the first five years is conservatively estimated at \$6.1 million and at least \$3.5 million dollars annually thereafter. The savings are dependent on the implementation of internal maintenance management systems to accurately calculate cost-benefit trade-offs, and assume in-house resources are used at capacity and the outsourcing of services is only used to support needs that cannot be met by the internal permanent staff of ITD.

Recommendations

ITD should systematically capture data and calculate a department overhead rate to be able to compare direct and indirect costs of consultants to internal rates for cost-benefit comparison in outsourcing decisions.

- Data should include overhead costs applied to pay rates for various activities performed in-house and the costs for similar and comparable activities for contracted work. The overhead would be applied to maintenance activities, traffic line painting, brooming, design activities, and construction inspection, among others.

ITD should develop outsourcing criteria, guidelines and strategy in conjunction with the implementation of the appropriate decision support systems that provide reliable data and tools for analyzing various professional service activities to determine which areas have potential for outsourcing.

- The guidelines at a minimum should consider: costs, the need to expedite work, peak work volumes, unique skills, training and retraining, and the retention of strategic core competencies within ITD.
- It is important that these public to private comparisons be complete, as there is always the likely pitfall of underestimating ITD overhead and drawing false conclusions that in-house costs less.
- ITD should reevaluate the current trend to bring design work in-house to ensure that in-house capabilities are being properly matched to the demands of design projects so that quality is not being sacrificed to achieve lower costs. Doing so can result in an adverse trade-off of cost and quality that over time is far less cost-effective.

SECTION 3.B. PRESERVATION AND MAINTENANCE

Audit Objective – Assess the array of state highway preservation and maintenance activities, how they are provided, and the experience of other states in contracting comparable services.

Highway maintenance and preservation is a core responsibility of state DOTs. Because these various activities can be performed by department staff and contractors, it is important that ITD, the board, and the Legislature understand the various ways in which such services are provided and some of the factors used in making these choices.

Criteria

While the types of maintenance activities performed by peer state DOTs are similar, there is no consistent best practice for determining which maintenance activities are outsourced versus those performed in-house. However, most states surveyed indicated that they allow district or regional management to decide which activities are outsourced. The following table provides a synopsis of maintenance activities performed by ITD and comparable states, indicating which activities are performed in-house, outsourced, or a combination, as reported by each state to the audit team:

Activity	Idaho	Arizona	Montana	Nevada	Oregon	Utah	Wyoming
Overlays	I, O	O	O	O	O	O	O
Seal Coating	O	O	I, O	I	O	I, O	I, O
Crack Sealing		I, O	I, O		I	I	O
Patching	I, O		I	I	I	I	I, O
Road and Pavement Repair: Striping	I, O	O	I, O	I, O	I, O	I, O	I, O
Road and Pavement Repair: Guardrails	I, O	I, O	I, O				I, O
Bridge Repair	I, O			I, O			O
Tree Removal or Brush Cutting		I, O	I		I	I, O	I
Mowing	I, O		I	O	I	I	I
Weed Control	O		O	O		O	O
Shoulder Grading			I		I	I	I, O
Snow and Ice Removal	I		I		I	I	I
Rest Areas: Janitorial Services	O	O		O	O		
Brooming	I, O		I		I	I	I

I = In-house O = Outsourced

Maintenance staff in comparable states indicated that maintenance activities can generally be performed cheaper in-house, with the same or better quality than outsourced activities. However, maintenance personnel in most cases did not

have the data available to compare burdened rates (employees pay rate plus rate for benefits and administrative support) for in-house staff versus contractors. In some cases, the decision is made because of either a lack of available contractors or the lack of prior experience. Snow removal, for example, is performed in-house by all of the responding peer states because reliability, quality, and safety requirements are critically important, and prior experience with contracted snow removal was disappointing. (This problem can often be corrected through the use of ITD performance standards in the contract.)

Most state DOTs control costs and utilize internal staff by determining which activities should be outsourced and which should be done in-house based on cost, time-of-year, internal expertise, and other factors.

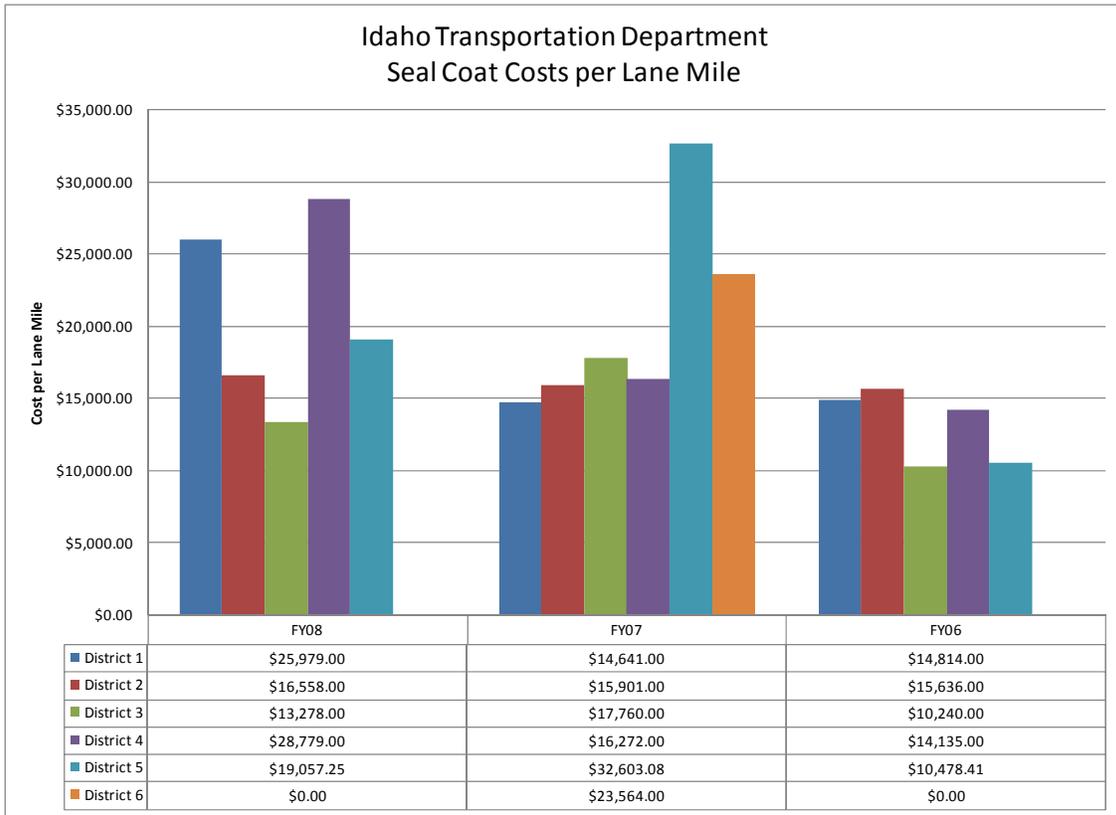
Findings

ITD maintenance cost tracking is limited.

Seal coat costs are tracked more readily because ITD outsources this work and has the internal contracting process to capture the data. Seal coats are a basic maintenance treatment to improve the roadway surface.

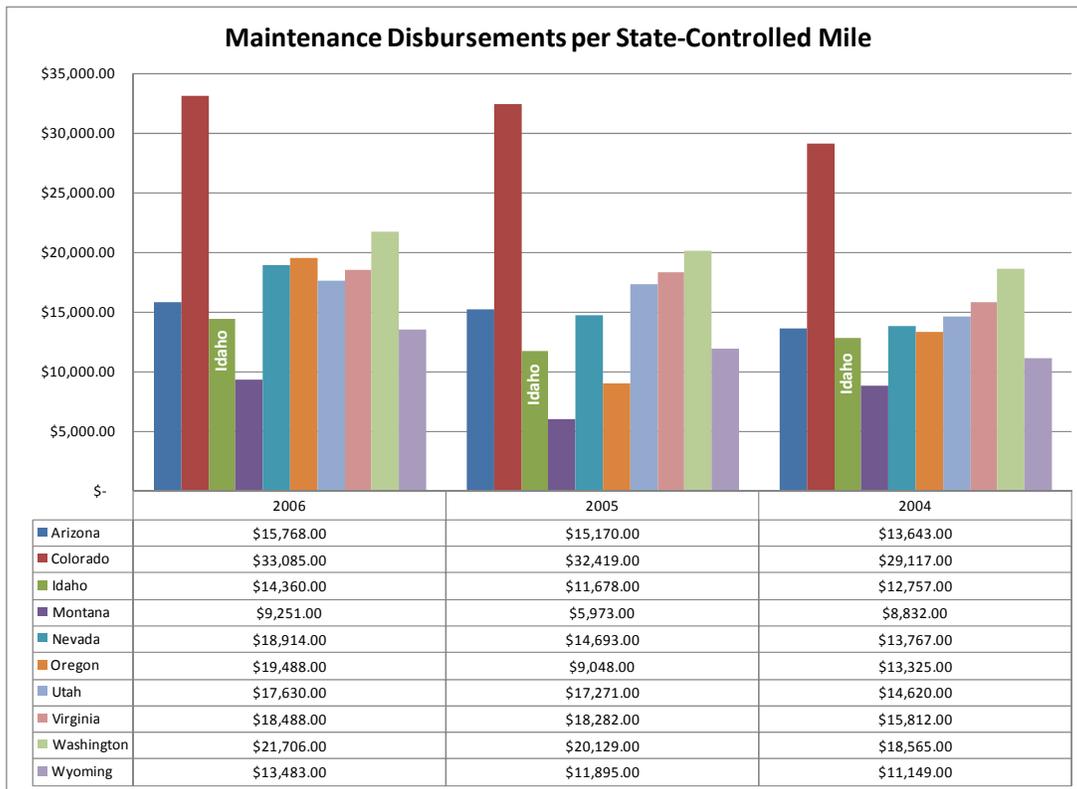
Costs per mile can vary widely from district to district within each year. Also, it differs from year to year by district. ITD seal coat costs by district were reviewed for the last three years to determine trends or variations. District 6 did not perform seal coating in 2006 and 2008 because of the lack of funds, which is an example of deferred maintenance.

Asphalt prices account for the price difference between 2007 and 2008, but other cost differences are somewhat attributable to the location of projects and how much traffic control the contractor was required to provide. In addition, the time period to perform this work is limited and can impact costs depending on the quantities of treatment required. Better analysis with decision-support systems would enable ITD to examine costs such as these to identify reasons for variance and contract requirements or procedures that may permit reducing future costs.



ITD outsources preservation work, seal coats, thin overlays, and other overlays by low bid. ITD does not have the equipment for this work, reflecting its reliance on contractors.

Several years ago ITD determined that the capability existed in the private sector to perform this work. The following chart shows that ITD’s costs and quality of preservation services (based on pavement condition and dollars expended per lane mile) are generally consistent with peer states. (Reason Foundation, 17th, 16th, & 15th Annual Report on the Performance of State Highway Systems).



ITD was experiencing high costs in the necessary equipment, and maintaining skills to perform the work in-house. The districts contract with counties to spray for noxious weeds, and to perform limited mowing. One district recently purchased mowers to perform the work in-house because of the expectation of lower costs. This trial is still underway. ITD also outsources highway traffic line painting, limited brooming (i.e., sweeping) of bridge decks, and maintenance and cleaning of rest areas. These decisions were made some years ago. The cost analysis today would be difficult and labor-intensive because the needed information or tools have not been available since the discontinuation of the maintenance management system in 2006.

All ITD districts perform snow removal in-house. Snow removal is considered a critical ITD function and personnel are cross trained to perform this activity.

In 2007, the department compiled an “Efficiency Report 1994 – 2012” identifying cost savings as part of the Practical Design initiative, for construction cost reductions, and estimated maintenance activity savings (e.g., wing plows for snow removal trucks, switching from anti-skid and

chemicals to 100% chemicals in District 1). The department indicated that it will hold the districts accountable for tracking actual savings in the future.

ITD and its district offices do not have the tools and capability to determine the optimal mix of in-house to outsourcing. For example, an attempt to do a traffic line painting cost comparison was not successful due to lack of data. Avant district survey data indicates that ITD currently outsources about 20% of its maintenance activities statewide. This is comparable with peer states, which outsource between 10% and 25% for similar activities.

Recommendations

ITD should develop target goals for various maintenance activities for the districts, particularly in the key areas of surface maintenance and improvements, such as expected miles of seal coat and surface improvements. ITD should also track actual district cost savings from the efficiency report and evaluate these efficiencies.

- A statewide procedure should be established, including a central repository, accessible to all, to document, evaluate, and share various innovations, process changes, and implementation of new technologies. While each item may not be applicable in every district, a formal process should exist to review applicability.
- Maintenance management system tools should be re-established used in order to determine the optimal mix of in-house to outsourcing for maintenance activities.

Chapter 5

CROSS-CUTTING ISSUES AND CONCLUSIONS

Chapter 5 identifies major cross-cutting issues that emerge from the audit findings in multiple topic areas and the significant recommendations that address the cross-cutting issues assembled from the body of the report. Effective resource management must implement the basic strategic vision of managing time, cost, and quality. The autonomous nature of the districts must be balanced with strategic vision planning and performance goals of the department coordinated through the central office. Tools to bring balance and effective resource use to ITD include those listed below.

The audit's overarching conclusion is that it will become increasingly difficult for ITD to improve, or even maintain, average levels of performance without addressing the following cross-cutting issues.

- **Current Funding For Highway Improvement Is Inadequate:** Above all, ITD needs to make additional investment in highways over the next few years in order to decrease the backlog of roads requiring reconstruction and major rehabilitation and then to begin a transition to an asset management philosophy and business model with steadily increasing emphasis on system preservation (over the downward cycle worst-first approach). Over the long run, this is a significant win-win strategy—as Idaho's transportation system will be in a condition to satisfy passenger and freight mobility and access needs while getting greater return on investment for every transportation dollar through longer lasting highways.
- **ITD Lacks Unified Performance Measures Driven By Strategic Goals:** ITD, like many other departments of transportation, faces a growing demand on an aging highway system against the backdrop of rising costs and flat and/or dwindling operating revenues. There is no comprehensive long-term vision and strategy to address increasing capital program and operational demands. ITD also lacks an integrated, mid-term strategic business and financial planning process to address challenges such as revenue shortfalls and to implement ITD's strategic vision.

ITD is reliant on district-centered methods of operation that attempt to do more with less within existing allocations. As a result, the day-to-day operational focus is reactive and conventional, with minimal central office

direction through uniform performance management, asset management, and project management programs.

- **Performance In Relation to Key Department Standards and Policies Is Not Uniformly Reported or Evaluated:** ITD lacks the operational technology, decision-support tools, and standard performance metrics needed to promote performance effectiveness, measure performance results, and provide management accountability.
- **ITD Does Not Have Necessary Systems, Processes, and Tools to Run a Cost-Effective Highway Program:** The management of an asset as extensive as the Idaho Highway Network requires a wide range of decision and management support systems such as pavement and maintenance management systems. These tools have become increasingly indispensable for DOTs across the nation to effectively plan and manage their highway systems. For ITD, these tools will be essential in moving from a worst-first approach to program management to an asset management approach.

To be able to meet the challenges of the coming decade, ITD must:

1. Develop a comprehensive vision and strategy to address long-term statewide capital program and operational demands.

- Increase funding as soon as possible to allow ITD to begin reducing the extensive backlog of subpar highways. Tie any funding increase to a short and long-term strategy that addresses critical current needs, and that transitions ITD from a worst-first approach to an asset management/system preservation business model.
- Continue to enhance the department's strategic planning process by directly addressing long-term transportation needs statewide. Develop and implement guidelines and criteria for prioritizing projects across all districts with flexibility to address unique local conditions.
- Develop strategic and operational goals for ITD that flow from the board, through ITD central office, to the districts. The districts, in turn, should develop specific business plans that flexibly address broad agency direction.

- Establish a mechanism to engage the Legislature more frequently in a meaningful review of performance goals, financial status, and future needs.

The impact of these recommendations will assure the long-term integrity of the highway program and services, provide transparency between the Legislature, board, central office, and districts on capital program and operational goals, and establish priorities on which to base capital program and operation decisions in the face of limited resources.

2. Develop an integrated mid-term business and financial planning process to address challenges such as revenue shortfalls and the implementation of ITD's strategic vision.

- Develop a minimum 8-year financial plan based on existing forecasted revenues with operating expenditures to include the implications of current and forecasted capital projects.
- Require the use of the minimum 8-year financial plan as the tool for reporting current year performance, the annual budget prioritization, and adoption process, and all revenue, taxation, and financing proposals.
- Continue to examine and recommend the introduction of alternative revenue sources with growth in revenues that generally keeps pace with the cost of delivering ITD projects and services.
- Widen the consideration of alternative revenue options that have a greater opportunity for growth that keeps pace with inflation.

The above recommendations will provide a realistic and objective understanding of ITD's current fiscal situation and of projected conditions on which to base the strategic decisions. They will also give better certainty with respect to cash flow that promotes stability for developing ITD's capital program and matching operational, preservation, and maintenance services. Above all, the recommendations will serve to facilitate communication with and understanding by ITD stakeholders on the impact of fiscal limitations on ITD.

3. Provide broader direction from central office to the districts and supporting tools through centralized performance management, asset management, and project management programs.

- The board should adopt department-wide policies that define the roles and responsibilities between the central office and the districts to strengthen central office policy direction, goal setting, performance measurement, and accountability over the districts.
- Establish central office performance priorities, allowing the districts sufficient flexibility to select and justify the projects that will achieve the strategic priorities.
- Expand the GARVEE office into a division-wide program management office (PMO) responsible for:
 - Managing GARVEE and other major capital expansion projects.
 - Establishing project management practice standards to be followed on all projects whether managed through the PMO or by the districts.
 - Assembling project performance results, for projects managed by the PMO and the districts, and summarizing with a linkage to overall department/district performance results and strategy objectives.
- Use the project management office to define and help implement formal risk management practices for projects that are tailored-to-fit the specific project.
- Improve highway and bridge performance measurement and evaluation by, using peer states as models, selecting 5-10 key operational targets and begin to measure and report them consistently at the district and program levels.
- For the longer term, continue to identify specific performance targets that are linked to strategic goals.
- Hold districts accountable for meeting performance goals for programs and projects that are linked to departmental objectives.
- Institute a business planning process and use district and department-wide business plans as a tool to communicate both goals and current levels of performance. District presentations of their business plans can be

accomplished annually or bi-annually and be presented to central office executive staff and the board.

- Pursue the initiation of strategic asset management program.

By implementing these recommendations, the districts will work in a consistent and cohesive manner towards achieving ITD's long-term goals. Accountability will be enhanced through all levels of ITD management. ITD will also achieve a more balanced and strategic approach that maximizes broad central policy direction with district flexibility for implementing that direction.

4. Acquire or develop enhanced operational technology, decision-support tools, and standard performance metrics needed to promote performance effectiveness, measure performance results, and provide management accountability.

- Develop/acquire a new maintenance management system for performance based budgeting, and to set district funding formulas.
- Implement a new pavement management system, integrate with maintenance management, financial management, and project management systems to provide broad-based technology infrastructure to support asset management strategies.
- Enhance training and development programs to develop employee knowledge and skills to take advantage of advancing strategy and vision, and to use the appropriate technology and decision support tools to implement strategy and performance goals.
- Develop a strategy that includes short-term and long-range tools for analyzing various activities in maintenance and professional services to determine what areas have potential for outsourcing. Develop guidelines and strategies for outsourcing.
- Provide for a technology transfer of project management capability in terms of expertise and tools from the program management consultant (Connecting Idaho Partners) to the PMO:
 - Implement the CIP practices and tools consistently across the districts and GARVEE projects.

- Institutionalize core project management practices and tools as used by the CIP into ITD.
- Adopt the core project management practices as the basis for establishing ITD's project management standards and performance measures.
- Examine the use of alternative project delivery methods that shorten project durations, such as design-build. In the short-term, implement three significant design-build pilot projects.
- Assess project delivery methods that will alleviate the debt service (GARVEE bonds) and negative arbitrage.
- Link maintenance allocation to statewide programmatic goals.

ITD will benefit from implementing the above from:

- Using metrics and performance measures established that highlight where ITD is working efficiently and where improvements need to be made.
- Improvement in the productivity, efficiency, effectiveness of its capital and operational activities through the use of management tools and techniques.
- Using better prediction of lane-mile deterioration and improved preventative maintenance strategies, providing continuous life-cycle cost analysis decisions to assure that tax dollars are effectively spent.
- Improved statewide tracking of overhead and indirect costs for more effective deployment of resources and determining optimal mix of in-house vs. outsourcing.

Areas for future audit consideration

The implementation of recommendations in this performance audit will have far-reaching impacts on ITD. A primary focus for future audits should be the implementation of key recommendations. This, of course, is a typical performance audit practice – status review of prior audit implementation.

The following list identifies areas of significance to ITD's future performance that should be a priority focus for future audits:

1. Develop a comprehensive vision and strategy to address long-term statewide capital program and operational demands.

Follow up audits and assessments would assess and recommend:

- Project selection procedures and selection criteria for both major capital capacity type projects and preservation and maintenance capital program type projects
- Processes to streamline strategic planning regarding procedures to:
 - Better engage Legislature
 - Link between central office and district business plans

2. Develop an integrated mid-term business and financial planning process to address challenges such as revenue shortfalls and the implementation of ITD's strategic vision.

Follow up audits and assessments would assess and recommend:

- Processes to link financial plan to strategic planning and capital program
- Identification and use by peer transportation departments of alternative revenue sources

3. Provide broader direction from central office to the districts and supporting tools through centralized performance management, asset management, and project management programs.

Follow up audits and assessments would assess and recommend:

- Roles and responsibilities of a program management office and setting of project management performance standards across districts
- Program management practices to be institutionalized within ITD
- Cost of CIP program management consultant services relative to management value added
- Capital program risks and relevant risk management procedures

- Procedures for developing district business plans and tracking performance against plan

4. Acquire or develop enhanced operational technology, decision-support tools, and standard performance metrics needed to promote performance effectiveness, measure performance results, and provide management accountability.

Follow up audits and assessments would assess and recommend:

- Specific metrics to be applied based on peer department experience and best practices to promote performance effectiveness
- District compliance with invoicing policies and procedures
- Use of training and development programs and selection of providers
- Criteria on which to base outsourcing decisions based on an analysis of department overhead and direct costs compared to provider costs
- Relative quality of in-house versus outsourced design based on a comparative analysis of construction change orders for projects designed in-house and outsourced
- Identification of projects suitable for alternative delivery methods such as design-build

5. The Legislature should revise Idaho Code to allow the ITD Board to develop a proposed policy to guide the oversight of funding for local roads.

- The policy should be developed with local input at least at an association level, such as local highway districts, association of counties, and association of cities. The policy should also be developed following a basic review of the oversight for state funded local roads and bridges in other states. The policy should include:
 - Stated objectives or performance goals
 - General priorities to guide the use of the funds
 - A process for achieving the necessary oversight

- General standards for the use of the funds
- Basic reporting by municipalities to ITD on an annual basis in a uniform format
- ITD should compile the results of the municipal reporting and provide an annual report to the board and the legislature. The report should highlight key trends and a summary of the general impact of the investment. ITD should also do a few spot reviews of local funding each year. Consideration should be given to establishing a basic audit cycle in which ITD district staff review the local use of funds. This would be one way to promote inter-governmental cooperation as well.

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Appendix A - Glossary

Asset Management – A business process and a decision-making framework that covers an extended time horizon, draws from economics as well as engineering, and considers a broad range of assets. The asset management approach incorporates the economic assessment of trade-offs among alternative investment options and uses this information to help make cost-effective investment decisions.

Capacity (or Expansion) Project – A construction project designed to increase a portion of a highway in order to allow an increase in the maximum number of vehicles per hour traffic under optimal conditions.

Capital Project - Portions of a highway that the state proposes to construct, reconstruct, or improve as described in the preliminary design report or applicable environmental document. A project may consist of several contracts or phases over several years.

CIP – Refers to **Connecting Idaho Partners**, a joint-venture consultant on GARVEE funded projects. Also refers to annual **Capital Investment Program**. The ITD Capital Investment Program is formalized through the STIP (State Transportation Improvement Program). It contains all approved projects that add capacity to the Idaho Transportation Network, including new roads and bridges, road widenings, etc. for a 5 year period.

Consultant – A term used to refer to entities hired for professional services for pre-construction activities, such as design engineering.

Contractor – A term used to refer to those entities that are hired by low bid to perform construction or maintenance work under contract.

Design-Build -A construction project delivery system in contrast to "design-bid-build." This system is used to minimize the project risk and to reduce the delivery schedule by overlapping the design phase and construction phase of a project.

Design Engineering - A general term that covers multiple engineering disciplines. The design engineer sets the direction of the design effort and does the most complex parts of design.

GARVEE – A form of federal highway-project financing that utilizes bond or other debt instrument financing mechanisms involving the payment of future federal-aid highway funds to retire debt. These new mechanisms are being called Grant Anticipation Revenue Vehicles or "GARVEE" bonds.

Life-cycle Cost - The total cost of ownership over the life of an asset.

Maintenance and Preservation – The act of regularly performing minor repairs and improvement activities to keep a highway or bridge in its original condition. Maintenance is performed with the intent of ensuring acceptable facility performance and preserving the life of the asset.

Operations – The management of the day-to-day highway maintenance and construction work in the field. Also, this refers to various aspects regarding the functions of the transportation network.

Practical Design – A cost-savings approach initiated by Missouri DOT, adopted by ITD that designs transportation investments to address only the specific critical needs of each project—a disciplined approach to keep project scope to the essentials.

Preventative Maintenance (PM) - a set of activities performed while the pavement (or other assets) is still in a good or fair condition to inhibit progressive failure and therefore extend the service life of the pavement. Potentially, PM can enhance pavement performance and reduce the life-cycle costs of highway facilities.

Value Engineering - Value Engineering, according to the FHWA, is defined as the systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the project, reliably, and the lowest life-cycle cost without sacrificing safety, necessary quality, and environmental attributes of the project. A Value Engineering (VE) study is performed on federally funded projects with an estimated cost (includes design, right-of-way, and construction costs) of \$25 million or more, and on other Federal-aid projects with a high potential for cost savings.

“Worst-first” – The highway maintenance approach in which the road or bridge in the worst shape gets fixed first.

Appendix B

HOUSE CONCURRENT RESOLUTION NO. 50

LEGISLATURE OF THE STATE OF IDAHO

Fifty-ninth Legislature
Second Regular Session - 2008

IN THE HOUSE OF REPRESENTATIVES
HOUSE CONCURRENT RESOLUTION NO. 50
BY WAYS AND MEANS COMMITTEE

A CONCURRENT RESOLUTION STATING FINDINGS OF THE LEGISLATURE AND REQUESTING THE JOINT LEGISLATIVE OVERSIGHT COMMITTEE TO DIRECT THE OFFICE OF PERFORMANCE EVALUATION TO COMMISSION AN INDEPENDENT EVALUATION OF THE IDAHO TRANSPORTATION DEPARTMENT.

Be It Resolved by the Legislature of the State of Idaho:

WHEREAS, the Idaho Transportation Department (ITD) has responsibility for approximately 5,000 centerline miles of highways in Idaho with a budget of over 547 million dollars; and

WHEREAS, ITD estimates that its annual revenue shortfall on maintenance and construction is currently 245 million dollars; and

WHEREAS, highways are a critical infrastructure for Idaho's economy and for the mobility of its citizens; and

WHEREAS, the Legislature is deliberating on fee increases to provide more revenue to meet the ongoing and future needs of Idaho's highways; and

WHEREAS, the Legislature has the responsibility to ensure that current revenues and any potential new revenues are spent appropriately.

NOW, THEREFORE, BE IT RESOLVED by the members of the Second Regular Session of the Fifty-ninth Idaho Legislature, the House of Representatives and the Senate concurring therein, that the Joint Legislative Oversight Committee is requested to direct the Office of Performance Evaluations to manage an independent evaluation of the ITD by a qualified, out-of-state consultant(s) without current contractual relationships with ITD or any consultant or contractor that works for or with ITD and

without any other conflict of interest with ITD. The evaluation shall address the following questions:

- (1) As measured over an appropriate time frame, does the manner in which ITD schedules, finances and sets priorities for improvement projects minimize life-cycle costs?
- (2) Does ITD have appropriate processes and criteria to measure and evaluate the quality of its maintenance and construction work on state highways and do these processes and criteria include value engineering?
- (3) Does ITD have a process for identifying and selecting projects in writing that is followed in a timely basis to ensure project consideration, progress and completion?
- (4) What practices are used in determining the best price to value ratio on project contracts?
- (5) What metrics are being used to evaluate project success?
- (6) Are there state policies or legislation that might hamper ITD's programs, increase costs or limit options for efficiency, and, if so, what are they?
- (7) Are there any precautions undertaken by ITD to insulate it from construction cost fluctuations?
- (8) Is there work that ITD is currently outsourcing that ITD is capable of performing in-house or work that is being done in-house and that could be outsourced, including planning, environmental studies, right-of-way acquisition, design, public contacts and actual construction, and, if so:
 - (a) Is ITD's staff adequate to perform work in-house that is being outsourced;
 - (b) Could cost savings result by either performing the work in-house or outsourcing the work; and
 - (c) Would the quality of the work improve by either performing the work in-house or by outsourcing it?
- (9) Does ITD have a written maintenance project budget and modeling process to project what moneys and resources will be required at any given time to maintain existing and additional highways?

BE IT FURTHER RESOLVED that the independent evaluation address the ITD's contracting process and supervision with regard to consulting contracts, including:

- (1) The selection of those consultants requested to submit proposals and whether qualified consultants are being given the opportunity to submit proposals or whether the scope of contacted consultants has been arbitrarily limited;
- (2) Whether the scope of the project to be performed by the consultant has been carefully defined so as to limit the need for supplementals and add-ons; and
- (3) The performance of ITD in supervising its consultants, including auditing the consultant's task performance, hours of work claimed and requests for payment.

BE IT FURTHER RESOLVED that the independent evaluation address the ITD's contracting and supervision with regard to construction contracts, including:

- (1) Whether no frills designs are being employed that ensure efficiencies in the expenditure of taxpayer dollars and that enable projects to achieve the most construction for the dollar without sacrificing safety and while complying with federal and state guidelines;
- (2) ITD's evaluation of methods and engineering competency employed by estimating project costs and whether such methods and engineering competency limit the awarding of contracts that substantially exceed the ITD estimate or limit the rebidding of contracts;
- (3) Determine whether quality inspections by qualified inspectors or project engineers are being utilized;
- (4) Examination of ITD's current policies and efforts to avoid and limit cost overruns and limit the supplemental amounts demanded by contractors. Also, whether there is a fair but firm appeals process in place, staffed with competent individuals, to address these issues; and
- (5) Examination of ITD's internal review process on change orders, including the process for confirming change order costs and the utilization of value engineering in evaluating change orders.

BE IT FURTHER RESOLVED, that the Joint Legislative Oversight Committee is requested to direct the Office of Performance Evaluations to develop a scope of study to address the issues set forth above. As part of this study, the Office of Performance Evaluations shall develop and submit a report to the Legislature, not later than the Second Regular Session of the Sixtieth Idaho Legislature, on findings concerning best practices and appropriate performance measures. At the conclusion of each phase of the consultant's work, the Joint Legislative Oversight Committee is requested to submit a report of the completed results of the independent evaluation to the Sixtieth Idaho Legislature. The results so reported are to include action item recommendations upon which the Idaho Transportation Board and the Legislature can act to improve safety, efficiency and economies on surface transportation projects.

Statement of Purpose / Fiscal Impact

STATEMENT OF PURPOSE

This resolution authorizes the Joint Legislative Oversight Committee, through the Office of Performance Evaluations, to hire outside consulting company(s) to evaluate the way the Idaho Transportation Department (ITD) does business with consultants and contractors. When the audit/performance evaluation is complete, the outside consulting company(s) brings a report back to the Joint Legislative Oversight Committee, the ITD Board and Legislature with observations and suggestions.

FISCAL NOTE

An estimated cost of approximately \$550,000.

Appendix C – Scope of Work

Performance Audit of the Idaho Transportation Department (ITD)

Phase I

SCOPE OF WORK

(Report Due to Legislature: Mid-January 2009)

This Scope of Work encompasses the study questions and issues expressed in HCR 50 that can be addressed in time for the Legislature's consideration in January 2009.

The Request for Information (RFI) will be advertised for the Scope of Work described below, with the exception of Scope Section 1.B, which would be contracted separately. Section 1.B pertains to the adequacy of the financial plan for highways and will require special expertise that we would not expect to find among potential respondents for the remaining elements of the Scope of Work. We will require, however, that the work involved in Sections 1.B (financial planning) and 1.C (project planning and budgeting) will be coordinated among consultants.

If possible, we also intend to engage a transportation sector professional organization or nationally recognized state agency to provide peer assistance in a particular area, such as value engineering. We will seek such assistance if it does not present a conflict of interest and can be provided at a minimal or low cost and in a timely manner.

If the Legislature deems necessary, Phase 2 of this evaluation would involve an in-depth review of Section 3.A using case studies. In addition, Phase 2 would address any cross-cutting issues identified in Section 4 needing further analysis.

Legislative appropriations of \$550,000 for this study will cover the cost of both phases and the cost of two managing consultants who will assist OPE in managing the entire study.

Section 1. Management and Performance

- I.A. How does the management and governance structure of ITD, particularly in relation to the performance of the state's highway programs, compare to transportation industry benchmarks and best practices?

Potential Measurement and Approach

Review the administrative structure of ITD and compare it to other public transportation agency operations. Evaluate the effectiveness of communication between agency management and the ITD Board. Identify how the governance structure affects the selection of projects and the conduct of day-to-day operations, and compare this to best practices. Assess whether the current governance structure contributes to consistency in performance statewide. Review the relationship between the central office and the regional offices.

Over the last five years, in both the agency as a whole and in the Division of Highways in particular, evaluate administrative staff growth in comparison to growth in other direct service areas. To what extent has the increase in administrative staff been justified by measurable workload growth? Is the overall level of management, span of control, and support staffing appropriate? How do management turnover, succession planning, compensation levels, experience, and training compare to transportation sector benchmarks and best practices? Conduct a gap analysis of what is happening versus what should happen and how identification of any gaps can shed light on where real improvement can be made.

Throughout this Scope of Work, best practices are defined as techniques or methodologies that have been proven effective in leading to desired results.

- 1.B. As measured over an appropriate timeframe, does the manner in which ITD schedules, finances, and sets priorities for improvement projects minimize life-cycle costs?**

Potential Measurement and Approach

Review whether the state's highway funding structure and ITD's short- and long-term financial plans are adequate for addressing improvement needs and for sustaining adequate investments in preservation and maintenance. Evaluate how ITD has determined the currently estimated funding shortfall of \$245 million. Determine whether alternative financing and prioritization approaches could yield an improved value-to-cost ratio.

- 1.C. As measured over an appropriate timeframe, are planning and budgeting for highway maintenance, preservation, and improvement programs adequately integrated and coordinated, both among programs and with the short- and long-term financial plans?**

Potential Measurement and Approach

Review the criteria used for project selection and prioritization, and compare that criteria to best practices. Conduct a gap analysis of what is happening versus what should happen and how identification of any gaps can shed light on where real improvement can be made.

Evaluate whether maintenance associated with planned preservation and improvement projects is adequately accounted for in the planned maintenance

program, and whether planned maintenance activities are adequately accounted for in the preservation program. Compare respective plans versus documented need. To the extent that backlogs of projects exist, evaluate how backlogs affect the coordination of project planning, budgeting, and implementation.

- 1.D. As measured over an appropriate timeframe, are the formulas used for scheduling and budgeting highway preservation and maintenance work adequate?**

Potential Measurement and Approach

Analyze the documented models for pavement, bridge replacement and maintenance, and their use by ITD to determine whether they lead to the identification of the lowest life-cycle costs for preservation projects and maintenance activities (using transportation sector standards for assumptions of life-cycle cost analysis, value engineering, and sensitivity analysis, as appropriate).

- 1.E. Evaluate the metrics being used by ITD to evaluate the success of its highway programs.**

Potential Measurement and Approach

Verify the reliability and validity of the performance data, self-assessment, and performance measures employed by ITD. Assess how this information is used by management to improve operations and to ensure the quality of its improvement, preservation, and maintenance programs. Determine whether this self-assessment process led to the identification of innovative techniques and approaches that lowered costs while maintaining quality. To the extent reliable data is available, and by appropriate metrics, compare how the costs of Idaho's maintenance, preservation, and improvement projects compare with other states, among regions within the state, and with the state's local jurisdictions. Also to the extent possible, quantify the potential cost savings of ITD meeting performance targets.

Section 2. Contractor Selection and Oversight

- 2.A. Does ITD's contracting process and supervision of consulting contracts, including those related to the GARVEE Transportation Program, follow transportation industry best practices, specifically:**
- a) Are the scopes of projects and the contractor selection process designed to ensure adequate opportunity for competition among qualified consultants?**
 - b) Are the scopes of the projects to be performed by consultants carefully defined to limit the need for supplementals and add-ons?**
 - c) Is ITD's oversight and management of its consultants adequate, including but not limited to such areas as auditing the consultant's task**

performance, hours of work claimed, and requests for payment and performance?

d) What practices are used in determining the best price-to-value ratio on project contracts?

Potential Measurement and Approach

Review existing audit reports and other relevant evaluations and assessments. Document and evaluate the procedures for executing and administrating consultant contracts, such as progress reports, progress payments, post reviews, and final completion of contracts or agreements. Review controls for cost elements and fees (financial and performance).

For a sample of consultant contracts, including GARVEE contracts, review invoices and billings to determine if contract specifications are being met and if there are any weaknesses in policies, processes, or controls (including controls related to the administration and disbursement of funds).

Conduct a gap analysis of what is happening versus what should happen and how identification of any gaps can shed light on where real improvement can be made. As appropriate, include in the gap analysis the identification of any laws that hamper making improvements to the contracting process.

2.B. What procedures and procurement strategies are used by ITD to share the risk of project performance between the state and private contractors in the implementation of contractual work? Specifically, what are the precautions undertaken by ITD to insulate it from cost overruns, project delays, and construction cost fluctuations? When project changes must occur, identify the processes ITD employs to ensure value for the cost.

Potential Measurement and Approach

Identify best practices for identifying, assessing, mitigating, and accommodating risk in the implementation of highway projects. Additionally, identify best practices for incorporating cost overruns and time delays into project planning and budget. Conduct a gap analysis of what is happening versus what should happen and how identification of any gaps can shed light on where real improvement can be made.

Review whether and how risk sharing and risk management practices vary between projects managed under contract and those managed in-house by ITD's Division of Highways. Examine ITD's internal review process on change orders, including the process for confirming change order costs and the utilization of value engineering in evaluating change orders. Assess whether a fair but firm appeals process is in place and whether the process is adequately staffed.

Section 3. Outsourcing

- 3.A. **Is ITD currently outsourcing professional service work that it is capable of performing in-house? Conversely, is ITD performing in-house work that could be outsourced? Examples of work include planning, environmental studies, right-of-way acquisition, design, legal review, and public contacts.**
- a) **Is ITD's staff adequate to perform work in-house that is being outsourced?**
 - b) **Could cost savings result by either performing the work in-house or outsourcing the work?**
 - c) **Would the quality of the work improve by either performing the work in-house or by outsourcing it?**

Potential Measurement and Approach

To the extent possible, compare the scope, costs, and quality of services provided by department staff to those services furnished by industry engineering consulting firms. Compare the costs of hiring and training technical and engineering positions with the costs of contracting for equivalent services.

Compare ITD practices to industry standards and/or best practices. Conduct a gap analysis of what is happening versus what should happen and how identification of any gaps can shed light on where real improvement can be made.

- 3.B. **What is the array of state highway preservation and maintenance activities, and when, where, why, and by whom are these services provided? What are the costs and quality of services? What are the experiences of other states in contracting out comparable services?**

Potential Measurement and Approach

Compare Idaho's costs and quality of preservation and maintenance services with comparable preservation and maintenance services in other states, including those that contract for services. Use recognized transportation sector standards for assessment of maintenance quality and cost. Analyze full-direct and indirect costs by cost component.

Identify any differences due to the statutory and regulatory environment or differences due to regional location that should be controlled for and addressed in making the preservation and maintenance services comparison. Determine whether potential costs and/or efficiency savings could be achieved by contracting some or a portion of the maintenance services, or by conducting operations differently. Identify the optimal mix of contracted and non-contracted services for Idaho's highway maintenance services.

Section 4. Cross-Cutting Issues

Based on the analysis conducted in Sections 1, 2, and 3, identify any cross-cutting issues that emerge in multiple topic areas. Such issues might include overlaps in programs or services, or state policies or legislation that hamper ITD's programs, increase costs, or limit options for efficiency.

This part of the performance audit should also develop "big picture" recommendations that will address the cross-cutting issues, how ITD might change its approach to its business and mission, and complement, reinforce, and bring together recommendations cited in the other sections of the audit.

Section 5. Summary of Recommendations

Summarize recommendations from Sections 1–4 and, to the extent possible, indicate whether implementation of recommendations will result in cost increases or cost savings, and quantify those cost impacts. Specify the priorities and timelines for ITD to implement the recommendations.

Responses to the Performance Audit



C. L. "BUTCH" OTTER
GOVERNOR

January 13, 2009

RECEIVED
JAN 13 2009
PERFORMANCE EVALUATIONS

Rakesh Mohan, Director
Office of Performance Evaluations
Idaho State Legislature
700 W. State Street
Boise, ID 83720-0055

Dear Rakesh,

Thank you for the opportunity to comment on the performance audit of the Idaho Transportation Department (ITD). In today's difficult fiscal environment, performance audits become even more valuable tools in scrutinizing government programs that use Idahoans' hard-earned dollars.

I am pleased and encouraged that many of the recommendations addressed in the audit reflect what I found during my recent review of ITD operations. I strongly agree with the audit's conclusion that, "Current funding cannot keep pace with the growth in costs to meet Idaho's basic transportation needs of preserving and restoring its highway and bridges." Simply put, we are trying to accomplish 2009 goals with 1996 dollars.

I directed ITD Director Pamela Lowe to review the audit findings, develop action plans to address them and report on the progress. In addition, I am requiring the department to provide an annual report on the condition of Idaho's transportation system; the investment required to operate, maintain and improve it; and options for addressing these needs.

As you know, I hold each state agency director and administrator responsible for their organization's spending and employee performance. I have met with each of them to explain the necessity of eliminating waste and excessive spending. I am committed to ensuring that state agencies – including ITD – become more efficient and responsible stewards of taxpayer dollars.

Again, I appreciate your efforts and those of your office, and I look forward to working together to increase the efficiency of state government.

As Always – Idaho, "Esto Perpetua"

A handwritten signature in black ink, appearing to read "C.L. Butch Otter".

C.L. "Butch" Otter
Governor of Idaho

CLO/dk



IDAHO TRANSPORTATION DEPARTMENT

P.O. Box 7129
Boise ID 83707-1129

(208) 334-8000
itd.idaho.gov

January 12, 2009

Rakesh Mohan, Director
Office of Performance Evaluation
STATEHOUSE MAIL

Dear Rakesh:

Thank you for the opportunity to provide a response to the performance audit of the Idaho Transportation Department.

The department strongly supports the use of performance audits as an important tool to improve state government. The department takes the recommendations of all audits seriously.

The department appreciates the professionalism of the OPE staff and the consultants hired on your behalf.

In addition to the suggestions, the department appreciates the auditors' recognition of our employee's efficiency efforts. I regard this report's recommendations as a continuation of the department's ongoing commitment to efficiency.

As agreed upon with your office, the department's combined its response into six broad audit themes:

- Current transportation funding
- Statewide strategy for capital improvements and operations
- The department's performance measures
- Necessary systems, processes and tools to run a more cost-effective highway program
- The department's financial system
- GARVEE financial planning

Again, the department appreciates the efforts of your office and look forward to working together to improve our efficiency.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pamela K. Lowe', written over a white background.

PAMELA K. LOWE, P.E.
Director

Idaho Transportation Department
Response to Office of Performance Evaluation Audit
1/13/09

Audit theme – Transportation funding cannot keep pace

Department response – Agrees

The Idaho Transportation Department agrees with the finding.

The department has been working over the past four years to provide information on transportation funding; to outline the need for increased funding for the operation; maintenance and improvement of Idaho's roads and bridges; and to collect comments from the public and elected officials.

Department action/plan

The department will continue to provide the Governor's Office and Idaho Legislature information on the condition of Idaho's transportation system, investment required to operate, maintain and improve it, and options to address these needs.

Audit theme – Department lacks a comprehensive statewide strategy for capital improvements and operations

Department response – Agrees

The Idaho Transportation Department agrees with the finding.

Department action/plan

October 2008 through September 2009 – The Transportation Planning Division’s Annual Work Program for October 2008 through September 2009 includes the statewide transportation system plan as an identified work product.

November 2008 – Significant reorganization of the Transportation Planning Division refocused duties related to statewide planning within the division.

June 2010 – Significant steps are underway to complete a statewide transportation system plan by June 2010.

Scope of plan

The plan will allow Idaho’s transportation system to be managed over short- and long-term timeframes by planning and forecasting improvements and strategies under various funding scenarios.

The plan will link the department’s strategic plan, transportation vision, the State Transportation Improvement Program and corridor plans.

Districts will remain responsible for project nomination, while the Idaho Transportation Board will select projects.

The plan will include clear project selection and prioritization criteria and specific performance eligibility requirements, including deficient location data/criteria to justify the funding priority and project benefits over the short and long term.

Decisions will be based on policy goals that connect strategies to the annual Capital Investment Program update. Strong technical and analytical justifications will be required for project managers, department managers and local agencies when recommending a project.

An internal tracking and monitoring system will be developed for strategic action items that will clearly translate policy goals into both operations and decision-making.

Audit theme – The department should strengthen its performance measures

Department response – Agrees

The Idaho Transportation Department agrees with the finding.

Department action/plan

Significant steps are under way to identify performance measures.

November 2007 – Leading Through Agency Performance (performance measures) was identified as one of four major focus areas in department's strategic plan.

December 2007 – Formed a performance management team to develop strategies, goals, and possible measures needed for making the cultural shift to performance management.

April 2008 – The implementation plan was completed and presented to the Idaho Transportation Board with recommended strategies and action plans, and an inventory of typical transportation measures. A recommendation to establish a performance management office was included in the plan.

September 2008 – Director Pamela Lowe re-organized financial, budget and capital investment programming functions into a single unit under the Administration Division to prepare for the eventual establishment of the performance management office. Within this new structure, the performance management function can be managed department-wide and linked to the department's major financial management processes.

December 2008 – In a presentation to the Idaho Transportation Board, the department identified 24 possible measures that could be used to demonstrate performance in four vital areas:

- Sustaining Idaho's transportation systems to ensure mobility of people and goods.
- Improving the experience of customers who use our systems.
- Improving the effectiveness of transportation management.
- Demonstrating return on investment when making transportation decisions.

Ongoing and near future implementation activities include:

January 2009 – Stakeholder review and input on Idaho Transportation Board approved measures.

March 2009 – Department-wide review and input on suggested measures.

March/April 2009 – Board members, headquarters and district leadership training in performance management.

June 2009 – Assign internal and external measures to key personnel for the responsibilities of: highest direct-line accountability for performance and measurement expertise, policy guidance and quality assurance.

June 2009 – Formalize a performance management office that will be responsible for department-wide integration of performance management, measurement and continuous quality improvement procedures.

Audit theme – Department does not have necessary systems and tools to run most cost-effective highway program

Department response – Agrees

The Idaho Transportation Department agrees with the finding.

Action required

The audit recommends the Idaho Legislature appropriate approximately \$6 million for the department to acquire integrated maintenance, pavement and project management/scheduling systems.

Department action/plan – maintenance and pavement management systems

Significant steps are under way to address the need for maintenance and pavement management systems.

Fall 2007 – A pilot project started evaluating a Pavement Management System in one of the department's operational districts.

September 2007 – The department began a research project to evaluate its current maintenance and pavement and management systems and to make future recommendations.

Summer 2008 – The draft final report was completed. It recommended the acquisition of new systems to allow the department to better and more efficiently evaluate pavement and maintenance needs and conditions.

August 2008 – The department recognized the need to track maintenance costs on an interim basis until a long-term system could be obtained. An interim team was formed to develop a Web-based application to track maintenance activities. The system will not be able to forecast future activities and will require dual-entry of timesheets.

January 2009 – The estimated cost of the recommended systems is approximately \$6 million. The final report will be presented to the Idaho Transportation Board at its Jan. 21, 2009, meeting.

February 2009 – Testing will begin on interim maintenance management system.

July 2009 – Interim maintenance management system will be implemented.

TBD – Select method of funding and acquiring maintenance and pavement management systems.

TBD – Test and implement systems.

Department action/plan – project management system

2007 – A pilot project is evaluating project management software in one of the department's operational districts. The project team is coordinating with the GARVEE Program Manager and Connecting Idaho Partners to learn from their experiences in using project management tools.

2009 – A project management system will be implemented to manage one district's transportation program by the end of 2009. Upon completion of the pilot project, a recommendation will be made for a department-wide system.

TBD – Select method of funding and acquiring system.

TBD – Test and implement system.

Department action/plan – geographic information system

Substantial progress has been made to supplement and reorganize the department's geographic information system (GIS).

July 2008 – Created Geographic Information System Section and hired a manager. The new manager visited all department offices to identify needs for GIS technology.

Fall 2008 – The initial focus of the section is using existing GIS software licenses more effectively.

2009-2012 – Department-wide GIS technology training.

Fall 2010 – Develop Web-based GIS applications for initial use late in the year.

Audit theme – Improve the department’s financial planning process

Department response – Agrees

The Idaho Transportation Department agrees with the finding.

The department’s financial system, upgraded in 2006 and updated again in 2008, meets all state and federal financial reporting and planning requirements.

The department’s financial planning process generates the following reports for management’s use:

- Projected revenues – based on current tax structure and reflecting the impact of economic forecasts.
- Projected costs (by fund source, class of expenditure, one-time and on-going) based on:
 - Costs of current operating program outputs.
 - Reasonably expected rates of price escalation for operation costs (labor, fuel, energy, supplies, etc.).
 - Planned operation initiative costs (one-time, and on-going).
- Remaining funding available for construction (after deducting operations costs from projected revenues).
- Identified increases in maintenance costs for GARVEE projects (road striping: increased paint & bead volumes).
- Revenues restricted for use on road equipment purchases, trustee and benefit payments, Planning and Public Transportation operations costs.
- GARVEE bond proceeds, GARVEE project costs, and debt service.
- Projected annual funding shortfalls in meeting programmed construction levels under the existing tax structure (after addressing projected operations costs including inflation, identified volume increases and planned initiatives). The funding shortfalls identified by the existing multi-year financial plans were central in highlighting and identifying the need for revenue enhancements.

Department action/plan

The department’s financial tools are insufficient to address the level of sophistication called for in many of the audit recommendations. An enhanced financial planning system will need to be purchased and/or developed.

The department, using its existing financial system, is improving financial planning by:

- Under way – Developing and routinely reporting meaningful performance measures for core programs.
- June 2010 – Integrating strategic plans and performance management to more specifically reflect funding commitments to operating programs and infrastructure investments.
- June 2010 – Identifying imbalances between targeted performance levels and available resources.
- June 2010 – Providing metrics to key decision-makers for purposes of evaluating, prioritizing and selecting construction projects.
- June 2010 – Providing meaningful information to key decision-makers for use in making revenue enhancement decisions.

Implementation of the enhanced financial planning system is dependent on the complexity of system requirements and the ability to secure the funding needed to acquire and/or develop it. An initial implementation timeline estimate is:

- June 2009 – Identify detailed system requirements.
- September 2009 – Identify alternatives for acquisition/costs.
- October 2009 – Select method for acquiring/identify funding source.
- TBD – Install/test new system (pending funding).
- TBD – Ongoing use of new system (pending funding).

To fully integrate a new financial system – maintenance, pavement, project scheduling systems, performance measures and a statewide transportation plan must first be in place.

Audit theme – Improving GARVEE financial planning

“The audit identifies an estimated \$19.6 million in negative arbitrage (the difference between the cost of debt and the reinvestment of bond proceeds) during construction.”

Department response – Understands

The Idaho Transportation Department understands the audit issues surrounding the financing of the GARVEE program.

Background on GARVEE financing program.

- The Idaho Transportation Board established a philosophy to secure long-term financing in advance of awarding contracts.
- This philosophy has been the guiding principal for securing GARVEE bonds. This approach meets the legislative requirement as stated in House Bill 336 Section 5 of the 2007 Legislative Session which states; “The bonds issued under the authority provided in Section 1 of this act shall be issued...in amounts necessary to ensure that: the funds are necessary to meet program obligation requirements.”
- Working with its contract GARVEE program manager, the department developed a project-financing schedule including advertising date, award date, first cash expenditure date and a cash flow projection by month for the duration of the GARVEE projects.
- This detail is aggregated to program totals for which bond sizing, the timing of issuing debt, and total program cash flow is used to manage the financial aspect of the program.
- The department also worked with the Idaho Housing and Finance Association (IHFA) and its investment banking partners to develop program total debt service estimates by state and federal fiscal year.

Audit finding of negative arbitrage.

- The audit identifies an estimated \$19.6 million in negative arbitrage (i.e. the difference between the cost of debt and the reinvestment of bond proceeds) during construction.
- The estimated cost of negative arbitrage is equivalent to the cost of raising the permanent financing rate by 0.4% to 0.5%. Remedies recommended to the negative arbitrage include: shorter term borrowing at lower rates (current bond issues have an 18-year final maturity); structure borrowing to more closely match cash flow requirements; and the possibility of issuing bond anticipation notes.

- The \$19.6 million identified in the audit is a largely hypothetical figure based on deliberately conservative short-term and long-term interest rate assumptions in the financing model for planning purposes as of July 2008. There is no assurance that negative arbitrage will exist on future transactions, as was the case for the Series 2006 borrowing.
- An updated model indicates that the estimated amount of negative carry for the remaining bond issues would be approximately \$15.7 million. However, if negative carry did achieve a \$19.6 million level, it would equate to an additional .15% to .20% increase in overall financing cost, not the .40% to .50% as stated in the audit.
- It is important to note that the construction fund life is only approximately three years, while the long-term borrowing is for 18 years. The long-term borrowing cost is a much larger driver of overall financial performance than the shorter construction fund reinvestments.

The audit report recommends three ways to mitigate negative arbitrage.

1. Short-term borrowing.

- Section 40-315, Idaho Code set limitation that debt service cannot exceed 30% of Idaho's federal-aid apportionment starting in state fiscal year 2012 and for each succeeding state fiscal year.
- The department worked with its finance partners, consulted with bond rating agencies and used conservative future federal fund assumptions to establish the current 18-year maturities for debt that is issued. The department used a flat federal funding assumption at federal fiscal year 2009 levels.
- Federal authorization for highway funding is historically for six-year time periods. In consultation with the department's financing partners and the rating agencies, with the unique pledge of only federal funds (no state funds are pledged which is unique to Idaho) for debt service, it was determined that an 18-year bond term would yield favorable bond ratings.
- With an 18-year maturity on bonds, a 30% limitation on debt service and a flat federal funding assumption would provide financing for a GARVEE program of \$998 million. Shortening the term of the bonds to something less than 18 years would reduce the total amount that could be borrowed.

- While shorter term financing would have provided lower costs, the \$998 million GARVEE program could not have been implemented.
2. Structure borrowing to more closely match cash flow.
- Projects in the regular formula federal highway program the department administers has the amount of funds to complete the major functions (engineering, right of way acquisition and construction) of a project obligated with the Federal Highway Administration (FHWA) before funds are expended for that function.
 - This ensures that full funding to complete the project is available before the contract commitment is made. This same approach has been extended to the GARVEE program. The major difference is that for the standard federal project cash is received from FHWA on a reimbursement basis, whereas for a GARVEE project the department must secure the cash in advance.
 - The department chose to secure long-term financing for the major functions of projects in advance of awarding contracts to ensure that the specified work is funded and to avoid interest rate risk.
 - This conservative approach that protected the state from recent uncertainty in the credit markets.
3. Use bond anticipation notes.
- The audit suggests borrowing shorter on the yield curve or using a short-term financing vehicle such as bond anticipation notes (BANs) during construction, which then could be refinanced with long-term notes, would provide program savings.
 - Theoretically, this approach could produce short-term savings during the construction period, but would expose the program to additional risks in the future.
 - Interest rate risk: The program would bear the risk of rising interest rates between the period of short-term financing and the ultimate long-term takeout. For example, the Series 2006 bonds have a long-term rate of 4.53%. Long-term rates as of Jan. 7, 2009 were 4.95% or 0.4% above what Idaho was able to secure.

- Credit risk: Introducing interim funding strategies into the program creates uncertainty in future financings and the ability to complete the capital program. If the Idaho Housing and Finance Association issues BANs for a hypothetical three-year construction period and then takes them out with 18-year GARVEEs, the state would pay debt service for 21-years. A 21-year finance plan would cross into a fourth federal reauthorization period which would most likely damage the state's long-term GARVEE ratings – causing interest costs to rise.
- Reauthorization risk: Leveraging federal funds for transportation projects involves reauthorization risk, or the risk that the federal government may not reauthorize the Federal Aid Highway Program every six years. By securing long-term financing today, the state effectively transferred reauthorization risk. By borrowing short or through interim vehicles as the audit recommends, the state retains all reauthorization risk associated with permanent financings in the future.
- Programmatic risks/structural challenges: Short-term or interim financing would introduce several new risks to the department's program, as well as create structural challenges to the financing. While a BAN structure typically works well for tax-backed securities, it would present a challenge for GARVEE bonds where the only source of security is federal reimbursements.

Department action/plan

The department recognizes the issues raised by the audit need to be considered carefully with each new bond issue.

The department will work closely with the Idaho Housing and Finance Association and its investment bank advisors to ensure that the lowest cost of financing is achieved within the tolerance of risk identified by decision makers.

Evaluating each bond issue in relation to the market conditions that exist at that time and the on-going program delivery requirements will be key to a successful program.

The department will continue to receive guidance and report the bonding actions to the Idaho Transportation Board, and to the Idaho Legislature in the Annual GARVEE Report. The Idaho Housing and Finance Association will provide necessary information to the Idaho Credit Enhancement Committee.

Office of Performance Evaluations Reports Completed 2007–Present

Publication numbers ending with “F” are follow-up reports of previous evaluations. Publication numbers ending with three letters are federal mandate reviews—the letters indicate the legislative committee that requested the report.

<u>Pub. #</u>	<u>Report Title</u>	<u>Date Released</u>
07-01	Use of Average Daily Attendance in Public Education Funding	February 2007
07-02	Virtual School Operations	March 2007
07-03F	Higher Education Residency Requirements	July 2007
07-04F	State Substance Abuse Treatment Efforts	July 2007
07-05F	Idaho School for the Deaf and the Blind	July 2007
07-06F	Public Education Technology Initiatives	July 2007
07-07	Health Insurance Coverage in Idaho: A Profile of the Uninsured and Those with Coverage	July 2007
07-08	Options for Expanding Access to Health Care for the Uninsured	July 2007
07-09F	Child Welfare Caseload Management	December 2007
07-10F	Management in the Department of Health and Welfare	December 2007
07-11F	School District Administration and Oversight	December 2007
07-12	Cataloging Public Health Expenditures in Idaho	December 2007
07-13	Estimating Private Health Expenditures in Idaho	December 2007
07-14	Trends in and Drivers of Health Expenditures in Idaho	December 2007
08-01	Governance of Information Technology and Public Safety Communications	March 2008
08-02F	State Substance Abuse Treatment Efforts	March 2008
08-03F	Virtual School Operations	March 2008
09-01	Public Education Funding in Idaho	January 2009
09-02F	Higher Education Residency Requirements	January 2009
09-03	Idaho Transportation Department Performance Audit	January 2009

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