

**State of Alaska
FY2006 Governor's Operating Budget**

**Department of Transportation/Public Facilities
Design and Construction
Results Delivery Unit Budget Summary**

Design and Construction Results Delivery Unit

Contribution to Department's Mission

Improve the transportation system in Alaska and protect the health and safety of the people of Alaska by developing transportation and public facilities projects and constructing safe, environmentally sound, reliable and cost effective highways, airports, harbors, docks, and buildings.

Core Services

Design: The planning of a project requires engineering, environmental and estimating services. Starting with the initial funding of a project, Design 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, Design staff 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.

Design also 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.

Construction: Administers construction contracts, provides field inspection and construction oversight, provides quality assurance that construction documentation and materials are in conformance with contract requirements during construction and closeout of projects, and reports Disadvantaged Business Enterprises/Minority Business Enterprise activity on construction projects.

Contracts: Reviews construction documents, provides bid packages, advertises and awards contracts, prepares certified bid tabulations, and helps resolve bidding disputes. This unit also coordinates, solicits, selects, prepares and administers professional services agreements.

Project Control: Coordinates and programs project funding; administers state and federal grants; provides engineering management support; prepares and manages the component's operating budget; develops, enhances, maintains Oracle management reporting system for capital projects; provides regional network administration and desktop computer support; and processes time and equipment charges to projects.

End Results	Strategies to Achieve Results
<p>A: Improve DOT&PF efficiency.</p> <p><u>Target #1:</u> Reduce the percent of administrative and engineering costs to 30% or less of total project costs. <u>Measure #1:</u> Percentage of administrative and engineering costs when compared to total project costs.</p> <p><u>Target #2:</u> Reduce the percentage difference between bid and final contractor payments to 8%. <u>Measure #2:</u> The percentage difference between contractor bids and final contractor payments.</p>	<p>A1: Reduce design and engineering costs.</p> <p><u>Target #1:</u> Maintain design engineering (PE) averages at 15% or less of total project costs. <u>Measure #1:</u> Design engineering (PE) as a percentage of total project costs.</p> <p><u>Target #2:</u> Improve the percentage of projects having formal pre-authorization scope meetings to 75%. <u>Measure #2:</u> The percentage of projects (with estimated construction bid amount over 1 million dollars) having formal pre-authorization scope meeting as compared to total projects receiving authority to proceed.</p>

	<p>A2: Reduce construction project costs.</p> <p><u>Target #1:</u> Maintain construction engineering (CE) averages at 14.5% or less of total contractor payments. <u>Measure #1:</u> Construction engineering (CE) as a percentage of total contractor payments.</p> <p>A3: Reduce sole-source negotiated costs.</p> <p><u>Target #1:</u> Reduce the percentage of construction payments subject to price negotiations to 5%. <u>Measure #1:</u> Percent of all construction contract payments where price was established through negotiation rather than by competitive bid.</p> <p>A4: Accelerate project closeouts.</p> <p><u>Target #1:</u> Close out 70% of construction contracts within 120 days following completion of physical work. <u>Measure #1:</u> Percentage of contracts completed (i.e. Letter of Final Acceptance issued) within 120 days following completion of physical work.</p>
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Major Activities to Advance Strategies	
<ul style="list-style-type: none"> • Design roads to appropriate standards • Minimize in-house costs for preconstruction services • Manage consultant contracts in a cost effective manner • Timely close-out of construction projects • Compare and contrast cost of in-house CE with consultant CE • Classify change orders and quantity overruns to identify the cause • Cross training between Design and Construction 	<ul style="list-style-type: none"> • Involve Construction in design process from project scoping • Explore innovative contracting methods • Greater use of technology in the field • Create electronic tools to enable regional staff to create PDAs • Capture information from these electronic PDAs so that double data entry into other databases is not required • Permit tracking and electronic signatures to be used in the project control process

FY2006 Resources Allocated to Achieve Results							
<p>FY2006 Results Delivery Unit Budget: \$79,957,000</p>	<p>Personnel:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 20px;">Full time</td> <td style="text-align: right;">731</td> </tr> <tr> <td style="padding-left: 20px;">Part time</td> <td style="text-align: right;">228</td> </tr> <tr> <td style="padding-left: 20px;">Total</td> <td style="text-align: right; border-top: 1px solid black;">959</td> </tr> </table>	Full time	731	Part time	228	Total	959
Full time	731						
Part time	228						
Total	959						

Performance Measure Detail

A: Result - Improve DOT&PF efficiency.

Target #1: Reduce the percent of administrative and engineering costs to 30% or less of total project costs.
Measure #1: Percentage of administrative and engineering costs when compared to total project costs.

Percent of Project Costs Attributed to Administrative and Engineering Costs

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2003	not available	not available	not available	not available	not available
2004	not available	not available	not available		

Analysis of results and challenges: Percentages are calculated by summing up all administrative and engineering costs – i.e, all costs that are not direct construction payments, right-of-way acquisition/relocation payments, or utility relocation payments – and dividing those administrative and engineering costs by the total of all project costs. The aim is to reduce the overhead that accompanies public project development, to get more of each capital dollar into construction or other related fieldwork that directly benefits the private sector and the traveling public.

Target #2: Reduce the percentage difference between bid and final contractor payments to 8%.

Measure #2: The percentage difference between contractor bids and final contractor payments.

Percent Difference Between Contractor Bids and Final Contractor Payments

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2004	not available	not available	not available	not available	not available

Analysis of results and challenges: Simply apportioning more of each capital dollar to the private sector is not by itself more efficient. Poorly designed projects and subsequent costly change orders can pour money into the private sector yet be a waste of public funds. The challenge will be to increase the proportion of payments to contractors without sacrificing the quality of engineering and contract administration. This target addresses that concern.

This measure will be determined after a construction project is closed and the final contract amount is known. It will help determine how effective the department is in engineering and administering construction projects. Project cost overruns typically result from quantity overruns, change orders that correct design errors and address unforeseen conditions, and changes to project scope made after contract award. Although elimination of all cost overruns is unrealistic and even cost-prohibitive, they can be controlled by efficient designs, improved negotiation skills, and disciplined scope management.

A1: Strategy - Reduce design and engineering costs.

Target #1: Maintain design engineering (PE) averages at 15% or less of total project costs.

Measure #1: Design engineering (PE) as a percentage of total project costs.

Percent of Design Costs to Total Project Costs

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2003	not available	not available	not available	not available	not available
2004	not available	not available	not available	not available	

Analysis of results and challenges: Ratios are calculated by summing the final design costs of all highway and aviation construction projects that receive final acceptance in a given state fiscal year, then comparing the total to the total project costs.

To provide design engineering services at 15% of the total project costs is a measure of the department's efficiency in the delivery of bid documents. The number is trending upward. The increasing complexity of the design process requires more effort than in previous years. Examples include public involvement demands, regulatory agency constraints, utility relocation costs, right of way costs, and the higher cost of utilizing consultants.

Target #2: Improve the percentage of projects having formal pre-authorization scope meetings to 75%.

Measure #2: The percentage of projects (with estimated construction bid amount over 1 million dollars) having formal pre-authorization scope meeting as compared to total projects receiving authority to proceed.

Percent of Projects having Scoping Meetings

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2004	not available	not available	not available	not available	

Analysis of results and challenges: Ratios are calculated by summing the number of projects with formal scoping meetings against the total projects receiving authority to proceed.

Bringing all of the department's stakeholders together to discuss all aspects of the project prior to authorization leads to more efficient project development. People view scoping of projects as inconvenient. They may have other high, time sensitive priorities, but it is important to the overall project development efficiency to reach a consensus on the project scope.

A2: Strategy - Reduce construction project costs.

Target #1: Maintain construction engineering (CE) averages at 14.5% or less of total contractor payments.

Measure #1: Construction engineering (CE) as a percentage of total contractor payments.

Construction Engineering Expressed as a Percentage of Total Contractor Payments

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2003	not available	not available	not available	not available	not available
2004	not available	not available	not available		

Analysis of results and challenges: This measure will be accurately determined after a construction project is closed and all construction charges are accounted for. It will not include Indirect Cost Allocation Plan (ICAP) charges. Contract administration costs over the past several years have run at about 14.5%; however, the state's growing capital program is straining department resources and forcing the department to outsource more of its CE work to other agencies as well as the private sector. Outsourced CE tends to be more expensive, so maintaining this target will be a challenge.

This measure is also a challenge because of the remoteness of most of the projects (increasing travel and transportation costs), and because the requirements of the federal funding agencies and the expectations of the traveling public tend to increase over time. All of these factors drive administrative costs up. This measure will change from year to year based on the type and size of projects completed. Small urban projects may require the same level of oversight, i.e., staff, as large rural projects. Projects that consist primarily of asphalt paving are typically completed in a short time resulting in low engineering costs compared to the contract value.

A3: Strategy - Reduce sole-source negotiated costs.

Target #1: Reduce the percentage of construction payments subject to price negotiations to 5%.

Measure #1: Percent of all construction contract payments where price was established through negotiation rather than by competitive bid.

Percent of Construction Payments Attributed to Price Negotiations

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2004	not available	not available	not available		

Analysis of results and challenges: Contract change orders and supplemental agreements are a form of procurement that generally costs the state more because they tend to be negotiated agreements, not subject to price competition. The most cost-effective way the Department can deliver projects is through price competition. Therefore, to improve efficiency the Department should seek to minimize change documents, particularly those that require price negotiation (i.e., do not make use of existing bid prices). Better quality construction bid documents will accomplish this but change orders cannot be eliminated since error-free and prescient designs are unrealistic and even undesirable from a total cost standpoint. Establishing a ceiling for sole-source price negotiations in conjunction with efficiencies sought in the Design & Engineering Services RDU is a balanced approach to obtaining cost-effective designs.

A4: Strategy - Accelerate project closeouts.

Target #1: Close out 70% of construction contracts within 120 days following completion of physical work.

Measure #1: Percentage of contracts completed (i.e. Letter of Final Acceptance issued) within 120 days following completion of physical work.

Percent of Construction Contracts Closed within 120 Days of Physical Work Completion

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	YTD
2004	not available	not available	not available		

Analysis of results and challenges: Project closeouts are a paperwork chore. The burden of closing out a project largely falls on the same people who must prepare for their next construction assignment or who are already actively engaged in other construction projects. Nevertheless, timely closeout of projects is an important cost-savings benefit to the state as the task itself will be done more efficiently and in some cases its completion will permit leftover construction funds to be released to fund other projects.

Key RDU Challenges

- 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. Negotiations for a state streamlining agreement are taking place. The initiative has two major areas of emphasis: protecting and enhancing environmental quality and reducing project delays. The Division will be tasked with implementing the terms of the streamlining agreement.
- The project approval process is 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.
- A key challenge for FY06 and beyond will be to retain experienced engineers, Right of Way Agents, and Environmental Analysts. Many are reaching retirement age. The department continues to have difficulty in finding and retaining qualified engineering staff willing to take long-term assignments to remote sites. Staff turnover has increased as a result of the unattractive nature of long-term assignments to remote sites, often requiring exhaustive overtime and on site presence for up to six months during the summer with little time off.
- The department continues to support various methods to reduce pavement cracking and distress. The division is responsible for improved pavement designs. We are now using the "Alaska Flexible Pavement Design Manual" which became effective August 1, 2004.
- Increased security and safety concerns have increased the demands of our Radiation Safety Program. Required Safety Conscious Work Environment training for all construction employees and additional training for the regional Radiation Safety Officers have increased costs. Greater attention to security of nuclear densometers has resulted in higher testing costs.

Significant Changes in Results to be Delivered in FY2006

No significant changes are anticipated. The department will be delivering a much larger federal program in 2006. To do this innovative contracting techniques will continue to be used such as term contract program and design-build contracts.

Major RDU Accomplishments in 2004

- The department delivered a comprehensive program of bid ready designs and contract documents for projects across the state. The department was in a position to receive an additional \$5.5 million in Federal Highway Administration funding. The additional funds were available because other states were unable to obligate their full allocations of federal-aid.
- Negotiating the permit for the filling of wetlands (Corps permit) in recent years has become time consuming and mitigation requirements of the permit are often expensive. The Division participated in the execution of a multi-agency agreement streamlining the process for Corps permits for DOT&PF airport projects. In addition, the agreement stabilized mitigation requirements.

- During FY2004 the department transferred 8 previously state owned harbors to the cities of Cordova, Wrangell, Seldovia and Valdez. So far in FY2005 the department has transferred 8 previously state owned harbors to the cities of Ketchikan, Sitka, Skagway and Whittier.
- Received \$352.7 million in federal highway construction authorization in FFY04.
- Received \$205.7 million in federal aviation grants executed in FFY04, of which the majority was allocated to the construction phase.
- Completed runway, taxiway, lighting, environmental and safety improvements at rural airports in Eek, Kwethluk, Sand Point, Chauthbaluk, Marshall, Noorvik, Shageluk, Shaktoolik, and Sitka. Completed major expansions at the Ketchikan and Petersburg airports.
- Increased safety for traveling public by widening shoulders, realigning curves, and/or installing guardrail and warning signs on main roadways on Klondike and Hydaburg Highways, completion of the Glenn/Parks Highway Interchange, and safety improvements at Boniface and Northern Lights Boulevard and on Muldoon Road. Other significant projects include Dowling Road from Old Seward Hwy. to Lake Otis, added a north bound lane on the Glenn Hwy. from Airport Heights to McCarrey, reconstruction of DeArnoun Road, Ketchikan 3rd Avenue Extension, Parks Hwy., Healy Area safety improvements, and Steese Hwy. overlay.
- Completed construction of the Valdez Ferry Terminal, and the Ted Stevens Anchorage International Airport Concourse C replacement.
- Completed Americans with Disabilities Act (ADA) projects, including the following curb ramp upgrades for pedestrians throughout major roadways, intersections in the Homer area on portions of Airport Heights, Lake Otis Parkway, A and C Streets and 5th and 6th Avenues in Anchorage.
- Paved roads: 15.9 CL miles (31.8 lane miles) of gravel road.

Contact Information

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**Design and Construction
RDU Financial Summary by Component**

All dollars shown in thousands

	FY2004 Actuals				FY2005 Management Plan				FY2006 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
Formula Expenditures												
None.												
Non-Formula Expenditures												
SW Design & Engineering Svcs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	608.8	0.0	7,384.6	7,993.4
Central Design & Eng Svcs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	178.1	0.0	15,894.5	16,072.6
Northern Design & Eng Svcs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.5	0.0	12,143.7	12,265.2
Southeast Design & Eng Svcs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	212.0	0.0	7,689.4	7,901.4
Central Construction & CIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	184.3	0.0	16,933.0	17,117.3
Northern Construction & CIP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	241.8	0.0	13,069.8	13,311.6
Southeast Region Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.5	0.0	5,165.0	5,295.5
Totals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,677.0	0.0	78,280.0	79,957.0

**Design and Construction
Summary of RDU Budget Changes by Component
From FY2005 Management Plan to FY2006 Governor**

All dollars shown in thousands

	<u>General Funds</u>	<u>Federal Funds</u>	<u>Other Funds</u>	<u>Total Funds</u>
FY2005 Management Plan	0.0	0.0	0.0	0.0
Adjustments which will continue current level of service:				
-SW Design & Engineering Svcs	17.3	0.0	213.6	230.9
-Central Design & Eng Svcs	18.6	0.0	517.1	535.7
-Northern Design & Eng Svcs	7.9	0.0	397.0	404.9
-Southeast Design & Eng Svcs	10.0	0.0	225.3	235.3
-Central Construction & CIP	0.9	0.0	543.0	543.9
-Northern Construction & CIP	2.3	0.0	408.5	410.8
-Southeast Region Construction	1.8	0.0	152.3	154.1
Proposed budget increases:				
-Northern Design & Eng Svcs	0.0	0.0	350.0	350.0
-Southeast Design & Eng Svcs	0.0	0.0	431.4	431.4
-Northern Construction & CIP	0.0	0.0	13.7	13.7
-Southeast Region Construction	0.0	0.0	106.9	106.9
FY2006 Governor	1,677.0	0.0	78,280.0	79,957.0