

CORPS OF ENGINEERS—CIVIL WORKS

The President's Proposal:

- Reduces the backlog of ongoing construction projects and completes those projects in the budget sooner than possible under current spending trends, primarily by not starting new projects—the budget completes 30 projects in 2003, or 15 percent of the projects in the budget;
- Increases funding for priority navigation projects—such as modernizing Olmsted Lock and Dam, Illinois and Kentucky, and deepening the Port of New York/New Jersey—and important environmental restoration efforts in the Florida Everglades and Columbia River Basin;
- Reduces the average time to process an individual wetlands permit by about 25 percent, or 40 days, by 2004, while strengthening protection of wetlands;
- Provides a funding mechanism to reduce the unscheduled “downtime” of Corps hydropower generation facilities by up to 40 percent over the next few years; and
- Supports needed operation and maintenance of existing infrastructure.

Corps of Engineers—Civil Works

Mike Parker: Assistant Secretary of the Army for Civil Works

www.hq.usace.army.mil/cepa/cepa.htm
703-697-8986

Number of Employees (2002): 24,800

2002 Spending: \$5.0 billion

Field Offices: Eight Divisions; 38 Districts; 15 laboratories and other offices.

The Army Corps of Engineers Civil Works program is responsible for assisting the development and management of the nation's water resources. Its main missions are to: 1) aid commercial navigation; 2) protect citizens and their property from flood and storm damages; and 3) protect, restore and manage environmental resources. The Corps carries out most of its work in partnership with state and local governments and other non-federal entities.

Overview

The Civil Works program has seven primary business lines: 1) navigation; 2) flood control and coastal storm damage reduction; 3) environment; 4) recreation management; 5) hydropower; 6) regulatory; and 7) emergency management. Implementing these business lines involves the Corps of Engineers in the planning, construction, operation or maintenance of over 8,000 civil works projects. These include about 900 ports and harbors and over 275 locks and dams for navigation, 4,300 recreation areas, and 75 hydropower generation facilities. The Corps' investments in new construction projects are typically joint ventures with non-federal sponsors. With the exception of navigation projects and multipurpose reservoirs, the local sponsor usually owns, operates, and maintains the project once it is built.

Congress periodically directs the Corps to work in other areas that duplicate existing federal programs or are activities that should be carried out by non-federal interests. This "mission creep" diverts the Corps from its primary business lines, slows down completion of higher priority construction projects, and postpones the benefits that completing these projects would bring.

Status Report On Select Programs

The Administration is reviewing programs throughout the federal government to identify strong and weak performers. The accompanying table provides its assessment of program performance for each of the Corps' primary business lines. The budget for the Corps proposes to redirect funds from the Corps' lesser performing projects and programs to higher priority or more effective ones and to improve performance in other areas.

Program	Assessment	Explanation
Navigation: Deep-draft	Moderately Effective	Planning is typically done project-by-project rather than considering nationwide needs systematically.
Shallow-draft	Ineffective	Many projects provide recreational benefits rather than commercial benefits.
Inland waterways	Moderately Effective	Ohio and Mississippi River systems highly efficient, but some other segments benefit few commercial users; traffic management system needs improvement; heavily subsidized by the federal government.
Flood and Storm Damage Reduction	Effective	Projects meet performance goals; concerns with inadequate local cost-sharing of shore protection projects.
Environmental Restoration	Unknown	Little data on environmental outcomes of completed restoration projects and other environmental activities.
Recreation Management	Moderately Effective	Generally high customer satisfaction; many facilities are obsolete.

Program	Assessment	Explanation
Hydropower	Moderately Effective	Opportunities exist to reduce facility “downtime.”
Regulatory	Moderately Effective	Opportunities exist to accelerate permit processing; little data on environmental outcomes of permit actions.
Emergency Response	Effective	Consistently high performance.

Congressional Earmarks

The 2003 Budget focuses Corps funding on the main Civil Works mission areas that benefit the nation—commercial navigation, flood damage reduction, and environmental restoration.

In recent years, the Congress has authorized and appropriated funds for the Corps to undertake an increasing number of projects that fall outside the scope of its historic missions, such as building sewage treatment plants, revitalizing local waterfronts, and maintaining waterways primarily for local recreation. Whatever the merit of these projects, they should be carried out by others. For instance, the Environmental Protection Agency (EPA) provides funds specifically for building sewage treatment plants. These ancillary projects divert resources and delay completion of economically justified projects that are within the Corps’ primary mission areas.

Congressional Earmarks

Year	Number	BA in millions of dollars	Percent of Total Budget Authority
2001.....	405	367	8%
2002.....	604	431	10%

Unrequested earmarks include congressional directives that preempt the administrative allocation process for small projects in the Corps' "continuing authorities" programs, and directives for larger projects outside the Corps' mission areas. For example, in 2002, over three-fourths of the funding for congressionally added projects in the Corps' construction program were for projects that are inconsistent with long-established policies for the Corps of Engineers, which should not be part of the Corps program. These include over 30 of the 47 new construction projects started in 2002. It would require about \$5 billion to complete all the projects added by the Congress that are inconsistent with Corps policies—that's \$5 billion diverted from nationally important navigation, flood damage reduction, and environmental restoration projects already underway.

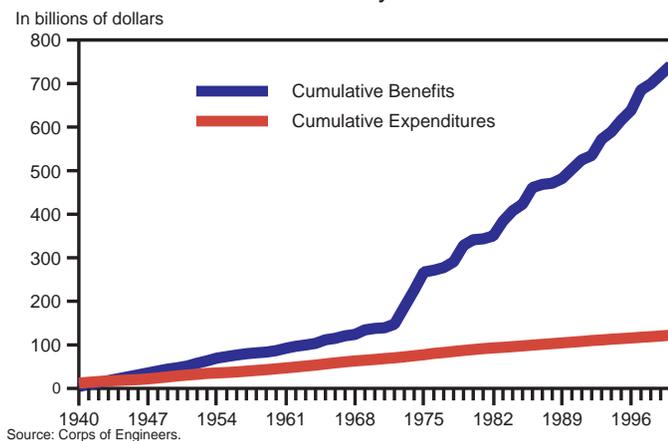
Mission Creep

In 2002, the Congress earmarked \$500,000 to start construction of the Florida Keys Water Quality Improvements project, a wastewater treatment initiative that would require about \$100 million to complete. Corps funding of such projects circumvents procedures in EPA's Clean Water State Revolving Fund (CWSRF) for ensuring that these funds address the state's highest priority wastewater needs. Florida received nearly \$46 million of CWSRF funding in 2002.

Flood Damage Reduction

The Corps estimates that its existing flood damage reduction projects prevent about \$21 billion in damages in an average year, and over time have returned \$6 for every \$1 invested (see accompanying chart). These benefits vary greatly from year-to-year depending on flood events. Despite these federal investments, flood damage nationwide is increasing. Federal, state, and local decisions can diminish or increase flood risks and affect flood damages.

Corps Flood Damage Reduction Projects:
\$6 Returned for Every \$1 Invested



Besides funding justified investments in Corps flood damage reduction projects, the 2003 Budget will continue assistance to states and communities to reduce flood risks through planning and promoting better floodplain management. The Corps is also increasingly incorporating environmentally beneficial designs into its flood damage reduction projects. For example, the project to protect the City of Napa, California, reestablishes former marshes and floodplains along the Napa River. These areas will provide wildlife habitat as well as space to convey floodwaters away from the city.

The Administration's goal is to ensure that the American people get the most flood protection for each dollar invested. The accompanying table is a rough comparison of the estimated return that the Corps expects from each dollar it spends on flood damage reduction projects with returns for selected federal programs with a similar objective. As discussed in the Department of Agriculture chapter, the 2003 Budget proposes to reduce federal funding for the Natural Resource Conservation Service's Small Watershed Program, which has a

lower economic return than both the Corps or the Federal Emergency Management Agency (FEMA) programs. The budget also proposes to restructure FEMA's 404 hazard mitigation program to improve its effectiveness, as discussed in the FEMA chapter.

**Benefits from Each Dollar Invested in Selected
Federal Flood Damage Reduction Programs**

Corps of Engineers	Federal Emergency Management Agency's 404 Flood Risk Mitigation ¹	Department of Agriculture's Small Watershed Program
\$1.90	\$2.30	\$1.40



Corps personnel are often among the first people on the scene in flood emergencies.

The Corps provides emergency assistance during and after floods or coastal storms to save lives and protect public facilities and critical infrastructure. As part of its emergency response mission, the Corps also assists FEMA, states, and localities with responses to natural and other disasters. Corps personnel are often among the first people on the scene in flood and other emergencies, providing pumps, generators, sandbags, clean water, and technical assistance to search and rescue operations. For example, the Corps assisted FEMA in responding to the terrorist attacks of September 11th, by providing the New York City Fire Department interim communications

equipment to replace phone lines destroyed by the attacks, evaluating the safety of damaged buildings, providing emergency power to the financial district, and assisting with debris removal and disposal. With regard to homeland security, the budget provides \$65 million for the continuing costs of additional guard positions at critical Corps facilities.

¹ Cost-benefit estimate is for flood-related projects in the 404 Mitigation program. FEMA cost-benefit comparisons are not strictly comparable due to differences in methods used to measure costs and benefits. Also, some projects in the FEMA program were exempted from cost-benefit requirements by law or regulation, because of presumed benefits.

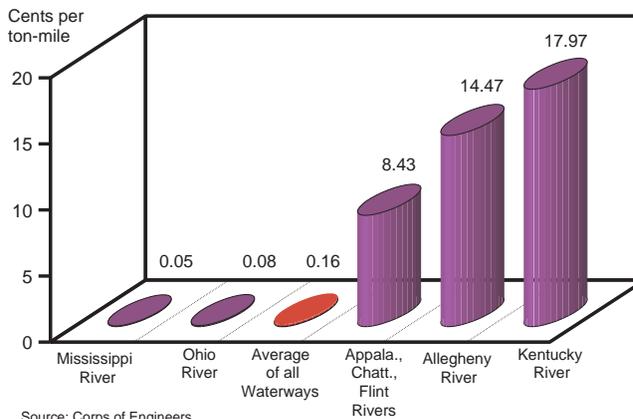
Navigation

The Corps maintains nearly 11,000 miles of commercial waterways and hundreds of ports and harbors, typically through lock operations and dredging. The Corps estimates that its navigation activities provide about \$20 billion in benefits every year. Each dollar it spends in 2003 to construct commercial navigation projects will return an average of \$3.30 in benefits upon project completion.

The 2003 Budget targets funds to those waterways providing the greatest economic return to the nation, and limits funding for those with little commercial traffic. It includes \$77 million for construction of Olmsted Lock and Dam in Illinois and Kentucky, an increase of \$37 million over 2002, to expedite completion of this important modernization project on the Ohio River. The budget also provides \$120 million, an increase of \$31.5 million over 2002, to accelerate the transportation cost savings and other economic benefits of deepening the Port of New York/New Jersey.

The Corps operates and maintains some harbors and segments of the inland waterway system that benefit few commercial users. The accompanying chart shows the wide variation in cost to operate and maintain segments of the inland waterway system in terms of cost per commercial ton-mile, where the lower cost is indicative of higher commercial benefits. The 2003 Budget targets funds to those waterways that provide the greatest economic return, and substantially reduces funding for those that provide minor commercial navigation benefits. For two projects with minimal commercial usage—the navigation features on the Fox River, Wisconsin, and Locks and Dams 5 through 14 on the Kentucky River, Kentucky—the Corps is in the midst of transferring ownership, operation, and maintenance responsibilities to non-federal interests.

Corps of Engineers Costs to Operate and Maintain Selected Inland Waterways



Environmental Restoration

Enhancing the environment is another Corps main mission. The 2003 Budget includes substantial funding for Corps of Engineers environmental projects:

- The budget provides a total of \$245 million for Everglades restoration. This includes Corps funding of \$149 million, a \$10 million increase over 2002, and \$96 million for programs within the Department of the Interior. The budget includes \$46 million specifically for implementation of the Comprehensive Everglades Restoration Plan, of which \$37 million is for the Corps and \$9 million is for research, monitoring, and planning studies in the Department of the Interior. Everglades restoration efforts may start to pay off as early as September, 2003, when five of the 68 known federally endangered and threatened species in South Florida are expected to be changed from “endangered” status to “threatened” status or removed from the list of federally protected species.

- The budget ensures that the Corps will meet environmental requirements for salmon conservation in the Columbia River Basin (WA, OR, ID). It provides \$128 million for the Corps' salmon conservation efforts, a \$19 million, or 17 percent, increase over 2002 funding. This allocation includes \$100 million for the Columbia River Fish Mitigation and Lower Columbia River Ecosystem Restoration programs, \$17 million for operation and maintenance activities, and \$11 million for studies and other activities needed to ensure compliance.

Many of the Corps' ecosystem restoration projects are designed to improve the nation's wetlands resources. Other federal programs have a similar purpose. The accompanying table provides a rough, first-order comparison of the Corps' per-acre costs with two programs of other federal agencies with a similar mission, the Department of the Interior's North American Wetlands Conservation Fund and the Department of Agriculture's Wetlands Reserve Program. It is difficult to draw definite conclusions about program performance because the underlying cost of the land and the type and quality of resulting habitat can vary significantly by project and program. For this reason, the Administration will work over the next year to refine these data and to determine whether reallocating funds among the agencies would further improve the nation's wetlands.

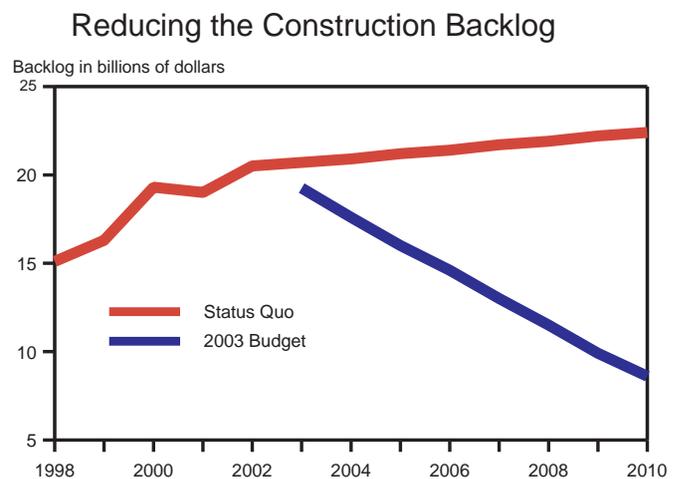
Average Cost to Establish an Acre of Wetlands

Corps of Engineers	Department of the Interior	Department of Agriculture
\$3,900	\$2,250	\$1,200

Improving Performance

The Corps must work in a number of ways to improve its performance delivering services to the public. The Corps estimates that the balance of funding needed to complete all active construction or pre-construction work (including projects that are being studied, but are not yet authorized for construction) is over \$40 billion. Of this, more than \$21 billion of future federal funding is necessary to complete the flood control, navigation, and environmental restoration projects funded in the budget for the Corps' primary construction program. Therefore, its major challenge is to complete those projects already underway in its primary construction program. This backlog needs immediate and sustained attention.

It is about 12 times the entire amount appropriated in 2002 for the construction program (\$1.7 billion). Put another way, it would take 12 years at the rate of funding the Congress provided in 2002 for the Corps just to finish funding the ongoing construction projects supported in the budget. Unfortunately, as the accompanying chart shows, this backlog of ongoing construction projects has increased in recent years, as the Congress has added funds to start more new projects than can be afforded. The 2003 Budget proposes to reverse this trend.



This increasing backlog also hurts the Corps' overall performance, as each new project diverts resources from completing ongoing construction efforts. This means the benefits the public reasonably expects to receive from these projects are often delayed significantly. For example, construction work on Olmsted Lock and Dam began in 1991 and was scheduled for completion by 2006. However, it may not be finished until 2011.

There are only three ways to shrink the backlog of ongoing, budgeted construction projects:

- provide more funding;
- defer or cease work on some ongoing projects; or
- stop adding new projects.

Recent experience demonstrates that more funding alone does not cut this backlog. During the last six years, funding for the Corps construction budget has increased more than 50 percent, but the backlog has grown by 43 percent. Backlog growth occurred because more new projects were started than could be funded efficiently.

Deferring or ceasing work is an option, but it is difficult to stop a project already underway. The Administration is reviewing projects in the backlog to determine whether any should be delayed in order to accelerate completion of others, but this is unlikely to dramatically change the situation because the number of such projects appears to be small.

That leaves not starting new projects. Stopping the flow of new commitments is a logical step toward completing ongoing projects sooner. To the extent that the need for a particular new project is compelling, it may be necessary to defer funding of one or more ongoing projects.

Finally, an additional important challenge confronts the Corps. If it is to improve its performance in its main missions, it must find ways to prevent the diversion of resources away from these missions. As noted previously, many of the unrequested Corps projects added by the Congress are either not a federal responsibility or should be funded by other federal programs. The budget does not include funds for the Corps to continue these projects.

Focus on Completing Projects

The budget reduces the backlog of ongoing construction projects in the budget from \$21 billion to \$13 billion over the next five years by:

- providing \$1.44 billion for the Corps' ongoing construction program in 2003 and comparable levels in future years;
- providing no funds for discretionary new construction in 2003;
- targeting funding to projects that fall within the Corps' primary missions; and
- dropping funding significantly for studies of potential future construction projects.

These actions will allow the Corps to complete 30 projects in 2003, which is 15 percent of the construction projects in the budget, and to complete other ongoing projects in the budget sooner than possible under current spending trends.

The 2003 Budget includes several other initiatives to improve the Corps' performance. It proposes a \$17 million, or 13 percent, increase in funding for the Corps' regulatory program for activities affecting navigable waters and wetlands. This increase would allow the Corps to reduce the average time for reviewing individual permit applications to 120 days by 2004, compared to the estimate of 160 days for 2002. The funding boost also would allow the Corps to issue 70 percent of individual permits within 120 days, compared to the estimate of 54 percent for 2002. It would strengthen protection of wetlands by supporting watershed approaches in sensitive areas and through improved oversight of mitigation efforts.

The budget also includes a proposal for the Power Marketing Administrations to provide direct funding from power sales revenues for the operation and maintenance costs of Corps' hydropower facilities. This new financing arrangement will permit more timely maintenance of hydropower facilities, which will enable the Corps to reduce facility "downtime" and increase power generation.

Improving Hydropower Performance

In 1999, the General Accounting Office found that the Corps' hydropower facilities are twice as likely to experience "unplanned outages" as private-sector facilities, because the Corps does not always have funds for maintenance and repairs when needed. Such outages result in lost power production. The budget's proposal for direct funding of the Corps hydropower maintenance by Power Marketing Administration customers should enable the Corps to cut its unscheduled "downtime" by up to 40 percent over the next few years and achieve a performance level matching that of non-federal hydropower facilities.

Strengthening Management

The Corps of Engineers has made progress addressing certain parts of the President's Management Agenda. For example, the Corps expects to achieve a clean opinion on its balance sheet for 2001. However, it has made little progress on other initiatives, and has failed to develop a satisfactory plan to achieve the President's goals for competitive sourcing and human resources. A scorecard and summary of the Corps' status is shown below.

In addition, the 2002 Budget *Blueprint* highlighted reforms needed in the Corps' project planning process to ensure higher quality, objective analysis of potential construction projects. The Army Corps of Engineers has made some progress on these reforms. The Assistant Secretary of the Army for Civil Works has established a new group to strengthen the policy consistency of Corps studies. The Administration will soon release its proposal for independent review of significant projects, another reform highlighted in the *Blueprint*.

Initiative	2001 Status
<p>Human Capital—The Corps has reduced its staff and supervisory ratio over the past eight years. However, its human capital plan does not adequately address competitive sourcing, e-government, workforce skills, or field office workload and staffing requirements. The Corps plans to complete a human resources plan by March 2002.</p>	●
<p>Competitive Sourcing—The Corps currently contracts out about 60 percent of its work, but still has a significant inventory of commercial work performed by governmental employees. It has agreed to complete its assessment of competitive sourcing opportunities and its competitive sourcing plan by September 2002, to achieve the Administration's two-year 15 percent goal in an effort to eventually compete 50 percent of all commercial activities.</p>	●
<p>Financial Management—Auditors were unable to give an opinion on the Corps' 2000 financial statements because of unresolved issues with valuing property, plant, and equipment, and a material weakness with computer security. The Corps expects to achieve a clean opinion on its 2001 statements.</p>	●
<p>E-Government—The Corps failed to prepare adequate business cases for all of its major information technology investments. It is developing business cases and improving the planning and control processes that support these investments.</p>	●
<p>Budget/Performance Integration—The Corps' 2003 Budget submission included little integration of either outcome or output performance information to support proposed resource levels. The Corps will improve performance information in several key areas for the 2004 Budget (e.g., operation and maintenance and regulatory activities).</p>	●

Corps of Engineers—Civil Works
(In millions of dollars)

	2001	Estimate	
	Actual	2002	2003
Spending:			
Discretionary Budget Authority:			
Construction, General	1,736	1,736	1,440
Operation and Maintenance, General	2,046	1,939	1,979
General Investigations	166	159	108
Flood Control, Mississippi River and Tributaries	366	353	288
Regulatory Program	131	134	151
All other programs	350	276	323
Subtotal, Discretionary budget authority adjusted ¹	4,795	4,597	4,290
Legislative Proposal, Operation and Maintenance	—	—	-149
Remove contingent adjustments	-108	-111	-115
Total, Discretionary budget authority	4,687	4,486	4,026
Emergency Response Fund, Budgetary resources	—	139	—
Mandatory Outlays:			
Operation and Maintenance, General:			
Existing law	3	3	55
Legislative proposal	—	—	-6
Total, Mandatory outlays	—	—	49

¹ Adjusted to include the full share of accruing employee pensions and annuitants health benefits. For more information, see Chapter 14, "Preview Report," in *Analytical Perspectives*.

CORPS OF ENGINEERS—CIVIL WORKS

The President's Proposal:

- Focuses funding on projects that yield the most benefit for the least cost;
- Reduces the growing backlog of ongoing construction work; and
- Establishes principles to guide program improvement efforts.

The Agency's Major Challenges:

- Finishing the large backlog of ongoing construction work more quickly; and
- Targeting funding to priority projects.

Army Corps of Engineers—Civil Works

Thomas White, Secretary of the Army

www.hq.usace.army.mil/inet/functions/cw

703-695-3211

Number of Employees: 24,800

2003 Spending: \$4.1 billion

Field Offices: Eight Divisions; 38 Districts; and 15 laboratories and other offices.

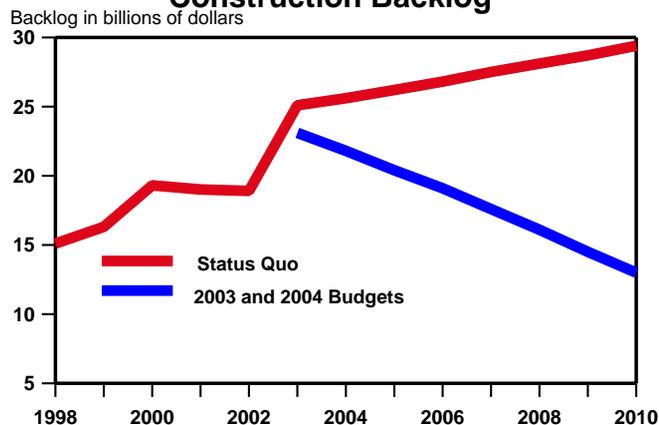
The civil works program of the Army Corps of Engineers (Corps) in the Department of Defense has three main missions: 1) reduce or prevent the expected damage caused by floods and storms; 2) facilitate commercial navigation; and 3) restore aquatic ecosystems. The Corps carries out this work in partnership with state and local governments and other non-federal entities. It also regulates development in navigable waters and wetlands, and is responsible for cleaning up about two dozen contaminated nuclear sites. For

2004, the budget proposes \$4.0 billion in discretionary budget authority for the civil works program.

Overview

The civil works program funds activities in every one of the 50 states. The Corps is responsible for the operation and maintenance of 926 harbors; navigation locks and dams at 230 locations; 383 major lakes and reservoirs; and 75 hydropower facilities. It also is building more than 160 authorized water resource projects across the nation, and faces an enormous backlog of ongoing construction work—\$23 billion in federal costs to complete the construction projects supported in the President's 2004 Budget. Unfortunately, despite a large increase in funding in recent years, the backlog of ongoing work—that is, projects started, but not completed—has been growing, not diminishing.

Two Possible Paths for the Construction Backlog



Construction funds are spread ever more thinly as new projects add to the Corps workload. As a result, citizens expecting flood protection have to wait longer; farmers and manufacturers who want to ship their products overseas more quickly or less expensively may have to wait yet another year; and the schedules for restoring streams and wetlands will, again, have to be stretched out. The budget proposes a comprehensive strategy to reduce these adverse impacts on the many Americans who rely on the completion of worthy projects already underway, while increasing the net return from the nation's investment in the civil works program.

The approach proposed in the budget reduces the construction backlog over time (see accompanying chart). Under the traditional path of adding projects with little or no restraint, the backlog continues to grow inexorably. While the level of funding can affect the rate at which the size of the backlog changes, the measures taken (or not taken) to limit the number of projects that become eligible for construction ultimately will determine whether we are making progress or are falling further behind.

Setting Construction Priorities

The construction program's goal is to produce as much value as possible from available funds. The budget achieves this key objective by proceeding with only five new high-priority studies and one construction start, and by limiting the number of projects not actively under construction that are funded for engineering and design.

The budget includes a high level of funding for eight projects that provide a very high net economic or environmental return to society relative to their cost. These investments will aid waterborne transportation at key locations, reduce the risk of flood damage in two urban areas, help restore the Everglades, and improve the prospects for recovery of endangered species in the Missouri River basin and the Pacific Northwest. These projects are the highest priorities now under construction.

The budget also provides the resources needed to complete 13 ongoing projects in 2004—removing them from the construction backlog. Seven will reduce flood damage, five will support commercial navigation, and one is designed to protect a commercial shipping channel from nuisance species.

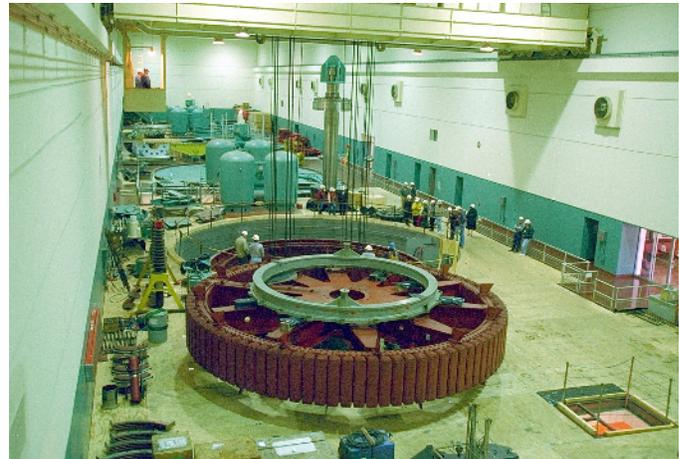


Navigation locks and dam under construction. The budget proposes to spend \$73 million in 2004 to rebuild Olmsted locks and dam to reduce delays on the Ohio River. Construction work began in 1991 and originally was scheduled to be finished by 2006. At this point, it may not be completed until 2010.

Priority Projects	2004 Budget Authority (in millions of dollars)	Project Purpose
Sims Bayou, Houston, TX	12	Flood Damage Reduction
West Bank, New Orleans, LA	35	Flood/Storm Damage Reduction
New York/New Jersey Harbor, NY, NJ	115	Navigation
Olmsted Locks and Dam, Ohio River, IL, KY	73	Navigation
Missouri River Fish and Wildlife Mitigation, IA, NE, KS, MO	22	Navigation/Endangered Species
Upper Mississippi River System Environmental Management Program, IL, IA, MN, MO, WI	33	Navigation/Environment
Columbia River Fish Recovery, OR, WA, ID	98	Hydropower/Endangered Species
Everglades, FL	145	Environment

To provide a basis for comparing all projects whose justification rests primarily on economic benefits, the Corps plans to make available information on each project annually. The Corps will rank these projects by the ratio of their remaining benefits to their remaining costs to complete, and will show for each of them the ratio of net benefits to total costs. Like the rest of the government, in calculating the effects of capital investments the Corps plans to present these data using a seven percent discount rate. This discount rate approximates the average real rate of return on private capital in the United States.

Benefit and cost information is only as useful as the analyses that produce it. The Corps will focus on developing options that are highly cost-effective. It plans to design and recommend projects that provide higher net benefits for each dollar invested, by excluding potential features and increments that do not significantly



A hydroelectric generator at a Corps dam: A major increase in spending for maintenance of Corps hydropower facilities has been requested. The budget proposes to pay for operation and maintenance by "direct funding" through payments from the revenue that federal Power Marketing Administrations earn when they sell the power that these generators produce.

Flood Control in Tucson

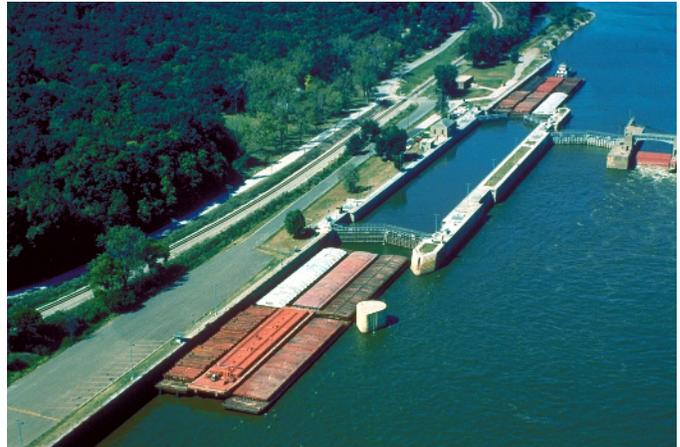
Between 1920 and 1954, the city of Tucson placed more than one mile of a local stream, the Tucson Arroyo, in covered culverts. Flood damages have occurred primarily because the city has grown considerably since 1954. Urban development prevents rainfall from seeping into the ground, and the limited capacity of these culverts caused water to back up and flood some areas. To reduce flood damage, the Corps proposed building two series of detention basins to hold back water upstream of the bottleneck. The first group of detention basins, located in the Randolph Park area, would cost about \$14 million and provide an estimated net return of 36 cents per dollar at a cost of \$12.6 million (a 1.36 to 1 benefit-cost ratio). The second group of detention basins, located in the Park Avenue area, would cost about \$17 million but would provide only a marginal net return on investment—about nine cents per dollar (a 1.09 to 1 benefit-cost ratio). Under the new policy, which aims to maximize the net benefits of the program and takes into account limitations on investment funds, the second group of detention basins would not be recommended for construction.

increase total net benefits relative to the costs. The objective is to ensure that any proposed new construction start is highly justified. Through the elimination of marginal features and incremental upgrades, additional funds can be made available to accelerate the completion of projects already under construction.

Problems With Some Projects

The Corps has played an important role in developing the nation's water resources, but it often faces difficult decisions. Some projects have strong local support, yet may not ultimately be in the national interest. In a number of cases, people have pointed to potential weaknesses in the Corps planning process. For example:

- The Corps justified dredging about 85 miles of the main channel of the Delaware River in a 1992 report, based largely on savings related to a predicted growth in ship traffic. Ten years later, as the Corps was preparing to begin construction, the General Accounting Office noted that the increase in traffic had not materialized. Net benefit estimates should be updated periodically along with project cost estimates.
- A probe by the Army Inspector General concluded that an economic analysis inappropriately favored construction of a proposed navigation project on the Upper Mississippi and Illinois Rivers.



Should the Corps expand its locks? The Corps is studying whether or not it makes economic sense to replace some 600-foot locks on the Upper Mississippi and Illinois Rivers with 1,200-foot locks. Under current conditions, the typical 1,200-foot barge passes through a 600-foot lock in two stages.

Estimating Navigation Benefits Properly

In estimating the benefits of some inland waterways navigation projects, the Corps historically has used an economic model called the tow-cost model. For the inland waterways of the Upper Midwest, the tow-cost model predicts that a growth in barge traffic could back up barges for increasingly long periods as the barges wait to use the locks—because more barges will enter the system and just sit there until it becomes cheaper to ship bulk commodities by land all the way to New Orleans. However, a recent report by the National Academy of Sciences (NAS) concluded that the Corps needs a new model to form the foundation for evaluating benefits in its feasibility study of this river system. The old model does not predict human behavior very well. Congestion increases shipping costs. According to the NAS report, as costs begin to increase, and barge traffic sits and waits, the people who buy and sell bulk commodities will begin to seek out new markets. For example, they may decide to ship the same commodities by land to a different destination or to process the goods in the Upper Midwest first. The Corps recognizes that its tow-cost model does not capture this common sense response, and is developing a new economic model so that it will be able to estimate properly the economic benefits of a range of possible improvements on these waterways.

Principles for Improving Program Performance

The Administration proposes five broad principles to guide future Corps authorization and funding legislation.

- The Corps should evaluate proposed water resources investments using analytically sound, modern methods, current data and, where appropriate, external review. The Corps should only pursue authorized federal water projects that meet current economic and environmental standards and that address contemporary needs.
- Until the federal government has reduced the construction backlog substantially, the federal government should only proceed with those new projects that provide a very high net economic or environmental return to society relative to their cost.
- In each of its three main missions (flood and storm damage reduction, commercial navigation, and aquatic ecosystem restoration), the Corps should establish priorities across and within watersheds based on the comparative net economic or environmental return that a given level of further investment would bring to the nation.
- In order to focus on the backlog of projects actively under construction in the three main mission areas, the Congress should adopt legislation to de-authorize or disallow funding for: 1) inactive projects automatically; 2) navigation projects for harbors and river segments that have extremely low commercial use; and 3) projects whose main purpose does not fall within the three main mission areas.
- The non-federal cost-share should reflect the extent to which a water resources project economically benefits commercial interests, property owners, or other identifiable private parties.

Common Measures

Wetlands. There are many different types of wetlands. They can serve multiple purposes such as fish and wildlife habitat, replenishment of groundwater, flood protection, and enhanced water quality. Wetlands still occur naturally across the nation—along the banks of our major rivers and our local streams; in the salt marshes behind the barrier islands of the Atlantic coast; the non-tidal forested backwater areas of the lower Mississippi River alluvial valley; the low-lying prairie potholes of the Dakotas; and the highest meadows of the eastern Sierra. There is no easy way to compare their quality and no way to quantify their value.

Using a rough common performance measure—the acres of wetlands improved or protected per \$1 million in total costs—OMB has been working with federal agencies that play crucial roles in wetlands conservation, improvement, and management to compare the cost-effectiveness of their efforts. These agencies are the Corps, the Environmental Protection Agency, the Department of the Interior's Fish and Wildlife and National Park Services, the Department of Agriculture's Natural Resources Conservation Service (NRCS), and the Department of Commerce's National Oceanic and Atmospheric Administration.

The costs of wetlands projects can be affected significantly by land values, the availability of water, vegetation type, soil and substrate conditions, and other factors. To facilitate a comparison across agencies and projects, the agencies have gathered data on their activities in four specific watersheds over a five-year period.



Restoring aquatic ecosystems is one of the missions of the Corps. For example, the Corps is helping to preserve the Atchafalaya Swamp in Louisiana.

On a per-acre basis, the Fish and Wildlife Service programs appear to be far more cost-effective than those of the other agencies, and the Corps construction program appears to be the least cost-effective. However, the data are preliminary and do not address possible differences in wetlands quality or other factors that may affect the cost of projects. OMB and the agencies will work together in 2003 to determine whether these data provide a reasonable basis for comparison of their overall wetlands efforts.

Flood Damage Reduction. OMB also compared the cost-effectiveness of the Corps, NRCS, and Federal Emergency Management Agency (FEMA) flood damage reduction programs. Corps projects generally involve structures such as dams or levees that redirect the impact of flood waters. NRCS projects usually feature a combination of dams, other structural modifications to a streambed, and payments to owners whose property will remain susceptible to flooding (to purchase easements). FEMA uses a variety of strategies to reduce flood damage, including non-structural measures such as buying buildings and relocating residents away from floodplains.

OMB asked these agencies to evaluate projects that they completed over a five-year period where flood damage reduction was the primary purpose. Because the projects within each agency's program vary greatly in cost-effectiveness, the following table uses the median project as a basis for comparison:

Flood Damage Reduction: Net Benefits Per Dollar Invested	
Corps of Engineers	65 cents
FEMA	39 cents
NRCS	19 cents

As the table shows, each agency's median project will result in estimated net flood damage reduction benefits. While the three projects depicted in the table are all cost-effective, the Corps project is the most cost-effective. However, several Corps projects resulted in a low economic return on investment. Over the five-year period, the two most cost-effective projects were funded by FEMA. The three projects with the least cost-effective flood damage reduction features (which resulted in a negative net economic return) were funded by NRCS.

OMB also asked the agencies for information on the federal share of the costs for their flood damage reduction projects. On average, the Corps and FEMA paid about 74 percent, while NRCS paid 82 percent. NRCS paid a much higher share of the costs of several projects. On its median project, NRCS paid 91 percent.

Performance Evaluation of Select Programs

Program	Rating	Explanation	Recommendation
Inland Waterways Navigation	Results Not Demonstrated	The Corps gives priority to maintaining high-use segments, but there is congestion at some locks. At present, the Corps is not able to estimate properly the benefits of major new investments.	The Corps should make greater efforts to reduce traffic congestion through scheduling and other demand-management approaches. It also should develop a new economic model to estimate properly the benefits of major new investments.
Non-regulatory Wetlands Activities	Results Not Demonstrated	The Corps has not evaluated the long-term ecological success of these efforts. On a per-acre basis, the average cost of wetlands restoration appears to be higher for Corps projects than for other federal agencies.	The Corps should develop ecological and cost criteria for proposed wetlands investments. The budget provides a high level of funding for three Corps efforts that are particularly significant for the nation: restoring the Everglades, revitalizing the side channels of the Upper Mississippi, and re-creating a string of natural areas along the lower Missouri River.
Flood Damage Reduction	Results Not Demonstrated	The Corps primarily reduces flood damages through structural means. Corps-owned flood control infrastructure typically functions properly. However, despite major investments by the Corps, flood damages nationwide have been rising.	The Corps should work more closely with other agencies, particularly with the Emergency Preparedness and Response Directorate of the Department of Homeland Security, (formerly the Federal Emergency Management Agency), to develop a coordinated federal approach to flood damage reduction. The Corps also should give equal weight to non-structural approaches when evaluating the best way to address flooding problems.

Update on the President's Management Agenda

The Corps recently reinstated a formal in-house training program and a separate, graduate-level education program to strengthen the capabilities of its project planning staff. The Corps also is reviewing its current organization and management in an effort to improve the quality and objectivity of project planning work. The Corps will make changes to strengthen oversight of project studies,

without causing unwarranted delays. As a first step, it will establish one or more centers of expertise that will be responsible for studies of projects that are likely to be costly, complex, or controversial.

	Human Capital	Competitive Sourcing	Financial Performance	E-Government	Budget and Performance Integration
Status	●	●	●	●	●
Progress	●	●	●	●	●
<p>The Corps retains a red status for all five initiatives, but has started to make some progress over the past year. It has developed a human capital management plan that includes target dates for completion for each of the initiatives identified in Office of Personnel Management guidance. On financial performance, the Corps is working actively with the Inspector General for the Department of Defense to address concerns over its inventory and valuation of property, plant, and equipment, with the goal of achieving a clean balance sheet opinion for 2003, which will lead to a clean audit. The Corps has developed business cases for some of its major information technology investments, and has improved its enterprise architecture. On budget performance and integration, the Corps is working to identify suitable performance measures, as a first step toward collecting the outcome-based data that it needs to improve its management and inform budget decisions. The Corps has made the least progress on competitive sourcing. It has proposed to compete 37 percent of its Federal Activities Inventory Reform Act (FAIR Act) inventory positions by 2008, but more work is needed to determine which positions should be subject to competition.</p>					

Corps of Engineers—Civil Works

(In millions of dollars)

	2002 Actual	Estimate	
		2003	2004
Spending			
Discretionary Budget Authority:			
Construction	1,711	1,408	1,350
Operation and Maintenance	2,043	1,914	1,939
Mississippi River and Tributaries	346	281	280
General Investigations	154	103	100
Regulatory Program	127	144	144
Flood Control and Costal Emergencies.....	-25	20	70
General Expenses.....	153	155	171
Formerly Utilized Sites Restoration	140	140	140
Subtotal, Discretionary budget authority ¹	4,649	4,165	4,194
Legislative Proposal, Operation and Maintenance	—	-149	-145
Total, Discretionary budget authority	4,649	4,016	4,049
Total, Mandatory outlays	-116	49	27

¹ Includes \$0.2 billion in supplemental funding.