

**State of Alaska
FY2004 Governor's Operating Budget**

**Department of Transportation/Public Facilities
Design and Engineering Services
Budget Request Unit Budget Summary**

Design and Engineering Services Budget Request Unit

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BRU Mission

The mission of Design and Engineering Services is to develop projects that improve Alaska's transportation and public facilities infrastructure. The Division also provides a wide range of technical services to the Department, other state and federal agencies, local governments and the public.

BRU Services Provided

The planning of a project requires engineering, environmental and estimating services that are provided to Planning staff by the D&ES Division. Starting with the initial funding of a project, the D&ES Division has primary responsibility for a project through the completion of a bid-ready set of plans, specifications for the legal and technical contract terms, and an engineer's estimate for the cost of construction. Accompanying the project plans and specifications, the Division prepares geotechnical reports for the project site and materials sources, obtains the necessary interests in lands for the project, obtains the environmental clearances and project permits and prepares plans and obtains agreements with utility companies for any utility relocations that may be required. The D&ES staff then provides technical assistance during bidding and construction.

The Division provides a wide range of technical support functions to the department, other state and federal agencies, local governments, and the public. Examples include design assistance, traffic speed studies, bridge inspections, materials testing, the processing of utility, right of way and traffic permits, preparation of environmental documents, a full research program and the Local Technical Assistance Program (both funded by the Federal Highway Administration). The Design and Construction Standards section develops standards that are in use throughout the state.

BRU Goals and Strategies

- To develop projects in the capital budget according to the timing and at the funding levels contained in the Department's planning documents and to ensure that the division is capable of producing at least 50% of the design work necessary for the program. Retaining the in-house ability to perform the core functions of project delivery enables the department to respond to needs rapidly and is necessary to effectively manage consultants performing these same functions.
- Use consultants to provide specialized technical services such as photogrammetry, design of corrosion protection, hydrology, underwater inspections and environmental site assessments.
- Continue to develop positive working relationships with resource agencies that issue permits for Department projects such as the Corps of Engineers, U.S. Fish and Wildlife, the Department of Fish and Game, the Department of Environmental Conservation, the Environmental Protection Agency, and others.
- Participate in the development of the Department's planning documents so that the resulting scope, schedule and budget are consistent with good engineering practices and practical to implement.
- Further implement management reporting systems for projects to improve the coordination of resources, priorities, cost, scope and standards.
- Provide the following technical services: design assistance; traffic speed studies; permits; bridge inspections; materials testing; the processing of utility, right-of-way and traffic permits; preparation of environmental documents. These services are provided to other department divisions, other state and federal agencies and to local governments.
- Assist the public and businesses with permits for right-of-way use, utilities, lane closures, special events, driveways and signs in an efficient and service-oriented manner.

- Continue the Local Technical Assistance Program funded by the Federal Highway Administration as an outreach program to local agencies engaged in the design, construction and maintenance of roads.
- Provide a program of technical training funded by the Federal Highway Administration free to Department staff, local agencies, state and federal agencies and to consultants who are performing design work for the Department.
- Provide State design standards for Capital Projects.

Key BRU Issues for FY2003 – 2004

- Section 1309 of the Transportation Equity Act for the 21st Century calls for a coordinated environmental review process to expedite federal highway and transit projects. Environmental streamlining efforts are underway nationwide. Negotiations for the state's streamlining agreements must take place to reflect Alaska's unique conditions. The initiative has two major areas of emphasis: protecting and enhancing environmental quality and reducing project delays.
- Continual improvements in technology, equipment, education and training are making the process of designing and constructing projects easier and more efficient. At the same time the processes related to obtaining the necessary approvals to build a project are becoming more difficult. Changes in public values related to how transportation decisions affect the natural environment and a community's quality of life call for a new and more adept approach. Nationally state DOT's are embracing Environmental Stewardship concurrent with Environmental Streamlining as a more informed and effective approach to obtaining public and agency support for projects. The Division is reviewing how we do business from a stewardship perspective and this issue will develop significantly over the next fiscal year.
- The division recently completed a comprehensive overhaul of the department's right-of-way regulations, policies and procedures culminating in a new on-line system for permitting. In this next fiscal year we intend to add utility permitting to the on-line system. We have begun a review of our utility regulations, policies and procedures and will be making any needed improvements concurrent with the on-line utility permitting.
(<http://www.dot.state.ak.us/permits/index.html>)
- The Department continues to support various methods to reduce pavement rutting. The Division is responsible for improved pavement designs and providing technical assistance to the legislature on bills related to studded tire wear.
- As the Division continues to increase reliance on private sector consultants, services previously provided by Division staff must be looked at for possible private sector contracting. The negotiation and acquisition of land under eminent domain, utility relocation agreements, deep foundation drilling are examples of services that need to be contracted with a careful and cautious approach.
- The Division continues to evaluate designs and design standards to reduce maintenance costs of the completed capital improvement. Capital projects are an effective way to reduce maintenance costs by replacing or refurbishing worn or outdated public facilities. There is an opportunity to assist the maintenance program by incorporating low maintenance design features.

Major BRU Accomplishments in 2002

- The Division delivered a comprehensive program of bid ready designs and contract documents for projects across the state. The Division's performance placed the Department in a position to receive an additional \$4.1 million in Federal Highway Administration funding compared to \$2.2 million in FY2001. The additional funds were available because other states were unable to obligate their full allocations of federal-aid.
- This last year the Division worked with the Alaska Municipal League to develop an agreement that serves as the template for local involvement in transportation projects within communities. The agreement sorts through the complex array of state and federal laws and regulations relating to local government involvement and resolves them into a single document for use by local officials and department staff. The agreement spells out the opportunities and expectations of both parties through each step of project development greatly reducing the possibility for misunderstandings and disagreements.
- The Division recently completed a comprehensive overhaul of the department's right-of-way regulations, policies and procedures culminating in a new on-line system for permitting, bringing the various sections of permitting available within DOT into one easy to access central location.

Key Performance Measures for FY2004

Measure:

The percentage of federal highway funds obligated in the previous federal fiscal year.

Sec 144(b)(1) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

100% of federal highway funds were obligated. The Division's target is to obligate 100% each year. The Division's performance in FY2002 placed the Department in a position to receive an additional \$4.1 million in funding from the Federal Highway Administration, compared to an additional \$2.2 million in FY2001. The additional funds were available because other states were not as well prepared and were unable to obligate their full allocation of federal-aid. Staff was increased in FY2001 to help meet our obligations. We are ready for the challenges ahead in FY2004.

Benchmark Comparisons:

All states attempt to achieve 100%.

Background and Strategies:

The Division strives to obligate all federal funds that are available to the state for highway projects. The staff continue to work diligently on that front, reporting regularly on their projects to the Division management, and through a computerized management reporting system.

Measure:

The percentage of projects in the capital budget that have been bid in the year programmed.

Sec 144(b)(2) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

On track. Ideally, we would like to achieve 100%. However a goal of 100% shouldn't drive the Department to condemn property, limit public input or shorten the review of a sensitive environmental issue.

Benchmark Comparisons:

None

Background and Strategies:

We work cooperatively with the contracting community to balance the number of projects being bid at one time so that the contractor's estimating staff is not overwhelmed. In return we receive more competitive bids that reflect a better understanding of the work. The Division strives to complete designs and bid all projects that are part of the capital budget each year. Staff regularly report on their projects to the Division management, and maintain a computerized management reporting system.

Measure:

The percentage of total project costs spent on project development by department and by private contractors performing design and engineering services.

Sec 144(b)(3) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

For FY2001, the Division reported 14.39% of total project costs spent on project development. For FY2002, the division reported 13.15%. As of March 12, 2003, we are at 11.15%.

Benchmark Comparisons:

There are no comparable benchmarks. A lower percentage is always desirable. Responding to public comments, environmental concerns and permitting requirements will always drive the percentage up. Our goal is achieving the right balance. Setting a number would be an oversimplification.

Background and Strategies:

The Division is developing management reporting tools to aid in its efforts to control project development costs. We have also instituted additional program codes to more carefully track right of way and utilities expenditures. We will use the available management tools to track our costs, and improve our performance.

Measure:

The percentage difference between final project estimates and construction bids.

Sec 144(b)(4) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

On track. Ideally estimates would accurately predict bids. However, we use those same estimates for developing the STIP and the capital budget. Within the total program, project costs increase during construction. Appropriations need to reflect the anticipated total cost so that a project is funded through completion. Our estimates, therefore, reflect total cost and are higher than bids.

Benchmark Comparisons:

There are no comparable benchmarks.

Background and Strategies:

The Division has a consultant under contract using federal research funds, constructing a bid analysis and estimate program. The software development is complete. We began training in November and began implementation in January 2003. The program tracks both the engineer's estimate and all of the bid prices allowing us to compare them. At this time we have the databases populated with all of the past information we have. We will use this tool to improve our final project estimates by using historic information to prepare our estimates. The program will be enhanced over the coming year to better track the engineer's estimate, the contractor's bids construction contracts.

Measure:

The ratio of new projects bid to completed projects closed out during the fiscal year, reported by region.

Sec 144(b)(5) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

The number of construction projects bid to the number of projects closed in each region is:

	<u>Bid</u>	<u>Closed</u>
Central –	48	50
Northern –	39	63
Southeast -	29	45

Benchmark Comparisons:

There is no established benchmark at this time.

Background and Strategies:

An important issue is to avoid a lot of very old, open projects. The Federal Aviation Administration implemented a requirement that 90% of all projects over four years old must be closed out. Grant funds can be withheld if a state does not comply with this requirement. Also, the administrative hassle of keeping old projects on the books, the difficulty that arises as projects get older and the inevitable loss of institutional memory are reasons to avoid the backlog.

Measure:

The percentage of the design and engineering work of the division that was performed by private contractors.

Sec 144(b)(6) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

We estimate that there is greater than 50% of the design and engineering work performed by private contractors.

Benchmark Comparisons:

The Transportation Research Board Report #277 on the outsourcing of Department of Transportation design work recommends that the optimal program is a balance of one-half in-house and one-half consultant designs.

Background and Strategies:

Retaining the in-house ability to perform the core functions of project delivery position the department to respond to needs rapidly and is necessary to effectively manage consultants performing these same functions. The Division intends to maintain current staff levels, and contract out as necessary to complete the work programmed in the capital budget and obligate all federal highway and airport funds available.

Measure:

The transfer of state-owned ports and harbors to local control.

Sec 146(b)(4) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

Chapter 61, SLA 01 authorized funding to transfer Ketchikan Bar Harbor South, Pelican Harbor, and partial funding for the transfer of Sitka facilities. To date, 23 transferred facilities (including SLA 2001 activity) are locally owned. 33 more candidates are ready and waiting adequate funding. Ch124 SLA2002 requires voter-approved bonds to finance deferred maintenance and transfer of 28 facilities for \$31,887,500. These projects, included with other transportation projects in Proposition B, were approved by voters on November 5, 2002 general election. Ch115 SLA2002 provides debt reimbursement funding for a project at Valdez Harbor. The Department has notified all eligible communities of the available debt reimbursement opportunity in this legislation.

Benchmark Comparisons:

None

Background and Strategies:

The State has financed hundreds of port and harbor facilities in the State. Historically, the State was the primary design, construction, and owner agency of public harbor facilities in Alaska. While no state funds were used for day to day operating costs, the ownership of 96 public harbor facilities is an unnecessary and undesirable disconnect for efficient and effective asset management, especially for major maintenance and capital replacement decisions. Transferring harbors to local governments places the development and replacement decisions at the local level where priorities are properly advocated. The Statewide Harbors Engineer works with local communities to ensure the smooth transition of port and harbor transfers to local control. He actively engages communities in the negotiation for transfer and conducts standardized condition estimates that are uniform and fair to all communities. Proposals submitted through the capital budget and approved in the appropriation process are expeditiously implemented.

Measure:

Whether the department completes the environmental impact statement phase on the Ketchikan Airport Access by December 31, 2002.

Sec 150(b)(2) Ch 124 SLA 2002(HB515)

Alaska's Target & Progress:

In January of 2002 Governor Knowles announced F-3 is the preferred alternative for the EIS. F-3 consists of a low (60' high) bridge from Ketchikan to Pennock Island, a high (210') bridge from Pennock Island to Gravina Island and associated roadways across Pennock and Gravina Islands. This alternative was found to be the best transportation alternative, had the least impacts on Ketchikan Airport operations and had fewer construction problems. After the announcement, the community of Saxman, the USCG and marine pilots expressed concerns about this alternative. Concerns by Saxman included tour ship visitors not being able to see Saxman from the ship and therefore would not visit once ashore. The USCG and marine pilots expressed concerns about having only the west channel to transit with cruise ships exiting or entering from the south. To help alleviate navigational concerns, a new method of evaluating cruise ship navigation through Tongass Narrows was added to the EIS scope of work. This additional work added significant time and cost to the project. The results of a Florida based modeling study of navigation are being incorporated into the EIS. The community of Ketchikan included in their municipal election a referendum that asked for community sentiment of a hard link access to Gravina Island. The results of that vote indicated that residents were two to one in favor of such a project. The draft EIS is due to be released to the public in January of 2003. The timing for the approved EIS and a record of decision (ROD) will be a function of the comments received from the draft EIS. If nothing else unforeseen appears it is likely that the ROD will be issued in the summer of 2003.

Benchmark Comparisons:

None

Background and Strategies:

This project is under contract with a private firm. The Division staff overseeing the contractor's work meet regularly with the contractor to ensure that the project remains on track.

Measure:

The number of miles of roads that have a level of service rating of E or F compared to the prior year.

Sec 144(b)(7) Ch 124 SLA 2002(HB 515)

Alaska's Target & Progress:

This is a new measure that does not relate well to the information that is collected or analyzed by the department staff. The following are reasons why this measure should be replaced:

1. No state or region-wide data is currently available for level of service on road segments (the "number of miles" language implies segments rather than intersections).
2. Level of service at intersections is a more important measure of system performance than level of service on segments (intersections are normally the most restrictive points).
3. Level of service information for intersections with traffic signals would be the best practically achievable method of evaluation. However, it does not come cheaply.
4. Only the Southeast Region has an annual region-wide report on level of service at its major (signalized) intersections. However, it does not update level of service at all intersections each year.
5. It would be expensive to get statewide level of service information at signalized intersections. The city of Anchorage (which no longer does an annual level of service report) gave a quick, unofficial estimate of \$65.0K per year (for computing level of service once every 3 years). It would probably cost at least twice that to get the information statewide.
6. There are several different methods of computing level of service on road segments. Measures of effectiveness include average speed, volume over capacity, percent time following, etc. Statewide information on segment level of service would be simultaneously more expensive, less meaningful, and harder to understand than level of service at signalized intersections.
7. Because traffic volumes do not typically change radically from year to year, it is not cost-effective to count traffic and compute level of service every year. A three-year cycle would be appropriate.

Level of service information at signalized intersections would be beneficial. We recommend that the above language be replaced with:

"the number of signalized intersections that have a level of service rating of E or F compared to three years ago".

Benchmark Comparisons:

n/a

Background and Strategies:

It is our understanding that this measure would provide information regarding congestion problems and whether roads (or intersections in our recommended language) are moving traffic at an appropriate rate. This is an issue of national concern. Appropriate planning and design should take potential growth into account to avoid future congestion.

Design and Engineering Services
BRU Financial Summary by Component

All dollars in thousands

	FY2002 Actuals				FY2003 Authorized				FY2004 Governor			
	General Funds	Federal Funds	Other Funds	Total Funds	General Funds	Federal Funds	Other Funds	Total Funds	General Funds	Federal Funds	Other Funds	Total Funds
<u>Formula Expenditures</u>												
None.												
<u>Non-Formula Expenditures</u>												
SW Design & Engineering Svcs	943.8	0.0	7,734.1	8,677.9	882.7	0.0	7,770.8	8,653.5	792.4	0.0	7,995.0	8,787.4
Central Design & Eng Svcs	300.8	0.0	11,721.6	12,022.4	164.0	0.0	12,317.7	12,481.7	147.1	0.0	12,677.5	12,824.6
Northern Design & Eng Svcs	211.5	0.0	9,867.7	10,079.2	135.5	0.0	10,676.7	10,812.2	125.6	0.0	10,921.8	11,047.4
Southeast Design & Eng Svcs	293.5	0.0	5,870.6	6,164.1	235.5	0.0	6,111.4	6,346.9	222.6	0.0	6,422.3	6,644.9
Totals	1,749.6	0.0	35,194.0	36,943.6	1,417.7	0.0	36,876.6	38,294.3	1,287.7	0.0	38,016.6	39,304.3

Design and Engineering Services

Proposed Changes in Levels of Service for FY2004

FY04 budget decisions pending

Design and Engineering Services

Summary of BRU Budget Changes by Component

From FY2003 Authorized to FY2004 Governor

All dollars in thousands

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
FY2003 Authorized	1,417.7	0.0	36,876.6	38,294.3
Adjustments which will continue current level of service:				
-SW Design & Engineering Svcs	0.7	0.0	73.2	73.9
-Central Design & Eng Svcs	0.0	0.0	149.6	149.6
-Northern Design & Eng Svcs	0.0	0.0	125.9	125.9
-Southeast Design & Eng Svcs	0.0	0.0	72.3	72.3
Proposed budget decreases:				
-SW Design & Engineering Svcs	-91.0	0.0	0.0	-91.0
-Central Design & Eng Svcs	-16.9	0.0	-31.5	-48.4
-Northern Design & Eng Svcs	-9.9	0.0	-41.2	-51.1
-Southeast Design & Eng Svcs	-12.9	0.0	-11.4	-24.3
Proposed budget increases:				
-SW Design & Engineering Svcs	0.0	0.0	151.0	151.0
-Central Design & Eng Svcs	0.0	0.0	241.7	241.7
-Northern Design & Eng Svcs	0.0	0.0	160.4	160.4
-Southeast Design & Eng Svcs	0.0	0.0	250.0	250.0
FY2004 Governor	1,287.7	0.0	38,016.6	39,304.3